

**Minutes:** Minutes of the 20<sup>th</sup> Meeting of the Maules Creek Coal Community Consultative Committee  
Held at the Boggabri Golf Club, Gunnedah Road, Boggabri NSW 2382

**Wednesday 14 February 2018**

**Members Present:** Darren Swain (DS) – WHC, Peter Wilkinson (PWi) – WHC, Tony Dwyer (TD) – WHC, Scott Mitchell (SM) – WHC, Jack Warnock (JW) - Community, Cath Collyer (CC) – Community, Cr Robert Kneale (RK) - Narrabri Council, Steve Eather (SE) – WHC, Simone Moodie (SMo) - Community Aboriginal Representative, Kerri Clarke (KC) Environmental Representative, Ros Druce (RD) – Community (Alternate), Carolyn Nancarrow (CN) – Community

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

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

<b>Agenda Items</b>	<b>Who to Present</b>
1. Apologies	DR
2. Declaration of pecuniary or other interests	DR
3. Confirmation of the minutes of the previous meetings a. Discussion on minutes for 1 November 2017	DR
4. Business arising from the previous minutes a. Action list distributed	DR
5. Correspondence	ALL
6. Overview of Activities: a. Progress at the mine b. Monitoring and environmental performance c. Community complaints and response to complaints d. Information provided to the community and any feedback e. Biodiversity Audit Presentation	PWi, DS, SM, TD
7. General Business	ALL
8. Next Meeting – 16 May 2018	ALL

Agenda Item	Discussion	Action/By Whom
	<p><b>Welcome by David Ross</b> – DR welcomed everyone to the meeting. He noted that he believed that there was a real improvement in conversations through 2017. The challenge for each of us now is to not only continue listening <i>deeply</i>, but to try to understand each other better.</p>	
1.	<p><b>Apologies</b> – Libby Laird (LL)</p>	
2.	<p><b>Declaration of pecuniary or other interests</b> - DR advised he is paid a fee to chair these meetings as is DC for typing the Minutes. SMO - Made everyone aware that her son works for WHC. RD – Property falls into the ‘Zone of Affectation’ for acquisition by Maules Creek Coal Mine (MCCM).</p>	
3.	<p><b>Confirmation of the minutes of the previous meetings (1 November 2017)</b></p> <p>RK moved that the minutes be approved; seconded by SE.</p>	
4.	<p><b>Business arising from the previous minutes</b></p> <p>DS – Handed out a plan done by the Narrabri Shire Council for RK regarding the Oaky Crossing questions. DS thanked RK for his work on this.</p> <p>SM – Said there was an action on WHC to verify if there was an Oaky / Oakey / Oakley Crossing and confirmed that they investigated existing plans and what’s available around the area.</p> <ul style="list-style-type: none"> <li>• ‘Oakleigh’ property – there is no labelled creek / crossing referred to as ‘Oakleigh Crossing’.</li> <li>• There is a point at ‘Thornfield’ property that crosses the Maules Creek – referred to as Thornfield Creek Crossing in the Biodiversity Management Plan.</li> <li>• Back Creek meanders through Oakvale / Oakleigh properties (Eastern Offset area). There is an ‘Oaky Gully’ and ‘Oaky Creek’ within the Northern Offset (outside the area of interest).</li> <li>• The upper catchment of Maules Creek is described as ephemeral and downstream at Avoca East gauge described as flowing 94% of the time.</li> <li>• The Groundwater Management Assessment in the original EA shows a ‘zone of ephemeral pools’ west of Elfin’s Crossing. Maules Creek in the northern offset is incorrectly described as permanent; this will be amended to ephemeral in the next revision of the BMP.</li> </ul> <p>RD – It is not ephemeral at Elfin’s.</p> <p>SM – We believe we have described it properly and that it is “semi-permanent pools/permanent pools along an ephemeral creek” – the EA states it flows 94% of the time.</p> <p>RD – The crossing has always had water running across it, only once to my knowledge has it stopped running at Elfin Crossing. At the crossing – it is permanent.</p>	

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	<p>SM – It is a description of water courses in the Biodiversity Management Plan – it’s not an assessment of impact – it’s a description of status.</p> <p>KC &amp; CN – discussion about WHC using the available stream classification system rather than an arbitrary rating for mine use. CN can provide the webpage to WHC.</p> <p>DR (to SM) – can you describe why this conversation (ephemeral or permanent) is important?</p> <p>SM – Within the Biodiversity Management Plan in 2016, there was community feedback and all that feedback was taken back and the document revised and resubmitted to DPE, including around the classification of that Crossing at Maules Creek. It was originally described as ephemeral or semi-permanent. Noting that the Biodiversity Plan is not a Water Management Plan. We believe we have addressed that now.</p> <p>SM – Semi-permanent / permanent pools.</p> <p>KC – Local residents don’t believe it is an ephemeral creek. The significance of the use of ephemeral or permanent by WHC was that if a creek becomes ephemeral due to a drop-in water level then WHC has covered themselves.</p> <p>SM – We updated the description – to be semi-permanent /permanent pools at Maules Creek along an ephemeral creek.</p> <p>RD – It is written down as ephemeral at Elfin Crossing downstream Maules Creek may look like ephemeral but flows underground. To us it is a permanent stream and if there are other descriptions, then we should explore that.</p> <p>PW – We’ve outlined what it is, and it has been accepted by the Department – there must have been some measurement to get to 94% and if you want to challenge that you probably need to go to the Department.</p> <p>JW – Is there data available for monitoring and groundwater monitors? So, we as a collective group can see a change and we can discuss it then? More important is the date – is the stream flowing over the crossing or not?</p> <p>SM – Via monitoring gauges by the NSW Office of Water? (Agreement from CCC).</p> <p>RD – Having that data proves one way or the other with water just above or below and to know the depth and quality etc.</p> <p>JW – Having the data available in graphic form from the monitoring bores as presented as part of the report to save us having to look it up on the government website – in the quarterly reports – so it is a visual.</p> <p>SM – I suppose we can do that with a selected number of bores.</p> <p>JW – This is going to be something that happens over a long period.</p>	<p>ACTION 1 - WHC to send a copy of the Crossing slide to Roz and Libby.</p> <p>ACTION 2 – WHC to use the same classification for all relevant reports.</p>

Agenda Item	Discussion	Action/By Whom
	<p>DR – Need it to be practical. Thanked everyone as this issue has been hanging around for a while.</p> <p>RD – Water and bores – what area are you going to test?</p> <p>JW – Personal opinion, I don't think you can do that.</p> <p>SM – That information is all publicly available. What Jack is referring to are water levels and fluctuations.</p> <p>SM – Another action from the last meeting was – to understand if further analysis was done – what frequency was at the September attended monitoring at NM5 – low frequency analysis couldn't be done as there was other contributing low frequency noise sources – couldn't differentiate for the purpose of this assessment. They couldn't differentiate between the two therefore no data in report of frequency levels.</p>	<p>ACTION 3 – That the Community be provided with long term data for hydrographs be available for monitoring bores near Maules Creek.</p> <p>ACTION 4 – JW and SM to discuss and will have something to report at the next meeting.</p>
5.	<p><b>Correspondence</b></p> <p>DR – Letter tabled. Lochie Leitch and his wife Sonia had a meeting with WHC and wanted everyone to be aware of his concerns about behaviour of WHC staff during the meeting.</p> <p>PW – Jamie Frankham has apologised unreservedly for his comments and that's all that really can be done.</p> <p>KC – Blast fumes, dust, noise, etc from the mine have been impacting families for a long time now and need to be resolved as quickly as possible as this has been going on too long.</p> <p>CN – I haven't seen any response from WHC.</p> <p>PW – A response will be provided to the Leitch's from the WHC Board.</p> <p>DR – I received a letter a few weeks ago for WHC from the Wando Conservation &amp; Culture Centre. Wando had an array of questions for WHC including a request to desist any clearing in 2018; what areas are to be planted and what species used; vehicle movements; amount of water sourced; where employees reside; and erection of new internet towers.</p> <p>PW – We aren't going to respond to every green group – we have regulators (with the EPA and DPE) and discussions with the CCC.</p>	

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	<p>KC to PW – This letter has been submitted to the CCC to be tabled to get a response.</p> <p>PW – Some of those questions aren't legitimate from the WC&amp;CC. A lot of that information is already available.</p> <p>DS – Some of those questions are in our May 2017 CCC – when Andrew Wright presented on the topic of Biodiversity Management and we have discussed the Telstra tower previously.</p> <p>JW – It was from an unidentified reliable source that there was a joint venture between WHC and Telstra for a 4G tower. Our internet and phone service are not the best but then we were told that there was no such joint venture.</p> <p>RD – It is a Maules Creek issue re the internet service as all the devices have gone downhill since they arrived. Tower has been updated twice and they can't do anymore. But maybe if Boggabri did put a tower up – that might give us a bit more on the western side. That was a Telstra technician who said that.</p> <p>DR – Is that a Telstra issue?</p> <p>PW – We've commented on this for a few meetings. We use our own communications towers inside – we asked Telstra if they wanted to use those towers and they said no. We can express our concern to Telstra as well as Council.</p> <p>DR – Advised that he has received a letter from CWA via Libby Laird just before meeting. CWA requested that WHC desist from any clearing in 2018. The letter had stated that in the draft SLURP, the forest was identified as a Tier 1 biodiversity hotspot area. The question in the letter that was asked was what information can WHC provide that it is a successful custodian and manager of the forest's biodiversity that the approval gives it access to?</p> <p>DS – Tony will talk about that soon and can give you a copy of the draft Biodiversity Audit.</p>	
6.	<p><b>Company reports and overview of activities by DS</b></p> <p><b>Company Report &amp; Overview of Activities</b></p> <p>SMo – Wanted to advise that she had attended a Narrabri RAPta (Reconciliation Action Plan) meeting in December 2017. Out of that meeting – up to date 6 people employed. 3 starting next week. In Narrabri a positive attitude to that. Social impact on families is very good. It was a great outcome. There is another one in March. Maybe you could come?</p> <p>PW – Good to hear some good feedback.</p> <p><b>Presentation by Tony Dwyer</b></p> <p>Recently working on the Mining Operations Plan for Maules Creek which expired in late 2017 which required that the development and submission of the plan go to the Dept for their consideration and discussion and eventual approval.</p> <p>CC – What is the general Expiry Date?</p>	

