Minutes of the 51st Meeting of the Tarrawonga Coal Mine Community Consultative Committee (TCCC)

Meeting Held	14 th February 2018 at 10:00AM								
Venue	Tarrawonga Coal Mine (TCM), training room								
Agenda Item	Discussion- description	Action and Accountability	Status/ Date						
1. Present and Apologies	Present: Mr David Ross (DR)- Independent Chairman, Mrs Julie Heiler (JH)- Community Representative, Mrs Rebecca Ryan (RR)- Community Representative, Mrs Cath Collyer (CC)- Community Representative, Mr Blair Meyers (BM)- Operations Manager/ MME- TMC, Mr Sebastien Moreno (SM)- Environmental Superintendent- TCM, Mr Tim Muldoon (TM)- Group Manager Community Relations and Property, Mr Daryl Campbell (DC)- Community Relations Officer. Apologies:								
	Mr Andrew Johns (AJ), Gunnedah Shire council Representative, Ms Ann Luke (AL), Gunnedah Shire council 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	CC- asked for total dams capacity and current volume stored onsite, CC- asked for species of grass to be used and which ones are successful for rehabilitation.	SM to provide the information by 21/02/18.							
	CC- gave an update of the child care project in Boggabri Shire Council that is successful and supported by Boggabri Coal Mine (BCM) for the construction of the building and Maule's Creek Coal Mine (MCCM) for training and scholarship.								

Minutes of Meeting of Tarrawonga Coal Mine - Community Consultative Commitee

	CC and JH- requested the Quarterly Environmental and GW report. They also requested a map with names for each monitoring site.	SM to provide a map at next meeting.	
	DR and TCCC members- thanked GM for his support during secondment as Environmental officer		
Agenda Item	Discussion- description	Action and Accountability	Status
4. Business Arising	CC- asked about sprinklers and BM- said they have been efficient but due to water shortage they will only be used at targeted locations from now.		
5. Mine Progress Report	 BM- said: -TCM maintain good safety records, - New MOP related to Reject- dump Area was submitted to DP&E in Dec 2017, - 2 Breaches of the Project Approval (PA) recorded: Road Noise Monitoring not completed (Monitoring missed due to change of scope of new contractor- Global Acoustics), - Failed pre- Blast Notifications (List of contact to be updated and process has been reviewed and a training package developed). 		
	 BM- gave updates regarding Water and Budget: Trials to be conducted using a polymer on the roads to minimize dust, Closing tracks and roads that are not key for the operations, Shortage of water- not enough rains for several months, alternative sources are under investigation, i.e.: Pit water, the old quarry, Current Budget is on track and starting preparation of the new calendar year Budget. 		
	JH- asked if desilting of dams will be conducted and BM said all the dams that are emptied will be checked to assess if desilting is required.		
	JH- asked if water from the river could be pumped through BCM. TM -said in past 20ML was used that way.		
6. Environmental Monitoring report	TCCC members – asked for the Quarterly Environmental. DR reminded that SM started 2 weeks before the TCCC meeting and was not aware of the quarterly report. DR asked SM to provide an updated Report in 2 weeks after that meeting	SM to prepare and send the Quarterly Environmental report by 28/02/18	

	DR- asked if Environmental report could be sent in advance before the TCCC meeting.	SM to send the report the Friday before each meeting (16/05/18).	
Agenda Item	Discussion- description	Action and Accountability	Status
7. General business	JH- said TCM never had dust issues before but it is starting to be an issue now. Efforts have to be done to maintain dust to acceptable levels.		
	JH- complained that EPA has not been responding/following up about complaint raised by community.		
	CC- asked if TCCC members could send a letter to Shire Council requesting usage of water trucks to reduce dust on Goondri and mine adjacent roads.	DR to follow up	
	DR- asked if signing in mandatory at TCM and BM- said that everyone (visitors, contractors and employees) should sign in for safety reason and in case of evacuation.	TCCC members to sign in/out when attending the meeting at TCM.	
8.Complaints	BM- said 2 dust complaints were recorded since the last TCCC meeting due to traffic of council trucks using the dirt road to access the quarry. TCM prepared an investigation and a response to the EPA showing evidence (photos) that the dust generated during those 2 incidents was not mine related.		
9. Next Meeting	DR- next TCCC meetings 2018 will be held on 16 th May, 15 th August and 31 st October.		
Comments	DR- asked if it was a good idea to invite the EPA to BTM -CCC meeting. CC and JH said yes	DR to action.	
	DR- asked about efficiency of communication process out to the community and other groups. All TCCC members acknowledged that some improvement is required in that space.	TCCC Members to action and improve communication out.	
	DR- Action pending regarding new representatives on boarding TCCC. SM organised publication of an Advert in the paper and the deadline for application is 17 th March.		

CC- will apply to the EPA dust committee and asked DR for his support and recommendation		
JH- said Lightening struck trees in some areas and a grader was used to remove them – JH thanked TM for his help.		
TM – said discussion have started with fire services, BCM and MCCM for power and water access – now awaiting for future initiatives.	TM to follow up.	
BM- said SM is the new environmental contact for TCM and any request should be addressed to him.		
JHa -commented on staff shortage at last TCCC meeting. BM- said TCM continue recruiting people from the local community		
CC- looking for fund raising regarding international youth exercise (for 6 kids). TM clarified the process to apply for fund raising.		

Tarrawonga Coal Mine Community Consultative Committee Meeting #51

Environmental Monitoring Report 1 November 2017 – 31 January 2018

Noise Monitoring

Attended noise monitoring was undertaken at the "Bungalow" (TN4), "Barbers Lagoon" (TN3) and "Matong" (TN2) properties from 6th to 10th November 2017, with results outlined below. The noise criterion for the mine is 35dB(A) Leq (15 min) for all operating times.

The results in Tables 1 to 3 show that noise emissions from the mine did not exceed the operational noise criterion at the "Barbers Lagoon", "Bungalow" or "Matong" monitoring locations during the monitoring event.

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. The results of the sleep disturbance monitoring (tables 1, 2 and 3) show that the measured L1 (1 min) noise level did not exceed the sleep disturbance criterion.

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

Revised Noise Management Plan remains with DP&E for approval. The BTM Noise Management Strategy has been approved by DP&E.

EPL ID	Date	Start Time	Measurement period	Measured Levels — dB(A) L _{eq 15min Day}	Measured Levels – dB(A) L _{eq 15min} Evening	Measured Levels – dB(A) L _{eq 15min} _{Night}	Measured Levels – dB(A) L _{A1 (1 min)} _{Night}	Limit	Av. Wind Speed (m/s)	Stability Class	Compliant (Yes/No)
	6/11/2017	21:14	30		33			35	2.1	D	Yes
	6/11/2017	22:30	60			36*		35	2.4	D	Yes
	6/11/2017	22:30	60				44	45	2.4	D	Yes
	7/11/2017	11:33	90	30				35	3.0	А	Yes
	7/11/2017	21:23	30		NM			35	0.6	F	Yes
	7/11/2017	22:00	60			IA		35	2.2	F	Yes
	7/11/2017	22:00	60				IA	45	2.2	F	Yes
TN2	8/11/2017	09:42	90	IA				35	5.6	С	Yes
Matong	8/11/2017	21:21	30		IA			35	4.9	D	Yes
	8/11/2017	22:32	60			25		35	3.2	D	Yes
	8/11/2017	22:48	60				30	45	3.8	E	Yes
	9/11/2017	11:40	90	IA				35	4.0	А	Yes
	9/11/2017	21:22	30		IA			35	3.8	D	Yes
	9/11/2017	22:47	60			25		35	0.7	F	Yes
	9/11/2017	22:47	60				32	45	0.7	F	Yes
	10/11/2017	09:23	90	IA				35	2.4	В	Yes

Table 1 – Attended Noise Monitoring Matong

* – Result measured on project owned land, IA – Inaudible, NM – Not Measurable

EPL ID	Date	Start Time	Measurement period	Measured Levels — dB(A) L _{eq 15min Day}	Measured Levels – dB(A) L _{eq 15min} Evening	Measured Levels – dB(A) L _{eq 15min} _{Night}	Measured Levels – dB(A) LA1 (1 min) Night	Limit	Av. Wind Speed (m/s)	Stability Class	Compliant (Yes/No)
	6/11/2017	21:27	30		IA			35	1.8	E	Yes
	6/11/2017	22:01	60			IA		35	3.8	D	Yes
	6/11/2017	22:01	60				IA	45	3.8	D	Yes
	7/11/2017	12:55	90	IA				35	2.8	С	Yes
	7/11/2017	21:15	30		20			35	0.8	D	Yes
	7/11/2017	22:17	60			27		35	3.2	D	Yes
TNO	7/11/2017	22:35	60				32	45	2.6	F	Yes
I IN3 Dorhoro	8/11/2017	11:51	90	IA				35	4.4	В	Yes
barbers	8/11/2017	20:18	30		IA			35	4.0	D	Yes
Laguon	8/11/2017	23:08	60			32		35	3.7	D	Yes
	8/11/2017	23:40	60				37	45	3.2	D	Yes
	9/11/2017	09:31	90	IA				35	4.0	В	Yes
	9/11/2017	21:06	30		25			35	4.1	D	Yes
	9/11/2017	00:13	60			30		35	3.3	D	Yes
	9/11/2017	22:17	60				38	45	3.1	D	Yes
	10/11/2017	10:03	90	25				35	2.4	А	Yes

Table 2 – Attended Noise Monitoring Barbers	Lagoon
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IA – Inaudible, NM – Not Measurable

EPL ID	Date	Start Time	Measurement period	Measured Levels – dB(A) L _{eq 15min Day}	Measured Levels – dB(A) L _{eq 15min} Evening	Measured Levels – dB(A) L _{eq 15min} Night	Measured Levels – dB(A) LA1 (1 min) Night	Limit	Av. Wind Speed (m/s)	Stability Class	Compliant (Yes/No)
	6/11/2017	20:43	30		IA			35	3.4	D	Yes
	6/11/2017	23:22	60			IA		35	0.9	F	Yes
	6/11/2017	23:22	60				IA	45	0.9	F	Yes
	7/11/2017	11:30	90	IA				35	3.0	А	Yes
	7/11/2017	20:31	30		IA			35	1.6	D	Yes
	7/11/2017	23:34	60			27		35	2.5	E	Yes
	7/11/2017	23:34	60				32	45	2.5	E	Yes
	8/11/2017	10:01	90	IA				35	6.1	D	Yes
TN4	8/11/2017	21:00	30		IA			35	5.5	D	Yes
Bungalow	8/11/2017	00:07	60			30		35	1.8	E	Yes
	8/11/2017	00:07	60				30	45	1.8	E	Yes
	9/11/2017	09:52	90	IA				35	4.0	С	Yes
	9/11/2017	20:26	30		IA			35	3.3	D	Yes
	9/11/2017	23:37	60			25		35	0.0	G	Yes
	9/11/2017	23:52	60				30	45	1.1	F	Yes
	10/11/2017	00:07	60			25		35	1.8	F	Yes
	10/11/2017	00:07	60				30	45	1.8	F	Yes
	10/11/2017	08:49	90	30				35	3.1	В	Yes

Table 3 – Attended Noise Monitoring Bungalow

IA – Inaudible, NM – Not Measurable

Blast Monitoring

Blasting Results

Since the first blast, there have been 790 blasts (until 31/01/2018) at TCM.

There has been no exceedance of criteria since the last meeting for ground vibration or overpressure.

Since the last CCC meeting, the highest result obtained for blasting overpressure was 108 dB at the Tarrawonga monitoring station on 3/11/18 and the highest result for ground vibration was 1.14 mm/s on 21/12/18.

Table- 4: Max Peak Overpressure and Ground Pressure for the Quarter	Table- 4: Max Peak Over	pressure and Ground	Pressure for the	Quarter
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Monitor Location	Date	Max. Peak Overpressure (dB)	Criterion (dB)	Max. Peak Ground Pressure (mm/s)	Criterion (mm/s)
Tarrawonga	3/11/18	108	115	-	-
Tarrawonga	21/12/18	-	-	1.14	10

The revised Blast Management Plan remains with DP&E for approval.

Air Quality

Air Quality (Dust Deposition) Results

Five monitoring locations exceeded the limit of 4g/m2/month (annual average). These monitors are located on mine-owned land; as such compliance criteria do not apply. A review of the location of the deposited dust gauges has being undertaken as part of a revision of the Air Quality Greenhouse Gas Management Plan which will be submitted to DP&E for approval.

¹Invesitigation undertaken – not deemed to be mining related.

MONTH	TEMPLEMORE (EB-4) ¹	BOLLOL CREEK STN (EB-5) ¹	AMBARDO (EB-6) ¹	TARRAWONGA (EB- 7) ¹	THUIN (EB-8)	PINE GROVE (EB-9) ¹	TARRAWONGA MINE (EB-10) ¹	TARRAWONGA MINE (EB-11) ¹	TARRAWONGA MINE (EB-14) ¹	TARRAWONGA MINE (EB-15) ¹	JERALONG NORTH (EB-16) ²
Feb-17	59.5	17.9	0.4	1.1	2.3	1.0	0.0	2.8	2.2	4.3	4.3
Mar-17	3.5	4.0	4.7	1.1	1.5	1.4	22.0	3.7	6.0	7.8	1.8
Apr-17	6.0	3.9	5.9	0.8	4.6	0.5	8.7	2.4	2.8	2.5	2.8
May-17	3.0	3.0	0.0	0.7	2.0	0.4	4.1	2.7	2.0	4.3	1.0
Jun-17	53.6 ¹	4.2	1.5	0.9	3.0	2.4	6.9	4.5	2.0	2.4	1.0
Jul-17	2.0	2.4	0.9	0.7	2.0	1.0	1.6	3.7	1.2	4.1	0.5
Aug-17	2.9	3.1	0.9	0.9	2.4	1.5	4.2	2.2	1.8	4.9	0.4
Sep-17	12.7	3.5	1.8	0.6	2.0	1.4	3.2	2.0	1.9	-	0.7
Oct-17	6.6	4.2	2.0	1.1	1.1	3.0	2.5	3.3	4.7	8.6	1.8
Nov-17	2.7	4.8	3.8	7.1	-	4.0	2.9	3.1	2.6	4.8	3.6
Dec-17	24.6	2.3	1.8	1.9	3.5	3.0	13.5	7.5	3.1	4.1	71.3
Jan-18	6.7	2.6	10.5	2.1	2.5	3.4	14.4	4.3	1.9	3.4	5.3
12 MONTH ROLLING AVERAGE	13.4	4.7	2.1	1.5	2.6	1.8	6.2	3.4	2.7	4.6	7.6

Table 5 – Deposited Dust Gauge Results

PM₁₀ Results

The High Volume Air Sampler (HVAS) installed at Coomalgah property monitors level of Particle Matter under 10 micron (PM10). It operates for 24hr every 6 days. Table 6 shows 24hr average values recorded above the criterion specified in the Project Approval (PA). Investigations show that those exceedances were related to high wind speed (>7m/s) and farming activity adjacent to the monitor location during the day of sampling. The rolling Annual average is below the PA criterion.

Date	24hr averaged PM10 (μg/m³)	Criterion 24hr average (μg/m³)	Rolling Annual average (μg/m³)	Criterion Annual Average (μg/m³)	Comments
14/11/17	178	50	19.8	30	Not a result of mining related operations. Farming activities including cultivation observed by site personnel and noted on field sheet.
26/11/17	53.9	50	20.4	30	Not mine Related. Very Windy week and Harvest of wheat nearby noted in field sheet. BOM weather data show wind was coming from East-South East
8/12/17	52.2	50	20.6	30	Not mine related. Windy week (wind speed above 7.5 -8m/s registered during that week)
19/1/18	67.7	50	22.8	30	Not mine related. Windy week (Wind above the 7.5m/s recorded) and also wind noted in field sheet. BOM weather data show that wind was coming from S-SE
25/1/18	61	50	23.5	30	Not Mine related- Windy week and also wind noted in the field sheet. BOM Weather data show that wind was coming from South.

Table- 6: HVAS PM10 24 hr average levels for the Quarter

According to the current Air Quality and Greenhouse gas Management Plan, the fixed real time air quality unit (TEOM) installed at the "Flixton" property monitors PM10 levels in ambient air. It is an operation 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.

Water Monitoring

Groundwater

Routine groundwater monitoring was undertaken in September 2017.

Site	Date	SWL (mbgl)	pH (units)	Elect. Conduct
MW1				(µ3/cm)
Thuin	November 2016	6.68	7.6	3170
	February 2017	6.66	8.36	3380
	June 2017	6.74	7.8	3290
	September 2017	6.80*	8.31	3370
	December 2017	6.73	7.7	3280
MW2				
Thuin	November 2016	3.54	7.0	524
	February 2017	3.85	7.7	639
	June 2017	3.86	7.0	591
	September 2017	3.64	7.54	533
	December 2017	3.68	7	545
MW4				
Tarrawonga	November 2016	8.91	7.3	4330
	February 2017	8.92	8.13	4610
	June 2017	9.00	7.4	4370
	September 2017	8.9	7.82	4570
	December 2017	8.95	7.2	4440
MW/5				
Templemore	November 2016	2.0	7.6	3010
remplemore	February 2017	2.0	8 24	1750
	lune 2017	2.55	79	1788
	September 2017	2.75	8.19	2640
	December 2017	2.78	7.7	2630
MW6				
Nagero	November 2016	4.74	7.5	1416
	February 2017	4.68	8.25	1630
	June 2017	4.77	7.5	1660
	September 2017	4.57	8.15	1710
	December 2017	4.55	7.6	1738
MW7				
Tarrawonga Mine	November 2016	104.41	No sample	No sample
	February 2017	104.74	No sample	No sample
	June 2017	104.92	No sample	No sample
	September 2017	104.47	No sample	No sample
	December 2017	104.53	No sample	No sample
MW/8				
Tarrawonga Mine	November 2016	12.62	Casing blocked	Casing blocked
	February 2017	12.90	Casing blocked	Casing blocked
	June 2017	13.11	Casing blocked	Casing blocked
	September 2017	13.04	Casing blocked	Casing blocked
	December 2017	13.16	Casing blocked	Casing blocked
		-	U • • • • •	0

Table 7- Groundwater results Summary

*GM advised he had previously reported SWL as mbtoc instead of mbgl

Surface Water

No further wet weather monitoring has been undertaken since the last CCC meeting due to no or little rains Most of the dams and sediment dams are dry.

The Site is exposed to a risk of water shortage if there is no rain in the next few weeks. Estimated volume of water stored onsite as 9th February was approximately 87ML for a maximum capacity of 640ML. TCM are assessing options to source additional water in order to maintain the mine in operation and they will assess if emptied dams require desilting to keep site with the maximum storage capacity.

Rehabilitation

Soil amelioration and top soiling has been completed and water management is being finalised on this year's rehabilitation areas. Vegetation establishment will be undertaken on these areas during the upcoming weeks. Further information on the progression of these areas will be provided in future CCC meetings. Operations and Environment departments work together to develop and implement a more efficient rehabilitation program. The aim is to enhance the quantity of areas rehabilitated

Complaints

Since the last meeting, two complaints was lodged on December 8th and 11th. Both complaints were in regards to excessive dust purportedly being generated by the mine. An investigation was conducted and response sent to the EPA. . Photos from the site monitoring cameras could clearly show that non mine vehicles were transiting on the Goondri road generating large dust plume.

