

# Tarrawonga Coal Mine Community Consultative Committee Meeting #67

**Quarterly Environmental Monitoring Report  
November 1, 2021– January 31, 2022**



*Photo taken in February 2022 in a section of the Northern Emplacement Area that was rehabilitated in July 2020, showing progress of the planted seedlings and groundcover establishment.*

This report has been prepared for the Community Consultative Committee (CCC) meeting to show Environmental monitoring performance at Tarrawonga Coal Mine (TCM) for the reporting period from November 1 2021 to January 31, 2022. Maps with all the monitoring locations are available in *Appendix A*.

# Noise Monitoring

Attended noise monitoring was conducted at the “Bungalow” (TN4), “Barbers Lagoon” (TN3) and “Matong” (TN2) properties from 13<sup>th</sup> to the 16<sup>th</sup> of December 2021. Noise criteria for the mine is 35dB(A) Leq (15 min) for all operating times.

Results below show that noise emissions from the mine did not exceed operational noise criteria at the “Barbers Lagoon”, “Bungalow” or “Matong” monitoring locations for any monitoring events during the monitoring period.

*(See below summary tables extracted from 211008 RWDI report 2190007-T-08 (Q4 2021))*

**Table 5-1: Comparison of noise levels between TN2 and 573b Coomalga**

Date	Time	Noise Limits L <sub>Aeq</sub> 15min	TN2 Mine L <sub>Aeq</sub> Noise Level (dB)	573b Coomalga Mine L <sub>Aeq</sub> Noise Level (dB)	
			Measured mine contribution	Commensurate Mine Compliance Level	Exceedance
13/12/2021	11:56	35	<30	<21	No
	12:11	35	<30	<21	No
	12:41	35	<30	<21	No
	12:56	35	<30	<21	No
	13:11	35	<30	<21	No
	21:30	35	I/A (<30)	I/A (<21)	No
	21:45	35	I/A (<30)	I/A (<21)	No
	22:00	35	I/A (<30)	I/A (<21)	No
	22:15	35	I/A (<30)	I/A (<21)	No
14/12/2021	10:40	35	<30	<21	No
	10:55	35	<30	<21	No
	11:25	35	<30	<21	No
	11:55	35	<30	<21	No

Date	Time	Noise Limits L <sub>Aeq</sub> 15min	TN2 Mine L <sub>Aeq</sub> Noise Level (dB)	573b Coomalgah Mine L <sub>Aeq</sub> Noise Level (dB)	
			Measured mine contribution	Commensurate Mine Compliance Level	Exceedance
15/12/2021	21:30	35	I/A (<30)	I/A (<21)	No
	21:45	35	I/A (<30)	I/A (<21)	No
	22:00	35	I/A (<30)	I/A (<21)	No
	22:15	35	I/A (<30)	I/A (<21)	No
	22:30	35	I/A (<30)	I/A (<21)	No
	22:45	35	I/A (<30)	I/A (<21)	No
	11:16	35	<30	<21	No
	11:30	35	<30	<21	No
	11:45	35	<30	<21	No
	12:00	35	<30	<21	No
	12:15	35	<30	<21	No
	12:30	35	<30	<21	No
	21:45	35	I/A (<30)	I/A (<21)	No
	22:00	35	I/A (<30)	I/A (<21)	No
	22:15	35	<30	<21	No
22:30	35	<30	<21	No	
22:45	35	<32	<23	No	
16/12/2021	9:44	35	<30	<21	No
	9:59	35	<30	<21	No
	10:14	35	<30	<21	No
	10:29	35	<30	<21	No
	10:44	35	<30	<21	No
	10:59	35	<30	<21	No
	21:30	35	<30	<21	No
	21:45	35	<33	<24	No
	22:00	35	<33	<24	No
	22:15	35	<33	<24	No
22:30	35	<33	<24	No	

**Table 4-3: Summary of noise assessment at TN3**

Date	Time	Noise Limits L <sub>Aeq,15 min</sub>	TN3 Mine L <sub>Aeq</sub> Noise Level (dB)		
			Measured mine contribution	Additional LF Penalty	Exceedance
13/09/2021	20:35	35	<11 (I/A)	-	0
	20:50	35	<7 (I/A)	-	0
	23:22	35	<7 (I/A)	-	0
	23:38	35	<6 (I/A)	-	0
	23:55	35	<6 (I/A)	-	0
	00:10	35	<7 (I/A)	-	0
14/09/2021	20:25	35	20	-	0
	23:25	35	27	-	0
	23:45	35	23	-	0
	00:00	35	24	-	0
	00:19	35	<25	-	0
	14:05	35	<15 (I/A)	-	0
15/09/2021	20:04	35	<20	-	0
	20:20	35	<20	-	0
	23:31	35	21	-	0
	23:47	35	22	-	0
	00:02	35	<21	-	0
	00:18	35	26	-	0
16/09/2021	11:36	35	<20 (I/A)	-	0
	11:58	35	<16 (I/A)	-	0
	12:22	35	<24 (I/A)	-	0
	12:46	35	<23 (I/A)	-	0
	13:04	35	<21 (I/A)	-	0
	13:34	35	<17 (I/A)	-	0
	20:15	35	19	-	0
	20:32	35	<9 (I/A)	-	0
	23:26	35	<30	-	0
	23:45	35	<30	-	0
00:15	35	<30	-	0	
	22:45	35	<33	<24	No

Note 1 I/A indicates the mine was inaudible during the measurement period.

**Table 5-2: Comparison of maximum noise events between TN2 and 573b Coomalgah**

Date	Time	Noise Limits L <sub>A1,1min</sub>	Dominant Noise source	TN2 Mine L <sub>Amax</sub> Noise Level (dB)	573b Coomalgah Mine L <sub>Amax</sub> Noise Level (dB)	
				Measured Level	Commensurate Mine Compliance Level	Exceedance
13/12/2021	22:00	45	Insects	56	I/A	No
	22:15	45	Insects	55	I/A	No
	22:30	45	Insects	59	I/A	No
	22:45	45	Insects	55	I/A	No
14/12/2021	22:00	45	Insects & frogs	53	I/A	No
	22:15	45	Insects & frogs	51	I/A	No
15/12/2021	22:30	45	Insects & frogs	50	I/A	No
	22:45	45	Insects & frogs	48	I/A	No
	22:00	45	Insects	59	I/A	No
	22:15	45	Haul trucks	51	42	No
	22:30	45	Haul trucks	50	41	No
	22:45	45	Haul trucks	49	40	No
16/12/2021	22:00	45	Haul trucks	50	41	No
	22:15	45	Haul trucks	51	42	No
	22:30	45	Haul trucks	50	41	No
	22:45	45	Haul trucks	50	41	No

Note 1 I/A indicates the mine was inaudible during the measurement period.

**Table 5-3: Summary of noise assessment at TN3**

Date	Time	Noise Limits L <sub>Aeq,15 min</sub>	TN3 Mine L <sub>Aeq</sub> Noise Level (dB)		
			Measured mine contribution	Additional LF Penalty	Exceedance
13/12/2021	10:57	35	l/A (<30)	-	No
	11:13	35	l/A (<30)	-	No
	11:35	35	l/A (<30)	-	No
	11:50	35	l/A (<30)	-	No
	12:14	35	l/A (<30)	-	No
	21:39	35	l/A (<30)	-	No
	21:55	35	l/A (<30)	-	No
	22:11	35	l/A (<30)	-	No
	22:27	35	l/A (<30)	-	No
	23:00	35	l/A (<30)	-	No
	9:03	35	34	-	No
	9:18	35	31	-	No
	9:34	35	33	-	No
	9:50	35	< 30	-	No
14/12/2021	10:07	35	l/A (<30)	-	No
	10:26	35	l/A (<30)	-	No
	21:24	35	l/A (<30)	-	No
	21:40	35	l/A (<30)	-	No
	22:00	35	l/A (<30)	-	No
	22:16	35	l/A (<30)	-	No
	22:31	35	l/A (<30)	-	No
15/12/2021	7:56	35	<35	-	No
	8:13	35	<35	-	No
	8:28	35	30	-	No
	8:45	35	<35	-	No
	9:04	35	30	-	No
	9:20	35	<35	-	No
	21:07	35	l/A (<35)	-	No

Date	Time	Noise Limits $L_{Aeq,15\ min}$	TN3 Mine $L_{Aeq}$ Noise Level (dB)		
			Measured mine contribution	Additional LF Penalty	Exceedance
16/12/2021	21:24	35	I/A (<35)	-	No
	22:00	35	I/A (<30)	-	No
	22:19	35	I/A (<30)	-	No
	22:40	35	I/A (<30)	-	No
	22:58	35	I/A (<30)	-	No
	8:22	35	I/A (<30)	-	No
	8:42	35	I/A (<30)	-	No
	9:03	35	I/A (<30)	-	No
	9:21	35	I/A (<35)	-	No
	9:37	35	I/A (<30)	-	No
	9:55	35	I/A (<30)	-	No
	20:44	35	I/A (<30)	-	No
	21:02	35	I/A (<30)	-	No
	22:00	35	I/A (<30)	-	No
	22:20	35	I/A (<30)	-	No
	22:39	35	I/A (<30)	-	No
22:54	35	I/A (<30)	-	No	

**Table 5-4: Summary of maximum noise events at TN3**

Date	Time	Noise Limits $L_{A1,1min}$	TN3 Mine $L_{Amax}$ Noise Level (dB)		
			Dominant Noise source	Measured Level	Exceedance
13/12/2021	22:11	45	Insects	I/A	No
14/12/2021	22:27	45	Insects	I/A	No
	22:43	45	Insects	I/A	No
	23:00	45	Insects	I/A	No
	22:00	45	Insects	I/A	No
	22:16	45	Insects	I/A	No
	22:31	45	Insects	I/A	No
	22:47	45	Insects	I/A	No
15/12/2021	22:00	45	Insects/Birds	I/A	No
	22:19	45	Insects/Birds	I/A	No
	22:40	45	Insects	I/A	No
	22:58	45	Insects	I/A	No
16/12/2021	22:00	45	insects	I/A	No
	22:20	45	insects	I/A	No
	22:39	45	insects	I/A	No
	22:54	45	insects	I/A	No

Note 1 I/A indicates the mine was inaudible during the measurement period.

**Table 5-5: Summary of noise assessment at TN4**

Date	Time	Noise Limits L <sub>Aeq,15min</sub>	TN4 Mine L <sub>Aeq</sub> Noise Level (dB)		
			Measured mine contribution	Additional LF Penalty	Exceedance
13/12/2021	13:54	35	I/A (<30)	-	No
	14:13	35	I/A (<35)	0	No
	14:28	35	I/A (<35)	0	No
	14:59	35	I/A (<30)	-	No
	20:08	35	I/A (<30)	-	No
	20:23	35	I/A (<30)	-	No
	23:17	35	I/A (<30)	-	No
	23:32	35	I/A (<30)	-	No
14/12/2021	23:47	35	I/A (<30)	-	No
	11:06	35	I/A (<30)	-	No
	11:23	35	I/A (<30)	-	No
	11:39	35	I/A (<30)	-	No
	12:25	35	I/A (<30)	-	No
	20:29	35	I/A (<30)	-	No
	20:44	35	I/A (<30)	-	No
	23:19	35	I/A (<30)	-	No
	23:30	35	I/A (<30)	-	No
	23:45	35	I/A (<30)	-	No
15/12/2021	0:02	35	I/A (<30)	-	No
	10:06	35	I/A (<30)	-	No
	10:24	35	I/A (<30)	-	No
	10:42	35	I/A (<30)	-	No
	11:01	35	I/A (<30)	-	No
	11:27	35	I/A (<30)	-	No
	11:43	35	I/A (<30)	-	No
	20:16	35	I/A (<30)	-	No
16/12/2021	20:30	35	I/A (<30)	-	No
	23:32	35	I/A (<30)	-	No
	23:47	35	I/A (<30)	-	No
	10:31	35	I/A (<30)	-	No
	10:48	35	I/A (<30)	-	No
	11:03	35	I/A (<30)	-	No
	11:19	35	I/A (<30)	-	No
	11:34	35	I/A (<30)	-	No
	11:51	35	I/A (<30)	-	No
	20:18	35	I/A (<30)	-	No
	20:33	35	I/A (<30)	-	No
	23:20	35	I/A (<30)	-	No
23:35	35	I/A (<30)	-	No	
0:02	35	I/A (<30)	-	No	

**Table 5-6: Summary of maximum noise events at TN4**

Date	Time	Noise Limits LA1,1min	TN4 Mine L <sub>Amax</sub> Noise Level (dB)		
			Noise source	Measured Level	Exceedance
13/12/2021	23:17	45	Insects	I/A	No
	23:32	45	Insects	I/A	No
	23:47	45	Insects	I/A	No
	0:02	45	Insects	I/A	No
14/12/2021	23:19	45	Insects	I/A	No
	23:30	45	Insects	I/A	No
15/12/2021	23:45	45	Insects	I/A	No
	0:00	45	Insects	I/A	No
	23:17	45	Insects	I/A	No
	23:32	45	Insects	I/A	No
	23:47	45	Insects	I/A	No
16/12/2021	0:00	45	Insects	I/A	No
	23:20	45	Insects	I/A	No
	23:35	45	Insects	I/A	No
	23:50	45	Insects	I/A	No
	0:02	45	Insects	I/A	No

Note 1 I/A indicates the mine was inaudible during the measurement period.

Noise from the mine must not exceed 45 dB(A) L1 (1 min) between 10 pm and 7 am. This is to minimise the potential for sleep disturbance as a result of individual loud noises from the mine. Results of attended monitoring show that the measured L1 (1 min) noise level did not exceed sleep disturbance criteria.

The real time noise monitor located on the “Coomalgah” property remains a management tool so the noise criteria are not applicable at that site. Levels of noise recorded at that location are managed according to the noise management plan and trigger action response plan.

# Blast Monitoring

## Blasting Results

Since 2006, there have been 1085 blasts (until 31/01/2022) at TCM.

The highest result for Overpressure last quarter was 106.9dB recorded at the ‘Coomalgah’ monitor on the 10/11/2021.

The highest result for ground vibration last quarter was 0.31mm/s recorded at the ‘Coomalgah’ monitor on the 18/01/2022 and 01/12/2021.

**Table- 2: Max Peak Overpressure and Ground Pressure for the Quarter**

Monitor Location	Date	Max. Peak Overpressure (dB)	Criterion (dB)	Date	Max. Peak Ground Pressure (mm/s)	Criterion (mm/s)
Tarrawonga*	18/11/2021	100.2	N/A	18/01/2022	0.27	N/A
Coomalgah	10/11/2021	106.9	120	18/01/2022	0.31	10

*\*Limit Not applicable according to EPL and PA11\_0047 because project related property.*

On December 16<sup>th</sup> 2021, TCM fired a blast in the northern pit and the resulting fume was ‘3C’. The fume was observed crossing the site boundary in a northerly direction and then dissipated. The Pollution Incident Management Response plan was activated, and authorities were notified.

An internal investigation was completed and the event was reported to the EPA and DPIE. TCM is still liaising with DPIE and the EPA on this incident.

# Air Quality Monitoring

## Dust Deposition Results

**Table 3** shows deposited dust gauge results over 12 months. All the monitors are located on project related land; as such compliance criteria (4g/m<sup>2</sup>/month) do not apply. While deposited dust trends remain steady during the reporting period (refer graph in *Appendix B*), some monitors are displaying non-mine related particulate matter deposition more regularly than others

MONTH	TEMPLEMORE (EB-4)	BOLLOL CREEK STN (EB-5)	AMBARDO (EB-6)	TARRAWONGA (EB-7)	PINE GROVE (EB-9)	TARRAWONGA MINE (EB-10)	TARRAWONGA MINE (EB-11)	TARRAWONGA MINE (EB-14)	TARRAWONGA MINE (EB-15)	JERALONG NORTH (EB-16)
Dec-20	4.3	2.5	2	1.3	12.7#	3.7	4.3	2.6	+	1.6
Jan-21	6.7#	4.6#	1.1#	3.2	1.3		3.1	8.4	6.5	4.4
Feb-21	2.4	8.1#	2.8	1.4	1.1	3.6#	5.9#	4.4#	1.8	1
Mar-21	0.8	2.2	4.8#	1.5	1.2	5.4#	5.9#	11.1#	0.7	5.8#
Apr-21	12.6#	5	1.6	0.3	0.6	19.1#	3.7	0.5	0.7	3
May-21	10.5	6.5	0.5	0.7	1	14.5	4.5	0.8	2.5	4
Jun-21	2.2	4.2	0.3	0.2	0.4	3.3	1.9	0.5	3.3	3.2
Jul-21	12.9	12.5	0.2	0.3	0.2	6.6	2.3	0.7	1.6	3.2
Aug-21	1.9	37.5#	0.8	0.9	1.8	47.7#	2.4	4.2	1.4	4.9
Sep-21	5.9	2.8	0.4	0.4	0.4	68.1#	1.7	3.1#	0.6	0.4
Oct-21	2.9	4.6	2.9	1.2	1.9	19.6#	3.1	7	2	2.3
Nov-21	3.1#	9.7#	7.2#	2.2	1	12.5#	2.7	3.6	1.5	3.7#
Dec-21	10.8#	8.9#	1.3	1	0.8	13.3#	0.6	3.9	6.8#	3.2
Jan-22	1.8	9.1#	0.7	0.9	7.1#	17.8#	4.8	3.7	1.2	3.2#
<b>12 MONTH ROLLING AVERAGE</b>	1.8	4.9	1	1.1	1.5	22.6	2.8	4.6	1.2	3.2

# Analysis done on these bottles concluded that they are contaminated, often with low ash/insoluble matter. Often noted on field sheets are bird droppings, insects and plant matter.

+ bottles missing due to replacement after contamination or temporary civil/mining activities in the area.

<sup>1</sup>DDG bottle on the fenceline between TCM and BCM ROM.

**Table 3 – Deposited Dust Gauge Results [g/m<sup>2</sup>/month]**

High Volume Air sampler (PM10) Results

The High Volume Air Sampler (HVAS) installed at Coomalgalah property monitors levels of Particle Matter under 10 micron (PM<sub>10</sub>). It operates for 24hr every 6 days. **Table 4** shows that all 24hr average values recorded for this quarter are below the 50µg/m<sup>3</sup> criteria, except for one result from the 17<sup>th</sup> December that was attributed to non-project generated particulate matter.

**Table- 4: HVAS PM10 24 hr average levels for the Quarter**

Date	24hr averaged PM10 (µg/m <sup>3</sup> )	Criterion 24hr average (µg/m <sup>3</sup> )	Comments
5/11/2021	5.5	50	The high result received from the 17 <sup>th</sup> of December 2021 came with a comment from the contractor regarding harvesting happening close to the monitor. After investigation, it was concluded that less than 5% of this level was TCM contribution. This was reported to authorities but was not considered mine related.
11/11/2021	9.6		
17/11/2021	13.4		
23/11/2021	2.9		
29/11/2021	2.9		
5/12/2021	48.4		
11/12/2021	5.1		
17/12/2021	77.6		
23/12/2021	7.7		
29/12/2021	5.8		
4/01/2022	8.7		
10/01/2022	14.6		
16/01/2022	Results not yet received.		
22/01/2022			
28/01/2022			

### Real-time Air monitoring (PM<sub>10</sub>)

A real time air quality unit (TEOM) is located at the “Flixton” property to monitor PM<sub>10</sub> levels in ambient air, as per the current Air Quality and Greenhouse gas Management Plan. . It is an operational management tool and dust levels nearing or reaching the nominated criteria will trigger actions onsite to assess the source of dust and modify operations if it is determined to be related to Tarrawonga operations.



*TEOM installed at Flixton property*

Three portable dust (PM<sub>10</sub>) monitors have been utilised since Nov 2018 to improve the real-time dust monitoring network and assist the operation to mitigate any potential dust generated by the operation.



*Portable and real-time dust monitor installed at TCM in November 2018*

# Water Monitoring

## Groundwater

Routine groundwater monitoring results undertaken between Sept 2020 and March 2021 are shown in **Table 5** (refer to graphs in *Appendix C*).

**Table 5- Groundwater results Summary**

Site	Date	SWL (mbgl)	pH (units)	Elect. Conductivity (µS/cm)
MW1	September 2020	7.27	8.16	3,260
	December 2020	6.8	7.9	3,510
	March 2021	6.75	7.97	3,390
	June 2021	6.9	7.84	3,480
	September 2021	8.14	7.57	3,530
	December 2021	6.93	7.32	3,600
MW2	September 2020	3.39	7.39	435
	December 2020	3.71	7.3	535
	March 2021	3.46	6.99	462
	June 2021	3.46	7.05	527
	September 2021	3.42	6.97	615
	December 2021	3.29	6.74	822
MW4	September 2020	10.38	7.3	3,380
	December 2020	10.35	7.4	3,640
	March 2021	9.56	7.26	3,530
	June 2021	9.53	7.26	3,250
	September 2021	9.48	7.62	3,100
	December 2021	9.91	7.56	3,040
MW5	September 2020	2.34	7.7	2,090
	December 2020	2.67	7.1	1,960
	March 2021	2.56	7.36	874
	June 2021	2.07	7.56	766
	September 2021	1.84	7.7	1,810
	December 2021	1.81	7.7	2,054
MW8	September 2020	13.44	Casing blocked	Casing blocked
	December 2020	13.57		
	March 2021	13.42		
	June 2021	13.07		
	September 2021	12.7		
	December 2021	12.08		

## Surface Water

Water storage onsite is expected to be sufficient for at least the next 12 months.

TCM has continued to treat (flocculate) sediment dam SD9 to allow for controlled release from Licence Discharge Point (LDP) 2, and through SD17 (LDP1) in accordance with the Water Management plan. Approximately one hundred and eighteen (118) ML of suitable quality water (within EPL1265 limits) was discharged in the reporting period with more to be discharged as flocculating stations are set up at other licenced discharge points.

Throughout calendar year 2021, TCM recorded 1072.8mm of rain which is the approximately double the annual average rainfall recorded for this area. In November, TCM received 240mm, four times the BOM average for this month.

<b>2020</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Total</b>
Monthly Rain (mm)	109.2	261.2	113.2	65.6	16.0	23.4	31.0	38.3	30.2	55.8	3	184.4	931.1
Cumulative (mm)	109.2	370.4	483.6	549.2	565	588.4	619.4	567.7	687.9	743.7	746.7	931.1	
<b>2021</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Total</b>
Monthly Rain (mm)	58.4	115.4	141.2	22.0	66.6	105	73.8	41.8	18.3	56	240	96.6	1072.8
Cumulative (mm)	58.4	176.8	317.4	339.6	406.2	511.2	585	626.8	683	920.2	976.2	1072.8	

On December 8<sup>th</sup> 2021, TCM discharged an estimated 0.07ML from LDP3 (SD28) after receiving 37.2mm of rain (recorded at M2 compliance weather station). Environmental Protection Licence (EPL) 12365 requires 38.4mm to be received over a five day period before wet weather discharge of water with TSS over 50mg/L is permitted. Other weather stations around site had recorded over 38.4mm prior to the release. During this release, TCM sampled the water and laboratory results indicated a total suspended solids level of 190mg/L.

TCM reported this to the EPA and DPIE and conducted an investigation. Since submission of a detailed report no more information has been requested by DPIE or the EPA on this event.

# Rehabilitation and Clearing

## Rehabilitation

TCM has approximately 11,000 Hiko seedling trees for planting on rehabilitation completed in CY21 and over pre-existing rehabilitation areas for maintenance. TCM has completed seeding on the Southern Emplacement Area (SEA) (along the entrance to the mine). The seed mix includes native groundcover species, shrubs, sub-shrubs and canopy species as per the Rehabilitation Management plan. It also includes oats and Japanese millet as a cover crop to provide ground stabilisation while slower growing native species become established.

TCMs Northern Emplacement Area (NEA) has also been seeded with native woodland species and a cover crop the same as on the SEA. More landform establishment has to be signed off and seeded in the coming months. During March and the coming cooler months, TCM will complete seedling planting on all of these areas to complete rehabilitation activities. Hiko planting could not be completed during 2021 due to flooding during November impacting site access and impacting on completing the SOEA topsoil spreading and the planned planting operation.

TCM have a MOP target of 36ha for rehabilitation for CY2022, as well as planting trees that were purchased for the CY2021 rehabilitation. While tree planting was pushed back for the calendar year, it should be noted that TCM achieved 2.5ha more rehabilitation than was committed to in the MOP, updated in December, and over 15ha more than committed to in the budget and at the beginning of the year.



*Figure 1: Cover crop establishment on the SEA*

# Current Rehab Status

## Rehabilitation progress

- Mop area of 160.5ha rehabilitation achieved. (Amended MOP Area)
- Shaping to landform NE Overburden Dump

Rehab phase	Area Ha	
Landform	18.1	
Growth medium	0	
Ecosystem establishment	142.4	
Total Rehab (CY21)	160.5	
MOP Requirement (CY21)	158	



## Clearing

The next clearing campaign will begin on the 21<sup>st</sup> of February and continue through until completion. TCM is approved to clear until the end of April 2022.

The following areas are going to be cleared, with the red polygons indicate heavy vegetation clearing (trees) and the green polygons indicating light vegetation clearing (mostly grass). This aquates to 20.9Ha of clearing compared to our MOP disturbance which allows 24.6Ha.

Pre-clearance ecological and archaeological surveys have been completed and qualified ecologists will be present during the clearing to ensure any wildlife remaining will be safely relocated to nearby forest.



## Complaints

No complaints received for the reporting period.

# Environmental Management Plans

## Management Plans

Following approval of Modification 7 of PA11\_0047, TCM has conducted a review of all the Management Plans. Updated Management Plans were submitted via DPIE portal for approval in May 2021 including, Air Quality Management Plan, Noise, Management Plan, Blast Management Plan and Water Management Plan.

The Water Management Plan is still under review, but all the other updated management plans were approved and are available on the WHC website.

TCM will review and update all management plans as required.

## BTM Water Strategy

The BTM mines submitted an updated BTM Groundwater Model and report to DPIE in December 2020. After consultation with DPIE, a final report was provided to DPIE in August. This has now been approved and will be displayed on our website.

The BTM Noise Management Strategy has also been reviewed and will be submitted by MCCM once comments are received from Boggabri Coal Mine.

# Annual and Compliance Reporting

## Annual Review and Annual Return Reports

Next Annual Review and Return reports are under way and will be submitted in the coming months, with the annual return due first in March, and the Annual review due on the 31<sup>st</sup> March.

## Annual Compliance EPBC statement

The Annual Compliance EPBC statement was submitted to DAWE in June 2021.

## Annual National Pollutant Inventory (NPI) and Greenhouse Gas Emission (NGERs) Reports 2021

The TCM NPI and NGERs reports were submitted in September and October 2021 respectively.

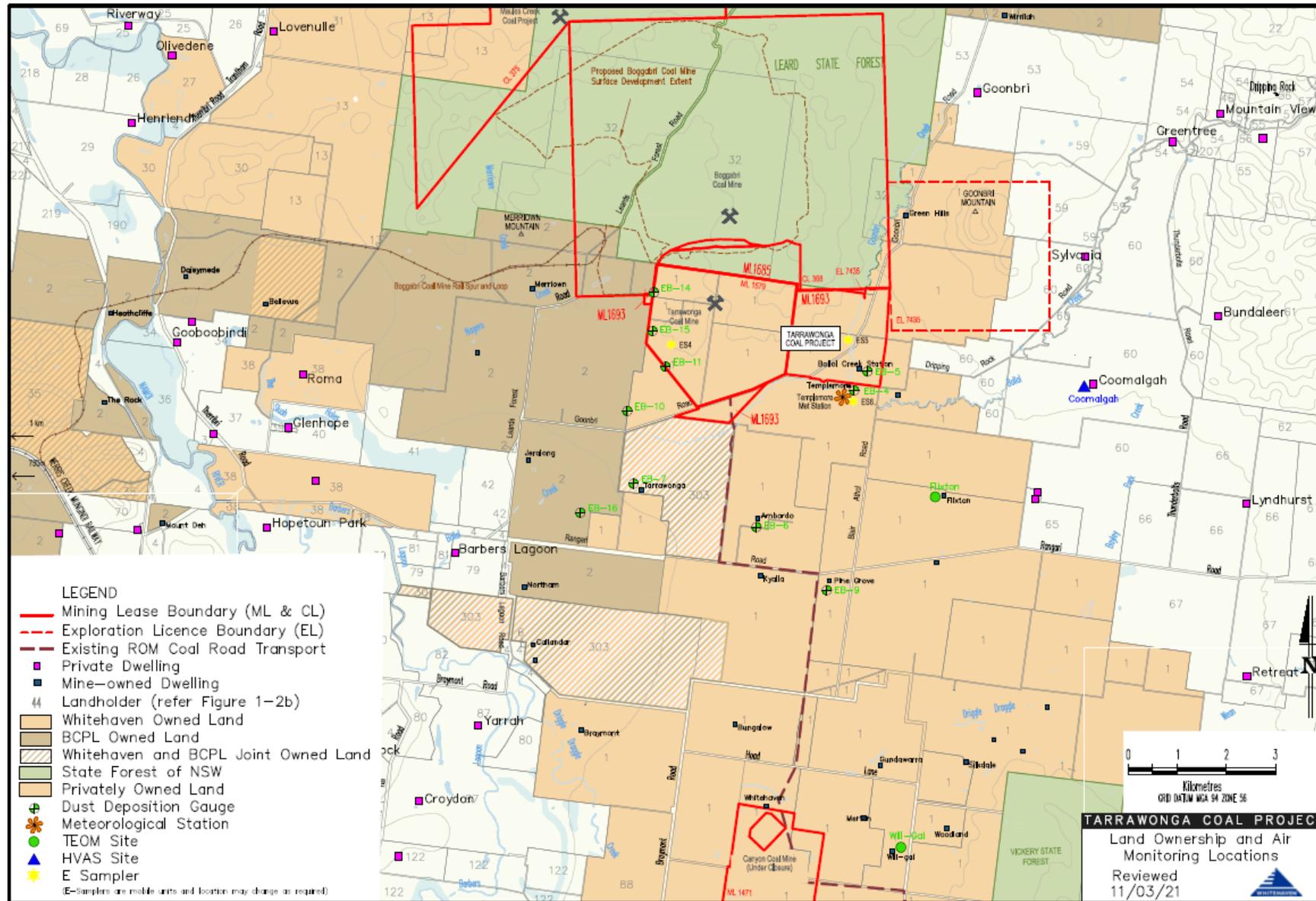
# Audits- Compliance

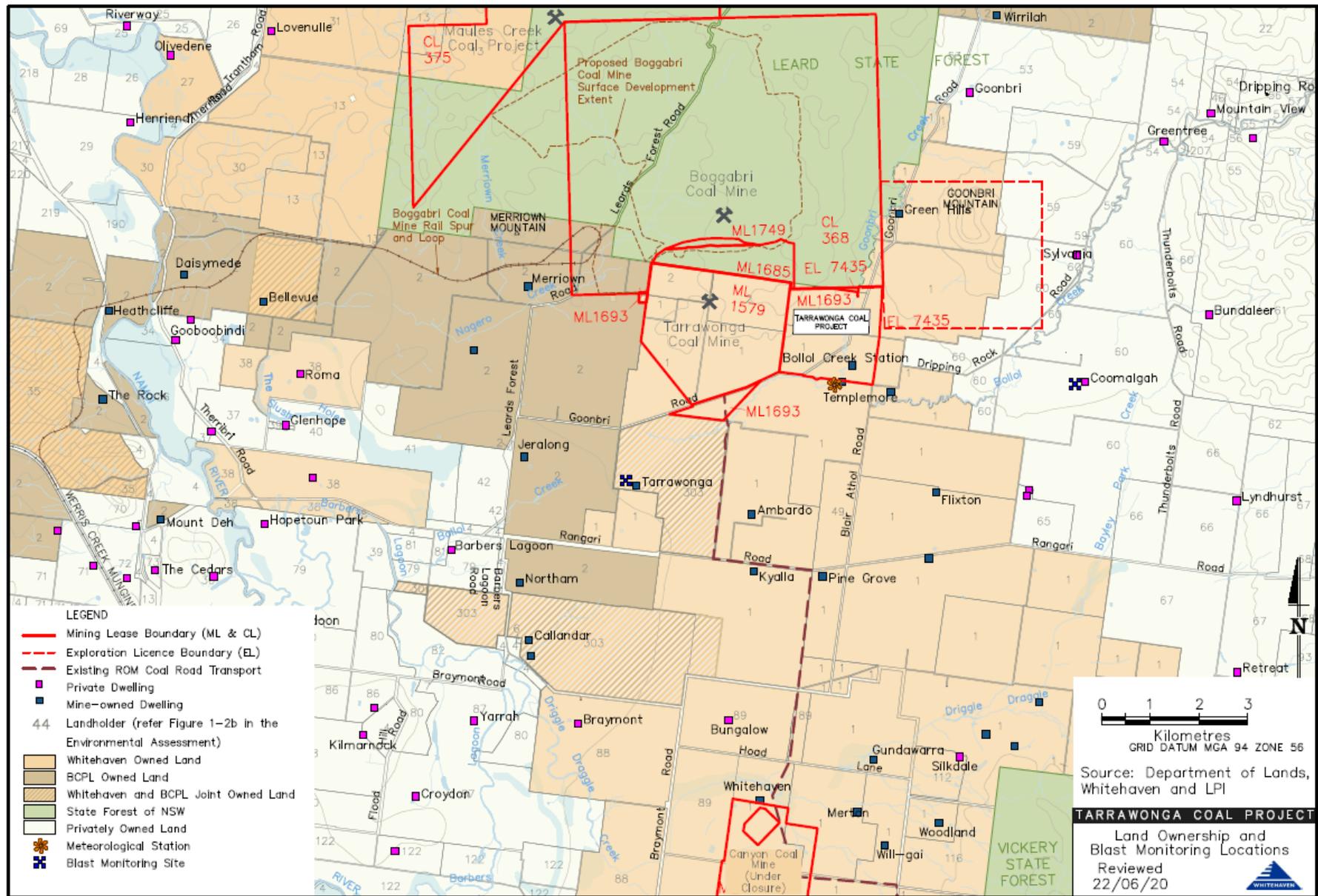
In response to discharge events in March 2021 the EPA require TCM to complete a water management audit by a certified external contractor/consultant. Preparations for this are currently underway, with the nominated auditors being considered by the EPA. TCM is actively engaging with the EPA on this matter.

