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

Meeting Held	16th 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 report	SM- read and explained the Quarterly Environmental Report results		
	JH -asked to include the SWL graphs for the groundwater bores	SM to include SWL Graph in next Quarterly report.	
	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		

	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 Accountability**	**Status/ 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, 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	
	JH- no water is critical for farmers that will have to stop		
8.Complaints	SM- one dust complaint for the 19th 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 Comments	DR- next TCCC meetings 2018 will be held on 15th August and 31st October.		
	DR- Environmental Trust meeting held at the Boggabri Golf Club on May 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.

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

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**

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.

[1]Invesitigation 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**

High Volume Air sampler (PM_{10}) Results

The High Volume Air Sampler (HVAS) installed at Coomalgah property monitors level of Particle Matter under 10 micron (PM_{10}). 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.

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

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.

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.

Table 7- Groundwater results Summary

Site	Date	SWL (mbgl)	pH (units)	Elect. Conduct (µS/cm)
MW1				
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				
Nagero	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
	February 2018	4.76	7.8	1833
MW7				
Tarrawonga Mine	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
	February 2018	104.97	No sample (Grey mud)	No sample
MW8				
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

**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 10^{th} 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.

Annual EPBC Compliance statement

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

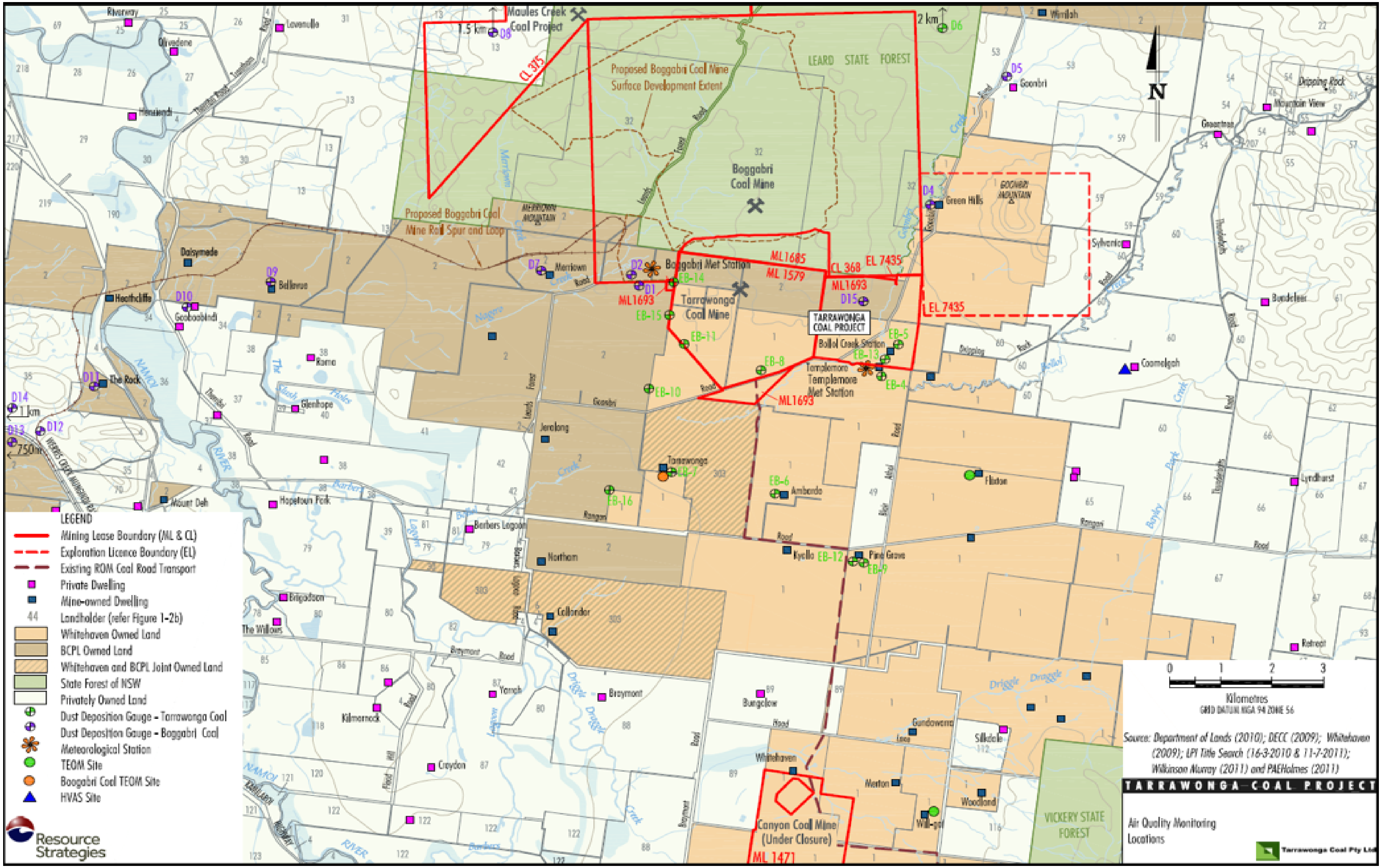
TCM have engaged the company Dust A Side to provide advice and solution to minimise potential fugitive dust generated by exposed surfaces such as haul roads. Since end of April, TCM have been monitoring the results and trying to improve the spraying and mixing techniques. The product used is totally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