Environmental Management Plans (EMPs are still being reviewed by the DP&E)

Noise Management Plan

Resubmitted following approval of the BTM Noise Management Strategy. Changes incorporated in previous resubmission awaiting approval include attending monitoring locations changes, administrative changes and removal of prescriptive procedural based text.

Blast Management Plan

Changes incorporated into resubmission awaiting approval include blast monitoring location changes, administrative changes and removal of prescriptive procedural based text.

Air Quality Greenhouse Gas Management Plan

Submitted to DP&E for approval; changes include updated air quality monitoring network including removal of deposited dust gauges from mine owned land except where required by approval. Other changes include removal of prescriptive procedural based text and further administrative changes to reflect current operations.

Water Management Plan

Submitted for approval. Water management plan incudes but not limited surface water monitoring, groundwater monitoring, and site water balance.

Environmental Management Strategy

Submitted for approval; the EMS outlines the sites environmental management systems.

BTM Air Quality Management Strategy

Recently approved by DP&E and will be amended to the AQGGMP.

Minutes of the 52nd Meeting of the Tarrawonga Coal Mine Community Consultative Committee (TCCC)

Meeting Held	16 th May 2018 between 10:11AM- 11:35AM		
Venue	Tarrawonga Coal Mine (TCM), training room		
Agenda Item	Discussion- description	Action and Accountability	Status/ Date
1. Present and Apologies	Present: Mr David Ross (DR)- Independent Chairman, Mrs Julie Heiler (JH)- Community Representative, Mrs Cath Collyer (CC)- Community Representative, Mrs Colleen Fuller (CF)- Community Representative, Mr Blair Meyers (BM)- Operations Manager/ MME- TMC, Mr Sebastien Moreno (SM)- Environmental Superintendent- TCM, Mr Tim Muldoon (TM)- Group Manager Community Relations and Property,		
	Apologies: Mrs Anne McMahon, Narrabri Shire council Representative Mrs Rebecca Ryan (RR)- Community Representative, Mr Andrew Johns (AJ), Gunnedah Shire council Representative, Ms Ann Luke (AL), Gunnedah Shire council Representative.	DR to ask Narrabri Council if they will continue to join the TCCC meeting.	
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	CC- asked for total dams capacity and current volume stored onsite, CC- asked for species of grass to be used and which ones are successful for rehabilitation.	SM to provide the information by 21/02/18.	complete
	TCCC members – asked for the Quarterly Environmental report. They also requested a map with names for each monitoring site.	SM sent report by 28 February, SM to provide a map at next meeting.	complete

	DR- asked if Environmental report could be sent in advance before the TCCC meeting.	SM to send the report the Friday before each meeting (16/05/18).	complete
	DR - Dust complaint letter to council	DR sent letter	complete
Agenda Item	Discussion- description	Action and Accountability	Status/ Date
4. Business Arising	DR- Requested NSWEPA and DPE to join the BTM CCC Meeting. DPE withdrew		
	TM- regarding water issues and access by the RFS. Significant progress has been made to standardise fittings and pipping with the RFS. Canyon site water has been used by the Council for road works.	TM- Report on progress at next CCC meeting	
	DR- Regarding TCM staff (ERT members) volunteering with RFS outside the mine.	BM- check with insurance if any restriction	
5. Mine Progress Report	 BM- Normal Activity, Finalized purchase of 30% share with Idemitsu (TCM is no longer a joint venture but 100% WHC owned) Mining Lease transfer with BCM at the northern boundary, (starting works at the joint rehabilitation area) Realignment of Goonbri Road and Bollol Ck included in the Project Approval but it is not certain to go ahead at this stage. Started meeting and discussion to upgrade the water management facilities according to the reshaping and final land form of the southern emplacement JH- Attention with potential flooding issues at this location (flood plain at south of the Goonbri road): 		
6. Environmental Monitoring	SM- read and explained the Quarterly Environmental Report results		
report	JH -asked to include the SWL graphs for the groundwater bores	SM to include SWL Graph in next Quarterly report.	L
	JH- asked to check the optimum time for planting to prevent risk of wasting time and money		
	BM- regulator putting pressure and mine committed to accelerate surface areas rehabilitated		

		7	Í.
	CC- questioned the cumulative limit set up for dust level and DR –		
	mentioned it was a topic to discuss with the NSWEPA at the BTM CCC		
	meeting.		
	JH- added that level of dust that are acceptable for the EPA may not be		
	acceptable for the community that worries about crop, cattle, health etc		
Agenda Item	Discussion- description	Action and	Status/
		Accountability	Date
7. General business	CF- No comments		
	JH- questioned water level and water inventory		
	BM- TCM use void water and have also a 250ML licence to withdraw		
	groundwater.		
	JH- No gauges installed and community questioned where the water		
	comes from.		
	BM- Dump is like a sponge and recharge comes from dump runoff but		
	also from the coal seam and the aquifer. There is no water pumped from		
	the river.		
	CC- clarification on sources of water recharging the void		
	BM, TM- not possible to separately quantify all the sources at this stage,	TCM- Hydrogeologist or	
	but there is a calculation formulae developed by a hydrogeologist that can	similar to provide a figure/	/
	give an estimate.	volume estimate and to	
		explain how much water is	
		coming from the void	
	JH- no water is critical for farmers that will have to stop		
8.Complaints	SM- one dust complaint for the 19 th March received and the response was		
	provided to NSWEPA (not mine related)		
	JH- Community is annoyed by NSWEPA because they don't report all the		
	complaints they receive- JH called them every day for more than a week.		
9. Next Meeting and Other	DR- next TCCC meetings 2018 will be held on 15 th August and 31 st		
Comments	October.		
	DR- Environmental Trust meeting held at the Boggabri Golf Club on May	r	
	17 at 12:30pm followed by the BTM CCC meeting at 2:00pm.		

Tarrawonga Coal Mine Community Consultative Committee Meeting #52

Environmental Monitoring Report 1 February 2018 – 30 April 2018

This report has been prepared for the Community Consultative Committee (CCC) Meeting to show Environmental monitoring results at Tarrawonga Coal Mine (TCM) for the reporting period from February 1 to April 30 2018. Maps with all the monitoring locations are available in *Appendix A*.

Noise Monitoring

Attended noise monitoring was undertaken at the "Bungalow" (TN4), "Barbers Lagoon" (TN3) and "Matong" (TN2) properties from 12th to 16th March 2018. The noise criterion for the mine is 35dB(A) Leq (15 min) for all operating times.

The results in *Appendix B* show that noise emissions from the mine did not exceed the operational noise criterion at the "Barbers Lagoon", "Bungalow" or "Matong" monitoring locations during the monitoring event.

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. The results of the sleep disturbance monitoring (tables 1, 2 and 3) show that the measured L1 (1 min) noise level did not exceed the sleep disturbance criterion.

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

Blast Monitoring

Blasting Results

Since 2006, there have been 808 blasts (until 30/04/2018) at TCM.

There has been no exceedance of criteria since the last meeting for ground vibration or overpressure.

Since the last CCC meeting, the highest result obtained for blasting overpressure was 108.1 dB at the Tarrawonga monitoring station on 23/03/18 and the highest result for ground vibration was 1.08 mm/s recorded at the Coomalgah station on 17/04/18.

Monitor Location	Date	Max. Peak Overpressure (dB)	Criterion (dB)	Max. Peak Ground Pressure (mm/s)	Criterion (mm/s)
Tarrawonga	23/03/18	108.1	115	-	-
Coomalgah	17/04/18	-	-	1.08	10

Table- 4: Max Peak Overpressure and Ground Pressure for the Quarter

Air Quality

Dust Deposition Results

Four monitoring locations exceeded the limit of 4g/m2/month (annual average). These monitors are located on mine-owned land; as such compliance criteria do not apply. A review of the location of the deposited dust gauges has being undertaken as part of a revision of the Air Quality Greenhouse Gas Management Plan which awaiting for DP&E approval.

¹Invesitigation undertaken – not deemed to be mining related.

Table 5 – Deposited Dust Gauge Results

MONTH	TEMPLEMORE (EB-4) ¹	BOLLOL CREEK STN (EB-5) ¹	AMBARDO (EB-6) ¹	TARRAWONGA (EB- 7) ¹	THUIN (EB-8)	PINE GROVE (EB-9) ¹	TARRAWONGA MINE (EB-10) ¹	TARRAWONGA MINE (EB-11) ¹	TARRAWONGA MINE (EB-14) ¹	TARRAWONGA MINE (EB-15) ¹	JERALONG NORTH (EB-16) ²
May-17	3.0	3.0	0.0	0.7	2.0	0.4	4.1	2.7	2.0	4.3	1.0
Jun-17	53.6 ¹	4.2	1.5	0.9	3.0	2.4	6.9	4.5	2.0	2.4	1.0
Jul-17	2.0	2.4	0.9	0.7	2.0	1.0	1.6	3.7	1.2	4.1	0.5
Aug-17	2.9	3.1	0.9	0.9	2.4	1.5	4.2	2.2	1.8	4.9	0.4
Sep-17	12.7	3.5	1.8	0.6	2.0	1.4	3.2	2.0	1.9	-	0.7
Oct-17	6.6	4.2	2.0	1.1	1.1	3.0	2.5	3.3	4.7	8.6	1.8
Nov-17	2.7	4.8	3.8	7.1	-	4.0	2.9	3.1	2.6	4.8	3.6
Dec-17	24.6	2.3	1.8	1.9	3.5	3.0	13.5	7.5	3.1	4.1	71.3
Jan-18	6.7	2.6	10.5	2.1	2.5	3.4	14.4	4.3	1.9	3.4	5.3
Feb-18	6.1	7.5	4.9	1.5	3.9	1.5	7.8	2.8	2.3	3.8	9.4
Mar-18	6.1	7.5	4.9	1.5	3.9	1.5	7.8	2.8	2.3	3.8	9.4
Apr-18	1.2	3.4	1.2	0.9	3.4	2.4	4.8	4.5	1.9	4	3.3
12 MONTH ROLLING AVERAGE	6.7	4.0	3.1	1.6	2.9	2.0	6.3	3.5	2.3	4.2	8.5

The High Volume Air Sampler (HVAS) installed at Coomalgah property monitors level of Particle Matter under 10 micron (PM₁₀). It operates for 24hr every 6 days. Table 6 shows 24hr average values recorded above the criterion specified in the Project Approval (PA). Investigations show that those exceedances were related to high wind speed (>9m/s) and farming activity adjacent to the monitor location during the day of sampling. The rolling Annual average is below the PA criterion.

Date	24hr averaged PM10 (μg/m³)	Criterion 24hr average (µg/m³)	Rolling Annual average (μg/m³)	Criterion Annual Average (µg/m³)	Comments
18/02/18	51.4	50	24.64	30	Not Mine related. Windy condition noted in ALS Field Sheet. BOM and local MET station recorded winds above 9.5m/s during that monitoring period.
20/03/18	63	50	25.73	30	Not mine related. Farming and Grazing activities recorded in ALS field sheet. Windrose shows wind predominantly coming from NE while the mine is located W-NW of that monitor.

Table- 6: HVAS PM10 24 hr average levels for the Quarter

According to the current Air Quality and Greenhouse gas Management Plan, the real time air quality unit (TEOM) installed at the "Flixton" property monitors PM_{10} levels in ambient air. It is an operation 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.

Water Monitoring

Groundwater

Routine groundwater monitoring was undertaken in February 2018.

Site	Date	SWL (mbgl)	pH (units)	Elect. Conduct
				(µS/cm)
MW1	5 1 2017	6.66	0.00	2200
Thuin	February 2017	6.66	8.36	3380
	June 2017	6.74	7.8	3290
	September 2017	6.80*	8.31	3370
	December 2017	6.73	7.7	3280
	February 2018	6.81	7.9	3460
MW2				
Thuin	February 2017	3.85	7.7	639
	June 2017	3.86	7.0	591
	September 2017	3.64	7.54	533
	December 2017	3.68	7	545
	February 2018	4.23	7.3	519
MW4				
Tarrawonga	February 2017	8.92	8.13	4610
	June 2017	9.00	7.4	4370
	September 2017	8.9	7.82	4570
	December 2017	8.95	7.2	4440
	February 2018	9.08	7.4	4610
MW5				
Templemore	February 2017	2.35	8.24	1750
	June 2017	2.54	7.9	1288
	September 2017	2.75	8.19	2640
	December 2017	2.78	7.7	2630
	February 2018	3.12	7.9	2320
MW6	, í			
Nagero	February 2017	4.68	8.25	1630
0	, June 2017	4.77	7.5	1660
	September 2017	4.57	8.15	1710
	December 2017	4.55	7.6	1738
	February 2018	4.76	7.8	1833
MW7	,			
Tarrawonga Mine	February 2017	104.74	No sample	No sample
C C	June 2017	104.92	No sample	No sample
	September 2017	104.47	No sample	No sample
	December 2017	104.53	No sample	No sample
	February 2018	104.97	No sample (Grev mud)	No sample
MW8				p -
Tarrawonga Mine	February 2017	12.90	Casing blocked	Casing blocked
	June 2017	13.11	Casing blocked	Casing blocked
	September 2017	13.04	Casing blocked	Casing blocked
	December 2017	13.16	Casing blocked	Casing blocked
	February 2018	13.32	Casing blocked	Casing blocked

Table 7- Groundwater results Summary

*SLR consultant (GM) advised that previously SWL was reported as mbtoc instead of mbgl

No further wet weather monitoring has been undertaken since the last CCC meeting due to no or little rains. Most of the dams and sediment dams are dry.

Estimated volume of water stored onsite as 10th May was approximately 40ML for a maximum capacity of approximately 800 ML. TCM continue assessing options to source additional water in order to maintain the mine in operation.

Rehabilitation and Clearing

Rehabilitation

Operations and Environment departments work together to develop and implement a more efficient rehabilitation program. The aim is to enhance the quantity of areas rehabilitated.

In 2017, WHC coordinated two revegetation programs in 2017 with the understorey revegetation (direct seeding) undertaken in November 2017 across 2 Ha sown with 8.6kg of native grass seed (16 species), 0.4kg of native forb seed (13 species) and 16kg of bulking agent (lime). Overstorey revegetation program was undertaken in November 2017 with 1,100 hiko seedlings of Eucalyptus albens, Eucalyptus blakelyi, Eucalyptus crebra, Eucalyptus melliodora, Eucalyptus pilligaensis, Eucalyptus populanea and Eucalyptus microcarpa planted across 6.6 Ha.

In 2018, TCM plan to plant approximately 2,400 trees in the designated rehabilitation areas including Eucalyptus albens, Eucalyptus blakelyi, Eucalyptus crebra, Eucalyptus melliodora, Eucalyptus pilligaensis, Eucalyptus populanea, Eucalyptus macrocarpa, Eucalyptus Melanophloia, Eucalyptus Crebra, Eucalyptus Dealbata and Eucalyptus Dwyeri. Those works are expected to start at the end of May 2018.

Clearing

During March and April 2018, Tarrawonga cleared approximately 30 Ha according to the MOP amendment C. A professional ecologist was engaged to supervise the clearing process in accordance with the Biodiversity Management Plan.

Complaints

Since the last meeting, only one complaint was lodged on March 19. EPA informed TCM of the complaint via email on April 4. The complaint was in regards to excessive dust purportedly being generated by the mine. An investigation was conducted and response sent to the EPA. Photos from the site monitoring cameras, data from the dust monitor and weather station clearly show there was no evidence of dust generated by the operation at the time of the complaint. In addition approximately 3.2 ML of water were used on that day for dust suppression.

Environmental Management Plans

DPE have reviewed the updated Management Plans against the requirements of the Project Approval. On Wednesday 10th May 2018, the department requested clarification on several matters related to those Management Plans. TCM will provide a written response and resubmit the amended Management Plans once all the comments have been addressed.

Noise Management Plan

It was resubmitted in 2017 following approval of the BTM Noise Management Strategy. Changes incorporated in previous resubmission awaiting approval include attending monitoring locations changes, administrative changes and removal of prescriptive procedural based text.

Blast Management Plan

Changes incorporated into resubmission 2017 awaiting approval include blast monitoring location changes, administrative changes and removal of prescriptive procedural based text.

Air Quality Greenhouse Gas Management Plan

Submitted in 2017 to DP&E for approval; changes include updated air quality monitoring network including removal of deposited dust gauges from mine owned land except where required by approval. Other changes include removal of prescriptive procedural based text and further administrative changes to reflect current operations.

Water Management Plan

It was submitted for approval in 2017. Water management plan incudes but not limited to surface water monitoring, groundwater monitoring, and site water balance.

Environmental Management Strategy

In 2017, it was submitted for approval; the EMS outlines the sites environmental management systems.

Annual and Compliance Reporting

Annual Review:

The annual environmental performance report 2017 (Annual Review) was submitted to DP&E on March 29 and TCM is awaiting for comments.

Annual Return

The annual compliance report 2017 (Annual Return) was submitted to the NSWEPA on the 9th March and TCM is awaiting for comments.

The Annual compliance statement for Environment Protection and Biodiversity Conservation is due for submission to DP&E mid- June.

Environmental Improvement and Initiatives

Dust Management

TCM have engaged the company Dust A Side to provide advice and solution to minimise potential fugitive dust generated by exposed surfaces such as haul roads. Since end of April, TCM have been monitoring the results and trying to improve the spraying and mixing techniques. The product used is totally organic, has no corrosive chloride compounds, and is environmentally friendly and readily biodegradable.

Water Management

1. TCM have started to desilt dams as required. This process will increase the total storage capacity onsite. That project is expected to be completed before the beginning of winter and the first rains.

2. TCM have ordered gauges boards that will be installed on the batter of some of the dams. This initiative should improve the water management practices and will reduce the time to conduct water storage inventory.

Appendix A







G:Draftingi630.11069 Whitehaven Projectsi/Tarrawongal/Figuresi630.11069.00100/630.11069-Fig 6 (Monitoring Locations) dwg



G:Drafting/630.11069 Whitehaven Projects/Tarrawonga/Figures/CURRENT/ISSUED/630.11069.0230-Fig 7 (Groundwater Monitoring Locations)_REV D.dwg

Appendix B

Table 4.2 compares measured $\mathrm{L}_{Aeq,15minute}$ levels from TCM with project approval and EPL criterion.