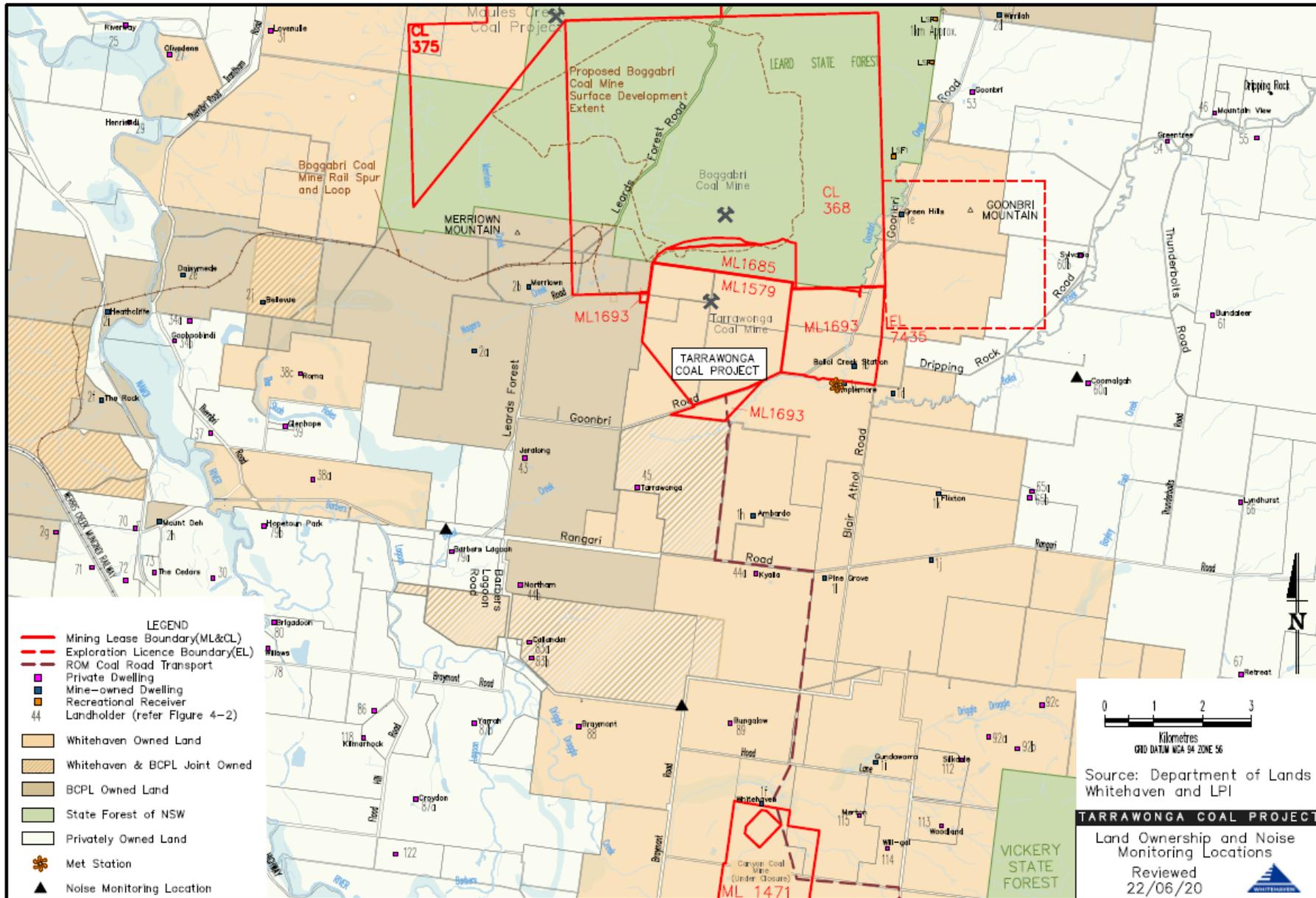
# Approval and Licencing

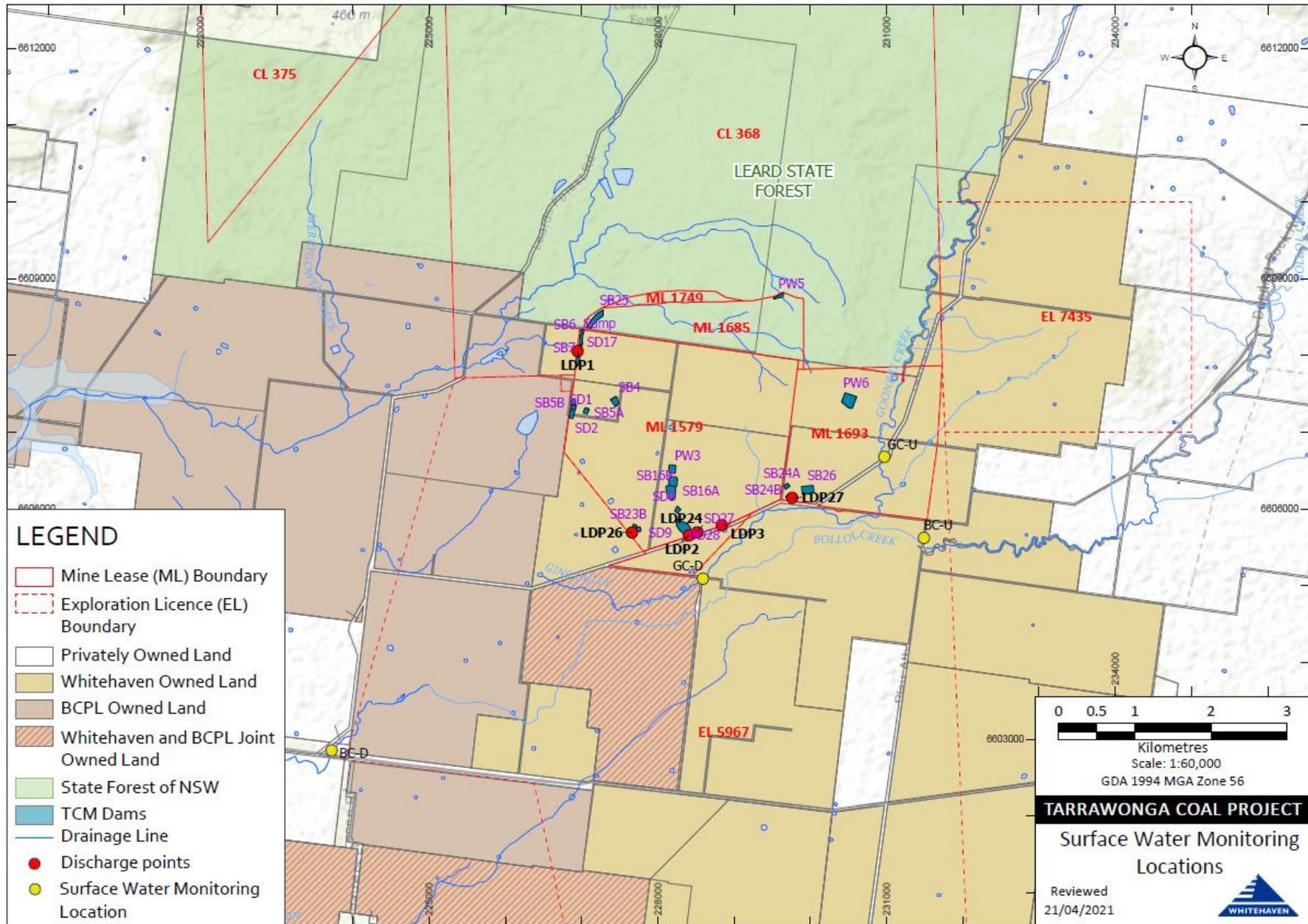
The EPA varied EPL12365 in December 2021. This amended EPL has been uploaded to the website.

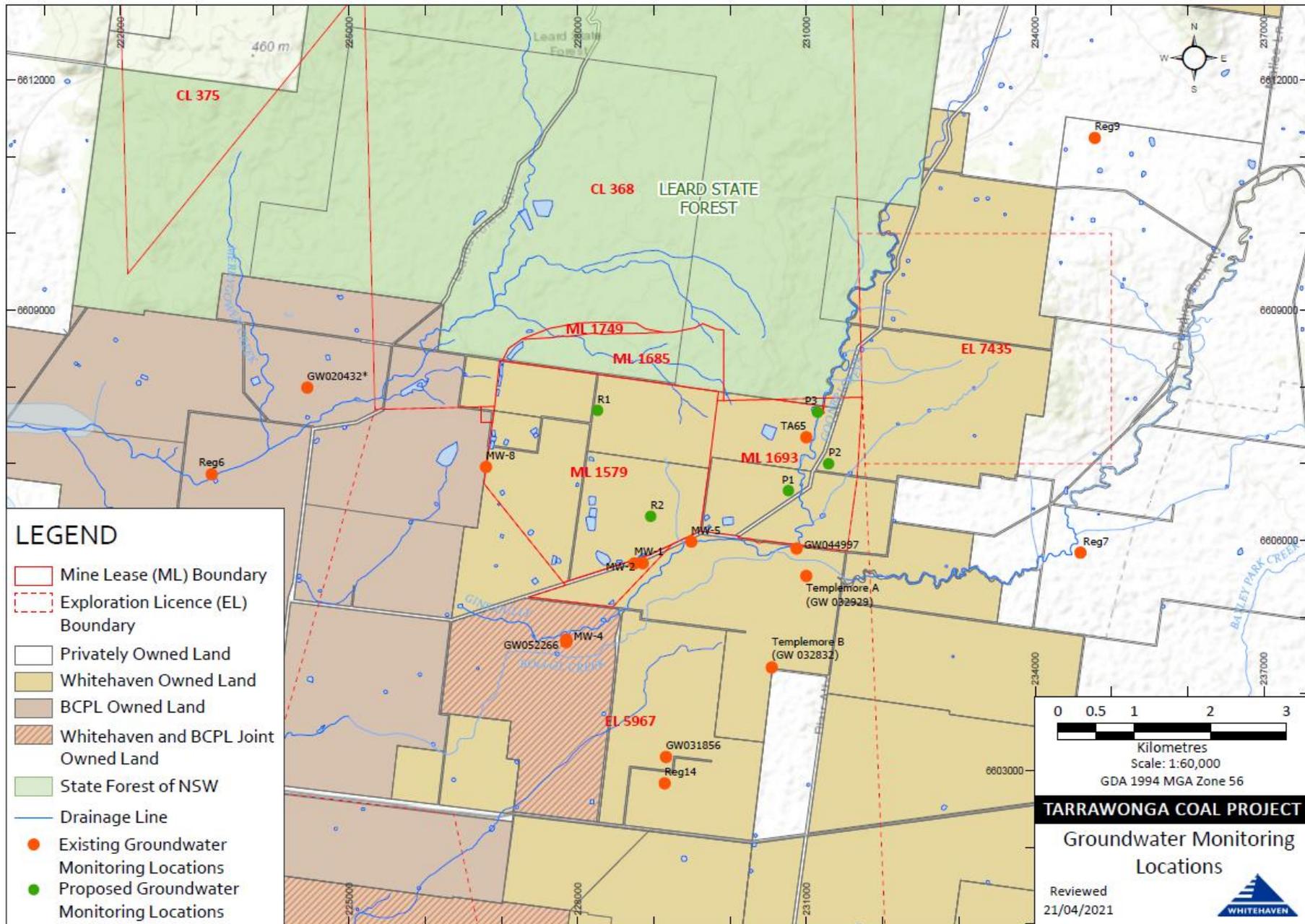
# Appendix A





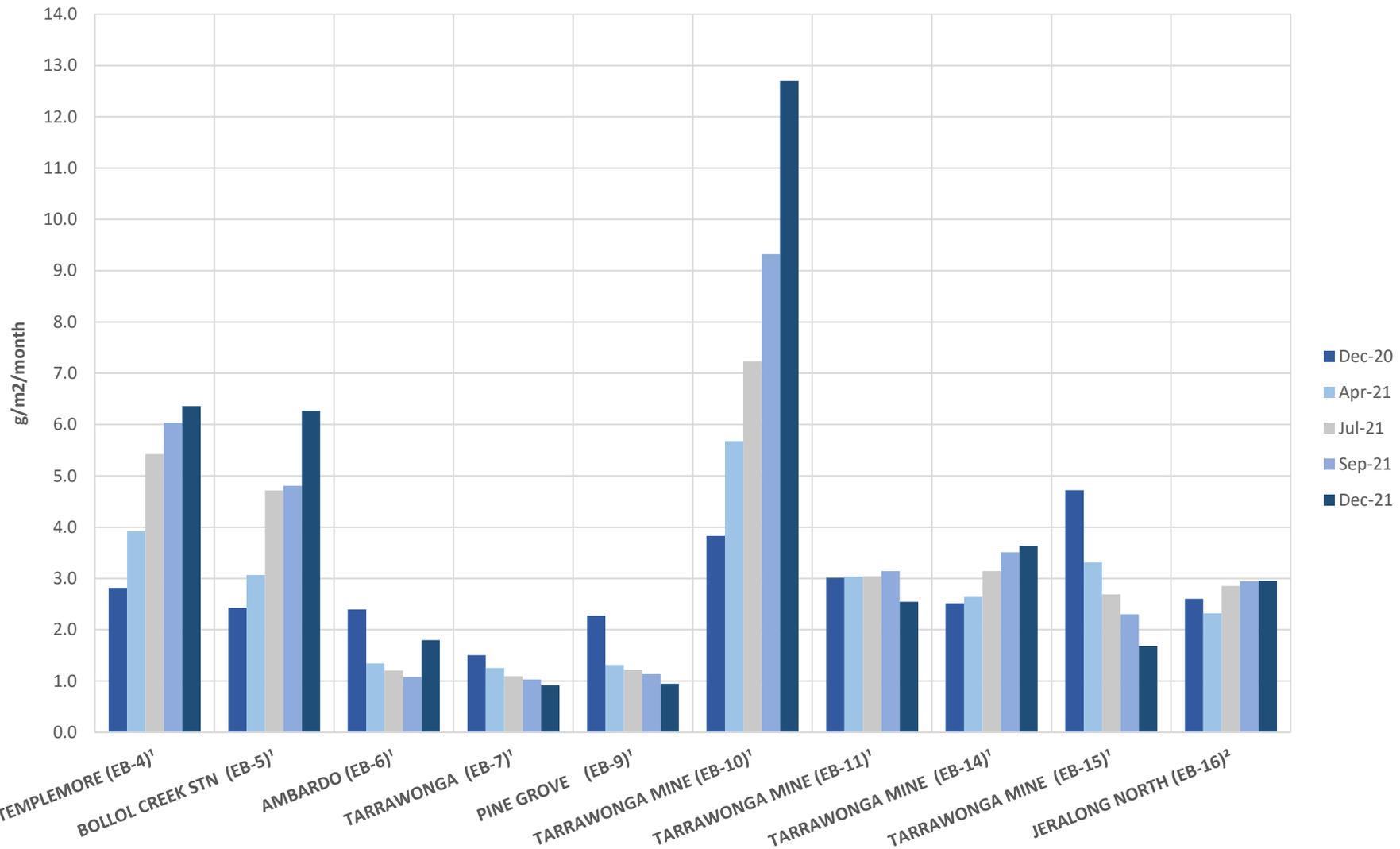






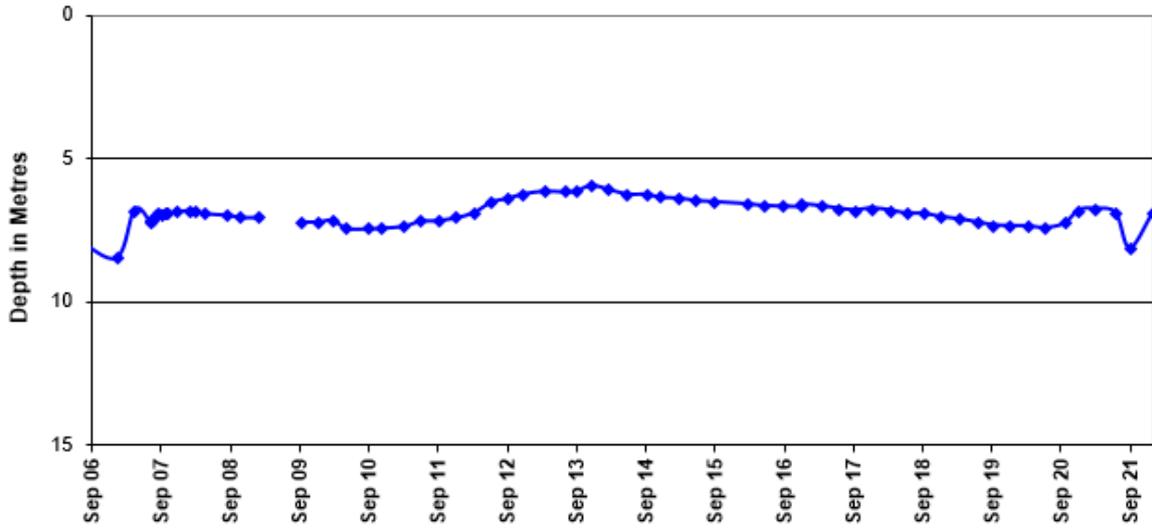
# Appendix B

### Deposited Dust Gauge Results- Quarterly rolling average [g/m<sup>2</sup>/month]

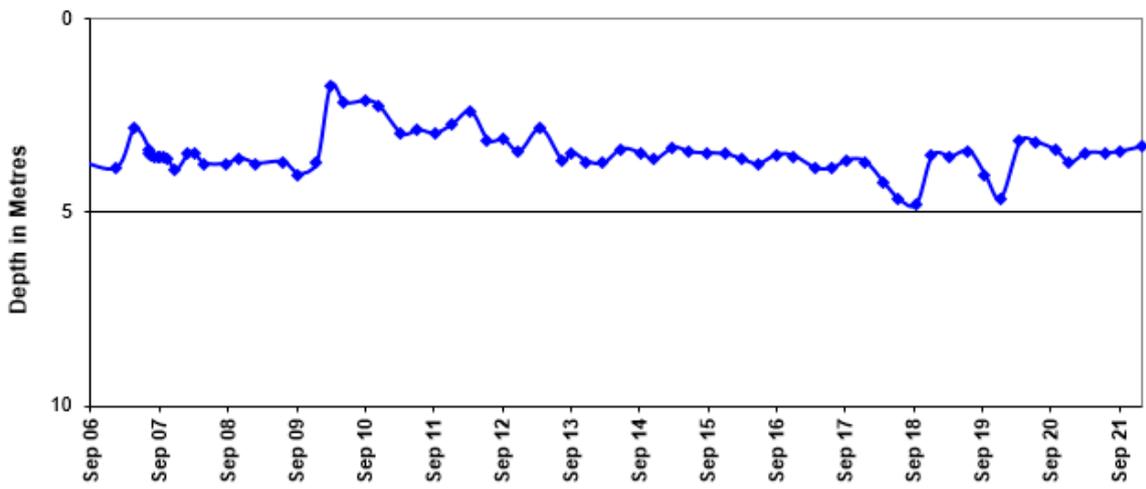


# Appendix C

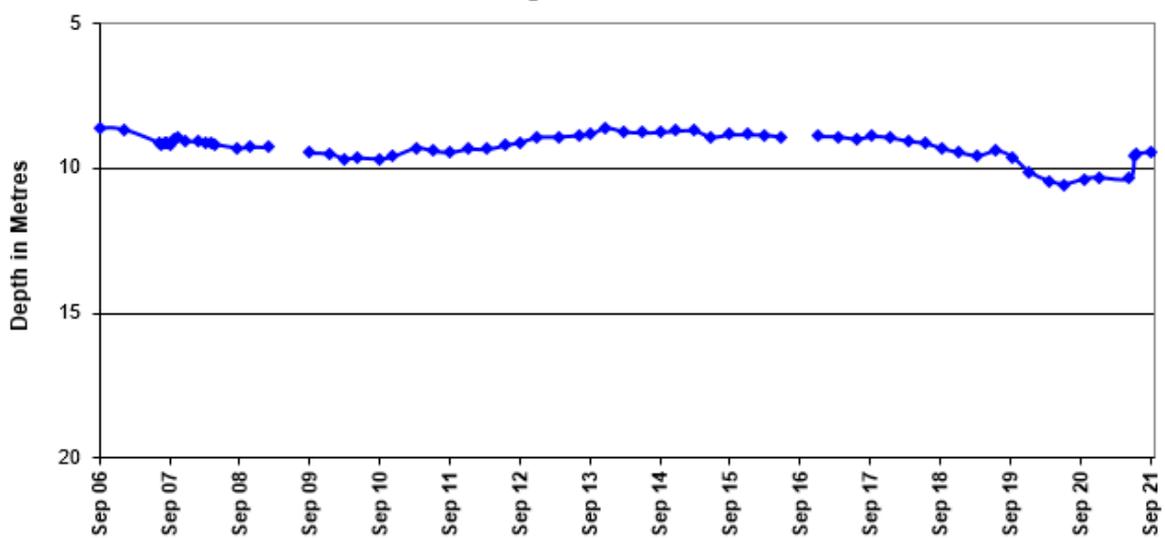
**Standing Water Level - MW1**

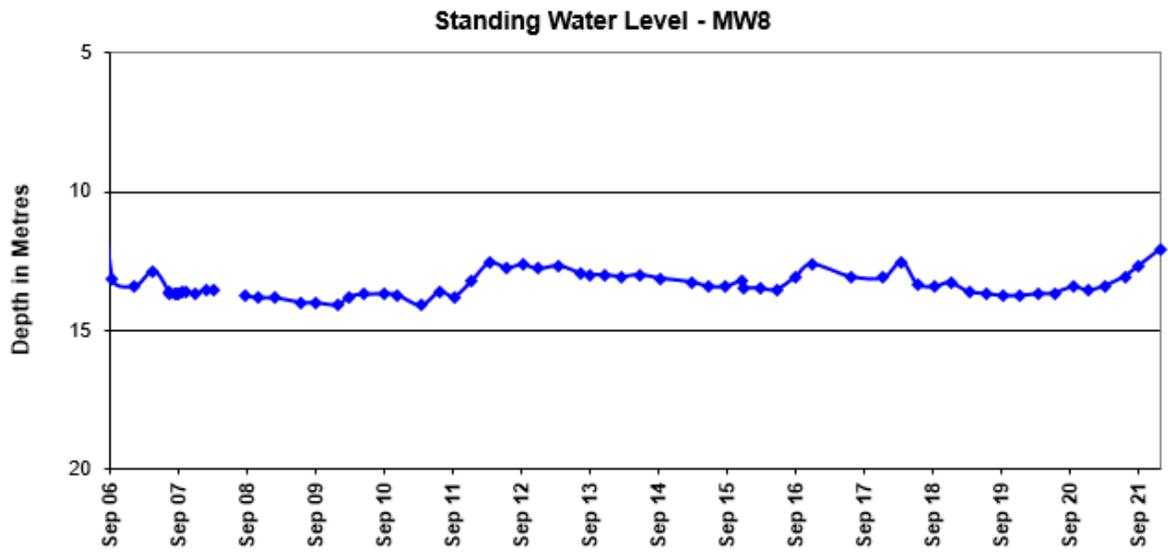
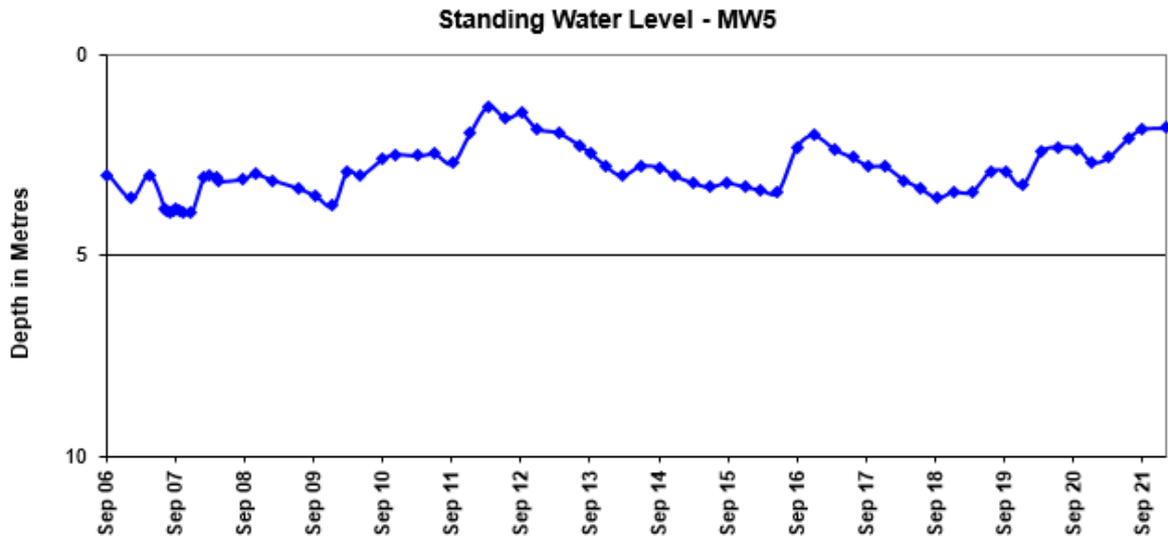


**Standing Water Level - MW2**



**Standing Water Level - MW4**





# Minutes of the 67<sup>th</sup> Meeting of the Tarrawonga Coal Mine Community Consultative Committee (TCCC)

Meeting Held	23 <sup>rd</sup> of February 2022 between 9:00AM- 10.04 AM		
Venue	Tarrawonga Coal Mine Training Room.		
<b>Agenda Item</b>	<b>Discussion and Description</b>	<b>Action and Accountability</b>	<b>Status/ Date</b>

1. Present and Apologies	<u>Present:</u> Mr David Ross (DR)- Independent Chairman, Mr Craig Sullivan (CS)- TCM Ms Madeleine Wright (MW)- TCM Ms Alison Quiroz (AQ)- TCM, Ms Megan Martin (MM)- TCM Ms Elizabeth O’Hara (EO)- Wando CCC Mr Dean Scott (DeS)- WHC Mr Darren Swain (DS)- WHC		
	<u>Apologies:</u> Mr Lloyd Finlay (LF)- Community Representative, Mrs Rebecca Ryan (RR)- Community Representative Wade Hudson (WH) GSC Representative		
2. Declaration of Pecuniary or Non-Pecuniary Interests	DR- declared that he is paid a fee for participation as Independent Chairman.		
3. Previous Minutes Actions	New CCC members welcomed. All present introduced themselves.		