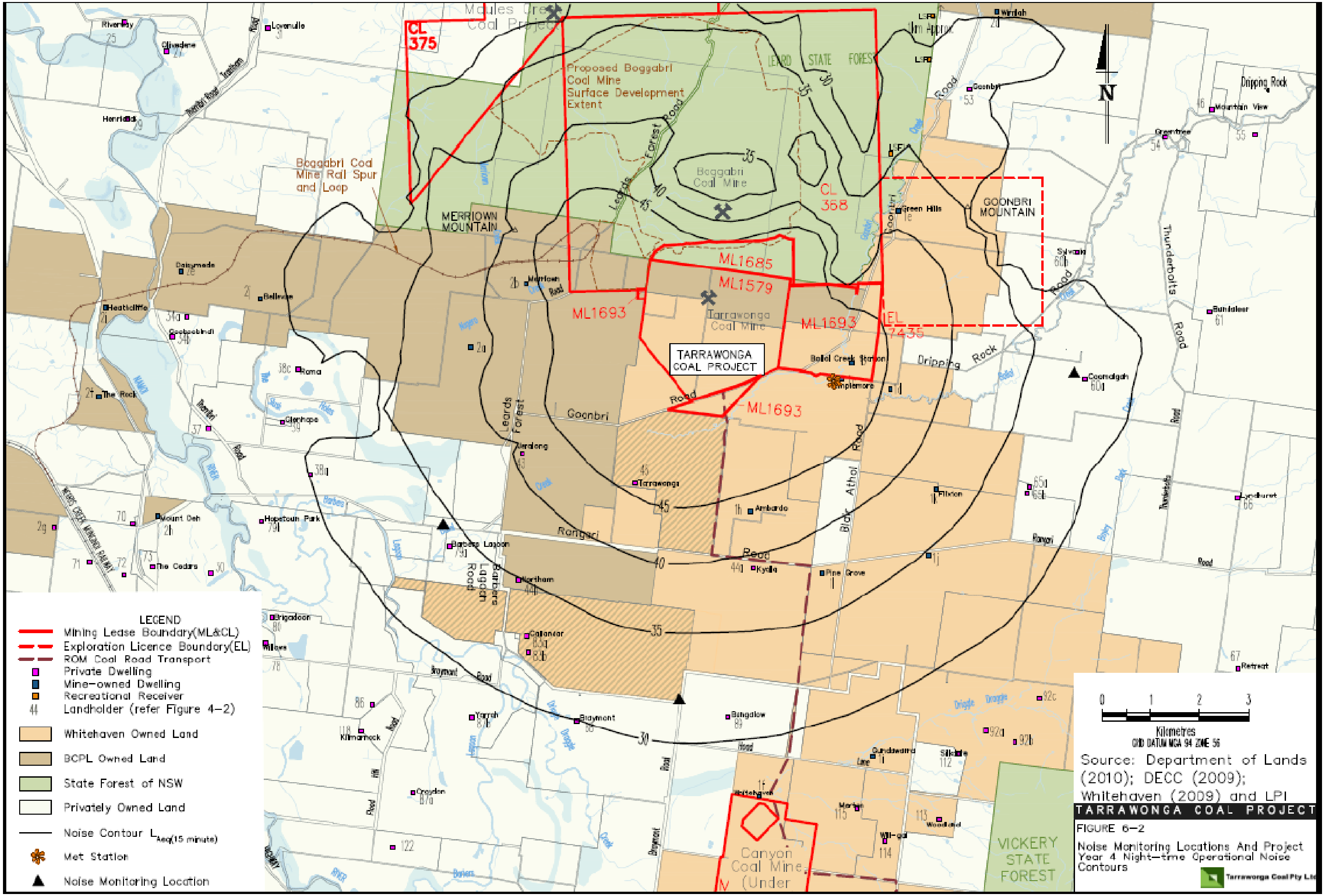
Water Management

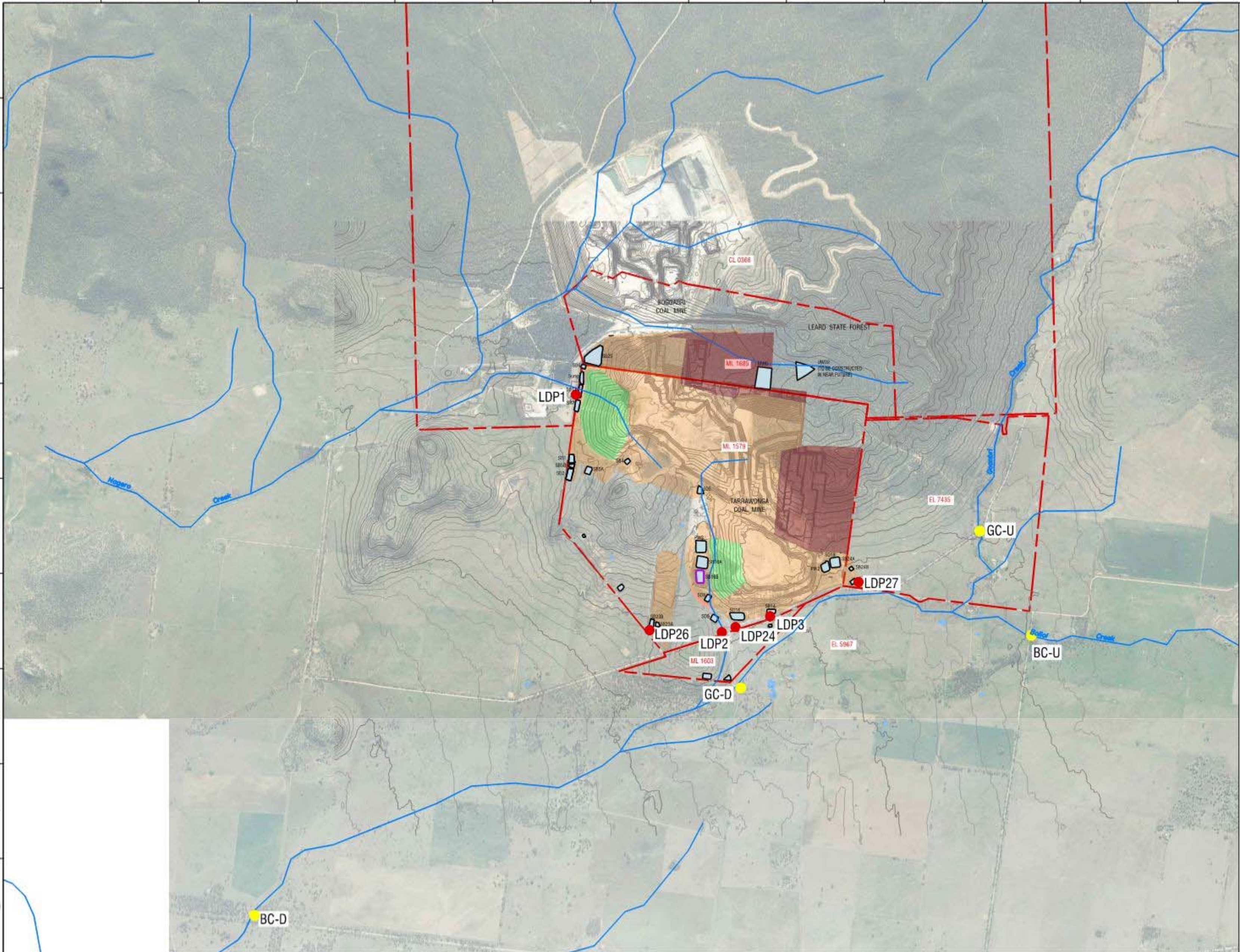
1. TCM have started to desilt dams as required. This process will increase the total storage capacity onsite. That project is expected to be completed before the beginning of winter and the first rains.