Location	Start Date and Time	Wind Speed m/s	Stability Class ²	VTG °C per 100m	Criterion dB	Criterion Applies? ^{1,6}	TCM L _{Aeq,} 15min dB ^{3,4}	Exceedance 5	
Day									
TN2	12/03/2018 16:23	3.0	В	-1.8	Nil	Yes	<25	Nil	
TN2	12/03/2018 16:38	3.4	С	-1.6	Nil	No	NM	NA	
TN2	12/03/2018 16:53	4.5	С	-1.6	Nil	No	NM	NA	
TN2	12/03/2018 17:08	5.0	С	-1.6	Nil	No	NM	NA	
TN2	12/03/2018 17:23	5.1	D	-1.0	Nil	No	NM	NA	
TN2	12/03/2018 17:38	3.7	С	-1.6	Nil	No	NM	NA	
TN2	13/03/2018 11:03	1.4	А	-2.0	Nil	Yes	<25	Nil	
TN2	13/03/2018 11:18	2.6	В	-1.8	Nil	Yes	<25	Nil	
TN2	13/03/2018 11:33	1.1	В	-1.8	Nil	Yes	<25	Nil	
TN2	13/03/2018 11:53	1.2	А	-2.0	Nil	Yes	<25	Nil	
TN2	13/03/2018 12:10	2.0	А	-2.0	Nil	Yes	<25	Nil	
TN2	13/03/2018 12:25	1.5	А	-2.0	Nil	Yes	<25	Nil	
TN2	14/03/2018 10:16	2.4	А	-2.0	Nil	Yes	<20	Nil	
TN2	14/03/2018 10:32	1.8	А	-2.0	Nil	Yes	<20	Nil	
TN2	14/03/2018 10:47	1.1	А	-2.0	Nil	Yes	IA	Nil	
TN2	14/03/2018 11:02	1.9	А	-2.0	Nil	Yes	<20	Nil	
TN2	14/03/2018 11:18	1.8	А	-2.0	Nil	Yes	<20	Nil	
TN2	14/03/2018 11:33	1.6	А	-2.0	Nil	Yes	<20	Nil	
TN2	15/03/2018 11:16	1.7	А	-2.0	Nil	Yes	<25	Nil	
TN2	15/03/2018 11:31	1.9	А	-2.0	Nil	Yes	<25	Nil	
TN2	15/03/2018 11:46	2.5	А	-2.0	Nil	Yes	<25	Nil	
TN2	15/03/2018 12:01	2.6	А	-2.0	Nil	Yes	<25	Nil	
TN2	15/03/2018 12:16	2.0	А	-2.0	Nil	Yes	<25	Nil	
TN2	15/03/2018 12:32	1.6	А	-2.0	Nil	Yes	<25	Nil	
TN3	12/03/2018 14:31	2.3	А	-2.0	35	Yes	IA	Nil	
TN3	12/03/2018 14:46	2.0	А	-2.0	35	Yes	IA	Nil	
TN3	12/03/2018 15:01	1.7	А	-2.0	35	Yes	IA	Nil	
TN3	12/03/2018 15:16	3.0	А	-2.0	35	Yes	IA	Nil	
TN3	12/03/2018 15:31	1.9	А	-2.0	35	Yes	IA	Nil	
TN3	12/03/2018 15:46	2.2	А	-2.0	35	Yes	IA	Nil	
TN3	13/03/2018 09:53	0.8	А	-2.0	35	Yes	<25	Nil	
TN3	13/03/2018 10:08	1.6	А	-2.0	35	Yes	IA	Nil	
	-								

 Table 4.2: LAeq,15minute GENERATED BY TCM AGAINST PROJECT APPROVAL/EPL CRITERION – QUARTER 1 2018

Location	Start Date and Time	Wind Speed m/s	Stability Class ²	VTG °C per 100m	Criterion dB	Criterion Applies? ^{1,6}	TCM L _{Aeq} ,15min dB ^{3,4}	Exceedance ⁵
TN3	13/03/2018 10:23	1.1	А	-2.0	35	Yes	<25	Nil
TN3	13/03/2018 10:38	1.4	А	-2.0	35	Yes	<25	Nil
TN3	13/03/2018 10:53	1.7	А	-2.0	35	Yes	<25	Nil
TN3	13/03/2018 11:08	1.4	А	-2.0	35	Yes	IA	Nil
TN3	14/03/2018 11:05	1.9	А	-2.0	35	Yes	IA	Nil
TN3	14/03/2018 11:20	1.8	А	-2.0	35	Yes	IA	Nil
TN3	14/03/2018 11:35	1.6	А	-2.0	35	Yes	IA	Nil
TN3	14/03/2018 11:50	2.7	А	-2.0	35	Yes	IA	Nil
TN3	14/03/2018 12:05	1.4	А	-2.0	35	Yes	IA	Nil
TN3	14/03/2018 12:20	1.7	А	-2.0	35	Yes	IA	Nil
TN3	15/03/2018 11:20	1.9	А	-2.0	35	Yes	IA	Nil
TN3	15/03/2018 11:35	1.8	А	-2.0	35	Yes	IA	Nil
TN3	15/03/2018 11:52	2.8	В	-1.8	35	Yes	IA	Nil
TN3	15/03/2018 12:07	2.3	А	-2.0	35	Yes	IA	Nil
TN3	15/03/2018 12:22	1.6	А	-2.0	35	Yes	IA	Nil
TN3	15/03/2018 12:37	2.2	А	-2.0	35	Yes	IA	Nil
TN4	12/03/2018 16:26	3.2	В	-1.8	35	No	IA	NA
TN4	12/03/2018 16:44	3.5	С	-1.6	35	No	IA	NA
TN4	12/03/2018 16:59	4.6	С	-1.6	35	No	IA	NA
TN4	12/03/2018 17:14	5.0	С	-1.6	35	No	IA	NA
TN4	12/03/2018 17:29	3.7	В	-1.8	35	No	IA	NA
TN4	12/03/2018 17:44	4.0	С	-1.6	35	No	IA	NA
TN4	13/03/2018 15:25	1.3	А	-2.0	35	Yes	IA	Nil
TN4	13/03/2018 15:40	2.3	А	-2.0	35	Yes	IA	Nil
TN4	13/03/2018 15:55	1.9	А	-2.0	35	Yes	IA	Nil
TN4	13/03/2018 16:10	1.6	А	-2.0	35	Yes	IA	Nil
TN4	13/03/2018 16:25	1.7	А	-2.0	35	Yes	IA	Nil
TN4	13/03/2018 16:40	1.9	А	-2.0	35	Yes	IA	Nil
TN4	14/03/2018 12:55	1.7	А	-2.0	35	Yes	IA	Nil
TN4	14/03/2018 13:10	2.1	А	-2.0	35	Yes	IA	Nil
TN4	14/03/2018 13:25	2.1	А	-2.0	35	Yes	IA	Nil
TN4	14/03/2018 13:40	1.9	А	-2.0	35	Yes	IA	Nil
TN4	14/03/2018 13:55	1.6	А	-2.0	35	Yes	IA	Nil
TN4	14/03/2018 14:10	2.0	А	-2.0	35	Yes	IA	Nil
TN4	15/03/2018 13:25	3.5	D	-1.0	35	No	IA	NA
TN4	15/03/2018 13:40	2.6	А	-2.0	35	Yes	IA	Nil

Location	Start Date and Time	Wind Speed m/s	Stability Class ²	VTG °C per 100m	Criterion dB	Criterion Applies? ^{1,6}	TCM L _{Aeq} ,15min dB ^{3,4}	Exceedance ⁵			
TN4	15/03/2018 13:55	1.6	А	-2.0	35	Yes	IA	Nil			
TN4	15/03/2018 14:10	1.7	А	-2.0	35	Yes	IA	Nil			
TN4	15/03/2018 14:25	2.3	А	-2.0	35	Yes	IA	Nil			
TN4	15/03/2018 14:40	1.8	А	-2.0	35	Yes	IA	Nil			
	Evening										
TN2	12/03/2018 21:36	1.3	D	-1.0	Nil	Yes	IA	Nil			
TN2	12/03/2018 21:51	1.3	D	-1.0	Nil	Yes	IA	Nil			
TN2	13/03/2018 20:39	1.2	F	3.0	Nil	Yes	20	Nil			
TN2	13/03/2018 20:55	2.1	E	0.5	Nil	Yes	<20	Nil			
TN2	14/03/2018 19:58	1.1	Е	0.5	Nil	Yes	IA	Nil			
TN2	14/03/2018 20:14	1.0	Е	0.5	Nil	Yes	IA	Nil			
TN2	15/03/2018 21:26	1.9	D	-1.0	Nil	Yes	32	Nil			
TN2	15/03/2018 21:41	1.4	F	3.0	Nil	Yes	31	Nil			
TN3	12/03/2018 18:23	2.9	D	-1.0	35	Yes	IA	Nil			
TN3	12/03/2018 18:38	2.1	Е	0.5	35	Yes	IA	Nil			
TN3	13/03/2018 19:25	0.8	D	-1.0	35	Yes	IA	Nil			
TN3	13/03/2018 19:42	0.9	Е	0.5	35	Yes	IA	Nil			
TN3	14/03/2018 20:45	1.0	D	-1.0	35	Yes	<25	Nil			
TN3	14/03/2018 21:00	1.0	F	3.0	35	Yes	26	Nil			
TN3	15/03/2018 21:30	1.9	D	-1.0	35	Yes	IA	Nil			
TN3	15/03/2018 21:45	1.3	F	3.0	35	Yes	IA	Nil			
TN4	12/03/2018 21:25	1.7	D	-1.0	35	Yes	IA	Nil			
TN4	12/03/2018 21:41	1.3	D	-1.0	35	Yes	NM	Nil			
TN4	13/03/2018 21:15	2.8	D	-1.0	35	Yes	IA	Nil			
TN4	13/03/2018 21:31	1.6	D	-1.0	35	Yes	IA	Nil			
TN4	14/03/2018 21:30	0.8	D	-1.0	35	Yes	<20	Nil			
TN4	14/03/2018 21:45	0.0	G	4.1	35	No	<20	NA			
TN4	15/03/2018 20:20	1.2	D	-1.0	35	Yes	IA	Nil			
TN4	15/03/2018 20:35	1.3	Е	0.5	35	Yes	IA	Nil			
			1	Night							
TN2	12/03/2018 22:20	1.6	Е	0.5	Nil	Yes	IA	Nil			
TN2	12/03/2018 22:35	0.6	Е	0.5	Nil	Yes	IA	Nil			
TN2	12/03/2018 22:50	0.2	G	4.1	Nil	No	IA	NA			
TN2	12/03/2018 23:05	0.4	Е	0.5	Nil	Yes	<20	Nil			
TN2	13/03/2018 22:00	1.6	F	3.0	Nil	Yes	<20	Nil			

Location	Start Date and Time	Wind Speed m/s	Stability Class ²	VTG °C per 100m	Criterion dB	Criterion Applies? ^{1,6}	TCM L _{Aeq} ,15min dB ^{3,4}	Exceedance ⁵
TN2	13/03/2018 22:15	2.7	D	-1.0	Nil	Yes	NM	Nil
TN2	13/03/2018 22:31	2.2	F	3.0	Nil	No	<20	NA
TN2	13/03/2018 22:46	2.2	F	3.0	Nil	No	<20	NA
TN2	14/03/2018 23:25	0.6	D	-1.0	Nil	Yes	NM	Nil
TN2	14/03/2018 23:42	0.2	D	-1.0	Nil	Yes	NM	Nil
TN2	14/03/2018 23:57	0.2	Е	0.5	Nil	Yes	NM	Nil
TN2	15/03/2018 00:14	0.5	F	3.0	Nil	Yes	NM	Nil
TN2	15/03/2018 22:00	1.2	F	3.0	Nil	Yes	<25	Nil
TN2	15/03/2018 22:15	0.8	F	3.0	Nil	Yes	<25	Nil
TN2	15/03/2018 22:31	1.1	F	3.0	Nil	Yes	<25	Nil
TN2	15/03/2018 22:46	0.6	F	3.0	Nil	Yes	<25	Nil
TN3	13/03/2018 00:01	1.0	F	3.0	35	Yes	28	Nil
TN3	13/03/2018 00:16	0.6	F	3.0	35	Yes	29	Nil
TN3	13/03/2018 00:31	0.5	F	3.0	35	Yes	30	Nil
TN3	13/03/2018 00:46	1.1	F	3.0	35	Yes	30	Nil
TN3	13/03/2018 23:20	2.3	D	-1.0	35	Yes	<25	Nil
TN3	13/03/2018 23:40	1.8	D	-1.0	35	Yes	<25	Nil
TN3	13/03/2018 23:59	4.5	D	-1.0	35	No	25	NA
TN3	14/03/2018 00:20	5.1	D	-1.0	35	No	<25	NA
TN3	14/03/2018 23:40	0.2	D	-1.0	35	Yes	<30	Nil
TN3	14/03/2018 23:57	0.2	Е	0.5	35	Yes	<30	Nil
TN3	15/03/2018 00:15	0.5	F	3.0	35	Yes	NM	Nil
TN3	15/03/2018 00:30	1.7	Е	0.5	35	Yes	NM	Nil
TN3	15/03/2018 22:16	0.8	F	3.0	35	Yes	IA	Nil
TN3	15/03/2018 22:33	1.2	F	3.0	35	Yes	IA	Nil
TN3	15/03/2018 22:49	0.5	F	3.0	35	Yes	IA	Nil
TN3	15/03/2018 23:04	1.0	D	-1.0	35	Yes	IA	Nil
TN4	12/03/2018 22:00	1.4	D	-1.0	35	Yes	NM	Nil
TN4	12/03/2018 22:17	1.7	Е	0.5	35	Yes	IA	Nil
TN4	12/03/2018 22:35	0.6	Е	0.5	35	Yes	NM	Nil
TN4	12/03/2018 22:50	0.2	G	4.1	35	No	NM	NA
TN4	13/03/2018 22:00	1.6	F	3.0	35	Yes	<30	Nil
TN4	13/03/2018 22:15	2.7	D	-1.0	35	Yes	NM	Nil
TN4	13/03/2018 22:30	2.2	F	3.0	35	No	IA	NA
TN4	13/03/2018 22:45	2.2	F	3.0	35	No	IA	NA
TN4	14/03/2018 22:00	0.7	Ε	0.5	35	Yes	<25	Nil

Location	Start Date and Time	Wind Speed m/s	Stability Class ²	VTG °C per 100m	Criterion dB	Criterion Applies? ^{1,6}	TCM LAeq,15min dB ^{3,4}	Exceedance 5
TN4	14/03/2018 22:15	0.9	F	3.0	35	Yes	<25	Nil
TN4	14/03/2018 22:30	0.7	F	3.0	35	Yes	<25	Nil
TN4	14/03/2018 22:45	0.5	D	-1.0	35	Yes	<25	Nil
TN4	15/03/2018 23:30	0.9	F	3.0	35	Yes	<20	Nil
TN4	15/03/2018 23:49	1.2	F	3.0	35	Yes	<20	Nil
TN4	16/03/2018 00:06	1.0	F	3.0	35	Yes	IA	Nil
TN4	16/03/2018 00:22	0.9	F	3.0	35	Yes	IA	Nil

Notes:

1. Criterion may or may not apply due to rounding of meteorological data values;

2. Calculated stability class data (as per requirements in the EPL);

3. Estimated or measured LAeq, 15minute attributed to TCM;

4. Bold results in red are possible exceedances of relevant criteria;

5. NA in exceedance column indicates atmospheric conditions outside those specified in project approval and EPL, therefore criterion does not apply; and

6. Noise emission limits do not apply during wind speeds greater than 3 metres per second (at a height of 10 metres), stability category F temperature conditions and wind speeds greater than 2 m/s at 10m above ground level; or stability category G temperature inversion conditions.

Table 4.3 compares measured $\rm L_{A1,1minute}$ levels from TCM with project approval and EPL criterion.

Location	Start Date and Time	Wind Speed m/s	Stability Class ²	VTG °C per 100m	Criterion dB	Criterion Applies? ^{1,6}	TCM L _{A1,1min} dB ^{3,4}	Exceedance⁵
TN2	12/03/2018 22:20	1.6	Е	0.5	Nil	Yes	IA	Nil
TN2	12/03/2018 22:35	0.6	Е	0.5	Nil	Yes	IA	Nil
TN2	12/03/2018 22:50	0.2	G	4.1	Nil	No	IA	NA
TN2	12/03/2018 23:05	0.4	Е	0.5	Nil	Yes	<20	Nil
TN2	13/03/2018 22:00	1.6	F	3.0	Nil	Yes	<20	Nil
TN2	13/03/2018 22:15	2.7	D	-1.0	Nil	Yes	NM	Nil
TN2	13/03/2018 22:31	2.2	F	3.0	Nil	No	<20	NA
TN2	13/03/2018 22:46	2.2	F	3.0	Nil	No	<20	NA
TN2	14/03/2018 23:25	0.6	D	-1.0	Nil	Yes	NM	Nil
TN2	14/03/2018 23:42	0.2	D	-1.0	Nil	Yes	NM	Nil
TN2	14/03/2018 23:57	0.2	Е	0.5	Nil	Yes	NM	Nil
TN2	15/03/2018 00:14	0.5	F	3.0	Nil	Yes	NM	Nil
TN2	15/03/2018 22:00	1.2	F	3.0	Nil	Yes	30	Nil
TN2	15/03/2018 22:15	0.8	F	3.0	Nil	Yes	32	Nil
TN2	15/03/2018 22:31	1.1	F	3.0	Nil	Yes	<25	Nil
TN2	15/03/2018 22:46	0.6	F	3.0	Nil	Yes	38	Nil
TN3	13/03/2018 00:01	1.0	F	3.0	45	Yes	33	Nil
TN3	13/03/2018 00:16	0.6	F	3.0	45	Yes	38	Nil
TN3	13/03/2018 00:31	0.5	F	3.0	45	Yes	39	Nil
TN3	13/03/2018 00:46	1.1	F	3.0	45	Yes	38	Nil
TN3	13/03/2018 23:20	2.3	D	-1.0	45	Yes	32	Nil
TN3	13/03/2018 23:40	1.8	D	-1.0	45	Yes	35	Nil
TN3	13/03/2018 23:59	4.5	D	-1.0	45	No	31	NA
TN3	14/03/2018 00:20	5.1	D	-1.0	45	No	30	NA
TN3	14/03/2018 23:40	0.2	D	-1.0	45	Yes	<30	Nil
TN3	14/03/2018 23:57	0.2	Е	0.5	45	Yes	35	Nil
TN3	15/03/2018 00:15	0.5	F	3.0	45	Yes	NM	Nil
TN3	15/03/2018 00:30	1.7	Е	0.5	45	Yes	NM	Nil
TN3	15/03/2018 22:16	0.8	F	3.0	45	Yes	IA	Nil
TN3	15/03/2018 22:33	1.2	F	3.0	45	Yes	IA	Nil
TN3	15/03/2018 22:49	0.5	F	3.0	45	Yes	IA	Nil
TN3	15/03/2018 23:04	1.0	D	-1.0	45	Yes	IA	Nil
TN4	12/03/2018 22:00	1.4	D	-1.0	45	Yes	NM	Nil
TN4	12/03/2018 22:17	1.7	Е	0.5	45	Yes	IA	Nil

 Table 4.3: LA1,1minute GENERATED BY TCM AGAINST PROJECT APPROVAL/EPL CRITERION – QUARTER 1 2018
Location	Start Date and Time	Wind Speed m/s	Stability Class ²	VTG °C per 100m	Criterion dB	Criterion Applies? ^{1,6}	TCM LA1,1min dB ^{3,4}	Exceedance⁵
TN4	12/03/2018 22:35	0.6	Е	0.5	45	Yes	NM	Nil
TN4	12/03/2018 22:50	0.2	G	4.1	45	No	NM	NA
TN4	13/03/2018 22:00	1.6	F	3.0	45	Yes	33	Nil
TN4	13/03/2018 22:15	2.7	D	-1.0	45	Yes	33	Nil
TN4	13/03/2018 22:30	2.2	F	3.0	45	No	IA	NA
TN4	13/03/2018 22:45	2.2	F	3.0	45	No	IA	NA
TN4	14/03/2018 22:00	0.7	E	0.5	45	Yes	33	Nil
TN4	14/03/2018 22:15	0.9	F	3.0	45	Yes	27	Nil
TN4	14/03/2018 22:30	0.7	F	3.0	45	Yes	27	Nil
TN4	14/03/2018 22:45	0.5	D	-1.0	45	Yes	26	Nil
TN4	15/03/2018 23:30	0.9	F	3.0	45	Yes	<20	Nil
TN4	15/03/2018 23:49	1.2	F	3.0	45	Yes	<20	Nil
TN4	16/03/2018 00:06	1.0	F	3.0	45	Yes	IA	Nil
TN4	16/03/2018 00:22	0.9	F	3.0	45	Yes	IA	Nil

Notes:

1. Criterion may or may not apply due to rounding of meteorological data values;

- 2. Calculated stability class data (as per requirements in the EPL);
- 3. Estimated or measured L_{A1,1minute} attributed to TCM;
- 4. Bold results in red are possible exceedances of relevant criteria;
- 5. NA in exceedance column indicates atmospheric conditions outside those specified in project approval and EPL, therefore criterion does not apply; and
- 6. Noise emission limits do not apply during wind speeds greater than 3 metres per second (at a height of 10 metres), stability category F temperature conditions and wind speeds greater than 2m/s at 10m above ground level, or stability category G temperature inversion conditions.