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	<p>TD – It is a maximum of 7 years. Maules Creek Mining Operations Plan was approved 2 Feb 18.</p> <p><b>MOP Amendments:</b></p> <ul style="list-style-type: none"> <li>• Clarified projected rehabilitation phases timing and extent.</li> <li>• Additional cover of inert material over PAF material noted for overburden dump.</li> <li>• Inclusion of requirement to meet Schedule 3 Condition 38 of Project Approval in addition as meeting EPL requirements for offsite water release.</li> <li>• Further details on temporary cover crop, i.e. Vampire Ryecorn and interim rehabilitation used to manage dust impacts and weeds. Vegetation communities noted on areas of rehabilitation during MOP term and will update when commencing. Native species selection for rehab is being done.</li> <li>• Trigger Action Response Protocols (TARP's) for Rehabilitation outcomes updated.</li> <li>• Commitment to consult with DRG and DPE if rehabilitation issues arise.</li> <li>• Commitment to consult with OEH regarding rehabilitation completion criteria.</li> </ul> <p><b>MOP Rehabilitation Phases</b></p> <p>The main rehabilitation phases are summarised below:</p> <ul style="list-style-type: none"> <li>• <b>Decommissioning</b> – Infrastructure removed, contamination remediated, electricity decommissioned, any heritage buildings retained;</li> <li>• <b>Landform establishment</b> – characterisation and reshaping of material;</li> <li>• <b>Growth medium development</b> – placement of topsoil, and integration of ameliorants as required upon reshaped material;</li> <li>• <b>Ecosystem and land use establishment</b> – revegetation of growth medium;</li> <li>• <b>Ecosystem and land use sustainability</b> – Floristics and structure, recruitment and recovery, fauna presence, growth, ecosystem resilience; and</li> <li>• <b>Relinquished lands</b> – Demonstrated ultimate success of rehabilitation process.</li> </ul> <p>CC – Vampire Ryecorn grass – have you investigated what is being utilised at Tarrawonga and what is sustainable? Was it a different rehabilitation? What grasses are they utilising through the test of time? Do you use that information?</p> <p>TD – We don't intend to use Ryecorn as a sustainable vegetative cover. We want to use it to only temporarily stabilise.</p> <p>RD – Amendments to management plans – didn't we have something different?</p> <p>TD – Changes are tracked in different colours. The document as presented as the first document but once there are different amendments it will be colour coded.</p> <p>RD – It makes it hard to see what has been changed from document to document.</p> <p>TD – That's why we have this slide to explain all the changes.</p>	

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	<p>RD – When are you going to start the rehabilitation?  TD – We’ve already started.</p> <p>KC – The classification of the 6 phases – the classification determines the shape and the steps to follow each phase.  TD – The characterisation, reshaping and amelioration as required of the material which might erode? In terms of timing – that is a way off still – this is just the start of the process.</p> <p>JW – How long do you expect that period to take normally?  TD – For the last bit of rehabilitation (relinquishment) – typically 15 to 20 years potentially.</p> <p>PW – It depends on the style of rehabilitation that is used as well. Obviously, the forest will take longer than pasture.</p> <p>SE – Rehabilitation – are cool burnings used as part of the process?  TD – We haven’t considered it to date for the coal mine. Must be careful of the use of fire – certainly in the offset areas that precedes our vegetation – yes, we have.</p> <p>SMo – Rehabilitation close to the forest – do you have to replant? Do the same number of trees have to go back in?  TD – Vegetation structure – more broadly scientific what types of vegetation – the species we should target and the densities. What we do with our revegetation is target that density – plant at a higher density to what we are targeting. Allowing for deaths. 20 trees per hectare but might need 80 trees.</p> <p>TD – There is also a research project and we have formed a steering committee from around Australia. Have a plan with several woodland research projects – regulatory study to get information on what has been raised. Look at trees in situ in older areas – see if any differences. We have a project like that – projects of what comes up in our soil. Soil seed bank.</p> <p>KC – How long has the top soil been sitting?  TD – From the start of the mine.</p> <p>RD – That study to industry and governments – can we access some of those studies?  TD – What you are referring to is the first stage – the literature review and site visits throughout the Hunter Valley and Boggabri area.</p> <p>RD– Is that available to the public?  TD – An individual was involved from the Uni. I would have to check.</p>	

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	<p>RD – Is it going to be levelled out or is it still going to be as high as it is now?  TD – The slope goes up in steps.</p> <p>RD – What will be the expected growth by 2023. So, when are you going to start that rehabilitation?  TD – We start this calendar year on the northern face.</p> <p>DS handed out the Maules Creek Coal Mine Independent Draft Biodiversity Audit Report. The Audit was undertaken by ERM in December 2017 which involved engagement and site inspection and since it commenced consultation with OEH, North West LLS, DPI Lands, DoEE, MCCM CCC and DRG.</p> <p>TD – Project approval for Maules Creek requires an audit of site revegetation, management and restoration work undertaken within Biodiversity Offset areas. Explained that the Audit Report is in Draft as it is open to feedback. The draft findings are that compliance has been achieved and management practices of the MCCM Biodiversity Offset Areas are consistent with the BMP and appropriately resourced. CCC members have until 15<sup>th</sup> March 2018 to provide comments. Whilst the security of the NSW offset areas has commenced (via both legal instrument and physical on ground infrastructure), further works are needed to finalise.</p> <p>RD – That was supposed to be done?  TD – An extension was provided by the regulators to 31<sup>st</sup> December 2018.</p> <p>TD also described challenges of translocating Tylophora and Pomaderris. Need to do more monitoring and need to do more to know the success. How readily to be determined. Pomaderris – a lot more work to do there to determine the ability to translocate.</p> <p>KC – Taking them before and putting them in a safe area?  TD – It was harvested from clearing areas for use in these trials.  KC – Were all the plants removed to protect them before clearing?  TD – There are a lot already in the area.</p> <p>CN – With wanting consultation, I think people who live in those areas (where audit took place) should be stakeholders?  TD – What we work to is what the State Government stipulates. Commonly having the CCC as a stakeholder is supposed to be representatives of the local communities.</p> <p>TD – You are part of the CCC and you can talk to the community.  KC – If the community only have 30 days to comment, it would help if we could get an electronic copy and email it out, so we can communicate with the community more quickly.</p>	<p>ACTION 5 - TD to follow up and include a website link</p> <p>ACTION 6 – CCC members to provide comments on audit report to DS by 15<sup>th</sup> March</p> <p>ACTION 7 – WHC to consider providing electronic copies of all presentations and</p>



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	<p><b>Company Report &amp; Overview of Activities by DS</b></p> <ul style="list-style-type: none"> <li>December quarter production figure 2.35Mt.</li> <li>MCC Community Open Day held 4 November 2017 with seven busloads of people shown around the mine.</li> <li>Excellent safety rate of 0.69 (Total Recordable Injury Frequency Rate (TRIFR) – injuries per million hours worked) at end of December down from the September figure of 1.45 – well below the NSW average of about 6.</li> </ul> <p><b>Employment</b></p> <ul style="list-style-type: none"> <li>Continued focus on local, indigenous and female employment with ongoing training programs undertaken.</li> <li>There have been 33 new local trainees employed from December 2017 to February 2018. There have been 4 new apprentices start with MCC in January 2018:</li> </ul> <p><b>Approvals</b></p> <ul style="list-style-type: none"> <li>Sound Power Level (SWL) modification. Responses to submissions have been tabled with DPE. This proposed modification does not change approved Environmental Protection Licence noise levels, management practices or controls. This means there is no change to attended monitoring compliance.</li> <li>Bussing to Site. The percentage of wages and full time equivalent personnel who are being bussed to site as measured in Q4 2017 was just over 88%. MCC approval requires at least 70% to utilise the shuttle buses.</li> </ul> <p><b>Environmental Management by SM</b></p> <ul style="list-style-type: none"> <li>Annual rolling average for TEOM 1 is 8.8ug/m3 at 31 December 2017 (criteria 30ug/m3).</li> <li>Engagement with EPA regarding the proposed Namoi Regional Air Quality Monitoring network.</li> <li>Dust suppressant application has increased with continued use across the operation into summer.</li> <li>Letter to TD from Clare Felton-Taylor, Senior Weeds Officer, NSC – appreciation of the team and offsets.</li> </ul> <p><b>Upcoming Works</b></p> <ul style="list-style-type: none"> <li>Feral animal control in March 2018. Weed spraying ongoing; planning commenced for Ecological Burns in Autumn 2018 (hopefully cooled down by then and good fire breaks).</li> <li>Fire break maintenance ongoing in Northern Offset; general fencing (installing heritage and removal) ongoing in Northern Offset; next year's Biodiversity Offset Revegetation Program scheduled to commence in Autumn 2018.</li> </ul> <p><b>Health</b></p> <ul style="list-style-type: none"> <li>Ongoing Employee Drug and Alcohol testing carried out. Community based Emergency Response Training.</li> </ul> <p><b>Community</b></p> <ul style="list-style-type: none"> <li>6 monthly RAP meeting held in November 2017</li> </ul>	<p>draft Biodiversity Audit</p>

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	<ul style="list-style-type: none"> <li>Complaints details noted in previously emailed Environmental Monitoring Report. Community Survey by WHC mid-2017. Supported the Regional Economic Development Strategy Workshop in Bingara</li> <li>Sponsorships and donations have been made to: Tamworth and Region (including Westpac Rescue Helicopter), Narrabri area community, Gunnedah area community. Donations are targeted at Health, Education and Community Enhancement. Also, been ongoing VPA payments to Narrabri Shire Council.</li> </ul> <p><b>Local Buying Strategy</b></p> <ul style="list-style-type: none"> <li>WHC supported more than 350 local businesses and suppliers during the last year. More than \$1 billion has been invested in the North West NSW economy since 2012 through wages, payments to Councils and support for local businesses and suppliers. 18 local Boggabri businesses supported by MCC.</li> </ul> <p><b>Looking Forward</b></p> <ul style="list-style-type: none"> <li>Continued production targeting 13Mtpa within 3 years. FY18 production target is 11Mtpa ROM (Run of Mine). CY18 production target is 12Mtpa ROM. Continued focus on local recruitment.</li> <li>2018 clearing program planned to start this week with pre-clearance preparation underway.</li> <li>Annual Review preparation underway.</li> </ul> <p><b>Questions from the Community</b></p> <p>CC – This morning at the Tarrawonga meeting – Tim mentioned they are doing an assessment of where there are water spots and what they can do with the fire brigade.</p> <p>DS – Tim is doing that for all the mines / the whole group including Maules Creek.</p> <p>KC – Anna asked about the community survey. Haven’t heard of anyone who has been attending.</p> <p>DS – We don’t know who goes as it is run independently. Details are on the website – also on the last WHC newsletter.</p> <p>CN – Can we look at the feedback on the survey.</p> <p>DS – We don’t see it. We have the broad details but not the individual.</p> <p>KC – where are you clearing this week?</p> <p>DS – We don’t disclose that.</p> <p>KC – How much area?</p> <p>PW – 100 hectares.</p> <p>RD – Even with high temperatures?</p>	