# Minutes of the 67<sup>th</sup> Meeting of the Tarrawonga Coal Mine Community Consultative Committee (TCCC)

Meeting Held	23 <sup>rd</sup> of February 2022 between 9:00AM- 10.04 AM		
Venue	Tarrawonga Coal Mine Training Room.		
<b>Agenda Item</b>	<b>Discussion and Description</b>	<b>Action and Accountability</b>	<b>Status/ Date</b>

5. Business Arising	No update		
6. Mine Progress Report	<p>CS advised:</p> <ul style="list-style-type: none"> <li>- TRIFR = 5.6 as a result of a soft tissue injury</li> <li>- LTI free = 29 days</li> <li>- One notifiable incident- digger on bench has slipped due to the bench giving way. No one injured.</li> <li>- Site tour cancelled as rain event occurred on day of CCC</li> </ul>		<p>Site tour to occur at next CCC meeting.</p> <p>Site tour will include a tour of the rehabilitation.</p>
7. Environmental Monitoring report	<p>MM</p> <ul style="list-style-type: none"> <li>- Read and explained the rehab update and Quarterly Environmental Report results.</li> <li>- Weather is expected to include higher than average rainfall into 2022 following La Nina event becoming more likely.</li> </ul>		
8. General business	<p>No other general business from community members.</p> <p>Dates for 2022 meetings are as follows: May</p>		

# Minutes of the 67<sup>th</sup> Meeting of the Tarrawonga Coal Mine Community Consultative Committee (TCCC)

Meeting Held	23 <sup>rd</sup> of February 2022 between 9:00AM- 10.04 AM
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Venue	Tarrawonga Coal Mine Training Room.
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<i>Agenda Item</i>	<i>Discussion and Description</i>	<i>Action and Accountability</i>	<i>Status/ Date</i>
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	25 <sup>th</sup> , Aug 24 <sup>th</sup> and Oct 26 <sup>th</sup> . BTM CCC: May 26 <sup>th</sup> and Oct 27 <sup>th</sup> .		
9.Complaints	None		
10. Next Meeting and Other Comments	May 25 <sup>th</sup> 2022. Meeting over 10.04 am.		



# Tarrawonga Coal Mine Community Consultative Committee Meeting #68

Quarterly Environmental Monitoring Report  
February 1, 2022 – April 30, 2022



*Photo taken in April 2022 in a section of the Northern Emplacement Area that was rehabilitated in July 2020, showing progress of the planted seedlings and groundcover establishment.*

This report has been prepared for the Community Consultative Committee (CCC) meeting to show Environmental monitoring performance at Tarrawonga Coal Mine (TCM) for the reporting period from February 1 2022 to April 30, 2022. Maps with all the monitoring locations are available in *Appendix A*.

# Noise Monitoring

Attended noise monitoring was conducted at the “Bungalow” (TN4), “Barbers Lagoon” (TN3) and “Matong” (TN2) properties from 15<sup>th</sup> to the 18<sup>th</sup> of March 2022. Noise criteria for the mine is 35dB(A) Leq (15 min) for all operating times.

Results below show that noise emissions from the mine did not exceed operational noise criteria at the “Barbers Lagoon”, “Bungalow” or “Matong” monitoring locations for any monitoring events during the monitoring period.

*(See below summary tables extracted from 20220330 RWDI report 2190007.09 REP NAV Compliance Monitoring Tarrawonga Q1 2022)*

**Table 5-1: Comparison of noise levels between TN2 and 573b Coomalgah**

Date	Time	Noise Limits L <sub>Aeq</sub> 15min	TN2	573b Coomalgah	
			Mine L <sub>Aeq</sub> Noise Level (dB)	Commensurate Mine Compliance Level	Exceedance
			Measured mine contribution		
16/03/2022	10:53	35	I/A (<30)	I/A (<21)	No
	11:08	35	I/A (<30)	I/A (<21)	No
	11:23	35	I/A (<30)	I/A (<21)	No
	11:38	35	I/A (<30)	I/A (<21)	No
	11:53	35	I/A (<30)	I/A (<21)	No
	21:30	35	I/A (<30)	I/A (<21)	No
	21:45	35	I/A (<30)	I/A (<21)	No
	22:30	35	I/A (<30)	I/A (<21)	No
	22:45	35	I/A (<30)	I/A (<21)	No
17/03/2022	09:25	35	<30	<21	No
	09:40	35	<30	<21	No
	09:55	35	<30	<21	No
	10:10	35	<30	<21	No
	10:25	35	<30	<21	No
	10:40	35	<30	<21	No

Date	Time	Noise Limits $L_{Aeq, 15min}$	TN2	573b Coomalgalah	
			Mine $L_{Aeq}$ Noise Level (dB)	Mine $L_{Aeq}$ Noise Level (dB)	Commensurate Mine Compliance Level
			Measured mine contribution		
18/03/2022	21:45	35	<30	<21	No
	22:30	35	<30	<21	No
	22:45	35	<30	<21	No
	10:22	35	<30	<21	No
	10:37	35	<30	<21	No
	10:52	35	<30	<21	No
	11:07	35	<30	<21	No
	11:22	35	<30	<21	No
	11:37	35	<30	<21	No
	21:30	35	I/A (<30)	I/A (<21)	No
	21:45	35	I/A (<30)	I/A (<21)	No

Note 1 I/A indicates the mine was inaudible during the measurement period.

**Table 5-2: Comparison of maximum noise events between TN2 and 573b Coomalgalah**

Date	Time	Noise Limits $L_{A1, 1min}$	Noise source	TN2	573b Coomalgalah	
				Mine $L_{Amax}$ Noise Level (dB)	Mine $L_{Amax}$ Noise Level (dB)	Commensurate Mine Compliance Level
				Measured Level		
15/03/2022	22:00	45	Insects	IA (<45)	I/A (<36)	No
	22:15	45	Insects	IA (<45)	I/A (<36)	No
	22:30	45	Insects	IA (<45)	I/A (<36)	No
	22:45	45	Insects	IA (<45)	I/A (<36)	No
16/03/2022	22:00	45	Insects	IA (<45)	I/A (<36)	No
	22:15	45	Insects	IA (<45)	I/A (<36)	No
	22:30	45	Insects	IA (<45)	I/A (<36)	No
	22:45	45	Insects	<45	<36	No
17/03/2022	22:00	45	Insects	40	31	No
	22:15	45	Insects	39	30	No
	22:30	45	Insects	39	30	No
	22:45	45	Insects	40	31	No
18/03/2022	22:00	45	Insects	IA (<45)	I/A (<36)	No
	22:15	45	Insects	IA (<45)	I/A (<36)	No
	22:30	45	Insects	IA (<45)	I/A (<36)	No
	22:45	45	Insects	IA (<45)	I/A (<36)	No

Note 1 I/A indicates the mine was inaudible during the measurement period.

**Table 5-3: Summary of noise assessment at TN3**

Date	Time	Noise Limits $L_{Aeq} 15min$	TN2 Mine $L_{Aeq}$ Noise Level (dB)		
			Measured mine contribution	Additional LF penalty	Exceedance
15/03/2022	12:08	35	IA (<30 dBA)	-	No
	12:25	35	IA (<30 dBA)	-	No
	20:16	35	I/A (<30)	-	No
	20:31	35	I/A (<30)	-	No
	12:15	35	IA (<30 dBA)	-	No
	12:30	35	IA (<30 dBA)	-	No
16/03/2022	12:45	35	IA (<30 dBA)	-	No
	13:08	35	IA (<30 dBA)	-	No
	13:25	35	IA (<30 dBA)	-	No
	20:22	35	I/A (<30)	-	No
	20:37	35	<30	-	No
	00:05	35	<31	-	No
17/03/2022	11:20	35	IA (<22)	-	No
	11:38	35	IA (<20)	-	No
	11:56	35	IA (<21)	-	No
	12:41	35	IA (<22)	-	No
	20:27	35	I/A (<30)	-	No
	00:06	35	I/A (<30)	-	No
	10:41	35	IA (<25)	-	No
	10:58	35	IA (<25)	-	No
18/03/2022	11:13	35	IA (<25)	-	No
	11:29	35	IA (<25)	-	No
	11:44	35	IA (<25)	-	No
	12:00	35	IA (<25)	-	No
	20:23	35	I/A (<30)	-	No
	20:38	35	I/A (<30)	-	No
	23:35	35	<30	-	No

Note 1 I/A indicates the mine was inaudible during the measurement period.

**Table 5-4: Summary of maximum noise events at TN3**

Date	Time	Noise Limits L <sub>A1,1min</sub>	TN3 Mine L <sub>Amax</sub> Noise Level (dB)		
			Dominant Noise source	Measured Level	Exceedance
15/03/2022	23:18	45	Insects	35	No
	23:33	45	Insects	35	No
	23:48	45	Insects	35	No
	0:03	45	Insects	34	No
16/03/2022	23:20	45	Insects	38	No
	23:35	45	Insects	36	No
	23:50	45	Insects	36	No
	0:05	45	Insects	36	No
17/03/2022	23:21	45	Insects	I/A (44)	No
	23:36	45	Insects	45	No
	23:51	45	Insects	45	No
18/03/2022	0:06	45	Insects	42	No
	23:20	45	insects	38	No
	23:35	45	insects	41	No
	23:50	45	insects	38	No
	0:05	45	insects	38	No

Note 1 I/A indicates the mine was inaudible during the measurement period.

**Table 5-5: Summary of noise assessment at TN4**

Date	Time	Noise Limits L <sub>Aeq</sub> 15min	TN2 Mine L <sub>Aeq</sub> Noise Level (dB)		
			Measured mine contribution	Additional LF penalty	Exceedance
16/03/2022	10:55	35	<30	-	No
	11:22	35	IA (<30 dBA)	-	No
	21:11	35	IA (<30 dBA)	-	No
	21:30	35	IA (<30 dBA)	-	No
	22:00	35	IA (<30 dBA)	-	No
17/03/2022	09:16	35	32	-	No
	09:31	35	<35	-	No
	09:47	35	<35	-	No
	10:07	35	<35	-	No
	10:23	35	<35	-	No
	10:23	35	<32	-	No
	21:20	35	IA (<35)	-	No
	22:00	35	IA (<35)	-	No
18/03/2022	08:42	35	IA (<20)	-	No
	08:58	35	IA (<20)	-	No
	09:14	35	IA (<20)	-	No
	09:31	35	IA (<25)	-	No
	09:46	35	IA (<25)	-	No
	10:02	35	IA (<25)	-	No

Note 1 IA indicates the mine was inaudible during the measurement period.

**Table 5-6: Summary of maximum noise events at TN4**

Date	Time	Noise Limits L <sub>A1,1min</sub>	TN4 Mine L <sub>Amax</sub> Noise Level (dB)		
			Noise source	Measured Level	Exceedance
15/03/2022	22:00	45	Insects	45	No
	22:15	45	Insects	45	No
	22:30	45	Insects	45	No
	22:46	45	Insects	45	No
16/03/2022	22:00	45	Insects	38	No
	22:15	45	Insects	36	No
	22:30	45	Insects	44	No
	22:45	45	Insects	40	No
17/03/2022	22:00	45	Insects	<45	No
	22:15	45	Insects	<45	No
	22:30	45	Insects	<45	No
	22:45	45	Insects	<45	No
18/03/2022	22:00	45	Insects	<45	No
	22:16	45	Insects	<45	No
	22:31	45	Insects	<45	No
	22:47	45	Insects	<45	No

Note 1 IA indicates the mine was inaudible during the measurement period.

Noise from the mine must not exceed 45 dB(A) L1 (1 min) between 10 pm and 7 am. This criteria is to minimise the potential for sleep disturbance as a result of individual loud noises from the mine. Results of attended monitoring show that the measured L1 (1 min) noise level did not exceed sleep disturbance criteria.

The real time noise monitor located on the “Coomalgah” property remains a management tool so the noise criteria are not applicable at that site. Levels of noise recorded at that location are managed according to the noise management plan and trigger action response plan.

# Blast Monitoring

## Blasting Results

Since 2006, there have been 1106 blasts (until 30/04/2022) at TCM.

The highest result for Overpressure last quarter was 110.6 dB recorded at the ‘Tarrowonga’ monitor on the 25/03/2022.

The highest result for ground vibration last quarter was 0.59 mm/s recorded at the ‘Coomalgah’ monitor on the 29/04/2022.

TCM overpressure and ground vibration was compliant and did not exceed the blasting criteria declared in the project approval and Blast Management Plan (BMP).

**Table- 2: Max Peak Overpressure and Ground Pressure for the Quarter**

Monitor Location	Date	Max. Peak Overpressure (dB)	Criterion (dB)	Date	Max. Peak Ground Pressure (mm/s)	Criterion (mm/s)
Tarrowonga*	25/03/2022	110.6	N/A	29/03/2022	0.48	N/A
Coomalgah	14/04/2022	106.6	120	29/04/2022	0.59	10

*\*Limit Not applicable according to EPL and PA11\_0047 because project related property.*

During the reporting period, no fume events were recorded leaving the boundary of TCM. The highest result recorded during the period was a ‘3B’ on the 25<sup>th</sup> of February 2022, but this was monitored as having dissipated within the TCM’s Mining Leases.

# Air Quality Monitoring

## Dust Deposition Results

Standard Australia AS/NZS 3580.10.1:2016, "Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric Method," classifies deposited dust as insoluble solids. Therefore, TCM tests air quality monthly at mine-owned sites for indicative purposes, to infer compliance, against the limit of 4 g/m<sup>2</sup>/month.

**Table 3** shows deposited dust gauge results over 12 months. All the monitors are located on project related or WHC owned land; as such compliance criteria (4g/m<sup>2</sup>/month) do not apply. While deposited dust trends remain steady during the reporting period (refer graph in *Appendix B*), some monitors are displaying non-mine related particulate matter deposition more regularly than others. Non-mine related particulate matter could be attributed to organic matter (such as leaves that fall in to the bottles, mice or frogs, or insects), or they may be in farming locations, so during some months dust levels may be higher due to harvesting.

MONTH	TEMPLEMORE (EB-4)	BOLLOL CREEK STN (EB-5)	AMBARDO (EB-6)	TARRAWONGA (EB-7)	PINE GROVE (EB-9)	TARRAWONGA MINE (EB-10)	TARRAWONGA MINE (EB-11)	TARRAWONGA MINE (EB-14)	TARRAWONGA MINE (EB-15)	JERALONG NORTH (EB-16)
<b>Apr-21</b>	12.6#	5	1.6	0.3	0.6	19.1#	3.7	0.5	0.7	3
<b>May-21</b>	10.5	6.5	0.5	0.7	1	14.5	4.5	0.8	2.5	4
<b>Jun-21</b>	2.2	4.2	0.3	0.2	0.4	3.3	1.9	0.5	3.3	3.2
<b>Jul-21</b>	12.9	12.5	0.2	0.3	0.2	6.6	2.3	0.7	1.6	3.2
<b>Aug-21</b>	1.9	37.5#	0.8	0.9	1.8	47.7#	2.4	4.2	1.4	4.9
<b>Sep-21</b>	5.9	2.8	0.4	0.4	0.4	68.1#	1.7	3.1#	0.6	0.4
<b>Oct-21</b>	2.9	4.6	2.9	1.2	1.9	19.6#	3.1	7	2	2.3
<b>Nov-21</b>	3.1#	9.7#	7.2#	2.2	1	12.5#	2.7	3.6	1.5	3.7#
<b>Dec-21</b>	10.8#	8.9#	1.3	1	0.8	13.3#	0.6	3.9	6.8#	3.2
<b>Jan-22</b>	1.8	9.1#	0.7	0.9	7.1#	17.8#	4.8	3.7	1.2	3.2#
<b>Feb-22</b>	16.4#	7.3#	0.8	0.5	5.5#	10.3#	3.5	2.5	1.5	6.5
<b>Mar-22</b>	1.9	6.6#	6.2	0.7	1.2	2.3	3.8	2.6	0.6	2
<b>Apr-22</b>	7.4#	8#	0.1	0.4	1.8	3	2.8	5.6#	0.7	0.9
<b>12 MONTH ROLLING AVERAGE</b>	<b>4.65</b>	1.95	1.82	0.75	1.55	2.65	2.91	<b>4.13</b>	1	3.13

# Analysis done on these bottles concluded that they are contaminated, often with low ash/insoluble matter. Often noted on field sheets are bird droppings, insects and plant matter.

+ bottles missing due to replacement after contamination or temporary civil/mining activities in the area.

<sup>1</sup>DDG bottle on the fenceline between TCM and BCM ROM.

Red = above the rolling average, but exceedances are not mine-related and are not considered non-compliances.

**Table 3 – Deposited Dust Gauge Results [g/m<sup>2</sup>/month]**

High Volume Air sampler (PM10) Results

The High Volume Air Sampler (HVAS) installed at Coomalgalah property monitors levels of Particle Matter under 10 micron (PM<sub>10</sub>). It operates for 24hr every 6 days. **Table 4** shows that all 24hr average values recorded for this quarter are below the 50µg/m<sup>3</sup> criteria.

**Table- 4: HVAS PM10 24 hr average levels for the Quarter**

Date	24hr averaged PM10 (µg/m <sup>3</sup> )	Criterion 24hr average (µg/m <sup>3</sup> )	Comments
3/02/2022	6.4	50	Nil
9/02/2022	17.3		
15/02/2022	32.4		
21/02/2022	11.1		
27/02/2022	5.3		
5/03/2022	11.9		
11/03/2022	5.7		
17/03/2022	14.8		
23/03/2022	20		
29/03/2022	4.5		
4/04/2022	7.0		
10/04/2022	3.0		
16/04/2022	4.2		
22/04/2022	6.0		
28/04/2022	3.1		

### Real-time Air monitoring (PM<sub>10</sub>)

A real time air quality unit (TEOM) is located at the “Flixton” property to monitor PM<sub>10</sub> levels in ambient air, as per the current Air Quality and Greenhouse gas Management Plan. . It is an operational management tool and dust levels nearing or reaching the nominated criteria will trigger actions onsite to assess the source of dust and modify operations if it is determined to be related to Tarrawonga operations.



*TEOM installed at Flixton property*

Three portable dust (PM<sub>10</sub>) monitors have been utilised since Nov 2018 to improve the real-time dust monitoring network and assist the operation to mitigate any potential dust generated by the operation.



*Portable and real-time dust monitor installed at TCM in November 2018*

# Water Monitoring

## Groundwater

Routine groundwater monitoring results undertaken between Sept 2020 and March 2022 are shown in **Table 5** (refer to graphs in *Appendix C*).

**Table 5- Groundwater results Summary**

Site	Date	SWL (mbgl)	pH (units)	Elect. Conductivity (µS/cm)
MW1	September 2020	7.27	8.16	3,260
	December 2020	6.8	7.9	3,510
	March 2021	6.75	7.97	3,390
	June 2021	6.9	7.84	3,480
	September 2021	8.14	7.57	3,530
	December 2021	6.93	7.32	3,600
	March 2022	6.8	7.54	3,910
MW2	September 2020	3.39	7.39	435
	December 2020	3.71	7.3	535
	March 2021	3.46	6.99	462
	June 2021	3.46	7.05	527
	September 2021	3.42	6.97	615
	December 2021	3.29	6.74	822
	March 2022	3.51	6.82	952
MW4	September 2020	10.38	7.3	3,380
	December 2020	10.35	7.4	3,640
	March 2021	9.56	7.26	3,530
	June 2021	9.53	7.26	3,250
	September 2021	9.48	7.62	3,100
	December 2021	9.91	7.56	3,040
	April 2022	9.17	7.6	3,360
MW5	September 2020	2.34	7.7	2,090
	December 2020	2.67	7.1	1,960
	March 2021	2.56	7.36	874
	June 2021	2.07	7.56	766
	September 2021	1.84	7.7	1,810
	December 2021	1.81	7.7	2,054
	March 2022	2.34	8.01	1,529
MW8	September 2020	13.44	Casing blocked	Casing blocked
	December 2020	13.57		
	March 2021	13.42		
	June 2021	13.07		
	September 2021	12.7		
	December 2021	12.08		
	March 2022	12.36		

Surface Water

Water storage onsite is expected to be sufficient for at least the next 12 months.

TCM has continued to treat (flocculate) sediment dam SD9 to allow for controlled release from Licence Discharge Point (LDP) 2, and through SD17 (LDP1) in accordance with the Water Management plan. Approximately thirty three (33) ML of suitable quality water (within EPL1265 limits) was discharged in the reporting period with more to be discharged as flocculating stations are set up at other licenced discharge points.

From the start of 2022 through to April, TCM has recorded 341.8mm of rain.

<b>2021</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Total</b>
Monthly Rain (mm)	58.4	115.4	141.2	22.0	66.6	105	73.8	41.8	18.3	56	240	96.6	1072.8
Cumulative (mm)	58.4	176.8	317.4	339.6	406.2	511.2	585	626.8	683	920.2	976.2	1072.8	
<b>2022</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Total</b>
Monthly Rain (mm)	106.6	74.4	100	60.8	-	-	-	-	-	-	-	-	341.8
Cumulative (mm)	106.6	181	281	341.8	-	-	-	-	-	-	-	-	

# Rehabilitation and Clearing

## Rehabilitation

TCM have a MOP target of 36ha for rehabilitation for CY2022 and achieved 2.5ha more rehabilitation than was committed to in the MOP for CY2021. On the Northern Emplacement Area (NEA), CY21's landform (approx 11Ha) has been completed and the topsoil will be spread in the coming months. Top soil spreading was put out to tender for the NEA and TCM is currently reviewing quotes from contractors to finish the growth medium development of the northern rehabilitation area.

TCM completed seeding on the Southern Emplacement Area (SEA) at the end of CY21. TCM recently seeded the crest and outer embankments of Dam SD9 and SD26 to prevent erosion. The cover crop has successfully established in all of these areas, and with the recent wet weather, growth rate has increased. Furthermore, TCM will be aiming to hydromulch some new areas around dams, in the nearby future.

TCMs Northern Emplacement Area (NEA) was also seeded with native woodland species and a cover crop the same as on the SEA at the close of CY21. More landform establishment has to be signed off and seeded in the coming months. Hiko planting could not be completed during 2021 due to flooding during November impacting site access and impacting on completing the SOEA topsoil spreading and the planned planting operation. However, in April of 2022, tree lines were successfully completed and from May onward, TCM will be planting trees in the SEA and NEA.



*Figure 1: Cover crop establishment on the SEA*

# Current Rehab Status

## Rehabilitation progress

- Mop area of 160.5ha rehabilitation achieved. (Amended MOP Area)
- Shaping to landform NE Overburden Dump

Rehab phase	Area Ha	
Landform	18.1	
Growth medium	0	
Ecosystem establishment	142.4	
Total Rehab (CY21)	160.5	
MOP Requirement (CY21)	158	



## Clearing

The 2022 clearing began on the 21<sup>st</sup> of February and continued through until completion. The area with the red polygon indicates that heavy vegetation (trees) were cleared and the green polygons indicates a light vegetation (mostly grass) were cleared.

Our Management Operation Plan (MOP) allows us to cleared 24.6Ha, however, Tarrawonga only cleared a total of 20.9Ha in 2022's clearing window.

Pre-clearance ecological and archaeological surveys were completed before clearing and qualified ecologists were present during the clearing to ensure any wildlife remaining would be safely relocated to nearby forest.



## Complaints

No complaints received for the reporting period.

# Environmental Management Plans

## Management Plans

Following approval of Modification 7 of PA11\_0047, TCM has conducted a review of all the Management Plans. Updated Management Plans were submitted via DPIE portal for approval in May 2021 including, Air Quality Management Plan, Noise, Management Plan, Blast Management Plan and Water Management Plan.

The Water Management Plan is still under review, but all the other updated management plans were approved and are available on the WHC website.

The Blast Management Plan was submitted for review by DPE on the 13<sup>th</sup> March 2022. This is still under review and will be uploaded following consultation and approval.

## BTM Water Strategy

The BTM mines submitted an updated BTM Groundwater Model and report to DPIE in December 2020. After consultation with DPIE, a final report was provided to DPIE in August. This has now been approved and will be displayed on our website.

The BTM Noise Management Strategy has also been reviewed and will be submitted by MCCM once finalised.

# Annual and Compliance Reporting

## Annual Review and Annual Return Reports

The Annual Return and Annual Review were submitted in March 2022.

## Annual Compliance EPBC statement

The Annual Compliance EPBC statement was submitted to DAWE in June 2021 and is currently being compiled for submission in June 2022.

## Annual National Pollutant Inventory (NPI) and Greenhouse Gas Emission (NGERs) Reports 2021

The TCM NPI and NGERs reports were submitted in September and October 2021 respectively.

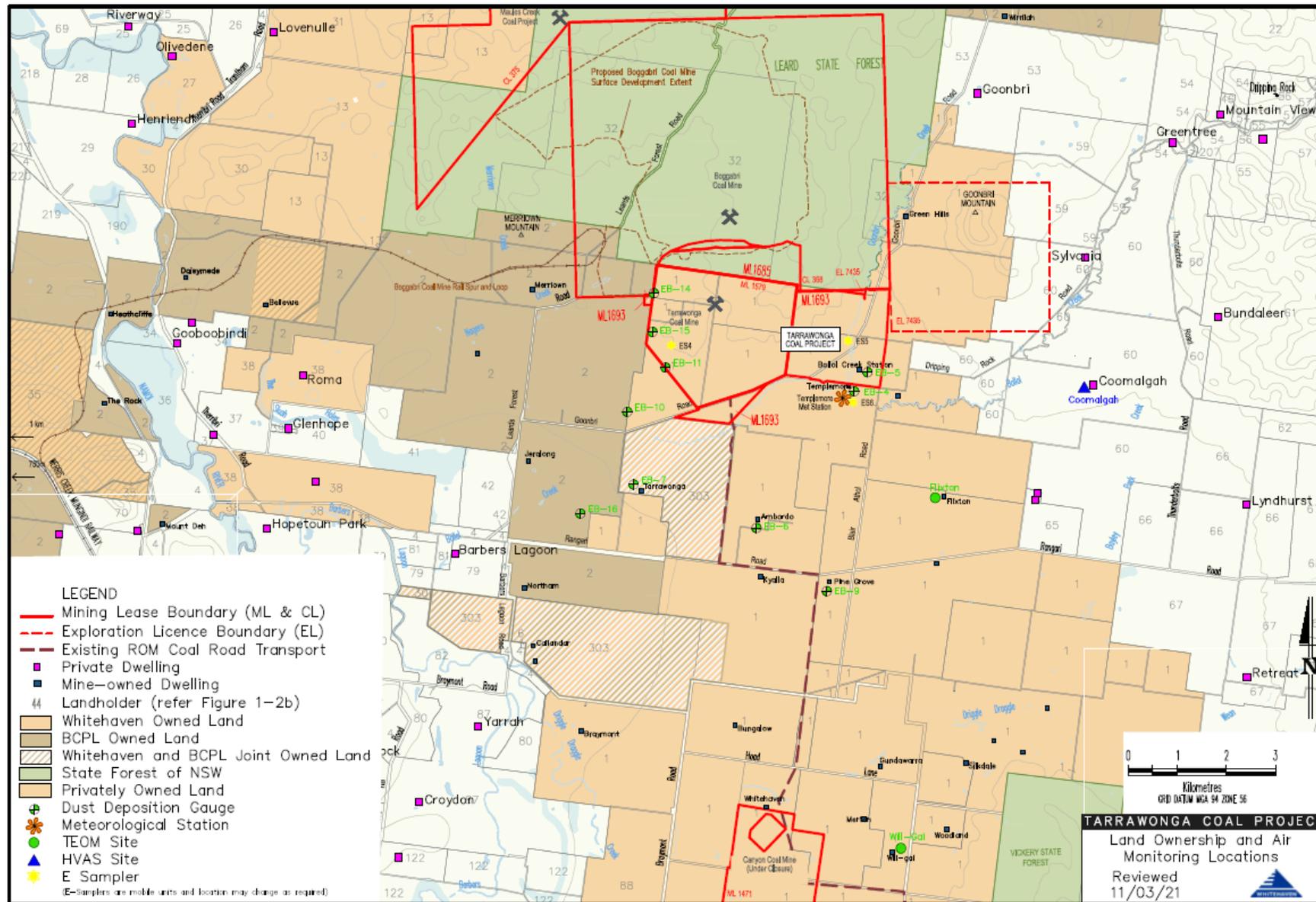
# Audits- Compliance

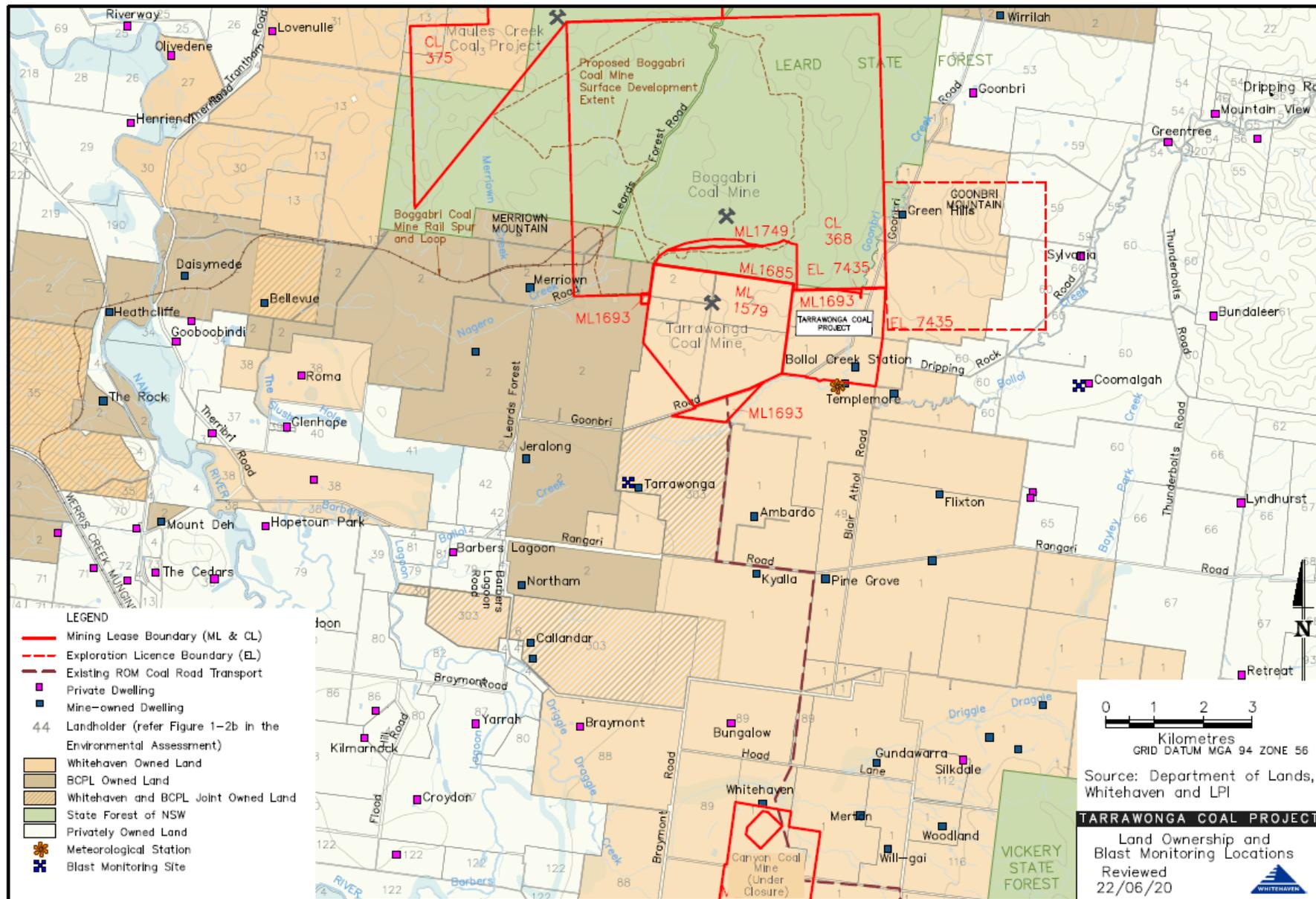
In response to discharge events in March 2021 the EPA require TCM to complete a water management audit by a certified external contractor/consultant. This audit has been completed and the report is being finalised. TCM is actively engaging with the EPA on this matter.