Meeting Held	29 th August 2018 between 10:00AM- 11:05AM		
Venue	Tarrawonga Coal Mine (TCM), training room		
Agenda Item	Discussion and Description	Action and Accountability	Status/ Date

1. Present and	Present:	SM- to add Cameron Staines to	
Apologies	Mr David Ross (DR)- Independent Chairman, Mrs Colleen Fuller (CF)- Community Representative, Ms Ann Luke (AL), Gunnedah Shire council Representative, Mr Cameron Staines (CS), Narrabri Shire council Representative, Mr John Hamson (JHa), Production Superintendent-TCM, Mr Sebastien Moreno (SM)- Environmental Superintendent- TCM, Mr Andrew Wright (AW), Group Biodiversity Specialist- WHC,	the CCC members distribution list	
	Apologies: Mr Blair Meyers (BM)- Operations Manager/ MME- TMC, Mr Tim Muldoon (TM)- Group Manager Community Relations and Pty, Mrs Cath Collyer (CC)- Community Representative, Mrs Julie Heiler (JH)- Community Representative,		

Meeting Held	29 th August 2018 between 10:00AM- 11:05AM		
Venue	Tarrawonga Coal Mine (TCM), training room		
Agenda Item	Discussion and Description	Action and Accountability	Status/ Date

	Mrs Anne McMahon, Narrabri Shire council Representative, Mrs Rebecca Ryan (RR)- Community Representative, Mr Andrew Johns (AJ), Gunnedah Shire council Representative,		
2. Declaration of	DR- declared that he is paid a fee for		
Pecuniary or Non- Pecuniary Interests	participation as Independent Chairman		
3. Previous Minutes Actions	NSC representative attending the CCC meeting	DR to ask Narrabri Council if they will continue to join the TCCC meeting.	Complete.
	JH -asked to include the SWL graphs for the groundwater bores in Quarterly report	SM to include SWL Graph in next Quarterly report.	Complete. Graphs added in Appendix
	TM- regarding water issues and access by the RFS. Significant progress has been made to standardise fittings and pipping with the RFS. Canyon site water has been used by the Council for road works.	TM- Report on progress at next CCC meeting	
	DR- Regarding TCM staff (ERT members) volunteering with RFS outside the mine.	BM- check with insurance if any restriction.	Complete. JHa – Volunteers will not be covered by the mine insurance

 Meeting Held
 29th August 2018 between 10:00AM- 11:05AM

 Venue
 Tarrawonga Coal Mine (TCM), training room

 Agenda Item
 Discussion and Description

 Action and Accountability
 Status/ Date

			and will have to take leave without pay to join RFS.
	DR - about Rural Fire Service issues in lead up to Joint CCC	DR- to consult with Cameron Staines	
	BM, TM- not possible to separately quantify all the sources at this stage, but there is a calculation formulae developed by a hydrogeologist that can give an estimate.	TCM- Hydrogeologist or similar to provide a figure/ volume estimate and to explain how much water is coming from the void	Complete. SM - Used GW and SW models data to estimate the volume of water recharging the pit. Summary table attached to these minutes.
4. Business Arising	AW- BCM and MCCM organised access to several water point for RFS.		
	JHa: TCM have desilted dams on Goonbri road (Templemore) available for the council and RFS.		
5. Mine Progress Report	JHa: - Normal Mining Activity, - Actual production above target, - Rehabilitation on-going at the Northern and Southern dumps - On-going usage of "Dust A Side" product. First results have been very successful.		

Meeting Held	29 th August 2018 between 10:00AM- 11:05AM		
Venue	Tarrawonga Coal Mine (TCM), training room		
Agenda Item	Discussion and Description	Action and Accountability	Status/ Date

	- CCC members- satisfied with that initiative to mitigate dust.	
6. Environmental	SM-	
Monitoring report	- Read and explained the Quarterly	
	Environmental Report results	
	-Provided update on Noise, Blast, Water and	
	Air Draft Management Plan due for re-	
	submission to DPE	
	AW- Provided details on Draft Biodiversity	
	Management Plan. A copy was sent to CCC	
	members for comments in June 2018.	
	CF- on behalf of CCC members'	
	congratulation to TCM team for their	
	continuous efforts to implement	
	environmental initiatives, to improve	
	management practices and communicate to	
	the community.	

Meeting Held	29 th August 2018 between 10:00AM- 11:05AM		
Venue	Tarrawonga Coal Mine (TCM), training room		
Agenda Item	Discussion and Description	Action and Accountability	Status/ Date

7. General business	CCC members - Requested for local procurement strategy to be presented	BM- to present and discuss at the next meeting the mine procurement strategy and support to local business.	
	SM- EPA have requested to start an investigation on PFAS at all the WHC mines (except MCCM). Soil, GW and SW samples have been taken by a consultant.		
	SM- an ecologist has inspected the tree line along Goonbri Road in preparation for clearing and to start reshaping of the Southern emplacement facility (pending further discussion and approval by DPE)		
	DR- awaiting Chair Annual report template, CCC members to provide feedbacks (i.e.: what could be done better).		
8.Complaints	SM- No Complaint received since last CCC meeting.		

Meeting Held	29 th August 2018 between 10:00AM- 11:05AM		
Venue	Tarrawonga Coal Mine (TCM), training room		
Agenda Item	Discussion and Description	Action and Accountability	Status/ Date

9. Next Meeting and	DR- next TCCC meetings 2018 will be held	
Other Comments	on 7 th November.	
	DR- Environmental Trust meeting held at the	
	Boggabri Golf Club on November 8 at	
	12:30pm followed by the BTM CCC meeting	
	at 2:00pm.	
	1 I	

Using Ground water balance model + Surface balance model as at 29/08/2018

	Mine Pit Catchment Runoff Volume	TCM Dams Catchment Runoff Volume	Total Surface Water (SW) Runoff Volume	Ground Water (GW) inflow	Total SW+GW
	(ML)	(ML)	(ML)	(ML)	(ML)
1 Jan 2017 – 31 Dec 2017	253	255	508	179	686.9
1 Jan 2018 – 1 July 2018	42	60	102	83	184.8

Tarrawonga Coal Mine Community Consultative Committee Meeting #53

Environmental Monitoring Report 1 May 2018 – 31 July2018

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 to July 31 2018. Maps with all the monitoring locations are available in *Appendix A*.

Noise Monitoring

Attended noise monitoring was undertaken at the "Bungalow" (TN4), "Barbers Lagoon" (TN3) and "Matong" (TN2) properties from 20^{th} to 24^{th} June 2018. The noise criterion for the mine is 35dB(A) Leq (15 min) for all operating times.

The results in *Appendix B* show that noise emissions from the mine did not exceed the operational noise criterion at the "Barbers Lagoon", "Bungalow" or "Matong" monitoring locations during the monitoring event.

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. The results of the sleep disturbance monitoring show that the measured L1 (1 min) noise level did not exceed the sleep disturbance criterion.

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

Blast Monitoring

Blasting Results

Since 2006, there have been 823 blasts (until 30/07/2018) at TCM.

There has been no exceedance of criteria since the last meeting for ground vibration or overpressure.

Since the last CCC meeting, the highest result obtained for blasting overpressure was **107.8 dB** at the Tarrawonga monitoring station on 18/07/18 and the highest result for ground vibration was **1.12 mm/s** recorded at the Coomalgah station.

Monitor Location	Date	Max. Peak Overpressure (dB)	Criterion (dB)	Max. Peak Ground Pressure (mm/s)	Criterion (mm/s)
Tarrawonga	18/07/18	107.8	N/A	0.82	N/A
Coomalgah	26/06/18	104.2	115	1.12	10

Table- 4: Max Peak Overpressure and Ground Pressure for the Quarter

Air Quality

Dust Deposition Results

Table 5 shows that four monitoring locations exceeded the limit of $4g/m^2/month$ (annual average). These monitors are located on mine-owned land; as such compliance criteria do not apply. Although the weather conditions have been relatively dry, overall deposited dust levels are better than results recorded for December 2017, January and February 2018.

Table 5 – Deposited Dust Gauge Results [g/m²/month]

MONTH	TEMPLEMORE (EB-4)	BOLLOL CREEK STN (EB-5)	AMBARDO (EB-6)	TARRAWONGA (EB- 7)	THUIN (EB-8)	PINE GROVE (EB-9)	TARRAWONGA MINE (EB-10)	TARRAWONGA MINE (EB-11)	TARRAWONGA MINE (EB-14)	TARRAWONGA MINE (EB-15)	JERALONG NORTH (EB-16)
Jul-17	2.0	2.4	0.9	0.7	2.0	1.0	1.6	3.7	1.2	4.1	0.5
Aug-17	2.9	3.1	0.9	0.9	2.4	1.5	4.2	2.2	1.8	4.9	0.4
Sep-17	12.7	3.5	1.8	0.6	2.0	1.4	3.2	2.0	1.9	-	0.7
Oct-17	6.6	4.2	2.0	1.1	1.1	3.0	2.5	3.3	4.7	8.6	1.8
Nov-17	2.7	4.8	3.8	7.1	-	4.0	2.9	3.1	2.6	4.8	3.6
Dec-17	24.6	2.3	1.8	1.9	3.5	3.0	13.5	7.5	3.1	4.1	71.3
Jan-18	6.7	2.6	10.5	2.1	2.5	3.4	14.4	4.3	1.9	3.4	5.3
Feb-18	1.9	2.5	2.6	1.3	13.3	6.2	3.6	3.2	2	3.1	2.2
Mar-18	6.1	7.5	4.9	1.5	3.9	1.5	7.8	2.8	2.3	3.8	9.4
Apr-18	1.2	3.4	1.2	0.9	3.4	2.4	4.8	4.5	1.9	4	3.3
May-18	2.3	2.7	1	0.9	1.6	1.9	2	6.9	1.7	3.1	2.8
June-18	1.2	2.4	0.9	0.8	2.1	2.4	3.4	3.1	2.1	4.7	0.8
Jul-18	18.4	3.4	0.9	0.6	3.4	1.1	2.2	2	1.8	5	1.1
12 MONTH ROLLING AVERAGE	7.3	3.5	2.7	1.6	3.6	2.7	5.4	3.7	2.3	4.5	8.6

High Volume Air sampler (PM10) Results

The High Volume Air Sampler (HVAS) installed at Coomalgah property monitors level of Particle Matter under 10 micron (PM₁₀). It operates for 24hr every 6 days. Table 6 shows 24hr average values recorded above the criterion specified in the Project Approval (PA). Investigations show that those exceedances were related to high wind speed (>7m/s) and farming activity Northeast and Southwest of the monitor location during the days of sampling. The rolling Annual average is below the PA criterion.

Date	24hr averaged PM10 (μg/m ³)	Criterion 24hr average (μg/m³)	Rolling Annual average (µg/m³)	Criterion Annual Average (μg/m³)	Comments
07/05/18	54.4		21.1		Not Mine related. Windy condition noted in the field sheet by ALS. Windrose from Sentinex shows that prevailing wind came from NE and SW when mine site is located NW of the monitor. Excluded from Annual average.
19/05/2018	57.6		21.3		Not Mine related. Dry and dusty surrounding paddock noted in field sheet by ALS, Farming activity noted in field sheet on the 15/05. Windrose from Sentinex shows that prevailing winds were from S-SE and NE when the mine is located NW of the monitor. Excluded from annual average
06/06/2018	54.5		21.7		Not mine Related. Very Windy with winds above 7.5 m/s recorded during the sampling period. Sentinex weather Station showed prevailing wind were from S-SW. Sheep Grazing noted in the field sheet by ALS. Excluded from annual average.
30/06/18	119	50	20.5	30	Not mine Related. Grazing activity noted in the field sheet when filter was changed on 24/06 and Dusty conditions observed. Prevailing wind were from E-NE. Excluded from annual average.
06/07/2018	121		22.4		Not Mine related. Sentinex windrose shows winds predominantly from N-NE during the period. Elevated wind recorded above 6.5m/s. Dry and windy conditions noted on the ALS field sheet. Excluded from the annual average.
18/07/2018	139		22.8		Not Mine related. Sentinex windrose shows winds predominantly from N-NE during the period. Elevated wind recorded above 6.5m/s. Dry conditions and windy noted on the ALS field sheet. Excluded from the annual average.
24/07/2018	248		23.1		Not Mine related. Sentinex windrose shows winds predominantly from N-NE and SW of the monitor during the monitoring period. Elevated wind recorded above 10.5 m/s. Dry conditions and grazing activity noted on the ALS field sheet. Excluded from the annual average

Table- 6: HVAS PM10 24 hr average	e levels for the Quarter
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According to the current Air Quality and Greenhouse gas Management Plan, the real time air quality unit (TEOM) installed at the "Flixton" property monitors PM_{10} levels in ambient air. It is an operation 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.

Water Monitoring

Groundwater

Routine groundwater monitoring was undertaken in June 2018 (refer to graphs in *Appendix C*).

Site	Date	SWL (mbgl)	pH (units)	Elect. Conduct (µS/cm)
MW1				
Thuin	June 2017	6.74	7.8	3290
	September 2017	6.80*	8.31	3370
	December 2017	6.73	7.7	3280
	February 2018	6.81	7.9	3460
	June 2018	6.91	7.9	3350
MW2				
Thuin	June 2017	3.86	7.0	591
	September 2017	3.64	7.54	533
	December 2017	3.68	7	545
	February 2018	4.23	7.3	519
	June 2018	4.67	7.3	547
MW4				
Tarrawonga	June 2017	9.00	7.4	4370
	September 2017	8.9	7.82	4570
	December 2017	8.95	7.2	4440
	February 2018	9.08	7.4	4610
	June 2018	9.14	7.3	4430
MW5				
Templemore	June 2017	2.54	7.9	1288
	September 2017	2.75	8.19	2640
	December 2017	2.78	7.7	2630
	February 2018	3.12	7.9	2320
	June 2018	3.31	7.9	1413
MW6				
Nagero	June 2017	4.77	7.5	1660
	September 2017	4.57	8.15	1710
	December 2017	4.55	7.6	1738
	February 2018	4.76	7.8	1833
	June 2018	4.75	7.7	1828
MW7				
Tarrawonga Mine	June 2017	104.92	No sample	No sample
	September 2017	104.47	No sample	No sample
	December 2017	104.53	No sample	No sample
	February 2018	104.97	No sample (Grey mud)	No sample
	June 2018	106.21	No sample (Grey mud)	No sample
MW8				·
Tarrawonga Mine	June 2017	13.07	Casing blocked	Casing blocked
_	September 2017	13.04	Casing blocked	Casing blocked
	December 2017	13.12	Casing blocked	Casing blocked
	February 2018	12.52	Casing blocked	Casing blocked
	June 2018	13.33	Casing blocked	Casing blocked

Table 7- Groundwater results Summary

(*SLR consultant (GM) advised that previously SWL was reported as mbtoc instead of mbgl)

Surface Water

No further wet weather monitoring has been undertaken since the last CCC meeting due to no or little rains. Most of the dams and sediment dams are dry. Estimated volume of water stored onsite as 24th August was approximately 113.5ML.

According to the BTM Complex strategy, water sharing opportunity was discussed between the three mines and approximately 120ML of water was transferred from Maules Creeks Coal Mine to TCM via Boggabri Coal Mine. This water has been used for dust suppression and no water has been withdrawn from the pit since beginning of July.

TCM continue assessing options to source additional water in order to maintain the mine in operation in the long run.

Rehabilitation and Clearing

Rehabilitation

Operations and Environment departments work together to develop and implement a more efficient rehabilitation program. The aim is to enhance the quantity of areas rehabilitated.

In 2018, TCM planted approximately 2,400 trees in the designated rehabilitation areas including Eucalyptus albens, Eucalyptus blakelyi, Eucalyptus crebra, Eucalyptus melliodora, Eucalyptus pilligaensis, Eucalyptus populanea, Eucalyptus macrocarpa, Eucalyptus Melanophloia, Eucalyptus Crebra, Eucalyptus Dealbata and Eucalyptus Dwyeri.

Clearing

No clearing should occur outside the March-April period however TCM have started discussion with agencies to request an authorisation to clear a few trees along Goonbri road outside that window.

The main reason for that clearing is to meet rehabilitation target according to the current MOP. The Southern Dump must be reshaped and moved south toward Goonbri road. Reshaping the dump will require revision of the water management plan and AECOM was engaged to design a new water management network for that South dump. The desired option is still to be approved by regulator but in the meantime TCM have engaged a professional ecologist to inspect the area to clear and to prepare some recommendations in accordance with the Biodiversity Management Plan.

Complaints

Since the last meeting, no complaint was lodged.

Environmental Management Plans

DPE have reviewed some Management plans updated in 2017 against the requirements of the Project Approval. The Environmental Management Strategy Plan and the Traffic Management Plan have recently been approved by the Department.

TCM are currently working with experts to update Management plans that need to be submitted by the end of August 2018 including:

Noise Management Plan

The Noise management Plan is currently being revised by Todoroski Air Science (TAS). The updated version will also be submitted to several agencies for consultation.

Blast Management Plan

The Blast Management Plan is currently being revised by TAS and the updated version will also be submitted to several agencies for consultation.

Air Quality Greenhouse Gas Management Plan

The Air Quality Management Plan is currently being revised by TAS and the updated version will also be submitted to several agencies for consultation.

Water Management Plan

The Water management plan is currently being revised by WRM. The updated version will include a new site water balance, surface water management and groundwater management sections. It will be submitted to several agencies for consultation.

BTM Water Strategy

The Draft BTM Water Strategy was sent to CCC members and agencies for consultations in July 2018.

Biodiversity Management Plan

The Draft Biodiversity Management was sent to CCC members for consultation in June 2018.

Annual and Compliance Reporting

Annual EPBC Compliance statement

The Annual compliance statement for Environment Protection and Biodiversity Conservation was submitted to DoEE mid- June.