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	<p>DS – We have temperature constraints and so we must stop when the temperature reaches 35 degrees.</p> <p>CN – What about consultation with locals on the feral animal control?</p> <p>TD – Yes, its ongoing for us. We must notify neighbours doing control works – still quantifying numbers.</p>	
7.	<p><b>General Business</b></p> <p>Kerry – Regarding environment – offsets and seeds collected during clearing and which species and what happens with them and where they are stored? Would like some species lists? How many bush tucker plant species in there as well.</p> <p>DS – Detailed in Biodiversity Plan – nothing new. Andrew spoke at the May meeting about this.</p> <p>KC – When some areas are offset in a property is the whole property considered an offset or just that area?</p> <p>TD – Just the area is calculated and part of the offset. All in the Biodiversity Management Plan.</p> <p>RD – Draft Plan – why do you get an extension?</p> <p>TD – It’s a long process and not in our management control. Through a legal process – get it formally recognised. Also requires input from regulators like OEH. We have no management control over parts of process.</p> <p>RK - In regard to the Namoi Region Air Quality Advisory Committee. I have tried to look at the website and the form, but I couldn’t get any information about the application, the criteria etc.</p> <p>CC – The application to go to the committee. Boggabri Progress Association have voted me to apply for the Air Quality Committee. Hoping to look for support from this CCC?</p> <p>RD – As a community representative, I’m disappointed with WHC’s lack of response. We have written to them – as have green groups. We get a blank “not going to respond to these”.</p> <p>PW – We aren’t going to respond to every green group – we have a regulator (with the EPA) and discussions with the CCC.</p> <p>KC – What is happening with my list of seed species collected that I requested?</p> <p>SM – Andrew updates in the Annual Review each year. It’s on the website.</p> <p>TD – On page 23 (of the draft audit) there are some listed that are our target species if that helps.</p> <p>DR – On a separate issue, CCCs work well when individuals or groups that you represent can funnel information through you to the CCC and vice versa. How are you trying to get information to the community?</p> <p>RD – Generally, you can have a discussion with a community member over the phone or in the paddock. Trying to get that information back. Libby and I discussed the other day about getting the minutes out on a public notice board and how reliable that is. If they know there is information available, they might be more involved.</p>	<p>ACTION 8 – DR to find the link and provide to everyone by 16<sup>th</sup> February.</p>

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	RK – For all Council Representatives to External Committees we are all required to send a copy of the minutes to be included in Council Business Papers. The CCC Minutes are available to be accessed by the community from Council's website.	
<b>8.</b>	<p><b>Next meeting date to be agreed</b> - Next meeting Wednesday 16 May 2018 at 2:00pm. Apology for Steve for the next meeting.</p> <p><b>Dates for the rest of the year:</b> Wednesday 15 August and Wednesday 31 October 2018. <b>Also, Joint CCC meetings:</b> Thursday 17 May (probably) 2:00pm and Thursday 1 November 2:00pm</p> <p>DR – Lindsay Fulloon from the EPA to attend next CCC and Joint CCC meetings.</p>	

Meeting Closed: 4:34pm

#### Appendix 1: Actions

Page No	Action No	Description	Date Raised
3	1	WHC to consider sending a copy of the Crossing slide to Roz and Libby.	14 Feb 18
3	2	WHC to use the same classification for all relevant reports.	14 Feb 18
3	3	That the Community be provided with long term data for hydrographs be available for monitoring bores near Maules Creek.	14 Feb 18
4	4	JW and SM to discuss and will have something to report at the next meeting.	14 Feb 18
8	5	TD to follow up and include a website link	14 Feb 18
8	6	CCC members to provide comments on audit report to DS by 15 <sup>th</sup> March	14 Feb 18
9	7	WHC to consider providing electronic copies of all presentations and draft Biodiversity Audit	14 Feb 18
11	8	DR to find the link and provide to everyone by 16 <sup>th</sup> February	14 Feb 18

# Maules Creek Coal Mine Community Consultative Committee Meeting #20

## Environmental Monitoring Report For the Q4 period, October-December 2017

### Attended Noise Monitoring

Attended noise monitoring was undertaken at six locations, as per the approved Noise Management Plan, on the 9-11 October; 27-28 November; and 18-19 December 2017 by an independent acoustic consultant. The measured noise level (LAeq 15 minute) attributed to Maules Creek Coal Mine (MCCM) and applicable criteria for each location are shown in the tables below.

### LAeq, 15minute GENERATED BY MCC AGAINST OPERATIONAL EVENING AND NIGHT NOISE CRITERIA – OCTOBER TO DECEMBER 2017.

**Table 1 - October Noise Monitoring – Evening & Night Period**

		Time	Wind Speed m/s	Rainfall mm	Criterion dB <sup>3</sup>	Criterion Applies <sup>1</sup>	MCC LAeq dB <sup>2,4</sup>	Exceedance dB <sup>4,5</sup>
NM1	10/10/2017	20:30	1.9	0	35	Yes	28	Nil
NM1	10/10/2017	20:45	0.4	0	35	Yes	28	Nil
NM1	9/10/2017	23:00	0.7	0	35	Yes	28	Nil
NM1	9/10/2017	23:30	0.5	0	35	Yes	29	Nil
NM2	9/10/2017	21:00	0.4	0	39	Yes	<20	Nil
NM2	9/10/2017	21:15	0.3	0	39	Yes	<20	Nil
NM2	10/10/2017	22:30	1.2	0	39	Yes	33	Nil
NM2	10/10/2017	22:45	1.4	0	39	Yes	33	Nil
NM3	9/10/2017	19:30	0.3	0	35	Yes	IA	Nil
NM3	9/10/2017	19:45	0.3	0	35	Yes	IA	Nil
NM3	11/10/2017	0:00	1	0	35	Yes	IA	Nil
NM3	11/10/2017	0:15	0.7	0	35	Yes	IA	Nil
NM4	10/10/2017	21:15	0.7	0	NA	Yes	29	Nil
NM4	10/10/2017	21:30	0.7	0	NA	Yes	28	Nil
NM4	9/10/2017	22:15	0.4	0	NA	Yes	<25	Nil
NM4	9/10/2017	22:30	0.6	0	NA	Yes	<25	Nil
NM5	10/10/2017	19:45	1.5	0	35	Yes	<20	Nil
NM5	10/10/2017	20:00	2.1	0	35	Yes	<25	Nil
NM5	10/10/2017	0:00	0.9	0	35	Yes	29	Nil
NM5	10/10/2017	0:15	0.8	0	35	Yes	30	Nil
NM6	9/10/2017	20:12	0.5	0	35	Yes	IA	Nil
NM6	9/10/2017	20:27	0.5	0	35	Yes	IA	Nil
NM6	10/10/2017	23:15	0.5	0	35	Yes	25	Nil
NM6	10/10/2017	23:30	0.5	0	35	Yes	<25	Nil

**Table 2 - November Noise Monitoring – Evening & Night Period**

		Time	Wind Speed m/s	Rainfall mm	Criterion dB <sup>3</sup>	Criterion Applies <sup>1</sup>	MCC LAeq dB <sup>2,4</sup>	Exceedance dB <sup>4,5</sup>
NM1	28/11/2017	20:10	0.3	0	35	Yes	IA	Nil
NM1	28/11/2017	20:28	0.3	0	35	Yes	IA	Nil
NM1	27/11/2017	22:49	3.1	0	35	No	IA	NA
NM1	27/11/2017	23:05	2.8	0	35	Yes	IA	Nil
NM2	27/11/2017	21:00	2.1	0	39	Yes	23	Nil
NM2	27/11/2017	21:15	2.5	0	39	Yes	23	Nil
NM2	28/11/2017	22:03	1.3	0	39	Yes	28	Nil
NM2	28/11/2017	22:20	1.8	0	39	Yes	<25	Nil
NM3	27/11/2017	19:30	2.7	0	35	Yes	28	Nil
NM3	27/11/2017	19:45	2.6	0	35	Yes	23	Nil
NM3	28/11/2017	23:36	2.8	0	35	Yes	<25	Nil
NM3	28/11/2017	23:51	2.7	0	35	Yes	<20	Nil
NM4	28/11/2017	20:56	0.8	0	NA	NA	22	NA
NM4	28/11/2017	21:14	1.6	0	NA	NA	27	NA
NM4	27/11/2017	22:03	2.7	0	NA	NA	<20	NA
NM4	27/11/2017	22:19	3.5	0	NA	NA	<20	NA
NM5	28/11/2017	19:28	1.4	0	35	Yes	IA	Nil
NM5	28/11/2017	19:44	1.3	0	35	Yes	IA	Nil
NM5	27/11/2017	23:31	1.9	0	35	Yes	<20	Nil
NM5	27/11/2017	23:47	1.6	0	35	Yes	<20	Nil
NM6	27/11/2017	20:15	2.4	0	35	Yes	<20	Nil
NM6	27/11/2017	20:31	2.2	0	35	Yes	<20	Nil
NM6	28/11/2017	22:51	3	0	35	Yes	<20	Nil
NM6	28/11/2017	23:07	2.7	0	35	Yes	<20	Nil

**Table 3 - December Noise Monitoring – Evening & Night Period**

		Time	Wind Speed m/s	Rainfall mm	Criterion dB <sup>3</sup>	Criterion Applies <sup>1</sup>	MCC LAeq dB <sup>2,4</sup>	Exceedance dB <sup>4,5</sup>
NM1	19/12/2017	19:20	2.9	0	35	Yes	IA	Nil
NM1	19/12/2017	19:36	2.5	0	35	Yes	IA	Nil
NM1	18/12/2017	22:40	1.5	0	35	Yes	IA	Nil
NM1	18/12/2017	22:55	2.7	0	35	Yes	IA	Nil
NM2	18/12/2017	20:25	0.5	0	39	Yes	IA	Nil
NM2	18/12/2017	20:41	0.2	0	39	Yes	IA	Nil
NM2	19/12/2017	22:00	0.4	0	39	Yes	IA	Nil
NM2	19/12/2017	22:15	0.6	0	39	Yes	IA	Nil
NM3	18/12/2017	18:59	3	0	35	Yes	IA	Nil
NM3	18/12/2017	19:15	2.9	0	35	Yes	IA	Nil
NM3	19/12/2017	23:22	0.5	0	35	Yes	IA	Nil
NM3	19/12/2017	23:37	0.3	0	35	Yes	IA	Nil
NM4	19/12/2017	20:03	1.1	0	NA	Yes	IA	NA
NM4	19/12/2017	20:20	0.8	0	NA	Yes	IA	NA
NM4	18/12/2017	23:23	3	0	NA	Yes	IA	NA
NM4	18/12/2017	23:39	3.2	0	NA	No	IA	NA
NM5	19/12/2017	18:42	3.4	0	35	No	IA	NA
NM5	19/12/2017	18:57	2.7	0	35	Yes	IA	Nil
NM5	18/12/2017	22:00	0.6	0	35	Yes	IA	Nil
NM5	18/12/2017	22:16	0.5	0	35	Yes	IA	Nil
NM6	18/12/2017	19:41	2.5	0	35	Yes	IA	Nil
NM6	18/12/2017	19:56	1.5	0	35	Yes	IA	Nil
NM6	19/12/2017	22:42	0.5	0	35	Yes	IA	Nil
NM6	19/12/2017	22:57	0.5	0	35	Yes	IA	Nil

- (1). Noise emission limits do not apply during periods of rainfall or winds greater than 3 metres per second (at a height of 10 metres);  
(2). Estimated or measured LAeq,15minute attributed to MCCP;  
(3). NM4 has been acquired by MCCP, therefore limits are no longer applicable as per the EPL and project approval. The NMP requires monitoring at this location and results have been provided for information only;  
(4). NA in exceedance column means criterion is not applicable, either due to atmospheric conditions outside those specified in project approval or due to property acquisition by MCCP; and  
(5). Bold results indicate exceedance of criterion.

