Coal & Allied – Mount Thorley Warkworth Operations

Community Consultative Committee Meeting – Monday 9 May 2106

Attendance

Chairperson	
Colin Gellatly	Independent Chair MTW CCC
Company Representatives	
Mark Rodgers	General Manager Operations – MTW
Travis Bates	Specialist, Community Relations
Andrew Speechly	Manager Environment & Community (HVO/MTW)
Community Representatives	
Stewart Mitchell	Community Representative
Ian Hedley	Community Representative
Christina Metlikovec	Community Representative
Graeme O'Brien	Community Representative
Adrian Gallagher	Community Representative
Council	
Cr. Sue Moore	Singleton Council Representative
Observers / Presenters	
Robert Gothard	Environmental Advisor – MTW / CCC Secretary
Gerard Gleeson	Environmental Specialist – Systems & Monitoring
By Invitation	
Mitchell Bennett	Head Regional Operations Unit – NSW EPA
Emma Coombs	Regional Operations Officer – NSW EPA
Apologies	
Chris Knight	Department of Planning & Environment (DP&E)
Minutes	Sarah Purser - e) sarah.purser@bigpond.com

1. **Welcome;** Col welcomed members and Mitchell & Emma from the EPA who were in attendance to present the Hunter Valley Air Quality Optimisation project to the CCC.

2. **Apologies;** Advised and recorded.

3. **Declaration of Pecuniary Interests / Conflict of Interest;** Ongoing; Col advised that both he and Sarah are engaged by Coal & Allied to provide the roles of independent Chairperson and meeting note taking.

8.2 Focus Topic: Air Quality Optimisation

Mitchell Bennett & Emma Coombs

Head Regional Operations Unit – NSW EPA

Mine-site Air Quality Monitoring Optimisation (AQMO)

Emma thanked the CCC for the opportunity to provide background detail at start up regarding what the EPA are proposing in relation to Air Quality Monitoring Optimisation (AQMO) and to provide an opportunity to work through member questions and/or clarify what the EPA is proposing for this mine.

Upper Hunter Air Quality Monitoring Network (UHAQMN)

Emma understands that many people are aware of the UHAQMN which was established to provide reliable and relevant air quality measurements across the Hunter Valley. The UHAQMN allows access to information on changes in air quality. This Air Quality Monitoring Network has been operating in Muswellbrook and Singleton since 2010; the remaining monitoring sites were established between March 2011 and February 2012 and have been operating continuously since.

UHAQMN's Purpose:-

- ✓ To get monitoring into population centres e.g. Singleton & Muswellbrook, along with the smaller population areas such Camberwell, Mason Dieu and Warkworth, to analyse dust levels near mines and other sources in the northern and southern areas of the Upper Hunter Region.
- ✓ To specifically provide useful real time continuous information on PM_{10} levels at all of those sites and this data is available on the EPA's website.
- ✓ To provide good information to analyse dust movement and generation throughout the Valley.

The Upper Hunter Air Quality Monitoring Network (UHAQMN) Advisory Committee, the EPA and Planning are reviewing existing monitoring with each mine that contributes to the funding of the UHAQMN. A memorandum of understanding has been signed regarding the establishment of this network and the current undertaking is to see how existing monitoring would fit in with that network.

PRINCIPLES

- ➢ Use UHAQMN for receiver monitoring to represent ambient air quality conditions around mines.
- ➢ Use mine monitoring for emissions from individual mines.
- ➢ Relocate mine-operated real time monitors closer into each pit to give a better understanding of what is coming in and going out of each mine site.
- ➢ Focusing mine monitoring on continuous PM_{10} and on predominant wind directions (north-west and south-east) airflow.

APPLICATION

- ✓ Recordings from upwind versus downwind can be assessed to ascertain the differential contribution from each mine.
- ✓ Comparison between each mine site will provide a guide for regulatory efforts.

Emma advised that once the Air Quality Monitoring Optimisation (AQMO) project is set up with all the mines, the EPA will use adverse air quality days (based on PM_{10} concentrations in Singleton and Muswellbrook), and will contact relevant mines and request data from their surrounding monitoring. This will help to identify the most likely source and guide EPA's response e.g. to work more closely with a particular mine.

BENEFITS

- ✓ Integrates with UHAQMN, removing duplication of monitoring effort;
- ✓ Provides real-time continuous data, which is more valuable than Dust Depositional & High Volume Air Sampler methods, as these measurements are only collected on a monthly (depositional dust) and 6-day (High Volume Air Sampler) basis.
- ✓ More cost effective across the entire industry.
- ✓ Mines will be held more accountable for upwind and downwind, than for ambient monitoring results.

CONSULTATION

- ✓ Upper Hunter Air Quality Advisory Committee & Department of Planning & Environment; there has been positive response received from Department of Planning and UHAAC.
- ✓ Mines; are all on board and the EPA is talking to individual mines regarding suitable monitoring locations to satisfy the project outcomes.
- ✓ Community Consultative Committees; part of the consultation process is for the EPA to inform the community what they are proposing and why, and provide an opportunity for committee members to provide feedback.

Graeme asked if the monitoring results will be available in real time? Emma advised not at this stage, results will be reported monthly as is the current practice for individual mines now. The EPA is able to get information straight away through the Environmental Protection Licence and would therefore be able to get data in response to complaints. The UHAQMN will remain real time.

Graeme feels it is unfair to wait for one month for monitoring results and asked how was that time frame decided? Emma responded that monthly reporting is a current requirement for all mines, so the EPA kept in line with that, she was happy to take Graeme's feedback on board.

Ian advised that his business is located next door to MTW in the Mount Thorley Industrial Estate and feels that at the end of a monthly reporting period, it would be too late for the EPA to take any action. Ian gave the example of the weekend 7th and 8th of May where there had been very light rain.

When Ian arrived at work on the 9th he found equipment that had been painted and was ready to ship covered in dust. Ian advised that this had resulted in him having to pay someone to clean this gear and showed members photographs capturing this issue, in addition, photos showing the state of car windscreens on Sunday the 8th.

At the end of a monthly reporting period, Ian believes this issue would be done and dusted as the equipment would have been already shipped to his customer. Ian said that a problem like this one he had experienced needs to be reported and actioned immediately and that being put in that position was not fair.

The way the EPA sees it, is that once the new monitoring is up and running, they will look at days when high numbers are recorded. The EPA can then use upward and downward monitoring to ascertain if dust is coming from a particular mine or if it is accumulation, so the concerns such as Ian raised can be minimised. Ian remained concerned that if data is not available immediately or there is the need to look back, as he is not sure if this detail would then make a difference as to what was experienced at the time and it would be too late.

The EPA advised the aim is to get monitoring back in close to the mining operations and to be more reactive and responsive, rather than address these issues at an Upper Hunter wide level. Whilst the reporting requirement is for this information to be published monthly, the EPA can request this data immediately if they are seeing a concern.

Col asked if this new monitoring would show dust going into the Mount Thorley Industrial Estate and Ian confirmed there is currently some monitoring at the MTIE. Gerard advised that he will speak on the proposed monitoring points and thanked Emma and Mitchell for their presentation.

What Air Quality Monitoring Optimisation means to MTW

Gerard advised that the implementation of the Air Quality Optimisation project would represent a step change in monitoring effort, removing the need for mines to operate receptor based monitoring and implementing a network of near-field monitors, aligned to prevailing wind conditions.

Gerard explained that over the whole of the Valley there is a lot of duplication in monitoring effort, and thus the proposal to introduce real time monitoring closer to mine site boundaries would allow for relocation of some of this duplicated effort, and the commencement of data collection aligned with the principles of the EPA project. Ian questioned the trigger value for action for monitors established under the optimisation project. Gerard said that it is not so much about numbers themselves, but rather the measurements in the context of the region, particularly the results of monitoring upwind of the mine of interest on the day.

Air Quality Monitor Optimisation – MTW

- Discussions with EPA commenced in 2015 to determine the requirements for monitor re-location / establishment;

- Draft licence variations (WML / MTO) are currently under consideration;

- MTW proposes monitoring at five locations; (1) At the northern end of the Warkworth Mine (this monitor will act as the upwind data point under prevailing north westerly winds, and as the downwind monitor under prevailing south easterly winds); (2) immediately to the west of the Industrial Estate primarily to catch the north-west influence that comes through later in the year; (3 & 4) a heavy focus on the Putty Road as there are separate Environment Protection Licences in place for the Warkworth and Mount Thorley mines, and (5) looking at a data share or adjacent placement of a unit down on the MTO / Bulga Coal boundary.

- This network then dovetails into Hunter Valley Operations monitoring further north i.e. upwind.

- The existing (MTW operated) TEOM network is to be reviewed following confirmation of monitoring locations and DP&E requirements. Gerard explained that work is currently underway to source real-time access to the Bulga monitor operated through the UHAQMN. Once established, this could allow for relocation of MTW's existing TEOM located near the Bulga Bridge.

  Gerard advised that decisions on monitor relocations had not been finalised and that further consultation with the CCC would occur as the project develops.

Where to from here:-

- MTW will put forward their formal response to the EPA on the Draft Licence Variations, these relate to the nuts and bolts of methodology, physical locations and types of monitors.

- When agreed, these monitoring locations will then be placed on MTW's Environmental Protection Licences (EPL's) as licenced monitoring locations.

- MTW will await further guidance from the EPA with regard to the use of monitoring data and the next steps in the process.

- The NSW Department of Planning & Environment is a significant stakeholder in this process, as approval instruments contain requirements for real time monitoring, particularly receptor based monitoring. DP&E have shown their support for the AQMO and are currently working to understand the consent machinations which must be worked through to enable the optimisation project to proceed without conflicting with the requirements of any development consent. MTW awaits feedback from the Department on this.

Ian noted that there are two monitors proposed for Putty Road and thinks these are located in good areas as he passes through dust regularly there and therefore is interested in those. Ian's understanding is that the License says that dust cannot leave the Pit and asked if this was vice versa i.e. to either side of the road and would that be a breach of these conditions? Gerard advised there is no wording that the mine cannot have dust leave and Mitchell confirmed that the License requirement is that emissions of dust be minimal as when each mine is approved some dust will be emitted from each premise.

What the EPA are trying to achieve with the new monitoring is that if there is a bad day with a lot of dust landing on monitors, the EPA want to be able to track back and find out where it came from. In the past monitoring provided detail on how much dust there was but often it could not be ascertained where the dust was coming from i.e. it could be this mine, or that mine, or a combination.

The EPA can then ascertain if there needs to be a reduction from multiple mines or one particular mine and they hope the new monitoring will deliver this, as at the moment there is duplication with neighbouring properties monitoring the same thing.

Ian queried if other monitors are going to be removed? The EPA responded that the AQMO will remove the requirements for the mines operation of some other monitors and that the UHAQMN will stay as it is online and real time and there is the functionality to sign up for email alerts.

Graeme agreed that when raising a dust concern he feels the mines are good at attributing this to their neighbours and is hopeful the AQMO will be an improvement. The EPA confirmed Graeme's example is exactly what this new monitoring is about; to stop everyone blaming each other and to create an even playing field.

Graeme asked if there is monitoring for properties west, north-west of MTW? Gerard queried if this is for Wambo and advised the only monitor there is in Warkworth Village. Graeme clarified he was interested in further south west of Warkworth Village and Gerard advised that at present MTW does not undertake any monitoring in that area, as most of the properties are mine-owned. Gerard explained that the point was taken however, noting that while the UHAQMN provides robust monitoring in a number of community areas across the Upper Hunter, there are other pockets of residences which are not located nearby to a UHAQMN monitor, and these may need existing mine-operated monitoring to be retained. Under these circumstances, input from DP&E would be required. Gerard advised that this is not necessarily a process of getting rid of the existing real-time monitors and bringing in the new, some real time monitoring may be required to remain at residences and explained that it is a bit too premature to be having discussions on particular cases.

Ian is concerned that not all dust is at ground level and the worst scenario for Bulga is the dust from a blast that goes up and then comes down. Gerard confirmed the UHAQMN would provide alerts for this and acknowledged that there are a myriad of scenarios to be taken into consideration.

Graeme advised that near the underpass on the Putty Road there is an area at height where he has seen trucks dumping which had resulted in dust going everywhere and queried what the height there is up to, he said this is very obvious when driving out of town. ***Graeme also questioned if there was monitoring for vineyards to the south-east?***

Gerard hopes the boundary units would capture any Bulga concerns and there would also be an upward and downward requirement, at this stage MTW are having an opportunity to provide their thoughts on the proposed monitoring.

Graeme asked if the Bulga Bridge monitoring location measures does both noise and dust? Gerard confirmed this is correct. Graeme felt the view was that this monitor is not measuring sound efficiently at the moment as it is down in a hollow at the Wollombi Brook end and Gerard advised he could look at that barnowl in that context.

If discussing TEOM sites, MTW would look at if there was the need to keep anything in place there. Gerard advised that consideration had not been given to that monitor at Bulga Bridge as yet so is open to discussion. Graeme feels if an area can be found to monitor for dust that gives more accurate readings he would be comfortable with MTW moving it, alternatively to have two monitors.

It was questioned if the UHAQMN monitor was located close to MTW's? Gerard confirmed yes, around two kilometres in distance.

Stewart noted that in the EPA's presentation on the locations of the network that the readings for the southern end seems to be all unacceptably high. Emma confirmed that was a "screen grab" for their presentation as an example of looking at individual mines on a particularly bad day. The EPA also looks at wind speed and direction and noted the prevalence of a wind tunnel up and down the valley.

Stewart feels readings at the Bulga UHAQMN monitor are always higher than what mines are generating when there are predominantly westerly or nor-westerly winds. It was noted under the optimisation project, there is a monitoring location on the MTO / Bulga Coal boundary. Upwind results from monitors at the North of WML and along the Putty Road could be compared to this monitor to get the differential. Stewart interprets that the process would then be for the EPA to then work their way up the valley.

The EPA advised their focus would be dependent on the dominant wind direction on that day. Some mines are already up and running with the new monitoring, others are more complex in relation to their consent and this needs to be allowed for. EPA's aim is to complete this project by spring as that is when bad days tend to occur.

Sue advised that she was involved with the UHAQMN prior to 2015 and asked if the EPA consultation includes consideration on what the Draft Variation to the Mines' License will be, or does consultation just relate to positioning of monitors? The EPA advised that at this stage the proposed monitoring is in draft and the mines can agree or disagree, once available it will be on the EPA's Public Register and all information is obtainable through the EPA.

The EPA are looking at optimising monitoring as a whole, using UHAQMN as the receptor based network, and to bring the new monitoring online as a source to ascertain the contribution to each mine, rather than "you will monitor locations representative of impact", this will put specific monitoring points on the License.

The EPA confirmed they have had higher level discussions with the UHAQMN Advisory Committee and are now looking for feedback from MTW CCC members on their input as to how the proposed monitoring applies here.

Graeme feels some mines have different ideas in regard to consultation; he feels they just state they are going to do something, rather than, this is what we anticipate will happen. Emma advised that is the reason the EPA is consulting with this CCC.

Ian asked when MTW will release what their plan is for putting figures out from the new monitoring publically and how would the community get access to these? Gerard advised this has not been decided for near field monitoring data and confirmed that the company website does have the live existing TEOM monitoring.

Gerard explained the current process is to work through the AQMO with the EPA and also comments from this group. Going forward, how to share data would not be a decision that could be made until all units are in the right place and the monitors are doing the job that is required of them. There is also the need to understand what the EPA expect in terms of reporting and for now the objective is to get the units in place and commence collecting monitoring data. Decisions on next steps will be made in due course.

Ian wondered if MTW and the EPA were going to come back with an update on how the monitoring is going to work? The EPA advised the project is about taking one step at a time. There is already a lot of monitoring out there; Dust Depositional Gauges collect what lands in the filters over a month. High Volume Samplers measure total suspended particulates, usually on a six day cycle i.e. measure how much over 24 hours and are collected once every six days. There are a growing number of PM_{10} monitors operating 24 hours/7 days looking at finer dust. The AQMO is working towards continual data, at this stage this may not be able to be seen via a computer but it is a step in the right direction and in time there may be the ability to publish that data if MTW can establish a means to do this.

Ian feels any extra monitoring is a good thing but feels the problem for mines and residences is that winds are not always the same at ground level compared to when they are rising. Monitoring dust and wind at that level will not capture dust from higher levels and the dust Ian has experienced was brought down by rain. Ian noted that on a still day dust going up can come straight back down. The EPA advised they also look at what makes a bad dust day and can come back to the CCC on this subject.

Stewart feels that if all mines operating produced dust to the level they believe is the maximum, by the time the dust came down the impact would be a lot higher than 4 micrograms and these are the impacts that the community experience. Emma advised the EPA are working with every mine individually to minimise each of their different operations to reduce this and confirmed that is the purpose of this project; to ascertain that contribution in every single mine the whole way up the Valley and to also see the bigger influence.

Graeme feels the Department needs to look at this monitoring as they don't take cumulative dust into consideration in their approvals.

ACTION 1: Community Member feedback on EPA's Air Quality Optimisation to be provided to Emma by the 30th of June 2016. Emma can be contacted on:
Phone: (02) 4908 6831 or Email: emma.coombs@epa.nsw.gov.au

4. Correspondence

Col advised members that there had been a delay in the release of the November Meeting Minutes as final due to the need to resolve the request for a third-party statement to be added and apologised for the time this has taken. Member responses at this 9 May 2016 meeting have now been captured in the November Minutes and released as Endorsed by Chair.

Christina advised that she felt the Minutes need to be an accurate account of the Meeting and should not be altered in any way, she could not see a reason why the Meetings should not be recorded, Ian and Mark agreed that this would be a good idea. The group resolved that going forward the CCC Meetings will be recorded.

Sue asked if the Minutes are sent to Council when they are adopted and Robert confirmed they are sent once they have been approved by the Chair. Robert asked if Sue would like this process done differently and Sue responded that she normally sees the MTW CCC Minutes in Council Business Papers in due course but hadn't seen them for quite some time and her question was about how and when they get sent to Council.

ACTION 2: Col & Sarah to provide the Meeting Minutes process to MTW CCC membership

5. Matters arising from the previous Meeting (Actions)

ONGOING ACTION: MTW to discuss mobile network coverage issues in Bulga with Telstra.
Rob confirmed current dump and estimated final MOP landforms have been sent to Telstra so they can look at any impact on reception due to final dump heights. The issue could possibly be load issues through certain towers rather than the lack of reception.

Action 1: MTW to continue efforts to meet with Ian to discuss Air Quality Monitoring on the MTIE.

Ongoing Action; MTW has made requests to meet with Ian, no date has been set.
Gerard advised that he would like to get Ian's input, particularly after today's monitoring presentation and will work on line to do this. Ian confirmed that he had been in communication with Travis.

Action 2: MTW to arrange for their Blast Crew to meet with Ian Hedley's Safety Committee to review Emergency Plans & Procedures.
Ongoing Action; MTW has made requests to meet with Ian, no date has been set.

✓ **Action 3: MTW to investigate the reason for temporary speed zones on the Putty Road.**
Completed; Temporary speed zones were required due to the resurfacing of Putty Road, this signage was put up by the RMS for their roadside workers.

Stewart asked if the speed restrictions had now been removed and Rob confirmed yes, with the exception of road signage when blasting. Stewart asked if that was the normal practice and Rob advised that this is a RMS requirement. Stewart felt that it had only been introduced in the last six months and had never seen speed restrictions on the Putty Road. Rob confirmed that is why the flagman are there and Andrew advised there has to be a warning to start slowing vehicles, it was noted that this matter is out of MTW's hands as this is a Roads & Traffic requirement.

Action 4: Col to invite Representative from the Department of Planning to the next CCC Meeting to speak to the final dump height of RL180 / final landforms.

Andrew advised that he had spoken to Howard Reed at the Department of Planning who is considering this request and Andrew will follow this up. Andrew noted that there had been talk by the CCC to ask Chris Knight to attend, however he is not in the Compliance Team so could not adequately cover this topic, therefore the CCC request was directed to the Department's Assessment Team.

It was queried if the need to go to RL180 was due to MTW running out of dump space? Andrew advised that MTW is not running out of dump space. Graeme would like to see dump waste put back into the final hole. ***Stewart thought the approval was based on dumping overburden from MTW to Mount Thorley?*** Andrew confirmed yes, that is also the case. Stewart thought MTW would concentrate on filling the void at Loders and Andrew advised that Loders has been identified for both tailings and waste disposal.

Stewart noted MTW's consent says the final landform is to be in-keeping with natural terrain, he advised that Saddle Ridge and Charlton are at RL160 and if MTW's height goes to RL180 that would tower over the natural landform and asked if that is the concept? Andrew advised the increase in height is to allow for some undulation, by going up higher there is the opportunity to provide some relief, and this increase is basically a terrain model to add a more natural looking landscape.

Stewart asked if MTW wanted to go higher could the company just change their mind and do that e.g. go to RL200? Andrew advised no, this would have to be in accordance with air quality, noise and lighting being assessed and if there was a significant change from the existing height there would need to be a re-assessment. Graeme thought the Department approved the increase by 20 RL to 180 RL and Andrew advised this was approved as part of the approval process.

Sue asked in regard to MTW going higher to create a more natural landscape, does the company do assessments as to the way this changes topography? Sue is concerned this may create changes e.g. in rain patterns Andrew advised that topography was not included in assessments i.e. not on effects such as rainfall patterns, however this is unlikely to influence climate on a local scale.

Stewart questioned if the changes to landscape that MTW are proposing had been reported to the Central Mapping Authority? Andrew is not aware of a mapping authority, though may occur via the Department of Resources and Energy who approve the MOP.

ACTION 3: Andrew to follow up Howard from the Department of Planning regarding attendance at a future Meeting to speak to the final dump height of RL180 / final landforms.

Action 5: Travis to follow up on the status of the Cultural Heritage Group and to look at the potential for reconvening this with the same participants.

✓ **Actioned;** Travis confirmed a Coal & Allied Community Heritage Advisory Group meeting was held on the 29th of April 2016.

ACTION 6: MTW to review wind direction on the 19th of February to try and ascertain direction of the potential source of a gear oil type odour. Ian will note the date and time should the odour be experienced in the future.

✓ **Completed;** MTW advised there was no major maintenance or incidents on the 19th of February and provided wind recordings for this day. Ian confirmed there was a gear oil type odour around for a while but this has not been experienced of late and was still unsure of the cause.

Graeme asked with regard to noise in Inlet Road if there was any measurements being taken near Phil Carroll's place. Graeme asked if that data was consistent with recordings from his own place and would like to see that information as he had not seen anyone take measurements. Andrew confirmed comparative monitoring had been conducted near Graeme's property and Graeme thought the company response was that noise at his property had to be at a certain level.

Gerard advised it is correct that noise levels from both Mount Thorley and Warkworth are required to stay under 35dB and confirmed that there had been extensive noise assessments done at the back of Inlet Road. There is a procedure in place if there is a concern as to whether or not noise results are representative of residents and Gerard advised that the community are welcome to apply for this supplementary monitoring, the company would then need to seek input from the Department to see if they feel this is necessary and to get their advice.

MTW has undertaken comparative noise monitoring at the Carroll, Leslie and Metlikovec residences. Each study was done over a number of nights, and involved monitoring at the residence and comparative monitoring by the MTW CRO at their usual monitoring location. On each occasion, the studies have found that the CRO monitoring location on the road adequately represents the residences. Gerard said that on this basis, he does not feel there is justification for a further study at Graeme's residence, but this is open for discussion.

Graeme's point was regarding the use of the word consistent, as there had been no correspondence to actually indicate how that was arrived at. ***Ian asked if the independent monitoring is conducted out of vehicles parked on the side of the road?*** Gerard confirmed this along with additional data at residences. It was queried if data from the back of Inlet was the same or louder by a decibel or two and as Graeme had not seen that data yet, he advised that this makes him uncomfortable about the process that MTW is currently using.

Ian advised on Sunday the 9th he had heard noise whilst at National Parks & Wildlife at 9.30 p.m. and at 10.30 Ian had to phone MTW about this. ***Ian clarified his concern was that he had experienced a noise issue whilst inside of a vehicle and queried if those noise assessments would be put on the company website?*** Gerard confirmed data for that evening would be on InSite.

Mark confirmed there had been a number of noise complaints that night and community representatives confirmed that it had sounded like someone banging buckets. Mark advised there was one other night in recent weeks where a number of complaints were received.

6. Company Reports – Mark Rodgers, General Manager

6.1 Overview of activities

6.1.1. Operational Update

Rehabilitation

- Rehabilitation target for 2016 = 83.3 ha
- Works completed 2016; 39.5 ha released for shaping, 27.0 ha bulk shaped, 8 ha topsoiled

Andrew advised that rehabilitation activities were pretty much on track and activity can be seen on the eastern side of the mine where MTW are currently working. Some pushing down by dozers will be seen and operations will continue around the corner. Some areas have already been seeded and there is some more seeding to be completed on the tailings dam and around Mount Thorley relating to the Bulga boundary.

Was there aerial plane seeding conducted? Andrew confirmed yes, and advised there had been a complaint on aerial seeding that related to noise from the plane. Andrew explained that some kangaroos where sighted on the air-strip at Warkworth and the pilot had to pull up quickly which resulted in some noise.

Operational Downtime

- YTD 2016 = 1885.20 hours
- YTD 2015 = 2815.11 hours

YTD	# CRO Assessments	# Above trigger	# Nights above trigger
YTD 2015	2174	80	26
YTD 2016	1485	44	15

YTD downtime compared to last year

There has been reduction in the number of equipment downtime logged for noise and dust in YTD 2016, this is not absolute data but a strong indication sound attenuation for haul trucks is starting to win the battle with a 60% reduction in the number of measurements that trigger response for action to be taken.

Noise Attenuation

MTW Fleet percentages fitted with full sound kit:-

- Trucks 85%
- Dozers 67%
- Excavator 75%
- Drill 38%

Zero noise or blasting non-compliances measured in 2015

- 46 Trucks underwent sound attenuation treatment
- “Stage 3” sound target (113dBA / 121dBL) achieved on 789C fleet
- Improvements in noise performance demonstrated against a number of metrics:
- ~60% reduction in number of CRO noise measurements which exceed the trigger for action (226 in 2015, down from 554 in 2014)
- ~60% reduction in noise related equipment delays (7,647 hours in 2015, down from 20,470 in 2014)

Ian asked what actions were undertaken on Sunday the 8th as he noted the level of noise did get reduced? MTW advised that a shovel that was working at height was shut down and Gerard advised that responses to issues are available on InSite and can be found in the comments section.

Gerard advised on some nights a number of noise attenuated trucks are relocated to where they are needed. Graeme asked why MTW does not run attenuated trucks in areas where noise is likely to be a concern and Mark confirmed MTW does its best to do this. Gerard explained a lot of planning is done in the lead up to an evening and then the meteorological conditions may change, these conditions also differ from one night to another.

In response to a query from Graeme, MTW confirmed 85% of the truck fleet has been attenuated and there is still 15% to do. As MTW continue through the attenuation process noise will become less of an issue and it was reiterated that MTW do try to put attenuated trucks where it is felt they will be best suited.

6.1.2. Update from Mark Rodgers

Mark advised that MTW continue to operate in the disturbance area that was signed off in an undertaking from the EDO and some equipment may be seen coming out of there. In addition, there may be some drilling, blasting and potentially another shovel in that area.

Stewart questioned if the EDO. agreed to mining in that area, not just disturbing? Mark confirmed that mining was agreed to and signed off on.

7. Community Feedback

Sue

Sue asked in relation to the disturbance versus rehabilitation planned for 2016 being 149 with YTD 75, is the 2017 Rehab Plan picking up any more of that disturbed area or will that area stay high until in that area of consent? Andrew advised rehab will commence after 2017, in terms of ratio; the increase in 2016 brings in some disturbance from 2015 as MTW did not get through what was planned. Mark confirmed that disturbance versus rehab starts to balance out in 2017/2018. Sue is concerned that when talking about air quality, it is about the level of exposed land. Andrew confirmed that is what MTW look at when putting the MOP together and try to provide an alternative way to bring in soil.

Stewart

Stewart asked about the equipment in the new area as he assumed these were contractors? Mark advised contractors are clearing, mulching and removing vegetation. Removal of topsoil is also undertaken by contractors. Stewart queried the hire trucks and felt they were not noise attenuated. Mark advised they only run during the day time. Andrew confirmed these trucks are well below any noise limit concerns.

Stewart noted the fairly large area of new disturbance and asked MTW what steps are they taking to reduce any dust from this area? Mark advised MTW has only removed the required vegetation for the next 12 to 18 months and Andrew confirmed that whilst operations are in that location MTW will continue to use watercarts.

Stewart is very conscious of having a large machine like a shovel working at height and MTW advised if there is dust generated they will shut this down and had done so a month or so ago.

Stewart asked if MTW were not concerned about wind generating dust that may come off that area? Mark advised this is not so much of a concern as the top soil has been removed. Sue asked where does the top soil go when it is removed? MTW responded the soil is stored for later use.

Graeme

Graeme queried when will seeding take place on the area that was sprayed out on South Pit North? Andrew confirmed this area has now been seeded. Graeme then asked about the area between the high section and auto-barn and Andrew advised this will be drilled with natives, probably the same species as on Woodlands.

Graeme was interested in the study that compared two groups of cattle coming off rehab versus native land in relation to what inputs into rehab land and grazing land. Ian felt there was a low stocking rate on the rehab and Graeme noted he had read about this study in the papers about a year ago but there was no detail on the methodology. Andrew advised Bill Baxter is the representative in that study and can provide an update to the CCC.

ACTION 4: Bill Baxter to update the CCC on the Cattle Grazing Trials.

Adrian

Adrian noted the new fencing that had been erected at the area that was often the site for tourist vehicles to stop and view the mine, he queried the use of green shade cloth and what it was there for? Graeme noted that shade cloth is utilised on fencing around the side of Camberwell and it stands out so much it tends to draw people's attention to it. Mark was interested in this feedback and advised there had been suggestions that it may be better to use shade cloth as some feel it is effective for visual relief.

Christina asked if C&A were the owners of a property located on the left hand corner of the Putty Road and if so could that be cleared? Travis advised that he had that job in hand and agreed with Christina that it had become untidy.

Ian raised that Council had made funding available through Village Planning, which is happening at the moment. Ian advised residents that there will be a meeting on the 12th of May at 6.00 p.m. to discuss this. As Rio own a lot of homes in the area Ian advised their company representatives that they are more than welcome to attend. Ian noted this is not a decision making meeting, just an opportunity for people to have their say around the Village Plan for Bulga.

Mark felt that after talking to the new General Manager at Singleton Council, the new Village Plan will help form what those funds may be used for, instead of what is proposed. Sue clarified it does and doesn't; opportunities for Council to apply for funds for a water project have been unsuccessful over a number of years.

Council now looks to be in a good position to get a positive response if the VPA funding is approved and Council's intent is to progress with that if this is the wish of the community. Following a Council and Community meeting it was generally acknowledged to have water conversion where it was proposed did not work well. Council decided from that meeting to continue to have discussions around the water proposal not as a public meeting but rather as individual surveys.

Stewart queried the Property Report as it seems as though there have been ten properties on Wambo Road acquired recently, with all the others on Putty and Wallaby Scrub Roads having been owned for years, he feels this does not add up to the figures. Stewart queried if the five acquired were not in the acquisition group and Col ask if MTW can check up on this query regarding property acquisition.

Mark confirmed the list of properties were provided at the previous CCC meeting and that MTW can only disclose those completed. Mark confirmed there are some that have the right to trigger, that have triggered, others are dependent in part on the consent going through and some have taken up these opportunities.

Stewart asked if the company would consider purchasing property on compassionate grounds such as illness, or would it be strictly looked at that this property is not in the acquisition zone. Stewart asked what that would be based on as he felt there was once a case of this type of purchase relating to a sick child. Mark advised his understanding is the company had been approached in the past regarding property that is not in the acquisition zone and that was based on market value.