Annual Review Report

The Annual Review report was submitted in March 2018 and DP&E recently sent a request for additional information that has to be submitted by end of August.

Environmental Improvement and Initiatives

Dust Management

TCM have engaged the company Dust A Side to provide advice and solution to minimise potential fugitive dust generated by exposed surfaces such as haul roads. Since end of April, TCM have been monitoring the results and trying to improve the spraying and mixing techniques. The product used is totally organic, has no corrosive chloride compounds, and is environmentally friendly and readily biodegradable. Usage of that product on mine haul truck roads is ongoing.

Water Management

- 1. Desilting campaign has been completed.
- 2. TCM have installed marked gauge boards in the authorised discharged dams. This initiative will improve the water management practices and will reduce the time to conduct water storage inventory.

Top Soil Management

- 3. Top soil from recently cleared area was tested and either gypsum or Lime was added to improve the content. Approximately 32Ha of ameliorated top soil will be stock piled at designated area.
- 4. Old Top and Subsoil stockpile were tested by the consultant Landloch. They provided recommendation to manage the stockpiles and maintain them in good health for a better rehabilitation outcome.
- 5. TCM have been developing a register to record soil balance and characteristic. This register will be used for planning purposes and to assess progress of the mine against commitment and conditions of the PA and MOP.

Appendix A





WHC-10-04 TMP_BM







Appendix B

Table 1 Performance Assessment – Operations

EPL	Location	Date	Tarrawonga Coal	Tarrawonga Coal Mine Contribution dBA			Criteria	Measurement	Weathe	Weather CompliantDayEveNightNYYYYYYYNYYNYYNYYNYYNYYNYYNYYNYYNYYNYYNYYN		Compliant
ID			LAeq(15minute)	LAeq(15minute)	LAeq(15minute)	LA1(1min		Periods	lods			
			Day	Evening	Night	ute) Night			Day	Eve	Night	
		20/06/2018	I/A	30	29	31	Day, Evening		N	Y	Y	Y
705	Barbers	21/06/2018	I/A	26	25	33	and Night – 35 dBA		Y	Y	Y	Y
79d	Lagoon 2	22/06/2018	N/M	I/A	30	32	LAeq(15minute)		Y	Y	N	Y
		23/06/2018	34 I/A	I/A	I/A	I/A			Y	Y	Y	Y
		20/06/2018	I/A	I/A	I/A	I/A	Night – 45 dBA LA1(1minute)	Day - 1.5 hrs	Y	Y	N	Y
20	Rungalow	21/06/2018	I/A	N/M	20	34		Evening - 0.5 hrs	Ν	Y	N	Y
09	Duligatow	22/06/2018	I/A	I/A	25	29	Cumulative Day,	Night – 1hrs	Y	Y	Y	Y
		23/06/2018	I/A	I/A	I/A	I/A	40 dBA	-	Y	Y	Y	Y
		20/06/2018	25	19	19	24	LAeq(15minute)		Ν	Y	Y	Y
605	60a Coomalgah/ Matong	21/06/2018	24	N/M	26	30			Y	Y	Y	Y
000		22/06/2018	35	21	31	39]		Y	Y	Y	Y
2		23/06/2018	35	I/A	I/A	I/A			Y	Y	Y	Y

Note:

I/A = Inaudible

N/M = Not Measurable

5.1.1 **Operator Attended Noise Survey Results – Barbers Lagoon (79a)**

Results of the operator attended noise surveys at R1 are provided in **Table 5** to **Table 8**. Monitoring location 79a represents residential receptors located to the southwest of the site in Barbers Lagoon.

Period	Criteria	Measurement	Stability	Primary	Noise	Descript	or		ТСМ	Description
Date/Start Time Weather SLM Details		Number	Category	LAmax	LA1	LA10	LA90	LAeq	Contribution (dB)	
Day 1	35 dBA	1	С	72	59	46	35	47	I/A	Site Related
20/06/2018 11·27	LAeq(15minute)	2	С	76	59	46	31	48	I/A	Noise Events:
2.6 - 5 m/s		3	В	68	58	48	33	46	I/A	Other Noise
NE		4	А	58	52	46	36	43	I/A	Events:
16 - 17°C		5	В	63	52	48	38	44	I/A	Traffic 33-51
5004055		6	С	55	50	41	31	39	I/A	Wind in trees 30-50
Evening 1	35 dBA	1	F	44	37	34	29	32	31 LAeq	Site Related
20/06/2018 21:27 1 - 2 m/s SE 9 - 11 °C 3004635	LAeq(15minute)	2	E	39	33	36	27	30	30 LAeq	Noise Events: General drone 30-32 Dozer Clangs 28-30 Other Noise Events: Road traffic 30-36 Sheep 32 Dogs 32-39 Wind in trees28
Night 1 20/06/2018	35 dBA LAeq(15minute)	1	E	48	38	32	26	30	29 LAeq 31 LA1	Site Related Noise Events:
22:08 1 - 2 m/s	45 dBA LA1(1minute)	2	D	42	38	30	22	28	27 LAeq 29 LA1	drone 24-31
NE 8 °C		3	D	58	33	29	23	26	25 LAeq 27 LA1	Other Noise Events:
3004635		4	F	34	30	26	21	24	26 LAeq 28 LA1	Road traffic 31-42 Cattle 44-48 Sheep 30-35 Wind in trees 28

 Table 5
 Operator Attended Noise Survey Results – 79a – Barbers Lagoon (Day 1)

N/M = Not Measurable

Period	Criteria	Measurement	Stability	Primary	Noise	Descript	tor		ТСМ	Description
Date/Start Time		Number	Category	LAmax	LA1	LA10	LA90	LAeq	Contribution	
Weather										
SLIVI Detalls	35 dBV	1	Δ.	52	13	37	26	34	1/A	Site Related
21/06/2018	LAeq(15minute)	2	C.	68	51	42	25	41	1/A	Noise Events:
12:43		3	A	54	45	37	24	29	I/A	Inaudible
2m/s NE		4	A	64	51	38	24	39	I/A	Other Noise
18 °C		5	А	68	53	35	23	26	I/A	Events: Plane 35-40
3004635		6	A	75	45	36	25	27	I/A	Sheep 30-45 Traffic 32-46 Birds 34-75
Evening 2	35 dBA	1	E	50	45	31	24	31	N/M	Site Related
21/06/2018 21:04 1 m/s NE 5 °C	LAeq(15minute)	2	E	34	50	28	25	27	26 LAeq	Noise Events: Horn blast 29 General drone 26
3011830										Other Noise Events: Road traffic 26-34 Sheep 31 Generator 25 Birds 28
Night 2 21/06/2018	35 dBA LAeq(15minute)	1	E	53	45	34	25	33	25 LAeq 33 LA1	Site Related Noise Events:
22:02 0 - 1 m/s N	45 dBA LA1(1minute)	2	-	50	46	38	25	35	23 LAeq 25 LA1	General drone 24-26 Horn blast
2 - 3 °C 3011830		3	-	51	44	35	24	34	22 LAeq 33 LA1	33-34 Dozer clangs
		4	-	41	42	37	25	33	25 LAeq 30 LA1	34 Rock dump 33
										Other Noise Events: Road traffic 28-53 Sheep 24-33 Dogs 30-41 Helicopter 35-38 Boggabri Coal operations 25-35

Table 6 Operator Attended Noise Survey Results – 79a – Barbers Lagoon (Day 2)

N/M = Not Measurable

Period	Criteria	Measurement	Stability	Primary	Noise	Descript	or		тсм	Description
Date/Start Time Weather SLM Details		Number	Category	LAmax	LA1	LA10	LA90	LAeq	Contribution (dB)	
Day 3	35 dBA	1	С	59	50	39	31	39	N/M	Site Related
22/06/2018	LAeq(15minute)	2	В	68	50	44	31	48	N/M	Noise
10:15 2 m/s NW		3	А	54	45	39	31	36	I/A	Not
13 - 18°C		4	А	57	44	38	30	36	I/A	Measurable
3011830		5	А	53	45	39	31	36	N/M	Other Noise
	6	A	65	52	44	31	42	I/A	Events: Road traffic 45-68 Sheep 38-43 Birds 38-65 Domestic noise 38 Plane 34-41	
Evening 3	35 dBA	1	E	41	34	21	18	23	I/A	Site Related
22/06/2018 21:00 1 m/s N 6 °C 3004635	LAeq(15minute)	2	D	54	51	39	18	37	I/A	Noise Events: Inaudible Other Noise Events: Cattle 30-41 Road traffic 24-54
Night 3	35 dBA	1	F	55	51	44	20	39	I/A	Site Related
22/06/2018 22:02	LAeq(15minute) 45 dBA	2	F	38	32	27	22	25	27 LAeq 29 LA1	Noise Events: Truck noise
NW 4 - 8 °C	LAI(IIIIIdle)	3	-	47	43	30	23	30	25 LAeq 29 LA1	22-29 Dozer Clangs
3004635		4	-	37	32	29	25	27	30 LAeq 32 LA1	Other Noise Events: Road traffic 24-47 Dogs 28-38 Cattle 34

Table 7 Operator Attended Noise Survey Results – 79a – Barbers Lagoon (Day 3)

N/M = Not Measurable

Period	Criteria	Measurement	Stability	Primary	Noise	Descript	or		ТСМ	Description
Date/Start Time Weather SLM Details		Number	Category	LAmax	LA1	LA10	LA90	LAeq	(dB)	
Day 4	35 dBA	1	D	73	55	46	33	44	33 LAeq	Site Related
23/06/2018 09:48	LAeq(15minute)	2	С	51	46	40	32	37	34 LAeq	Events:
2 m/s NW 9 - 15 °C	3	С	53	46	40	33	37	33 LAeq	General	
	4	В	64	54	49	33	45	I/A	drone 31-39	
3004635		5	С	58	48	40	30	38	I/A	Other Noise
		6	В	58	49	40	30	38	I/A	Events: Road traffic 34-45 Birds 38-64 Plane 31-40
Evening 4	35 dBA	1	D	75	43	30	21	34	I/A	Site Related
23/06/2018 20:12 2 m/s N 8 - 9 °C 3011830	LAeq(15minute)	2	D	37	32	30	22	20	I/A	Noise Events: Inaudible Other Noise Events: Distant road traffic 24 Plane 24-28
Night 4	35 dBA	1	D	45	29	22	19	22	I/A	Site Related
23/06/2018 22:02	LAeq(15minute) 45 dBA	2	D	57	51	29	19	37	I/A	Events:
1 m/s N	LA1(1minute)	3	E	54	35	24	19	26	I/A	Inaudible
3 - 5 °C 3011830		4	D	47	27	21	19	20	I/A	Sheep 24-35 Road traffic 21-57 Dogs 31-45

Table 8 Operator Attended Noise Survey Results – 79a – Barbers Lagoon (Day 4)

N/M = Not Measurable

5.1.2 **Operator Attended Noise Survey Results – Bungalow (89)**

Results of the operator attended noise surveys at R1 are provided in **Table 9** to **Table 12**. Monitoring location 89 represents residential receptors located to the south of the site in Bungalow.

Period	Criteria Measurement Stability Primary Noise Descriptor							тсм	Description	
Date/Start Time		Number	Category	LAmax	LA1	LA10	LA90	LAeq	Contribution	
Weather SLM Details										
Day 1	35 dBA	1	А	64	50	36	27	40	I/A	Site Related
20/06/2018	LAeq(15minute)	2	В	60	54	46	33	43	I/A	Noise Events: Inaudible
1 - 3 m/s		3	С	69	61	50	34	48	I/A	
NE		4	С	65	50	44	35	43	I/A	Other Noise
12 - 15 °C		5	С	60	51	43	31	40	I/A	Events: Road traffic
3011830	6	В	66	61	47	35	47	I/A	28-69 Birds 26-56 Helicopter 45-61 Wind in trees 33-45	
Evening 1	35 dBA	1	E	46	40	36	29	34	I/A	Site Related
20/06/2018 20:14	LAeq(15minute)	2	F	54	44	41	36	39	I/A	Noise Events: Inaudible
11 °C 3004635										Other Noise Events: Road traffic 30-46 Wind in trees 28-40
Night 1	35 dBA	1	E	36	30	30	24	27	I/A	Site Related
20/06/2018	LAeq(15minute)	2	F	41	27	25	19	22	I/A	Noise Events: Inaudible
23.43 2 - 4m/s NE	45 dBA LA1(1minute)	3	E	34	30	28	21	28	I/A	
6 - 9°C 3004635		4	D	33	26	25	21	24	I/A	Other Noise Events: Wind in trees 25-30 Road traffic 28-30 Dogs 27-31

Table 9Operator Attended Noise Survey Results – 89 – Bungalow (Day 1)

N/M = Not Measurable

Period	Criteria	Measurement Number	Stability Category	Primary	Noise	Descript	or	ТСМ	Description	
Date/Start Time Weather SLM Details				LAmax	LA1	LA10	LA90	LAeq	Contribution	
Day 2	35 dBA	1	С	60	49	43	33	40	I/A	Site Related
21/06/2018	LAeq(15minute)	2	В	57	45	41	31	38	I/A	Noise Events:
10.25 1 - 3 m/s SE		3	А	57	51	44	29	41	I/A	Other Noise Events: Road Traffic 41-58 Wind in trees Birds 38-69 Plane 44-57
15 – 17 °C		4	С	64	57	39	24	42	I/A	
3004635		5	С	65	55	39	25	41	I/A	
		6	В	69	55	40	21	42	I/A	
Evening 2	35 dBA	1	E	47	41	34	23	31	N/M	Site Related
21/06/2018 21:04 1 – 2 m/s NE 5 - 6 °C 3011830	LAeq(15minute)	2	E	70	62	34	20	46	I/A	Noise Events: Not Measurable Other Noise Events: Distant road traffic 28-31 Passing Car 59-70 Operator (shuffling) 33-35
Night 2 21/06/2018	35 dBA LAeq(15minute)	1	F	34	26	23	20	31	21 LAeq 23 LA1	Site Related Noise Events:
23:28 1 m/s N	45 dBA LA1(1minute)	2	F	34	25	23	20	22	20 LAeq 34 LA1	drone 19-22 Horn blast
2 °C 3011830		3	F	33	27	25	22	24	23 LAeq 26 LA1	26-34 Other Noise
		4	D	39	28	26	22	25	22 LAeq 24 LA1	Events: Dogs barking 30-34 Sheep 24-27

Table 10 Operator Attended Noise Survey Results – 89 – Bungalow (Day 2)

N/M = Not Measurable

	Period	Criteria	Measurement Number	Stability Category	Primary	Noise	Descript	TCM	Description		
	Date/Start Time Weather SLM Details				LAmax	LA1	LA10	LA90	LAeq	Contribution	
	Day 3	35 dBA	1	А	58	47	32	24	34	I/A	Site Related Noise Events: Inaudible Other Noise Events: Tractor 26- 29 Birds 38-51 Wind 33-34 Road traffic 49-68
	22/06/2018	LAeq(15minute)	2	А	59	53	44	23	41	I/A	
	2 m/s NW		3	А	61	52	42	24	39	I/A	
	18 °C		4	А	59	51	39	24	38	I/A	
	3011830		5	В	68	58	47	25	45	I/A	
			6	A	57	46	33	22	35	I/A	
	Evening 3	35 dBA	1	D	38	32	27	21	25	I/A	Site Related
	22/06/2018 20:01 1 - 2 m/s N 6 - 7 °C 3004635	LAeq(15minute)	2	Ε	42	36	31	22	29	I/A	Noise Events: Inaudible Other Noise Events: Road Traffic 26-42 Birds 28
	Night 3	35 dBA	1	E	36	24	21	18	19	I/A	Site Related
	22/06/2018 23:42	LAeq(15minute) 45 dBA	2	D	56	26	23	19	24	22 LAeq 24 LA1	Noise Events: Truck noise 20-27
	2 m/s NE 3 - 4 °C	LA1(1minute)	3	D	41	28	25	22	24	25 LAeq 27 LA1	
3004635		4	D	41	26	23	20	22	23 LAeq 25 LA1	Other Noise Events: Road traffic 33-41 Operator (dropped phone) 56	

Table 11 Operator Attended Noise Survey Results – 89 – Bungalow (Day 3)

N/M = Not Measurable

	Period	Criteria	Measurement	Stability	Primary	Noise	Descript	or	ТСМ	Description	
	Date/Start Time Weather SLM Details		Number	Category	LAmax	LA1	LA10	LA90	LAeq	Contribution	
	Day 4	35 dBA	1	А	67	36	27	21	40	I/A	Site Related
	23/06/2018	LAeq(15minute)	2	А	51	39	26	20	27	I/A	Noise Events:
	2 m/s SE		3	А	47	36	28	21	26	I/A	Other Noise
	17 – 18 °C		4	А	58	36	27	22	31	I/A	
	3004635		5	А	54	39	24	19	28	I/A	
		6	A	68	58	31	19	44	I/A	Tractor operations 22-26 Birds 35-68 Wind in trees 25-30	
	Evening 4	35 dBA	1	E	39	25	21	19	39	I/A	Site Related
	23/06/2018 21:19 1 m/s N 3 - 4 °C 3011830	LAeq(15minute)	2	Ε	25	21	20	19	20	I/A	Noise Events: Inaudible Other Noise Events: Birds 28-31 Distant road traffic 20
	Night 4	35 dBA	1	D	44	23	21	19	20	I/A	Site Related
	23/06/2018 23:24	LAeq(15minute)	2	F	33	23	20	19	20	I/A	Noise Events: Inaudible
	1 m/s N	LA1(1minute)	3	E	30	22	20	19	19	I/A	
	5 °C 3011830		4	D	45	22	20	19	20	I/A	Other Noise Events: Operator (shuffling) 33-45 Distant road traffic 20-23

Table 12 Operator Attended Noise Survey Results – 89 – Bungalow (Day 4)

N/M = Not Measurable

5.1.3 **Operator Attended Noise Survey Results – Matong/Coomalgah (60a)**

Results of the operator attended noise surveys at R1 are provided in **Table 13** to **Table 16**. Monitoring location 60a represents residential receptors located to the east of the site at the Matong/Coomalgah boundary.