None of the seventy-two measurements occurred during which operational activities from MCCP were directly measurable (not “inaudible”, “not measurable” or less than a maximum cut-off value of 30 dB), were within 5 dB of the relevant criterion and where meteorological conditions resulted in criteria applying (in accordance with the project approval). No further assessment has been undertaken.

In addition to the 15 minute average for Day, Evening and Night, the Maules Creek Coal (MCC) EPL 20221 also has a ‘1 Minute - Night’ criteria (LA1) that applies from 10pm to 7am Monday to Saturday & 10pm to 8am Sundays and Public Holidays. The results for the LA1 monitoring are shown below. The results show that mine operations did not exceed the applicable LA1 criteria during attended noise monitoring in Q4 2017.

**LA1, 1minute GENERATED BY MCC AGAINST OPERATIONAL EVENING NOISE CRITERIA – OCTOBER TO DECEMBER 2017.**

**Table 5 - October Noise Monitoring – Night**

L <sub>A1</sub> (1min)		October						
		Time	Wind Speed	Rainfall	Criterion	Criterion	MCC L <sub>A1</sub> (1min)	Exceedance
			m/s	mm	dB <sup>3</sup>	Applies <sup>1</sup>	dB <sup>2,4</sup>	dB <sup>4,5</sup>
NM1	9/10/2017	23:00	0.7	0	45	Yes	35	Nil
NM1	9/10/2017	23:30	0.5	0	45	Yes	34	Nil
NM2	10/10/2017	22:30	1.2	0	45	Yes	40	Nil
NM2	10/10/2017	22:45	1.4	0	45	Yes	38	Nil
NM3	11/10/2017	0:00	1	0	45	Yes	1A	Nil
NM3	11/10/2017	0:15	0.7	0	45	Yes	1A	Nil
NM4	9/10/2017	22:15	0.4	0	NA	Yes	<25	Nil
NM4	9/10/2017	22:30	0.6	0	NA	Yes	<25	Nil
NM5	10/10/2017	0:00	0.9	0	45	Yes	34	Nil
NM5	10/10/2017	0:15	0.8	0	45	Yes	36	Nil
NM6	10/10/2017	23:15	0.5	0	45	Yes	28	Nil
NM6	10/10/2017	23:30	0.5	0	45	Yes	29	Nil

**Table 6 - November Noise Monitoring – Night**

L <sub>A1</sub> (1min)		November						
		Time	Wind Speed	Rainfall	Criterion	Criterion	MCC L <sub>A1</sub> (1min)	Exceedance
			m/s	mm	dB <sup>3</sup>	Applies <sup>1</sup>	dB <sup>2,4</sup>	dB <sup>4,5</sup>
NM1	27/11/2017	22:49	3.1	0	45	No	1A	NA
NM1	27/11/2017	23:05	2.8	0	45	Yes	1A	Nil
NM2	28/11/2017	22:03	1.3	0	45	Yes	32	Nil
NM2	28/11/2017	22:20	1.8	0	45	Yes	28	Nil
NM3	28/11/2017	23:36	2.8	0	45	Yes	<25	Nil
NM3	28/11/2017	23:51	2.7	0	45	Yes	<25	Nil
NM4	27/11/2017	22:03	2.7	0	NA	NA	<20	NA
NM4	27/11/2017	22:19	3.5	0	NA	NA	<20	NA
NM5	27/11/2017	23:31	1.9	0	45	Yes	<20	Nil
NM5	27/11/2017	23:47	1.6	0	45	Yes	<20	Nil
NM6	28/11/2017	22:51	3	0	45	Yes	<20	Nil
NM6	28/11/2017	23:07	2.7	0	45	Yes	<25	Nil

**Table 7 - December Noise Monitoring – Night**

	L <sub>A1</sub> (1min)	December		Wind Speed	Rainfall	Criterion	Criterion Applies <sup>1</sup>	MCC L <sub>A1</sub> (1min)	Exceedance
		Time							
			m/s	mm	dB <sup>3</sup>			dB <sup>2,4</sup>	dB <sup>4,5</sup>
NM1	18/12/2017	22:40	1.5	0	45	Yes	IA	IA	Nil
NM1	18/12/2017	22:55	2.7	0	45	Yes	IA	IA	Nil
NM2	19/12/2017	22:00	0.4	0	45	Yes	IA	IA	Nil
NM2	19/12/2017	22:15	0.6	0	45	Yes	IA	IA	Nil
NM3	19/12/2017	23:22	0.5	0	45	Yes	IA	IA	Nil
NM3	19/12/2017	23:37	0.3	0	45	Yes	IA	IA	Nil
NM4	18/12/2017	23:23	3	0	NA	Yes	IA	IA	NA
NM4	18/12/2017	23:39	3.2	0	NA	No	IA	IA	NA
NM5	18/12/2017	22:00	0.6	0	45	Yes	IA	IA	Nil
NM5	18/12/2017	22:16	0.5	0	45	Yes	IA	IA	Nil
NM6	19/12/2017	22:42	0.5	0	45	Yes	IA	IA	Nil
NM6	19/12/2017	22:57	0.5	0	45	Yes	IA	IA	Nil

**Evening L<sub>Aeq</sub>15min Night L<sub>Aeq</sub>15min, Night L<sub>A1</sub>min**

**Notes:**

- Noise emission limits do not apply during periods of rainfall or wind speeds greater than 3 metres per second (at 10 metres);
  - Estimated or measured L<sub>Aeq</sub>15minute attributed to MCCM;
  - NM4 was acquired by MCCP, therefore criteria are no longer applicable as per the EPL and project approval. The NMP requires monitoring at this location and results have been provided for information purposes;
  - Estimated or measured L<sub>A1</sub>1minute attributed to MCCM;
  - NA in exceedance column means atmospheric conditions outside those specified in Project Approval and criterion is not applicable.
- IA – Inaudible  
NM – Not measurable

**Wind Direction during Attended Monitoring**

Wind direction data is collected from the MCCM Automated Weather Station (AWS). Wind data for the duration of the attended monitoring assessment, recorded at the MCCM AWS is presented in the table below.

**Table 8 - Prevailing Wind Direction**

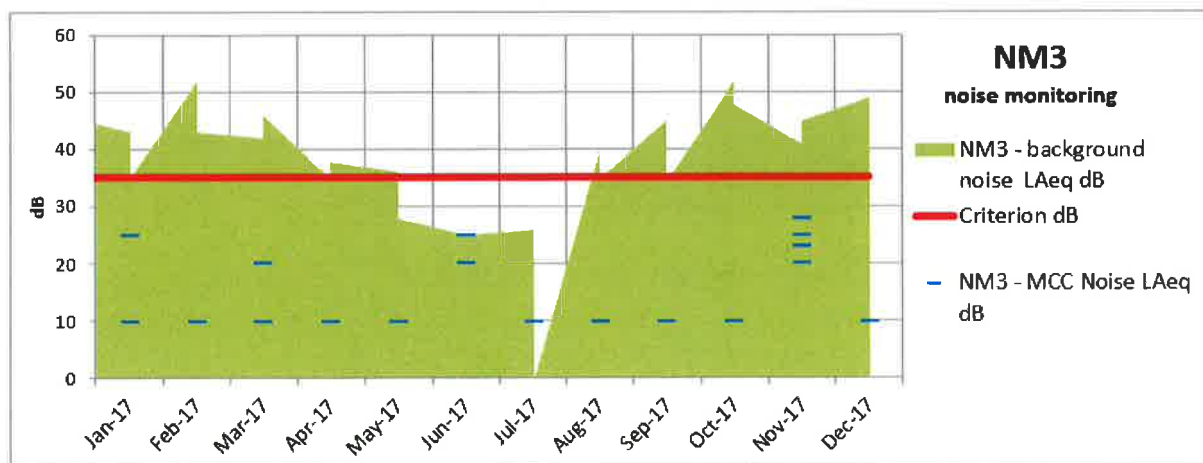
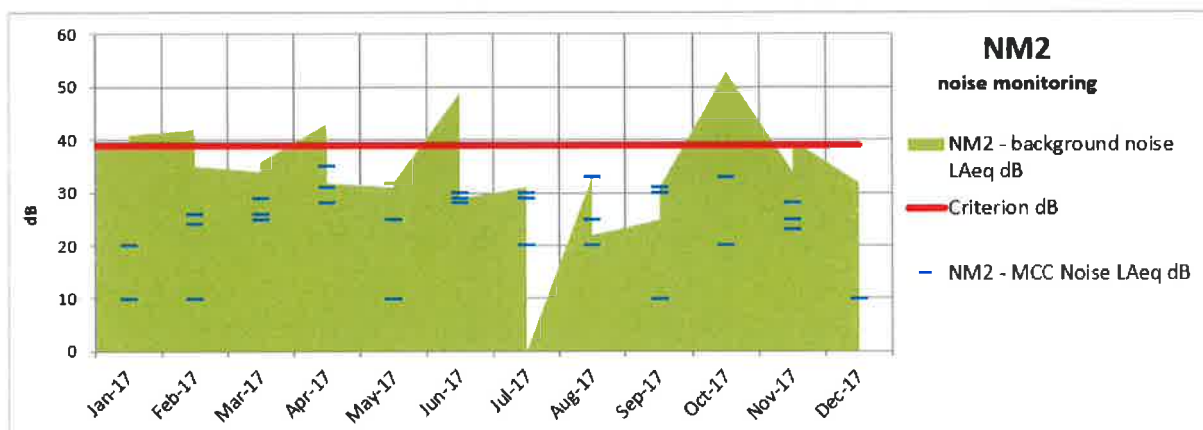
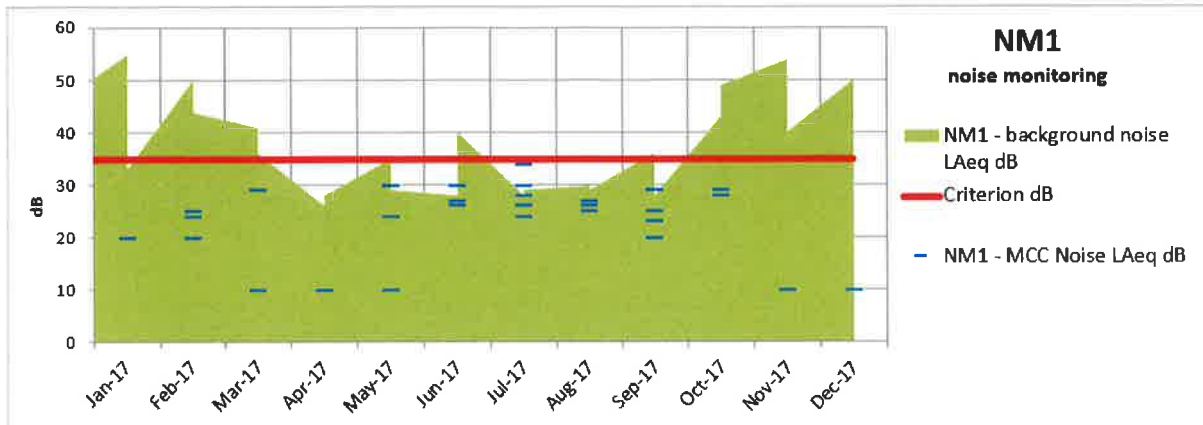
Monitoring Date	Prevailing Wind Direction
9/10 October	SE
10/11 October	SSE, SW
27 November	SE
28 November	ENE, S
18 December	WNW, W, E
19 December	NW