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


LEGEND
Mining Lease Boundary (ML & CL)
Exploration Licence Boundary (EL)
Existing ROM Coal Road Transport
Private Dwelling
Mine-owned Dwelling
44 Landholder (refer Figure 1-2b)
Whitehaven Owned Land
BCPL Owned Land
Whitehaven and BCPL Joint Owned Land
State Forest of NSW
Privately Owned Land
Dust Deposition Gauge - Tarrawonga Coal
Dust Deposition Gauge - Boggabri Coal
Meteorological Station
TEOM Site
Boggabri Coal TEOM Site
HVAS Site
Resource Strategies
Kilometres
GRID DATUM MGA 94 ZONE 56
Source: Department of Lands (2010); DECC (2009); Whitehaven (2009); LPI Title Search (16-3-2010 & 11-7-2011); Wilkinson Murray (2011) and PAEHolmes (2011)
TARRAWONGA COAL PROJECT
Air Quality Monitoring Locations
Tarrawonga Coal Pty Ltd
N
Maules Creek Coal Project
LEARD STATE FOREST
Proposed Boggabri Coal Mine Surface Development Extent
Boggabri Coal Mine
Proposed Boggabri Coal Mine Rail Spur and Loop
Boggabri Met Station
Tarrawonga Coal Mine
TARRAWONGA COAL PROJECT
Templemore Met Station
Canyon Coal Mine (Under Closure)
VICKERY STATE FOREST
ML1693
ML1685
ML 1579
CL 368
CL 375
EL 7435
ML 1471
NAMOI RIVER


LEGEND
Mining Lease Boundary(ML&CL)
Exploration Licence Boundary(EL)
ROM Coal Road Transport
Private Dwelling
Mine-owned Dwelling
Recreational Receiver
Landholder (refer Figure 4-2)
Whitehaven Owned Land
BCPL Owned Land
State Forest of NSW
Privately Owned Land
Noise Contour $L_{Aeq(15 minute)}$
Met Station
Noise Monitoring Location
Proposed Boggabri Coal Mine Surface Development Extent
Boggabri Coal Mine Rail Spur and Loop
Boggabri Coal Mine
Tarrawonga Coal Mine
TARRAWONGA COAL PROJECT
MERRIOWN MOUNTAIN
GOONBRI MOUNTAIN
LEARD STATE FOREST
VICKERY STATE FOREST
CL 375
CL 368
ML1685
ML1579
ML1693
EL 7435
Canyon Coal Mine (Under
Kilometres
0 1 2 3
N
Source: Department of Lands (2010); DECC (2009); Whitehaven (2009) and LPI
TARRAWONGA COAL PROJECT
FIGURE 6-2
Noise Monitoring Locations And Project Year 4 Night-time Operational Noise Contours
Tarrawonga Coal Pty Ltd



N
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LEGEND

- SEDIMENT AND STORAGE DAMS
- LICENSED DISCHARGE POINT
- MONITORING POINT
- MINING LEASE BOUNDARIES
- TCM DISTURBANCE AREAS
- TCM REHABILITATED AREAS
- TCM OPEN PITS

NOTE:
WCL NO LONGER HAVE ACCESS TO NC-U AND NC-D MONITORING POINTS.
WCL WILL REQUEST DATA FROM BOGGABRI COAL MINE FOR THESE LOCATIONS.