Period	Criteria	Measurement Number	Stability Category	Primary	Noise	Descript	or	тсм	Description	
Date/Start Time				LAmax	LA1	LA10	LA90	LAeq	Contribution	
Weather										
SLM Details										
Day 1	35 dBA	1	В	63	45	32	28	36	N/M	Site Related
20/06/2018	LAeq(15minute)	2	А	46	42	37	26	34	N/M	Noise Events: General
3 - 4 m/s E		3	В	77	55	38	25	49	20 LAeq	drone 23-29
17 °C		4	С	53	40	35	26	33	22 LAeq	Other Noise Events:
3011830		5	В	58	46	34	24	34	24 LAeq	
		6	А	72	60	49	27	47	25 LAeq	Road traffic
										40-77 Wind 30-37
										Birds 32-58 Windmill 21
Evening 1	35 dBV	1	E	64	20	25	21	30	N/M	Site Related
20/06/2018	35 dBA LAea(15minute)	2	F	/19	25	23	19	21	19 Aeg	Noise Events: Faint general drone 18-20
20:59		2	L	49	25		10			
1 m/s E										
3011830										Other Noise
										Events: Gunshot 64
										Operator
										(dropped phone) 60
										Windmill 24-
Night 1	35 dBV	1	F	/18	24	20	10	20	19 400	Site Related
20/06/2018	LAeq(15minute)	-	-	-0	27	20	15	20	21 LA1	Noise Events:
22:07	45 dBA	2	E	24	24	20	19	19	N/M	Faint truck
2 m/s NE	LA1(1minute)	3	D	36	21	20	19	19	I/A	
3011830		4	D	47	23	22	19	20	I/A	Other Noise
										Events: Gunshots 45-
										47 Car driving in
										paddock
										Sheep 22 Windmill 21-
										24
										Bat 31

 Table 13
 Operator Attended Noise Survey Results – 60a – Matong/Coolmalgah (Day 1)

N/M = Not Measurable

Period	Criteria	Measurement Number	Stability Category	Primary	Noise	Descript	or	ТСМ	Description	
Date/Start Time				LAmax	LA1	LA10	LA90	D LAeq	Contribution (dB)	
Weather SLM Details										
Day 2	35 dBA	1	С	73	60	38	27	47	24 LAeq	Site Related
21/06/2018 09·13	LAeq(15minute)	2	D	72	51	56	27	45	22 LAeq	Noise Events:
2 – 3 m/s		3	С	79	53	38	27	50	23 LAeq	operation
SE		4	D	69	54	38	28	41	I/A	
12 – 15 °C		5	С	49	41	31	27	31	23 LAeq	Other Noise Events:
3011830		6	А	65	42	32	27	32	I/A	Road Traffic Birds 29 – 69 Wind 29 - 33 Plane 37 – 43 Boggabri Coal operations 25 - 31
Evening 2	2 35 dBA	1	E	46	29	21	18	21	I/A	Site Related Noise Events: Not Measurable Other Noise Events: Road traffic 19-24
21/06/2018 21:29 1 m/s NE 4 °C 3004635	LAeq(15minute)	2	E	43	23	20	18	20	N/M	
Night 2 21/06/2018	35 dBA LAeg(15minute)	1	E	40	29	26	19	24	26 LAeq 30 LA1	Site Related Noise Events General truck noise 19-24 Other Noise Events: Sheep 28-33 Dog 40
22:05 0 - 1 m/s N	45 dBA LA1(1minute)	2	E	33	24	22	18	20	20 LAeq 22 LA1	
2 - 3 °C 3004635		3	E	40	22	20	18	19	19 LAeq 21 LA1	
		4	E	29	25	19	17	19	I/A	

Table 14 Operator Attended Noise Survey Results – 60a – Matong/Coolmalgah (Day 2)

N/M = Not Measurable

Period	Criteria	Measurement	Stability	Primary	Noise	Descript	or	ТСМ	Description	
Date/Start Time Weather SLM Details		Number	Category	LAmax	LA1	LA10	LA90	LAeq	Contribution	
Day 3	35 dBA	1	А	65	53	38	32	40	34 LAeq	Site Related
22/06/2018 09·18	LAeq(15minute)	2	А	57	47	38	33	37	35 LAeq	Noise Events: General
1 – 2 m/s		3	А	44	40	37	31	34	35 LAeq	drone 30-36 Dozer clangs 30-34
W		4	А	54	40	36	31	34	34 LAeq	
9 - 14 °C		5	С	46	37	34	29	32	33 LAeq	
		6	В	58	42	32	26	32	30 LAeq	Other Noise Events: Road traffic 33-40 Birds 34-65 Cows 34-36 Plane 35-42 Boggabri Coal operations 30-42
Evening 3	35 dBA	1	E	40	24	20	19	20	N/M	Site Related
22/06/2018 20:50 1 m/s N 6 °C 3011830	LAeq(15minute)	2	E	49	25	22	19	21	21 LAeq	Noise Events: Briefly audible drone 21 Horn blast 26 Other Noise Events: Car engine ting 40 Road traffic horn 24 Bird 22-24
Night 3 22/06/2018	35 dBA LAeq(15minute)	1	E	39	35	29	22	27	27 LAeq 35 LA1	Site Related Noise Events:
22:03 0 - 1 m/s N	45 dBA LA1(1minute)	2	D	38	34	31	23	28	28 LAeq 34 LA1	noise 28-33 Truck peak
3 - 8 °C 3011830		3	D	41	35	33	25	30	29 LAeq 39 LA1	noise 36-41
		4	Ε	46	39	36	28	34	31 LAeq 39 LA1	Other Noise Events: Boggabri Coal Operations 27-33

Table 15 Operator Attended Noise Survey Results – 60a – Matong/Coolmalgah (Day 3)

N/M = Not Measurable

Period	Criteria	Measurement	Stability	Primary	Noise	Descript	or	ТСМ	Description	
Date/Start Time		Number	Category	LAmax	LA1	LA10	LA90	LAeq	Contribution	
Weather										
SLM Details										
Day 4	35 dBA	1	D	77	53	44	34	49	35 LAeq	Site Related
23/06/2018 08·36	LAeq(15minute)	2	С	51	46	42	33	40	34 LAeq	General
2 m/s NW		3	С	79	53	40	35	50	33 LAeq	drone 30-44
5–11 °C		4	С	45	41	38	34	36	32 LAeq	Other Noise Events: Road traffic 38-77 Birds 35-56 Boggabri Coal operations 33-48
3011830		5	С	51	44	39	31	37	34 LAeq	
		6	D	53	44	40	31	37	34 LAeq	
Evening 4	35 dBA	1	Е	40	29	20	18	20	I/A	Site Related
23/06/2018 21:20 2 m/s N 9 °C 3004635	LAeq(15minute)	2	E	36	25	19	18	19	I/A	Noise Events: Inaudible Other Noise Events: Operator (movement in chair) 36- 40 Wind in trees 22-26
Night 4	35 dBA	1	D	33	23	19	18	19	I/A	Site Related
23/06/2018 22:00	LAeq(15minute)	2	E	42	25	19	18	19	I/A	Noise Events: Inaudible
0 - 1 m/s N	45 UBA LA1(1minute)	3	E	39	24	19	18	19	I/A	Other Noise Events: Distant traffic 19-22
1 °C 3004635	,,	4	F	37	21	20	18	33	I/A	

Table 16 Operator Attended Noise Survey Results – 60a – Matong/Coolmalgah (Day 4)

N/M = Not Measurable

I/A = Inaudible

Both TCM and Boggabri Coal operations were audible during the daytime noise monitoring, with both generating similar noise levels. The total noise levels remained below the 40 dBA LAeq(15minute) cumulative noise criteria.
Appendix C





Jun 05 Sep 05 Jun 05 Jun 05 Jun 07 Jun 07 Jun 08 Jun 08 Jun 10 Jun 10 Jun 17 Ju





TARRAWONGA COAL PTY LTD SWL Graphs







TARRAWONGA COAL PTY LTD SWL Graphs



Meeting Held	7 ^h November 2018 between 10:00AM- 12:10PM	[
Venue	Tarrawonga Coal Mine (TCM), training room		
Agenda Item	Discussion and Description	Action and Accountability	Status/ Date

1. Present and	Present:
Apologies	Mr David Ross (DR)- Independent Chairman,
	Mrs Colleen Fuller (CF)- Community
	Representative,
	Mr David Moses(DM), Gunnedah Shire
	council Representative,
	Mr Cameron Staines (CS), Narrabri Shire
	council Representative,
	Mr Tim Muldoon (TM)- Group Manager
	Community Relations and Pty
	Mrs Cath Collyer (CC)- Community
	Representative,
	Mrs Julie Heiler (JH)- Community
	Representative,
	Mrs Rebecca Ryan (RR)- Community
	Representative,
	Mr John Hamson (JHa), Operations Manager-
	TCM,
	Mr Sebastien Moreno (SM)- Environmental
	Superintendent- TCM,

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	<u>Apologies:</u> Mr Blair Meyers (BM), (transferred to MCCM) and replaced by (JHa), Andrew Johns (AJ), Gunnedah Shire Council Representative Ann Luke, Gunnedah Shire 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	DR- Blair Meyer (BM) has been transferred to MCCM and Ann Luke (AL) has been replaced by David Moses.	DR- to write a thank you letter for BM and AL for their support to CCC meeting	
	DR - about Rural Fire Service issues in lead up to Joint CCC	DR- to consult with Cameron Staines.	Complete
	CCC members- asked for local procurement strategy to be presented.	BM- to present and discuss at the next meeting the mine procurement strategy and support to local businesses.	JHA- gave an overview presentation. JH – asked for a breakdown of financial support per Shires to present at next meeting.

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4. Business Arising	JH- Concern about potential damage of fire truck water pumps if residue of Dust suppressant is still in the water supplied by the mine.	JHa- to check with company "Dust a Side" potential risk and compatibility for fire pumps and equipment.	
	RFS members.	come to site.	
5. Mine Progress Report	 JHa: Normal Mining Activity, Actual production above target, Few issues with 2 way systems stopping production. Experts engaged to sort that issue. On-going usage of "Dust A Side" product. About 50% water usage reduction. 		
6. Environmental Monitoring report	 SM- Read and explained the Quarterly Environmental Report results. RR- asked why some Ground Water (GW) quality data were not available, SM – because pipes are blocked/ damaged therefore those bores can only be dipped. SM- explained water sharing in the BTM complex and water transfer from MCCM via BCM. 		

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CC- Queried about GW inflows. SM- provided a summary Table at previous CCC meeting with GW and SW modelled data provided by water experts. CCC Members – requested to have a presentation similar to MCCM and BCM on GW.	SM – to invite Hydrogeologist- (water consultant) at next CCC Meeting to make a presentation on GW.	
SM- TCM will try to clear outside the "clearing window" to reshape the southern dump and achieve rehabilitation Target. CCC members- recommended to wait for the usual clearing period (Feb-April).		
SM- high level of tree survival (80- to 90% depending on rehabilitated area). CCC members – don't understand DPE requirements/targets for rehabilitation if weather condition not favourable for planting.		

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7. General business	CC- asked for planning agreement	TM- to provide copy of the VPA by next meeting	complete
	JH- enquired about MOD 6 and 4MT coal haulage approved for 2018.	· · · ·	
	SM- explained the MOD 6 is related to a cumulative haulage of coal from Rocglen and Tarrawonga to Town. Haulage compliance is assessed on a calendar year (Jan- to Dec) and reported in the Annual Review submitted to DPE.		
	JH- asked about ratio employees versus Contractors travelling on the haulage road. SM – said that only employees or contractors working for TCM should use that private road.	JHa- to follow up with Human Resources (HR) to find out the ratio employees versus contractors at TCM.	
	JHa- said WHC policy is to recruit in priority local applicants, he has been involved with recruiting at TCM and confirmed there is no FIFO worker at TCM.		

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Venue	Tarrawonga Coal Mine (TCM), training room		
Agenda Item	Discussion and Description	Action and Accountability	Status/ Date

	JH- regarding the white old trucks and cars. JHa – Interested company will remove from site shortly.		
	JHa- Family Fun Day on 10 th November. About 300 people expected. TCM offers Life/ work balance with Monday to Friday roster. JH- said Good initiative and some employees can spread the word to the rest of community		
	RR- requested a figure around employee's retention rate.	JHa- to follow up with HR .	
	CC- requested WHC list of trade and apprenticeship.	TM/SM- to follow up with HR and provide a copy of list.	
	DR- CCC members to provide feedbacks at AGM (i.e.: what could be done better).		
	CCC Members- recommended to: - Promote more the "achievement and wins" – good stories. - Organise a site tour next year.		
8.Complaints	SM- No Complaint received since last CCC meeting.		

Meeting Held	^{7^h} November 2018 between 10:00AM- 12:10PM					
Venue	Tarrawonga Coal Mine (TCM), training room					
Agenda Item	Discussion and Description	Action and Accountability	Status/ Date			

9. Next Meeting and	DR- next TCCC meetings will be held on 13th	
Other Comments	February 2019.	
	DR- Environmental Trust meeting held at the	
	Boggabri Golf Club on November 8 at	
	12:30pm followed by the BTM CCC meeting	
	at 2:00pm.	

Tarrawonga Coal Mine Community Consultative Committee Meeting #54

Environmental Monitoring Report 1 August 2018 – 31 October 2018

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 1st to October 31st 2018. Maps with all the monitoring locations are available in *Appendix A*.

Noise Monitoring

Attended noise monitoring was undertaken at the "Bungalow" (TN4), "Barbers Lagoon" (TN3) and "Matong" (TN2) properties from 17^{th} to 20^{th} September 2018. The noise criterion for the mine is 35dB(A) Leq (15 min) for all operating times.

The results below and in *Appendix B* show that noise emissions from the mine did not exceed the operational noise criterion at the "Barbers Lagoon", "Bungalow" or "Matong" monitoring locations during the monitoring event.

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. The results of the sleep disturbance monitoring show that the measured L1 (1 min) noise level did not exceed the sleep disturbance criterion.

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

EPL	Location	Date	Tarrawonga Coal	ga Coal Mine Contribution dBA Criteria Measurement Weather Compliant					iant	Compliant		
ID			LAeq(15minute)	LAeq(15minute)	LAeq(15minute)	LA1(1min		Periods		riods		
			Day	Evening	Night	ute) Night			Day	Eve		
		17/09/2018	I/A	N/M	29	31	Day, Evening		N	Y	Y	Y
70-	Barbers	18/09/2018	I/A	26	30	32	and Night – 35 dBA LAeq(15minute)		N	Y	N	Y
79a	Lagoon	19/09/2018	I/A	N/M	I/A	I/A		N	N	Y	Y	
		20/09/2018	I/A	I/A	28	29				N	Y	Y
		17/09/2018	I/A	I/A	27	32	Night – 45 dBA LA1(1minute) Evening - 0.5	N	Y	Y	Y	
	Duranlau	18/09/2018	28	I/A	29	I/A		Evening - 0.5	Y	N	N	Y
89	bungalow	19/09/2018	I/A	I/A	I/A	I/A	Cumulative Day,	Night – 1hrs	N	Y	Y	Y
		20/09/2018	I/A	I/A	I/A	I/A	40 dBA	-	N	Y	Y	Y
		17/09/2018	27	I/A	I/A	I/A	LAeq(15minute)		Y	Y	Y	Y
605	Coomalgah/	18/09/2018	29	I/A	I/A	I/A			N	N	N	Y
oua	Matong	19/09/2018	29	30	32	34			N	Y	Y	Y
		20/09/2018	N/M	35	31	33			N	N	Y	Y

Table- 1: Attended Noise Monitoring results for the Quarter (extracted from SLR report)

Note: I/A = Inaudible N/M = Not Measurable

Blast Monitoring

Blasting Results

Since 2006, there have been 844 blasts (until 31/10/2018) at TCM.

There has been no exceedance of criterion since the last meeting for ground vibration. The highest result obtained for blasting overpressure was **116 dB** at the project related property Tarrawonga recorded on 21/09/18 and the highest result for ground vibration was **1.32 mm/s** recorded at the Coomalgah station on 27/09/18.

Note the exceedance of overpressure recorded at the project related property Tarrawonga on September 21st was in accordance with conditions of:

- PA11_0047 sch3 cond14,
- EPL12365 cond.L5.1 and L5.2,
- ML1579 cond. 11b) and
- ML1693 cond. 10b).

"...blast overpressure noise must not exceed 120dB and 115dB in more than 5 % of the total number of blast over 12 month at any occupied dwelling..".

That exceedance was the first recorded above 115dB in 79 blasts over 12 months.

Monitor Location	Date	Max. Peak Overpressure (dB)	Criterion (dB)	Date	Max. Peak Ground Pressure (mm/s)	Criterion (mm/s)
Tarrawonga*	21/09/18	116	N/A	27/09/18	1.32	N/A
Coomalgah	10/12/18	106.2	115	21/09/18	1.08	10

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

*Not applicable according to EPL and PA11_0047 because project related property

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 ($4g/m^2/month$) do not apply. Although the weather conditions have been relatively dry, overall deposited dust levels are better than results recorded for December 2017, January and February 2018.

Table 3 – Deposited Dust Gauge Results [g/m²/month]

MONTH	TEMPLEMORE (EB-4)	BOLLOL CREEK STN (EB-5)	AMBARDO (EB-6)	TARRAWONGA (EB- 7)	THUIN (EB-8)	PINE GROVE (EB-9)	TARRAWONGA MINE (EB-10)	TARRAWONGA MINE (EB-11)	TARRAWONGA MINE (EB-14)	TARRAWONGA MINE (EB-15)	JERALONG NORTH (EB-16)
Oct-17	6.6	4.2	2.0	1.1	1.1	3.0	2.5	3.3	4.7	8.6	1.8
Nov-17	2.7	4.8	3.8	7.1	-	4.0	2.9	3.1	2.6	4.8	3.6
Dec-17	24.6	2.3	1.8	1.9	3.5	3.0	13.5	7.5	3.1	4.1	71.3
Jan-18	6.7	2.6	10.5	2.1	2.5	3.4	14.4	4.3	1.9	3.4	5.3
Feb-18	1.9	2.5	2.6	1.3	13.3	6.2	3.6	3.2	2	3.1	2.2
Mar-18	6.1	7.5	4.9	1.5	3.9	1.5	7.8	2.8	2.3	3.8	9.4
Apr-18	1.2	3.4	1.2	0.9	3.4	2.4	4.8	4.5	1.9	4	3.3
May-18	2.3	2.7	1	0.9	1.6	1.9	2	6.9	1.7	3.1	2.8
June-18	1.2	2.4	0.9	0.8	2.1	2.4	3.4	3.1	2.1	4.7	0.8
Jul-18	18.4	3.4	0.9	0.6	3.4	1.1	2.2	2	1.8	5	1.1
Aug-18	5.19	4.01	11.55	1.77	3.63	2.11	3.85	5.08	3.58	4.35	1.94
Sep-18	5.9	9.8	3.6	3.4	4.1	4.4	5.6	3.4	4.3	6.1	3.1
Oct-18	5.9	4.3	11.1	1.7	3.8	4.7	10.8	3.5	3	5.4	2.7
12 MONTH ROLLING AVERAGE	6.8	4.1	4.3	1.9	3.9	3.1	6.0	4.1	2.7	4.7	8.4

High Volume Air sampler (PM10) Results

The High Volume Air Sampler (HVAS) installed at Coomalgah property monitors level of Particle Matter under 10 micron (PM₁₀). It operates for 24hr every 6 days. Table 4 shows all the 24hr average values recorded for this quarter and the rolling Annual average are below the PA criteria. The highest level of PM10 was recorded on 10/10/18 with **38.5**µg/m³.

Date	24hr averaged PM10 (μg/m³)	Criterion 24hr average (μg/m³)	Rolling Annual average (µg/m³)	Criterion Annual Average (μg/m³)	Comments
7/8/2018	31.8		20.83		No comments
13/08/2018	24		21.11		No comments
17/08/2018	13.7		21.23		No comments
23/08/2018	19.4		21.47		No comments
29/08/2018	8.9		21.48		No comments
4/9/2018	5.6		21.45		No comments
10/9/2018	18.6		21.68		No comments
16/09/2018	37.2	50	22.00	30	No comments
22/09/2018	31.2		22.25		No comments
28/09/2018	22.6		22.06		No comments
4/10/2018	19.7		22.05		No comments
10/10/2018	38.5		21.89		No comments
16/10/2018	33.2		22.31		No comments
22/10/2018	14.7		22.14		No comments
28/10/2018	32.9		22.28		No comments

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

According to the current Air Quality and Greenhouse gas Management Plan, the real time air quality unit (TEOM) installed at the "Flixton" property monitors PM_{10} levels in ambient air. 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

Water Monitoring

Groundwater

Routine groundwater monitoring was undertaken in September 2018 and showed in Table 5 (refer to graphs in *Appendix C*).