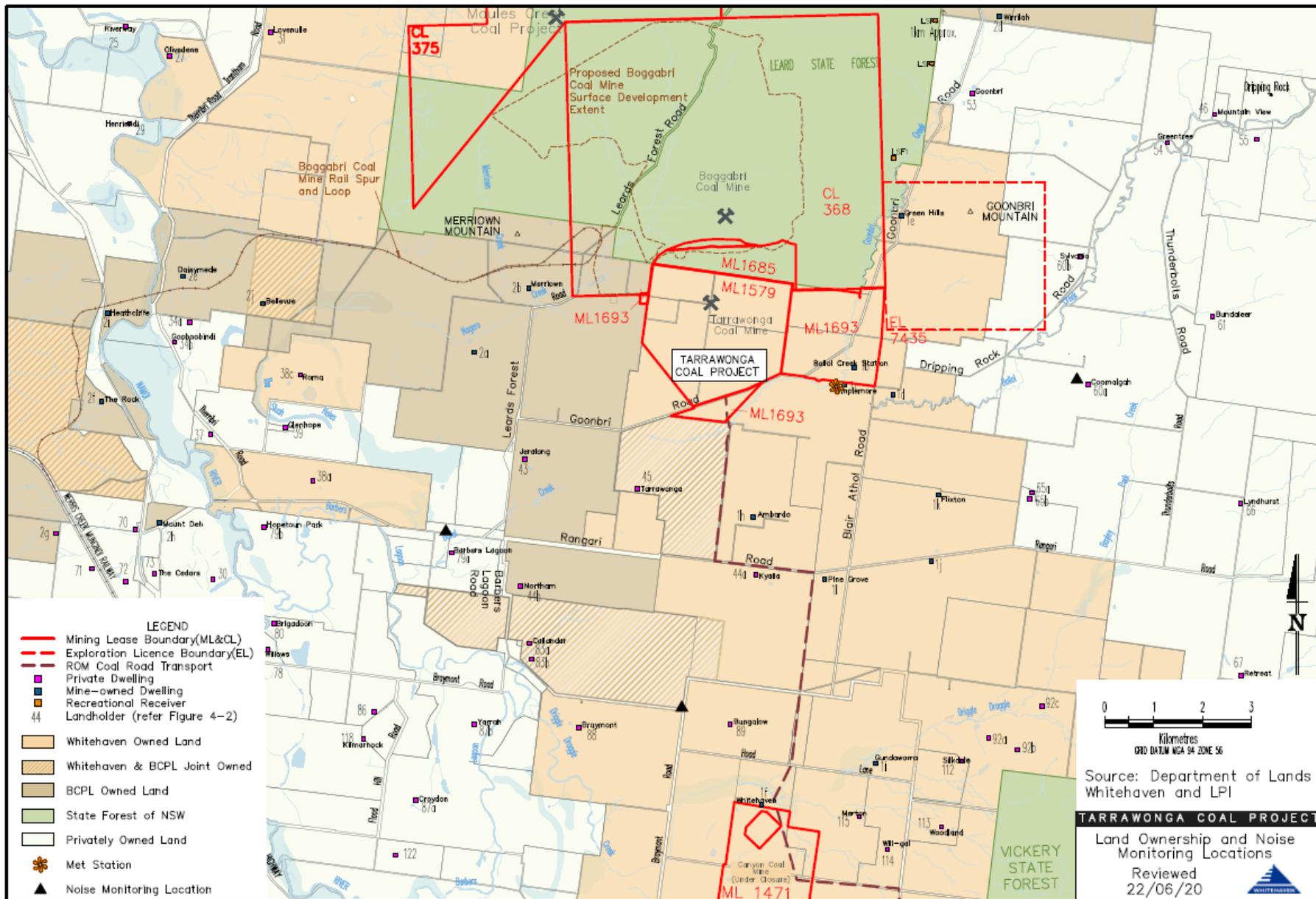
# Approval and Licencing

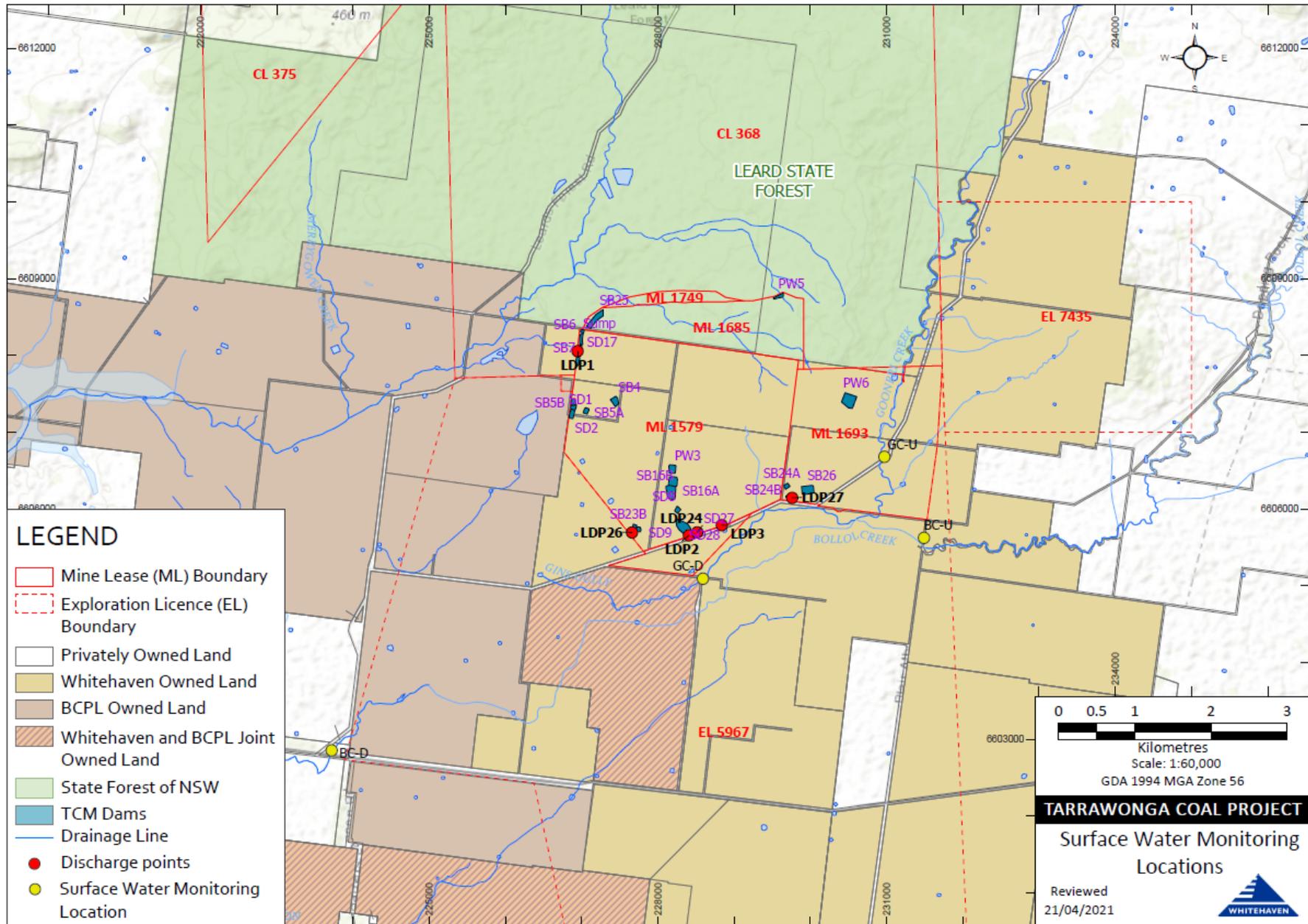
The EPA varied EPL12365 in December 2021. This amended EPL has been uploaded to the website.

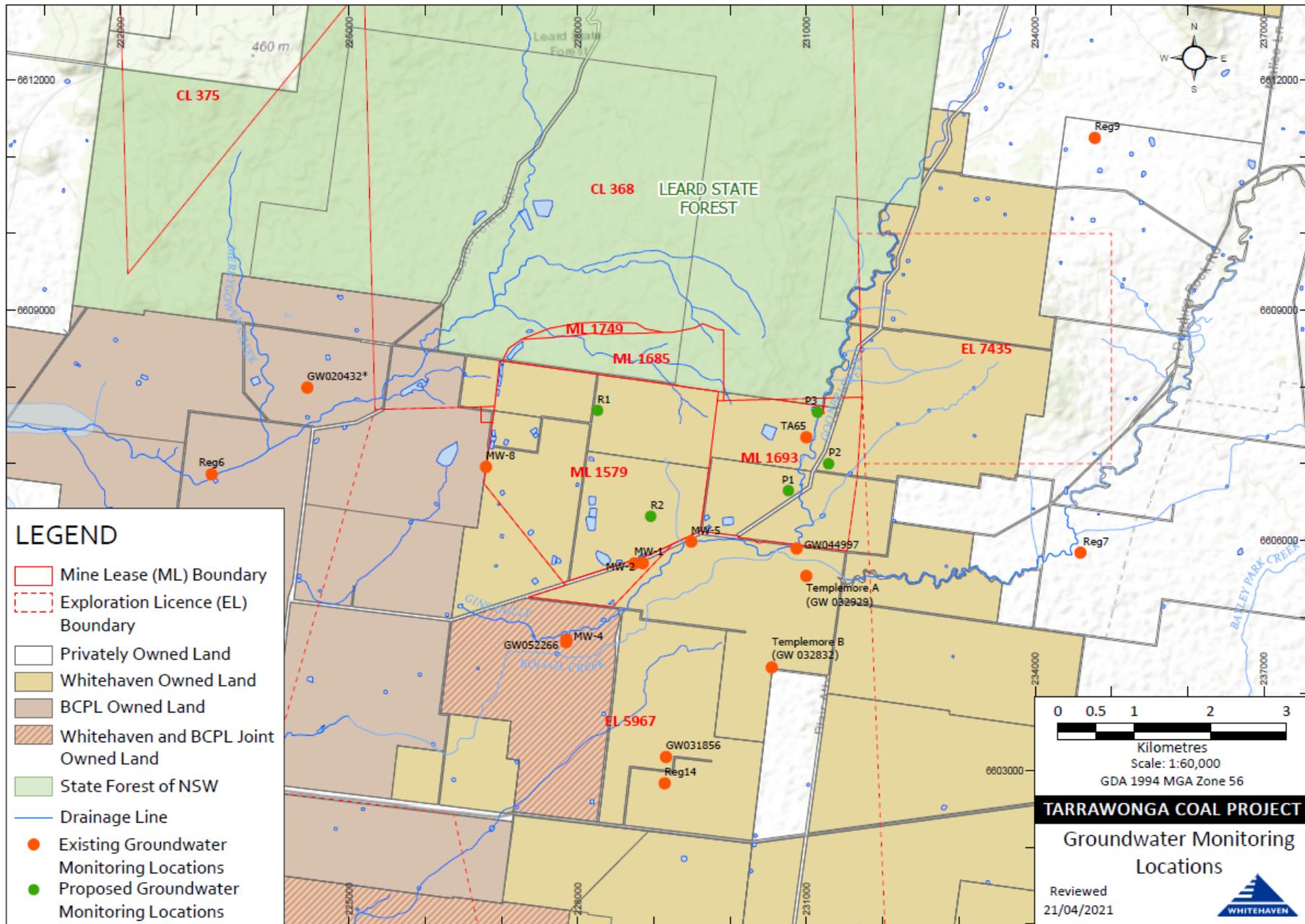
# Appendix A





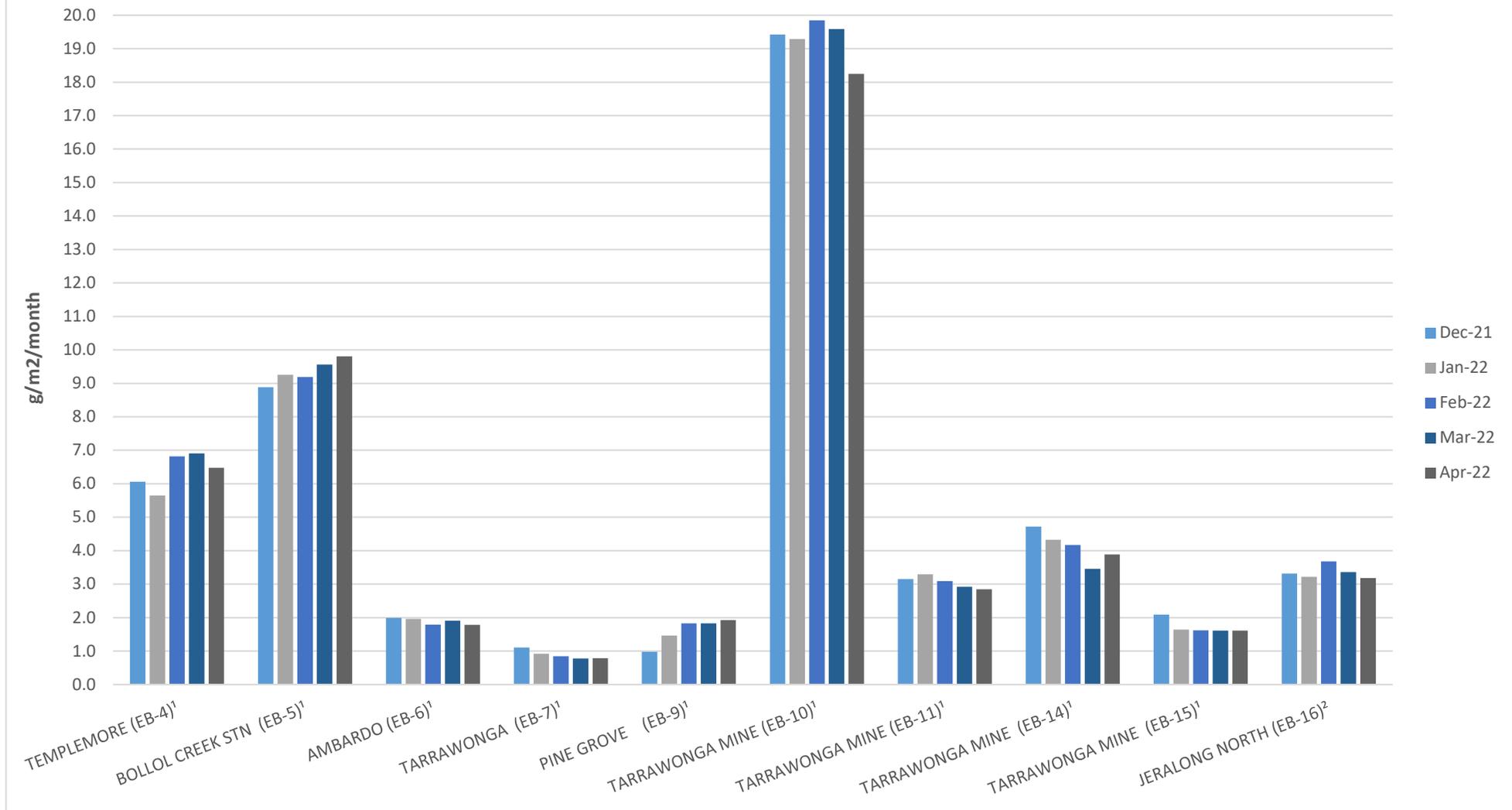




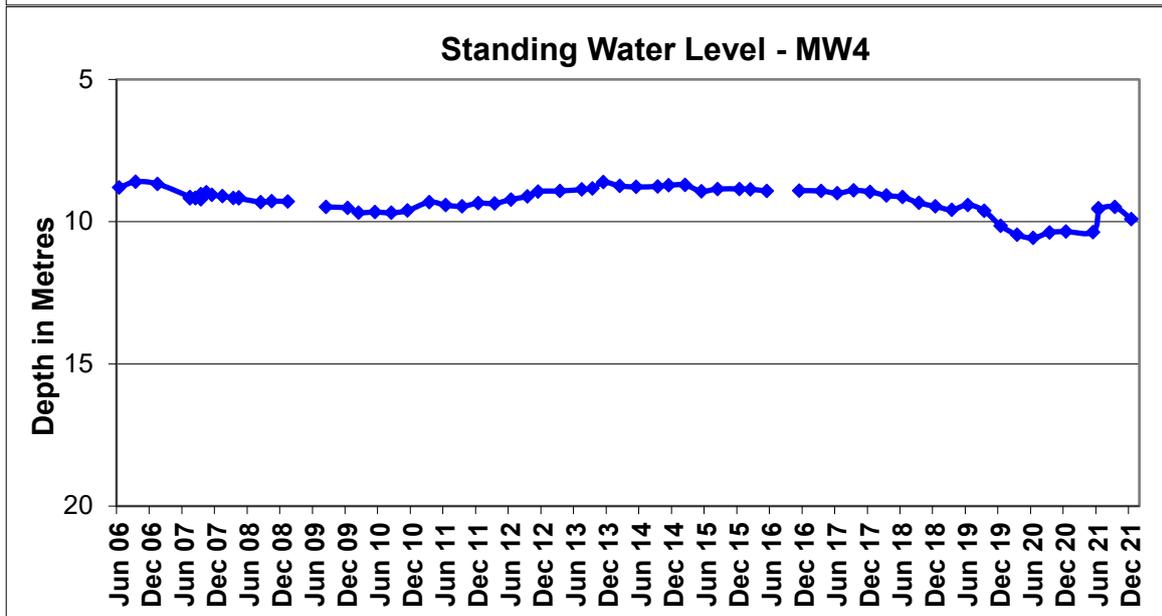
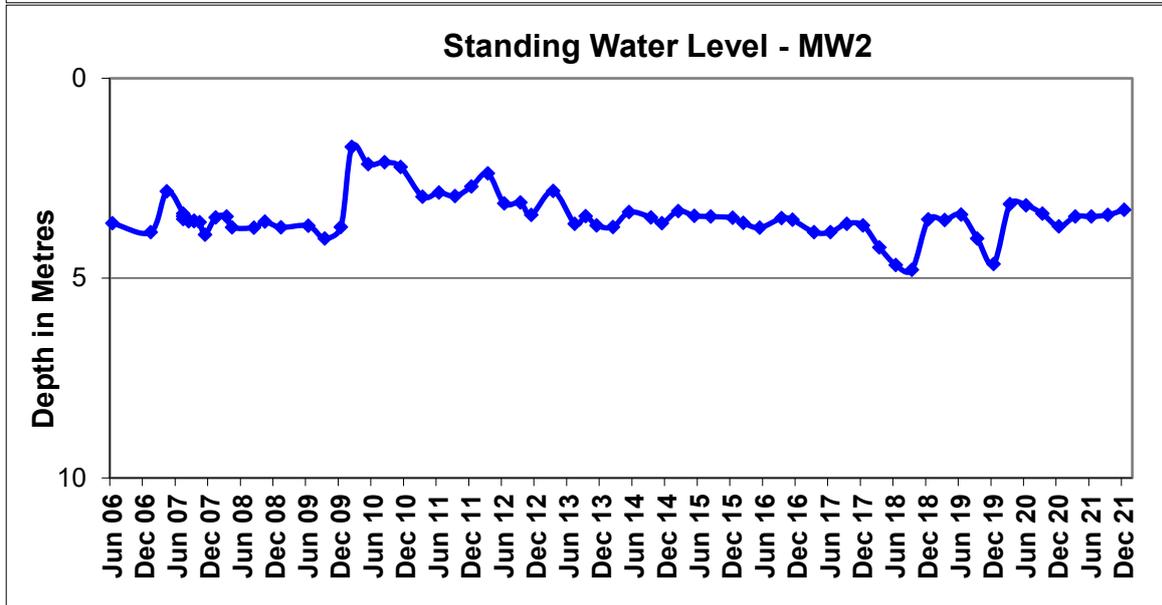
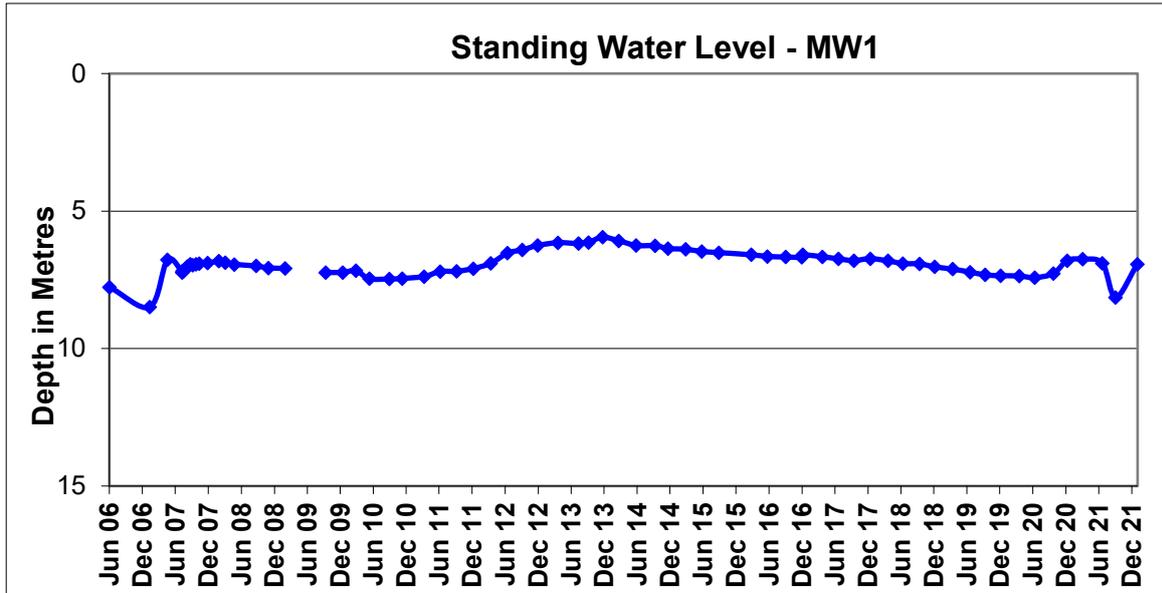


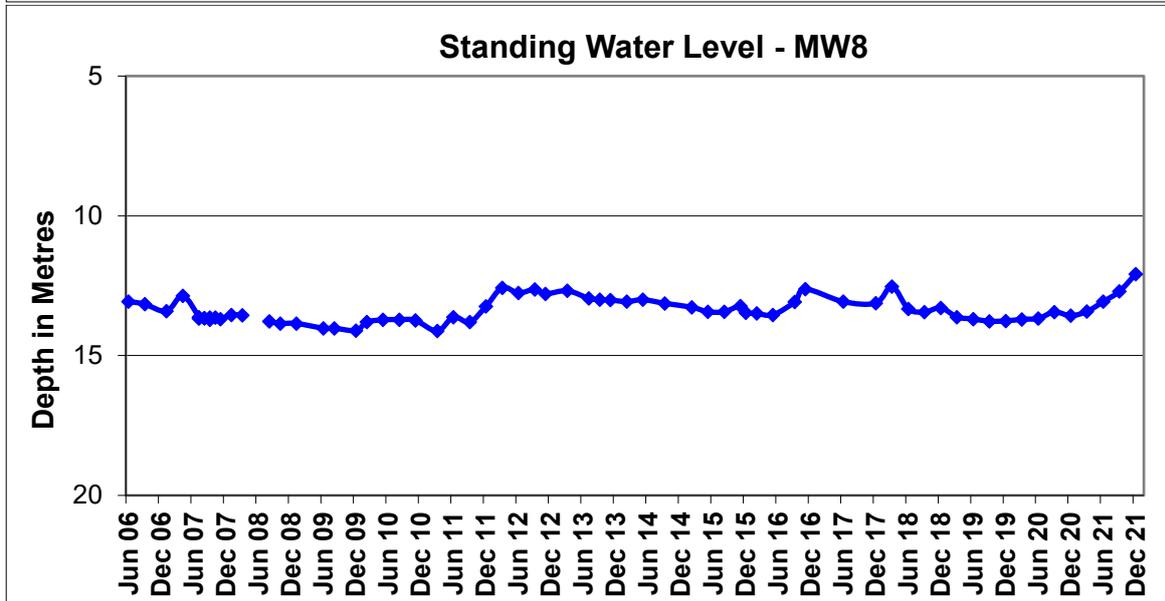
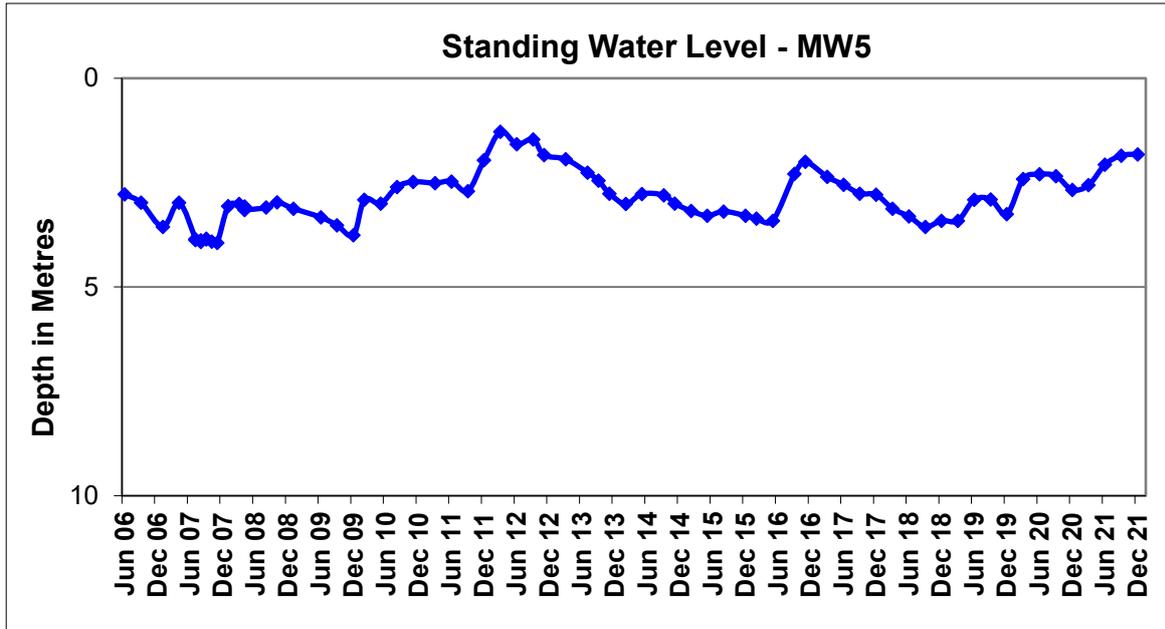
# Appendix B

### Deposited Dust Gauge Results- Quarterly rolling average [g/m<sup>2</sup>/month]



# Appendix C





**Notes:** Notes of the 68th Meeting of the Tarrawonga Coal Community Consultative Committee  
Held at the Tarrawonga Coal Mine Training Room – included a Site Tour

**Wednesday 25 May 2022**

**Members Present:** Alison Quiroz (AQ) – TCM, Cr Cathy Redding (CR) – Narrabri Shire Council, Darren Swain (DS) – WHC, Dean Scott (DSc) – TCM, Elizabeth O’Hara (EOH) – Community Representative, Madeleine Wright (MW) – TCM, Mark Hathway (MH) – Community Representative, Megan Martin (MM) – TCM, Michelle Henry (MH) – Narrabri Shire Council

**Apologies:** Lloyd Finlay (LF) – Community Representative, Rebecca Ryan (RR) – Community Representative, Cr Rob Hooke – Gunnedah Shire Council (RH), Wade Hudson (WH) – GSC Representative

**Independent Chair:** David Ross (DR)

**Independent Secretary:** Debbie Corlet (DC)

<b>Agenda Items</b>	<b>Who to Present</b>
1. Welcome and Apologies	DR
2. Declaration of pecuniary or other interests	DR
3. Mine Progress Report	WHC
4. Environmental Monitoring Report	
5. Site Tour	DR
6. Next Meeting – <b>Wednesday 24 August 2022</b>	ALL

<b>Agenda Item</b>	<b>Discussion</b>	<b>Action/By Whom</b>
1.	<b>Welcome and Apologies</b> – DR welcomed everyone to the 2 <sup>nd</sup> CCC meeting of the year. This meeting will be more informal as we’ll be doing a site tour, shortly. Meeting commenced at 9:15 am.	
2.	<b>Declaration of pecuniary or other interests</b> – DR is paid a fee as chair as is DC for typing the minutes.	
3.	<b>Mine Progress Report – Operations</b>  DSc discussed the quarterly safety statistics with members. TRIFR = 3.7 – 27/01/2022 due to a soft tissue injury. LTI Free = 120 – 25/01/2022 due to a soft tissue injury.  <u>Overburden</u> – Overburden removal is lower than budgeted. DSC observed that wet weather and flooding has been causing site access issues. November and December were impacted by flooding restricting site access for over two weeks, resulting in	

	<p>995 Kbcm unfavourable overburden movement. The hours lost due to wet weather is 137% above target. Above budget availability had a favourable impact on overburden movement.</p> <p><u>ROM Coal Mining</u> – Run of mine (ROM) coal mining is slightly down on what was budgeted. Similarly, reduced ROM coal reflects impact of weather events and flooding, partially offset by utilisation of excavators.</p>	
<p>4.</p>	<p><b>Environmental Monitoring Report</b></p> <p><b>Q2 Environmental – Q3 FY22 Summary</b></p> <ul style="list-style-type: none"> <li>• Topsoil stripping completed.</li> <li>• Flocculated water continuing to be discharged.</li> <li>• Native seedlings planted on the southern emplacement area, SOEA. 3,500 seedlings planted.</li> <li>• Blast Management Plan reviewed and submitted to the Department of Planning – only minor changes were made like grammatical errors fixed and the EPL Conditions added to the Legal requirements section.</li> </ul> <p>CR asked if this is the first rehabilitation undertaken. DSc responded that it is continuous.</p> <p><b>Q2 Monitoring and Compliance – Q3 FY22 Summary</b></p> <p>MM briefly discussed the monitoring results. These had been provided in greater detail and sent to members before the day of the meeting.</p> <ul style="list-style-type: none"> <li>• Noise – no exceedances.</li> <li>• Blasting – all blasts this quarter were within blasting criteria.</li> <li>• Air – All air quality monitoring for the quarter is within TCM’s approval criteria.</li> <li>• For a detailed description of the monitoring results, please see the monitoring report provided.</li> </ul> <p><b>General Questions</b></p> <p>There was a discussion about the mine’s disposal of tyres.</p> <p>EOH – With the burying of tyres – how many have been buried and can you show a map of where they’ve been buried, please? Any plan for alternatives? I understand you have two years.</p> <p>DSc – We are burying under approval and authority.</p> <p>MM – There have been 157 tyres buried in August where we did one campaign and will do another campaign. We take photos and we survey them, and we report this to the EPA with a Heavy-Plant Waste Tyre Report.</p> <p>In response to a follow up question from EOH, DSc noted that when the tyres are buried, there is a specific design of how they will be laid out, which required formal approval.</p>	<p>A tyre slide to be added to each presentation by MM and kept in for each meeting</p>

	<p>MM – It is very specific and must not impact groundwater. We have two years (in which to find an alternative approach), and we next submit a report in 2023 which shows the research we’ve done to show what is feasible and then have to present a report every year after that. We have a dedicated Tyre Manager. We have serial numbers of every tyre as well.</p> <p>DSc – We are industry-leading in NSW on the use of tyres as we maximise the number of hours that we get out of each tyre - around 6,500 to 6,900 hours per tyre.</p> <p>EOH – Has the rail closure had any impact?</p> <p>DSc – No, it hasn’t but it can, as ARTC has to do maintenance from time to time. We have a good relationship with them and so, they notify us months in advance and there is good communication.</p>	
5.	<b>Site Tour</b> – see below for notes.	
6.	<b>Next meeting date</b> – Next meeting <b>Wednesday 24 August 2022</b> at 9:00 am.	