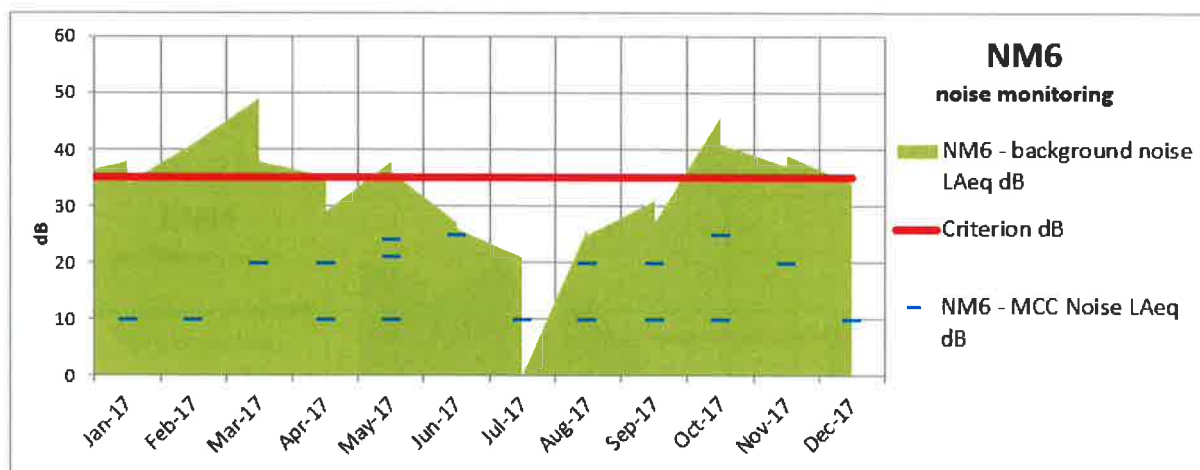
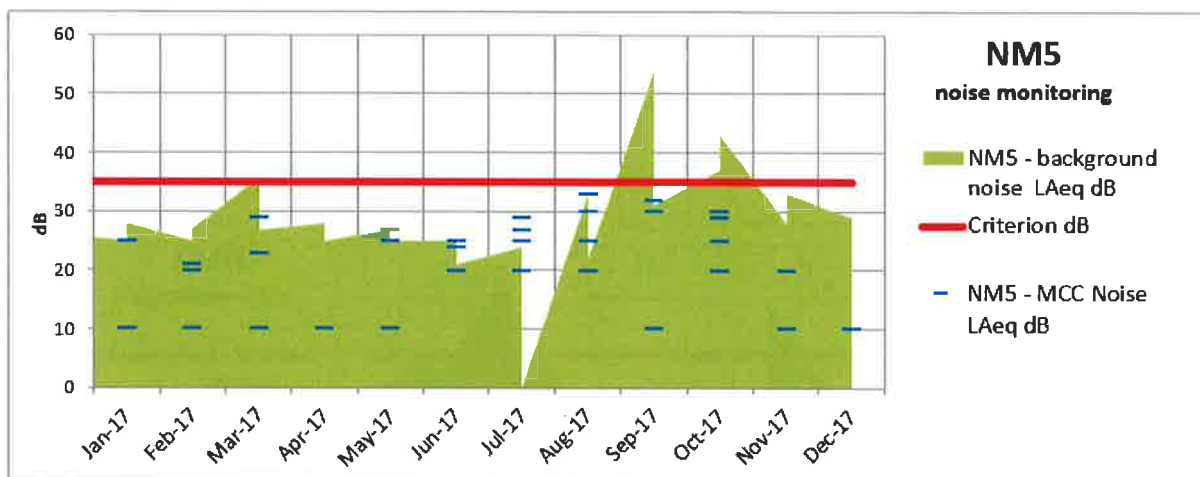
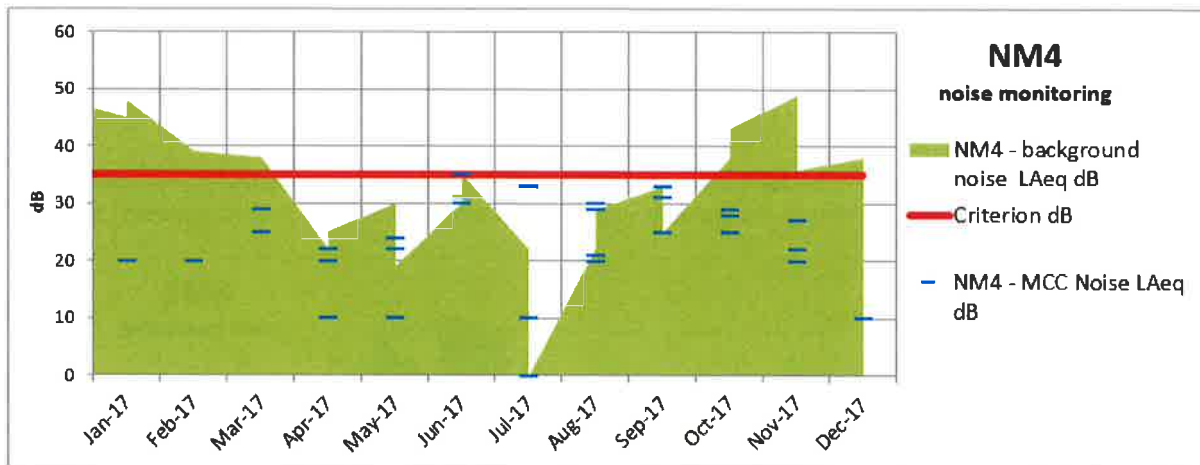


### Attended Noise Monitoring

The following six (6) figures show the 'attended' noise monitoring results recorded over the last twelve (12) months.

Green shading shows the LAeq 15 minute background noise, the blue dash is the portion of the LAeq 15 minute considered likely attributable to MCCM according to the acoustic engineer and the red line is the Project Approval criteria.





### Blast Monitoring

There have been 29 blasts at MCCM during Q4 2017.

All blast monitoring results recorded within the reporting period have been within the applicable overpressure and ground vibration limits specified in the respective approvals.

**Table 9 - Blast Results Summary Quarter 4 2017**

Parameter	Units	Frequency	Number	Average	Max	100% Limit	Exceedance (Yes / No)
Noise	dB (Lin Peak)	All	29	92.4	108.8	120	No
Vibration	mm/s		29	0.24	0.72	10	No

### Air Quality

#### **Total Depositional Dust**

**Table 10 - Deposited Dust Monitoring Results\***

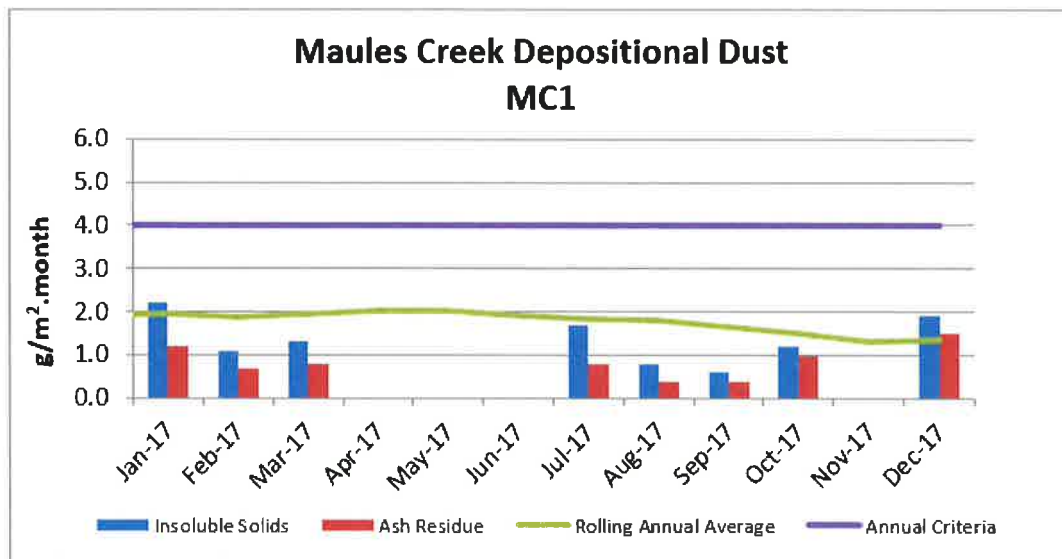
Month	MC1	MC2	MC3	MC4
Jan-17	2.2	2.1	0.7	0.8
Feb-17	1.1	1.4	1.2	1.5
Mar-17	1.3	1.8	2.8	2.0
Apr-17			1.9	1.4
May-17		3.7	1.5	1.1
Jun-17		1.1	1.3	1.3
Jul-17	1.7	0.7	20.2 <sup>#</sup>	1.3
Aug-17	0.8	1.6	3.2	0.9
Sep-17	0.6	3.0	1.9	1.9
Oct-17	1.2	2.2	1.9	1.9
Nov-17		2.6	1.4	1.2
Dec-17	1.9		0.8	2.4
<b>Annual Avg</b>	<b>1.4</b>	<b>2.0</b>	<b>3.2</b>	<b>1.5</b>
<b>Project Avg 2010 - 2017</b>	<b>2.08</b>	<b>2.17</b>	<b>1.77</b>	<b>1.33</b>

\* Blank cells indicate sample periods where the sample has been contaminated and excluded from the results tables due to contaminated material (insect larvae, bird droppings, vegetation etc.).