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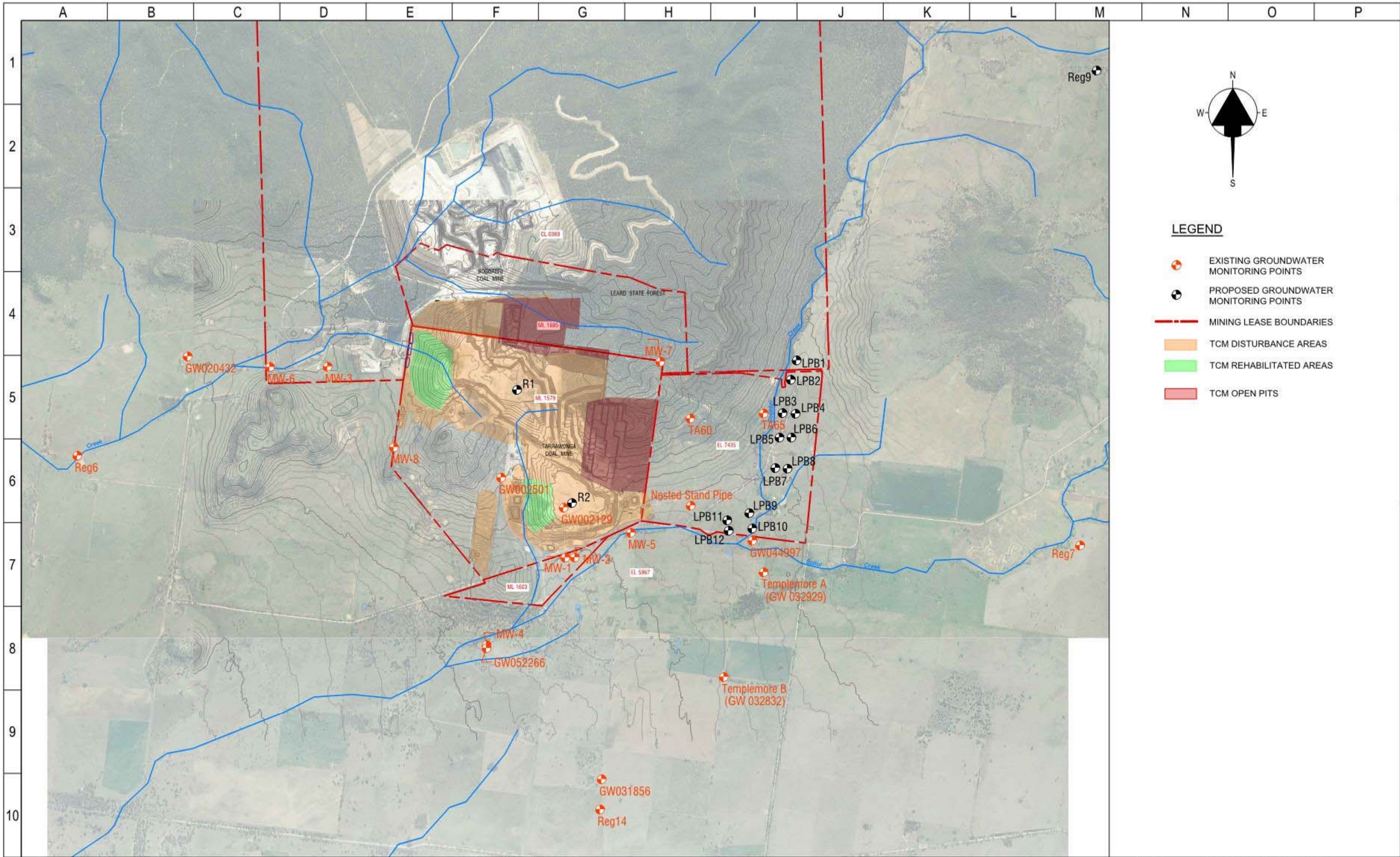

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PROJECT: TARRAWONGA WATER MANAGEMENT PLAN

DRAWING TITLE: **TARRAWONGA GROUNDWATER MONITORING LOCATIONS**

DRAWING NUMBER: FIGURE 7

ISSUE: D

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 $L_{Aeq,15minute}$ levels from TCM with project approval and EPL criterion.