8.2. Focus Topic: 2015 Annual Review

Col asked for member feedback on the 2015 Annual Review and it was agreed to put this on the next Meeting's Agenda as members had not had time to review this report.

ACTION 5: 2015 Annual Review to be Focus Topic at the next meeting.

Stewart noted that some format in the AEMR had changed and there is also data on Hunter Valley Operations. Andrew confirmed these combined reports are in the back section. Stewart noticed that the format follows Department Guidelines on Annual Environmental Reports and felt a lot of information that used to be included is no longer reported and there is new data that he finds difficult to follow.

Andrew advised there will be a Noise & Air Quality Session at Bulga Hall next Tuesday the 17th between 6 .00 and 7.00 p.m.

8. Next Meeting – Monday 8 August 2016
Meet Warkworth Boardroom; 2.00 p.m. to 4.00 p.m.

9. Meeting Close

ACTIONS ARISING FROM THIS MEETING

Action	Page Ref	Description	Who
1	7	Community Member feedback on EPA's Air Quality Optimisation to be provided to Emma by the 30th of June 2016. Emma can be contacted on: Ph: (02) 4908 6831 Or email: emma.coombs@epa.nsw.gov.au	CCC Members
2	7	Col & Sarah to provide the Meeting Minutes process to MTW CCC membership	Col Gellatly & Sarah Purser
3	8	MTW to follow up Howard from the Department of Planning regarding attendance at a future Meeting to speak to the final dump height of RL180 / final landforms	Andrew Speechly
4	12	MTW to update the CCC on the Cattle Grazing Trials	Bill Baxter
5	13	2015 Annual Review to be Focus Topic at the next meeting	Andrew Speechly

LONG TERM / ONGOING ACTIONS

Description	**Who**
Provide a list of all documents uploaded to the RTCA website in the period since the last meeting.	Robert – Business Papers
MTW to continue efforts to meet with Ian to discuss Air Quality Monitoring on the MTIE.	Travis Bates
MTW to arrange for their Blast Crew to meet with Ian Hedley's Safety Committee to review Emergency Plans & Procedures.	Travis Bates
Telstra mobile network coverage issues in Bulga to be kept as an ongoing Agenda item.	Robert Gothard

Mount Thorley Warkworth Community Consultative Committee

Monday 9 May 2016

Independent Chair: Col Gellatly

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Agenda

1. Welcome
2. Apologies
3. Declaration of pecuniary interests / conflicts of interest
4. Correspondence
5. Matters arising from previous meeting (Actions)
6. Company reports
7. Community feedback
8. General business & Future Dates

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1.0 Welcome

Warkworth Mining Limited

Warkworth Mining Limited
EMERGENCY EVACUATION PROCEDURES

COAL & ALLIED

ACTION TO BE TAKEN ON DISCOVERING
A FIRE OR OTHER EMERGENCY

1. ALERT PERSONS NEARBY OF THE SITUATION.
2. EXTINGUISH THE FIRE IF ABLE TO DO SO WITH SAFETY
3. IF NOT ABLE TO PERFORM 2) NOTIFY RECEPTION OF THE EMERGENCY
3. FOLLOW THE EVACUATION PROCEDURES.

ACTION TO BE TAKEN TO EVACUATE THE BUILDING.

1. FOLLOW INSTRUCTIONS OF THE WARDENS.
2. CLOSE YOUR OFFICE DOOR AND TAKE THIS SIGN WITH YOU.
3. WALK TO THE NEAREST EXIT – DO NOT RUN.
4. PROCEED TO THE EMERGENCY MUSTER POINT ABOVE THE FIRE DAM
4. DO NOT RETURN TO WORK AREA FOR ANY REASON.

2.0 Apologies & others

Apologies

- Chris Knight

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3.0 Declaration of interests

PECUNIARY AND OTHER INTERESTS

Members should declare any pecuniary or other interest which may be considered to prevent them undertaking their role impartially and in the best interests of the local and broader communities. Examples include holding a private contract with the company or holding voluntary acquisition rights. These guidelines establish no requirement in respect of personal interests other than declaration. However, the committee may determine that a personal interest is sufficient that a member should withdraw from discussion on a particular issue.

Source: *Guidelines for establishing and operating community consultative committees for mining projects, June 2007*

EPA presentation - Mine-site Air Quality Monitoring Optimisation

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Air Quality Monitor Optimisation - MTW

- Discussions with EPA commenced in 2015 to determine the requirements for monitor re-location / establishment;
- Draft licence variations (WML / MTO) currently under consideration;
- MTW proposes monitoring at five (5) locations;
- Investigating opportunity for datashare with Bulga Coal (shared boundary)
- Existing (MTW operated) TEOM network to be reviewed following confirmation of monitoring locations and DP&E requirements; and
- Real-time access to be established at Bulga UHAQMN monitor to allow for integration to MTW's air quality management process

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4.0 Correspondence

4.1 Business papers

4.2 Correspondence to the committee

5.0 Matters arising from previous meetings

Item	Action
1	MTW to discuss mobile network coverage issues in Bulga with Telstra *[**Ongoing:** Current dump and estimated final MOP landforms have been sent to Telstra]*
2	MTW to continue efforts to meet with Ian to discuss Air Quality Monitoring on the MTIE. *[**Ongoing**: MTW has made requests to meet with Ian. No date has been set.]*
3	MTW to arrange for their Blast Crew to meet with Ian Hedley's Safety Committee to review Emergency Plans & Procedures. *[**Ongoing**: MTW has made requests to meet with Ian. No date has been set.]*
4	MTW to investigate the reason for the temporary speed zones on the Putty Road *[**Complete**: Temporary speed zones are required by the RMS for roadside workers. The reason for the temporary was because the Putty Rd was being resurfaced.]*

5.0 Matters arising from previous meetings

Item	Action
5	MTW to invite Representative from the Department of Planning to speak to the final dump height of RL180 *[**Ongoing:** Invitation extended to Department of Planning]*
6	MTW to follow up on the status of the Cultural Heritage Group *[**Complete:** Coal & Allied Community Heritage Advisory Group meeting held on 29 April 2016.]*
7	MTW to review wind direction on the 19th of February, to try and ascertain direction of the potential source of a gear oil type odour. *[**Complete:** Winds on the 19/02/2016 were as follows:* • *00:00 – 11:50 Southerly at 1.83 m/s* • *11:50 – 15:30 Northerly at 3.5 m/s* • *15:30 – 19:00 Westerly at 3.7 m/s* • *19:00 – 23:50 South-easterly at 2.3 m/s* *No major maintenance or incidents on the 29th of February involved gear oil.]*
8	MTW to schedule time for the NSW EPA & Dept of Planning to discuss the Air Quality Project across the Hunter. *[**Complete:** This meeting.]*

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6.0 Company Reports

6.1 GM Overview of activities

Mark Rodgers – General Manager

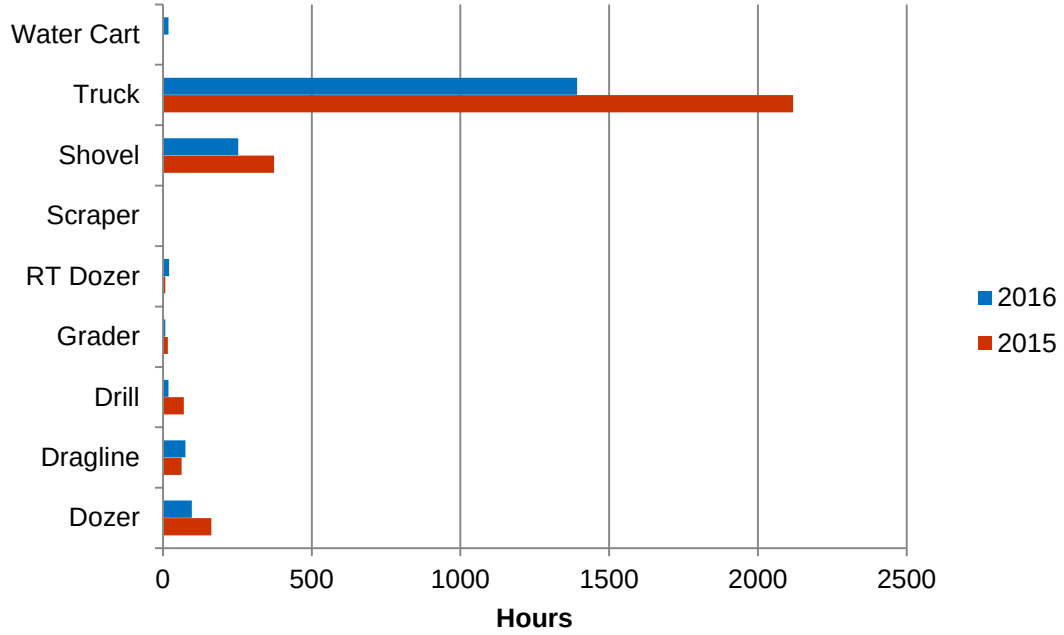

0
3,000
metres
Scale: 1:49.85

Operational Update

Rehabilitation

Rehabilitation target for 2016 = 83.3 ha
(outlined in red)
Works completed 2016:
39.5 ha released for shaping
27.0 ha bulk shaped
8 ha topsoiled

Operational Downtime



YTD 2016 = 1885.20 hours
YTD 2015 = 2815.11 hours

	# CRO Assessments	# Above trigger	# Nights above trigger
YTD 2015	2174	80	26
YTD 2016	1485	44	15

2016 - MTW Sound Program Plan

MTW Fleet Percentages Fitted with Full Sound Kit			
Trucks	Dozers	Excavator	Drill
85%	67%	75%	38%

- Zero noise or blasting non-compliances measured in 2015
- 46 Trucks underwent sound attenuation treatment
- “Stage 3” sound target (113dBA / 121dBL) achieved on 789C fleet
- Improvements in noise performance demonstrated against a number of metrics:
- ~60% reduction in number of CRO noise measurements which exceed the trigger for action (226 in 2015, down from 554 in 2014)
- ~60% reduction in noise related equipment delays (7,647 hours in 2015, down from 20,470 in 2014)

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6.0 Company Reports

6.1 GM Overview of activities

Mark Rodgers – General Manager

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7.0 Feedback from community representatives

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End of meeting – please travel safely

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Mount Thorley Warkworth

Community Consultative Committee

Business Papers – May 2016

Materials ahead of meeting of the committee on 9 May 2016

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Appendices

Appendix A – Environmental Monitoring Report January 2016

Appendix B – Environmental Monitoring Report February 2015

Appendix C – Environmental Monitoring Report March 2015

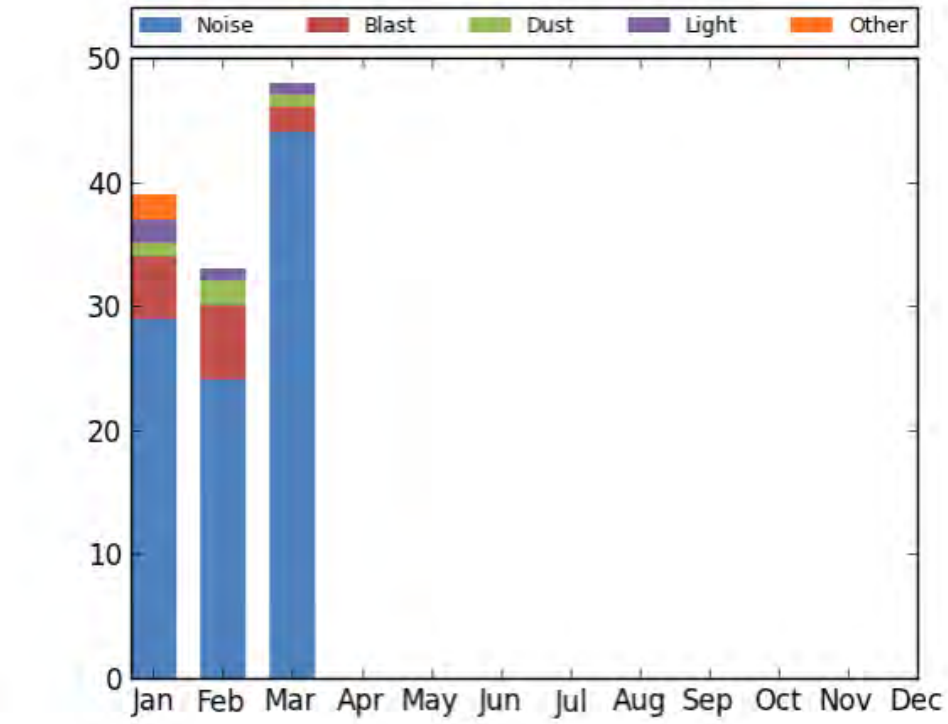
Appendix D – Acquisition Update – Mount Thorley Warkworth Property Portfolio

1.0 Complaints

Complaints overview for period 1 January to 31 March 2016

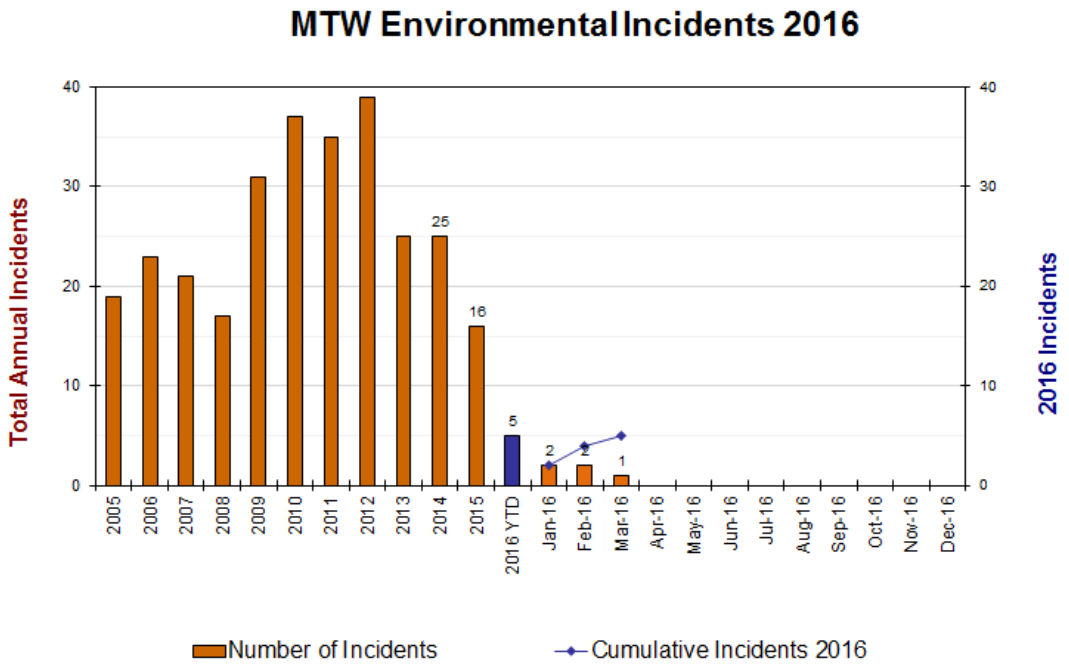
Mount Thorley Warkworth Monthly Complaints Summary

	Noise	Dust	Blast	Lighting	Other	Total
January	29	1	5	2	2	39
February	24	2	6	1	0	33
March	44	1	2	1	0	48
April	-	-	-	-	-	-
May	-	-	-	-	-	-
June	-	-	-	-	-	-
July	-	-	-	-	-	-
August	-	-	-	-	-	-
September	-	-	-	-	-	-
October	-	-	-	-	-	-
November	-	-	-	-	-	-
December	-	-	-	-	-	-
Total	97	4	13	4	2	120



2.0 Incidents

Overview of environmental incidents for period 1 January to 31 March 2016



Incident summary for the period 1 January to 31 March 2016

Date	Details	Key Actions	Aspect
6-January-2016	**Stormwater runoff following significant rain event** On the 6th January 2016 a small sedimentation dam located near the boundary of Wallaby Scrub Road had a partial embankment slump with piping evident. As a result some sediment from the dam wall flowed under Wallaby Scrub Road and via a culvert into another sediment dam on Coal and Allied owned property.	The dam wall has been repaired and redesigned with an engineered spillway. The incident was reported to the EPA and DPE and is still under investigation.	Water
19-January-2016	**Damage to non-operating water pipeline in the mine** Operator damaged pipeline whilst maintaining the road. All water was contained onsite.	Pipeline repaired.	Water
2-February-2016	**Oil spill from oil filter on water pump** Approximately 30 litres of oil was lost from the booster pump when the oil filter vibrated loose.	The oil filter assembly was tightened and repaired. All contaminated soil was removed and remediated.	Spill-Hydrocarbons
25-February-2016	**Diesel spill from haul truck sight glass** T709 had just completed refuelling when the lower fuel sight glass failed. Approximately 100L of diesel fuel was spilt the refuelling area.	The damaged sight glass was replaced and all sight glasses are inspected before refuelling for any damage. All contaminated material was removed and remediated	Spill-Hydrocarbons
7-May-2015	**Oil spill from haul truck final drive** When in the workshop the hub has come away from axle box spilling approximately 200 litres of oil in a bunded area.	Oil was cleaned up using available spill kits.	Spill-Hydrocarbons

3.0 Environmental monitoring

Monthly summaries of environmental monitoring for the period 1 January 2016 to 31 March 2016

January 2016

Attached as **Appendix A**

February 2016

Attached as **Appendix B**

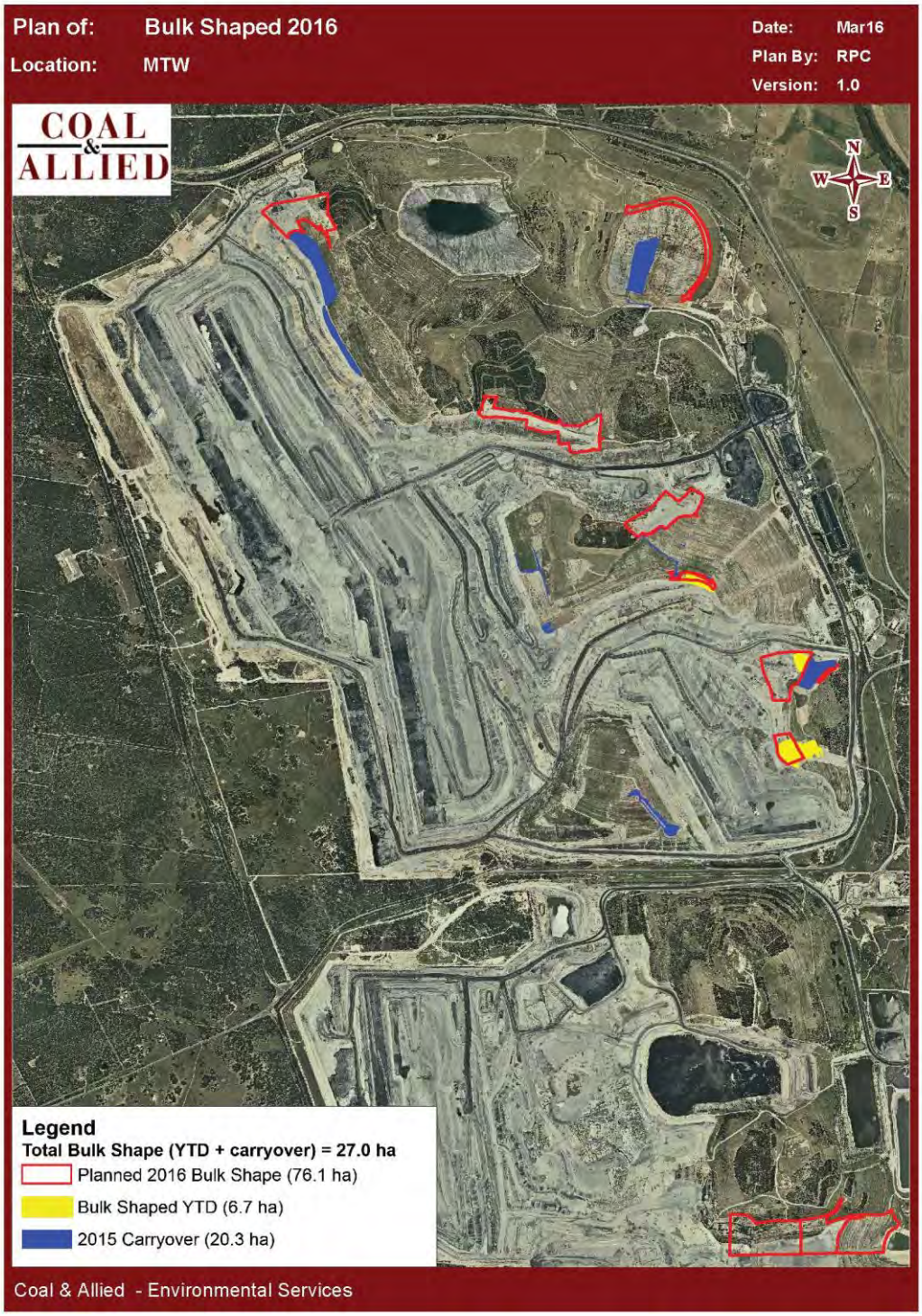
March 2016

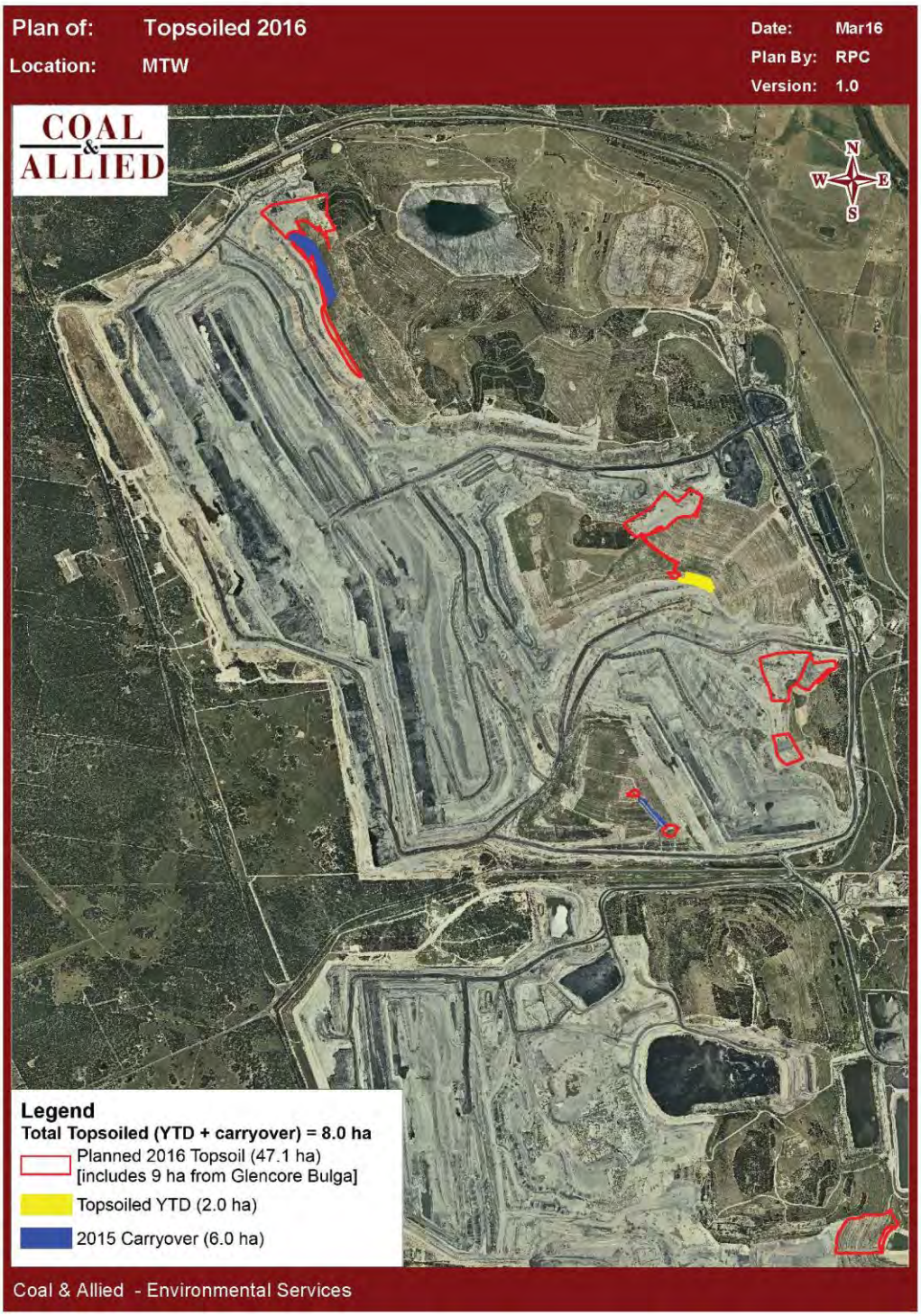
Attached as **Appendix C**

4.0 Rehabilitation plan

At the end of the March rehabilitation is progressing well with 27 ha of the targeted areas bulk shaped, 8 ha of topsoiled and 5.2 ha composted.

Disturbance was predominantly in Warkworth's West Pit area, for mine advance, and to construct a water management contour along the western extent of the disturbance to manage water off pre-strip activities. A total of 75.3 ha has been disturbed at end of March.




Plan of: Topsoiled 2016
Location: MTW
Date: Mar16
Plan By: RPC
Version: 1.0
COAL & ALLIED
N
W
E
S
Legend
Total Topsoiled (YTD + carryover) = 8.0 ha
Planned 2016 Topsoil (47.1 ha)
[includes 9 ha from Glencore Bulga]
Topsoiled YTD (2.0 ha)
2015 Carryover (6.0 ha)
Coal & Allied - Environmental Services


Plan of: Composted 2016
Location: MTW
Date: Mar16
Plan By: RPC
Version: 1.0
COAL & ALLIED
N
W
E
S
Legend
Total Composted (YTD + carryover) = 5.2 ha
Planned 2016 Compost (73.7 ha)
Composted YTD (0 ha)
2015 Carryover (5.2 ha)
Coal & Allied - Environmental Services


Plan of: Seeded 2016
Location: MTW
Date: Mar16
Plan By: RPC
Version: 1.0
COAL & ALLIED
N
W
E
S
Legend
Total Claimed Rehab YTD = 0 ha
Planned 2016 seeding (83.3 ha)
Seeding claimed YTD (0 ha)
Coal & Allied - Environmental Services


Plan of: Disturbance 2016
Location: MTW
Date: Mar16
Plan By: RPC
Version: 1.0
COAL & ALLIED
N
W
E
S
Legend
Total Planned Disturbance 2016 = 149 ha
Planned 2016 New Disturbance (140.4 ha)
Planned 2016 Rehab Disturbance (8.6 ha)
Disturbance YTD (75.3 ha)
Coal & Allied - Environmental Services

5.0 Sound Attenuation Update

Year to date, MTW has attenuated 12 haul trucks bringing the total attenuated to 70. Overall approximately 77% of the heavy mobile equipment has been attenuated.

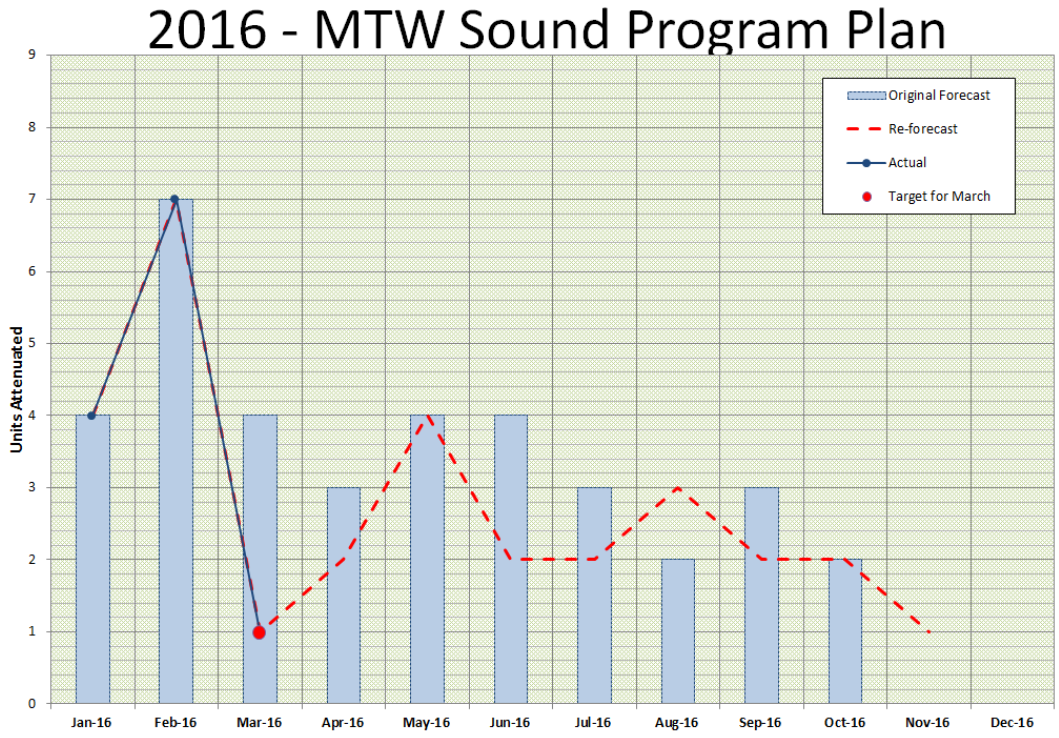


Figure 1: Haul Truck Sound Attenuation Plan

6.0 Acquisition Update

A presentation with a property acquisition update for Mount Thorley Warkworth is included in **Appendix D** of this Business Paper. No updates have been made to the property portfolio since the last CCC meeting.

7.0 Website Uploads

The following is a list of all documents uploaded to the MTW library of the Rio Tinto website between the period of 1 October to 31 December 2015. Uploads have been characterised as Additions, being a new document, or a Change, meaning a new version of an existing document. Please refer to the library page of the website for document contents: http://www.riotinto.com/copperandcoal/documents-10401.aspx

Table 1: Uploaded Documents

Document Title	Upload type
MTW Pollution Incident Response Management Plan	Change
Mount Thorley Warkworth Blast Management Plan	Change
Warkworth Continuation Operations (SSD-6464) Stage 1 Development Area Aboriginal Heritage Management Plan	Addition
Warkworth Mine Biodiversity Management Plan	Addition
Mount Thorley Warkworth Environmental Protection Licence 1376 1976 Monthly Meaningful Summary January 2016	Addition
Mount Thorley Warkworth Environmental Protection Licence 1376 1976 Monthly Obtained Data Summary January 2016	Addition
Mount Thorley Warkworth Environmental Monitoring Report January 2016	Addition
Mount Thorley Warkworth Independent Environmental Audit Report - February 2016	Addition
Mount Thorley Warkworth Environmental Protection Licence 1376 1976 Monthly Meaningful Summary February 2016	Addition
Mount Thorley Warkworth Environmental Protection Licence 1376 1976 Monthly Obtained Data Summary February 2016	Addition
Mount Thorley Warkworth Water Management Plan	Addition
Mount Thorley Warkworth Environmental Monitoring Report February 2016	Addition
Mount Thorley Warkworth Mining Operations Plan and Plans	Addition
Mount Thorley Warkworth Mining Operations Plan Appendix A	Addition

Mount Thorley Warkworth Mining Operations Plan Appendix B Pt 1	Addition
Mount Thorley Warkworth Noise Management Plan	Addition
Mount Thorley Warkworth Air Quality Management Plan	Addition
Mount Thorley Warkworth Complaints Register 2016	Addition
Mount Thorley Warkworth Environmental Protection Licence 1376 1976 Monthly Meaningful Summary March 2016	Addition
Mount Thorley Warkworth Environmental Protection Licence 1376 1976 Monthly Obtained Data Summary March 2016	Addition
Mount Thorley Warkworth Community Consultative Committee Meeting Business Papers February 2016	Addition
Mount Thorley Warkworth Community Consultative Committee Meeting Minutes February 2016	Addition
Mount Thorley Warkworth Community Consultative Committee Meeting Presentation February 2016	Addition
Mount Thorley Warkworth EPBC Compliance Report 2016	Addition

8.0 Community investment & support

Mount Thorley Warkworth (MTW) site donations

The site donations committee provides an opportunity for employees to assess and make recommendations on requests for sponsorship and donations received by MTW.