Site	Date	SWL (mbgl)	pH (units)	Elect. Conduct (μS/cm)
MW1				
Thuin	June 2017	6.74	7.8	3290
	September 2017	6.80*	8.31	3370
	December 2017	6.73	7.7	3280
	February 2018	6.81	7.9	3460
	June 2018	6.91	7.9	3350
	September 2018	6.92	7.7	3430
MW2				
Thuin	June 2017	3.86	7.0	591
	September 2017	3.64	7.54	533
	December 2017	3.68	7	545
	February 2018	4.23	7.3	519
	, June 2018	4.67	7.3	547
	September 2018	4.79	6.8	615
MW4				
Tarrawonga	June 2017	9.00	7.4	4370
	September 2017	8.9	7.82	4570
	December 2017	8.95	7.2	4440
	February 2018	9.08	7.4	4610
	June 2018	9.14	7.3	4430
	September 2018	9.34	6.9	4560
MW5		5.0 .	0.0	
Templemore	June 2017	2.54	7.9	1288
	September 2017	2.75	8.19	2640
	December 2017	2.78	7.7	2630
	February 2018	3.12	7.9	2320
	lune 2018	3 31	7.9	1413
	September 2018	3 56	7.8	2040
MW6		5.50	7.0	2010
Nagero	lune 2017	4 77	75	1660
Hugero	September 2017	4 57	8 15	1710
	December 2017	4 55	7.6	1738
	February 2018	4 76	7.8	1833
	lune 2018	4 75	7.0	1828
	Sentember 2018	4 84	8.0	2090
MW7	September 2010		0.0	2050
Tarrawonga Mine	lune 2017	104 92	No sample	No sample
rananonga mine	Sentember 2017	104.47	No sample	No sample
	December 2017	104.53	No sample	No sample
	February 2018	104.97	No sample (Grev mud)	No sample
	lune 2018	104.57	No sample (Grey mud)	No sample
	Sentember 2018	104.65	No sample (Grey mud)	No sample
M\\/\8		104.03		
Tarrawonga Mine	lune 2017	13.07	Casing blocked	Casing blocked
	Sentember 2017	13.07	Casing blocked	Casing blocked
	December 2017	13 17	Casing blocked	Casing blocked
	February 2012	12 52	Casing blocked	Casing blocked
	1000 2010	12.32	Casing blocked	Casing blocked
	Sentember 2010	13.33	Casing blocked	Casing blocked
1		10.40	Casing DIUCKEU	Casing DIUCKEU

Table 5- Groundwater results Summary

(*SLR consultant (GM) advised that previously SWL was reported as mbtoc instead of mbgl)

Surface Water

Since the last CCC meeting, one controlled discharge occurred on Sunday 21st October from SD17 (Authorised discharge Point) after approximately 60 mm rainfall over 5 days. That discharge was in accordance with EPL12365.

Estimated volume of water stored onsite as 23rd October was approximately 226.5 ML.

According to the BTM Complex strategy, water sharing opportunity is continuously discussed between the three mines and approximately 120ML of water was transferred from Maules Creeks Coal Mine to TCM via Boggabri Coal Mine. That water has been used for dust suppression and no water has been withdrawn from the pit since beginning of July. TCM continue assessing options to source additional water in order to maintain the mine in operation in the long run.

Rehabilitation and Clearing

Rehabilitation

Operations and Environment departments work together to develop and implement a more efficient rehabilitation program. The aim is to enhance the quantity of areas rehabilitated.

In 2018, TCM planted approximately 2,400 trees in the designated rehabilitation areas including Eucalyptus albens, Eucalyptus blakelyi, Eucalyptus crebra, Eucalyptus melliodora, Eucalyptus pilligaensis, Eucalyptus populanea, Eucalyptus macrocarpa, Eucalyptus Melanophloia, Eucalyptus Crebra, Eucalyptus Dealbata and Eucalyptus Dwyeri.

Despite the dry weather conditions the survival rate has been relatively elevated and it is estimated that between 80 and 90% trees survived depending on the areas.

Clearing

Clearing cannot be conducted outside the February-April period however TCM has started discussions with agencies to request an authorisation to clear few trees along Goonbri road outside that clearing window.

Complaints

Since the last meeting, no complaint was lodged.

Environmental Management Plans

DPE have reviewed some Management plans updated in 2017 against the requirements of the Project Approval. The Environmental Management Strategy Plan and the Traffic Management Plan have recently been approved by the Department.

TCM have updated Management plans with the assistance of experts. Management Plans submitted at the end of August 2018 to agencies, CCC members (for feedbacks) and DPE (for approval) include:

Noise Management Plan

The Noise management Plan was revised by Todoroski Air Science (TAS).

Blast Management Plan

The Blast Management Plan was revised by TAS.

Air Quality Greenhouse Gas Management Plan

The Air Quality Management Plan was revised by TAS too.

Water Management Plan

The Water management plan was revised by WRM.

BTM Water Strategy

The Draft BTM Water Strategy was sent to CCC members and agencies for consultations in July 2018. Two BTM community groups have provided comments. BTM mines have met to discuss how to address those comments.

Annual and Compliance Reporting

Annual Review Report

TCM addressed DPE' comments and resubmitted the Annual Review (AR) 2017 report. That amended report was approved by DPE in September 2018. The AR 2017 is now available on Whitehaven Coal website.

Environmental Improvement and Initiatives

Dust Management

TCM have engaged the company Dust A Side to provide advice and solution to minimise potential fugitive dust generated by exposed surfaces such as haul roads. Since end of April, TCM have been monitoring the results and trying to improve the spraying and mixing techniques. The product used is totally organic, has no corrosive chloride compounds, and is environmentally friendly and readily biodegradable. Usage of that product on mine haul truck roads is ongoing.

Water Management

TCM have installed marked gauge boards in the authorised discharged dams. This initiative improves water management practices.

Noise Management

The portable noise monitor was relocated few hundreds meter away from farming/ grazing activity zone at Coolmalgah and a new fence was installed around it.

Rehabilitation

TCM have used an ATV to water the rehabilitated areas. That initiative improved the chance of survival.

Air Quality

Two Portable dust (PM10) monitors have been ordered to upgrade the air monitoring network. They will be delivered and installed before the end of this year.



Portable Dust monitor ordered by TCM

Appendix A





WHC-10-04 TMP_BM







Appendix B

WHITEHAVEN COAL OPERATIONAL NOISE MONITORING

Tarrawonga Coal Mine Quarter Ending September 2018

Prepared for:

Whitehaven Coal Mining Limited 10409 Kamilaroi Hwy GUNNEDAH NSW 2380

SLR

SLR Ref: 610.18063-R02 Version No: -v1.0 October 2018

EXECUTIVE SUMMARY

PREPARED BY

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BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Whitehaven Coal Mining Limited (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

DOCUMENT CONTROL

Reference	Date	Prepared	Checked	Authorised
610.18063-R02	16 October 2018	Jason Qian	Mark Russell	Mark Russell

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APPENDICES

Appendix A Acoustic Terminology Appendix B Calibration Certificates

1 Introduction

Whitehaven Coal Limited (Whitehaven) has commissioned SLR Consulting Australia Pty Ltd (SLR) to conduct operational noise monitoring for Tarrawonga Coal Mine (TCM) located approximately 16 km east of Boggabri, New South Wales (NSW) in accordance with the approved Tarrawonga Noise Management Plan (NMP) dated December 2014, the Whitehaven Project Approval (PA 11_0047 – May 2017) and the Environment Protection Licence (EPL) 12365 dated 27/06/2017 (EPL 12365).

The objectives of the noise monitoring programme for this operating period were as follows:

- Conduct operator attended noise surveys at three (3) locations (79a, 89 and 60a) surrounding the mine during the day, evening and night-time periods.
- Quantify all sources of noise within each of the attended noise surveys, including their measured and/or estimated contribution and maximum level of individual noise sources.
- Assess the noise emissions of TCM and determine compliance with respect to the limits contained in Section 2 of the NMP, Schedule 3 Condition 3 & 6 of the PA and Condition L4.1 of the EPL.

The following report uses specialist acoustic terminology. An explanation of common terms is provided in **Appendix A**.

2 Performance Assessment and Discussion

The following provides a summary of the attended noise measurements undertaken at each monitoring location. Further details are provided for each location in **Section 5** of this report.

Table 1 Performance Assessment – Operations

EPL	Location	Date	Tarrawonga Coal Mine Contribution dBA				Criteria N	Measurement	Weather Compliant			Compliant
ID			LAeq(15minute)	LAeq(15minute)	LAeq(15minute)	LA1(1min	1min	Periods				
			Day	Evening	Night	ute) Night			Day	Eve	Night	
79a	Barbers Lagoon	17/09/2018	I/A	N/M	29	31	Day, Evening and Night – 35 dBA LAeq(15minute) Night – 45 dBA LA1(1minute) Cumulative Day, Evening, Night 40 dBA LAeq(15minute)		N	Y	Y	Y
		18/09/2018	I/A	26	30	32			Ν	Y	N	Y
		19/09/2018	I/A	N/M	I/A	I/A		Ν	N	Y	Y	
		20/09/2018	I/A	I/A	28	29			Ν	Y	Y	Y
89	Bungalow	17/09/2018	I/A	I/A	27	32		Day - 1.5 hrs	Ν	Y	Y	Y
		18/09/2018	28	I/A	29	I/A		Evening - 0.5 brs	Y	N	N	Y
		19/09/2018	I/A	I/A	I/A	I/A		Night – 1hrs	Ν	Y	Y	Y
		20/09/2018	I/A	I/A	I/A	I/A		-	Ν	Y	Y	Y
60a	Coomalgah/ Matong	17/09/2018	27	I/A	I/A	I/A		Y	Y	Y	Y	
		18/09/2018	29	I/A	I/A	I/A			Ν	N	N	Y
		19/09/2018	29	30	32	34			Ν	Y	Y	Y
		20/09/2018	N/M	35	31	33			Ν	N	Y	Y

Note:

I/A = Inaudible

N/M = Not Measurable

3 Noise Criteria

3.1 **Project Approval, EPL and NMP**

Noise monitoring at TCM was conducted in accordance with the EPL 12365, the PA 11_0047 requirements and the NMP. The site specific EPL and PA noise limits are summarised in Section 2 of the NMP and are reproduced in **Table 2**.

Location	Day	Cumulative Criteria1	Evening	Night		
	LAeq(15minute)	LAeq(15minute)	LAeq(15minute)	LAeq(15minute)	LA1(1minute)	
All Privately owned Residences	35 dBA	40 dBA	35 dBA	35 dBA	45 dBA	

Note 1. Cumulative noise criteria to include noise generated by other mines

3.1.1 Non-compliances & Exemptions

In accordance with Section 11.1.3 of the Noise Policy for Industry (NPfI) a development is deemed to be in noncompliance with a noise consent or licence condition if the monitored noise level is more than 2 dB above the statutory noise limit specified in the consent or licence. This may occur for two reasons:

- The noise from the TCM is excessive, in which case TCM will be not complying with its consent or licence condition.
- The noise was increased by extreme, nonstandard weather effects—in which case the TCM is not considered to be in non-compliance with its consent or licence condition.

In this latter case, further monitoring at a later date is required to determine compliance under "normal" meteorological conditions.

The NPfI states in Section 9.2 that *"it is not practicable to meet the noise limit under all inversion events; hence exceedances under extreme temperature inversions are not considered to be a non-compliance with consent or licence conditions."*

TCM defines non standard weather effects as:

- Wind speeds greater than 3 m/s at 10m above ground level; or
- Stability category F temperature inversion conditions and wind speeds greater than 2 m/s at 10 metres above ground level; or
- Stability category G temperature inversion conditions

3.1.2 Attended Monitoring

TCM will be undertaking Attended Noise monitoring on a quarterly basis at residential areas. The attended monitoring will take place at the following locations & can be found in **Figure 1**.

- Barbers Lagoon 6412 Rangari Road
- Bungalow 1216 Braymont Road
- Coolmagah/Matong Eastern boundary

This monitoring will involve Day, Evening and Night Attended monitoring to determine the LAeq(15minute). During attended monitoring, the following is to be monitored:

- Noise levels from TCM at residential areas.
- wind speed and direction.
- Sky cloud cover, using direct observation for night measurements.

4 **Operational Noise Monitoring Methodology**

4.1 General Requirements

All acoustic instrumentation employed throughout the monitoring programme has been designed to comply with the requirements of AS IEC 61672.1 – 2004 *Electroacoustics—Sound level meters – Specifications*, AS IEC 61672.2-2004, AS IEC 61672.3-2004 and carried current NATA or manufacturer calibration certificates. Instrument calibration was checked before and after each measurement survey, with the variation in calibrated levels not exceeding ±0.5 dBA. Calibration Sheets are provided in **Appendix B**.

4.2 Methodology - Operator Attended Noise Monitoring

Noise monitoring was conducted in accordance with the current Tarrawonga NMP, and Conditions M7.1 and M7.4 of the EPL.

Operator attended noise measurements were conducted during the day, evening and night-time periods for a minimum of 1.5 hours during the day; 30 minutes during the evening and 1 hour during the night at each of the three (3) nominated noise monitoring locations representing the most affected receiver locations, listed in **Table 3** and shown in **Figure 1**. During the operator attended noise measurements, the character and relative contribution of ambient noise sources and mine contributions were determined.

Monitoring	Receiver Type	Address	Monitoring Location - MGA Zone 56		
Location			Easting (m)	Northing (m)	
79a	Residence	Barbers Lagoon – 6145 Rangari Road	222934	6602484	
89	Residence	Bungalow – 1216 Braymont Road	227596	6599265	
60a	Residence	Matong/Coomalgah – Eastern boundary	233182	6606083	

Table 3 Noise Monitoring Locations
The objective of the operator attended noise monitoring was to measure the maximum (LAmax) and the LAeq(15minute) noise level contribution from the TCM at the nearest potentially affected receptors in order to determine the noise contribution of operational activities associated with TCM operations over each 15 minute measurement period. In addition, the operator quantifies and characterises the overall levels of ambient noise in the area (i.e. LAmax, LA1, LA10, LA90, LAeq and LAmin) over the 15 minute measurement interval.

Operator attended noise measurements were conducted using a one-third octave integrating Brüel & Kjær Type 2250 Sound Level Meters (SLM) and a one-third octave integrating Brüel & Kjær Type 2270 SLM (serial numbers 3011830 & 3008204 respectively).

Table 4 presents a summary of which days of the week the quarterly monitoring was conducted, in accordance with condition M7.5 of EPL 12365.

Period	Day of the Week											
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday						
Day	17/09/2018	18/09/2018	19/09/2018	20/09/2018	-	-						
Evening	17/09/2018	18/09/2018	19/09/2018	20/09/2018	-	-						
Night ¹	17/09/2018	18/09/2018	19/09/2018	20/09/2018	-	-						

Table 4 Days of the Week Quarterly Monitoring was Conducted, Year 2018

1. Taken to mean the night time period from 10:00 pm on the stated day to 7:00 am the following day.

Figure 1 Tarrawonga Coal Mine Attended Noise Monitoring Locations



5 Results and Discussion

5.1 Results of Operator Attended Monitoring

Results of the operator attended noise surveys at Barbers Lagoon, Bungalow and Matong/Coomalgah are provided in **Table 5** to **Table 16**.

Ambient noise levels presented include all noise sources such as transport (roads, boats and aircraft), fauna (insects, frogs, birds and bats), the natural environment (wind in trees), domestic noises, other industrial operations as well as TCM noise emissions.

Weather data during the monitoring period has been obtained from the weather station located on the TCM site and observed conditions.

The tables also provide the following information:

- Date and start time, operator and equipment details.
- Monitoring location.
- Wind velocity (m/s) and temperature (°C) at the weather station.
- Typical maximum (LAmax) and contributed LAeq(15minute) noise levels.

5.1.1 **Operator Attended Noise Survey Results – Barbers Lagoon (79a)**

Results of the operator attended noise surveys at R1 are provided in **Table 5** to **Table 8**. Monitoring location 79a represents residential receptors located to the southwest of the site in Barbers Lagoon.