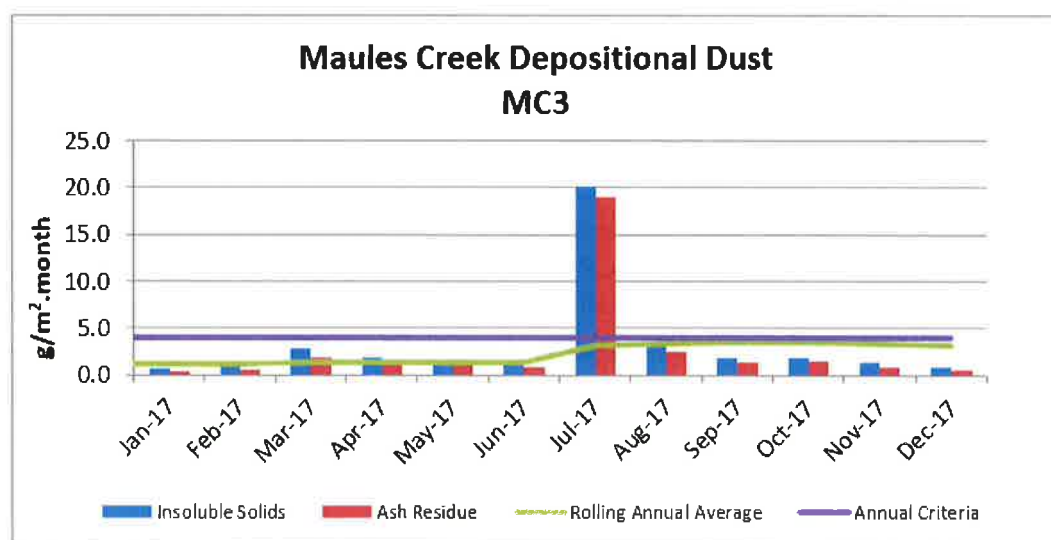
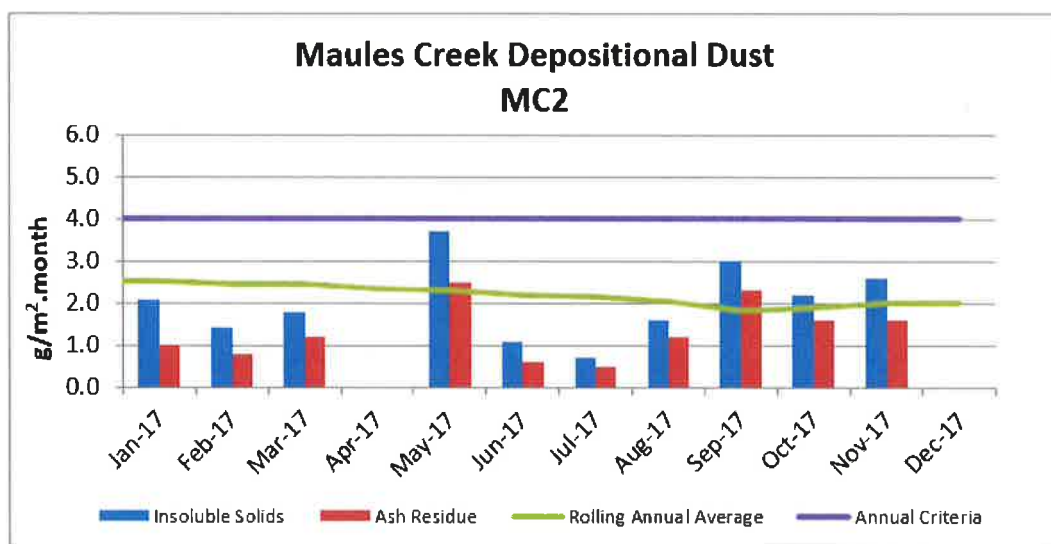
# Investigation notes the result is inconsistent with historical monitoring results at both MC3 and other air quality monitoring locations closer to the operation and unlikely to be attributable to MCCM.

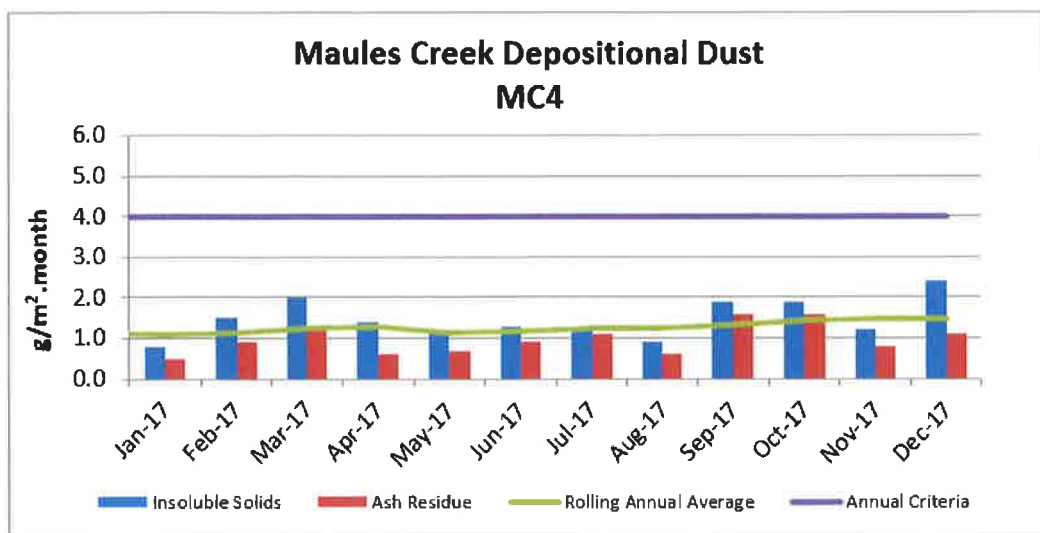
The monthly rolling annual average remains below the relevant Project Approval criteria of 4gm/m<sup>2</sup>/month for the respective monitoring points, as shown on the graphs below. It is noted at point MC3 an elevated result was recorded in July. Following investigation, this result is inconsistent with historical monitoring results for both MC3 and other monitoring locations closer to the operation and therefore unlikely to be attributable to MCCM.

**Deposited Dust Monitoring Figures (MC1 – MC4)**



*Note: The MC1 dust gauge was contaminated with insect larvae and bird droppings during all monitoring periods of Q2 2017.*

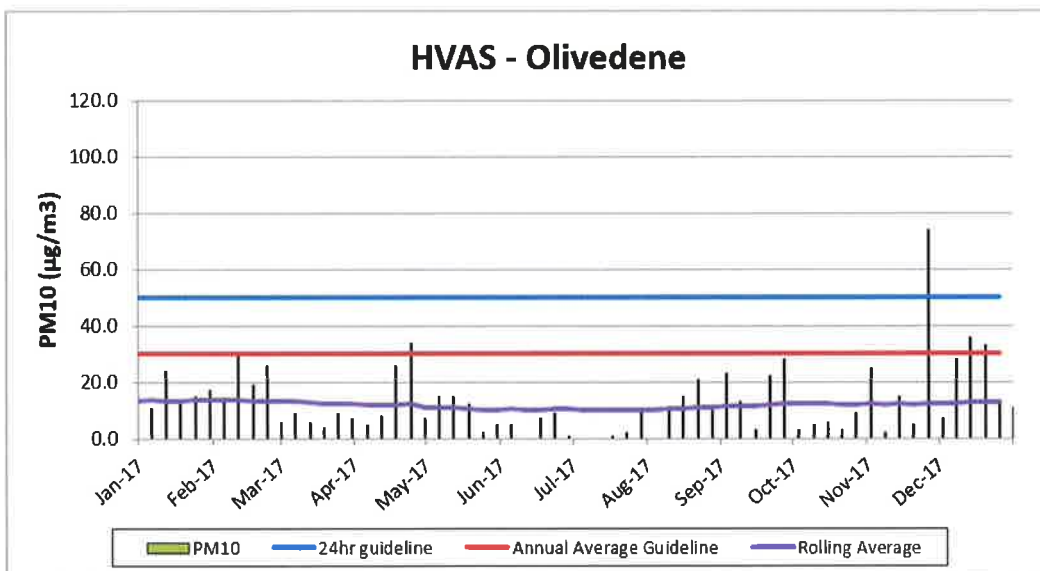




#### High Volume Air Sampling (HVAS)

The HVAS monitor is located on the property 'Olivedene,' a mine owned property on Therribri Road.

HVAS PM<sub>10</sub> Rolling Annual Average during Q4 2017 remained well below the Annual Average Guideline 30 µg/m<sup>3</sup>.

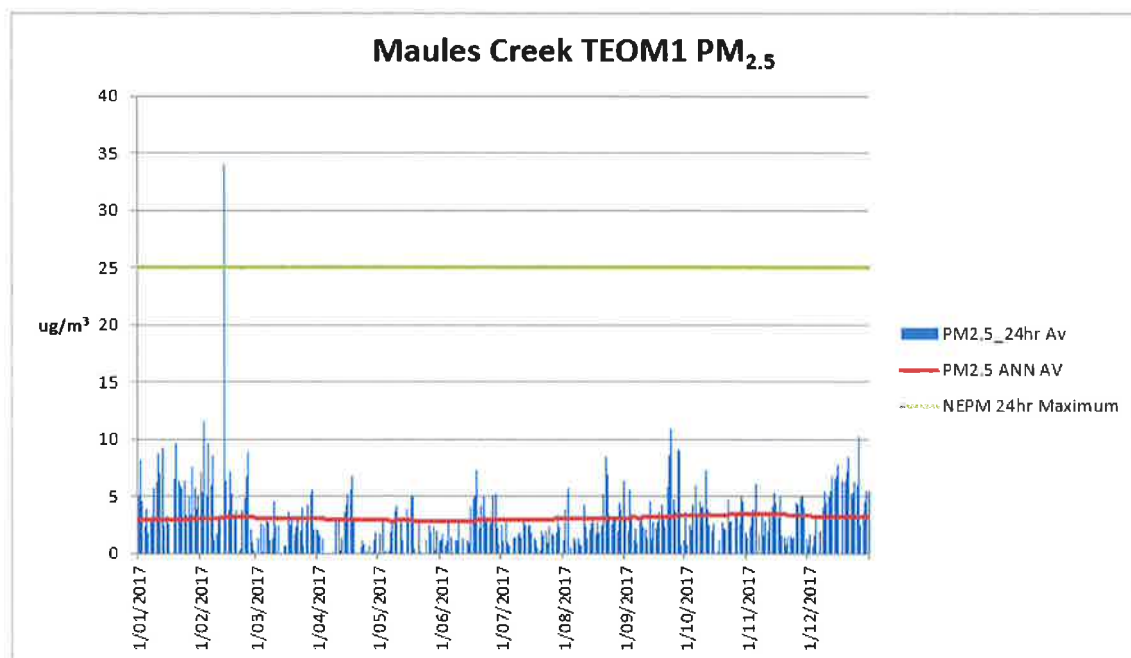
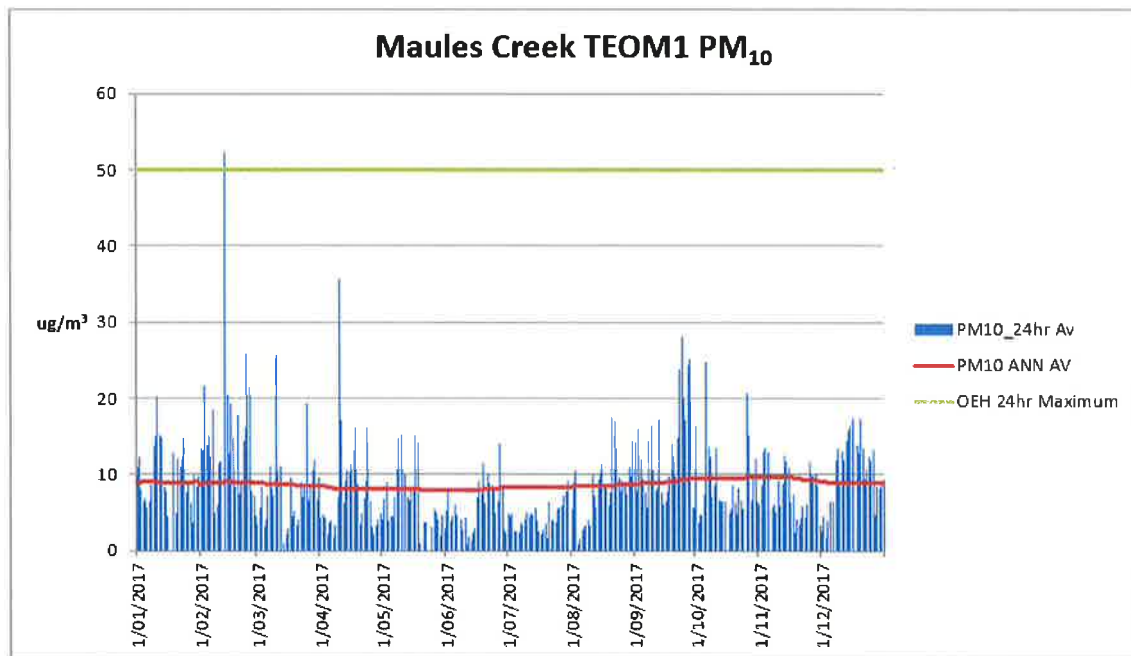