Funding is provided in the form of sponsorship or a donation to assist local, community-based organisations. The funding criteria for site donations has been updated to reflect MTW's focus on funding projects and initiatives from the Bulga, Milbrodale, Broke and Singleton area.

Application forms can be requested by emailing CNACommunityRelation@riotinto.com. Alternatively, potential projects and opportunities for support from Coal & Allied can be discussed with Travis Bates – Community Relations Specialist, Singleton.

Year to date, MTW site donations committee has invested $18,117 to 6 local projects and initiatives, including:

- Singleton Council
- Hunter Safety Award
- Singleton Rotary Club on Hunter
- Hunter Valley Group 21 JRL
- Singleton Junior Bulls
- AFOM

Coal & Allied Community Development Fund (CDF)

The year 2016 marks 18 years of operation of the CDF, which has invested over $14.5 million to support over 120 community projects in the Hunter Valley since its establishment in 1999, across the areas of health, education, environment and economic development.

In 2014, Coal & Allied announced that a further $3 million would be made available to the CDF over a three year period (2015 – 2017) for projects in the Singleton, Muswellbrook and Upper Hunter LGAs. Strategic priority areas have been refined for the 2015-2017 funding cycle to enable a more targeted approach to addressing identified community need and to leverage other resources Coal and Allied may be able to offer to strengthen community partnerships.

Priority areas for the 2015-2017 funding cycle include:

- Economic Development: encouraging the diversity and competitiveness of the Upper Hunter economy
- Community Health: Supporting projects which target health, safety and social wellbeing of the community
- Education: Promoting the value of education and building skills within our community
- Environment and Land Management: Supporting projects that can make a difference on a greater scale. i.e. beyond C&A mining operations

In 2015/2016, the CDF has committed more than $1 million to 13 new programmes aimed at delivering long term benefits for communities in the CDF catchment, which include the Singleton, Muswellbrook and Upper Hunter LGAs. A further $1.5 million is available for allocation in 2016-2017.

Table 2: Coal & Allied CDF projects approved in 2015/2016

Programme	Partner
Enterprise Facilitation	Sirolli Institute
Supporting Children's Developing Social Competence	Early Links Inclusion Support Service
Science and Engineering Challenge, and SMART Program (2015 - 2017)	University of Newcastle
Upper Hunter Education Fund Scholarships (2015 - 2017)	Upper Hunter Education Fund
Upper Hunter Beef Bonanza	Upper Hunter Beef Bonanza
Singleton High School Agricultural Course	Singleton High School
University of Newcastle Scholarships	University of Newcastle
Singleton Community College Strategic Plan	Singleton Community College
HSC Study Camps	Upper Hunter Education Fund
Business Development Officer	Singleton Business Chamber
Early Learning Program	Milbrodale Public School
Book Week	Singleton Primary Schools

Ready 4 School Program	Jerrys Plains Public School

Table 3: Active Coal & Allied CDF programmes running throughout 2015/2016.

Programme	Partner
Upper Hunter Shire Council Community Engagement	Upper Hunter Shire Council
Building Skills and Leadership Capacity in Rural NSW	Royal Agricultural Society (NSW)Foundation
Hunter Youth Leadership Program	The Australian Outward Bound Development Fund
People in Your Neighbourhood- Sustainability Street	Muswellbrook Shire Council
Tocal Schools Steer Challenge	Department of Primary Industries Tocal College
Local SME Supply Chain Participant project	HunterNet
Scholarship Program	University of Newcastle
Economic Development and Funding Coordinator	Singleton Council
Business Development Officer	Singleton Business Chamber
Singleton Place Making (ended in July 2015)	Singleton Council
Science and Engineering Challenge and SMART Program	University of Newcastle
Enterprise Facilitation	Sirolli Institute
Upper Hunter Beef Bonanza	UHBB
Supporting Children's Developing Social Competence	Early Links
Upper Hunter Education Fund Scholarships	UHEF

Coal & Allied Aboriginal Community Development Fund (ACDF)

The ADCF aims to target issues, needs and opportunities which are a priority to local Aboriginal communities and ideally, have synergies with Coal & Allied's core business. Issues are identified through targeted research, key stakeholder engagement, census data and information provided by relevant agencies and government departments.

These issues underpin a 'Strategic Investment Plan on a Page' and the current investment pillars and priority focus areas:

- Health – Mental Health and Obesity
- Economic Development- Social enterprise development
- Community and Cultural Development – NAIDOC Week , art, dance, cultural education
- Education – Early education, retention and post- school pathways, parent and Elder engagement

The ACDF is accessible to any Aboriginal person residing in, or who is from, the Upper Hunter Valley, or organisation undertaking a project to benefit specific Aboriginal target groups or wider Aboriginal communities in the Upper Hunter Valley.

New ownership

The ACDF is preparing to transfer in coming months to new owners, 'MACH Energy' as part of the divestment by Coal & Allied of the Mt Pleasant project in Muswellbrook.

Feature partnership - Bangarra Dance Theatre workshops

Through a partnership with Bangarra Dance Theatre, a series of workshops were run recently in Singleton and Muswellbrook, involving approximately 50 students from Muswellbrook and Singleton High Schools and St Catherine's Catholic College. The workshops culminated in a performance involving the whole student body and attended by Elders, family, school and wider community members. The students and Elders contributed to the creation of the performance piece.

The workshops and performance effectively engage the students in contemporary indigenous dance, drawing on local cultural stories, igniting the student's interest in their culture and ideally, (better) connecting them to Elders and community. Feedback after the performance from students, Elders and parents was extremely positive.

Table 4: ACDF projects – Active and new projects approved April 2016

Programme	Partner
Max Potential	Future Achievement Australia Foundation
Microenterprise Development in the Upper Hunter	Many Rivers Microfinance
Wonnarua Mining Rehabilitation Operations	Wonnarua Mining Rehab Pty Ltd (Wonnarua Nation Aboriginal Corp)
Study Assistance	Fiona Murray

Study Assistance	Maddison Coles
Study Assistance	Jacob Ellis
Ka Wul - New Definition	Singleton High School
Singleton Art Prize	Rotary Club of Singleton on Hunter Inc.
Muswellbrook Enrichment Centre	Polly Farmer Foundation
Strategic planning and operational support	Wonnarua Nation Aboriginal Corp
Singleton schools and community NAIDOC Week	Singleton Schools Management Group
Parents and Learning (PAL)	Napranum Pre-School
'Dookal'	Dookal Group Pty Ltd (Ungooroo Aboriginal Corporation)
Upper Hunter schools and community NAIDOC week activities	Wanaruah Local Aboriginal Land Council
Singleton Schools Aboriginal Dance Group	Broke Public School
The Gundi Programme	St Helier's Correctional Centre
Wupa@Wanaruah Art and Cultural Event	Ungooroo Aboriginal Corporation

COAL & ALLIED

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Appendix A

Environmental Monitoring
January 2016

COAL & ALLIED

Managed by Rio Tinto Coal Australia

Mount Thorley Warkworth

Monthly Environmental Report

January 2016

Coal & Allied Operations Pty Ltd

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Revision History

Version No.	Person Responsible	Document Status	Date
1.0	**Environmental Advisor**	**Draft**	**19/02/2016**
1.1	**Environmental Specialist**	**Final**	**22/02/2016**

1.0 INTRODUCTION

This report has been compiled to provide a monthly summary of environmental monitoring results for Mount Thorley Warkworth (MTW). This report includes all monitoring data collected for the period 1st January to 31st January 2016.

2.0 AIR QUALITY

2.1 Meteorological Monitoring

Meteorological data is collected at MTW's 'Charlton Ridge' meteorological station (refer to Figure 3: Air Quality Monitoring Locations).

2.1.1 Rainfall

Rainfall for the period is summarised in Table 1, the year-to-date trend and historical trend are shown in Figure 1.

Table 1: Monthly Rainfall MTW

2016	Monthly Rainfall (mm)	Cumulative Rainfall (mm)
January	193.4	193.4

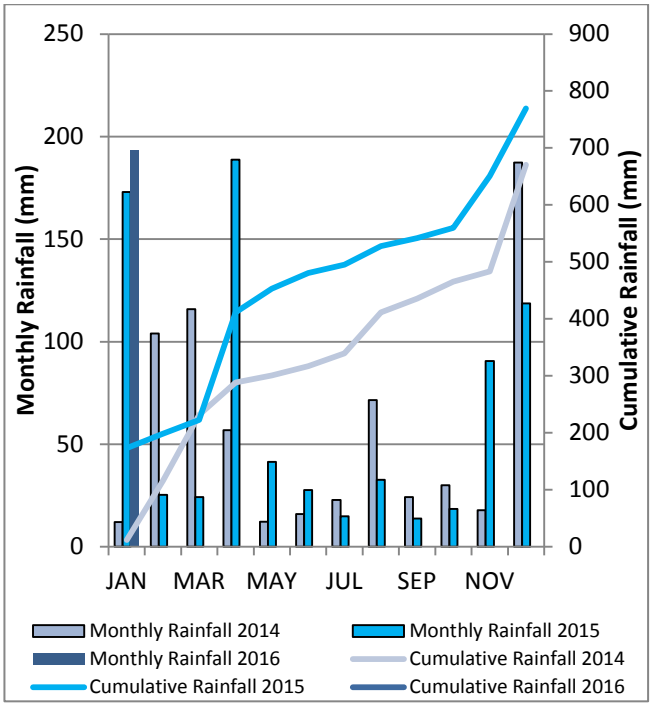

Figure 1: Rainfall Trend YTD

2.1.2 Wind Speed and Direction

Winds from the South were dominant throughout the reporting period as shown in Figure 2.

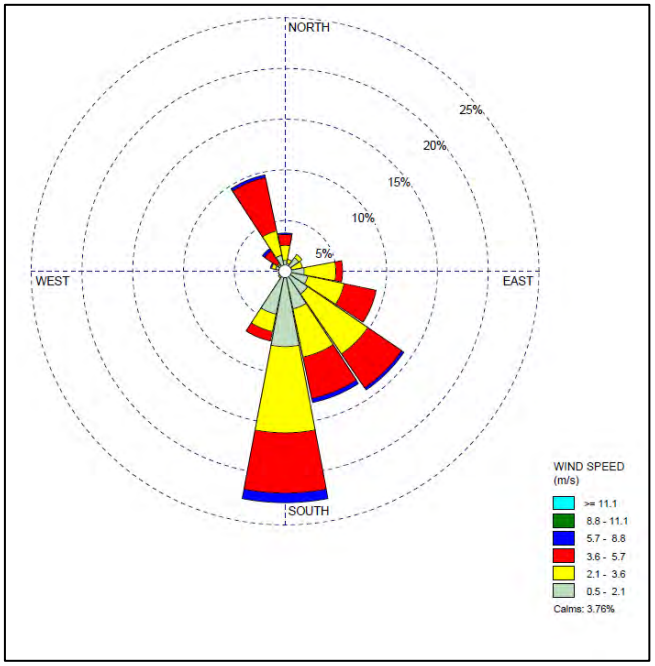

Figure 2: Charlton Ridge Wind Rose – January 2016

Figure 3: Air Quality Monitoring Locations

2.2 Depositional Dust

To monitor regional air quality, MTW operates and maintains a network of nine depositional dust gauges, situated on private and mine owned land surrounding MTW.

Figure 4 displays insoluble solids results from depositional dust gauges during the reporting period compared against the year-to-date average and the annual impact assessment criteria.

During the reporting period the D124 monitor recorded a monthly result above the long term impact assessment criteria of 4.0 g/m^2 per month. The field notes associated with the D124 result confirm the presence of insects and bird droppings. As such the result is considered contaminated and will be excluded from calculation of the annual average.

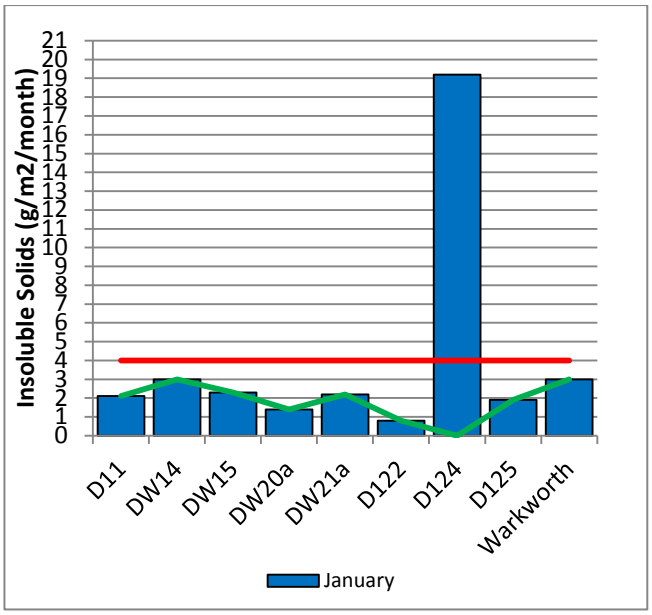

Figure 4: Depositional Dust – January 2016

2.3 Suspended Particulates

Suspended particulates are measured by a network of High Volume Air Samplers (HVAS) measuring Total Suspended Particulates (TSP) and Particulate Matter <10µm (PM_{10}). The location of these monitors can be found in Figure 3. Each HVAS was run for 24 hours on a six-day cycle in accordance with EPA requirements.

2.3.1 HVAS PM_{10} Results

Figure 5 shows the individual PM_{10} results at each monitoring station against the short term impact assessment criteria of 50µg/m^3.

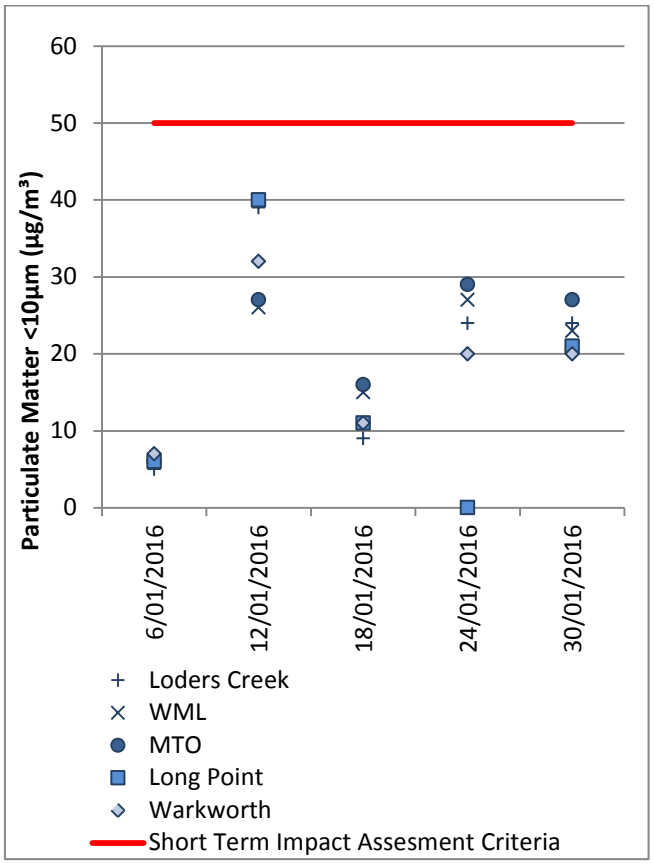

Figure 5: Individual PM_{10} Results –January 2016

Figure 6 shows the annual average PM_{10} results against the long term impact assessment criteria.

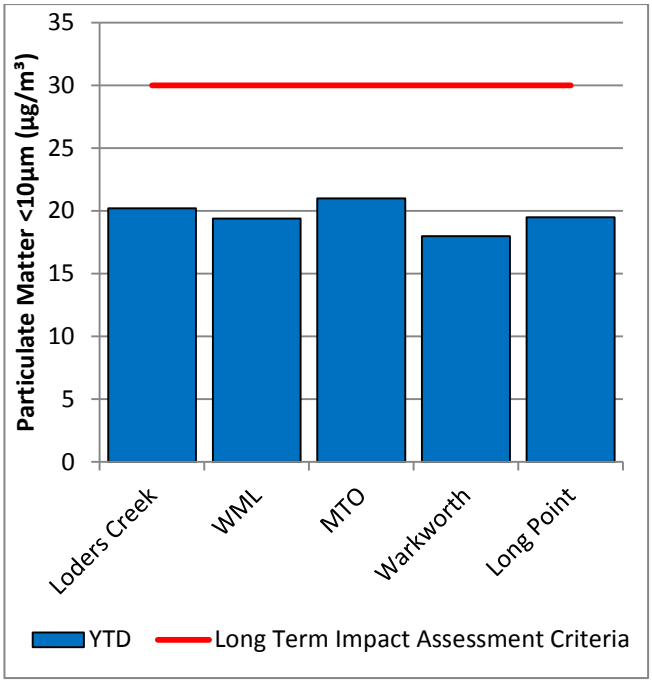

Figure 6: Annual Average PM_{10} – January 2016

2.3.2 TSP Results

Figure 7 shows the annual average TSP results compared against the long term impact assessment criteria of 90µg/m³.

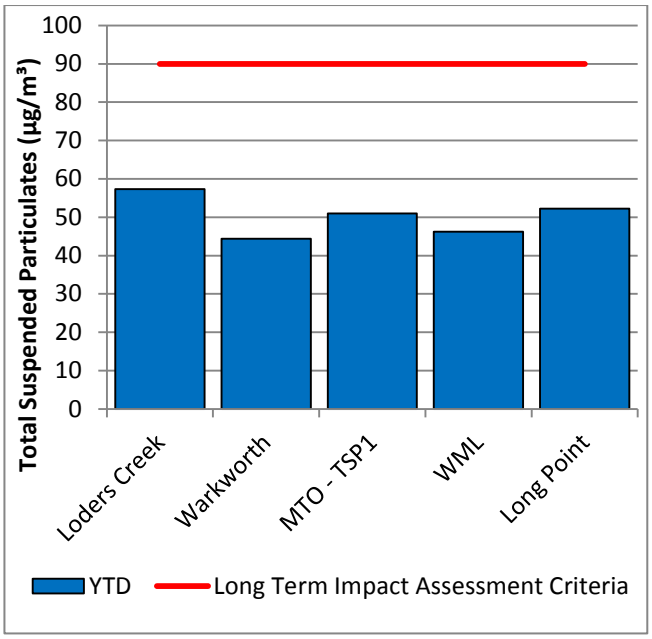

Figure 7: Annual Average Total Suspended Particulates – January 2016

2.3.3 Real Time PM_{10} Results

Mount Thorley Warkworth maintains a network of real time PM_{10} monitors. The real time air quality monitoring stations continuously log information and transmit data to a central database, generating alarms when particulate matter levels exceed internal trigger limits.

Results for real time dust sampling are shown in Figure 8, including the daily 24 hour average PM_{10} result and the annual PM_{10} average.

Data was not available on 8th January (Mount Thorley Industrial Estate) and on the 5th and 6th January (Bulga) due to equipment and communications issues.

2.3.4 Real Time Alarms for Air Quality

During January, the real time monitoring system generated 54 automated air quality related alerts, including 10 alerts for adverse meteorological conditions and 44 alerts for elevated PM_{10} levels.

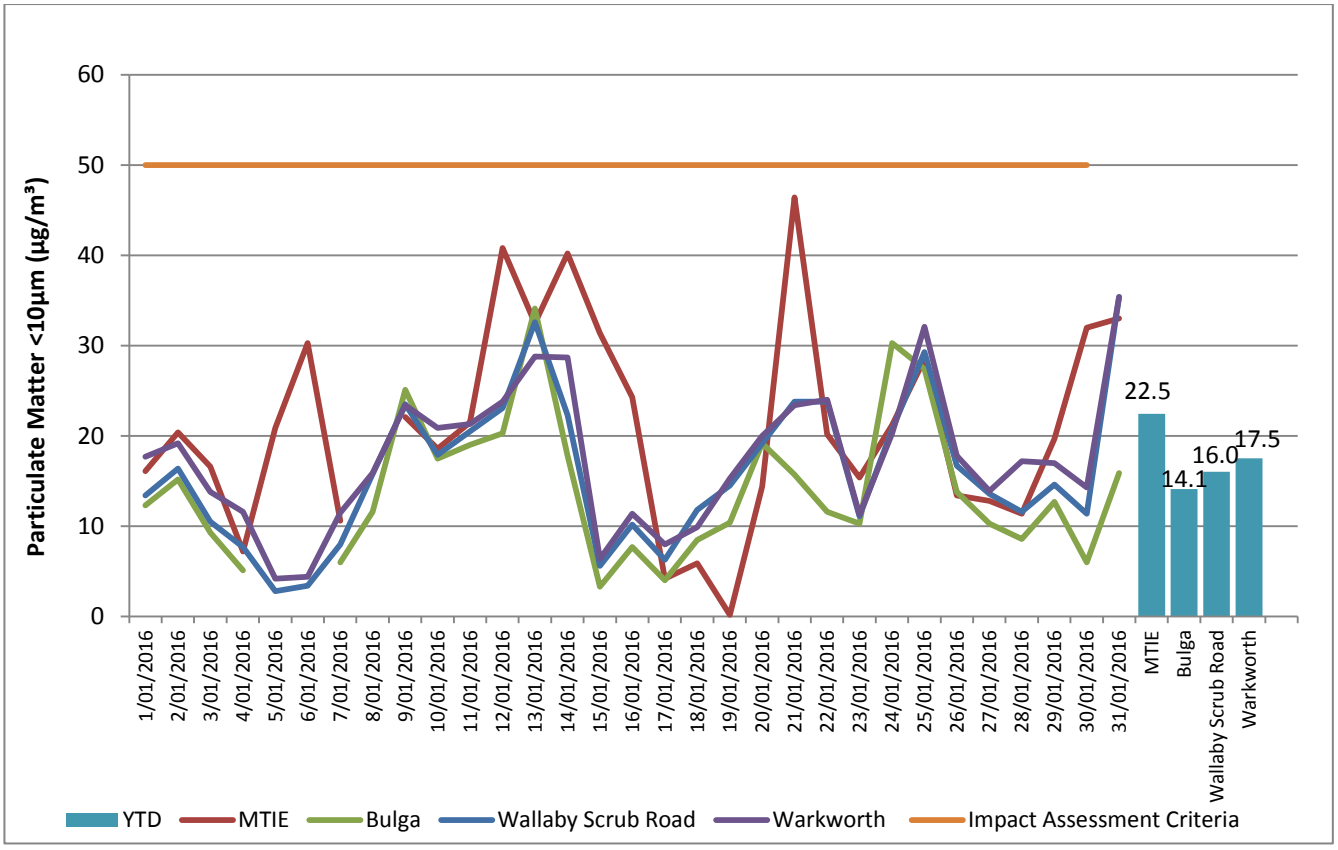

Figure 8: Real Time PM_{10} daily 24hr average and annual average – January 2016

3.0 WATER QUALITY

MTW maintains a network of surface water and groundwater monitoring sites.

3.1 Surface Water

Monitoring is conducted at mine site dams and surrounding natural watercourses.

Surface water courses are sampled on a monthly or quarterly sampling regime. Water quality is evaluated through the parameters of pH, Electrical Conductivity (EC) and Total Suspended Solids (TSS). The Hunter River and the Wollombi Brook are sampled both upstream and downstream of mining operations, to monitor the potential impact of mining on the river. Other Hunter River tributaries are also monitored.

Results of monitoring are reported quarterly, next available in the March 2016 report.

3.2 Groundwater Monitoring

Groundwater monitoring is undertaken on a quarterly basis in accordance with the MTW Groundwater Monitoring Programme.

Groundwater results are reported quarterly, next available in the March 2016 report.

3.3 HRSTS Discharge

MTW participates in the Hunter River Salinity Trading Scheme (HRSTS), allowing discharge from licensed discharge points Dam 1N and Dam 9S. Discharges can only take place subject to HRSTS regulations.

During the reporting period no water was discharged under the HRSTS.

4.0 BLAST MONITORING

MTW have a network of six blast monitoring units. These are located at nearby privately owned residences and function as regulatory compliance monitors.

The location of these monitors can be found in Figure 15.

4.1 Blast Monitoring Results

During January 2016, 17 blasts were initiated at MTW. Figure 9 to Figure 14 show the blast monitoring results for the reporting period against the impact assessment criteria. The criteria are summarised in Table 2.

Table 2: Blasting Limits

Airblast Overpressure (dB(L))	Comments
115	5% of the total number of blasts in a 12 month period
120	0%
Ground Vibration (mm/s)	**Comments**
5	5% of the total number of blasts in a 12 month period
10	0%

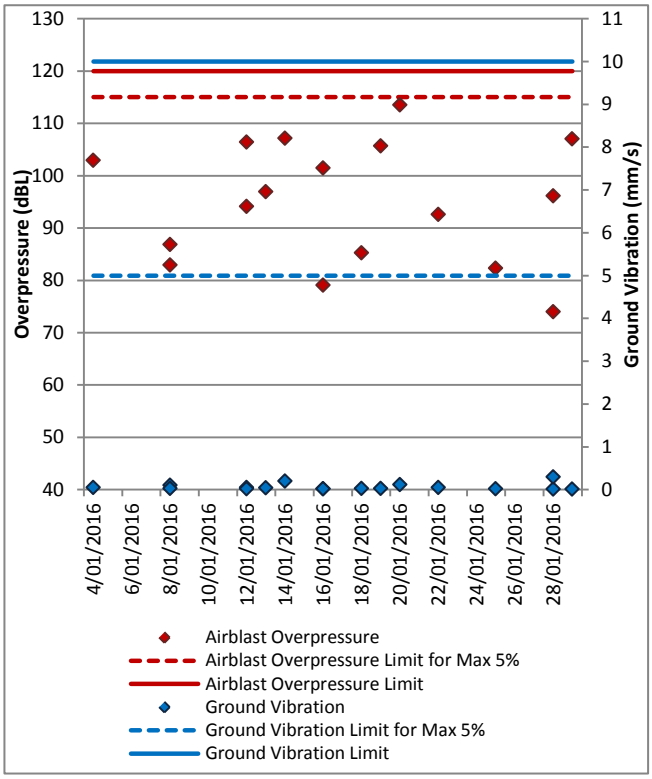

Figure 9: Abbey Green Blast Monitoring Results – January 2016

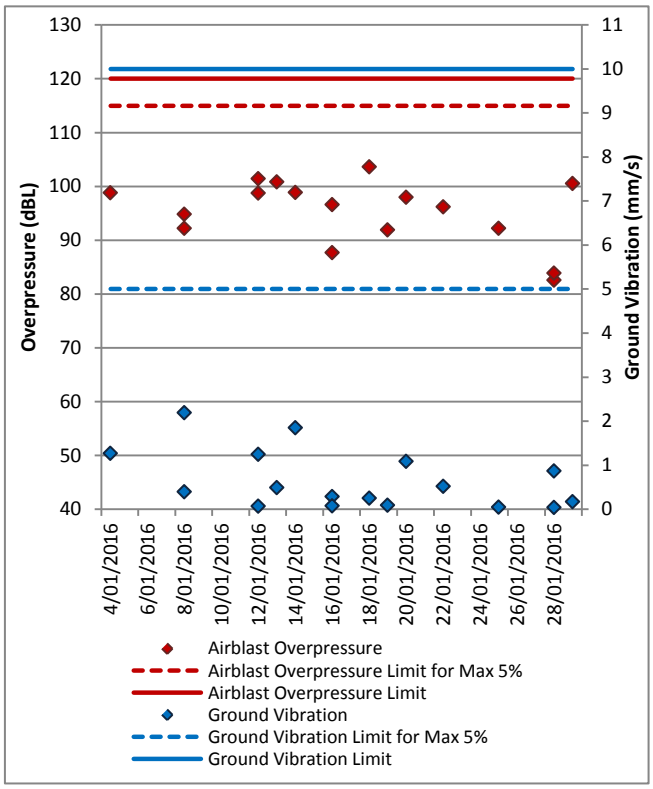

Figure 10: Bulga Village Blast Monitoring Results – January 2016

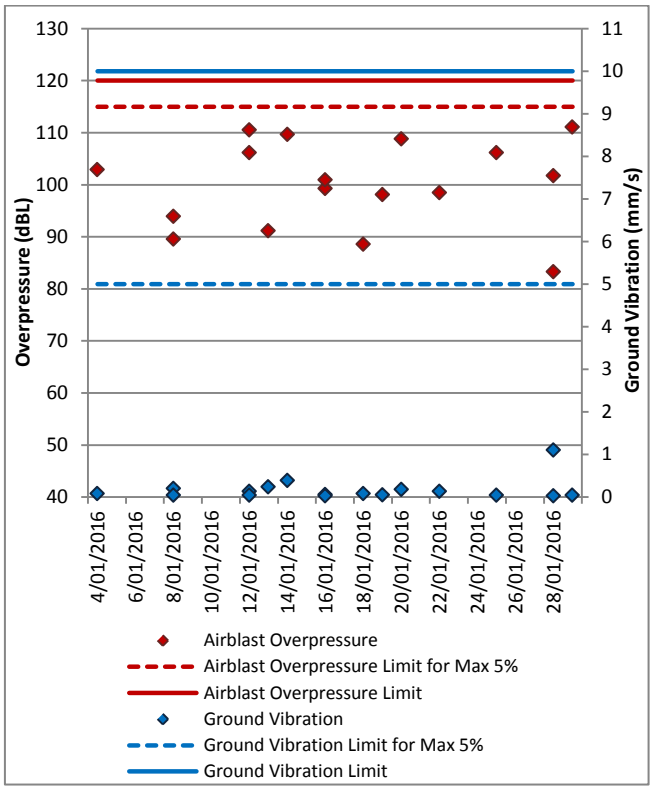

Figure 11: MTIE Blast Monitoring Results – January 2016

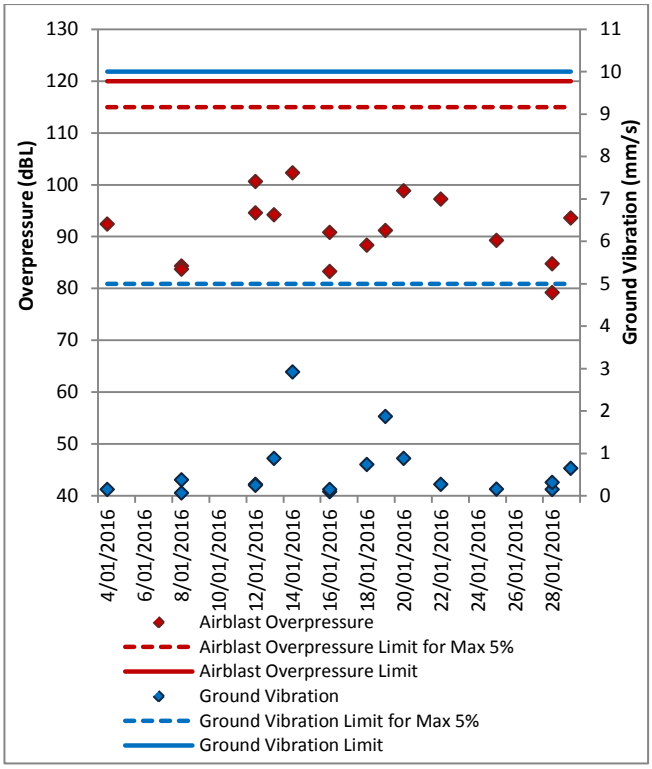

Figure 12: Warkworth Blast Monitoring Results - January 2016

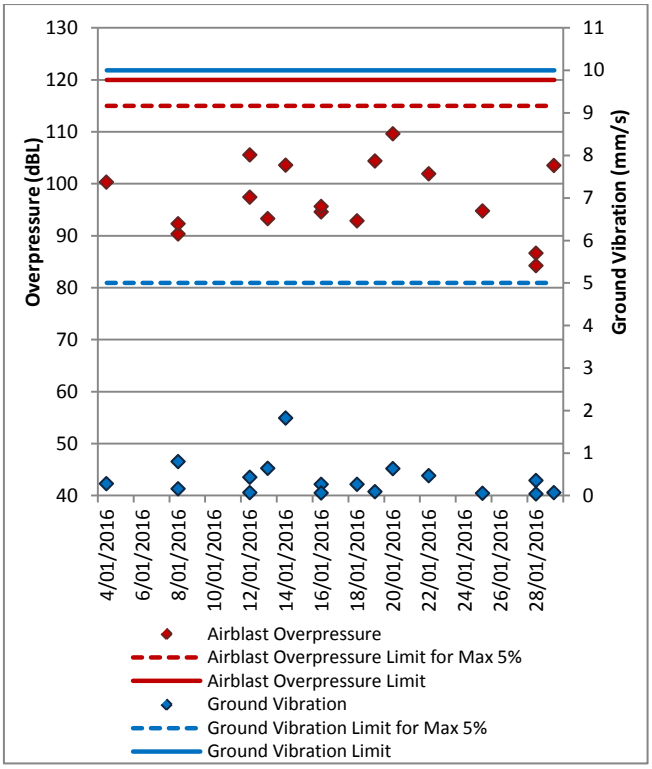

Figure 13: Wambo Road Blast Monitoring Results – January 2016

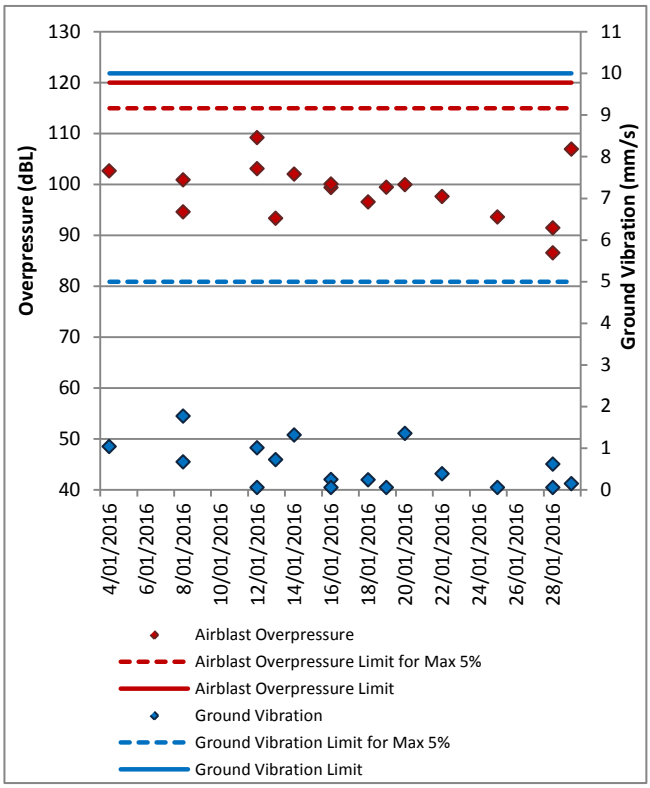

Figure 14: Wollemi Peak Road Blast Monitoring Results – January 2016.