Table 4.2: $L_{Aeq,15minute}$ 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]
				Day				
TN2	12/03/2018 16:23	3.0	B	-1.8	Nil	Yes	<25	Nil
TN2	12/03/2018 16:38	3.4	C	-1.6	Nil	No	NM	NA
TN2	12/03/2018 16:53	4.5	C	-1.6	Nil	No	NM	NA
TN2	12/03/2018 17:08	5.0	C	-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	C	-1.6	Nil	No	NM	NA
TN2	13/03/2018 11:03	1.4	A	-2.0	Nil	Yes	<25	Nil
TN2	13/03/2018 11:18	2.6	B	-1.8	Nil	Yes	<25	Nil
TN2	13/03/2018 11:33	1.1	B	-1.8	Nil	Yes	<25	Nil
TN2	13/03/2018 11:53	1.2	A	-2.0	Nil	Yes	<25	Nil
TN2	13/03/2018 12:10	2.0	A	-2.0	Nil	Yes	<25	Nil
TN2	13/03/2018 12:25	1.5	A	-2.0	Nil	Yes	<25	Nil
TN2	14/03/2018 10:16	2.4	A	-2.0	Nil	Yes	<20	Nil
TN2	14/03/2018 10:32	1.8	A	-2.0	Nil	Yes	<20	Nil
TN2	14/03/2018 10:47	1.1	A	-2.0	Nil	Yes	IA	Nil
TN2	14/03/2018 11:02	1.9	A	-2.0	Nil	Yes	<20	Nil
TN2	14/03/2018 11:18	1.8	A	-2.0	Nil	Yes	<20	Nil
TN2	14/03/2018 11:33	1.6	A	-2.0	Nil	Yes	<20	Nil
TN2	15/03/2018 11:16	1.7	A	-2.0	Nil	Yes	<25	Nil
TN2	15/03/2018 11:31	1.9	A	-2.0	Nil	Yes	<25	Nil
TN2	15/03/2018 11:46	2.5	A	-2.0	Nil	Yes	<25	Nil
TN2	15/03/2018 12:01	2.6	A	-2.0	Nil	Yes	<25	Nil
TN2	15/03/2018 12:16	2.0	A	-2.0	Nil	Yes	<25	Nil
TN2	15/03/2018 12:32	1.6	A	-2.0	Nil	Yes	<25	Nil
TN3	12/03/2018 14:31	2.3	A	-2.0	35	Yes	IA	Nil
TN3	12/03/2018 14:46	2.0	A	-2.0	35	Yes	IA	Nil
TN3	12/03/2018 15:01	1.7	A	-2.0	35	Yes	IA	Nil
TN3	12/03/2018 15:16	3.0	A	-2.0	35	Yes	IA	Nil
TN3	12/03/2018 15:31	1.9	A	-2.0	35	Yes	IA	Nil
TN3	12/03/2018 15:46	2.2	A	-2.0	35	Yes	IA	Nil
TN3	13/03/2018 09:53	0.8	A	-2.0	35	Yes	<25	Nil
TN3	13/03/2018 10:08	1.6	A	-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]
TN3	13/03/2018 10:23	1.1	A	-2.0	35	Yes	<25	Nil
TN3	13/03/2018 10:38	1.4	A	-2.0	35	Yes	<25	Nil
TN3	13/03/2018 10:53	1.7	A	-2.0	35	Yes	<25	Nil
TN3	13/03/2018 11:08	1.4	A	-2.0	35	Yes	IA	Nil
TN3	14/03/2018 11:05	1.9	A	-2.0	35	Yes	IA	Nil
TN3	14/03/2018 11:20	1.8	A	-2.0	35	Yes	IA	Nil
TN3	14/03/2018 11:35	1.6	A	-2.0	35	Yes	IA	Nil
TN3	14/03/2018 11:50	2.7	A	-2.0	35	Yes	IA	Nil
TN3	14/03/2018 12:05	1.4	A	-2.0	35	Yes	IA	Nil
TN3	14/03/2018 12:20	1.7	A	-2.0	35	Yes	IA	Nil
TN3	15/03/2018 11:20	1.9	A	-2.0	35	Yes	IA	Nil
TN3	15/03/2018 11:35	1.8	A	-2.0	35	Yes	IA	Nil
TN3	15/03/2018 11:52	2.8	B	-1.8	35	Yes	IA	Nil
TN3	15/03/2018 12:07	2.3	A	-2.0	35	Yes	IA	Nil
TN3	15/03/2018 12:22	1.6	A	-2.0	35	Yes	IA	Nil
TN3	15/03/2018 12:37	2.2	A	-2.0	35	Yes	IA	Nil
TN4	12/03/2018 16:26	3.2	B	-1.8	35	No	IA	NA
TN4	12/03/2018 16:44	3.5	C	-1.6	35	No	IA	NA
TN4	12/03/2018 16:59	4.6	C	-1.6	35	No	IA	NA
TN4	12/03/2018 17:14	5.0	C	-1.6	35	No	IA	NA