**Meeting Closed: 9:45 am. Site Tour followed.**

## Notes from Site Tour

Members travelled in a minibus through the mine site to a location that overlooks the pit. Time was spent there viewing current operations.

Tarrawonga Coal Mine extracts coal seams within the Maules Creek sub-basin of the Bellata Group - target seams, ranging in thickness from 0.5 – 4.5m, averaging ~1.5m, include Braymont, Bollol Creek, Jeralong, Merriown, Velyama and Nagero. In general, the coal seams dip gently to the east, however, within the site, individual seams can be gently undulating in any direction.

The coal mined at Tarrawonga is crushed onsite, transported to the Gunnedah CHPP for selective washing (approx. 50%) and blending with other WHC coals, to produce low sulphur/high energy export thermal or semi-soft coking coal products.

EOH asked about the autonomous trucks.

MM responded that there are none being used at Tarrawonga. All trucks are fully operated by staff.

It was observed that the mine has nine more years of operation with 2031 proposed to be the end of the mine's life.

To bring new members in particular up to speed, it was agreed that presentations by WHC staff (specifically the presentation on blasting) could be provided at forthcoming CCC meetings.

Members then travelled to the southern emplacement area to view the rehabilitation that has commenced.

MM explained that after the soil had been ripped, oats and millet were seeded. These stabilise the soil, reducing the potential for erosion and improve the appearance. We sow native seed at the same time as the oats and millet. They take longer to germinate so the 'cover crop' assists in erosion and sediment control until germination and tree planting occur.

MM then talked about some of the native plantings and how they are fertilised. Manure is a good fertiliser as it also acts as a carrier for the light native seed so it doesn't blow away during sowing. This may be trialled in the future. Fertilising was supposed to be done last year but was stopped due to the flooding. We don't have to plant seedlings but for aesthetic purposes, it is worthwhile. It helps with soil and seed regeneration. The TCM contractor is getting organised now.

In response to a question, rehabilitation commences as soon as the mine starts. The mine is hoping for a good survival rate and hope to put tree guards in to protect from kangaroos as soon as possible. TCM staff also need to watch out for weeds as some are very hard to remove.

In response to a previous observation by Peri, DR asked why the local coal is good. Peri said it has low ash content, a reasonable amount of energy, low emissions due to low sulphur, is therefore very clean. That is why it is in such demand, internationally and domestically.

MM said that other countries like Korea and Japan will still want / need it. Also, domestic usage like tomatoes that are grown in glass houses, flower farms that grow hydroponically in green houses to keep heat up. Some hospitals still use coal in their heating systems as do Australia's remaining steam trains.

**Site Tour Closed at 11:55 am**

### Appendix 1: Actions

Page No	Action No	Description	Date Raised
2	1	A tyre slide to be added to each presentation and kept in for each meeting	25 May 2022



# Tarrawonga Coal Mine Community Consultative Committee Meeting #69

Quarterly Environmental Monitoring Report  
May 1, 2022 – July 31, 2022



*Photo taken in June 2022 in a section of the Southern Emplacement Area that was rehabilitated in in December 2021, and tubestock planted in May 2022.*

This report has been prepared for the Community Consultative Committee (CCC) meeting to show Environmental monitoring performance at Tarrawonga Coal Mine (TCM) for the reporting period from May 1 2022 to July 31, 2022. Maps with all the monitoring locations are available in *Appendix A*.

# Noise Monitoring

Attended noise monitoring was conducted at the “Bungalow” (TN4), “Barbers Lagoon” (TN3) and “Matong” (TN2) properties from 7<sup>th</sup> to the 9<sup>th</sup> of June 2022. Noise criteria for the mine is 35dB(A) Leq (15 min) for all operating times.

Results below show that noise emissions from the mine did not exceed operational noise criteria at the “Barbers Lagoon”, “Bungalow” or “Matong” monitoring locations for any monitoring events during the monitoring period.

*(See below summary tables extracted from 20220624 RWDI report 2190007.10 REP NAV Compliance Monitoring Tarrawonga Q2 2022)*

**Table 5-1: Comparison of noise levels between TN2 and 573b Coomalgalah**

Date	Time	Noise Limits L <sub>Aeq</sub> 15min	TN2	573b Coomalgalah	
			Mine L <sub>Aeq</sub> Noise Level (dB)	Commensurate Mine Compliance Level	Exceedance
			Measured mine contribution		
06/06/2022	21:30	35	30	21	No
	21:45	35	31	22	No
	22:00	35	32	23	No
	22:15	35	31	22	No
	22:30	35	34	25	No
	22:45	35	33	24	No
07/06/2022	09:33	35	33	24	No
	22:00	35	35	26	No
08/06/2022	09:50	35	<30	<21	No
	10:05	35	<30	<21	No
	10:20	35	<30	<21	No
	21:30	35	35	26	No
	21:45	35	35	26	No
	22:00	35	34	25	No
	22:15	35	34	25	No
	22:30	35	34	25	No
09/06/2022	21:30	35	<31	<22	No
	21:45	35	32	23	No
	22:00	35	33	24	No
	22:15	35	32	23	No
	22:30	35	32	23	No
	22:45	35	33	24	No

**Table 5-2: Comparison of maximum noise events between TN2 and 573b Coomalgah**

Date	Time	Noise Limits LA1,1min	Noise source	TN2 Mine LAmax Noise Level (dB) Measured Level	573b Coomalgah Mine LAmax Noise Level (dB)	
					Commensurate Mine Compliance Level	Exceedance
06/06/2022	22:00	45	Horn	38-44	31-35	No
	22:15	45	Horn	38-44	31-35	No
	22:30	45	Horn	38-44	31-35	No
	22:45	45	Horn	38-44	31-35	No
07/06/2022	22:00	45	Horn	38-41	29-32	No
	22:15	45	Horn	38-41	29-32	No
	22:30	45	Horn	38-41	29-32	No
	22:45	45	Horn	38-41	29-32	No
08/06/2022	22:00	45	Horn	36-40	27-31	No
	22:15	45	Horn	36-40	27-31	No
	22:30	45	Horn	36-40	27-31	No
	22:45	45	Horn	36-40	27-31	No
09/06/2022	22:00	45	Horn	40-42	31-33	No
	22:15	45	Horn	40-42	31-33	No
	22:30	45	Horn	38-40	29-31	No
	22:45	45	Horn	38-40	29-31	No

Note 1 I/A indicates the mine was inaudible during the measurement period.

**Table 5-3: Summary of noise assessment at TN3**

Date	Time	Noise Limits LAeq 15min	TN2 Mine LAeq Noise Level (dB)		
			Measured mine contribution	Additional LF penalty	Exceedance
06/06/2022	20:06	35	I/A	0	No
	20:21	35	I/A	0	No
	23:21	35	I/A	0	No
	23:36	35	I/A	0	No
07/06/2022	00:06	35	I/A	0	No
	08:41	35	I/A	0	No
	08:56	35	I/A	0	No
	09:12	35	I/A	0	No
	09:27	35	I/A	0	No
	23:18	35	I/A	0	No
	23:48	35	I/A	0	No

<b>08/06/2022</b>	00:03	35	I/A	0	No
	08:05	35	I/A	0	No
	08:20	35	I/A	0	No
	08:35	35	I/A	0	No
	08:50	35	I/A	0	No
	09:05	35	I/A	0	No
	09:20	35	I/A	0	No
	20:15	35	I/A	0	No
	20:30	35	I/A	0	No
	23:18	35	I/A	0	No
	23:33	35	I/A	0	No
	23:48	35	I/A	0	No
<b>09/06/2022</b>	00:03	35	I/A	0	No
	20:26	35	I/A	0	No
	20:41	35	I/A	0	No
	23:18	35	I/A	0	No
	23:33	35	I/A	0	No
<b>10/06/2022</b>	23:48	35	I/A	0	No
	00:03	35	I/A	0	No

Note 1 I/A indicates the mine was inaudible during the measurement period.

**Table 5-4: Summary of noise assessment at TN4**

Date	Time	Noise Limits $L_{Aeq} 15min$	TN2 Mine $L_{Aeq}$ Noise Level (dB)		
			Measured mine contribution	Additional LF penalty	Exceedance
06/06/2022	21:30	35	I/A	0	No
	21:45	35	I/A	0	No
	22:01	35	I/A	0	No
	22:16	35	I/A	0	No
	22:31	35	I/A	0	No
	22:46	35	I/A	0	No
07/06/2022	22:00	35	I/A	0	No
08/06/2022	09:48	35	I/A	0	No
	10:03	35	I/A	0	No
	10:19	35	I/A	0	No
	21:26	35	I/A	0	No
	21:41	35	I/A	0	No
	22:00	35	I/A	0	No
	22:15	35	I/A	0	No
	22:30	35	I/A	0	No
	22:45	35	I/A	0	No
	11:59	35	I/A	0	No
09/06/2022	12:45	35	I/A	0	No
	21:25	35	I/A	0	No
	21:40	35	I/A	0	No
	22:00	35	I/A	0	No
	22:15	35	I/A	0	No
	22:30	35	I/A	0	No
22:45	35	I/A	0	No	

Note 1 I/A Indicates the mine was inaudible during the measurement period.

Noise from the mine must not exceed 45 dB(A) L1 (1 min) between 10 pm and 7 am. This criteria is to minimise the potential for sleep disturbance as a result of individual loud noises from the mine. Results of attended monitoring show that the measured L1 (1 min) noise level did not exceed sleep disturbance criteria.

The real time noise monitor located on the “Coomalgah” property remains a management tool so the noise criteria are not applicable at that site. Levels of noise recorded at that location are managed according to the noise management plan and trigger action response plan.

# Blast Monitoring

## Blasting Results

Since 2006, there have been 1134 blasts (until 31/07/2022) at TCM.

The highest result for Overpressure last quarter was 121.8 dB recorded at the 'Tarrawonga' monitor on the 30/05/2022. While this is more than the 120dB limit stated by the EPL, it was recorded at the mine owned property 'Tarrawonga' and is therefore compliant with licences and approvals.

The highest result for ground vibration last quarter was 2.41 mm/s recorded at the 'Coomalgah' monitor on the 30/05/2022.

TCM overpressure and ground vibration for the quarter was compliant and did not exceed the blasting criteria declared in the project approval and Blast Management Plan (BMP).

*Table 1 - Max Peak Overpressure and Ground Pressure for the Quarter*

Monitor Location	Date	Max. Peak Overpressure (dB)	Criterion (dB)	Date	Max. Peak Ground Pressure (mm/s)	Criterion (mm/s)
Tarrawonga*	30/05/2022	121.8	N/A	03/05/2022	1.01	N/A
Coomalgah	03/06/2022	105.2	120	30/05/2022	2.41	10

*\*Limit Not applicable according to EPL and PA11\_0047 because project related property.*

During the reporting period, no reportable fume events were recorded at TCM. The highest result recorded during the period was a '2C' on the 3<sup>rd</sup> of May 2022, but this was monitored as having dissipated within TCM's Mining Leases.

# Air Quality Monitoring

## Dust Deposition Results

Standard Australia AS/NZS 3580.10.1:2016, "Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric Method," classifies deposited dust as insoluble solids. Therefore, TCM tests air quality monthly at mine-owned sites for indicative purposes, to infer compliance, against the limit of 4 g/m<sup>2</sup>/month.

**Table 3** shows deposited dust gauge results over 12 months. All the dust monitors are located on project related or WHC owned land; as such compliance criteria (4g/m<sup>2</sup>/month) do not apply. While deposited dust trends remain steady during the reporting period (refer graph in *Appendix B*), some monitors are displaying non-mine related particulate matter deposition more regularly than others. Non-mine related particulate matter could be attributed to organic matter (such as leaves that fall in to the bottles, mice or frogs, or insects), or they may be in farming locations, so during some months dust levels may be higher due to harvesting.

MONTH	TEMPLEMORE (EB-4)	BOLLOL CREEK STN (EB-5)	AMBARDO (EB-6)	TARRAWONGA (EB-7)	PINE GROVE (EB-9)	TARRAWONGA MINE (EB-10)	TARRAWONGA MINE (EB-11)	TARRAWONGA MINE (EB-14)	TARRAWONGA MINE (EB-15)	JERALONG NORTH (EB-16)
Jun-21	2.2	4.2	0.3	0.2	0.4	3.3	1.9	0.5	3.3	4.9#
Jul-21	12.9#	12.5#	0.2	0.3	0.2	6.6#	2.3	0.7	1.6	2.8
Aug-21	1.9	37.5#	0.8	0.9	1.8	47.7#	2.4	4.2	1.4	4.9
Sep-21	5.9	2.8	0.4	0.4	0.4	68.1#	1.7	3.1#	0.6	0.4
Oct-21	2.9	4.6	2.9	1.2	1.9	19.6#	3.1	7	2	2.3
Nov-21	3.1#	9.7#	7.2#	2.2	1	12.5#	2.7	3.6	1.5	3.7#
Dec-21	10.8#	8.9#	1.3	1	0.8	13.3#	0.6	3.9	6.8#	3.2
Jan-22	1.8	9.1#	0.7	0.9	7.1#	17.8#	4.8	3.7	1.2	3.2#
Feb-22	16.4#	7.3#	0.8	0.5	5.5#	10.3#	3.5	2.5	1.5	6.5#
Mar-22	1.9	6.6#	6.2#	0.7	1.2	2.3	3.8	2.6	0.6	2
Apr-22	7.4#	8#	0.1	0.4	1.8	3	2.8	5.6#	0.7	0.9
May-22	2.8	4.8	1.4	1.1	0.6	13.8#	2.7	2.8	1	1.8
Jun-22	15.3#	12.2#	0.5	0.5	0.6	23.3#	5.2	4.5	46.3#	48.2#
Jul-22	3.5	5.3	0.4	1.9	7.3	7.4	3.2	2.6	1.3	0.4
<b>12 MONTH ROLLING AVERAGE</b>	2.86	4.34	0.82	0.87	1.5	4	2.9	3.2	1.4	2.08

# Analysis done on these bottles concluded that they are contaminated, often with low ash/insoluble matter. Often noted on field sheets are bird droppings, insects and plant matter.

+ bottles missing due to replacement after contamination or temporary civil/mining activities in the area.

<sup>1</sup>DDG bottle on the fenceline between TCM and BCM ROM.

Red = above the rolling average, but exceedances are not mine-related and are not considered non-compliances.

Table 2 - Deposited Dust Gauge Results [g/m2/month]

### High Volume Air sampler (PM10) Results

The High Volume Air Sampler (HVAS) installed at Coomalgah property monitors levels of Particle Matter under 10 micron (PM<sub>10</sub>). It operates for 24hr every 6 days. **Table 3** shows that all 24hr average values recorded for this quarter are below the 50µg/m<sup>3</sup> criteria.

*Table 3 - HVAS PM10 24 hr average levels for the Quarter*

<b>Date</b>	<b>24hr averaged PM10 (µg/m<sup>3</sup>)</b>	<b>Criterion 24hr average (µg/m<sup>3</sup>)</b>	<b>Comments</b>
<b>4/05/2022</b>	10.6	<b>50</b>	Nil
<b>10/05/2022</b>	10.4		
<b>16/05/2022</b>	3.2		
<b>22/05/2022</b>	2.8		
<b>28/05/2022</b>	4.9		
<b>3/06/2022</b>	5.3		
<b>15/06/2022</b>	6.5		
<b>21/06/2022</b>	7.7		
<b>27/06/2022</b>	4.8		
<b>03/07/2022</b>	3.0		
<b>09/07/2022</b>	1.6		
<b>15/07/2022</b>	1.1		
<b>21/07/2022</b>	0.2		
<b>27/07/2022</b>	5.3		

### Real-time Air monitoring (PM<sub>10</sub>)

A real time air quality unit (TEOM) is located at the “Flixton” property to monitor PM<sub>10</sub> levels in ambient air, as per the current Air Quality and Greenhouse gas Management Plan. It is an operational management tool and dust levels nearing or reaching the nominated criteria will trigger actions onsite to assess the source of dust and modify operations if it is determined to be related to Tarrawonga operations.



*TEOM installed at Flixton property*

Three portable dust (PM<sub>10</sub>) monitors have been utilised since Nov 2018 to improve the real-time dust monitoring network and assist the operation to mitigate any potential dust generated by the operation.



*Portable and real-time dust monitor installed at TCM in November 2018*

# Water Monitoring

## Groundwater

Routine groundwater monitoring results undertaken between June 2021 and June 2022 are shown in **Table 4** (refer to graphs in *Appendix C*).

*Table 4 - Groundwater results Summary*

Site	Date	SWL (mbgl)	pH (units)	Elect. Conductivity (µS/cm)
<b>MW1</b>	June 2021	6.9	7.84	3,480
	September 2021	8.14	7.57	3,530
	December 2021	6.93	7.32	3,600
	March 2022	6.8	7.54	3,910
	June 2022	6.70	7.52	3,580
<b>MW2</b>	June 2021	3.46	7.05	527
	September 2021	3.42	6.97	615
	December 2021	3.29	6.74	822
	March 2022	3.51	6.82	952
	June 2022	3.52	6.59	826
<b>MW4</b>	June 2021	9.53	7.26	3,250
	September 2021	9.48	7.62	3,100
	December 2021	9.91	7.56	3,040
	April 2022	9.17	7.6	3,360
	June 2022	9.05	7.45	3,090
<b>MW5</b>	June 2021	2.07	7.56	766
	September 2021	1.84	7.7	1,810
	December 2021	1.81	7.7	2,054
	March 2022	2.34	8.01	1,529
	June 2022	1.9	7.52	830
<b>MW8</b>	June 2021	13.07	Casing blocked	Casing blocked
	September 2021	12.7		
	December 2021	12.08		
	March 2022	12.36		
	June 2022	-		

Surface Water

Water storage onsite is expected to be sufficient for at least the next 12 months. TCM has continued to treat (flocculate) sediment dam SD9 to allow for controlled release from Licence Discharge Point (LDP) 2, and through SD17 (LDP1) in accordance with the Water Management Plan. Approximately 90 ML of suitable quality water (within EPL1265 limits) was discharged in the reporting period with only a small amount to be discharged from site in the next reporting period (pending no more major weather events).

From the start of 2022 TCM has recorded 447.6mm of rain.

<b>2021</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Total</b>
Monthly Rain (mm)	58.4	115.4	141.2	22.0	66.6	105	73.8	41.8	18.3	56	240	96.6	1072.8
Cumulative (mm)	58.4	176.8	317.4	339.6	406.2	511.2	585	626.8	683	920.2	976.2	1072.8	
<b>2022</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Total</b>
Monthly Rain (mm)	106.6	74.4	100	60.8	59	14.4	32.4	-	-	-	-	-	447.6
Cumulative (mm)	106.6	181	281	341.8	400.8	415.2	447.6	-	-	-	-	-	

# Rehabilitation and Clearing

## Rehabilitation

TCM recently submitted Rehabilitation Management Plans and Forward Programs to the Resources Regulator for the reforms that came into force on the 2<sup>nd</sup> July 2022. These renewed rehabilitation plans have TCM committing to approximately 11.7Ha of Ecosystem Establishment for the year (tubestock planting and seeding) and approximately 38.2Ha of Land ready for rehabilitation use (Landform establishment/ Growth medium development).

TCM are currently sitting with 18Ha in the landform establishment phase, with topsoil ready to be spread over 11.7Ha on the Northern Emplacement area (NEA) in the next few months (pending tender approval of contractors).

The rest of the landform establishment that is set to be completed by the EOY22, is located on the Southern Emplacement area (SEA). This area requires the removal of overburden and then pushing for final landform establishment.

TCMs rehabilitation areas from last year were successfully planted with hiko seedlings/tubestock in May. As can be seen on the SEA, a large portion of these tubestock have been protected by tree guards. Tree guards will not be placed from here on out as the weather will begin to change, allowing for the trees to grow without hindrance from frost or winter winds.



*Figure 1: Tubestock/seedling planted on the SEA*

# Current Rehab Status

## Rehabilitation progress

- Mop area of 160.5ha rehabilitation achieved. (Amended MOP Area)
- Shaping to landform NE Overburden Dump

Rehab phase	Area Ha	
Landform	18.1	
Growth medium	0	
Ecosystem establishment	142.4	
Total Rehab (CY21)	160.5	
MOP Requirement (CY21)	158	



## Clearing

Clearing occurred between February and April 2022, as reported in the previous reporting period.

Stripping of topsoil is still to occur in these areas, with soil remaining in place until required for rehabilitation or operational requirements necessitate soil stripping.

## Complaints

No complaints received for the reporting period.

# Environmental Management Plans

## Management Plans

As stated above, the Rehabilitation Management Plans were submitted to the Resource regulator at the close of July 2022. This includes spatial data for disturbance, rehabilitation forward plans for the coming three years, and final landform features. These are now to be internally reviewed by the RR and any comments will be addressed in due course.

Following approval of Modification 7 of PA11\_0047, TCM has conducted a review of all the Management Plans. Updated Management Plans were submitted via DPIE portal for approval in May 2021 including, Air Quality Management Plan, Noise, Management Plan, Blast Management Plan and Water Management Plan.

The Water Management Plan is still under review, but all the other updated management plans were approved and are available on the WHC website.

The Blast Management Plan was submitted for review by DPE on the 13<sup>th</sup> March 2022. On the 10<sup>th</sup> of August, a request for more information was received and this is now being put together by the TCM team as a response.

The Biodiversity Management Plan was updated in consultation with the Department of Planning and Environment to address requirements for additional boundary marking protocols during clearing. This was in response to a minor event during the February/March 2021 clearing program.

## BTM Water Strategy

The BTM mines submitted an updated BTM Groundwater Model. This has now been approved and displayed on our website.

The BTM Noise Management Strategy has also been reviewed and will be submitted by MCCM once finalised.

# Annual and Compliance Reporting

## Annual Review and Annual Return Reports

The Annual Return and Annual Review were submitted in March 2022.

## Annual Compliance EPBC statement

The Annual Compliance EPBC statement was submitted to DAWE in June 2022.

## Annual National Pollutant Inventory (NPI) and Greenhouse Gas Emission (NGERs) Reports 2021

Information for the TCM NPI and NGERs reports have been collected and submitted to our compliance team. This will be submitted in the coming weeks.

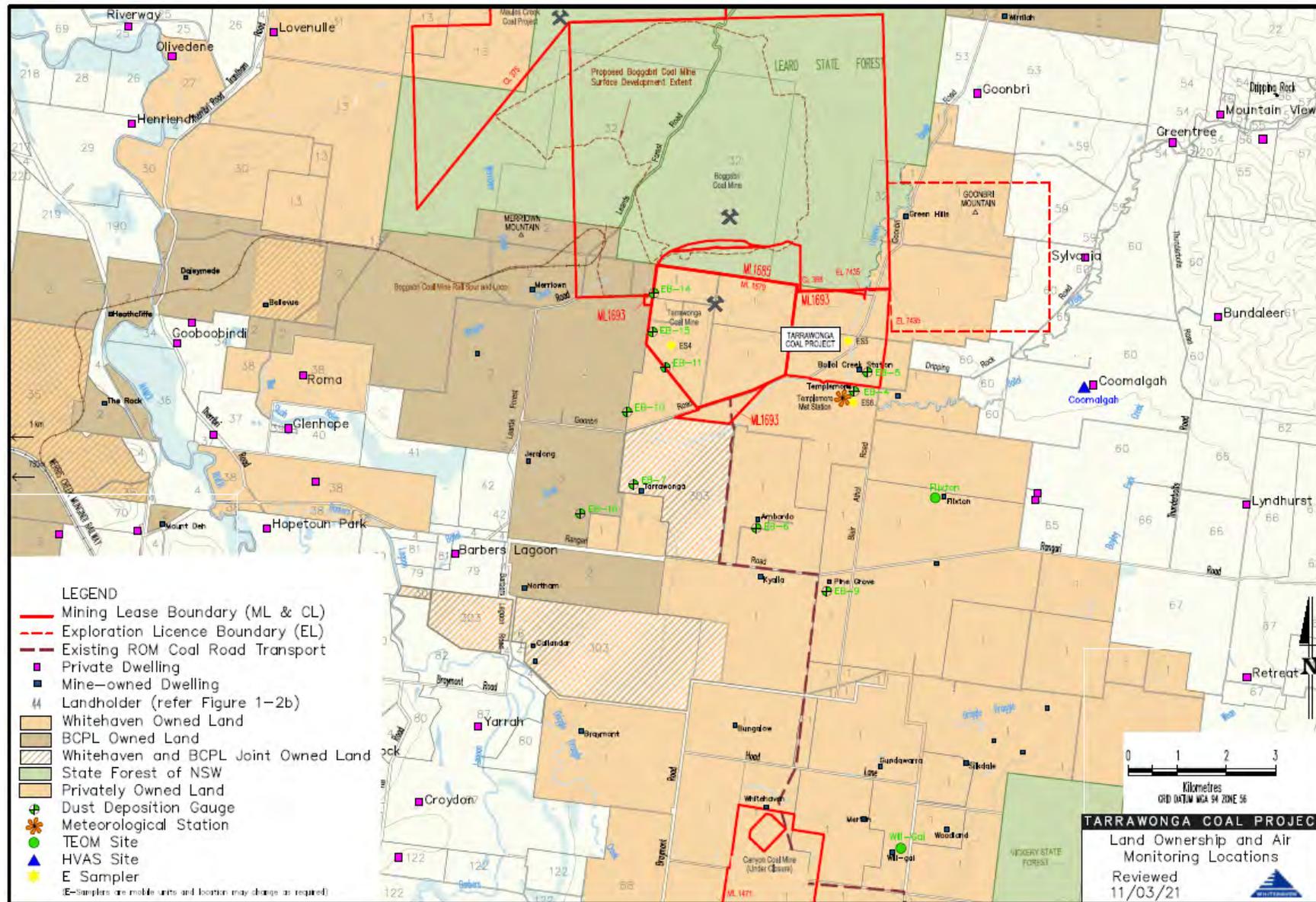
# Audits- Compliance

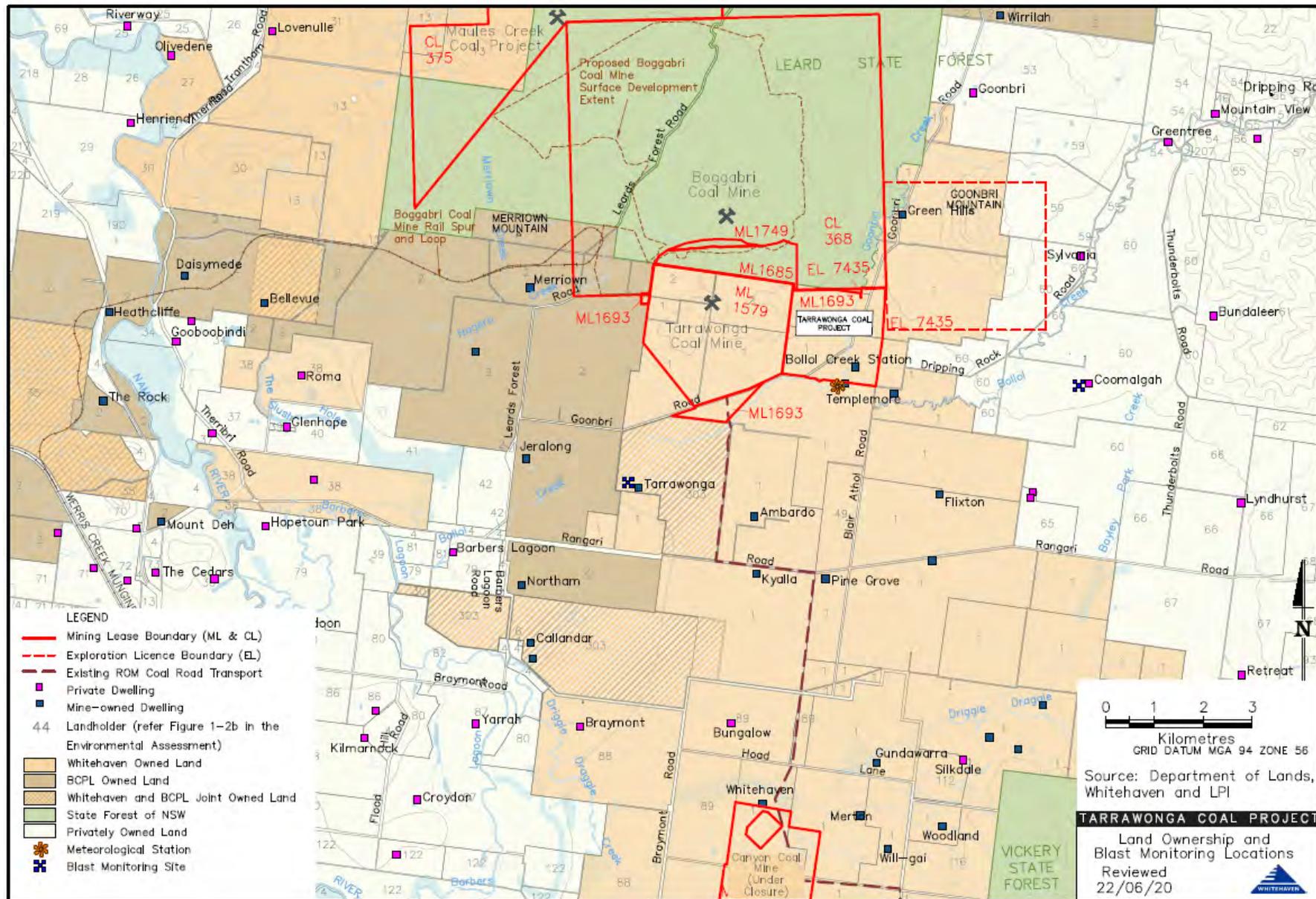
In response to discharge events in March 2021 the EPA required TCM to complete a water management audit by a certified external contractor/consultant. This audit has been completed and the report finalised. The recommendations of this report will be addressed in an Implementation Report to be submitted by TCM to the EPA.