Figure 15: MTW Blast Monitoring Location Plan

5.0 NOISE

Routine attended noise monitoring is carried out in accordance with the MTW Noise Management Plan. A review against EIS predictions will be reported in the Annual Review. The purpose of the noise surveys is to quantify and describe the acoustic environment around the site and compare results with specified limits. Real time noise monitoring also occurs at nine sites surrounding MTW. Noise monitoring locations are displayed in Figure 16.

5.1 Attended Noise Monitoring Results

Attended monitoring was conducted at receiver locations surrounding MTW on the nights of 18th and 24/25th January 2016. All measurements complied with the relevant criteria. Results are detailed in Table 3 to Table 7.

5.1.1 WML Noise Assessment

Compliance assessments undertaken against the WML noise criteria are presented in Tables 3 and 4.

Table 3: $L_{Aeq,\ 15\ minute}$ Warkworth Impact Assessment Criteria – January 2016

Location	Date and Time	Wind Speed (m/s)[5]	VTG	Criterion (dB(A))	Criterion Applies?[1,6]	WML L_{Aeq} dB[2,4]	Exceedance[3]	Total L_{Ceq} – L_{Aeq}	Revised WML L_{Aeq}[5,6]
MTIE	24/01/2016 22:00	2.7	0.5	NA	No	IA	NA	11	IA
Bulga Village	25/01/2016 0:34	2.7	-1	38	Yes	IA	Nil	5	IA
Gouldsville Road	18/01/2016 23:56	1.6	3	NA	No	IA	NA	19	IA
Inlet Road West	24/01/2016 23:07	3	-1	35	Yes	27	Nil	9	27
Long Point	18/01/2016 23:31	1.2	3	37	Yes	IA	Nil	16	IA
Wollemi Peak Road	25/01/2016 0:07	2.9	0.5	35	Yes	IA	Nil	1	IA
South Bulga	24/01/2016 23:40	2.8	0.5	35	Yes	IA	Nil	8	IA
Wambo Road	24/01/2016 22:37	3.1	-1	38	No	31	NA	11	31

Table 4: $L_{Aeq,\ 15\ minute}$ Warkworth - Land Acquisition Criteria – January 2016

Location	Date and Time	Wind Speed (m/s)[5]	VTG	Criterion (dB(A))	Criterion Applies?[1,6]	WML L_{Aeq} dB[2,4]	Exceedance[3]	Total L_{Ceq} – L_{Aeq}[7]	Revised WML L_{Aeq}[5,6]
MTIE	24/01/2016 22:00	2.7	0.5	44	Yes	IA	Nil	11	IA
Bulga Village	25/01/2016 0:34	2.7	-1	43	Yes	IA	Nil	5	IA
Gouldsville Road	18/01/2016 23:56	1.6	3	43	Yes	IA	Nil	19	IA
Inlet Road West	24/01/2016 23:07	3	-1	40	Yes	27	Nil	9	27
Long Point	18/01/2016 23:31	1.2	3	40	Yes	IA	Nil	16	IA
Wollemi Peak Road	25/01/2016 0:07	2.9	0.5	40	Yes	IA	Nil	1	IA
South Bulga	24/01/2016 23:40	2.8	0.5	40	Yes	IA	Nil	8	IA
Wambo Road	24/01/2016 22:37	3.1	-1	40	No	31	NA	11	31

Notes

1. *Application of Criterion as per meteorological exclusions set out in the Approvals;*
2. *These are measured A-weighted noise levels (professional assessment of noise contribution from the target source (WML / MTO) only);*
3. *Exceedance is defined in the MTW Noise Management Plan. Bolded results in red are those greater than the relevant criterion;*
4. *Results denoted by "<" indicate that the relative contribution of the target consent area could not be absolutely determined, but is assessed up to a maximum of the recorded value. "IA" means that the target consent area was inaudible during the assessment. "NM" means that the target consent area was audible, but at such low levels that an accurate assessment of noise level could not be determined;*
5. *Revised WML L_{Aeq} includes application of the INP Low Frequency modification factor penalty where applicable;*
6. *Low Frequency Penalty is not be applied where external noise sources influence the L_{Ceq} measurement, or during instances where the noise criteria do not apply (see note 1); and*
7. *INP assessment of Total L_{Ceq} minus Total L_{Aeq}. INP Low Frequency Penalty is applicable where this exceeds 15*
8. *INP modification factor has not been applied as noise levels attributable (in part) to mine noise from non-CNA mine*

5.1.3 MTO Noise Assessment

Compliance assessments undertaken against the MTO noise criteria are presented in Table 5 to Table 7.

Table 5: $L_{Aeq,\ 15minute}$ Mount Thorley - Impact Assessment Criteria – January 2016

Location	Date and Time	Wind Speed (m/s)[5]	VTG	Criterion dB	Criterion Applies?[1,6]	MTO L_{Aeq} dB[2,4]	Exceedance[3]	Total L_{Ceq} – L_{Aeq}[7]	Revised MTO L_{Aeq}[5,6]
MTIE	24/01/2016 22:00	2.7	0.5	NA	No	IA	NA	11	IA
Bulga Village	25/01/2016 0:34	2.7	-1	40	Yes	24	Nil	5	24
Gouldsville Road	18/01/2016 23:56	1.6	3	44	Yes	IA	Nil	19	IA
Inlet Road West	24/01/2016 23:07	3	-1	35	Yes	24	Nil	9	24
Long Point	18/01/2016 23:31	1.2	3	39	Yes	IA	Nil	16	IA
Wollemi Peak Road	25/01/2016 0:07	2.9	0.5	38	Yes	27	Nil	1	27
South Bulga	24/01/2016 23:40	2.8	0.5	37	Yes	<25	Nil	8	<25
Wambo Road	24/01/2016 22:37	3.1	-1	40	No	29	NA	11	29

Table 6: $L_{Aeq,15minute}$ Mount Thorley – Land Acquisition Criteria – January 2016

Location	Date and Time	Wind Speed (m/s)[5]	VTG[5]	Criterion dB	Criterion Applies?[1,6]	MTO L_{Aeq} dB[2,4]	Exceedance[3]	Total L_{Ceq} – L_{Aeq}[7]	Revised MTO L_{Aeq}[5,6]
MTIE	24/01/2016 22:00	2.7	0.5	NA	No	IA	NA	11	IA
Bulga Village	25/01/2016 0:34	2.7	-1	43	Yes	24	Nil	5	24
Gouldsville Road	18/01/2016 23:56	1.6	3	45	Yes	IA	Nil	19	IA
Inlet Road West	24/01/2016 23:07	3	-1	43	Yes	24	Nil	9	24
Long Point	18/01/2016 23:31	1.2	3	43	Yes	IA	Nil	16	IA
Wollemi Peak Road	25/01/2016 0:07	2.9	0.5	43	Yes	27	Nil	1	27
South Bulga	24/01/2016 23:40	2.8	0.5	43	Yes	<25	Nil	8	<25
Wambo Road	24/01/2016 22:37	3.1	-1	43	No	29	NA	11	29

Table 7: $L_{A1,\ 1Minute}$ Mount Thorley - Impact Assessment Criteria – January 2016

Location	Date and Time	Wind Speed (m/s)[5]	VTG[5]	Criterion dB	Criterion Applies?[1,6]	MTO $L_{A1,\ 1min}$ dB[2,4]	Exceedance[3]
MTIE	24/01/2016 22:00	2.7	0.5	NA	No	IA	NA
Bulga Village	25/01/2016 0:34	2.7	-1	48	Yes	30	Nil
Gouldsville Road	18/01/2016 23:56	1.6	3	47	Yes	IA	Nil
Inlet Road West	24/01/2016 23:07	3	-1	48	Yes	27	Nil
Long Point	18/01/2016 23:31	1.2	3	47	Yes	IA	Nil
Wollemi Peak Road	25/01/2016 0:07	2.9	0.5	48	Yes	29	Nil
South Bulga	24/01/2016 23:40	2.8	0.5	48	Yes	<25	Nil
Wambo Road	24/01/2016 22:37	3.1	-1	48	No	33	NA

Notes

1. *Application of Criterion as per meteorological exclusions set out in the Approvals;*
2. *These are measured A-weighted noise levels (professional assessment of noise contribution from the target source (WML / MTO) only);*
3. *Exceedance is defined in the MTW Noise Management Plan. Bolded results in red are those greater than the relevant criterion;*
4. *Results denoted by "<" indicate that the relative contribution of the target consent area could not be absolutely determined, but is assessed up to a maximum of the recorded value. "IA" means that the target consent area as inaudible during the assessment. "NM" means that the target consent area was audible, but at such low levels that an accurate assessment of noise level could not be determined;*
5. *Revised WML L_{Aeq} includes application of the INP Low Frequency modification factor penalty where applicable;*
6. *Low Frequency Penalty is not be applied where external noise sources influence the L_{Ceq} measurement, or during instances where the noise criteria do not apply (see note 1);*
7. *INP assessment of Total L_{Ceq} minus Total L_{Aeq}. INP Low Frequency Penalty is applicable where this exceeds 15; and*
8. *INP modification factor has not been applied as noise levels attributable (in part) to mine noise from non-CNA mine*

5.1.4 INP Low Frequency

In accordance with the requirements of the NSW Industrial Noise Policy (INP), the low frequency modification factor has been applied where appropriate. It should be noted that the Industrial Noise Policy does not give guidance on the application of the penalty where more than one target noise source is audible. The L_{Ceq} levels reported above are “Total”, or “Total mine noise” at best, and cannot be attributed accurately to a single mine. Accordingly, where the INP criteria for the application of the Low Frequency modification factor is triggered, the penalty has been applied to the dominant mine noise source (either of WML or MTO).

There were no exceedances of criteria recorded during the reporting period.

Figure 16: Noise Monitoring Location Plan

5.2 Noise Management Measures

A program of targeted supplementary attended noise monitoring is in place at MTW, supported by the real-time directional monitoring network and ensuring the highest level of noise management is maintained. The supplementary program is undertaken by MTW personnel and involves:

- Routine inspections from both inside and outside the mine boundary;
- Routine and as-required handheld noise assessments (undertaken in response to noise alarm and/or community complaint), comparing measured levels against consent noise limits; and
- Validation monitoring following operational modifications to assess the adequacy of the modifications.

Where a noise assessment identifies noise emissions which are exceeding the relevant noise limit(s) for any particular residence, modifications will be made so as to ensure that the noise event is resolved within 75 minutes of identification. The actions taken are commensurate with the nature and severity of the noise event, but can include:

- Replacement of non-attenuated equipment with sound attenuated equipment;
- Changing the haul route to a less noise sensitive haul;
- Changing dump locations (in-pit or less exposed dump option);
- Reducing equipment numbers;
- Shut down of task; or
- Site shut down.
- A summary of these assessments undertaken during January are provided in Table 8.

Table 8: Supplementary Attended Noise Monitoring Data – January 2016

No. of assessments	No. of assessments > trigger	No. of nights where assessments > trigger	% greater than trigger
444	14	4	3.2

Note: Measurements are taken under all meteorological conditions, including conditions under which the consent noise criteria do not apply.

6.0 OPERATIONAL DOWNTIME

During January, a total of 914.3 hours of equipment downtime was logged in response to environmental events such as dust, noise and elevated wind impacts. Operational downtime by equipment type is shown in Figure 17.

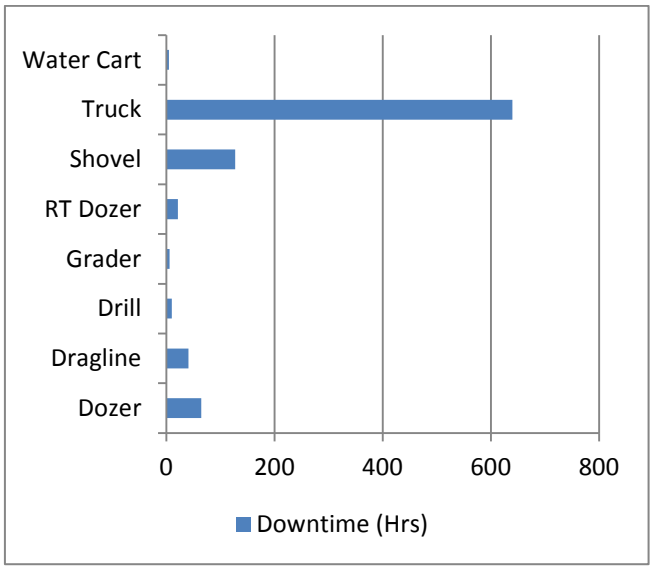

Figure 17: Operational Downtime by Equipment Type – January 2016

7.0 REHABILITATION

MTW did not undertake any rehabilitation activities in the field during the reporting period. Rehabilitation works will commence following finalisation of 2016 schedule and targets. Year-to-date progress can be viewed in Figure 18.

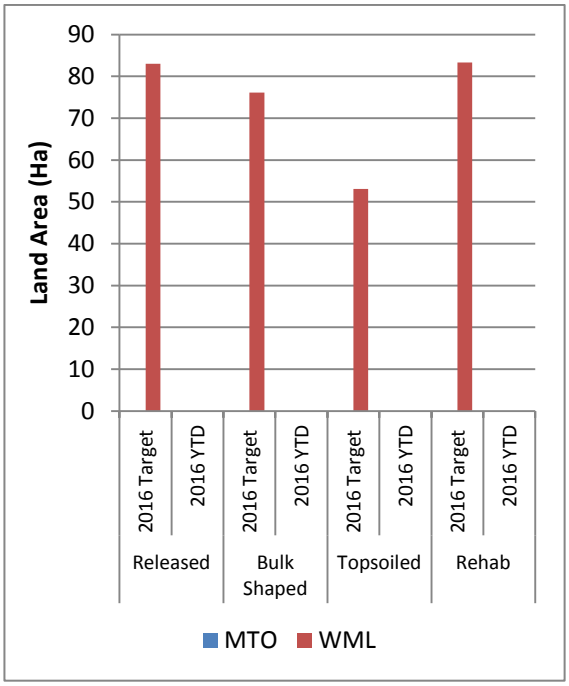

Figure 18: Rehabilitation YTD – January 2016

8.0 ENVIRONMENTAL INCIDENTS

During the reporting period MTW recorded one reportable environmental incident.

At approximately 7am on the 6th of January, a failure of a sediment dam embankment near the boundary of Wallaby Scrub Road was observed. Sediment laden water flowed under the road and via a culvert into a second sediment dam on Coal and Allied owned property. Remediation works will be completed to ensure the dam meets the capacity requirements of the relevant industry guidelines.

The incident was reported to the Department of Planning and Environment (DP&E) and Environment Protection Authority on the 6th January 2016. An incident report was submitted to the Environment Protection Authority on the 20th January and to DP&E on 21st January 2016.

9.0 COMPLAINTS

During the reporting period 39 complaints were received, details of these complaints are shown in Figure 19 below.

	Noise	Dust	Blast	Lighting	Other	Total
January	29	1	5	2	2	39
February	-	-	-	-	-	-
March	-	-	-	-	-	-
April	-	-	-	-	-	-
May	-	-	-	-	-	-
June	-	-	-	-	-	-
July	-	-	-	-	-	-
August	-	-	-	-	-	-
September	-	-	-	-	-	-
October	-	-	-	-	-	-
November	-	-	-	-	-	-
December	-	-	-	-	-	-
Total	29	1	5	2	2	39

Figure 19: Complaints Summary - YTD January 2016

Appendix A: Meteorological Data

Table 9: Meteorological Data – Charlton Ridge Meteorological Station – January 2016

Date	Air Temperature Maximum (°C)	Air Temperature Minimum (°C)	Relative Humidity Maximum (%)	Relative Humidity Minimum (%)	Wind Direction Average (°)	Wind Speed Average (m/sec)	Rainfall(mm)
1/01/2016	28.7	14.1	87.6	35.6	138.3	3.0	0.0
2/01/2016	27.1	15.7	85.4	41.3	142.3	2.9	0.0
3/01/2016	24.0	15.2	95.9	54.8	165.4	3.1	6.2
4/01/2016	22.8	15.3	97.3	66.9	155.5	2.9	11.6
5/01/2016	19.5	16.0	98.8	94.8	164.0	4.5	55.8
6/01/2016	19.0	14.5	98.2	78.3	184.6	4.0	32.6
7/01/2016	25.7	14.5	93.9	43.7	178.2	4.2	0.0
8/01/2016	27.7	11.7	92.5	36.9	152.8	1.7	0.0
9/01/2016	26.9	15.5	88.4	41.0	137.6	2.1	0.0
10/01/2016	30.7	15.8	93.2	36.9	144.7	2.1	0.0
11/01/2016	36.6	17.3	94.5	23.7	204.3	2.8	0.0
12/01/2016	37.5	18.9	87.5	26.0	232.1	3.0	0.0
13/01/2016	33.4	19.7	80.9	42.8	137.6	1.8	0.0
14/01/2016	38.9	18.9	95.3	23.6	226.6	3.3	11.4
15/01/2016	21.1	11.4	96.7	59.5	170.5	4.4	36.4
16/01/2016	24.6	13.2	86.0	39.2	155.7	3.9	0.0
17/01/2016	23.9	14.4	92.7	55.2	157.8	2.4	0.6
18/01/2016	28.1	12.9	96.1	36.1	147.8	1.8	0.2
19/01/2016	33.1	14.4	95.6	19.7	209.8	2.2	0.0
20/01/2016	36.0	17.7	72.7	19.0	241.0	2.8	0.0
21/01/2016	37.3	20.6	95.8	22.5	211.6	3.2	4.8
22/01/2016	33.2	20.0	97.5	50.0	155.9	1.2	29.6
23/01/2016	31.0	19.3	97.4	39.4	200.4	3.4	0.2
24/01/2016	27.5	18.1	89.8	53.3	143.9	2.0	0.0
25/01/2016	28.6	18.6	87.7	54.2	139.7	2.7	0.0
26/01/2016	28.7	19.2	86.9	48.5	126.0	3.6	0.0
27/01/2016	26.0	18.1	86.8	52.2	121.5	2.9	0.0
28/01/2016	30.1	18.0	96.1	50.9	163.0	1.5	4.0
29/01/2016	28.3	19.3	94.7	52.2	185.1	2.1	0.0
30/01/2016	32.3	18.2	91.4	44.4	149.7	2.2	0.0
31/01/2016	31.6	17.1	95.3	18.4	250.2	3.3	0.0

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Appendix B

Environmental Monitoring
February 2016

COAL & ALLIED

Managed by Rio Tinto Coal Australia

Mount Thorley Warkworth

Monthly Environmental Report

February 2016

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Revision History

Version No.	Person Responsible	Document Status	Date
1.0	**Environmental Advisor**	**Draft**	**22/03/2016**
1.1	**Environmental Specialist**	**Final**	**22/03/2016**

1.0 INTRODUCTION

This report has been compiled to provide a monthly summary of environmental monitoring results for Mount Thorley Warkworth (MTW). This report includes all monitoring data collected for the period 1st February to 29th February 2016.

2.0 AIR QUALITY

2.1 Meteorological Monitoring

Meteorological data is collected at MTW's 'Charlton Ridge' meteorological station (refer to Figure 3: Air Quality Monitoring Locations).

2.1.1 Rainfall

Rainfall for the period is summarised in Table 1, the year-to-date trend and historical trend are shown in Figure 1.

Table 1: Monthly Rainfall MTW

2016	Monthly Rainfall (mm)	Cumulative Rainfall (mm)
February	15.6	209

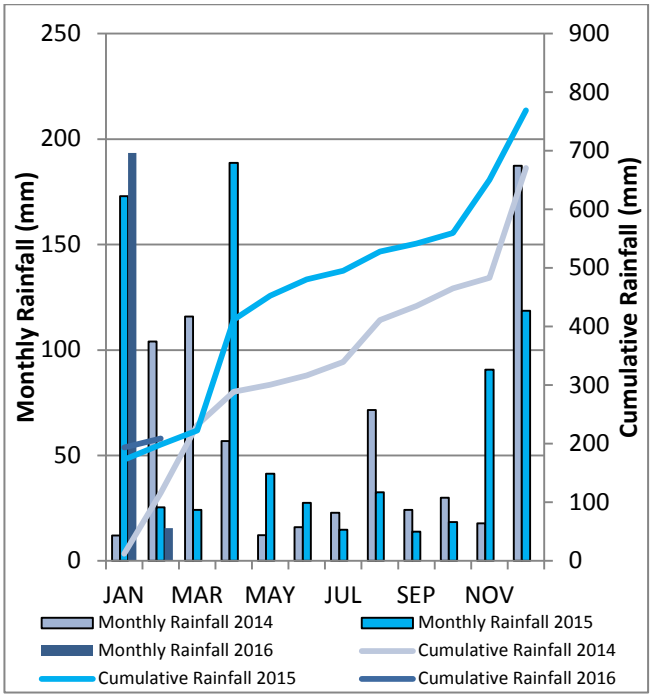

Figure 1: Rainfall Trend YTD

2.1.2 Wind Speed and Direction

Winds from the South were dominant throughout the reporting period as shown in Figure 2.

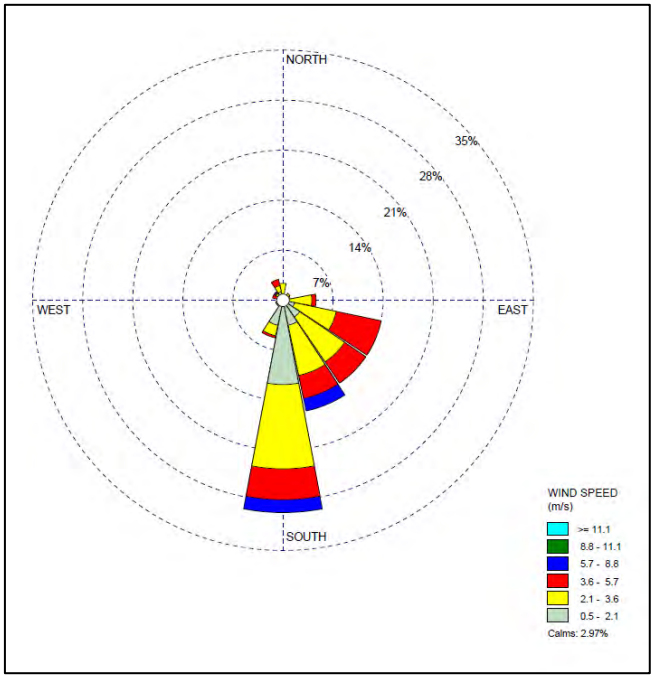

Figure 2: Charlton Ridge Wind Rose – February 2016

Figure 3: Air Quality Monitoring Locations

2.2 Depositional Dust

To monitor regional air quality, MTW operates and maintains a network of nine depositional dust gauges, situated on private and mine owned land surrounding MTW.

Figure 4 displays insoluble solids results from depositional dust gauges during the reporting period compared against the year-to-date average and the annual impact assessment criteria.

During the reporting period the DW14 and D124 monitors recorded monthly results above the long term impact assessment criteria of 4.0 g/m^2 per month. The field notes associated with the results confirm the presence of insects and bird droppings. As such the results are considered contaminated and will be excluded from calculation of the annual average.

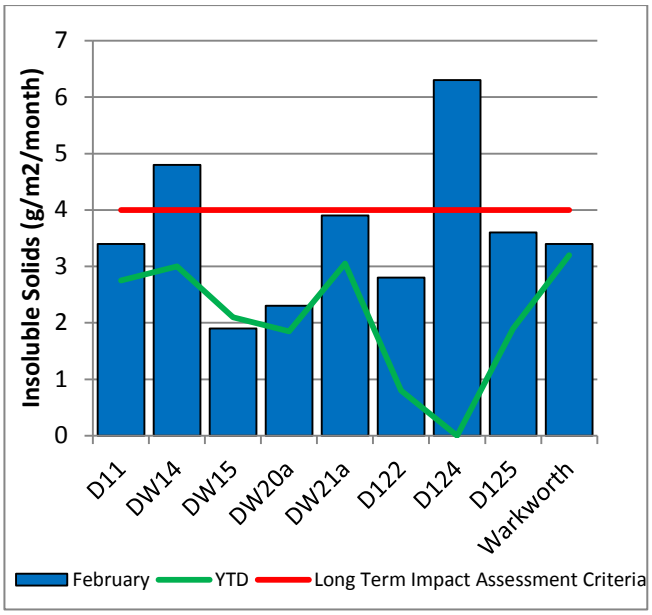

Figure 4: Depositional Dust – February 2016

2.3 Suspended Particulates

Suspended particulates are measured by a network of High Volume Air Samplers (HVAS) measuring Total Suspended Particulates (TSP) and Particulate Matter <10µm (PM_{10}). The location of these monitors can be found in Figure 3. Each HVAS was run for 24 hours on a six-day cycle in accordance with EPA requirements.

2.3.1 HVAS PM_{10} Results

Figure 5 shows the individual PM_{10} results at each monitoring station against the short term impact assessment criteria of 50µg/m^3.

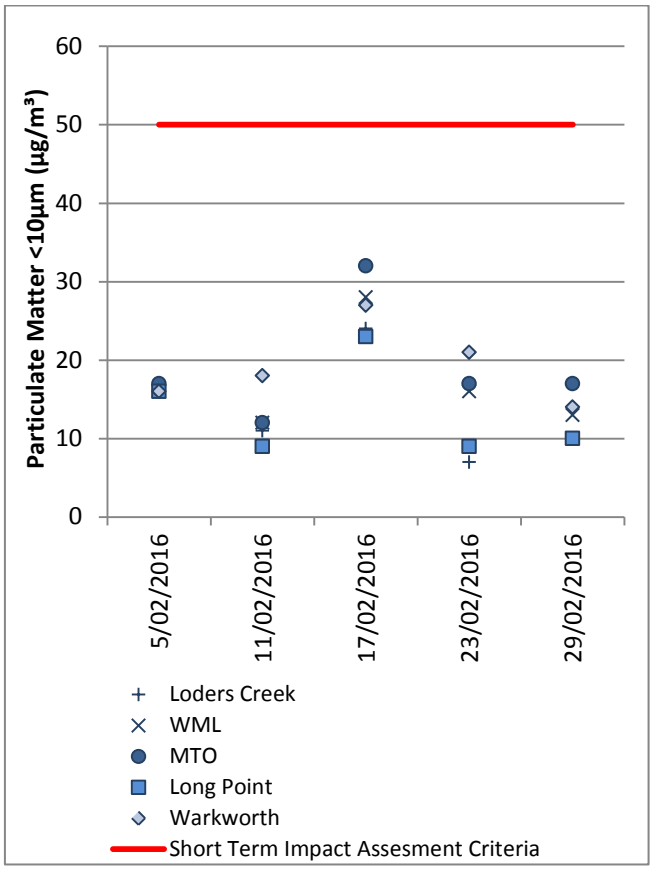

Figure 5: Individual PM_{10} Results –February 2016

Figure 6 shows the annual average PM_{10} results against the long term impact assessment criteria.

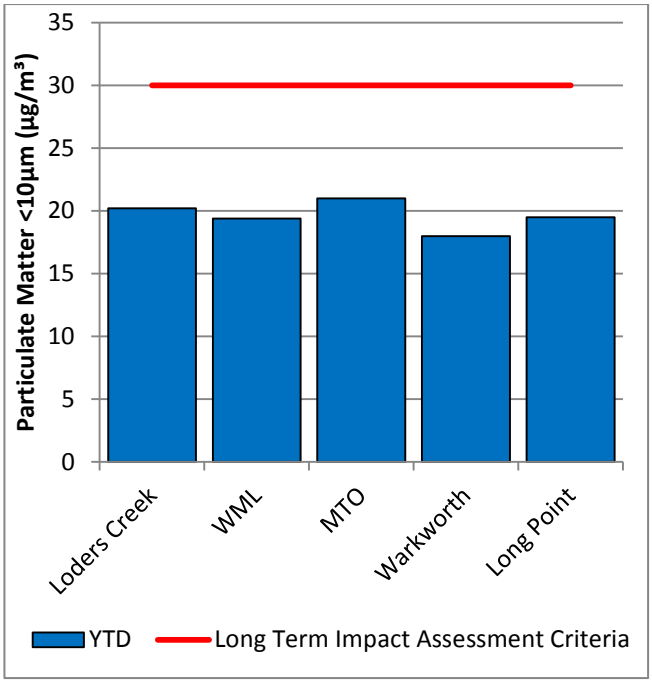

Figure 6: Annual Average PM_{10} – February 2016

2.3.2 TSP Results

Figure 7 shows the annual average TSP results compared against the long term impact assessment criteria of 90µg/m³.