### TEOM - PM<sub>10</sub> Results

The annual average for PM<sub>10</sub> results at the Maules Creek Coal TEOM remain significantly below the Project Approval annual average criteria of 30.0µg/m<sup>3</sup> (at 31 December 2017) as shown in the following figure. The PM<sub>10</sub> average results have remained below this criteria since the TEOM was commissioned in November 2011.

Elevated PM<sub>10</sub> and PM<sub>2.5</sub> results recorded by the TEOM on the 13<sup>th</sup> February 2017 were caused by a bushfire event in the local area. The elevated PM<sub>10</sub> result on the 10<sup>th</sup> April 2017 was caused by an interstate dust storm event.

### TEOM Result Figures – Particulate Matter PM<sub>10</sub>µg/m<sup>3</sup> and PM<sub>2.5</sub>µg/m<sup>3</sup>



## Water Monitoring

### Groundwater

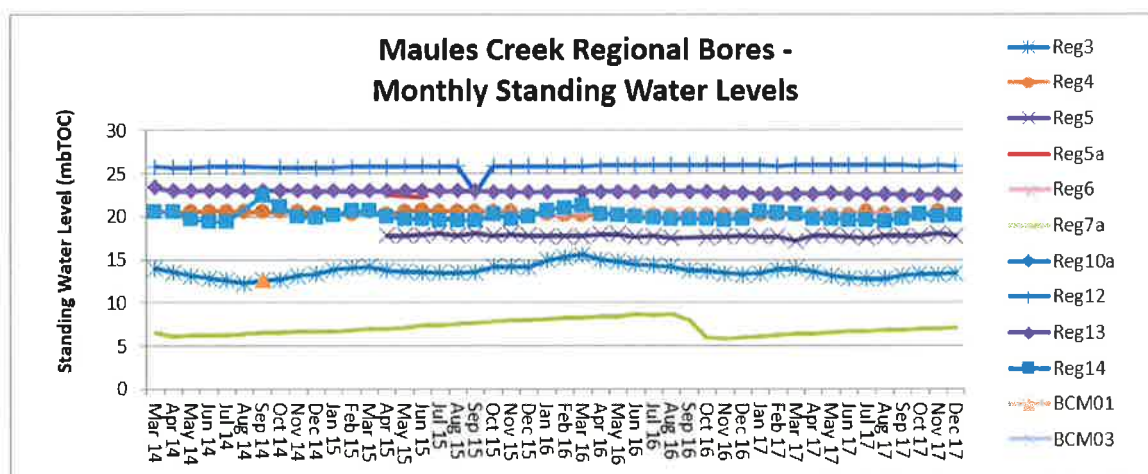
Groundwater monitoring results in open / standpipe piezometers show levels to be currently stable. 'RB' and 'Reg' series bores were installed between Q4 2013 and Q1 2014. BCM01, BCM03, Reg10 are shallow bores which have remained dry since construction in 2013.

**Table 11 - Groundwater Level**

SWL	RB01a	RB02a	RB05a	Reg3	Reg4	Reg5	Reg5a	Reg6	Reg7a	Reg10a	Reg12	Reg13	Reg14	BCM01	BCM03
Jan-17	166.82	138.70	58.07	13.43	20.10	17.65		20.24	6.06		25.9	22.64	20.53		
Feb-17	166.36	138.38	58.59	13.82	20.10	17.64		20.27	6.25		25.88	22.62	20.43		
Mar-17	*	*	59.05	13.91	20.14	17.14		20.3	6.34		25.91	22.6	20.23		
Apr-17	*	*	58.69	13.58	20.16	17.71		20.32	6.45		25.92	22.64	19.7		
May-17	*	*	59.24	13.11	20.19	17.76		20.32	6.61		25.93	22.66	19.72		
Jun-17	*	*	56.86	12.87	20.17	17.68		20.23	6.66		25.89	22.61	19.56		
Jul-17	*	*	59.37	12.78	20.51	17.52		20.19	6.72		25.91	22.52	19.49		
Aug-17	*	*	59.56	12.75	20.22	17.70		20.19	6.8		25.93	22.61	19.42		
Sep-17	*	*	59.22	13.11	20.17	17.73		20.27	6.81		25.9	22.48	19.77		
Oct-17	*	*	59.47	13.35	20.15	17.70		20.23	6.93		25.86	22.49	20.333		
Nov-17	*	*	60.22	13.26	20.59	17.98		20.29	7.01		25.89	22.54	19.97		
Dec-17	*	*	60.58	13.38	20.15	17.70		20.3	7.18		25.84	22.42	20.15		

Blank cells indicate sample periods where bores were dry.

\*Bore decommissioned due to progression of mining area



### Acidity / Alkalinity (pH)

Baseline groundwater conditions are still being established, however, 2 bores (Reg4 and Reg13) show elevated pH levels (above pH 8.5) this has been determined to be as a result of low recharge volumes within these bores since installation.

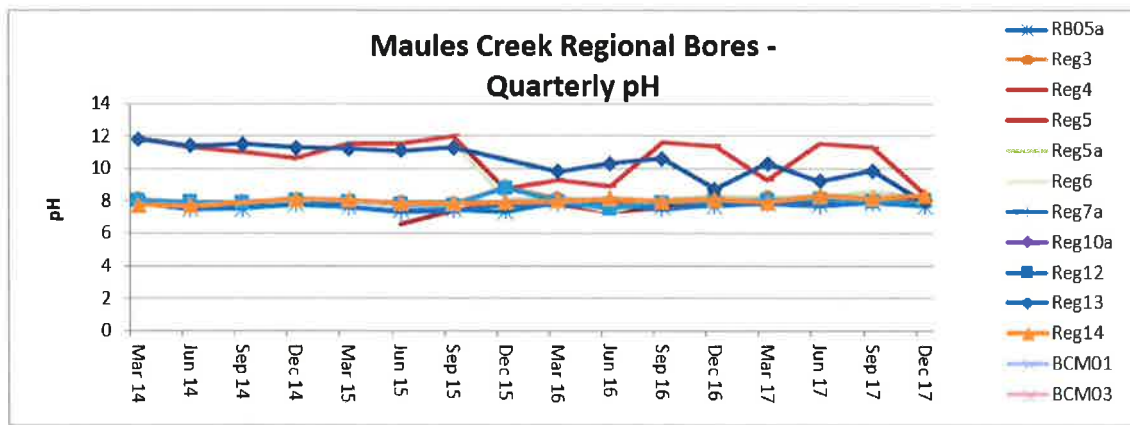
**Table 12 - Groundwater Results pH**

pH	RB01a	RB02a	RB05a	Reg3	Reg4	Reg5	Reg5a	Reg6	Reg7a	Reg10a	Reg12	Reg13	Reg14	BCM01	BCM03
Mar-17	*	*	7.89	8.17	9.26	7.97		8.23	7.81		8.05	10.3	7.88		
Jun-17	*	*	7.83	8.18	11.5	7.88		8.32	7.67		8.08	9.21	8.34		
Sep-17	*	*	7.89	8.12	11.3	8.12		8.58	7.92		7.96	9.85	8.15		
Dec-17	*	*	7.66	8.1	8.43	8.09		8.25	7.74		7.93	7.94	8.34		

Blank cells indicate sample periods where bores were dry.

\*Bore decommissioned due to progression of mining area





### Electrical Conductivity

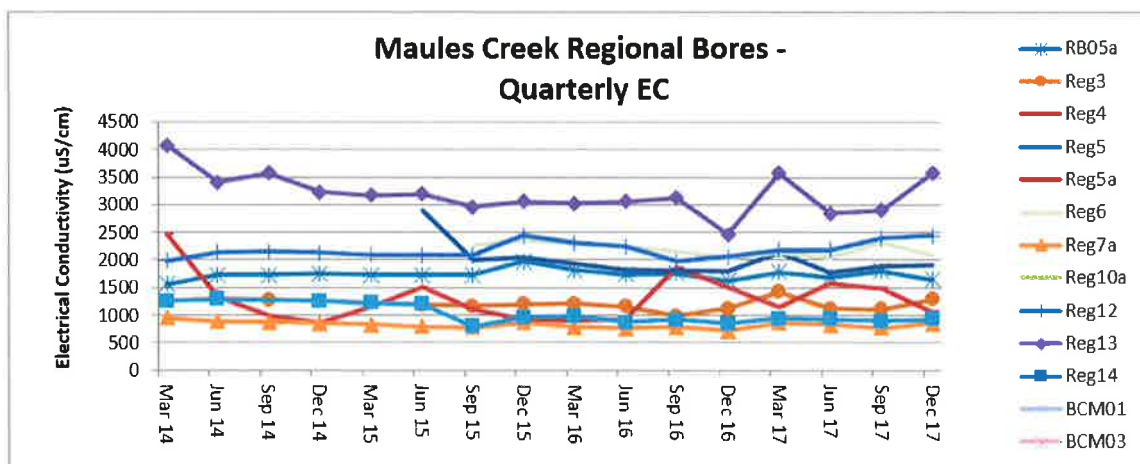
Laboratory Electrical Conductivity (EC) levels are all within historic groundwater EC range of 500 $\mu$ S/cm to 2,500 $\mu$ S/cm, with the exception of monitoring bore Reg13 which has a historic groundwater EC range of 2,000 $\mu$ S/cm to 4,700 $\mu$ S/cm.