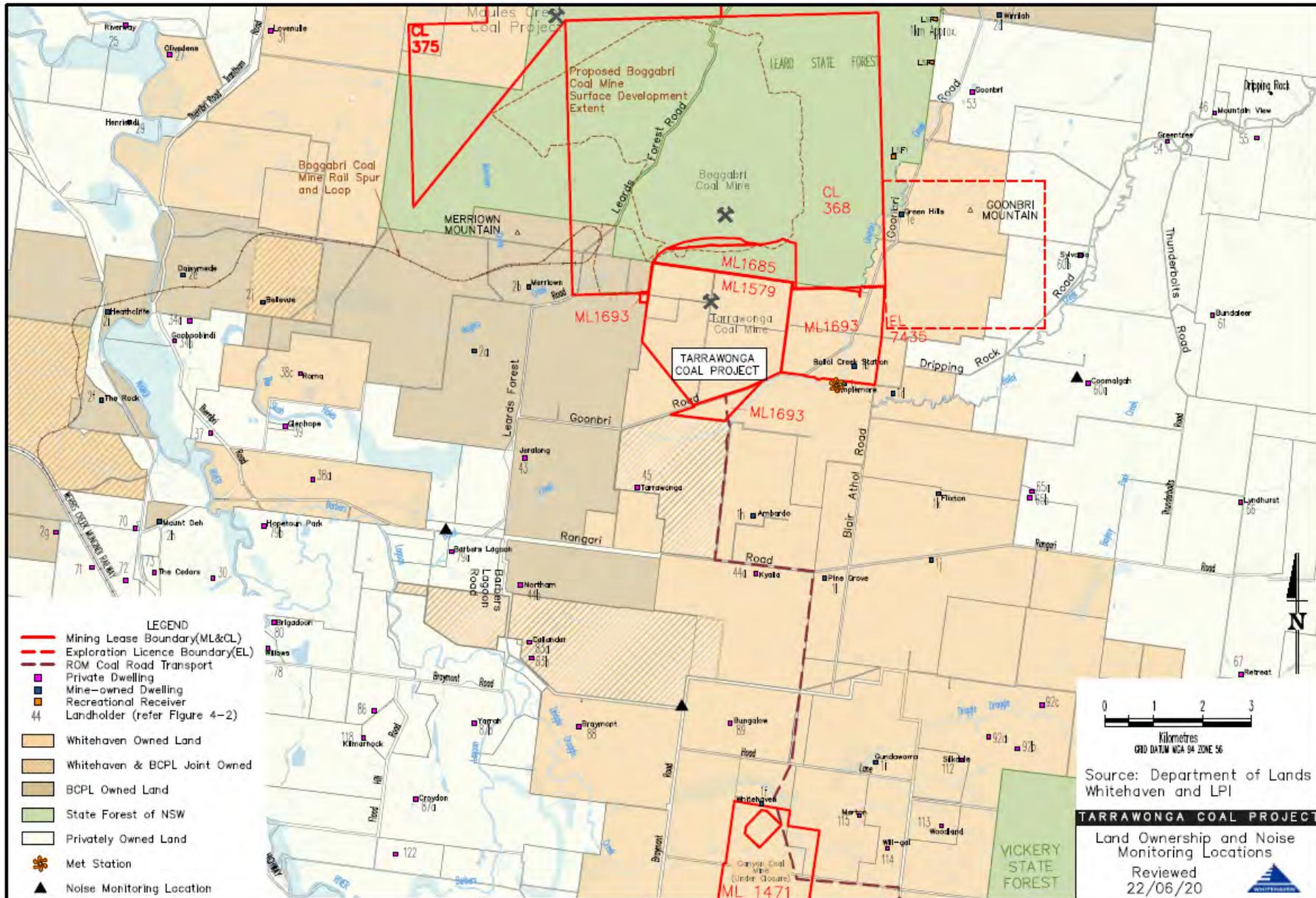
## Approvals and Licencing

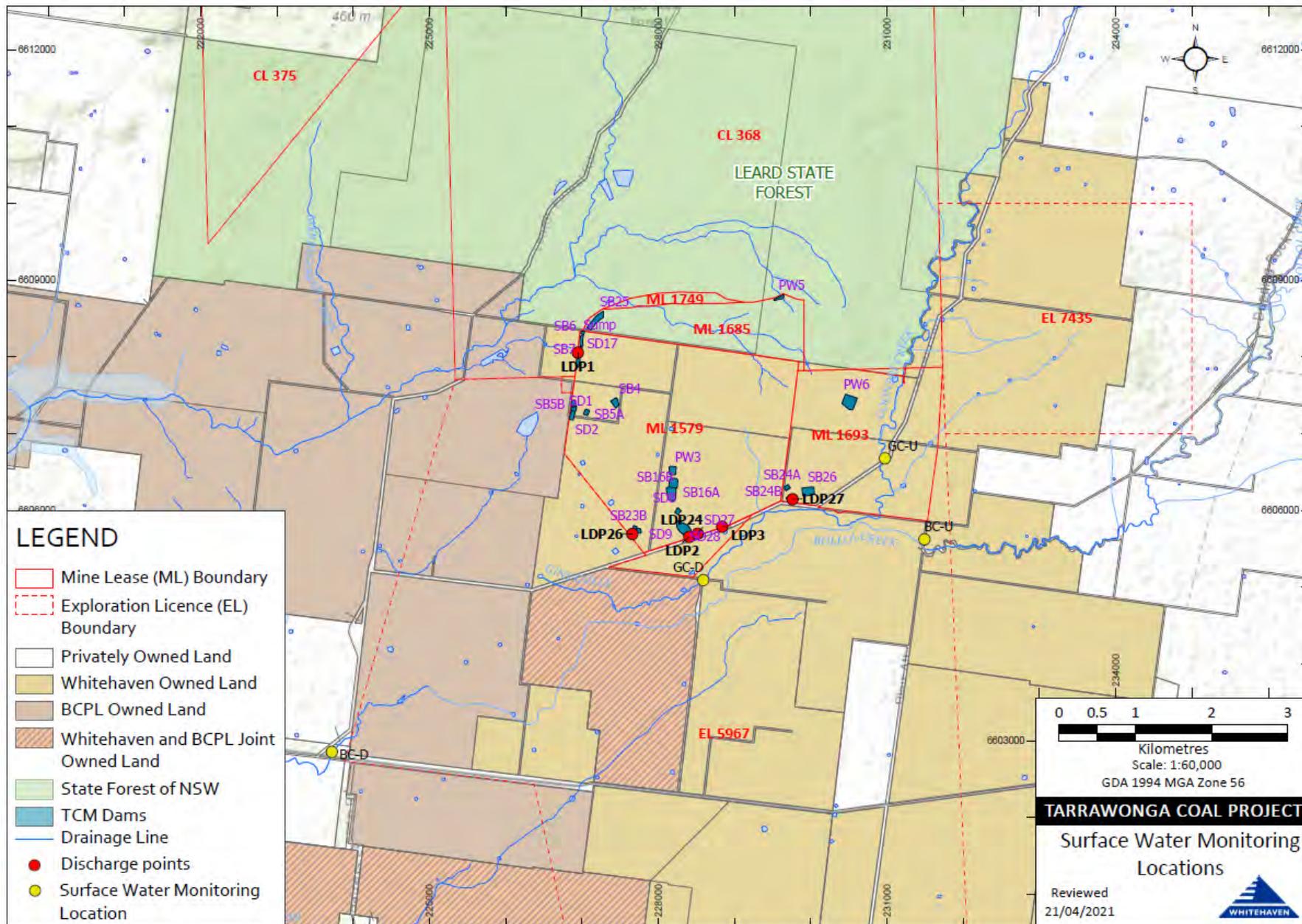
The EPA varied EPL12365 in December 2021. This amended EPL has been uploaded to the website.

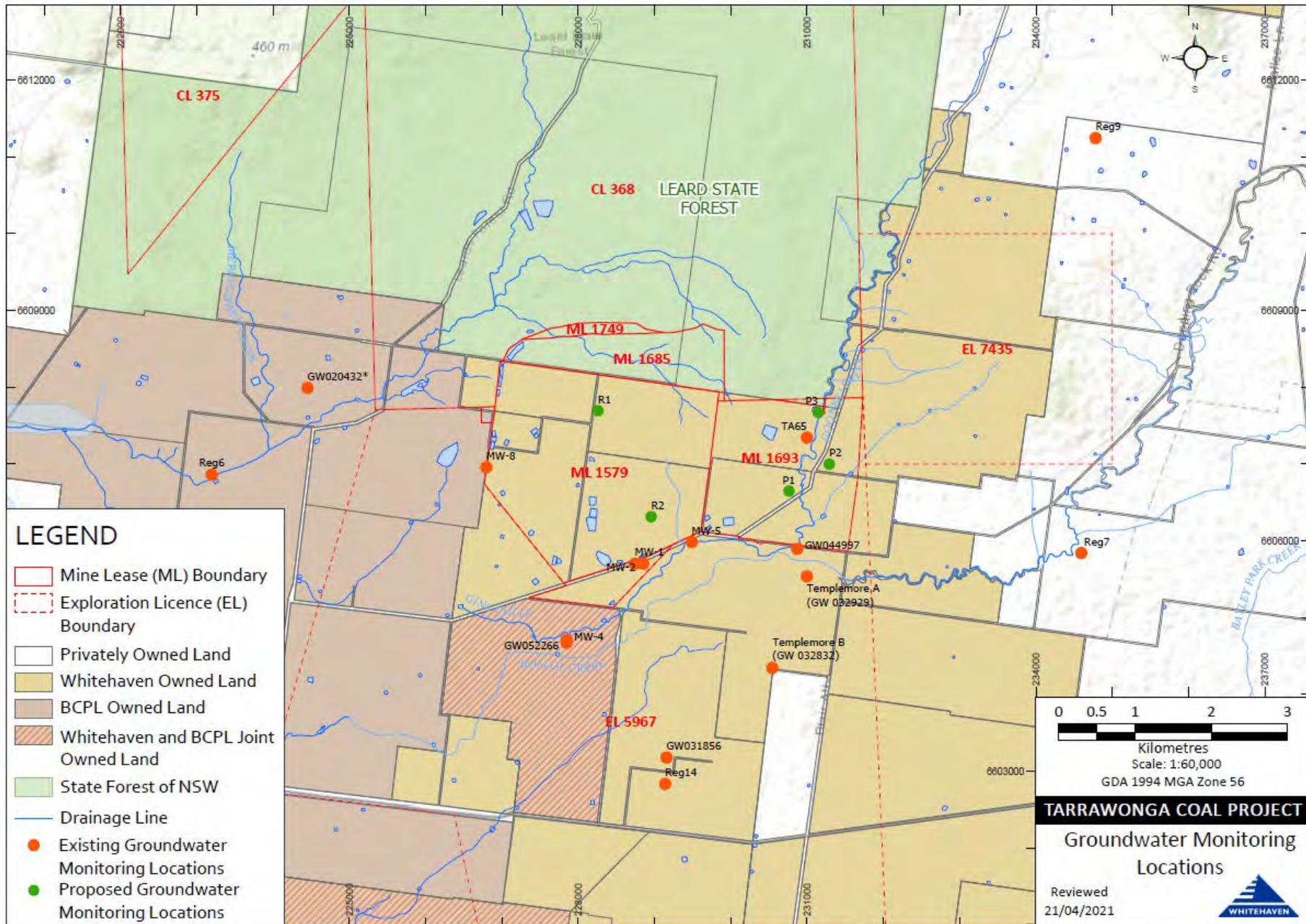
# Appendix A





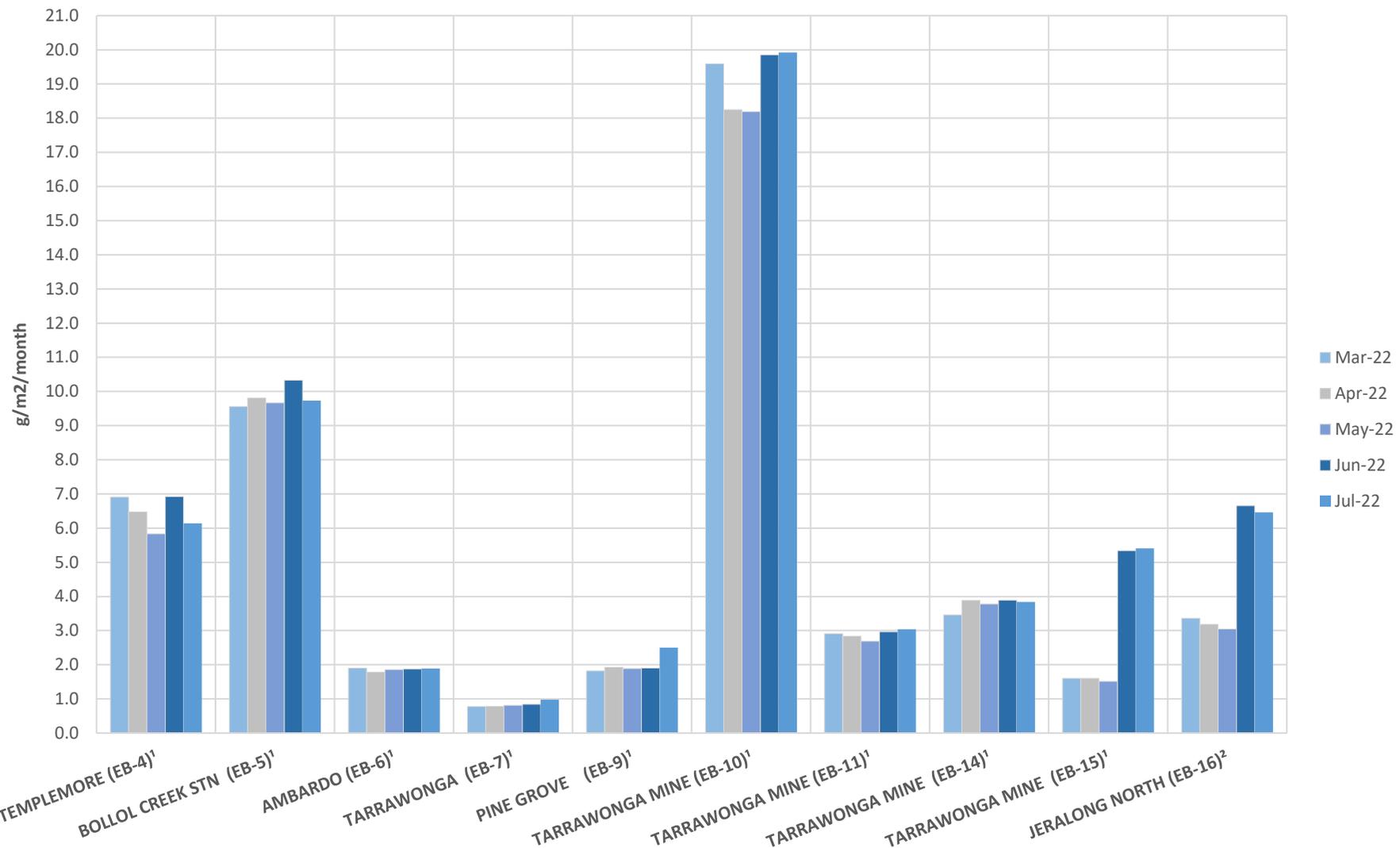




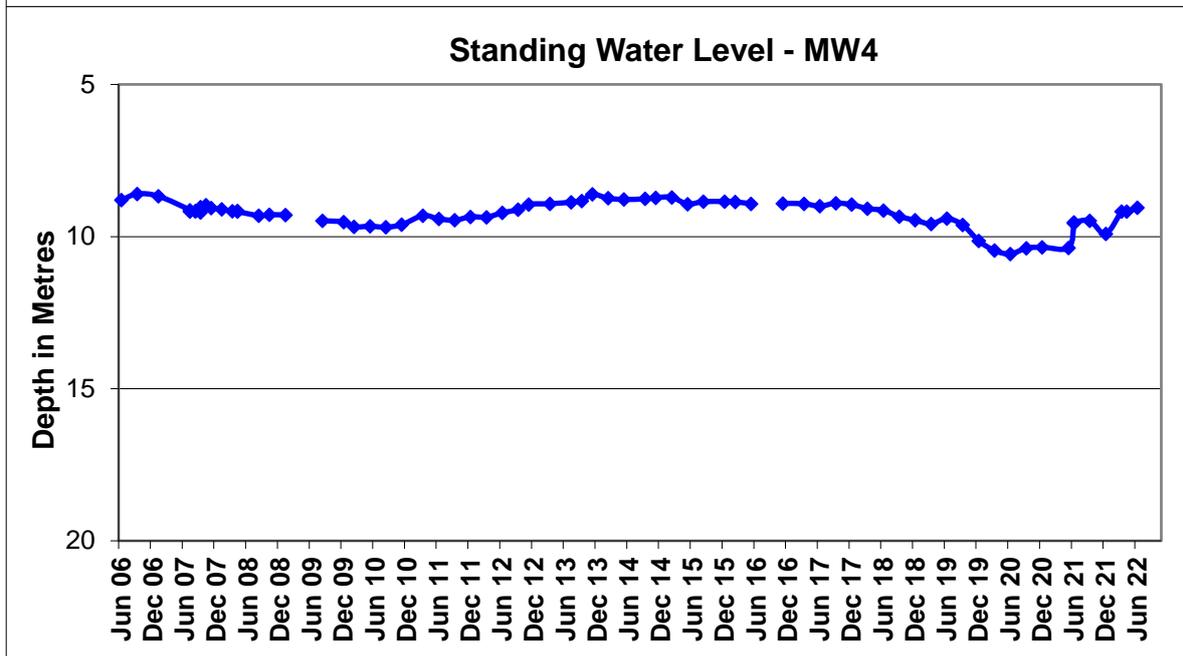
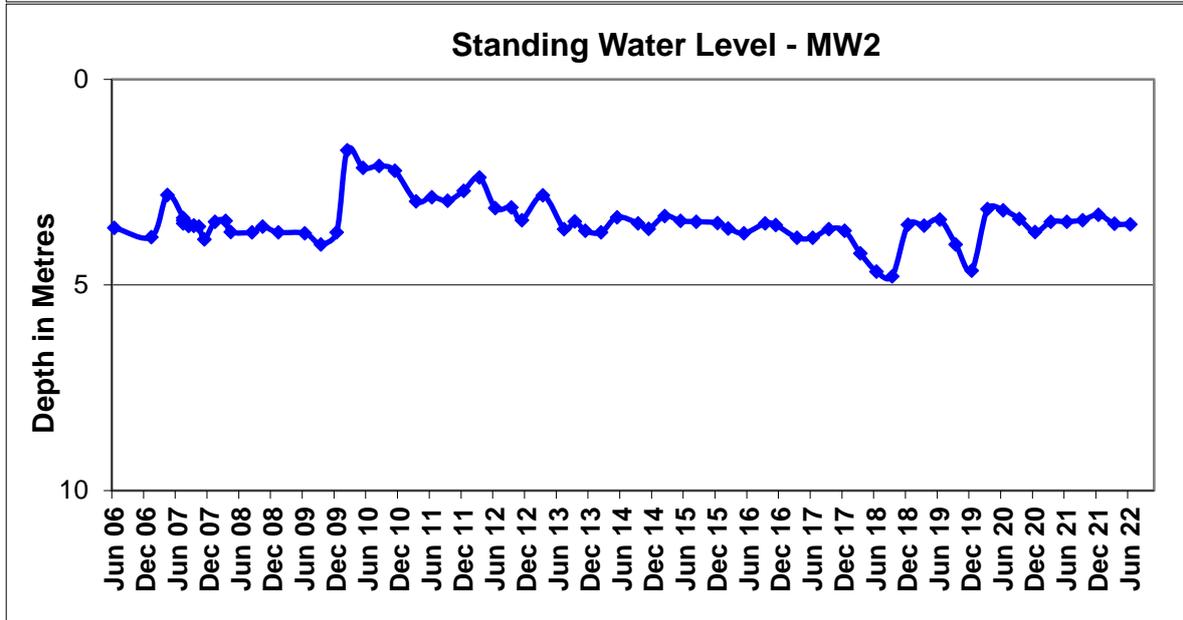
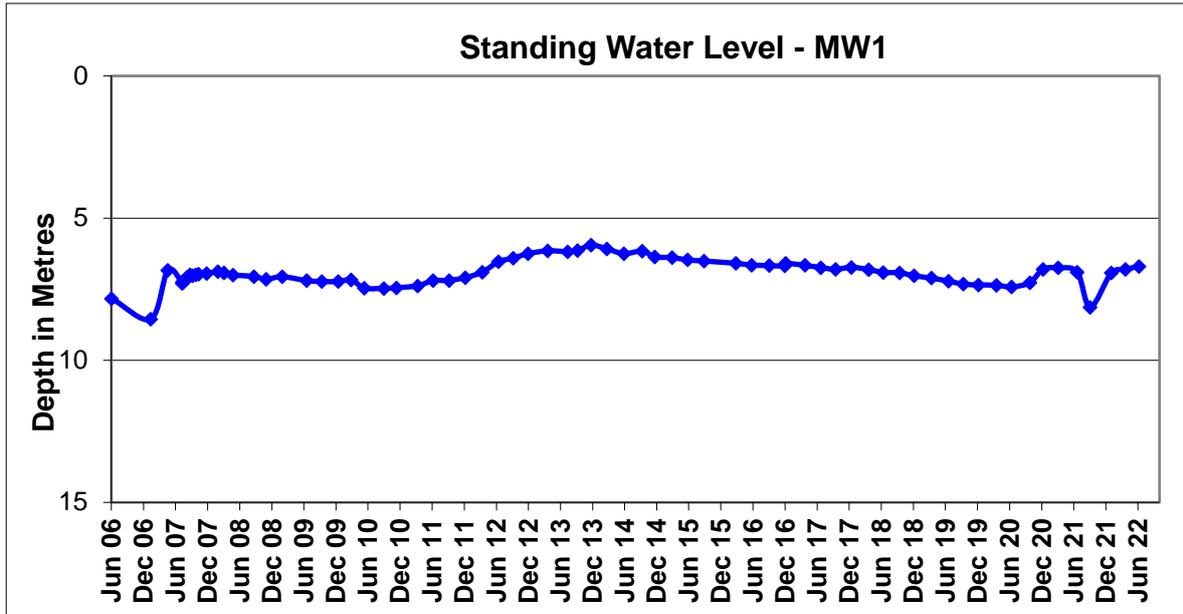


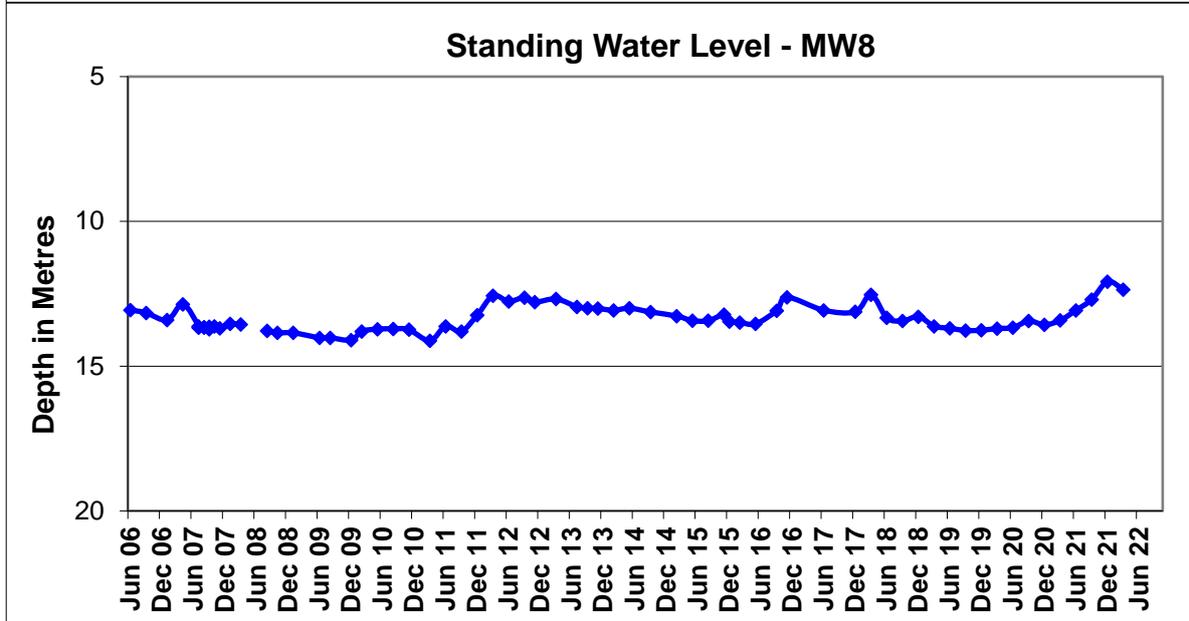
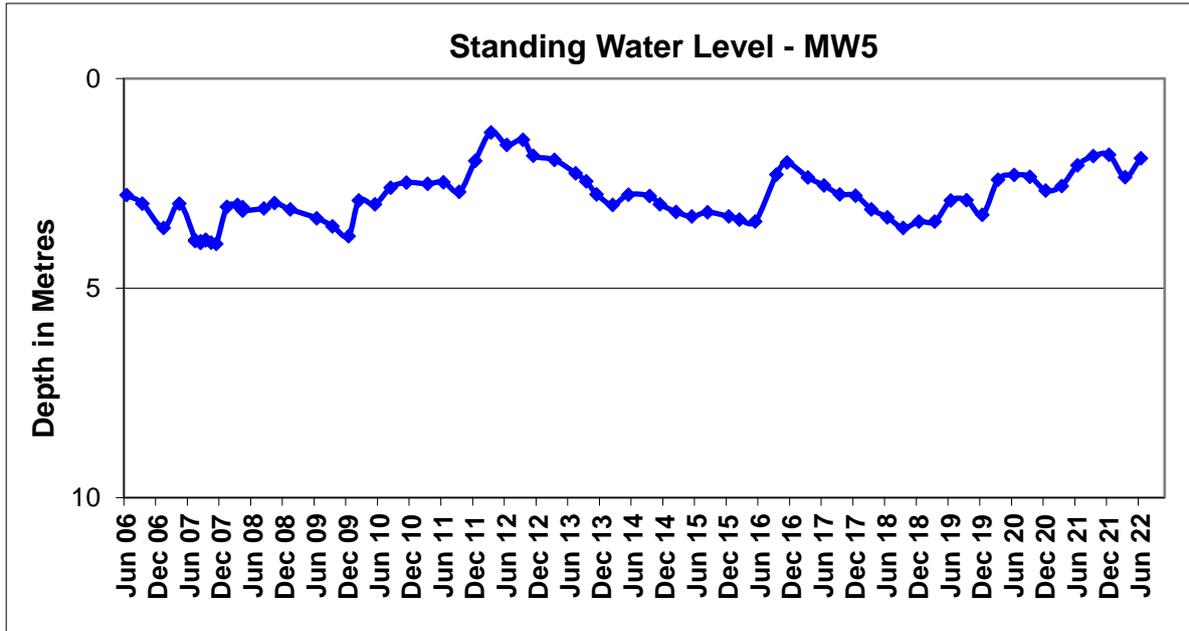
# Appendix B

### Deposited Dust Gauge Results- Quarterly rolling average [g/m<sup>2</sup>/month]



# Appendix C





**Notes:** Notes of the 69th Meeting of the Tarrawonga Coal Community Consultative Committee  
Held at the Tarrawonga Coal Mine Training Room

**Wednesday 24 August 2022**

**Members Present:** Alison Quiroz (AQ) – TCM, Cr Rob Hooke – Gunnedah Shire Council (RH), Elizabeth O’Hara (EOH) – Community Representative, Jackie Scott (JS) – WHC, Mark Hathway (MH) – Community Representative, Megan Martin (MM) – TCM, Michelle Henry (MH) – Narrabri Shire Council, Omar Romeril (OR) – TCM, Sam Payne (SP) – TCM, Jack Morrissey (JM) – GSC Representative (alternative)

**Apologies:** Cr Cathy Redding (CR) – Narrabri Shire Council, Colleen Fuller (CF) – Community Representative, Darren Swain (DS) – WHC, Dean Scott (DSc) – TCM, Lloyd Finlay (LF) – Community Representative, Madeleine Wright (MW) – TCM, Rebecca Ryan (RR) – Community Representative, Wade Hudson (WH) – GSC Representative

**Independent Chair:** David Ross (DR)

**Independent Secretary:** Debbie Corlet (DC)

<b>Agenda Items</b>	<b>Who to Present</b>
1. Welcome and Apologies	DR
2. Declaration of pecuniary or other interests	DR
3. Minutes from Previous Meeting	DR
4. Actions from Previous Meeting	DR
5. Mine Progress Report	WHC
6. Environmental Monitoring Report	WHC
7. Blasting Presentation	WHC
8. General Business	ALL
9. Next Meeting – <b>Wednesday 24 October 2022</b>	ALL