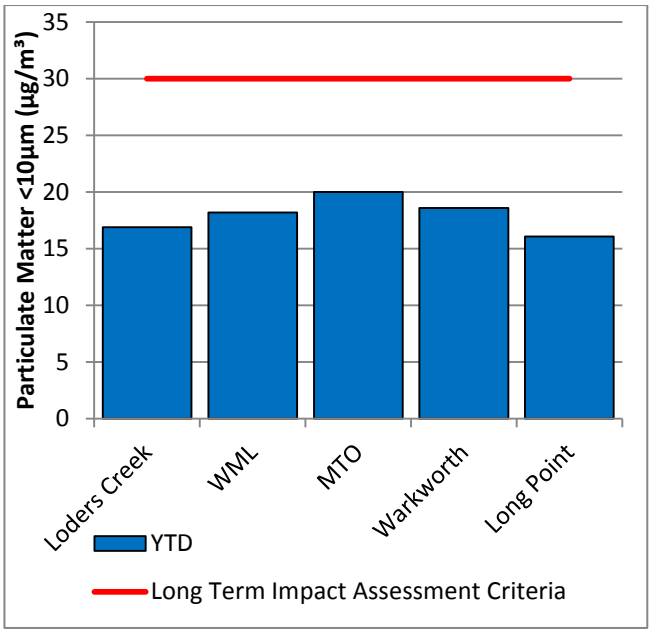

Figure 7: Annual Average Total Suspended Particulates – February 2016

2.3.3 Real Time PM_{10} Results

Mount Thorley Warkworth maintains a network of real time PM_{10} monitors. The real time air quality monitoring stations continuously log information and transmit data to a central database, generating alarms when particulate matter levels exceed internal trigger limits.

Results for real time dust sampling are shown in Figure 8, including the daily 24 hour average PM_{10} result and the annual PM_{10} average.

2.3.4 Real Time Alarms for Air Quality

During February, the real time monitoring system generated 45 automated air quality related alerts, including 7 alerts for adverse meteorological conditions and 38 alerts for elevated PM_{10} levels.

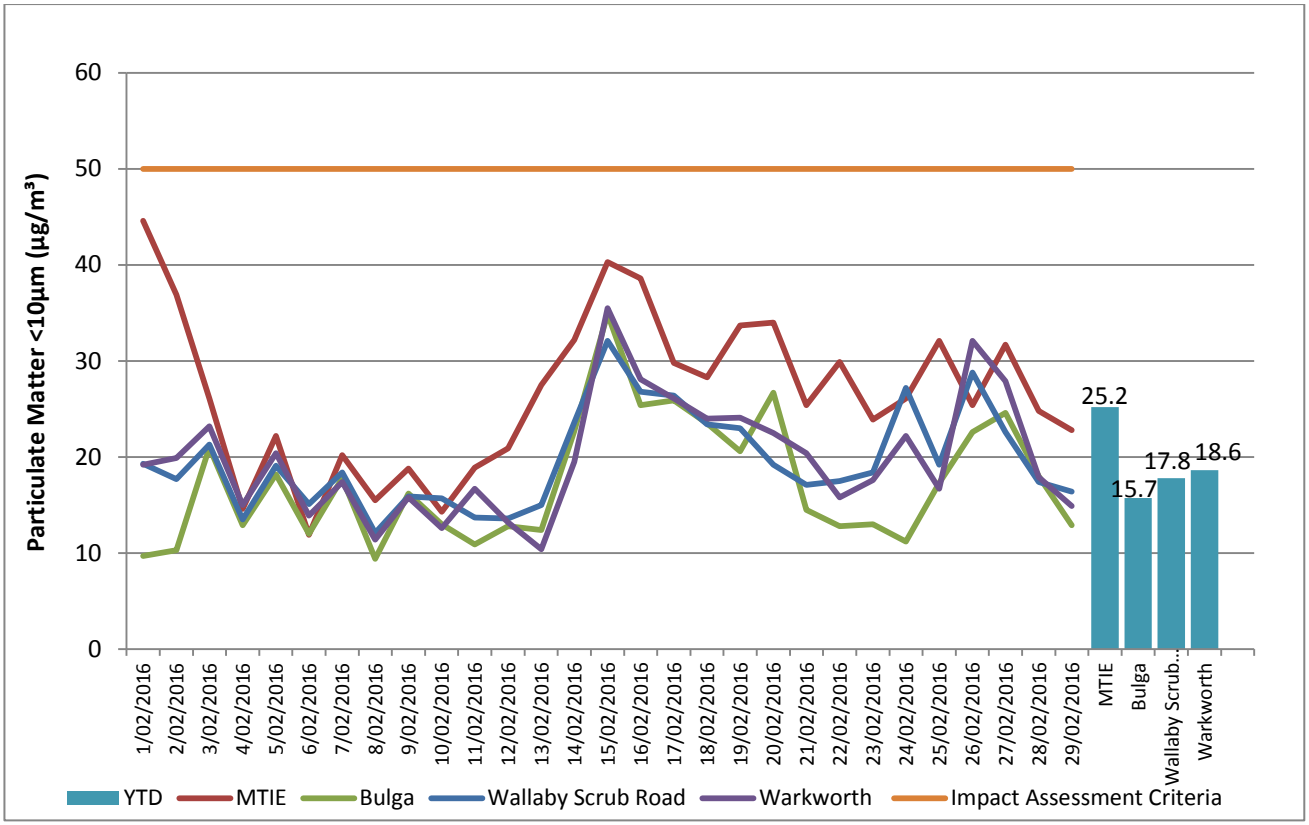

Figure 8: Real Time PM_{10} daily 24hr average and annual average – February 2016

3.0 WATER QUALITY

MTW maintains a network of surface water and groundwater monitoring sites.

3.1 Surface Water

Monitoring is conducted at mine site dams and surrounding natural watercourses.

Surface water courses are sampled on a monthly or quarterly sampling regime. Water quality is evaluated through the parameters of pH, Electrical Conductivity (EC) and Total Suspended Solids (TSS). The Hunter River and the Wollombi Brook are sampled both upstream and downstream of mining operations, to monitor the potential impact of mining on the river. Other Hunter River tributaries are also monitored.

Results of monitoring are reported quarterly, next available in the March 2016 report.

3.2 Groundwater Monitoring

Groundwater monitoring is undertaken on a quarterly basis in accordance with the MTW Groundwater Monitoring Programme.

Groundwater results are reported quarterly, next available in the March 2016 report.

3.3 HRSTS Discharge

MTW participates in the Hunter River Salinity Trading Scheme (HRSTS), allowing discharge from licensed discharge points Dam 1N and Dam 9S. Discharges can only take place subject to HRSTS regulations.

During the reporting period no water was discharged under the HRSTS.

4.0 BLAST MONITORING

MTW have a network of six blast monitoring units. These are located at nearby privately owned residences and function as regulatory compliance monitors.

The location of these monitors can be found in Figure 15.

4.1 Blast Monitoring Results

During February 2016, 28 blasts were initiated at MTW. Figure 9 to Figure 14 show the blast monitoring results for the reporting period against the impact assessment criteria. The criteria are summarised in Table 2.

Table 2: Blasting Limits

Airblast Overpressure (dB(L))	Comments
115	5% of the total number of blasts in a 12 month period
120	0%
Ground Vibration (mm/s)	**Comments**
5	5% of the total number of blasts in a 12 month period
10	0%

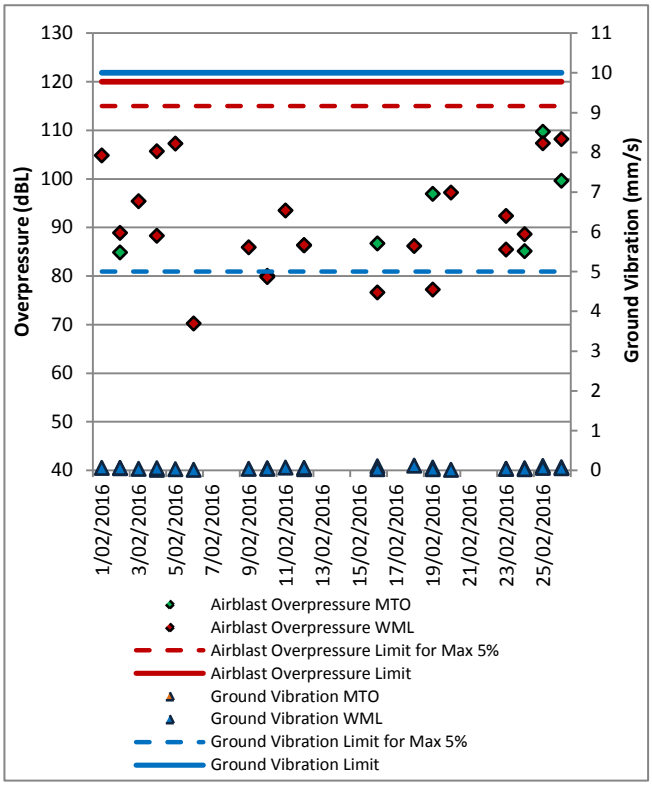

Figure 9: Abbey Green Blast Monitoring Results – February 2016

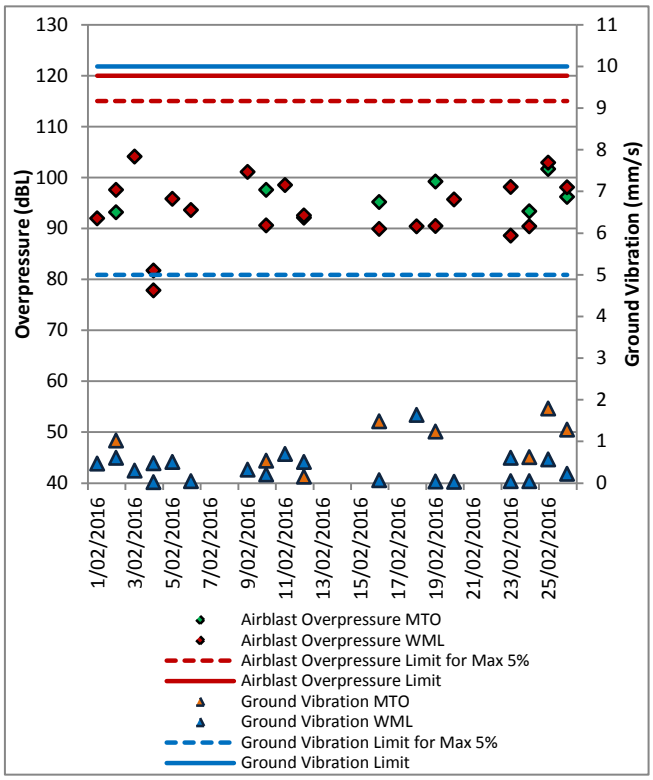

Figure 10: Bulga Village Blast Monitoring Results – February 2016

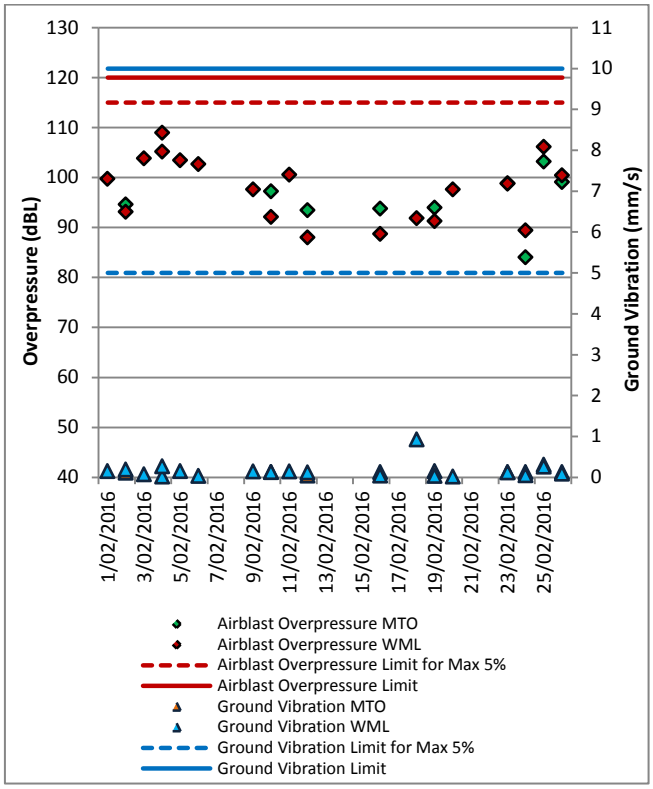

Figure 11: MTIE Blast Monitoring Results – February 2016

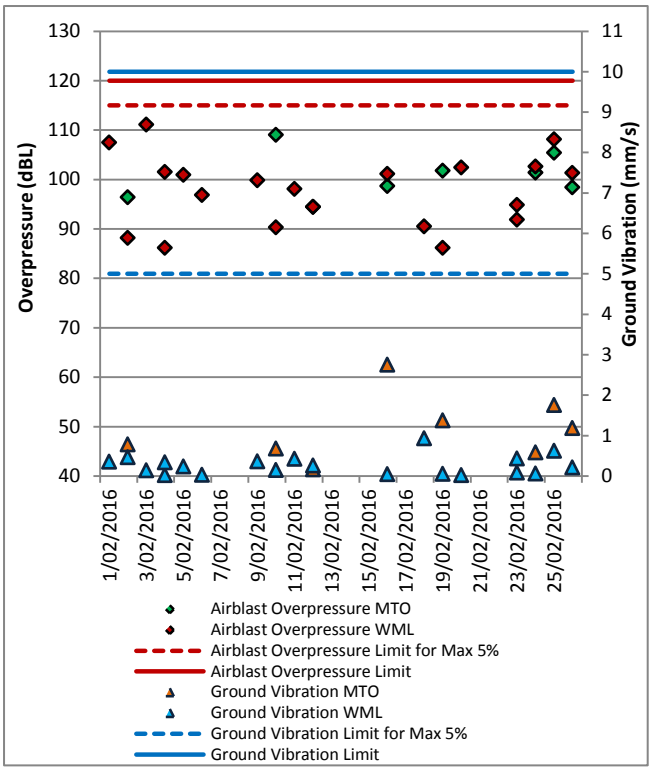

Figure 13: Wollemi Peak Road Blast Monitoring Results – February 2016.

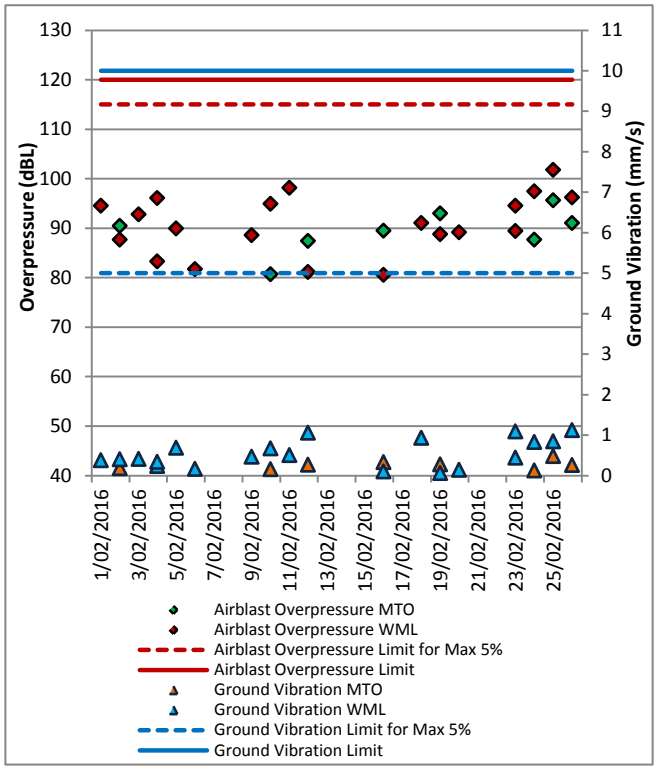

Figure 12: Warkworth Blast Monitoring Results - February 2016

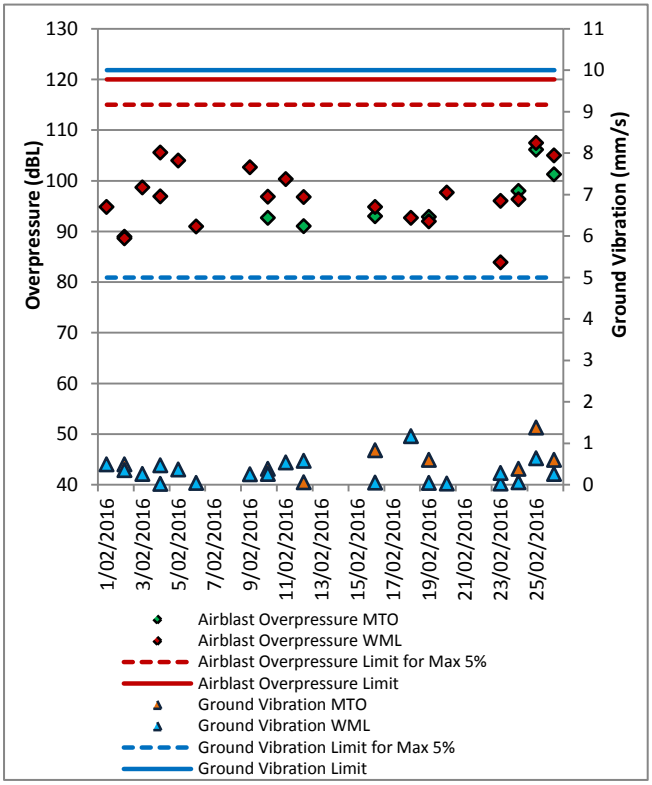

Figure 14: Wambo Road Blast Monitoring Results

Figure 15: MTW Blast Monitoring Location Plan

5.0 NOISE

Routine attended noise monitoring is carried out in accordance with the MTW Noise Management Plan. A review against EIS predictions will be reported in the Annual Review. The purpose of the noise surveys is to quantify and describe the acoustic environment around the site and compare results with specified limits. Real time noise monitoring also occurs at nine sites surrounding MTW. Noise monitoring locations are displayed in Figure 16.

5.1 Attended Noise Monitoring Results

Attended monitoring was conducted at receiver locations surrounding MTW on the nights of 8th/9th February 2016. All measurements complied with the relevant criteria. Results are detailed in Table 3 to Table 7.

5.1.1 WML Noise Assessment

Compliance assessments undertaken against the WML noise criteria are presented in Tables 3 and 4.

Table 3: $L_{Aeq,\ 15\ minute}$ Warkworth Impact Assessment Criteria – February 2016

Location	Date and Time	Wind Speed (m/s)[5]	VTG	Criterion (dB(A))	Criterion Applies?[1,6]	WML L_{Aeq} dB[2,4]	Exceedance[3]	Total L_{Ceq} – L_{Aeq}	Revised WML L_{Aeq}[5,6]
MTIE	9/02/2016 1:27	2.6	-1	NA	NA	<30	NA	18	<30
Bulga Village	8/02/2016 23:34	1.7	-1	38	Yes	IA	Nil	10	IA
Gouldsville Road	9/02/2016 1:00	2.1	0.5	NA	NA	30	NA	20	35
Inlet Road West	8/02/2016 23:10	1.6	0.5	35	Yes	26	Nil	13	26
Long Point	9/02/2016 0:36	2.2	-1	37	Yes	IA	Nil	10	IA
Wollemi Peak Road	8/02/2016 22:46	1.4	0.5	35	Yes	IA	Nil	7	IA
South Bulga	8/02/2016 22:24	1.6	0.5	35	Yes	IA	Nil	14	IA
Wambo Road	8/02/2016 23:56	1.9	-1	38	Yes	31	Nil	13	31

Table 4: $L_{Aeq,\ 15\ minute}$ Warkworth - Land Acquisition Criteria – February 2016

Location	Date and Time	Wind Speed (m/s)[5]	VTG	Criterion (dB(A))	Criterion Applies?[1,6]	WML L_{Aeq} dB[2,4]	Exceedance[3]	Total L_{Ceq} – L_{Aeq}[7]	Revised WML L_{Aeq}[5,6]
MTIE	9/02/2016 1:27	2.6	-1	44	Yes	<30	Nil	18	<30
Bulga Village	8/02/2016 23:34	1.7	-1	43	Yes	IA	Nil	10	IA
Gouldsville Road	9/02/2016 1:00	2.1	0.5	43	Yes	30	Nil	20	35
Inlet Road West	8/02/2016 23:10	1.6	0.5	40	Yes	26	Nil	13	26
Long Point	9/02/2016 0:36	2.2	-1	40	Yes	IA	Nil	10	IA
Wollemi Peak Road	8/02/2016 22:46	1.4	0.5	40	Yes	IA	Nil	7	IA
South Bulga	8/02/2016 22:24	1.6	0.5	40	Yes	IA	Nil	14	IA
Wambo Road	8/02/2016 23:56	1.9	-1	40	Yes	31	Nil	13	31

Notes

1. *Application of Criterion as per meteorological exclusions set out in the Approvals;*
2. *These are measured A-weighted noise levels (professional assessment of noise contribution from the target source (WML / MTO) only);*
3. *Exceedance is defined in the MTW Noise Management Plan. Bolded results in red are those greater than the relevant criterion;*
4. *Results denoted by "<" indicate that the relative contribution of the target consent area could not be absolutely determined, but is assessed up to a maximum of the recorded value. "IA" means that the target consent area was inaudible during the assessment. "NM" means that the target consent area was audible, but at such low levels that an accurate assessment of noise level could not be determined;*
5. *Revised WML L_{Aeq} includes application of the INP Low Frequency modification factor penalty where applicable;*
6. *Low Frequency Penalty is not be applied where external noise sources influence the L_{Ceq} measurement, or during instances where the noise criteria do not apply (see note 1); and*
7. *INP assessment of Total L_{Ceq} minus Total L_{Aeq}. INP Low Frequency Penalty is applicable where this exceeds 15*
8. *INP modification factor has not been applied as noise levels attributable (in part) to mine noise from non-CNA mine*

5.1.3 MTO Noise Assessment

Compliance assessments undertaken against the MTO noise criteria are presented in Table 5 to Table 7.

Table 5: $L_{Aeq,\ 15minute}$ Mount Thorley - Impact Assessment Criteria – February 2016

Location	Date and Time	Wind Speed (m/s)[5]	VTG	Criterion dB	Criterion Applies?[1,6]	MTO L_{Aeq} dB[2,4]	Exceedance[3]	Total L_{Ceq} – L_{Aeq}[7]	Revised MTO L_{Aeq}[5,6]
MTIE	9/02/2016 1:27	2.6	-1	NA	NA	31	NA	18	36
Bulga Village	8/02/2016 23:34	1.7	-1	40	Yes	31	Nil	10	31
Gouldsville Road	9/02/2016 1:00	2.1	0.5	44	Yes	IA	Nil	20	IA
Inlet Road West	8/02/2016 23:10	1.6	0.5	35	Yes	26	Nil	13	26
Long Point	9/02/2016 0:36	2.2	-1	39	Yes	IA	Nil	10	IA
Wollemi Peak Road	8/02/2016 22:46	1.4	0.5	38	Yes	NM	Nil	7	NM
South Bulga	8/02/2016 22:24	1.6	0.5	37	Yes	NM	Nil	14	NM
Wambo Road	8/02/2016 23:56	1.9	-1	40	Yes	31	Nil	13	31

Table 6: $L_{Aeq,15minute}$ Mount Thorley – Land Acquisition Criteria – February 2016

Location	Date and Time	Wind Speed (m/s)[5]	VTG[5]	Criterion dB	Criterion Applies?[1,6]	MTO L_{Aeq} dB[2,4]	Exceedance[3]	Total L_{Ceq} – L_{Aeq}[7]	Revised MTO L_{Aeq}[5,6]
MTIE	9/02/2016 1:27	2.6	-1	NA	Yes	31	NA	18	36
Bulga Village	8/02/2016 23:34	1.7	-1	43	Yes	31	Nil	10	31
Gouldsville Road	9/02/2016 1:00	2.1	0.5	45	Yes	IA	Nil	20	IA
Inlet Road West	8/02/2016 23:10	1.6	0.5	43	Yes	26	Nil	13	26
Long Point	9/02/2016 0:36	2.2	-1	43	Yes	IA	Nil	10	IA
Wollemi Peak Road	8/02/2016 22:46	1.4	0.5	43	Yes	NM	Nil	7	NM
South Bulga	8/02/2016 22:24	1.6	0.5	43	Yes	NM	Nil	14	NM
Wambo Road	8/02/2016 23:56	1.9	-1	43	Yes	31	Nil	13	31

Table 7: $L_{A1,\ 1Minute}$ Mount Thorley - Impact Assessment Criteria – February 2016

Location	Date and Time	Wind Speed (m/s)[5]	VTG[5]	Criterion dB	Criterion Applies?[1,6]	MTO $L_{A1,\ 1min}$ dB[2,4]	Exceedance[3]
MTIE	9/02/2016 1:27	2.6	-1	NA	Yes	37	NA
Bulga Village	8/02/2016 23:34	1.7	-1	48	Yes	36	Nil
Gouldsville Road	9/02/2016 1:00	2.1	0.5	47	Yes	IA	Nil
Inlet Road West	8/02/2016 23:10	1.6	0.5	48	Yes	NM	Nil
Long Point	9/02/2016 0:36	2.2	-1	47	Yes	IA	Nil
Wollemi Peak Road	8/02/2016 22:46	1.4	0.5	48	Yes	NM	Nil
South Bulga	8/02/2016 22:24	1.6	0.5	48	Yes	NM	Nil
Wambo Road	8/02/2016 23:56	1.9	-1	48	Yes	NM	Nil

Notes

1. *Application of Criterion as per meteorological exclusions set out in the Approvals;*
2. *These are measured A-weighted noise levels (professional assessment of noise contribution from the target source (WML / MTO) only);*
3. *Exceedance is defined in the MTW Noise Management Plan. Bolded results in red are those greater than the relevant criterion;*
4. *Results denoted by "<" indicate that the relative contribution of the target consent area could not be absolutely determined, but is assessed up to a maximum of the recorded value. "IA" means that the target consent area as inaudible during the assessment. "NM" means that the target consent area was audible, but at such low levels that an accurate assessment of noise level could not be determined;*
5. *Revised MTO L_{Aeq} includes application of the INP Low Frequency modification factor penalty where applicable;*
6. *Low Frequency Penalty is not be applied where external noise sources influence the L_{Ceq} measurement, or during instances where the noise criteria do not apply (see note 1);*
7. *INP assessment of Total L_{Ceq} minus Total L_{Aeq}. INP Low Frequency Penalty is applicable where this exceeds 15; and*
8. *INP modification factor has not been applied as noise levels attributable (in part) to mine noise from non-CNA mine*

5.1.4 INP Low Frequency

In accordance with the requirements of the NSW Industrial Noise Policy (INP), the low frequency modification factor has been applied where appropriate. It should be noted that the Industrial Noise Policy does not give guidance on the application of the penalty where more than one target noise source is audible. The L_{Ceq} levels reported above are “Total”, or “Total mine noise” at best, and cannot be attributed accurately to a single mine. Accordingly, where the INP criteria for the application of the Low Frequency modification factor is triggered, the penalty has been applied to the dominant mine noise source (either of WML or MTO).

There were no exceedances of criteria recorded during the reporting period.

Figure 16: Noise Monitoring Location Plan

5.2 Noise Management Measures

A program of targeted supplementary attended noise monitoring is in place at MTW, supported by the real-time directional monitoring network and ensuring the highest level of noise management is maintained. The supplementary program is undertaken by MTW personnel and involves:

- Routine inspections from both inside and outside the mine boundary;
- Routine and as-required handheld noise assessments (undertaken in response to noise alarm and/or community complaint), comparing measured levels against consent noise limits; and
- Validation monitoring following operational modifications to assess the adequacy of the modifications.

Where a noise assessment identifies noise emissions which are exceeding the relevant noise limit(s) for any particular residence, modifications will be made so as to ensure that the noise event is resolved within 75 minutes of identification. The actions taken are commensurate with the nature and severity of the noise event, but can include:

- Replacement of non-attenuated equipment with sound attenuated equipment;
- Changing the haul route to a less noise sensitive haul;
- Changing dump locations (in-pit or less exposed dump option);
- Reducing equipment numbers;
- Shut down of task; or
- Site shut down.
- A summary of these assessments undertaken during February are provided in Table 8.

Table 8: Supplementary Attended Noise Monitoring Data – February 2016

No. of assessments	No. of assessments > trigger	No. of nights where assessments > trigger	% greater than trigger
472	13	3	2.8

Note: Measurements are taken under all meteorological conditions, including conditions under which the consent noise criteria do not apply.

6.0 OPERATIONAL DOWNTIME

During February, a total of 735 hours of equipment downtime was logged in response to environmental events such as dust, noise and elevated wind impacts. Operational downtime by equipment type is shown in Figure 17.

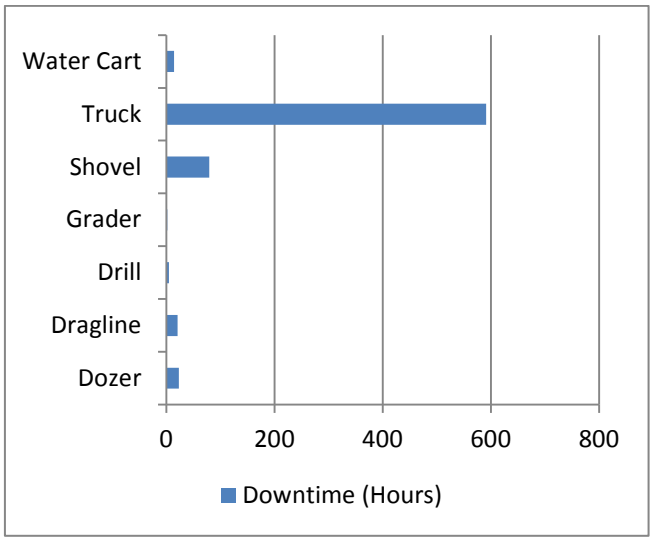

Figure 17: Operational Downtime by Equipment Type – February 2016

7.0 REHABILITATION

During February, 1.1 Ha of land was released. Year-to-date progress can be viewed in Figure 18.

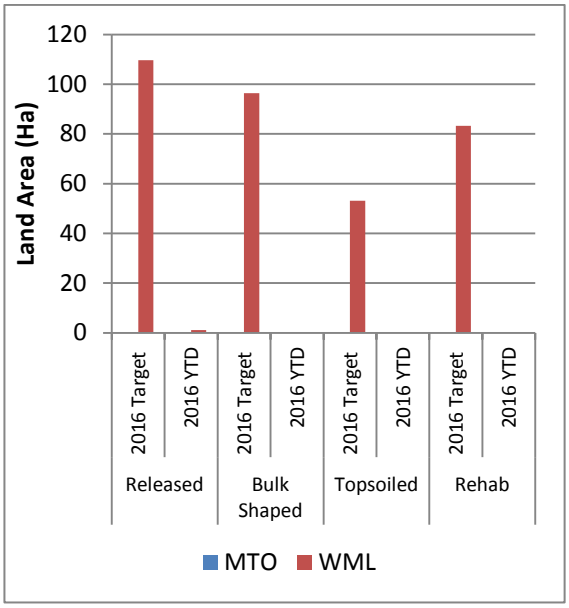

Figure 18: Rehabilitation YTD – February 2016

8.0 ENVIRONMENTAL INCIDENTS

There were no reportable environmental incidents during the reporting period.