TN4	12/03/2018 17:29	3.7	B	-1.8	35	No	IA	NA
TN4	12/03/2018 17:44	4.0	C	-1.6	35	No	IA	NA
TN4	13/03/2018 15:25	1.3	A	-2.0	35	Yes	IA	Nil
TN4	13/03/2018 15:40	2.3	A	-2.0	35	Yes	IA	Nil
TN4	13/03/2018 15:55	1.9	A	-2.0	35	Yes	IA	Nil
TN4	13/03/2018 16:10	1.6	A	-2.0	35	Yes	IA	Nil
TN4	13/03/2018 16:25	1.7	A	-2.0	35	Yes	IA	Nil
TN4	13/03/2018 16:40	1.9	A	-2.0	35	Yes	IA	Nil
TN4	14/03/2018 12:55	1.7	A	-2.0	35	Yes	IA	Nil
TN4	14/03/2018 13:10	2.1	A	-2.0	35	Yes	IA	Nil
TN4	14/03/2018 13:25	2.1	A	-2.0	35	Yes	IA	Nil
TN4	14/03/2018 13:40	1.9	A	-2.0	35	Yes	IA	Nil
TN4	14/03/2018 13:55	1.6	A	-2.0	35	Yes	IA	Nil
TN4	14/03/2018 14:10	2.0	A	-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	A	-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	A	-2.0	35	Yes	IA	Nil
TN4	15/03/2018 14:10	1.7	A	-2.0	35	Yes	IA	Nil
TN4	15/03/2018 14:25	2.3	A	-2.0	35	Yes	IA	Nil
TN4	15/03/2018 14:40	1.8	A	-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	E	0.5	Nil	Yes	IA	Nil
TN2	14/03/2018 20:14	1.0	E	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	E	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	E	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	E	0.5	35	Yes	IA	Nil
Night								
TN2	12/03/2018 22:20	1.6	E	0.5	Nil	Yes	IA	Nil
TN2	12/03/2018 22:35	0.6	E	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	E	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	E	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	E	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	E	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	E	0.5	35	Yes	IA	Nil
TN4	12/03/2018 22:35	0.6	E	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	E	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 $L_{Aeq,15min}$ 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 $L_{Aeq,15minute}$ 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 $L_{A1,1minute}$ levels from TCM with project approval and EPL criterion.

Table 4.3: $L_{A1,1minute}$ 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 $L_{A1,1min}$ dB[3,4]	Exceedance[5]
TN2	12/03/2018 22:20	1.6	E	0.5	Nil	Yes	IA	Nil
TN2	12/03/2018 22:35	0.6	E	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	E	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	E	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	E	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	E	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	E	0.5	45	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 $L_{A1,1min}$ dB[3,4]	Exceedance[5]
TN4	12/03/2018 22:35	0.6	E	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.*