Agenda Item	Discussion	Action/By Whom
1.	<b>Welcome and Apologies</b> – DR welcomed everyone to the CCC meeting.	
2.	<b>Declaration of pecuniary or other interests</b> – EOH has a small package of WHC shares. DR is paid a fee as chair as is DC for typing the minutes.	
3.	<b>Minutes from Previous Meeting</b> – Everyone was comfortable that the May minutes appropriately reflected what was discussed.	ACTION 1 – DR to forward previous Minutes to MH
4.	<b>Actions from Previous Meeting</b> – All actions have been completed.	
5.	<p><b>Mine Progress Report – Operations – Q3 – FY22</b></p> <p>OR commenced the report by providing members with an update on the mine’s safety statistics before discussing how mining has progressed:</p> <p><u>Overburden</u> – Overburden removal (Plan 23.93Mbcm v Bud 23.67Mbcm).  <u>ROM Coal</u> – Coal Mining (Plan 2.173Mt v Bud 2.170Mt).</p> <p>With respect to the mine’s donations and sponsorships, donations for April to July 2022 totalled almost \$129,000 in the local community. JS described how the mine has gone about increasing awareness of the program – through advertising in local media and social media. Sponsorships and Donations information can be found <a href="https://whitehavencoal.com.au/sustainability/community/donations-sponsorships/">https://whitehavencoal.com.au/sustainability/community/donations-sponsorships/</a></p>	
6.	<p><b>Environmental Monitoring Report</b></p> <p><b>Q3 Environmental – Q3 FY22 Summary</b></p> <p>MM provided an update on environmental activities over the past quarter. These included:</p> <ul style="list-style-type: none"> <li>• Topsoil stripping completed in advance of mining in the Tarrawonga North pit.</li> <li>• Native seedlings planted on the southern and northern emplacement areas.</li> <li>• Rehabilitation Plans have been submitted to the Resource Regulator following reforms that were implemented industry wide (available on the Tarrawonga website).</li> </ul> <p>RH – Is the Rehabilitation Plan easier for you now (compared to the MOP)?  MM – Yes. It’s the same information that was in the MOP. We updated our completion criteria to be more measurable, especially in terms of vegetation and growth.</p>	

	<p>RH – Does the topsoil go back into the area it was obtained from? MM – Depends on where you are rehabilitating and mining. We try to use the topsoil where we it is best suited to the area we are rehabilitating. Hauling distance and other factors can influence this.</p> <p><b>Q3 Monitoring and Compliance</b></p> <p>As the monitoring report had been provided previously to members, a summary was provided by MM of Tarrawonga’s compliance with its environmental conditions:</p> <ul style="list-style-type: none"> <li>• Noise – no exceedances.</li> <li>• Blasting – all blasts this quarter were within blasting criteria.</li> <li>• Air – All air quality monitoring for the quarter is within TCM’s approval criteria.</li> </ul> <p>RH – Has any water contained on site escaped since las discussed? MM – None has escaped. Yes, in 2021, our dams hadn’t been replaced quick enough so they couldn’t hold enough water. Have deepened that dam now and reduced the catchment flowing into it.</p> <p><b>Q3 Tyre Disposal Update</b></p> <p>MM observed that there had been no tyre burial events in the past quarter. The burial of 60 tyres is currently being planned and will occur in Q4 in accordance with EPL 12365.</p> <p>EOH – Is there some legislation for tyre recycling? MM – I don’t know about such legislation. We are committed to doing what we can, where we can, to find an alternative to tyre burial. We are in talks with respect to recycling them.</p>	
7.	<p><b>Blasting Presentation</b> – SP gave a presentation on vibration and overpressure.</p> <p>He observed that, firstly, staff design a blast pattern and have our drills carry out the drilling sequence. The depth of the drill holes are then checked to determine whether there is water / moisture evident. After this, the holes are loaded with bulk explosives suitable for the ground conditions. Finally, the mine staff tie each hole together and fire the pattern in a safe and effective manner (see presentation for further information).</p>	ACTION 2 - DR to include the blasting presentation with Minutes
8.	<p><b>General Business</b></p> <p>DR reminded members that the Environmental Trust has money available for any environmental improvement projects community groups wish to undertake within a 25 km radius of the forest. Please remind your communities. EOH then tabled a series of questions for MM.</p>	ACTION 3 – MM to respond to EOH’s questions

	<p>DR explained to members that each year he is required to complete an Annual Report for each of the CCCs in line with DPE's requirements. Part of this entail exploring what members would like to cover in the coming 12 months. He noted that the vibration and overpressure presentation was a request from the CCC as was a presentation by the Resources Regulator on the rehabilitation reforms at a previous joint CCC.</p> <p>A discussion was then held involving all members in what they would like to discuss further at future CCC meetings. It was agreed that three presentations would be appreciated over the course of the next 12 months; namely:</p> <ul style="list-style-type: none"> <li>• A presentation on how water is managed by the mine during these periods of extreme rainfall;</li> <li>• A presentation on how rehabilitation is undertaken and how the MOP has changed; and</li> <li>• A presentation on the mine's end of life, specifically, the anticipated transitioning of the workforce and what role the community can play.</li> </ul> <p>Potentially, another site tour could also be undertaken within 12 months.</p> <p>With great excitement, MM brought to members' attention that significant changes have been made to the Tarrawonga website regarding the progress of rehabilitation – <a href="http://www.whitehavencoal.com.au/our-business/our-assets/tarrawonga-mine/">www.whitehavencoal.com.au/our-business/our-assets/tarrawonga-mine/</a></p>	<p>ACTION 4 – MM to organise water management presentation for Oct meeting</p>
8.	<p><b>Next meeting date</b> – Next meeting <b>Wednesday 26 October 2022</b> at 10:00 am. Reminder that the Joint CCC will be on Thursday 27 October.</p>	

Meeting Closed: 11:28 am.

#### Appendix 1: Actions

Page No	Action No	Description	Date Raised
2	1	DR to forward previous Minutes to MH	24 August 2022
3	2	DR to include the blasting presentation with Minutes	24 August 2022
3	3	MM to respond to EOH's questions	24 August 2022
4	4	MM to organise water management presentation for Oct meeting	24 August 2022



# Tarrawonga Coal Mine Community Consultative Committee Meeting #70

Quarterly Environmental Monitoring Report  
August 1, 2022 – October 12, 2022



*Photo taken in August 2022 of some of our front dams next our Southern Emplacement area (SEA).*

This report has been prepared for the Community Consultative Committee (CCC) meeting to show Environmental monitoring performance at Tarrawonga Coal Mine (TCM) for the reporting period from August 1 2022 to October 12, 2022. Maps with all the monitoring locations are available in *Appendix A*.

# Noise Monitoring

Noise from the mine must not exceed 45 dB(A) L1 (1 min) between 10 pm and 7 am. This criteria is to minimise the potential for sleep disturbance as a result of individual loud noises from the mine.

The real time noise monitor located on the “Coomalgah” property remains a management tool so the noise criteria are not applicable at that site. Levels of noise recorded at that location are managed according to the noise management plan and trigger action response plan.

Attended noise monitoring was conducted at the “Bungalow” (TN4), “Barbers Lagoon” (TN3) and “Matong” (TN2) properties from 26<sup>th</sup> to the 30<sup>th</sup> of September 2022. Noise emissions from the mine did not exceed operational noise criteria at the “Barbers Lagoon”, “Bungalow” or “Matong” monitoring locations for any monitoring events during the monitoring period. However, the report is not yet available.

# Blast Monitoring

## Blasting Results

Since 2006, there have been 1153 blasts (until 12/10/2022) at TCM.

The highest result for Overpressure last quarter was 112.40 dB recorded at the 'Coomalgah' monitor on the 05/10/2022.

The highest result for ground vibration last quarter was 0.84 mm/s recorded at the 'Tarrawonga' monitor on the 09/09/2022.

TCM overpressure and ground vibration for the quarter was compliant and did not exceed the blasting criteria declared in the project approval and Blast Management Plan (BMP).

*Table 1 - Max Peak Overpressure and Ground Pressure for the Quarter*

Monitor Location	Date	Max. Peak Overpressure (dB)	Criterion (dB)	Date	Max. Peak Ground Pressure (mm/s)	Criterion (mm/s)
Tarrawonga*	05/10/2022	109.10	N/A	30/08/2022	0.84	N/A
Coomalgah	16/09/2022	112.40	<b>120</b>	09/09/2022	0.58	<b>10</b>

*\*Limit Not applicable according to EPL and PA11\_0047 because project related property.*

During the reporting period, no reportable fume events were recorded at TCM.

# Air Quality Monitoring

## Dust Deposition Results

Standard Australia AS/NZS 3580.10.1:2016, "Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric Method," classifies deposited dust as insoluble solids. Therefore, TCM tests air quality monthly at mine-owned sites for indicative purposes, to infer compliance, against the limit of 4 g/m<sup>2</sup>/month.

**Table 3** shows deposited dust gauge results over 12 months. All the dust monitors are located on project related or WHC owned land; as such compliance criteria (4g/m<sup>2</sup>/month) do not apply. While deposited dust trends remain steady during the reporting period (refer graph in *Appendix B*), some monitors are displaying non-mine related particulate matter deposition more regularly than others. Non-mine related particulate matter could be attributed to organic matter (such as leaves that fall in to the bottles, mice or frogs, or insects), or they may be in farming locations, so during some months dust levels may be higher due to harvesting.

Table 2 - Deposited Dust Gauge Results [g/m2/month]

MONTH	TEMPLEMORE (EB-4)	BOLLOL CREEK STN (EB-5)	AMBARDI (EB-6)	TARRAWONGA (EB-7)	PINE GROVE (EB-9)	TARRAWONGA MINE (EB-10)	TARRAWONGA MINE (EB-11)	TARRAWONGA MINE (EB-14)	TARRAWONGA MINE (EB-15)	JERALONG NORTH (EB-16)
Sep-21	5.9#	2.8	0.4	0.4	0.4	68.1#	1.7	3.1	0.6	0.4
Oct-21	2.9	4.6	2.9	1.2	1.9	19.63#	3.1	7#	2	2.3
Nov-21	3.1	9.7#	7.2#	2.2	1	12.5#	2.7	3.6	1.5	3.7
Dec-21	10.8#	8.9#	1.3	1	0.8	13.3#	0.6	3.9	6.8#	3.2
Jan-22	1.8	9.1#	0.7	0.9	7.1#	17.8#	4.8#	3.7	1.2	3.2
Feb-22	16.4#	7.3#	0.8	0.5	5.5#	10.3#	3.5	2.5	1.5	6.5
Mar-22	1.9	6.6#	6.2#	0.7	1.2	2.3	3.8	2.6	0.6	2
Apr-22	7.4#	8#	0.1	0.4	1.8	3	2.8	5.6#	0.7	0.9
May-22	2.8	4.8#	1.4	1.1	0.6	13.8#	2.7	2.8	1	1.8
Jun-22	15.3#	12.2#	0.5	0.5	0.6	23.3#	5.2#	4.5#	46.3#	48.2#
Jul-22	3.5	5.3#	0.4	1.9	7.3	7.4#	3.2	2.6	1.3	0.4
Aug-22	5.1#	3.6	0.4	0.6	0.3	124#	3	3.6	1.6	3.6
Sep-22	0.4	5.6#	0.4	0.4	0.5	24.3#	2.9	6#	2.8	8.3#
<b>12 MONTH ROLLING AVERAGE</b>	<b>2.3</b>	<b>3.7</b>	<b>0.8</b>	<b>0.9</b>	<b>0.9</b>	<b>2.7</b>	<b>2.9</b>	<b>3.2</b>	<b>1.3</b>	<b>2.5</b>

# Analysis done on these bottles concluded that they are contaminated, often with low ash/insoluble matter. Often noted on field sheets are bird droppings, insects and plant matter.

+ bottles missing due to replacement after contamination or temporary civil/mining activities in the area.

<sup>1</sup>DDG bottle on the fenceline between TCM and BCM ROM.

Red = above the rolling average, but exceedances are not mine-related and are not considered non-compliances.

High Volume Air sampler (PM10) Results

The High Volume Air Sampler (HVAS) installed at Coomalgah property monitors levels of Particle Matter under 10 micron (PM<sub>10</sub>). It operates for 24hr every 6 days. **Table 3** shows that all 24hr average values recorded for this quarter are below the 50µg/m<sup>3</sup> criteria.

Table 3 - HVAS PM10 24 hr average levels for the Quarter

Date	24hr averaged PM10 (µg/m <sup>3</sup> )	Criterion 24hr average (µg/m <sup>3</sup> )	Comments
02-Aug-22	4.5	<b>50</b>	Nil
08-Aug-22	1.5		
14-Aug-22	3.2		
20-Aug-22	5.2		
26-Aug-22	3.8		
01-Sep-22	16		
07-Sep-22	8.8		
13-Sep-22	7.3		
19-Sep-22	6.8		
25-Sep-22	4.8		

### Real-time Air monitoring (PM<sub>10</sub>)

A real time air quality unit (TEOM) is located at the “Flixton” property to monitor PM<sub>10</sub> levels in ambient air, as per the current Air Quality and Greenhouse gas Management Plan. It is an operational management tool and dust levels nearing or reaching the nominated criteria will trigger actions onsite to assess the source of dust and modify operations if it is determined to be related to Tarrawonga operations.



*TEOM installed at Flixton property*

Three portable dust (PM<sub>10</sub>) monitors have been utilised since Nov 2018 to improve the real-time dust monitoring network and assist the operation to mitigate any potential dust generated by the operation.



*Portable and real-time dust monitor installed at TCM in November 2018*

# Water Monitoring

## Groundwater

Routine groundwater monitoring results undertaken between June 2021 and June 2022 are shown in **Table 4** (refer to graphs in *Appendix C*).

*Table 4 - Groundwater results Summary*

Site	Date	SWL (mbgl)	pH (units)	Elect. Conductivity (µS/cm)
<b>MW1</b>	June 2021	6.9	7.84	3,480
	September 2021	8.14	7.57	3,530
	December 2021	6.93	7.32	3,600
	March 2022	6.8	7.54	3,910
	June 2022	6.70	7.52	3,580
<b>MW2</b>	June 2021	3.46	7.05	527
	September 2021	3.42	6.97	615
	December 2021	3.29	6.74	822
	March 2022	3.51	6.82	952
	June 2022	3.52	6.59	826
<b>MW4</b>	June 2021	9.53	7.26	3,250
	September 2021	9.48	7.62	3,100
	December 2021	9.91	7.56	3,040
	April 2022	9.17	7.6	3,360
	June 2022	9.05	7.45	3,090
<b>MW5</b>	June 2021	2.07	7.56	766
	September 2021	1.84	7.7	1,810
	December 2021	1.81	7.7	2,054
	March 2022	2.34	8.01	1,529
	June 2022	1.9	7.52	830
<b>MW8</b>	June 2021	13.07	Casing blocked	Casing blocked
	September 2021	12.7		
	December 2021	12.08		
	March 2022	12.36		
	June 2022	-		

Surface Water

Water storage onsite is expected to be sufficient for at least the next 12 months. TCM has continued to treat sediment dam SD9 to allow for controlled release from Licenced Discharge Point (LDP) 2, and through SD17 (LDP1) in accordance with the Water Management Plan.

From the start of 2022 TCM has recorded 730.4mm of rain.

<b>2021</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Total</b>
Monthly Rain (mm)	58.4	115.4	141.2	22.0	66.6	105	73.8	41.8	18.3	56	240	96.6	1072.8
Cumulative (mm)	58.4	176.8	317.4	339.6	406.2	511.2	585	626.8	683	920.2	976.2	1072.8	
<b>2022</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Total</b>
Monthly Rain (mm)	106.6	74.4	100	60.8	59	14.4	32.4	116.6	166.2	-	-	-	730.4
Cumulative (mm)	106.6	181	281	341.8	400.8	415.2	447.6	564.2	730.4	-	-	-	

# Rehabilitation and Clearing

## Rehabilitation

TCM recently submitted Rehabilitation Management Plans and Forward Programs to the Resources Regulator for the reforms that came into force on the 2<sup>nd</sup> July 2022. These renewed rehabilitation plans have TCM committing to approximately 11.7Ha of Ecosystem Establishment for the year (tubestock planting and seeding) and approximately 38.2Ha of Land ready for rehabilitation use (Landform establishment/ Growth medium development). This 38 ha is the southern overburden emplacement, reshaping with dozers is currently underway in this area.

TCM are currently sitting with 18Ha in the landform establishment phase, with topsoil ready to be spread over 11.7Ha of that on the Northern Emplacement area (NEA) in the next few weeks.

TCM's rehabilitation areas from last year were successfully planted with hiko seedlings/tubestock in May. As can be seen on the SEA, a large portion of these tubestock have been protected by tree guards. Tree guards will not be placed from here on out as the weather will begin to change, allowing for the trees to grow without hindrance from frost or winter winds.



*Figure 1: Tree/seedling planted on the NEA*

# Current Rehab Status

## Rehabilitation progress

- Mop area of 160.5ha rehabilitation achieved. (Amended MOP Area)
- Shaping to landform NE Overburden Dump

Rehab phase	Area Ha	
Landform	18.1	
Growth medium	0	
Ecosystem establishment	142.4	
Total Rehab (CY21)	160.5	
MOP Requirement (CY21)	158	



## Clearing

Clearing occurred between February and April 2022, as reported in the previous reporting period.

Stripping of topsoil is to occur in these areas over the next month, including salvage of subsoil that will be ameliorated to improve its viability as a growth medium. This ameliorated subsoil will augment the inventory of topsoil held at TCM.

## Complaints

One complaint received for the reporting period. From a local resident regarding feeling two blasts. Tarrawonga Environmental personnel contacted the resident to inform them that the second blast did not originate from Tarrawonga. Tarrawonga personnel confirmed with the resident that their query had been answered.

## Environmental Management Plans

### Management Plans

As stated above, the Rehabilitation Management Plans were submitted to the Resource regulator at the close of July 2022. This includes spacial data for disturbance, rehabilitation forward plans for the coming three years, and final landform features. These are now to be internally reviewed by the RR and any comments will be addressed in due course.

Following approval of Modification 7 of PA11\_0047, TCM has conducted a review of all the Management Plans. Updated Management Plans were submitted via DPE portal for approval in May 2021 including, Air Quality Management Plan, Noise, Management Plan, Blast Management Plan and Water Management Plan.

The Water Management Plan is still under review, but all the other updated management plans were approved and are available on the WHC website.

The Blast Management Plan was submitted for review by DPE on the 13<sup>th</sup> March 2022. This updated management plan was sent out for consultation with the EPA and this CCC and is now sitting with the DPE for its final review.

### BTM Water Strategy

The BTM mines submitted an updated BTM Groundwater Model. This has now been approved and displayed on our website.

The BTM Noise Management Strategy has also been reviewed and will be submitted by MCCM once finalised.

## Annual and Compliance Reporting

Annual Review and Annual Return Reports

The Annual Return and Annual Review were submitted in March 2022.

Annual Compliance EPBC statement

The Annual Compliance EPBC statement was submitted to DAWE in June 2022.

Annual National Pollutant Inventory (NPI) and Greenhouse Gas Emission (NGERs) Reports 2021

Information for the TCM NPI and NGERs reports have been collected and submitted to our compliance team. These reports have been submitted.

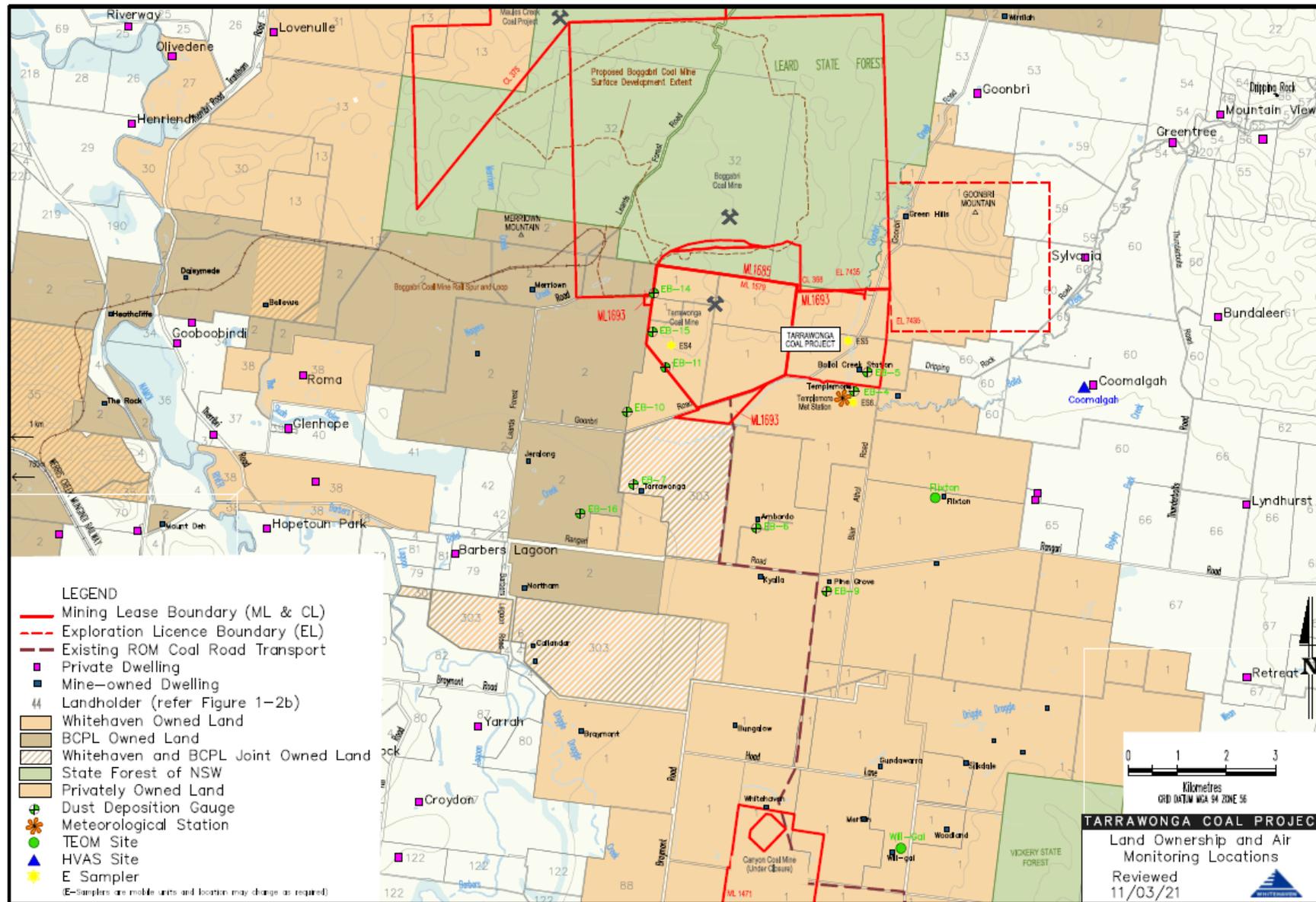
## Audits- Compliance

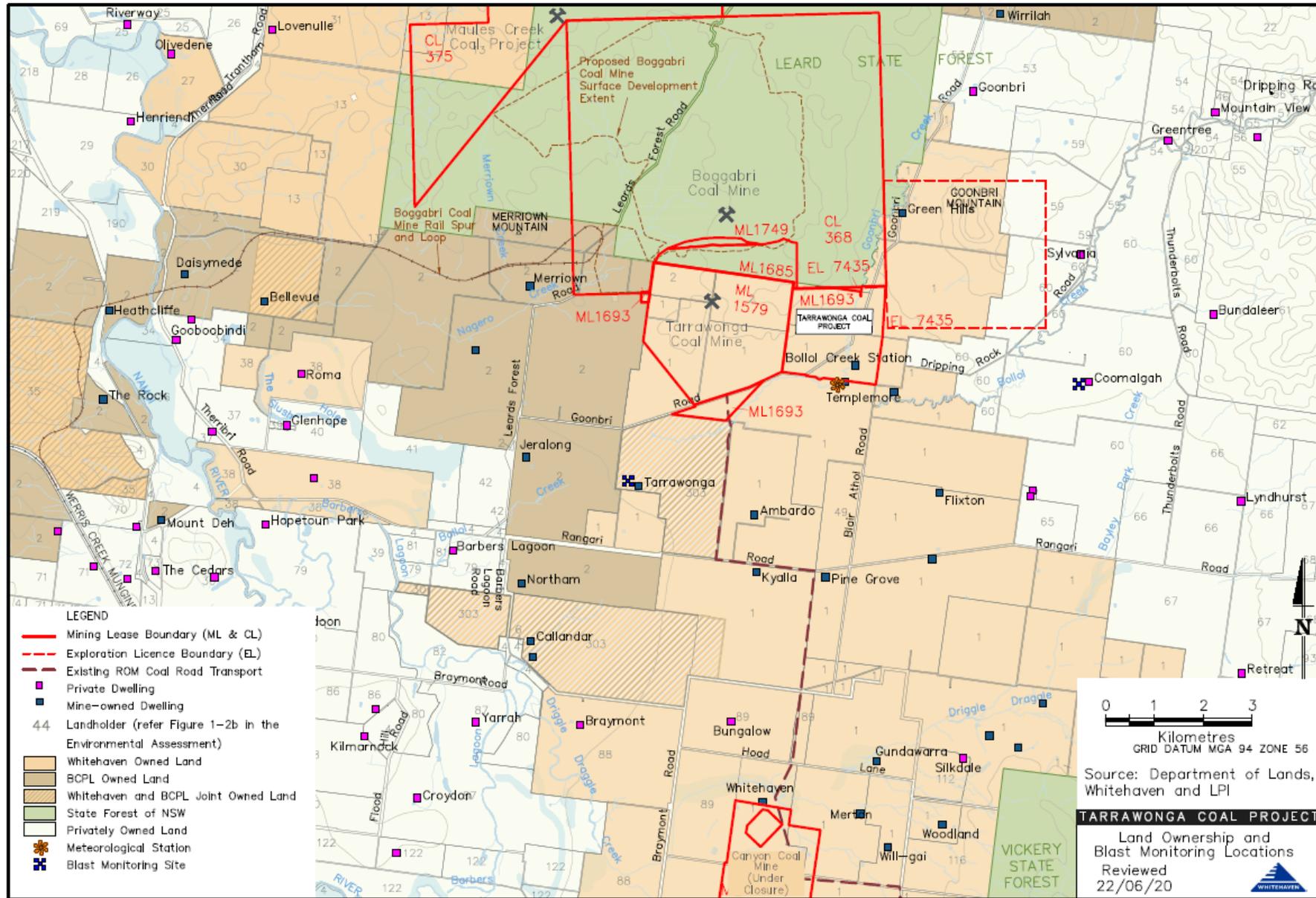
In response to discharge events in March 2021 the EPA required TCM to complete a water management audit by a certified external contractor/consultant. This audit has been completed and the report finalised. The recommendations of this report have been addressed in an Implementation Report submitted by TCM to the EPA. These actions will be progressively completed over 2022 and 2023.

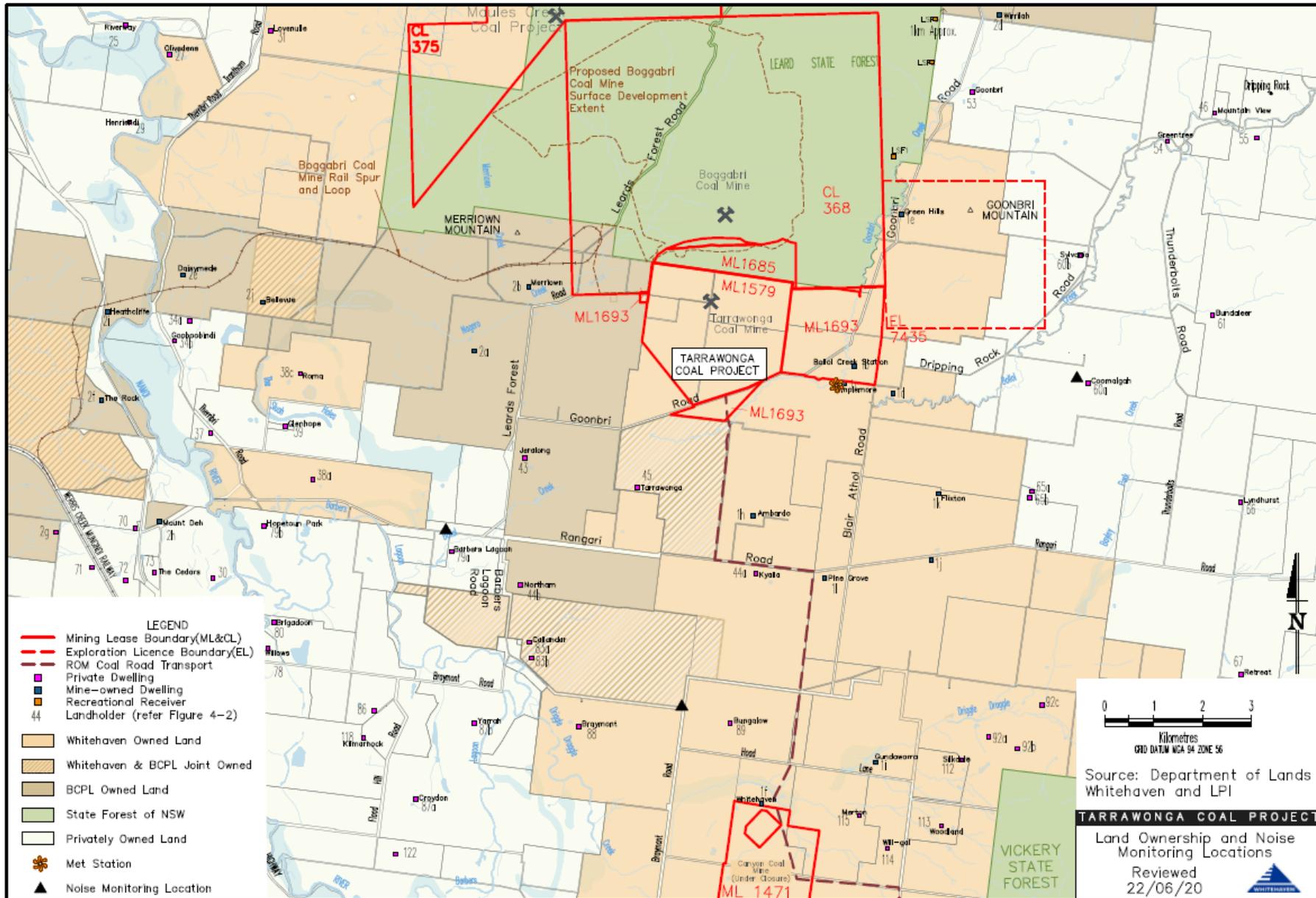
## Approvals and Licencing

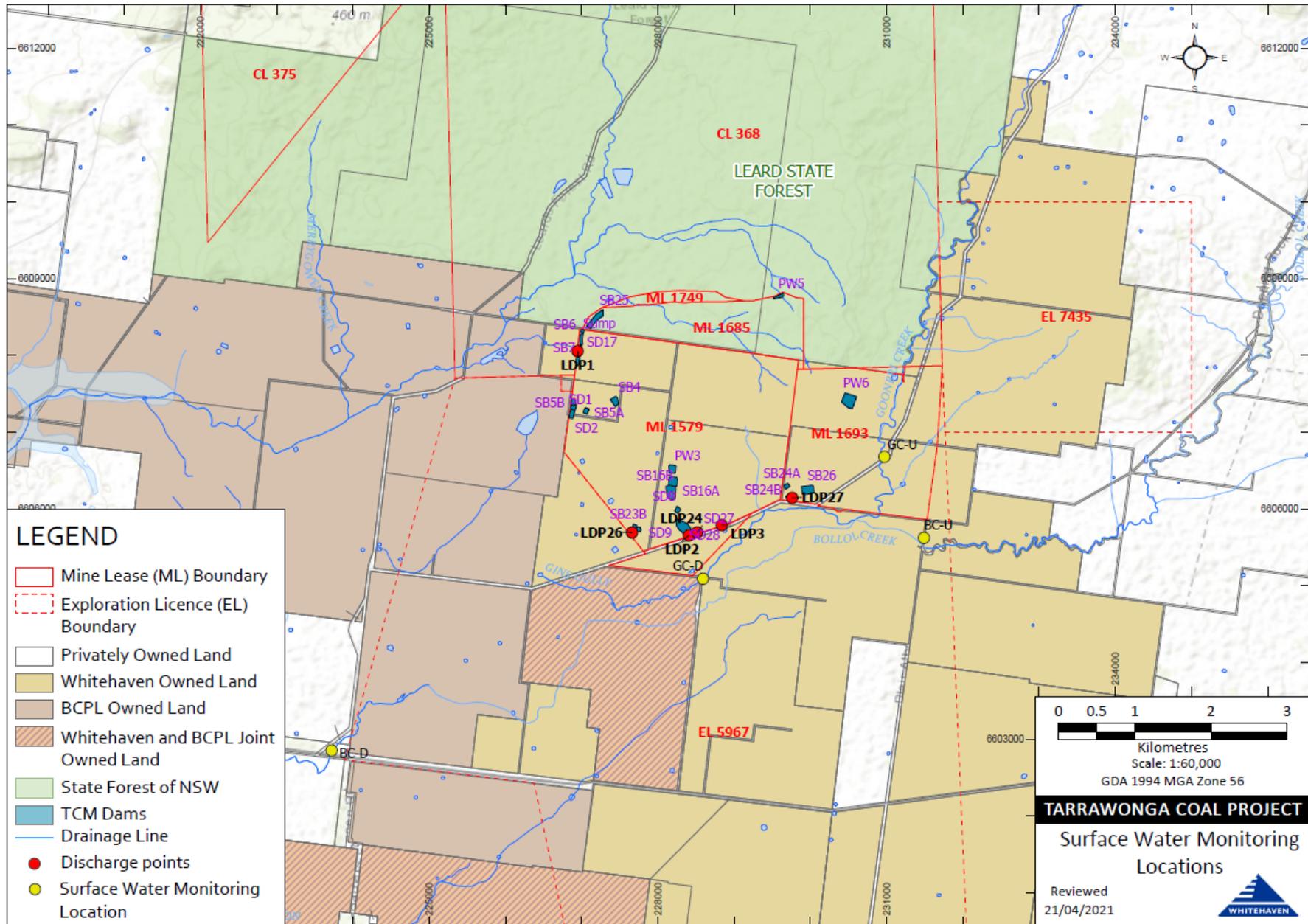
The EPA varied EPL12365 in December 2021. This amended EPL has been uploaded to the website.