9.0 COMPLAINTS

During the reporting period 33 complaints were received, details of these complaints are shown in Figure 19 below.

	Noise	Dust	Blast	Lighting	Other	Total
January	29	1	5	2	2	39
February	24	2	6	1	0	33
March	-	-	-	-	-	-
April	-	-	-	-	-	-
May	-	-	-	-	-	-
June	-	-	-	-	-	-
July	-	-	-	-	-	-
August	-	-	-	-	-	-
September	-	-	-	-	-	-
October	-	-	-	-	-	-
November	-	-	-	-	-	-
December	-	-	-	-	-	-
Total	53	3	11	3	2	72

Figure 19: Complaints Summary - YTD February 2016

Appendix A: Meteorological Data

Table 9: Meteorological Data – Charlton Ridge Meteorological Station – February 2016

Date	Air Temperature Maximum (°C)	Air Temperature Minimum (°C)	Relative Humidity Maximum (%)	Relative Humidity Minimum (%)	Wind Direction Average (°)	Wind Speed Average (m/sec)	Rainfall(mm)
1/02/2016	30.0	13.7	75.0	26.6	234.2	3.0	0.0
2/02/2016	30.1	14.2	92.1	29.6	180.0	2.0	0.0
3/02/2016	32.5	16.8	90.3	35.5	160.1	2.2	0.0
4/02/2016	23.0	17.9	96.5	61.7	169.3	5.2	9.2
5/02/2016	23.1	15.7	86.0	56.1	164.9	5.4	0.0
6/02/2016	26.2	15.5	97.1	56.0	146.2	3.1	3.6
7/02/2016	27.2	15.8	90.5	45.9	154.6	2.3	0.0
8/02/2016	28.9	14.3	91.9	45.7	155.6	2.7	0.0
9/02/2016	28.8	16.6	93.1	45.0	150.9	3.1	0.0
10/02/2016	29.8	15.4	93.2	35.9	149.4	2.0	0.0
11/02/2016	30.8	15.3	91.0	32.7	150.3	2.6	0.0
12/02/2016	30.5	18.3	89.3	38.8	139.7	2.6	0.0
13/02/2016	32.2	16.1	92.8	29.0	147.8	1.9	0.0
14/02/2016	38.3	16.5	91.9	11.9	169.7	2.2	0.0
15/02/2016	34.3	20.4	89.8	22.8	157.1	2.6	0.0
16/02/2016	33.1	16.5	90.6	21.3	171.6	2.5	0.0
17/02/2016	27.6	17.1	74.7	40.6	144.0	3.1	0.0
18/02/2016	29.4	16.7	80.4	43.7	151.4	2.6	0.0
19/02/2016	35.3	16.3	91.7	21.6	183.7	2.1	0.0
20/02/2016	31.9	20.7	86.1	47.3	172.3	3.6	0.0
21/02/2016	29.4	19.5	89.8	53.1	149.1	3.2	2.8
22/02/2016	32.3	17.3	93.1	30.4	150.4	2.4	0.0
23/02/2016	33.7	16.1	93.2	21.0	149.2	2.0	0.0
24/02/2016	36.4	16.8	93.4	16.0	160.9	2.0	0.0
25/02/2016	40.2	17.3	92.3	11.6	224.5	1.8	0.0
26/02/2016	31.5	19.6	75.9	42.6	167.3	3.1	0.0
27/02/2016	28.0	19.6	82.0	49.1	142.9	3.3	0.0
28/02/2016	30.1	17.0	84.2	40.3	143.8	2.5	0.0
29/02/2016	30.6	17.0	87.3	31.8	148.2	2.9	0.0

COAL & ALLIED

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Appendix C

Environmental Monitoring
March 2016

COAL & ALLIED

Managed by Rio Tinto Coal Australia

Mount Thorley Warkworth

Monthly Environmental Report

March 2016

Coal & Allied Operations Pty Ltd

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Revision History

Version No.	Person Responsible	Document Status	Date
1.0	**Environmental Advisor**	**Draft**	**28/04/2016**
1.1	**Environmental Specialist**	**Final**	**29/04/2016**

1.0 INTRODUCTION

This report has been compiled to provide a monthly summary of environmental monitoring results for Mount Thorley Warkworth (MTW). This report includes all monitoring data collected for the period 1 March to 31 March 2016.

2.0 AIR QUALITY

2.1 Meteorological Monitoring

Meteorological data is collected at MTW's 'Charlton Ridge' meteorological station (refer to Figure 3: Air Quality Monitoring Locations).

2.1.1 Rainfall

Rainfall for the period is summarised in Table 1, the year-to-date trend and historical trend are shown in Figure 1.

Table 1: Monthly Rainfall MTW

2016	Monthly Rainfall (mm)	Cumulative Rainfall (mm)
March	33.6	242.6

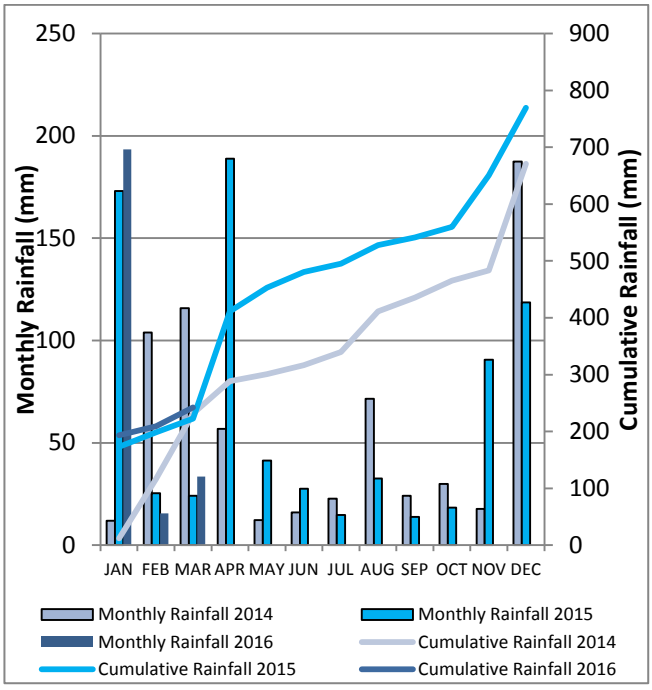

Figure 1: Rainfall Trends YTD

2.1.2 Wind Speed and Direction

Winds from the South were dominant throughout the reporting period as shown in Figure 2.

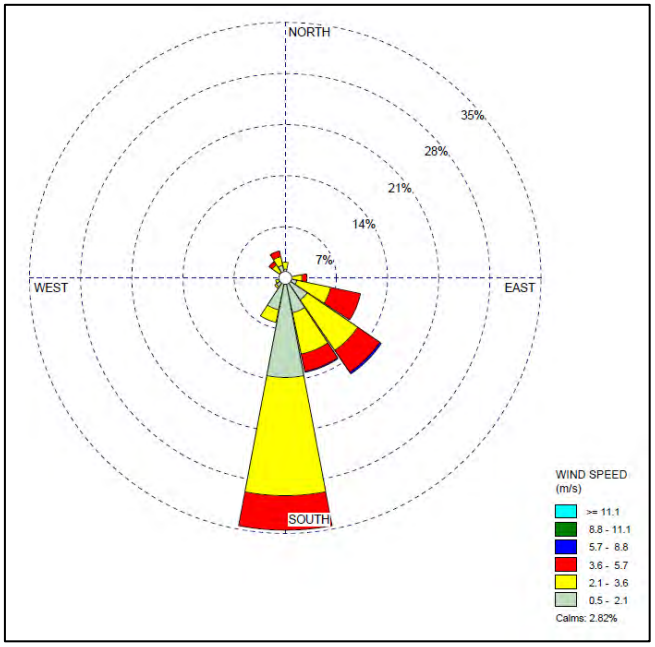

Figure 2: Charlton Ridge Wind Rose – March 2016

Figure 3: Air Quality Monitoring Locations

2.2 Depositional Dust

To monitor regional air quality, MTW operates and maintains a network of nine depositional dust gauges, situated on private and mine owned land surrounding MTW.

Figure 4 displays insoluble solids results from depositional dust gauges during the reporting period compared against the year-to-date average and the annual impact assessment criteria.

Monitors D124 and Warkworth recorded results of 4.8 and 4.7 g/m^2 respectively for the month. The field notes associated with these results confirm the presence of insects and bird droppings. As such the results are considered contaminated and will be excluded from calculation of the annual average.

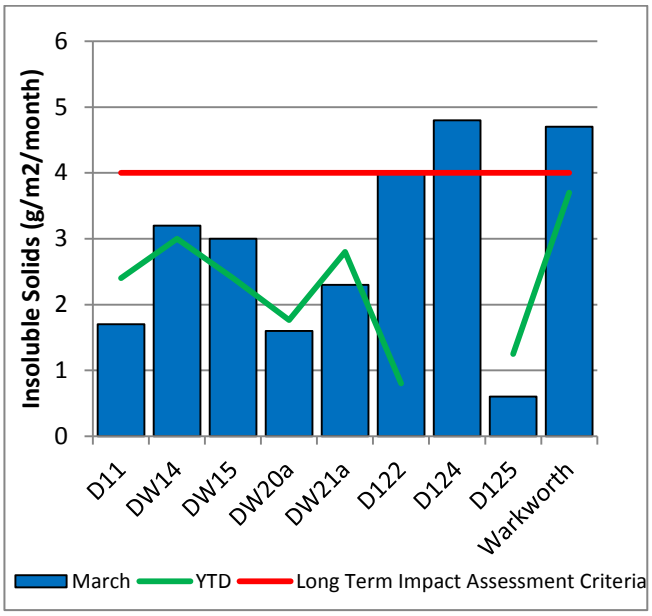

Figure 4: Depositional Dust – March 2016

2.3 Suspended Particulates

Suspended particulates are measured by a network of High Volume Air Samplers (HVAS) measuring Total Suspended Particulates (TSP) and Particulate Matter <10µm (PM_{10}). The location of these monitors can be found in Figure 3. Each HVAS was run for 24 hours on a six-day cycle in accordance with EPA requirements.

2.3.1 HVAS PM_{10} Results

Figure 5 shows the individual PM_{10} results at each monitoring station against the short term impact assessment criteria of 50µg/m^3.

The Long Point HVAS failed to collect a valid sample on the 24th March due to a power outage.

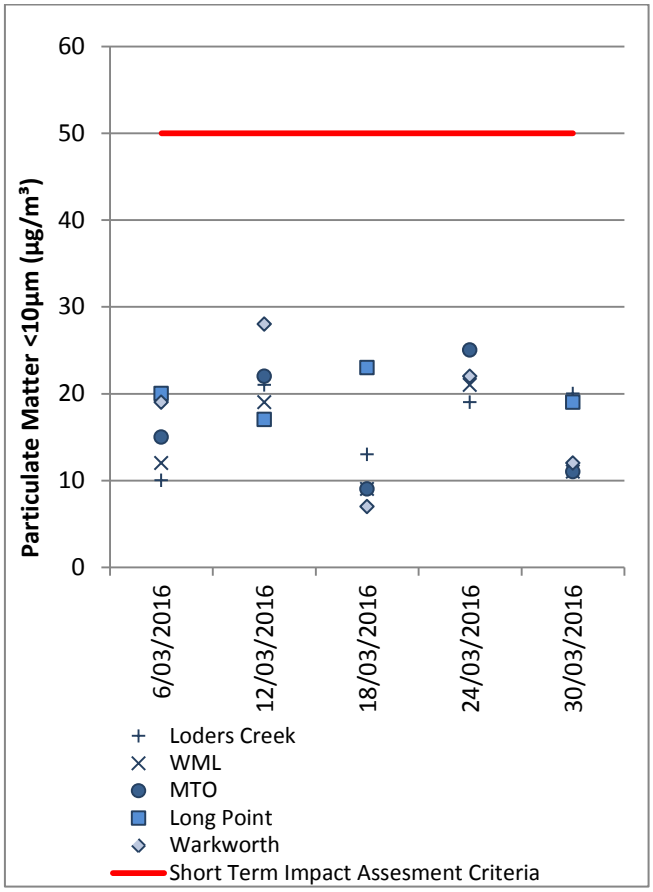

Figure 5: Individual PM_{10} Results – March 2016

Figure 6 shows the annual average PM_{10} results against the long term impact assessment criteria.

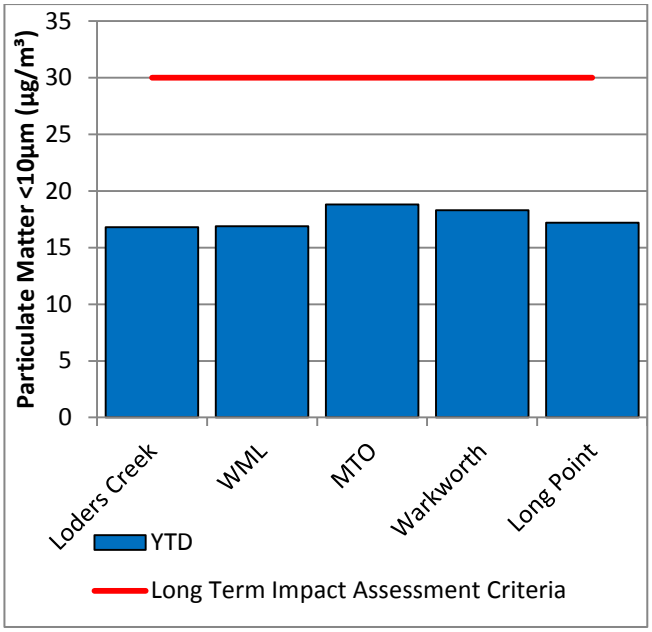

Figure 6: Annual Average PM_{10} – March 2016

2.3.2 TSP Results

Figure 7 shows the annual average TSP results compared against the long term impact assessment criteria of 90µg/m³.

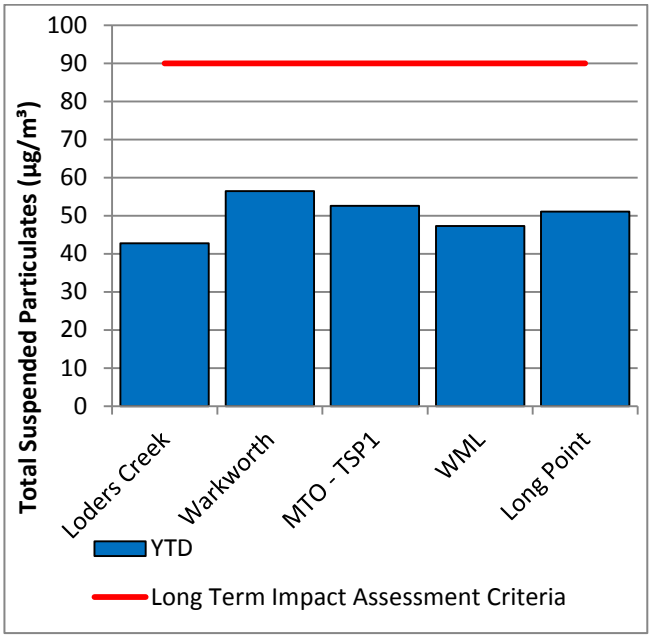

Figure 7: Annual Average Total Suspended Particulates – March 2016

2.3.3 Real Time PM_{10} Results

Mount Thorley Warkworth maintains a network of real time PM_{10} monitors. The real time air quality monitoring stations continuously log information and transmit data to a central database, generating alarms when particulate matter levels exceed internal trigger limits.

Results for real time dust sampling are shown in Figure 8, including the daily 24 hour average PM_{10} result and the annual PM_{10} average.

2.3.4 Real Time Alarms for Air Quality

During March, the real time monitoring system generated 39 automated air quality related alerts, including 4 alerts for adverse meteorological conditions and 35 alerts for elevated dust levels.

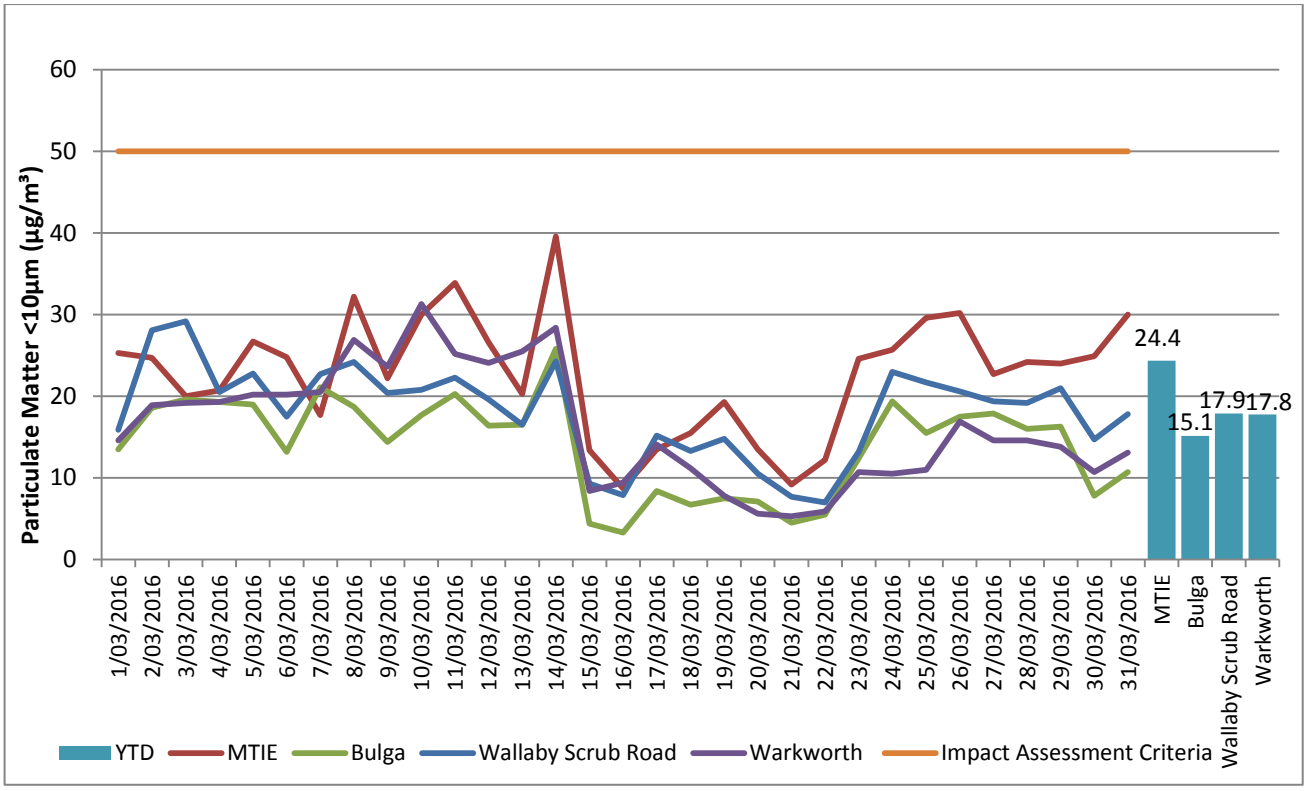

Figure 8: Real Time PM_{10} 24hr average and Year-to-date average – March 2016

3.0 WATER QUALITY

MTW maintains a network of surface water and groundwater monitoring sites.

3.1 Surface Water

Monitoring is conducted at mine site dams and surrounding natural watercourses. The surface water monitoring locations are outlined in Figure 15.

Surface water courses are sampled on a monthly or quarterly sampling regime. Water quality is evaluated through the parameters of pH, Electrical Conductivity (EC) and Total Suspended Solids (TSS). The Hunter River and the Wollombi Brook are sampled both upstream and downstream of mining operations, to monitor the potential impact of mining on the river. Other Hunter River tributaries are also monitored.

3.1.1 Surface Water Monitoring Results

Figure 9 to Figure 11 show the long term surface water trend (2013 – current) within MTW mine dams. Figure 12 to Figure 14 show the long term surface water trend (2013 - current) in surrounding watercourses.

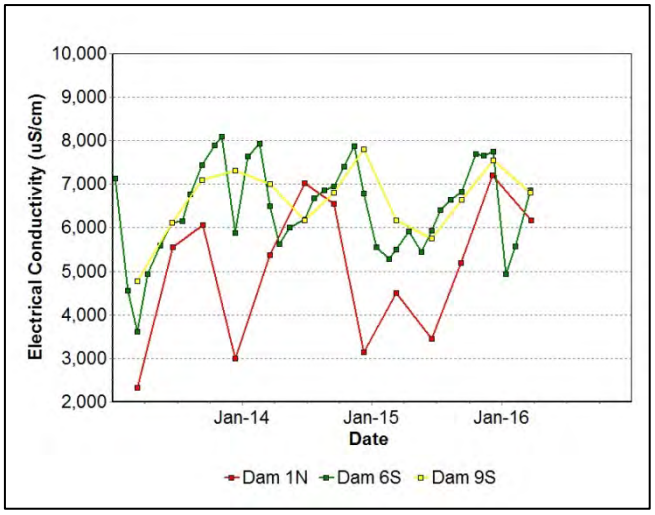

Figure 9: Site Dams Electrical Conductivity Trend 2013 – Current

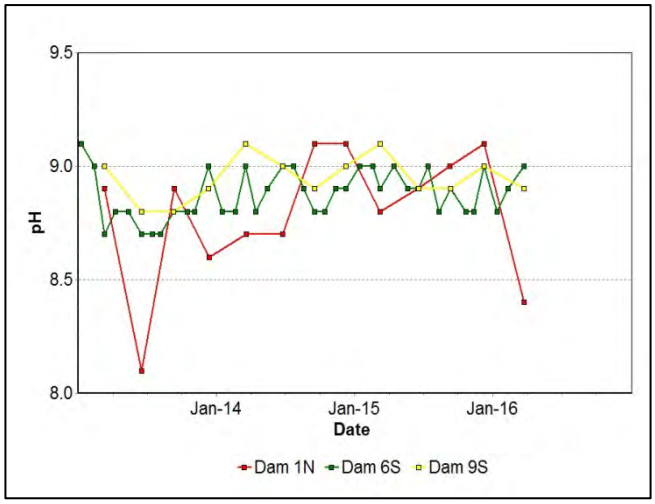

Figure 10: Site Dams pH Trend 2013 - Current

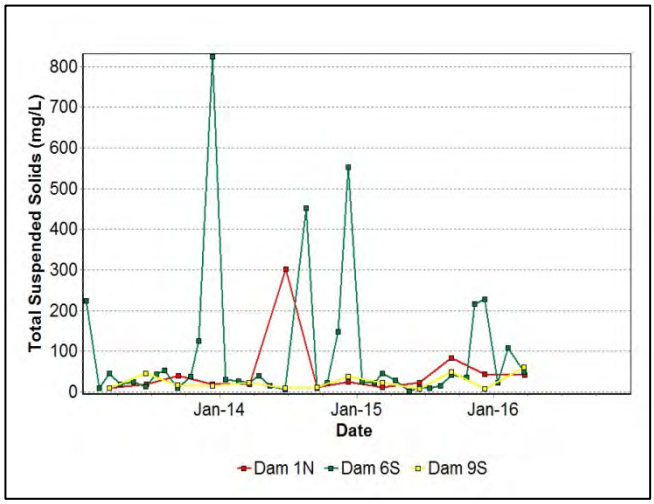

Figure 11: Site Dams Total Suspended Solids Trend 2013 – Current

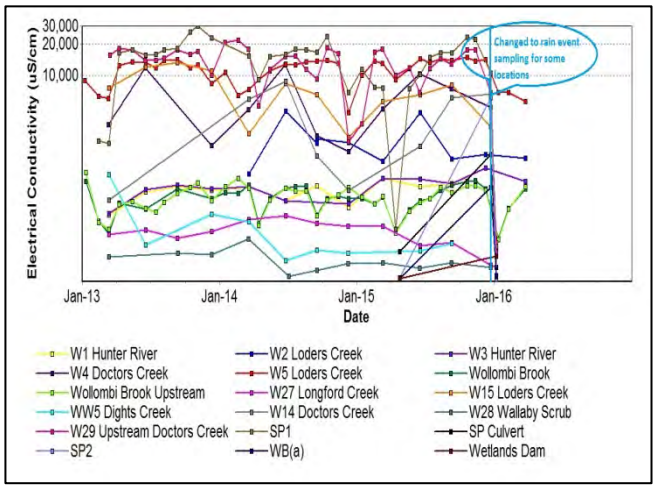

Figure 12: Watercourse Electrical Conductivity Trend 2013 - Current

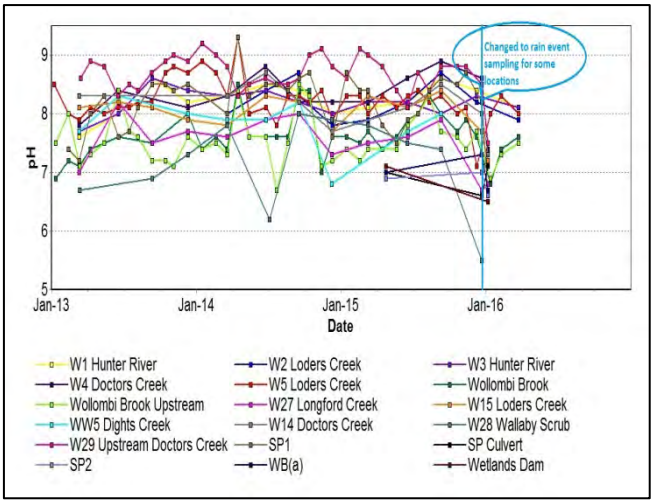

Figure 13: Watercourse pH Trend 2013 – Current

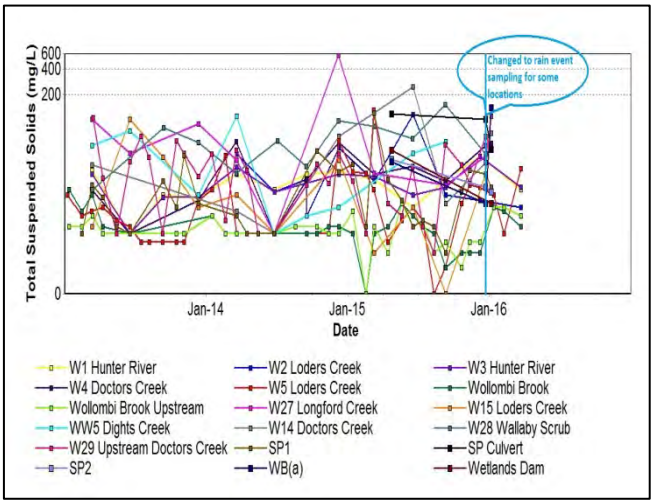

Figure 14: Watercourse Total Suspended Solids Trend 2013 – Current

3.1.2 Surface Water Trigger Tracking

Internal trigger limits have been developed to assess monitoring data on an on-going basis, and to highlight potentially adverse surface water impacts. The process for evaluating monitoring results against the internal triggers and subsequent responses are outlined in the MTW Water Management Plan.

During Q1 2016 11 internal trigger limits were breached, summarised in Table 2.

Table 2: Surface Water Trigger Tracking - March 2016

Site	Date	Trigger Limit Breached	Action Taken in Response
SP1	06/01/2016	pH –5th Percentile	Watching Brief*
W4	06/01/2016	pH –5th Percentile	Watching Brief*
W15	06/01/2016	pH –5th Percentile	Watching Brief*
W27	06/01/2016	pH –5th Percentile	Watching Brief*
W29	06/01/2016	pH –5th Percentile	Watching Brief*
Wollombi Brook	12/01/2016	pH –5th Percentile	Watching Brief*
Wollombi Brook Upstream	12/01/2016	pH –5th Percentile	Watching Brief*
W4	06/01/2016	TSS – 50mg/L (ANZECC criteria)	Elevated TSS associated with high runoff due to rainfall event (106mm of rain recorded from 3/01/2016 to 6/01/2016). Consistent with upstream sample W29; no mine site sources of sediment identified. No follow up required.
W14	06/01/2016	TSS – 50mg/L (ANZECC criteria)	Elevated TSS associated with high runoff due to rainfall event (106mm of rain recorded 3/01/2016 to 6/01/2016). Upstream sample W29 indicates source of sediment primarily from runoff from downstream farming properties. No follow up required.
W15	06/01/2016	TSS – 50mg/L (ANZECC criteria)	W15: Elevated TSS associated with high runoff due to rainfall event (106mm of rain recorded 3/01/2016 to 6/01/2016). W5 not on revised rain event sampling protocol so unable to determine sediment source. Monitoring programme to be updated to include W5 on rain event sampling protocol.
W27	06/01/2016	TSS – 50mg/L (ANZECC criteria)	Elevated TSS associated with high runoff due to rainfall event (106mm of rain recorded 3/01/2016 to 6/01/2016). Review of site indicates upstream erosion and sediment controls in place and compliant. No follow up required.

* = Watching brief established pending outcomes of subsequent monitoring events. No specific actions required.

Figure 15: Surface Water Monitoring Location Plan

3.2 Groundwater Monitoring

Groundwater monitoring is undertaken on a quarterly basis in accordance with the MTW Groundwater Monitoring Programme.

Figures 16 to 58 show the long term water quality trends (2013 – current) for groundwater bores monitored at MTW.