**Table 13 – Groundwater Results EC**

EC	RB01a	RB02a	RB05a	Reg3	Reg4	Reg5	Reg5a	Reg6	Reg7a	Reg10a	Reg12	Reg13	Reg14	BCM01	BCM03
Mar-17	*	*	1780	1420	1140	2130		2140	860		2190	3570	938		
Jun-17	*	*	1690	1120	1580	1780		2050	833		2190	2850	935		
Sep-17	*	*	1800	1110	1490	1890		2320	774		2400	2900	893		
Dec-17	*	*	1650	1290	1060	1900		2090	850		2440	3570	928		

Blank cells indicate sample periods where bores were dry.

\*Bore decommissioned due to progression of mining area



### Wet Weather Discharge Sampling

Between 1<sup>st</sup> October and 31<sup>st</sup> December 2017, Maules Creek Coal AWS recorded 206.6mm of rainfall. There was one rainfall event that exceeded the 38.4mm value over a consecutive 5 day period during 16-20 November where 64.4mm of rain fell over the five days. There were no wet weather discharge events during Q4 2017 and therefore conditions L2.4 and L2.5 of EPL20221 were not triggered for this quarter.

*Note: As per wording of condition L2.5 of EPL20221, 38.4mm equates to the 5 day 90 percentile rainfall for the Gunnedah region.*



## Surface Water – Creeks and Rivers

Routine surface water monitoring is conducted in surrounding creeks and rivers on a monthly basis. Results for parameters including pH, EC and Total Suspended Solids (TSS) are shown in the tables and figures below.

### Acidity / Alkalinity (pH)

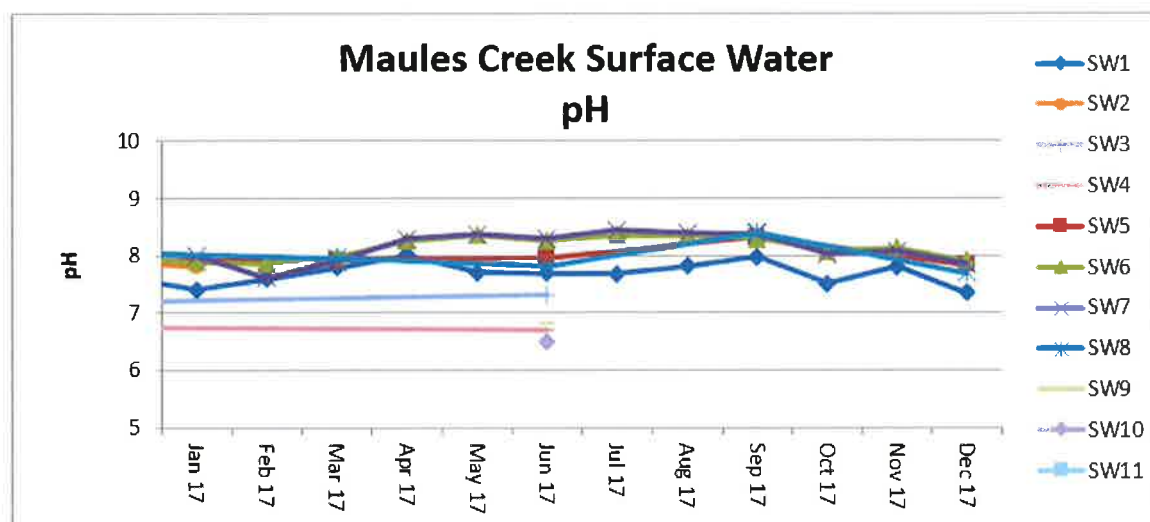
Monitoring results for pH in creeks and rivers surrounding MCCM are all trending within the ANZECC acceptable range for Irrigation, Ecosystem Health and Recreation.

**Table 14 – Surface Water Results pH**

Lab pH	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8	SW9	SW10	SW11
Jan-17	7.41	7.82				7.89	8				
Feb-17	7.6					7.86	7.62				
Mar-17	7.79				7.93	7.99	7.9	7.96			
Apr-17	8.01					8.26	8.3				
May-17	7.7					8.36	8.37				
Jun-17	7.69		7.31	6.69	7.95	8.26	8.3	7.81	6.81	6.49	
Jul-17	7.68					8.36	8.44				
Aug-17	7.81					8.35	8.39				
Sep-17	7.98				8.32	8.29	8.38	8.41			
Oct-17	7.51					8.08	8.03				
Nov-17	7.8					8.14	8.07				
Dec-17	7.35				7.84	7.91	7.85	7.69			

Blank cells indicate sample periods where waterways were dry.

\*Too wet to access monitoring locations



### Electrical Conductivity

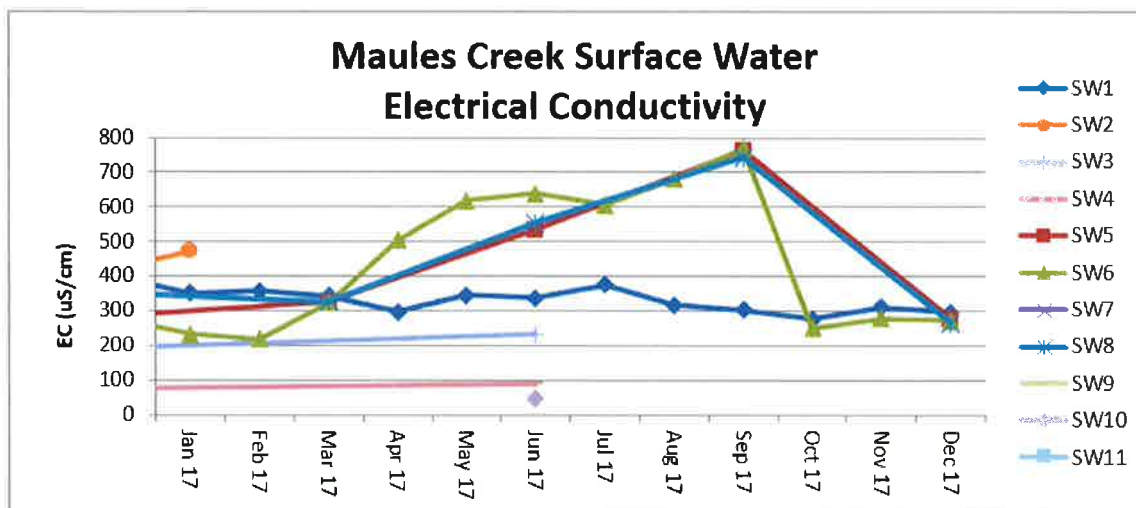
Surface water EC trends have remained consistent with SW5, SW6, SW7 and SW8 all historically variable. SW5, SW6, SW7 and SW8 are points along the Namoi River which is subject to regulated and variable flow regimes.

**Table 15 – Surface Water Results EC**

Lab EC	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8	SW9	SW10	SW11
Jan-17	351	472				233	143				
Feb-17	357					218	222				
Mar-17	343				325	322	324	328			
Apr-17	297					503	511				
May-17	345					618	611				
Jun-17	337		232	89	534	639	649	554	40	46	
Jul-17	375					607	612				
Aug-17	317					681	685				
Sep-17	303				763	769	766	742			
Oct-17	277					250	250				
Nov-17	310					278	269				
Dec-17	297				276	273	260	265			

Blank cells indicate sample periods where waterways were dry.

\*Too wet to access monitoring locations



### Total Suspended Solids (TSS)

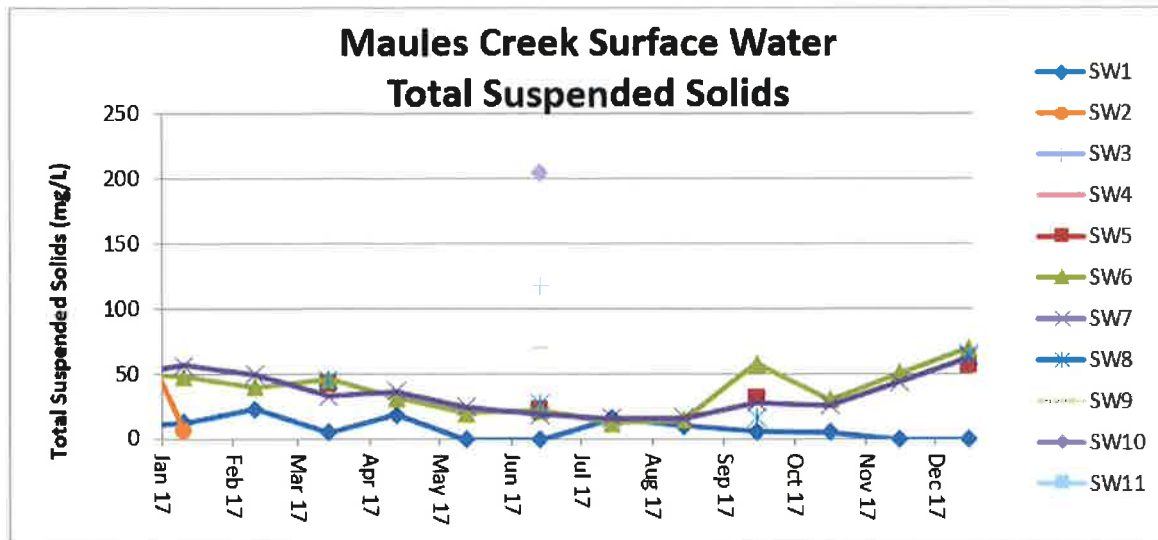
Surface water TSS trends have remained generally consistent with historical results. SW5, SW6, SW7 and SW8 are historically variable as they are located along the Namoi River which is subject to regulated and variable flow regimes. A rainfall event in June 2017 enabled sampling at sites along Back Creek which is ephemeral and generally dry.

**Table 16 – Surface Water Results TSS**

TSS	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8	SW9	SW10	SW11
Jan-17	13	7				48	57				
Feb-17	23					40	50				
Mar-17	5				42	46	33	46			
Apr-17	19					32	37				
May-17	<5					20	25				
Jun-17	<5		118	26	23	22	19	27	70	205	
Jul-17	16					12	16				
Aug-17	10					15	16				
Sep-17	6				32	58	28	16			
Oct-17	5					30	26				
Nov-17	<5					51	44				
Dec-17	<5				57	70	63	65			

Blank cells indicate sample periods where waterways were dry.

\*Too wet to access monitoring locations



### Rehabilitation

No final landform areas are available for rehabilitation since the commencement of mining in August 2014. This work will commence in 2018.

### Feral Animal Management

During the most recent routine Whitehaven Offset Area Feral Animal Control program, the results were:

- 51 Pigs in total and 27 from the Maules Creek area; and
- 100 foxes and 2 wild dogs controlled.

### Weed Management

Weed spraying has focused on the revegetation areas including the control of broadleaf weeds and Green Cestrum.

### Community Complaints

13 complaints were received during Q4 2017. Please refer to the Community Complaints Register published on the Whitehaven Coal Maules Creek website.