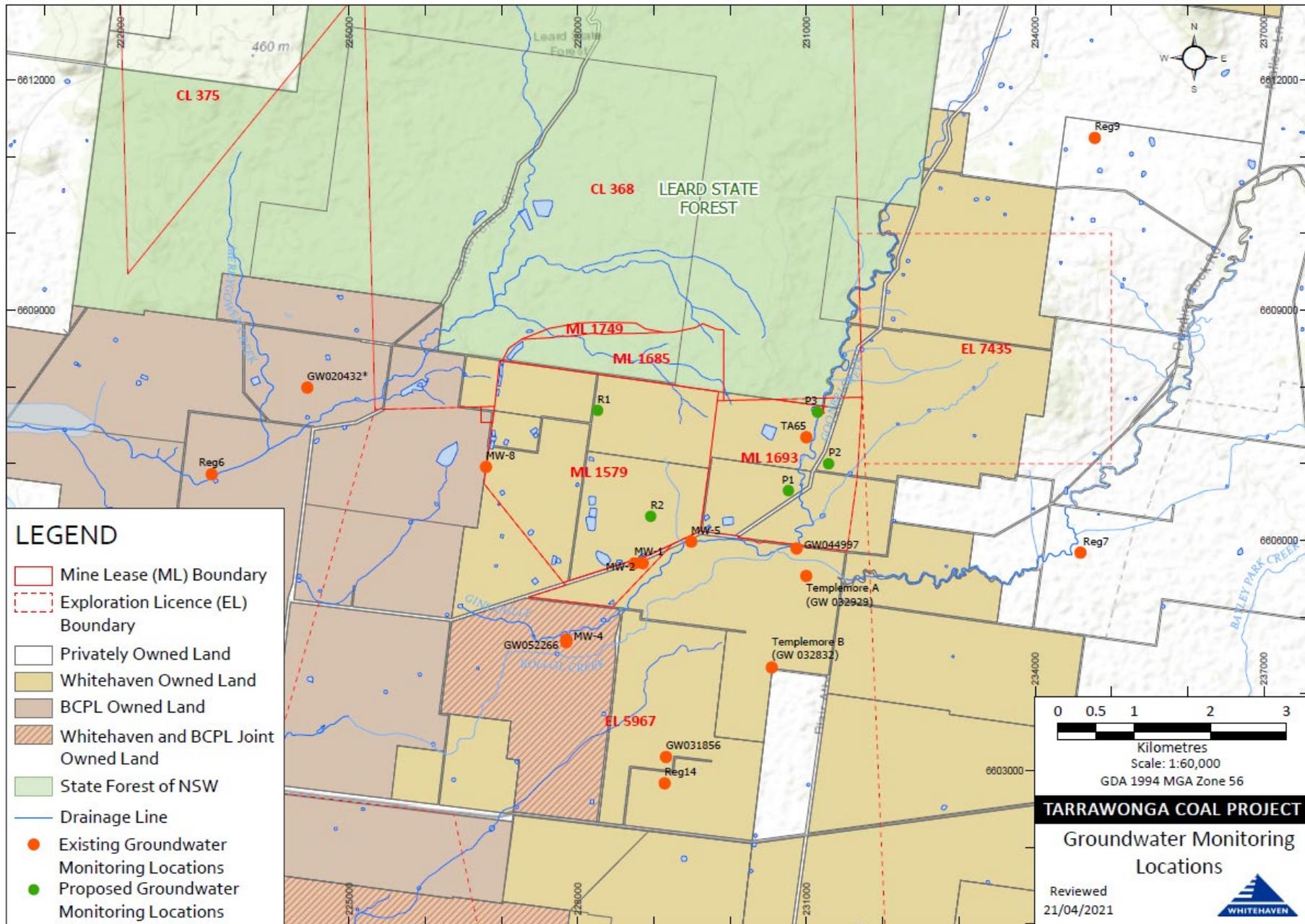
# Appendix A





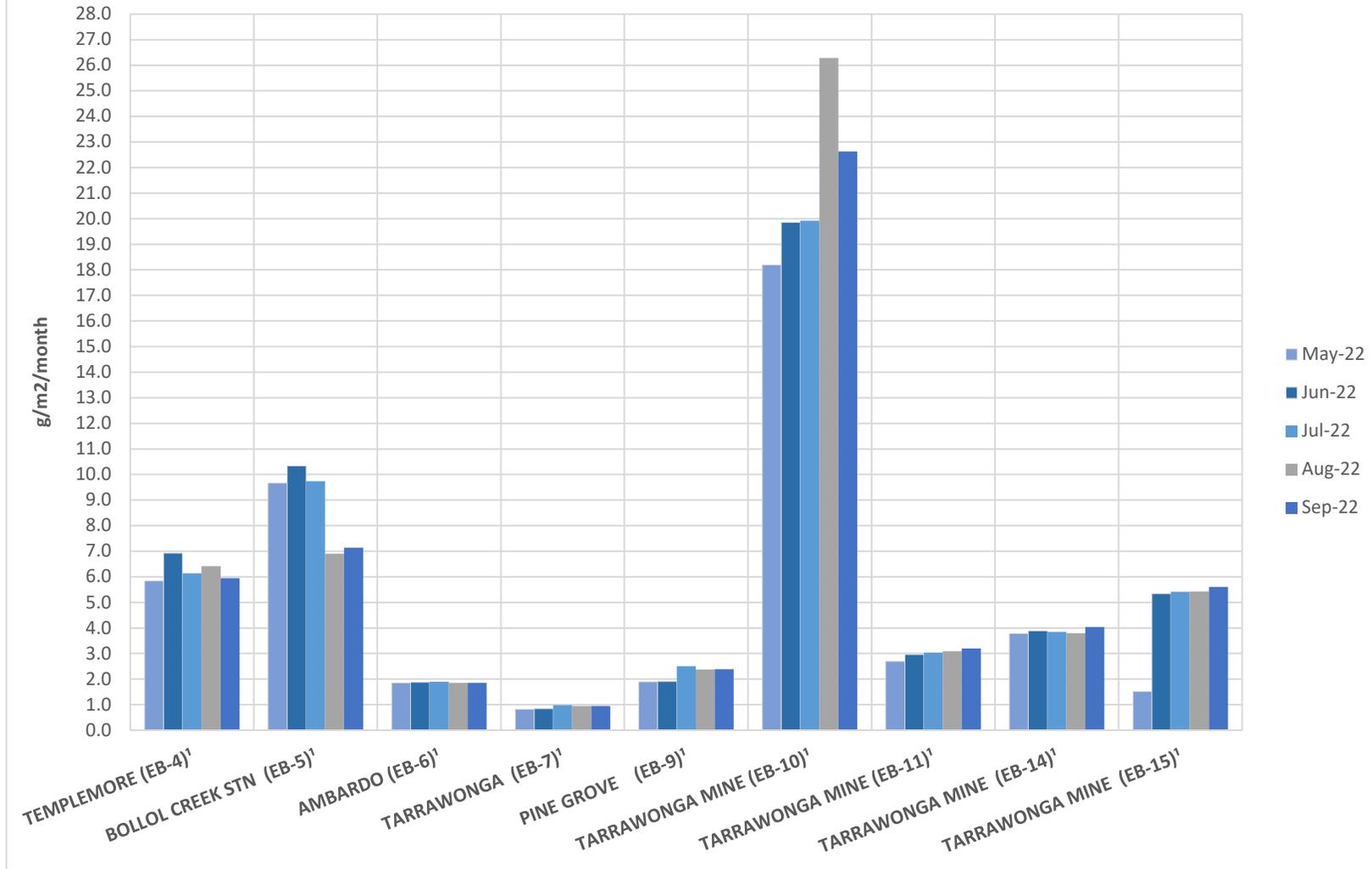




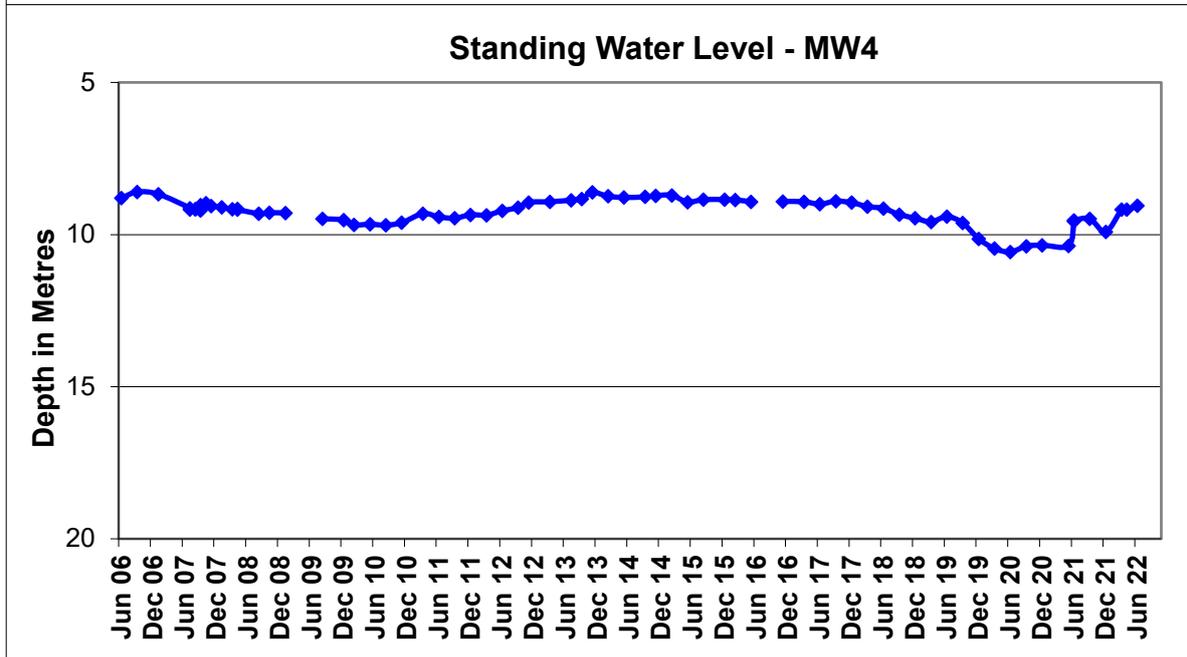
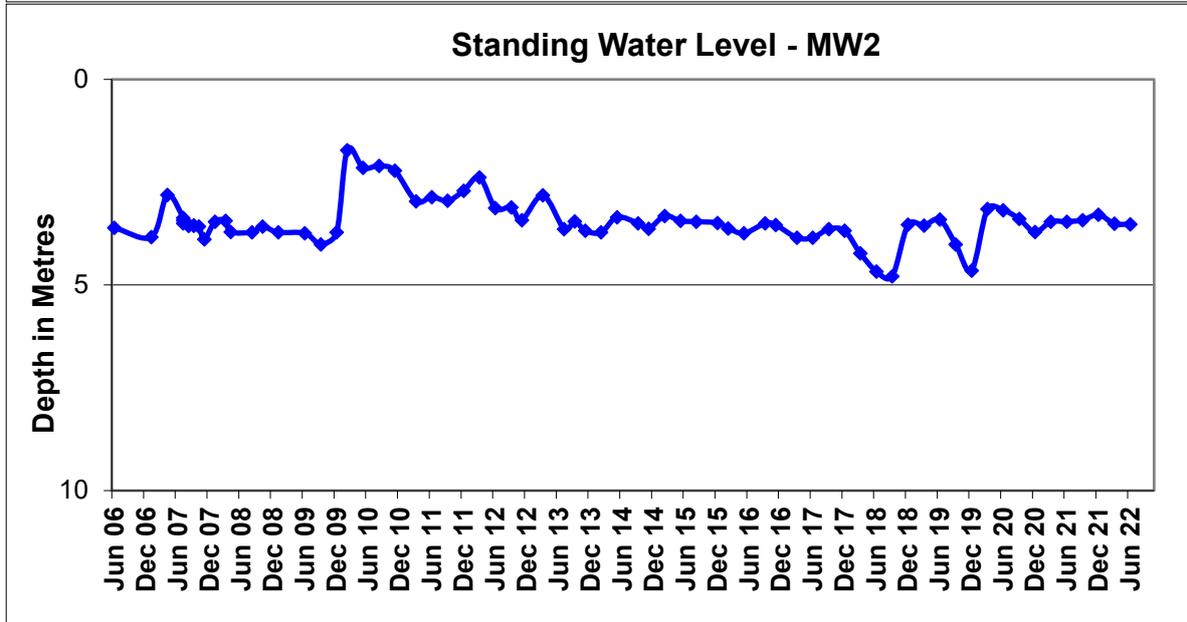
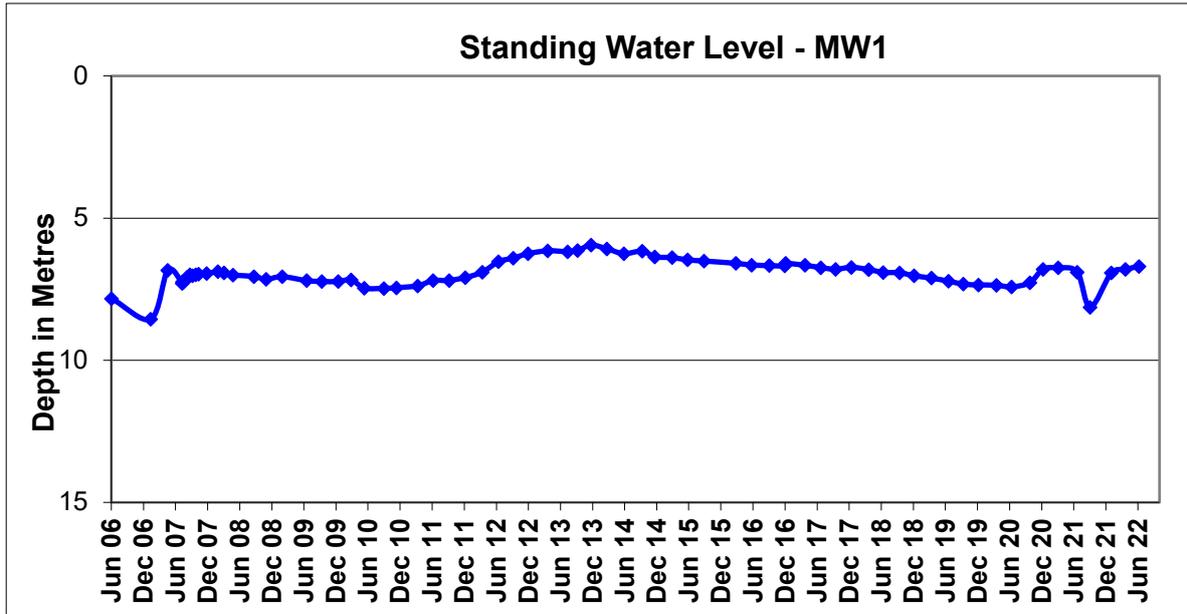


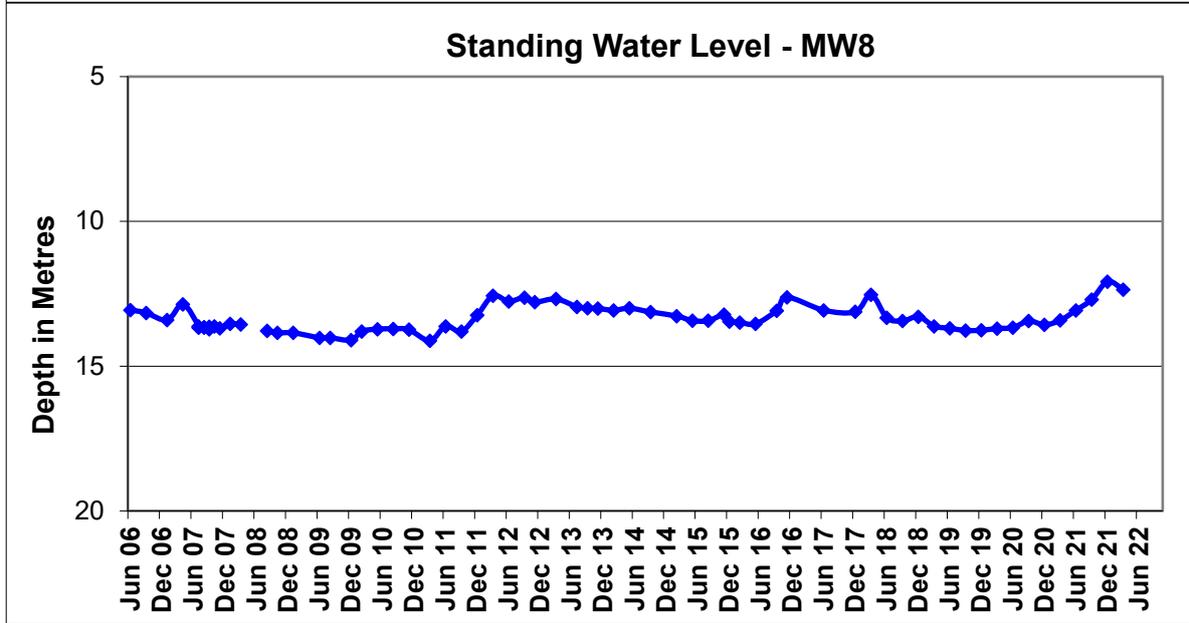
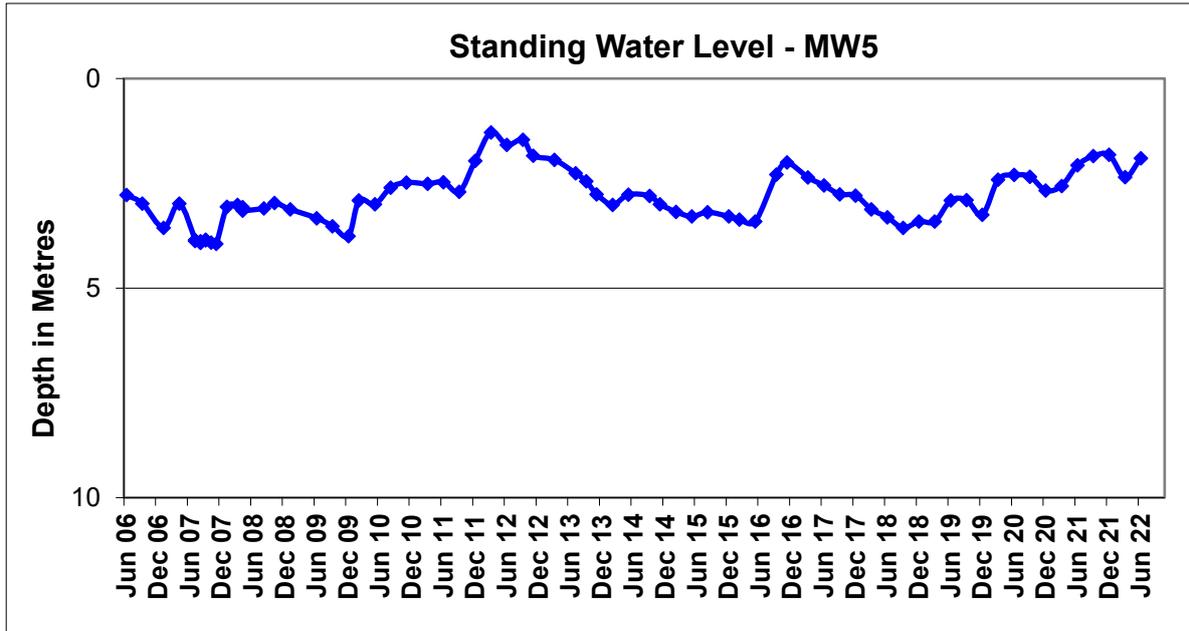
# Appendix B

## Deposited Dust Gauge Results- Quarterly rolling average [g/m<sup>2</sup>/month]



# Appendix C





**Notes:** Notes of the 70th Meeting of the Tarrawonga Coal Community Consultative Committee  
Held at the Tarrawonga Coal Mine Training Room

**Wednesday 23 November 2022**

**Members Present:** Alison Quiroz (AQ) – TCM, Cr Rob Hooke – Gunnedah Shire Council (RH), Elizabeth O’Hara (EOH) – Community Representative, Jackie Scott (JS) – WHC, Mark Hathway (MH) – Community Representative, Megan Martin (MM) – TCM, Landon Brady (LB) – Narrabri Shire Council, Omar Romeril (OR) – TCM

**Apologies:** Cr Cathy Redding (CR) – Narrabri Shire Council, Colleen Fuller (CF) – Community Representative, Cr Daryl Tiemens – Narrabri Shire Council, Lloyd Finlay (LF) – Community Representative, Michelle Henry (MH) – Narrabri Shire Council, Rebecca Ryan (RR) – Community Representative, Wade Hudson (WH) – GSC Representative

**Independent Chair:** David Ross (DR)

**Independent Secretary:** Debbie Corlet (DC)

<b>Agenda Items</b>	<b>Who to Present</b>
1. Welcome and Apologies	DR
2. Declaration of pecuniary or other interests	DR
3. Minutes from Previous Meeting	DR
4. Actions from Previous Meeting	DR
5. Mine Progress Report	WHC
6. Environmental Monitoring Report	WHC
7. General Business	ALL
8. Next Meeting – <b>Wednesday 22 February 2023</b>	ALL

Agenda Item	Discussion	Action/By Whom
1.	<b>Welcome and Apologies</b> – DR welcomed everyone to the CCC meeting.	
2.	<b>Declaration of pecuniary or other interests</b> – EOH has a small package of WHC shares. DR is paid a fee as chair as is DC for typing the minutes.	
3.	<p><b>Minutes from Previous Meeting</b> – Everyone was comfortable that the August 2022 minutes appropriately reflected what was discussed.</p> <p>EOH commented on WHC response to question on notice from last time – re WHC consistently over-estimating in its EISs the quality of the coal that is produced from the mines in general and MC in particular. The response, that Whitehaven would not respond to a published Market Forces report, was disappointing.</p>	
4.	<b>Actions from Previous Meeting</b> – All actions have been completed.	
5.	<p><b>Mine Progress Report – Operations – Q4 – CY22</b></p> <p>OR commenced the report by providing members with an update on the mine’s safety statistics before discussing how mining has progressed.</p> <p>With respect to the mine’s donations and sponsorships, donations for July to September were over \$92,000 in the local community. Sponsorships and Donations information can be found <a href="https://whitehavencoal.com.au/sustainability/community/donations-sponsorships/">https://whitehavencoal.com.au/sustainability/community/donations-sponsorships/</a></p> <p>JS provided an update on the mine’s community investment strategy.</p>	
6.	<p><b>Environmental Monitoring Report</b></p> <p><b>Environmental</b></p> <p>MM provided an update on environmental activities over the past quarter. These included:</p> <ul style="list-style-type: none"> <li>• Topsoil stripping for the next 12-months of mining planned to commence soon.</li> <li>• Flocculated water continuing to be discharged from SD9 and SD17 in accordance with the EPL.</li> <li>• Rehabilitation of southern emplacement area has started to enable revegetation in 2023.</li> <li>• Blast Management Plan reviewed and submitted to the Department of Planning – consultation with the EPA has been completed and the BMP resubmitted to DPE.</li> <li>• Consultation completed on the Rehabilitation Management Plan. This will be addressed before being lodged with DPE.</li> </ul>	

**Monitoring and Compliance**

Noise, blasting and air quality all within TCM’s approval criteria.

**Tyre Disposal Update**

Tyre burial events are planned for Q4. A risk assessment was held at Tarrawonga for WHC’s 2022 tyre burial program. The burial of -60 tyres is currently being planned and will occur in late Nov / Dec in accordance with EPL 12365.

EOH noted that decisions have been made by the Environment Ministers on 21 October 2022 to “work with the private sector to design out waste and pollution, keep materials in use and foster markets to achieve a circular economy by 2030” and “that the Australian Government add end of life tyres to the Minister’s Product Stewardship Priority List, signalling the intention to regulate should industry not lift its game.” She then asked for an update on tyre recycling.

MM – We’re working on it. The EPA very keen to get something sorted.

EOH – It’s not just a WHC problem at the moment, it is something that the community could be involved in as a group.

A discussion then took place about:

- the difficulty in being able to recycle the tyres;
- the need for TCM to show the EPA in 2023 that progress has been made;
- local government is also grappling with the issue; and
- the EPA having circular grants out at the moment to encourage private and the public sector to develop more strategies around this.

**Water Management – Managing a Wet Year**

There has been rainfall of 797mm up to 20 October compared to average of 568mm for a full year at Gunnedah Airport.

MM discussed how they adapt the operations at the mine to adjust to a wet year as well as how they respond to rain events.

MM – Any rainfall under 38.4 mm is met with very strict water quality requirements. The EPA doesn’t hold the mine to the TSS (Total Suspended Solids) monitoring requirements if there has been a big rain event, which is why it’s very important that the dams are empty before the rain event. We have 26 dams on site. All are under our Water Management Plan. We also take samples to a lab - if you discharge it needs to go to the lab for analysis. We have 12-hours to do that. Samples are taken upstream and downstream of each dam. Downstream lets us know if we are impacting the environment.

Labs are used in Gunnedah, Tamworth and Sydney. TCM has to send seven or eight bottles.

ACTION 1 – MM to report at next CCC steps taken for tyre disposal

	<p>RH – When you’re building a dam and you have a leak in the bottom – do you have to put a liner in? MM – Not for sediment water but for mine waters – definitely a liner has to go in. Constructed dams with a high degree of engineering quality. Monitored by Dams NSW.</p> <p>LB – Stormwater collection over the life of the mine? Do you do estimations around rising levels? MM – Will add ground water slide back in.</p>	<p>ACTION 2 – MM to add the ground water slide back into presentation</p>
7.	<p><b>General Business</b></p> <p>EOH – With respect to the quality of the coal. Government review of the extension and the consistent pattern of WHC over-estimating of its coal in the planning stages, would the mine care to comment? MM – It’s outside the scope of Tarrawonga.</p> <p>DR - CCC guidelines being revised after five years of being in place. Next year there will be a requirement for me to talk to you about the revised guidelines. There will be a Terms of Reference that needs to be created specific to the needs of this CCC and its members. We’ll have to talk about this at some time.</p> <p>DR reminded members that the committee has developed a schedule of presentations for forthcoming meetings in 2023. The next presentation is on the rehabilitation reforms. MM – Alison to present on rehab at the next meeting.</p>	<p>ACTION 3 – DR to distribute revised CCC Guidelines 2 weeks prior to meeting</p> <p>ACTION 4 – MM to organise Alison to present on rehab at the next meeting</p>
8.	<p><b>Next meeting date</b> – Next meeting <b>Wednesday 22 February 2023</b> at 10:00 am.</p>	

Meeting Closed: 11:36 am.

**Appendix 1: Actions**

<b>Page No</b>	<b>Action No</b>	<b>Description</b>	<b>Date Raised</b>
3	1	MM to report at next CCC steps taken for tyre disposal	23 November 2022
4	2	MM to add the ground water slide back into presentation	23 November 2022
4	3	DR to distribute revised CCC Guidelines 2 weeks prior to meeting	23 November 2022
4	4	MM to organise Alison to present on rehab at the next meeting	23 November 2022