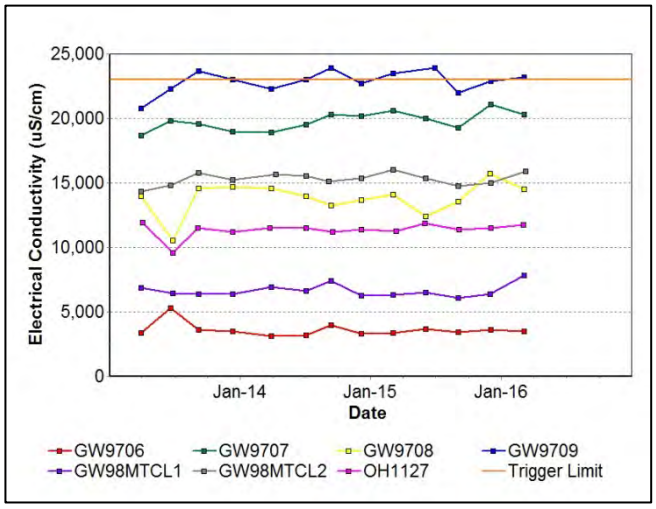

Figure 16: Bayswater Seam Electrical Conductivity Trend – March 2016

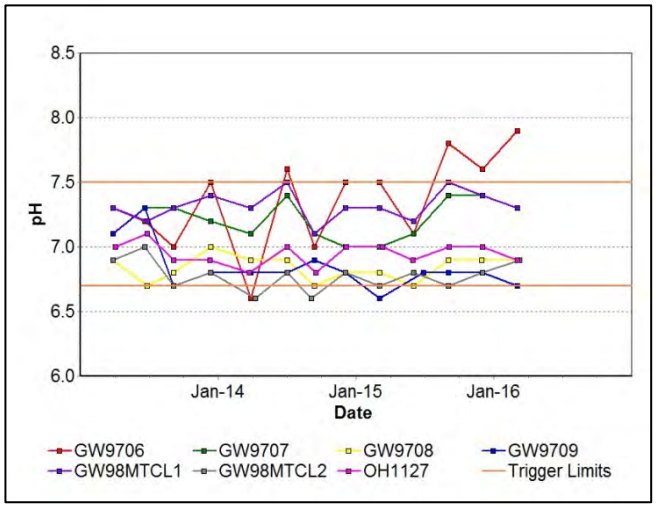

Figure 17: Bayswater Seam pH Trend - March 2016

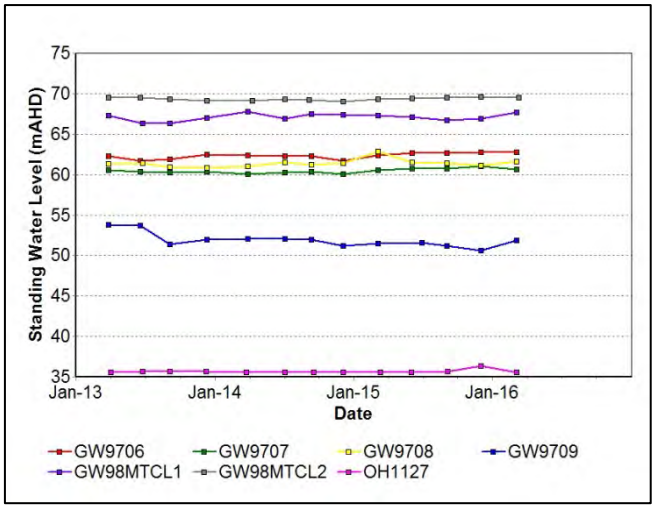

Figure 18: Bayswater Seam Standing Water Level - March 2016

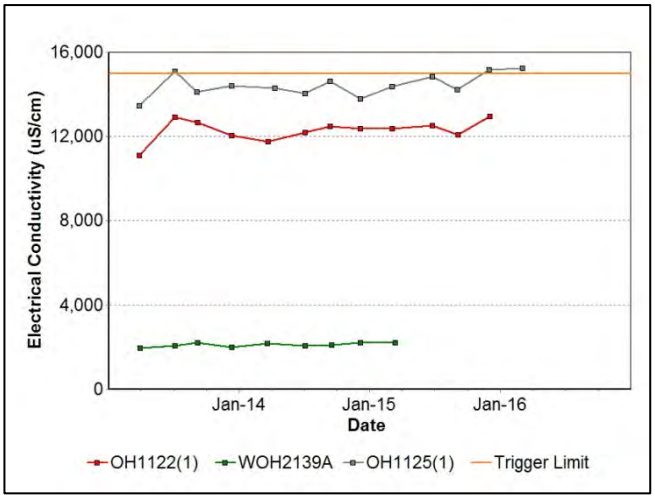

Figure 19: Blakefield Seam Electrical Conductivity Trend - March 2016

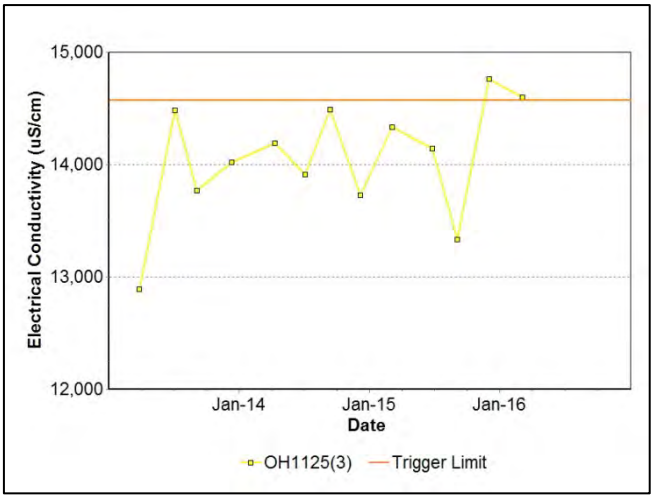

Figure 22: Bowfield Seam Electrical Conductivity Trend - March 2016

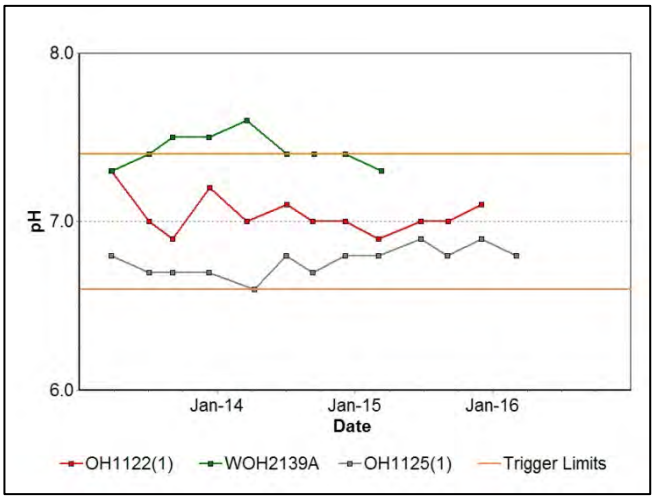

Figure 20: Blakefield Seam pH Trend - March 2016

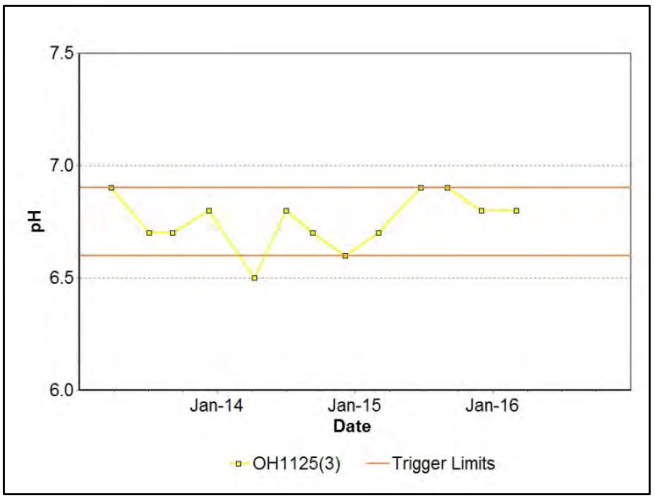

Figure 23: Bowfield Seam pH Trend – March 2016

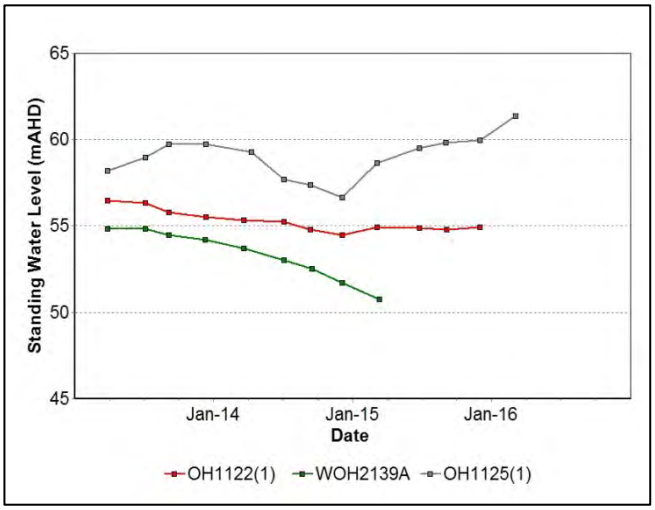

Figure 21: Blakefield Seam Standing Water Level Trend - March 2016

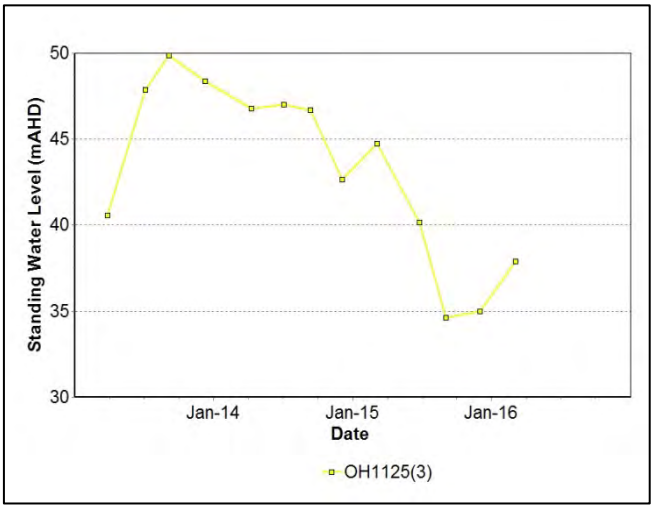

Figure 24: Bowfield Seam Standing Water Level Trend - March 2016

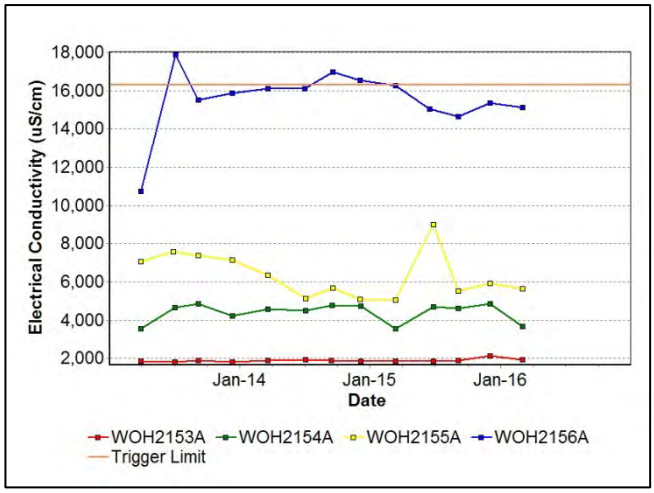

Figure 25: Redbank Seam Electrical Conductivity Trend - March 2016

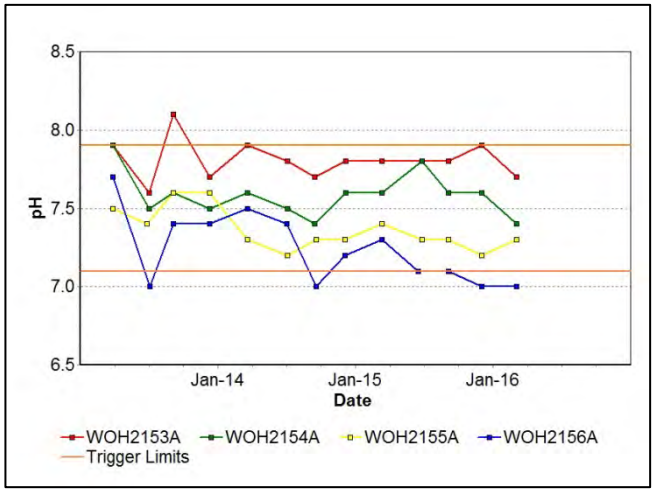

Figure 26: Redbank Seam pH Trend – March 2016

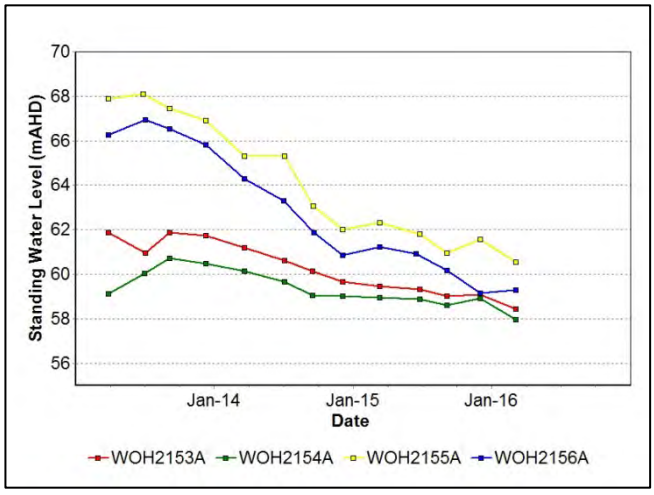

Figure 27: Redbank Seam Standing Water Level - March 2016

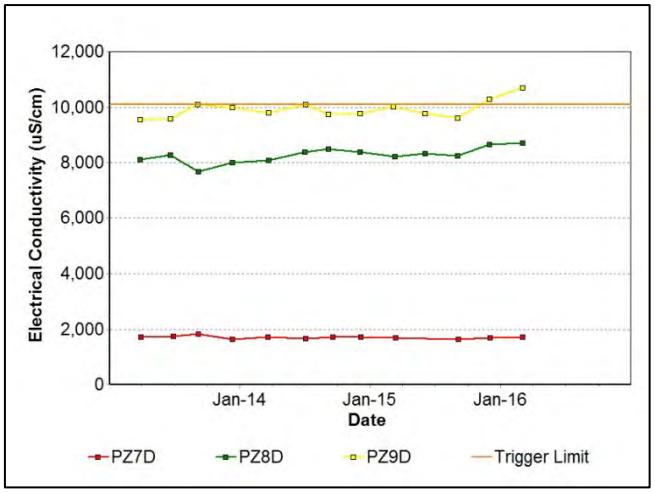

Figure 28: Shallow Overburden Seam Electrical Conductivity Trend - March 2016

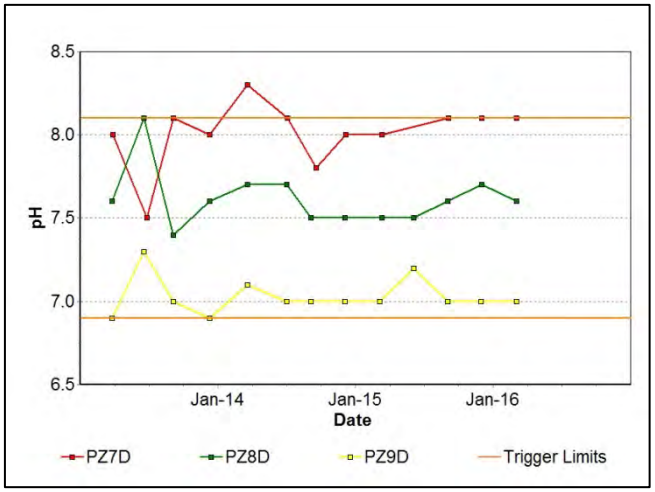

Figure 29: Shallow Overburden Seam pH Trend - March 2016

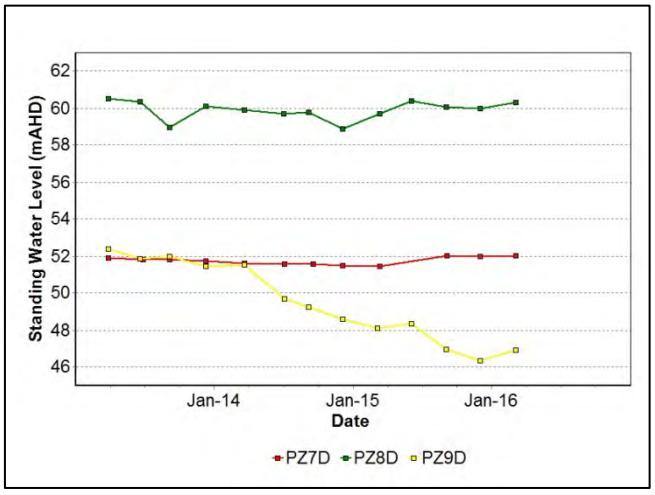

Figure 30: Shallow Overburden Seam Standing Water Level Trend - March 2016

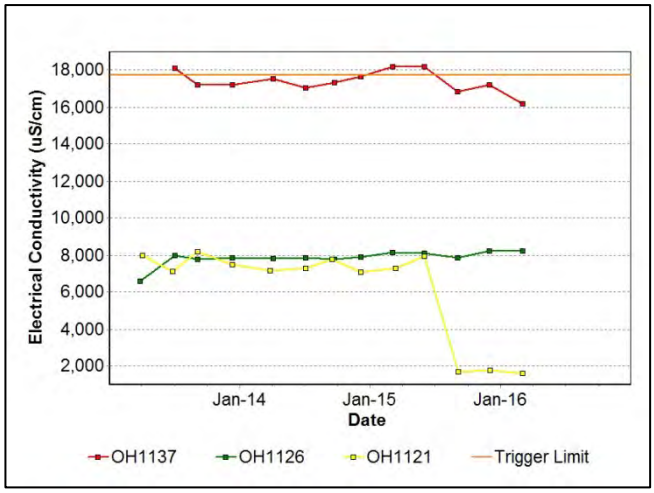

Figure 31: Vaux Seam Electrical Conductivity Trend – March 2016

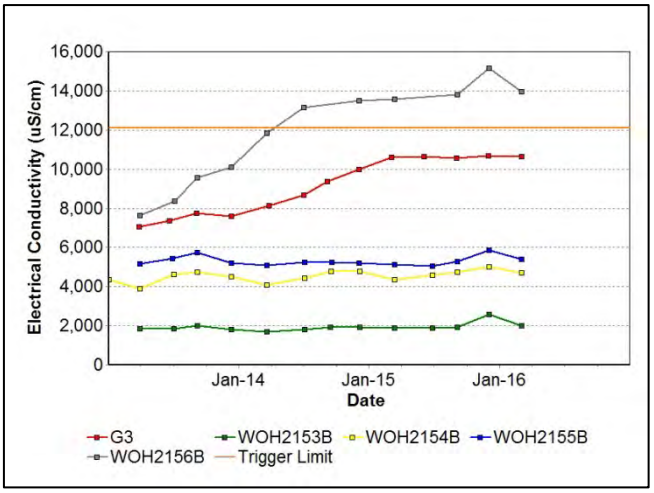

Figure 34: Wambo Seam Electrical Conductivity Trend - March 2016

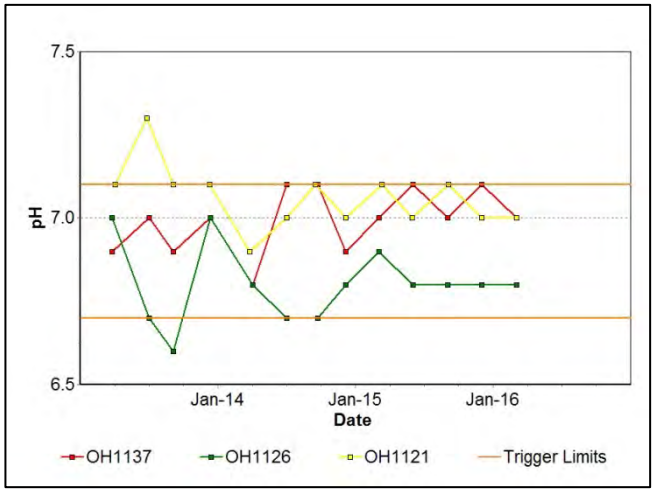

Figure 32: Vaux Seam pH Trend - March 2016

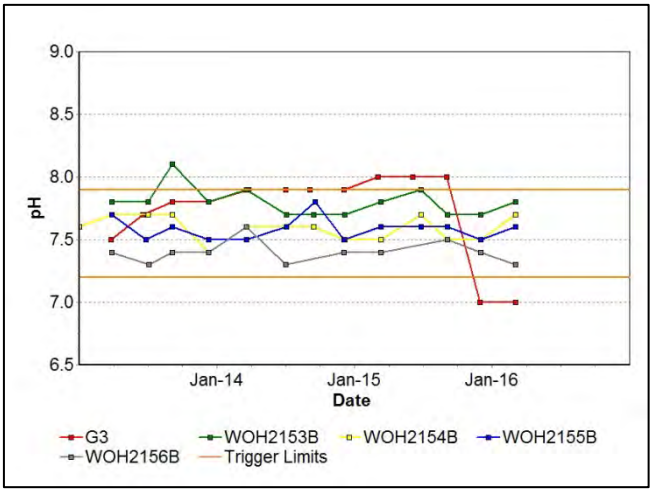

Figure 35: Wambo Seam pH Trend - March 2016

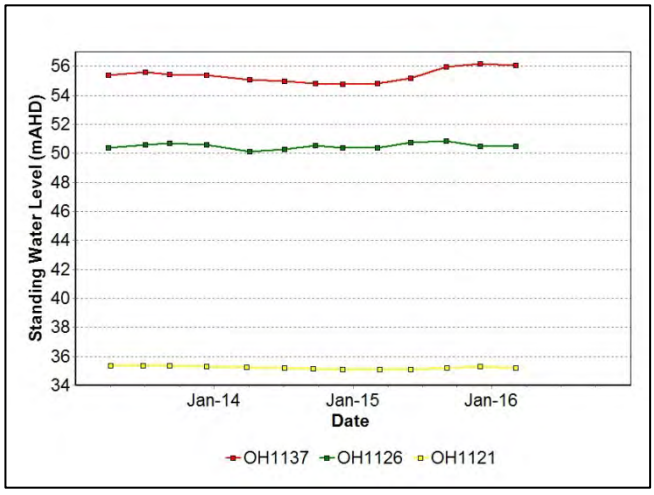

Figure 33: Vaux Seam Standing Water Level Trend - March 2016

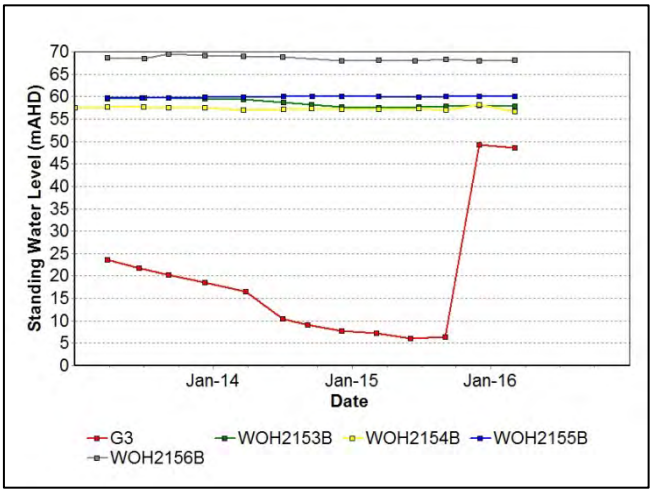

Figure 36: Wambo Seam Standing Water Level Trend - March 2016

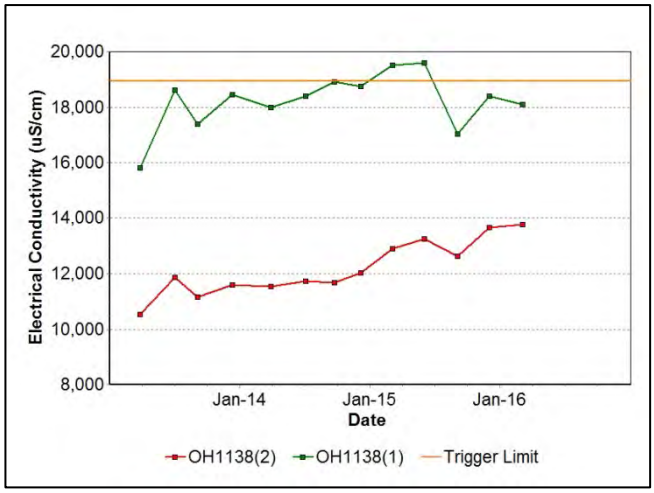

Figure 37: Warkworth Seam Electrical Conductivity Trend – March 2016

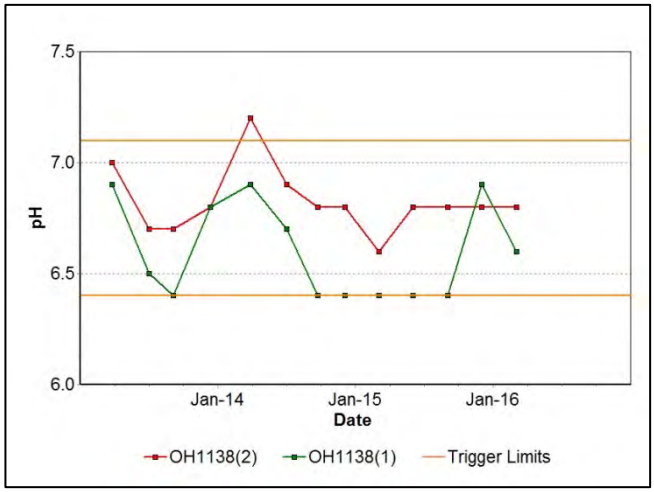

Figure 38: Warkworth Seam pH Trend - March 2016

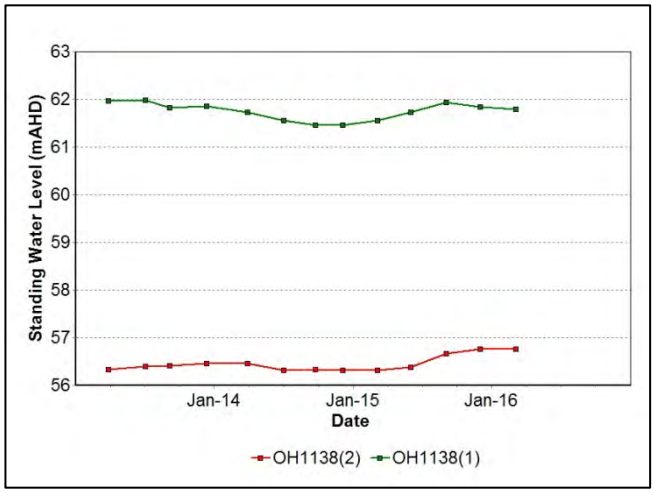

Figure 39: Warkworth Seam Standing Water Level Trend - March 2016

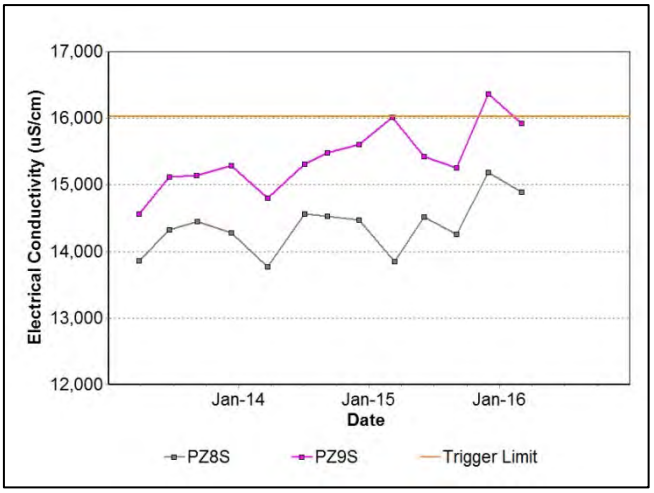

Figure 40: Wollombi Alluvium Electrical Conductivity Trend - March 2016

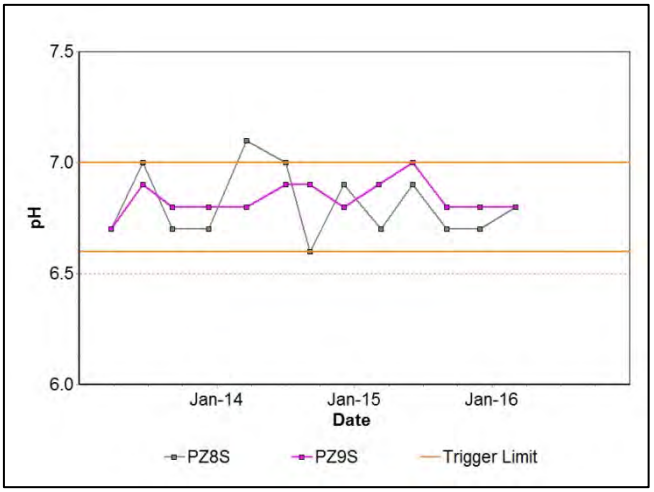

Figure 41: Wollombi Alluvium pH Trend – March 2016

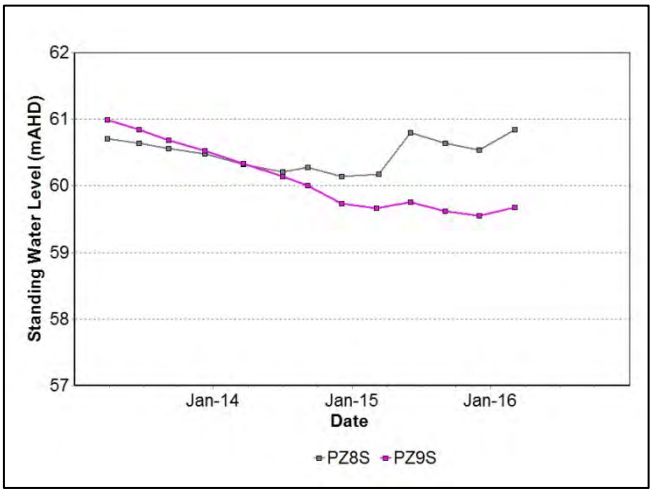

Figure 42: Wollombi Alluvium Standing Water Level Trend - March 2016

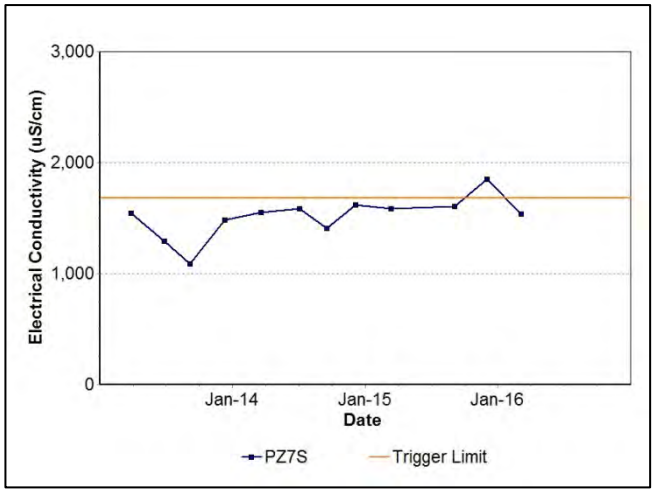

Figure 43: Aeolian Warkworth Sands Electrical Conductivity Trend – March 2016

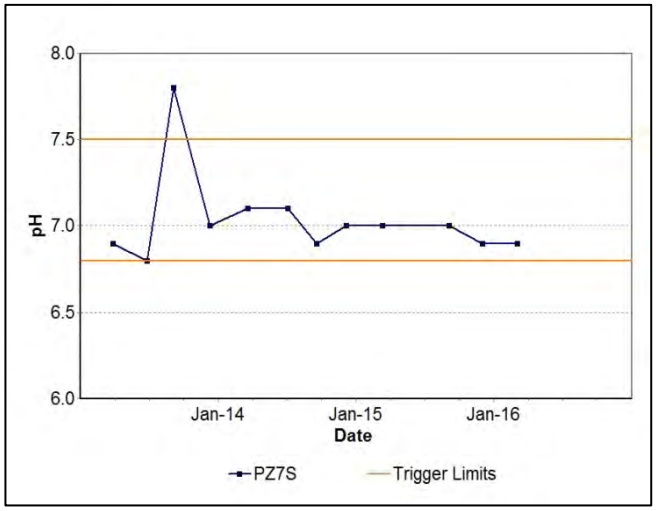

Figure 44: Aeolian Warkworth Sands pH Trend - March 2016

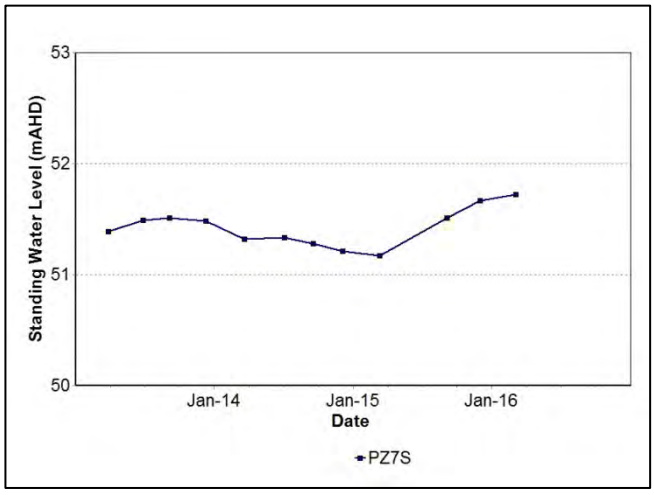

Figure 45: Aeolian Warkworth Sands Standing Water Level Trend - March 2016

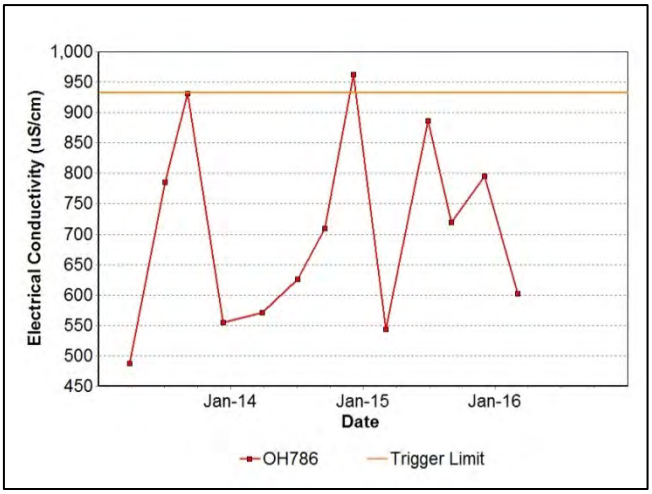

Figure 46: Hunter River Alluvium 1 Seam Electrical Conductivity - March 2016

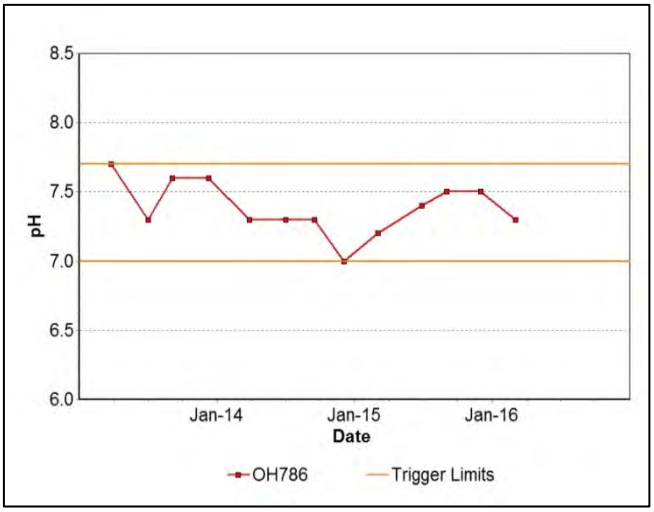

Figure 47: Hunter River Alluvium 1 Seam pH Trend - March 2016

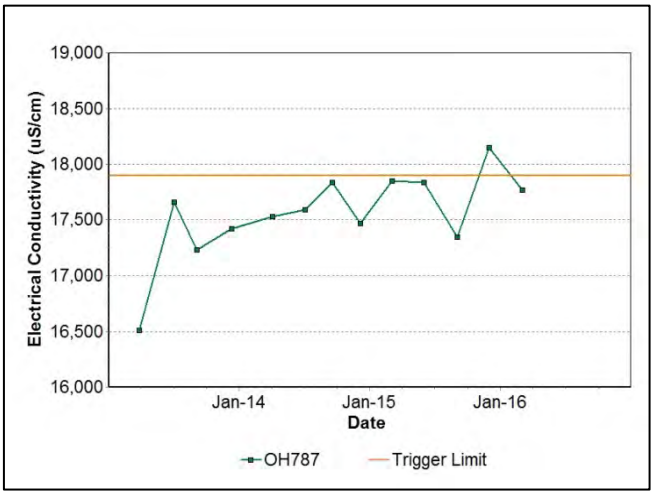

Figure 48: Hunter River Alluvium 2 Seam Electrical Conductivity - March 2016

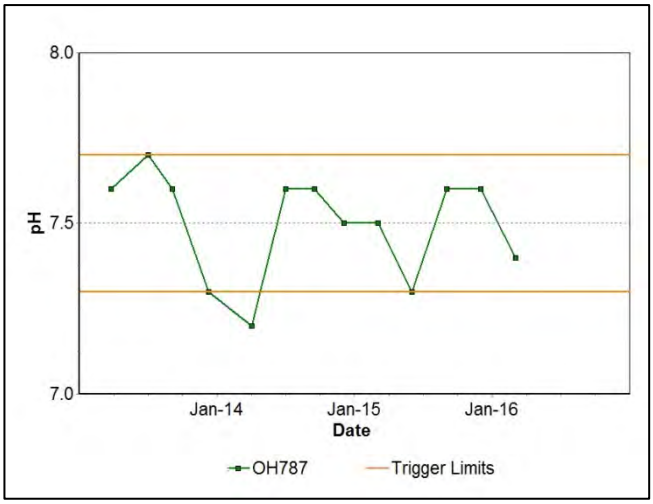

Figure 49: Hunter River Alluvium 2 Seam pH Trend - March 2016

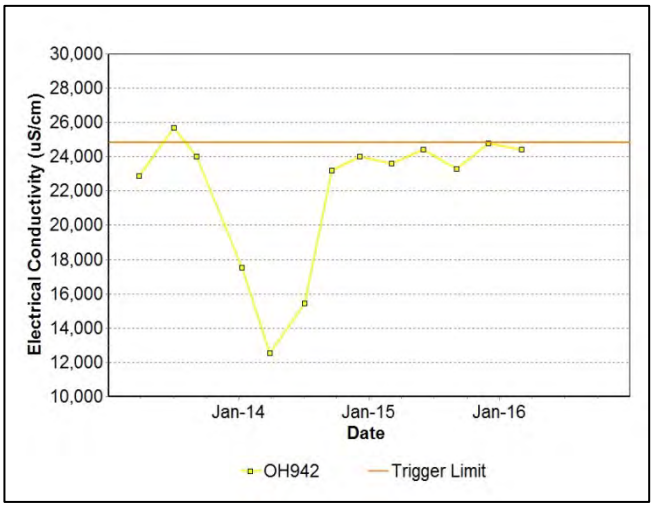

Figure 50: Hunter River Alluvium 3 Seam Electrical Conductivity - March 2016

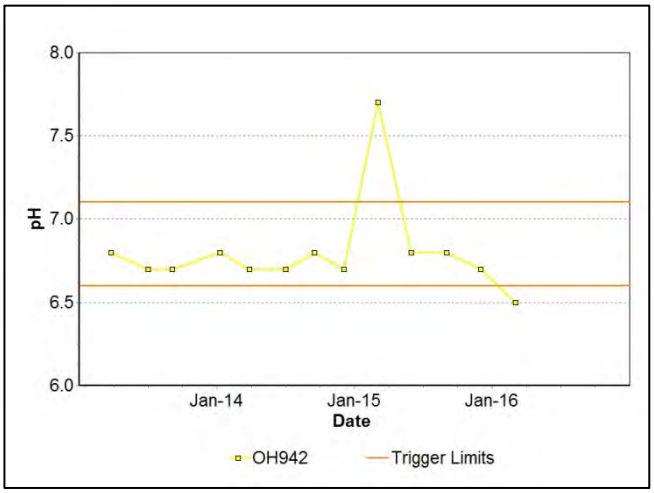

Figure 51: Hunter River Alluvium 3 Seam pH Trend - March 2016

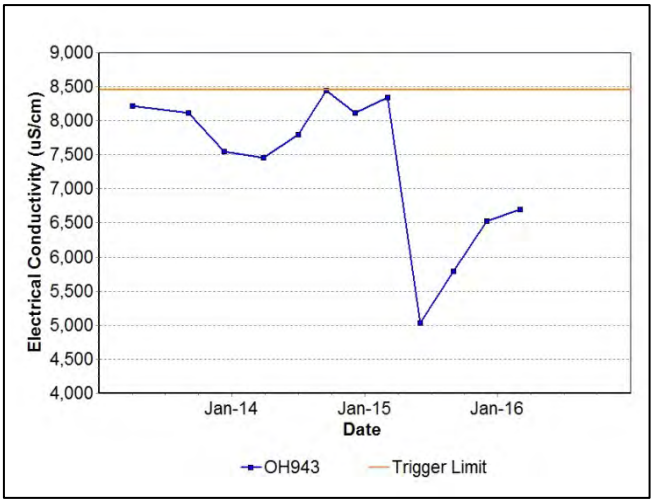

Figure 52: Hunter River Alluvium 4 Seam Electrical Conductivity - March 2016

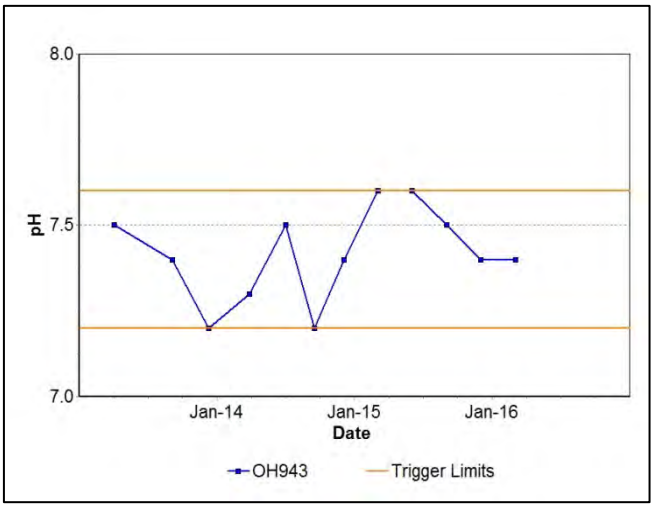

Figure 53: Hunter River Alluvium 4 Seam pH Trend - March 2016

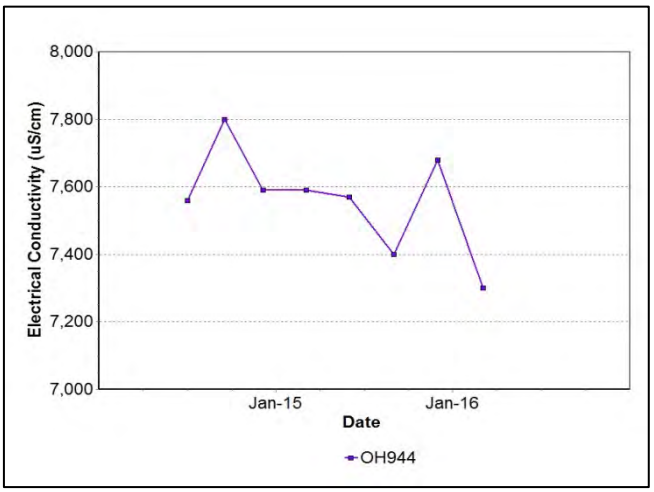

Figure 54: Hunter River Alluvium 5 Seam Electrical Conductivity - March 2016

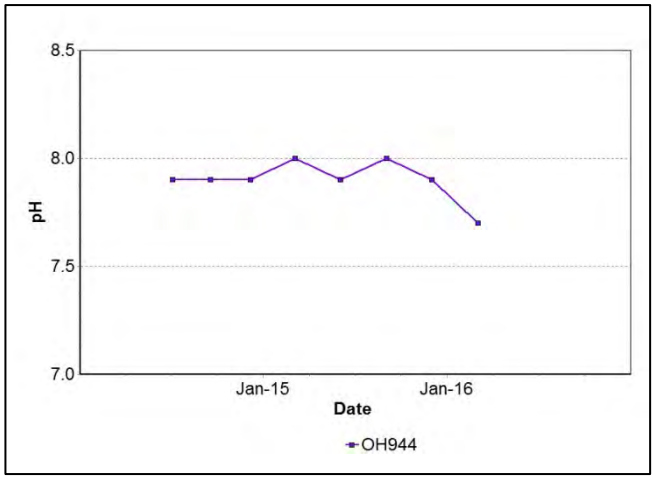

Figure 55: Hunter River Alluvium 5 Seam pH Trend - March 2016

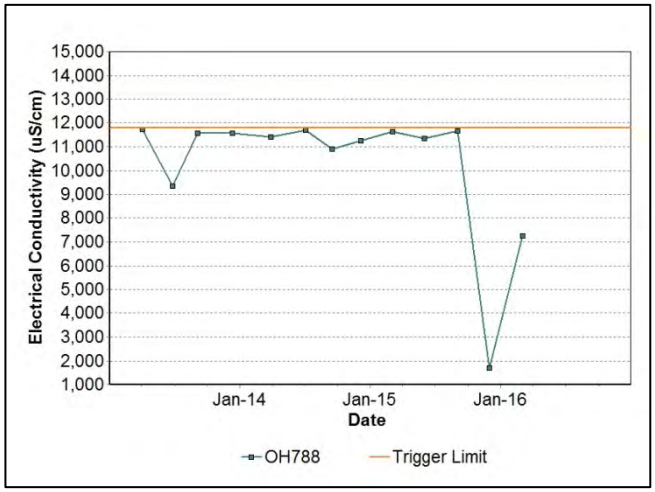

Figure 56: Hunter River Alluvium 6 Seam Electrical Conductivity - March 2016

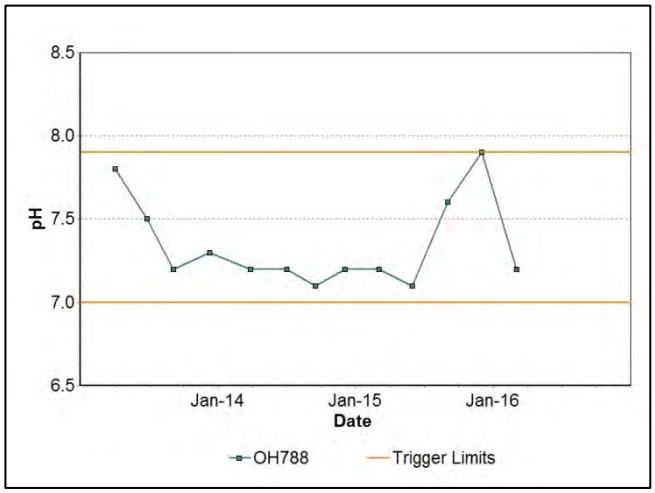

Figure 57: Hunter River Alluvium 6 Seam pH Trend - March 2016

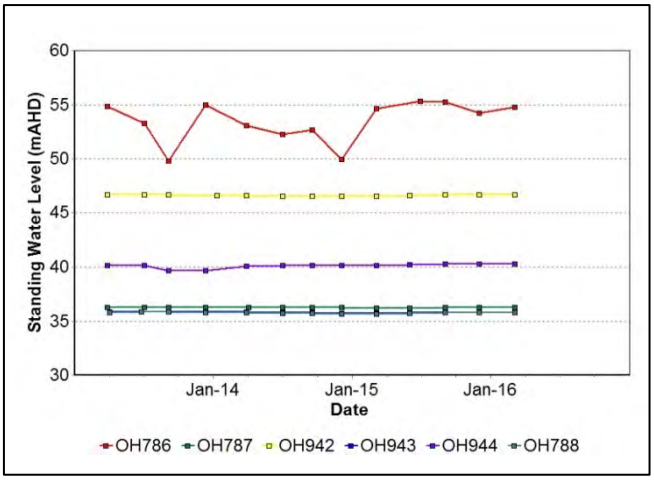

Figure 58: Hunter River Alluvium Standing Water Level Trend - March 2016

3.2.1 Groundwater Trigger Tracking

Internal trigger limits have been developed to assess monitoring data on an on-going basis, and to highlight potentially adverse groundwater impacts. The process for evaluating monitoring results against the internal triggers and subsequent responses are outlined in the MTW Water Management Plan. Locations of groundwater bores are shown in Figure 59.

During March 2016 a number of trigger limits were breached and investigated, summarised in Table 3.

Table 3: Groundwater Triggers - 2016

Site	Date	Trigger Limit Breached	Action Taken in Response
GW9709	04/03/2016	EC – 95th Percentile	Watching Brief*
OH1125(3)	03/03/2016	EC – 95th Percentile	Watching Brief*
OH1125(1)	03/03/2016	EC – 95th Percentile	Watching Brief*
PZ9D	03/03/2016	EC – 95th Percentile	Watching Brief*