Period	Criteria	Measurement	Stability	Primary N	loise Descrip	otor				TCM Contribution	Description
Date/Start Time Weather SLM Details		Number	Category	LAmax	LA1	LA10	LA90	LAeq	LAmin	(ab)	
Day	35 dBA	1	С	68	56	54	45	51	41	I/A	Site Related Noise Events:
17/09/2018	LAeq(15minute)	2	D	79	64	54	44	53	37	I/A	Inaudible
8:45 4-5 m/s SF		3	С	69	62	52	41	50	36	I/A	Other Noise Events:
14 °C		4	С	71	61	53	40	50	33	I/A	Residential activity 61-80
3008204		5	D	67	55	47	38	45	33	I/A	Wind 45-48
		6	D	80	64	53	38	53	30	I/A	Animals 49-58
Evening	35 dBA	1	Е	51	44	37	25	33	24	I/A	Site Related Noise Events:
17/09/2018 20:55	LAeq(15minute)	2	E	51	41	33	24	30	22	N/M	Not Measurable
2 m/s N											Other Noise Events:
14 °C											Road traffic 38-51
3011822											Animais 38-41 Birds 39
Night	35 dBA	1	D	43	37	32	27	30	24	27	Site Related Noise Events:
17/09/2018	LAeq(15minute)	2	E	37	34	32	29	30	27	28	General site emissions 27-30
Calm	45 dBA LA1(1minute	3	F	42	33	32	28	30	26	29	Other Noise Events:
10 °C		4	F	47	41	33	28	32	26	27	Road Traffic 37-47
3011822											Animals 32-38
											Dog 42
											Insects 27

Table 5 Operator Attended Noise Survey Results – 79a – Barbers Lagoon (Day 1)

N/M = Not Measurable

Period	Criteria	Measurement	Stability	Primary Noi	se Descripto	or				тсм	Description
Date/Start		Number	Category	LAmax	LA1	LA10	LA90	LAeq	LAmin	Contribution	
Weather											
SLM Details											
Day	35 dBA	1	В	76	69	54	45	56	33	I/A	Site Related Noise Events:
18/09/2018	LAeq(15minute)	2	А	60	53	50	41	47	36	I/A	Inaudible
11:39 2-4 m/s NW		3	А	67	50	46	40	44	34	I/A	Other Noise Events:
23 °C		4	А	72	59	45	38	51	33	I/A	Animals 38-55
3011822		5	А	68	56	52	39	49	31	I/A	Road traffic 40-48
		6	А	66	57	53	40	49	37	I/A	Wind related noise 45-47
											Birds 60-72
Evening	35 dBA	1	D	55	34	30	25	28	24	25	Site Related Noise Events:
18/09/2018	LAeq(15minute)	2	E	36	35	32	28	30	25	26	General site emissions 25-31
2 m/s N											Other Noise Events:
22 °C											Animals 32-55
3008204											Wind 30-33
											Car on nearby property 36
Night	35 dBA	1	D	49	47	41	26	37	23	29	Site Related Noise Events:
19/09/2018 00:38	LAeq(15minute) 45 dBA	2	E	47	35	31	26	29	23	30	General site emissions 26-33
2-4 m/s N	LA1(1minute	3	F	38	34	31	28	30	25	30	Other Noise Events:
22 °C		4	F	41	34	30	27	29	25	28	Wind related noise 35-39
3008204											Animals 30-35

Table 6 Operator Attended Noise Survey Results – 79a – Barbers Lagoon (Day 2)

N/M = Not Measurable

Period	Criteria	Measurement	Stability	Primary Noi	se Descripto	or				тсм	Description
Date/Start Time		Number	Category	LAmax	LA1	LA10	LA90	LAeq	LAmin	Contribution (dB)	
Weather SLM Details											
Day	35 dBA	1	D	70	69	65	56	62	53	I/A	Site Related Noise Events:
19/09/2018	LAeq(15minute)	2	D	72	69	67	56	63	51	I/A	Inaudible
11:09 6-8 m/s NW		3	С	70	69	66	53	62	51	I/A	Other Noise Events
24 °C		4	С	75	72	67	56	63	51	I/A	Wind related noise 51-75
3008204		5	D	75	71	68	58	64	53	I/A	Birds 71
		6	D	73	70	67	57	64	53	I/A	Sheep 50-55
Evening	35 dBA	1	D	39	31	28	24	26	21	N/M	Site Related Noise Events:
19/09/2018	LAeq(15minute)	2	D	40	33	30	21	28	20	I/A	Not measurable
20:12 3-4 m/s NW 20 °C 3011822											Other Noise Events: Non-relevant noise 38-40 Light wind 24-26 Animals 26
Night	35 dBA	1	F	60	42	33	29	33	28	I/A	Site Related Noise Events:
19/09/2018 23·29	LAeq(15minute)	2	F	68	35	22	19	32	19	I/A	Inaudible
Calm	LA1(1minute	3	F	67	37	23	19	27	19	I/A	Other Noise Events:
15 °C 3011822		4	F	73	64	30	19	46	19	I/A	Dogs 32-45 Animals 42 Non-relevant noise 40-73

Table 7 Operator Attended Noise Survey Results – 79a – Barbers Lagoon (Day 3)

N/M = Not Measurable

Period	Criteria	Measurement	Stability	Primary Noi	ise Descript	or				ТСМ	Description
Date/Start Time Weather SLM Details		Number	Category	LAmax	LA1	LA10	LA90	LAeq	LAmin	Contribution (dB)	
Day	35 dBA	1	D	69	63	53	36	51	32	I/A	Site Related Noise Events:
20/09/2018	LAeq(15minute)	2	D	62	59	53	38	49	30	I/A	Inaudible
13:42 5-7 m/s SW/		3	С	75	57	51	37	48	31	I/A	Other Noise Events
17 °C		4	D	68	58	55	40	50	34	I/A	Animals 38-47
3011822		5	D	72	61	55	40	51	29	I/A	Birds 47-75
		6	С	67	55	51	35	47	33	I/A	Wind related noise 48-52 Resident pass-by 60-69
Evening	35 dBA	1	Е	48	34	27	19	24	18	I/A	Site Related Noise Events:
20/09/2018 19:22 1 m/s SW	LAeq(15minute)	2	E	53	30	25	20	25	18	I/A	Inaudible Other Noise Events:
14 °C 3008204											Animals 36-41 Road traffic 30-35 Residential 37-41 Non-relevant noise 44-53
Night	35 dBA	1	Е	50	43	31	20	30	18	N/M	Site Related Noise Events:
20/09/2018 00:35	LAeq(15minute) 45 dBA	2	F	41	37	29	21	27	19	25	General site emissions 25-33
1 m/s N	LA1(1minute)	3	F	37	21	33	29	25	27	26	Other Noise Events:
8 °C 3008204		4	E	49	34	30	26	29	24	28	Animals 32-50 Bird 41

Table 8 Operator Attended Noise Survey Results – 79a – Barbers Lagoon (Day 4)

N/M = Not Measurable

5.1.2 **Operator Attended Noise Survey Results – Bungalow (89)**

Results of the operator attended noise surveys at R1 are provided in **Table 9** to **Table 12**. Monitoring location 89 represents residential receptors located to the south of the site in Bungalow.

Table 9 Operator Attended Noise Survey Results – 89 – Bungalow (Day 1)

Period	Criteria	Measurement	Stability	Primary N	oise Descrip	otor				тсм	Description
Date/Start Time Weather SLM Details		Number	Category	LAmax	LA1	LA10	LA90	LAeq	LAmin	Contribution	
Day	35 dBA	1	С	61	54	38	24	41	22	I/A	Site related noise:
17/09/2018	LAeq(15minute)	2	В	63	55	37	25	41	22	I/A	Inaudible
10:53		3	А	63	52	41	23	40	21	I/A	Other poise events
2-4 m/s s 19 °C		4	А	69	53	35	24	45	21	I/A	Birds 58-73
3008204		5	А	62	49	38	22	36	20	I/A	Wind 30-35
		6	А	73	57	42	23	46	21	I/A	Local road traffic 60-69
Evening	35 dBA	1	Е	41	34	30	24	27	22	I/A	Site Related Noise Events:
17/09/2018	LAeq(15minute)	2	Е	39	32	29	25	27	24	I/A	Inaudible
20:39 1-2 m/s N 14 °C 3011822											Other Noise Events: Distant road traffic 30-36 Non-relevant noise 38-41 Other mines 28
Night	35 dBA	1	D	56	39	31	26	31	24	27	Site Related Noise Events:
18/09/2018	LAeq(15minute)	2	E	51	40	35	26	36	24	27	General site emissions 26-27
00:52 0-2 m/s NE	45 dBA LA1(1minute)	3	D	49	32	29	24	27	22	27	Other Noise Events:
10 °C 3011822		4	E	48	33	30	26	28	24	26	Non-relevant noise 32-56 Wind related noise 38-51

N/M = Not Measurable, I/A = Inaudible

Table 10 Operator Attended Noise Survey Results – 89 – Bungalow (Day 2)

Period	Criteria	Measurement	Stability	Primary N	oise Descrip	otor				тсм	Description
Date/Start Time		Number	Category	LAmax	LA1	LA10	LA90	LAeq	LAmin	Contribution	
Weather SLM Details											
Day	35 dBA	1	D	68	50	38	30	40	28	28	Site Related Noise Events:
18/09/2018	LAeq(15minute)	2	D	72	56	45	29	44	27	N/M	General site activity 27-29
09:47 1-3 m/s SW/		3	В	64	52	43	29	40	26	N/M	Other Noise Events:
18 °C		4	А	60	50	40	25	38	23	N/M	Birds 40-68
3011822		5	А	60	53	47	28	42	24	I/A	Vehicle pass-by 58-72
		6	А	58	55	52	31	47	25	I/A	Aeroplane 36-40
Evening	35 dBA	1	F	46	38	37	32	35	29	I/A	Site Related Noise Events:
18/09/2018	LAeq(15minute)	2	F	77	66	39	34	51	31	I/A	Inaudible
20:30 2-3 m/s N 22 °C 3008204											Other Noise Events: Wind 30-36 Distant road traffic 35-41 Animals 37-41
Night	35 dBA	1	D	47	43	40	36	38	34	N/M	Site Related Noise Events:
18/09/2018	LAeq(15minute)	2	D	47	44	42	35	40	33	I/A	General site emissions 27-30
23:20 3-4 m/s N	45 dBA LA1(1minute)	3	D	45	39	36	31	34	29	29	Other Noise Events:
22 °C 3008204		4	D	40	34	33	28	31	27	28	Distant road traffic 37-41 Animals 32 Wind 39-42

N/M = Not Measurable

Period	Criteria	Measurement	Stability	Primary N	oise Descrip	otor		TCM		Description	
Date/Start		Number	Category	LAmax	LA1	LA10	LA90	LAeq	LAmin	Contribution	
Weather SLM Details											
Day	35 dBA	1	D	73	70	67	57	64	53	I/A	Site Related Noise Events:
19/09/2018	LAeq(15minute)	2	С	65	63	61	50	57	46	I/A	Inaudible
11:25 4-6 m/s NW		3	D	67	62	59	50	56	47	I/A	Other Noise Events:
25 °C		4	D	61	59	56	45	52	42	I/A	Wind related noise 51-65
3008204		5	D	64	60	58	49	55	45	I/A	Vehicle pass-by 56-73
		6	D	65	62	59	49	65	55	I/A	
Evening 19/09/2018 20:58	35 dBA LAeq(15minute)	1	D	75	35	33	28	42	24	I/A	Site Related Noise Events: Not Measurable
Calm 19 °C 3011822		2	D	40	33	30	21	28	20	I/A	Other Noise Events: Light wind 28-33 Distant traffic 31 Non-relevant noise 40-75
Night	35 dBA	1	D	52	48	31	29	31	24	I/A	Site Related Noise Events:
20/09/2018	LAeq(15minute)	2	Е	48	33	31	29	30	24	I/A	Inaudible
1-2 m/s SW	45 dBA LA1(1minute)	3	D	50	39	34	31	32	30	I/A	Other Noise Events:
14 °C		4	Е	48	31	30	27	29	25	I/A	Other mines 28
3011822											Non-relevant noise 39-52 Birds 31-44

Table 11 Operator Attended Noise Survey Results – 89 – Bungalow (Day 3)

N/M = Not Measurable

Period	Criteria	Measurement	Stability	Primary N	loise Descrip	otor				ТСМ	Description
Date/Start Time Weather		Number	Category	LAmax	LA1	LA10	LA90	LAeq	LAmin	Contribution	
Devis		4	6	70	54	42	20	45	24	1/0	City Delated Maine Franks
Day 20/00/2018	35 aba	1	L	76	51	42	28	45	24	I/A	Site Related Noise Events:
20/09/2018	LAeq(ISMinute)	2	A	67	53	45	28	42	24	I/A	
3-4 m/s SW		3	С	58	50	44	32	49	26	I/A	Other Noise Events:
15 °C		4	В	62	56	50	32	46	27	I/A	Birds 50-73
3011822		5	А	69	57	52	35	48	27	I/A	Wind related noise 30-54
		6	А	73	53	48	31	46	25	I/A	Vehicle pass-by 60-76 Aeroplane 38-44
Evening	35 dBA	1	F	44	37	32	27	30	26	I/A	Site Related Noise Events:
20/09/2018 20:55	LAeq(15minute)	2	F	42	32	28	25	26	23	I/A	Inaudible
1 m/s N 13 °C 3008204											Other Noise Events: Distant Road Traffic 30-38 Wind 35-44
Night	35 dBA	1	E	49	35	22	18	23	17	I/A	Site Related Noise Events:
20/09/2018	LAeq(15minute)	2	D	41	30	24	18	22	18	I/A	Inaudible
23:19 Calm	45 dBA LA1(1minute)	3	F	41	26	21	18	20	17	I/A	Other Noise Events:
9 °C 3008204		4	F	37	22	20	18	19	17	I/A	Dogs 34-36 Distant Vehicle 28-31
											Non-relevant hoise 38-49

Table 12 Operator Attended Noise Survey Results – 89 – Bungalow (Day 4)

N/M = Not Measurable

5.1.3 **Operator Attended Noise Survey Results – Matong/Coomalgah (60a)**

Results of the operator attended noise surveys at R1 are provided in **Table 13** to **Table 16**. Monitoring location 60a represents residential receptors located to the east of the site at the Matong/Coomalgah boundary.

Table 13 Operator Attended Noise Survey Results – 60a – Matong/Coolmalgah (Day 1)

Period	d Criteria Measurement Stability Primary Noise Descriptor								тсм	Description	
Date/Start Time Weather		Number	Category	LAmax	LA1	LA10	LA90	LAeq	LAmin	Contribution	
		1	0	50	47	26	22	25	21	25	City Deleted Naise Events
Day	35 GBA	1	A	58	47	30	32	35	21	25	Truck noise 22-28
17/03/2018	LAeq(ISIIIIIute)	2	A	75	58	39	23	49	21	24	General activity 24-27
1-3 m/s S		3	А	46	39	33	22	30	21	24	Other Noise Events:
12 °C		4	В	49	40	32	22	49	29	26	Vehicle pass-by 56-75
3008204		5	А	55	42	32	22	32	20	27	Wind 28-33
		6	А	73	53	34	23	42	21	24	Birds 42-55
Evening	35 dBA	1	E	48	27	23	20	23	20	I/A	Site Related Noise Events:
17/09/2018 19:52 1-2 m/s NE 15 °C 3011822	LAeq(15minute)	2	Ε	79	64	29	21	52	20	N/M	Not Measureable Other Noise Events: Cow 27 Distant traffic 26 Vehicle pass-by 50-79
Night	35 dBA	1	E	36	30	29	25	28	25	I/A	Site Related Noise Events:
17/09/2018	LAeq(15minute)	2	D	43	32	29	28	28	24	I/A	Inaudible
22:01 1-2 m/s N	45 dBA LA1(1minute)	3	E	55	33	29	26	28	24	I/A	Other Noise Events: Other mines 24-28
11 °C 3011822		4	E	49	30	28	25	27	24	I/A	Non-relevant noise 36-55

N/M = Not Measurable, I/A = Inaudible

Period	Criteria	Measurement	Stability	Primary N	oise Descrip	otor				тсм	Description
Date/Start Time Weather SLM Details		Number	Category	LAmax	LA1	LA10	LA90	LAeq	LAmin	Contribution (dB)	
Day	35 dBA	1	D	49	43	39	29	36	27	28	Site Related Noise Events:
18/09/2018	LAeq(15minute)	2	D	65	53	45	30	42	27	28	Truck noise 28-30
13:39 4-5 m/s NW		3	С	58	48	43	33	39	30	29	General site activity 27-31 Other Noise Events:
25 °C		4	В	57	46	40	31	37	28	29	Other mines 27-38
3011822		5	D	73	56	41	32	46	28	N/M	Wind related noise 39-58
		6	С	64	52	40	28	40	25	28	Birds 60-65 Vehicle pass-by 60-73
42Evening	35 dBA	1	D	58	54	51	42	47	38	I/A	Site Related Noise Events:
18/09/2018 21:24 3-4 m/s N 23 °C 3008204	LAeq(15minute)	2	D	64	58	54	43	50	40	I/A	Inaudible Other Noise Events: Wind related noise 42-64
Night	35 dBA	1	D	61	57	52	44	49	41	I/A	Site Related Noise Events:
18/09/2018	LAeq(15minute)	2	D	58	54	50	43	48	39	I/A	Inaudible
22:00 3-4 m/s N	45 dBA LA1(1minute)	3	D	63	56	51	41	48	37	I/A	Other Noise Events:
22 °C 3008204		4	D	61	61	51	43	48	40	I/A	Wind/related noise 37-63

Table 14 Operator Attended Noise Survey Results – 60a – Matong/Coolmalgah (Day 2)

N/M = Not Measurable

Period	Criteria	Measurement	Stability	Primary N	loise Descrip	otor				тсм	Description
Date/Start Time Weather SLM Details		Number	Category	LAmax	LA1	LA10	LA90	LAeq	LAmin	Contribution	
Day	35 dBA	1	D	60	54	50	37	46	36	N/M	Site Related Noise Events:
19/09/2018	LAeq(15minute)	2	С	60	56	49	40	47	36	N/M	Not Measurable
13:43 5-6 m/s NW		3	С	62	58	51	41	48	37	N/M	Other Noise Events:
26 °C		4	D	64	57	54	41	50	36	N/M	Birds 51-64
3008204		5	D	88	61	51	37	57	34	N/M	Aeroplane 47-49
		6	D	54	45	39	32	37	28	N/M	Thunder 88 Wind 50-65
Evening	35 dBA	1	D	42	41	40	37	39	30	29	Site Related Noise Events:
19/09/2018 19:20 2-3 m/s W	LAeq(15minute)	2	E	44	41	40	35	38	31	30	General site emissions 27-31 Occasional dozer clangs 32-34
23 °C											Other Noise Events:
3011822											Non-relevant noise 42-44
Night	35 dBA	1	D	64	55	36	28	42	24	32	Site Related Noise Events:
19/09/2018	LAeq(15minute)	2	D	63	43	32	24	34	21	29	Truck noise 27-36
1-2 m/s S	45 dBA LA1(1minute)	3	Е	45	31	28	22	26	17	29	Other Noise Events:
18 ℃ 3011822		4	D	50	31	28	21	26	20	27	Other mines 29-35 Bird 41-64 Non-relevant noise 45-50 Aeroplane 34-39

Table 15 Operator Attended Noise Survey Results – 60a – Matong/Coolmalgah (Day 3)

N/M = Not Measurable, I/A = Inaudible

Period	Criteria	Measurement Number	Stability Category	Primary Noise Descriptor						тсм	Description
Date/Start Time Weather SLM Details				LAmax	LA1	LA10	LA90	LAeq	LAmin	Contribution	
Day 20/09/2018 11:38 4-6 m/s SW 16 °C 3011822	35 dBA LAeq(15minute)	1	С	57	49	44	32	41	31	N/M	Site Related Noise Events: Not Measureable Other Noise Events: Birds 50-65 Wind related noise 30-51 Vehicle pass-by 70-85
		2	С	60	51	48	33	43	30	N/M	
		3	D	65	57	49	37	46	33	N/M	
		4	С	85	57	50	31	51	27	N/M	
		5	D	65	56	48	33	45	23	N/M	
		6	D	64	57	50	33	47	30	N/M	
Evening	35 dBA	1	E	46	42	38	28	35	22	35	Site Related Noise Events: Haul Trucks 33-39 Excavator 38-44 Other Noise Events:
20/09/2018 20:54 Calm 12 °C	LAeq(15minute)	2	E	46	42	39	29	35	22	35	
3008204											Non-relevant noise 34-46
Night 3 20/09/2018 1 22:00 2 1-2 m/s N 1 11 °C 3 3008204 1	35 dBA LAeq(15minute) 45 dBA LA1(1minute)	1	E	39	57	35	26	31	22	31	Site Related Noise Events: General drone 24-36 Other Noise Events: Non-relevant noise 34-40
		2	F	40	33	30	24	27	21	29	
		3	D	39	36	32	26	30	22	29	
		4	D	35	31	29	22	26	19	26	

Table 16 Operator Attended Noise Survey Results – 60a – Matong/Coolmalgah (Day 4)

N/M = Not Measurable

I/A = Inaudible

Both TCM and Boggabri Coal operations were audible during the day, evening and night-time noise monitoring, with both generating similar noise levels. The total noise levels remained below the 40 dBA LAeq(15minute) cumulative noise criteria.

6 Conclusion

SLR was engaged by Whitehaven Coal Limited to conduct attended noise monitoring for the TCM in accordance with the Tarrawonga Coal Mine Noise Management Plan.

Operator attended noise monitoring was conducted at three (3) locations in order to determine the noise performance of the TCM, with compliance achieved at all locations during all time periods.

Both TCM and Boggabri Coal operations were audible during the daytime noise monitoring, with both generating similar noise levels. The total noise levels remained below the 40 dBA LAeq(15minute) cumulative noise criteria.

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Appendix C