WOH2156B	04/03/2016	EC – 95th Percentile	Elevated EC is likely the result of coal seam depressurisation, as evidenced by falling water level. This trend is consistent with effects of nearby mining. No further action required.
OH942	03/03/2016	PH –5th Percentile	Watching Brief*
OH944	03/03/2016	PH –5th Percentile	Watching Brief*
GW9706	04/03/2016	PH – 95th Percentile	Trend consistent with nearby monitoring bore GW9707. Water level steady and does not indicate impact due to mining. Watching brief to be maintained.
WOH2156A	04/03/2016	PH - 5th Percentile	Low pH is likely the result of coal seam depressurisation, as evidenced by falling water level. This trend is consistent with effects of nearby mining. No further action required.
G3	03/03/2016	PH – 5th Percentile	Watching Brief. Large variance in Standing Water level indicates damage to the piezometer, currently under investigation.

* = Watching brief established pending outcomes of subsequent monitoring events. No specific actions required.

Figure 59: Groundwater Monitoring Location Plan

4.0 BLAST MONITORING

MTW have a network of six blast monitoring units. These are located at nearby privately owned residences and function as regulatory compliance monitors.

The location of these monitors can be found in Figure 66.

4.1 Blast Monitoring Results

During March 2016, 25 blasts were initiated at MTW. Figure 60 to Figure 65 show the blast monitoring results for the reporting period against the impact assessment criteria. The criteria are summarised in Table 4.

Table 4: Blasting Limits

Airblast Overpressure (dB(L))	Comments
115	5% of the total number of blasts in a 12 month period
120	0%
Ground Vibration (mm/s)	**Comments**
5	5% of the total number of blasts in a 12 month period
10	0%

During the reporting period no blasts exceeded the 115 dB(L) 5% threshold for airblast overpressure or 5mm/s 5% threshold for ground vibration.

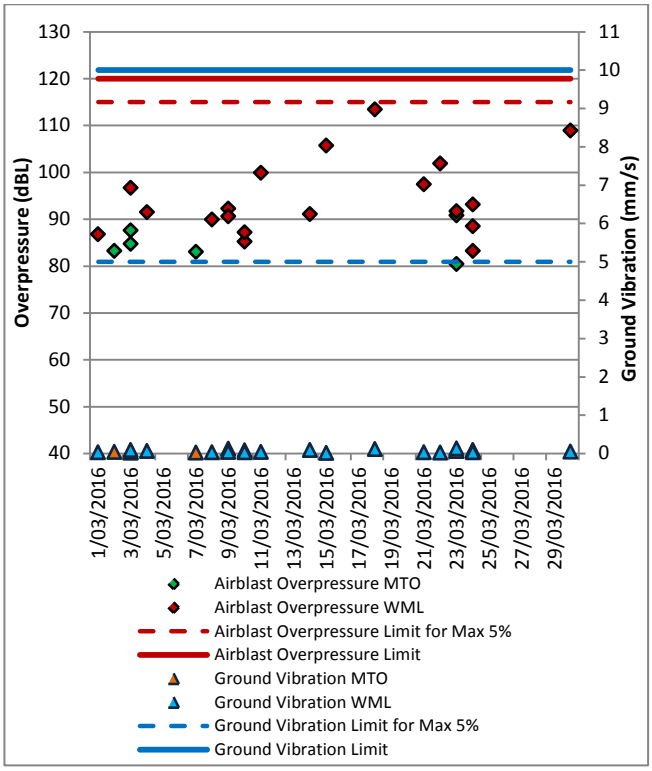

Figure 60: Abbey Green Blast Monitoring Results - March 2016

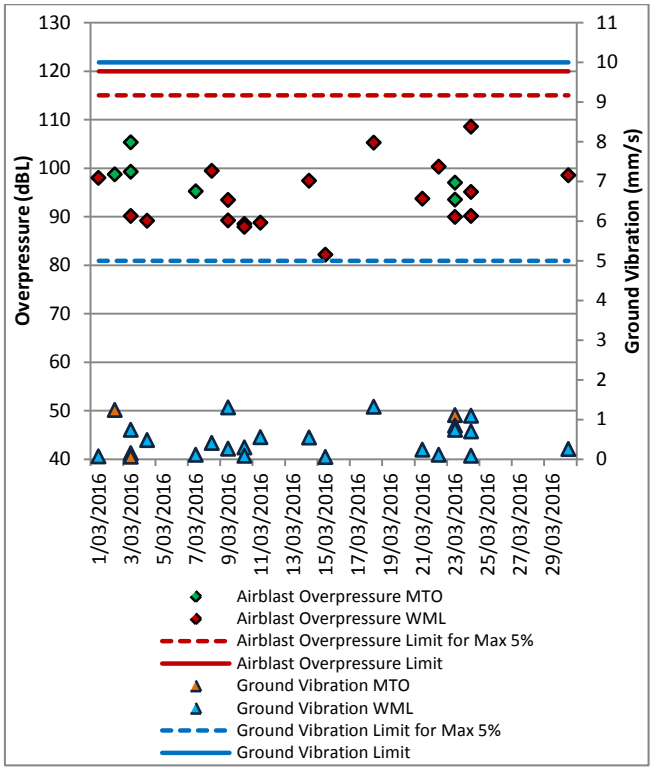

Figure 61: Bulga Village Blast Monitoring Results - March 2016

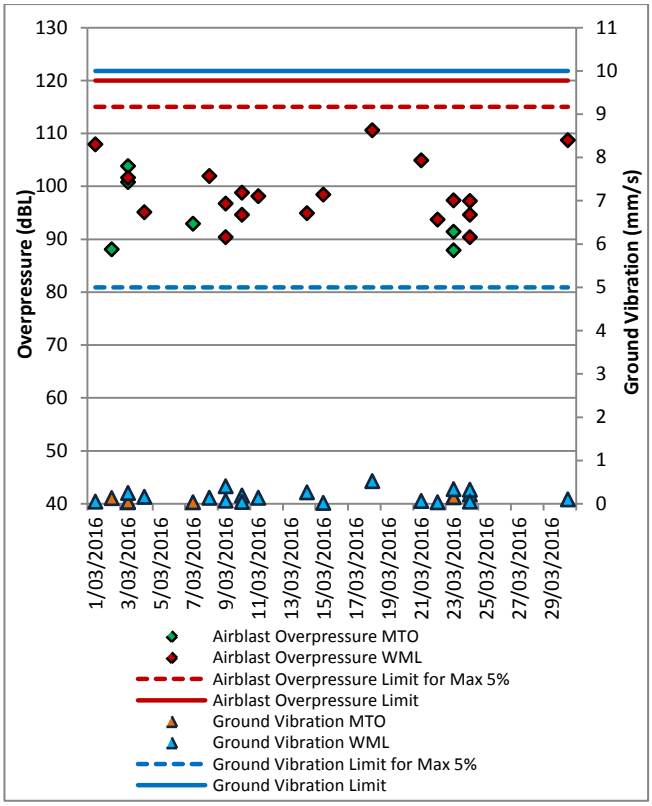

Figure 62: MTIE Blast Monitoring Results – March 2016

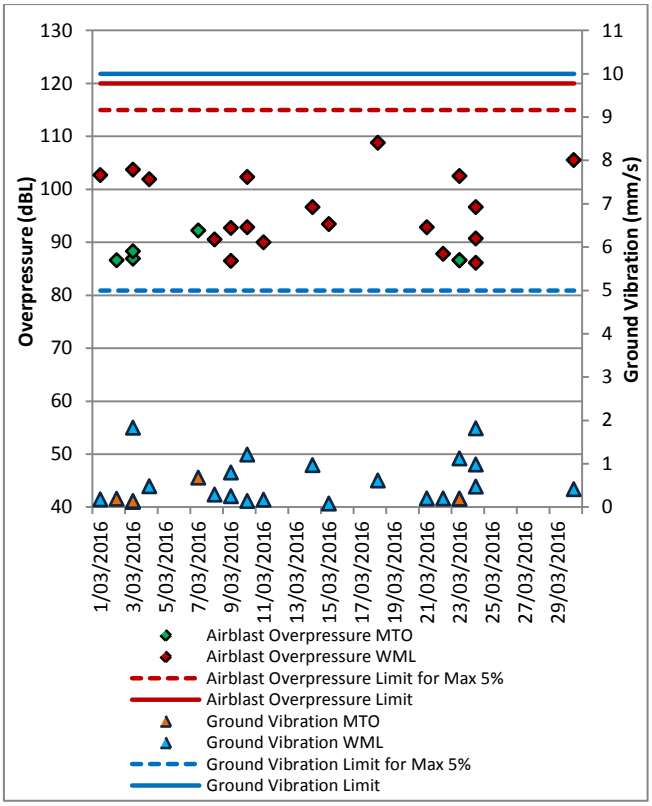

Figure 64: Warkworth Blast Monitoring Results - March 2016

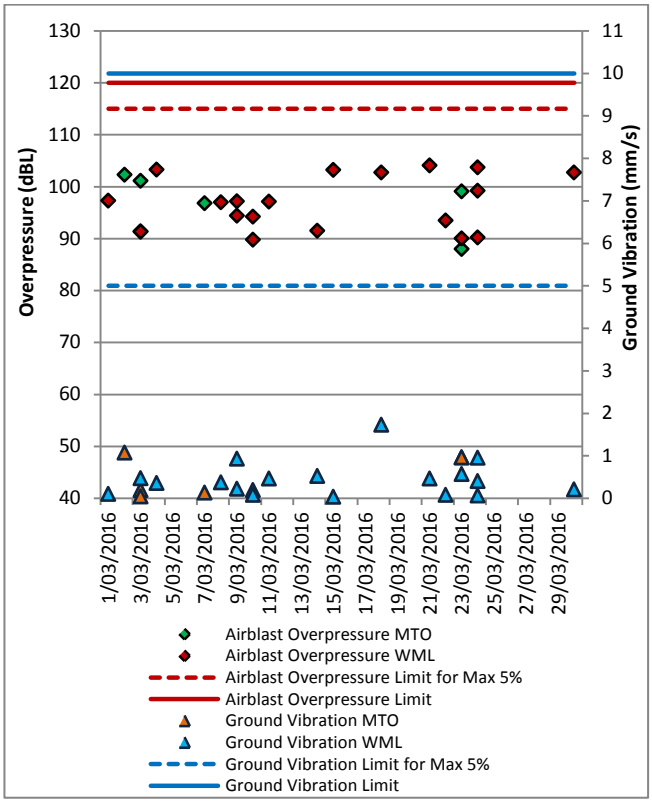

Figure 63: Wollemi Peak Road Blast Monitoring Results - March 2016

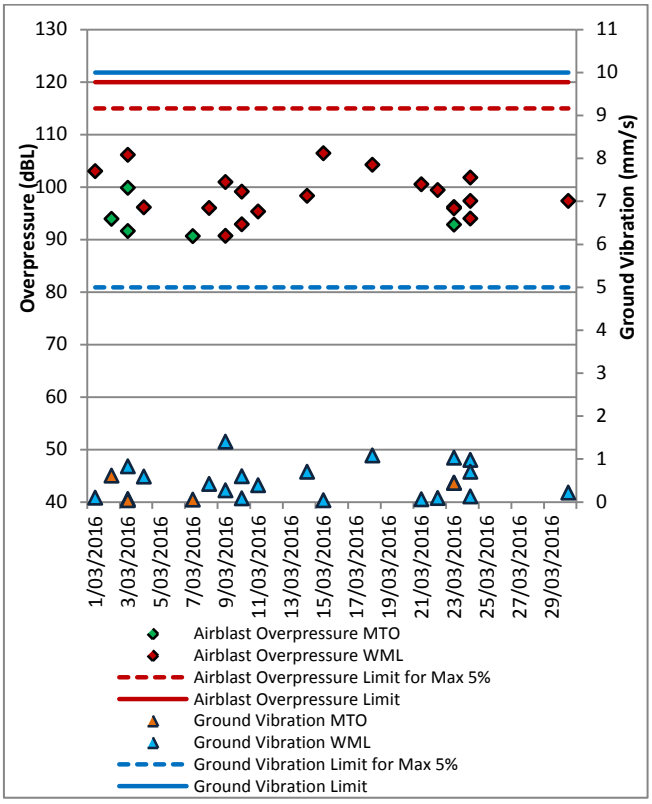

Figure 65: Wambo Road Blast Monitoring Results - March 2016

Figure 66: Blast and Vibration Monitoring Location Plan

5.0 NOISE

Routine attended noise monitoring is carried out in accordance with the MTW Noise Management Plan. A review against EIS predictions will be reported in the Annual Review. The purpose of the noise surveys is to quantify and describe the acoustic environment around the site and compare results with specified limits. Unattended monitoring (real time noise monitoring) also occurs at seven sites surrounding MTW. The attended noise monitoring locations are displayed in Figure 67.

5.1 Attended Noise Monitoring Results

Attended monitoring was conducted at receiver locations surrounding MTW on the night of 17/18 March 2016. All measurements complied with the relevant criteria. Results are detailed in Table 5 to Table 9.

5.1.1 WML Noise Assessment

Compliance assessments undertaken against the WML noise criteria are presented in Tables 5 and 6.

Table 5: LAeq, 15 minute Warkworth Impact Assessment Criteria – March 2016

Location	Date and Time	Wind Speed (m/s)[5]	VTG	Criterion (dB(A))	Criterion Applies?[1,6]	WML L_{Aeq} dB[2,4]	Exceedance[3]	Total L_{Ceq} – L_{Aeq}	Revised WML L_{Aeq}[5,6]
MTIE	17/03/2016 22:47	2.2	3	NA	No	<30	NA	11	<30
Bulga Village	17/03/2016 23:39	2.1	0.5	38	Yes	IA	Nil	18	IA
Gouldsville Road	17/03/2016 22:23	2.6	0.5	NA	No	IA	NA	10	IA
Inlet Road West	18/03/2016 0:04	1.9	0.5	35	Yes	28	Nil	10	28
Long Point	17/03/2016 22:00	2.4	-1	37	Yes	IA	Nil	8	IA
Wollemi Peak Road	18/03/2016 0:37	2.1	3	35	Yes	32	Nil	7	32
South Bulga	18/03/2016 0:59	0.3	-1	35	Yes	<30	Nil	20	<30
Wambo Road	17/03/2016 23:18	2	0.5	38	Yes	30	Nil	13	30

Table 6: LAeq, 15 minute Warkworth - Land Acquisition Criteria – March 2016

Location	Date and Time	Wind Speed (m/s)[5]	VTG	Criterion (dB(A))	Criterion Applies?[1,6]	WML L_{Aeq} dB[2,4]	Exceedance[3]	Total L_{Ceq} – L_{Aeq}[7]	Revised WML L_{Aeq}[5,6]
MTIE	17/03/2016 22:47	2.2	3	44	Yes	<30	Nil	11	<30
Bulga Village	17/03/2016 23:39	2.1	0.5	43	Yes	IA	Nil	18	IA
Gouldsville Road	17/03/2016 22:23	2.6	0.5	43	Yes	IA	Nil	10	IA
Inlet Road West	18/03/2016 0:04	1.9	0.5	40	Yes	28	Nil	10	28
Long Point	17/03/2016 22:00	2.4	-1	40	Yes	IA	Nil	8	IA
Wollemi Peak Road	18/03/2016 0:37	2.1	3	40	Yes	32	Nil	7	32
South Bulga	18/03/2016 0:59	0.3	-1	40	Yes	<30	Nil	20	<30
Wambo Road	17/03/2016 23:18	2	0.5	40	Yes	30	Nil	13	30

Notes

1. *Application of Criterion as per meteorological exclusions set out in the Approvals;*
2. *These are measured A-weighted noise levels (professional assessment of noise contribution from the target source (WML / MTO) only);*
3. *Exceedance is defined in the MTW Noise Management Plan. Bolded results in red are those greater than the relevant criterion;*
4. *Results denoted by "<" indicate that the relative contribution of the target consent area could not be absolutely determined, but is assessed up to a maximum of the recorded value. "IA" means that the target consent area was inaudible during the assessment. "NM" means that the target consent area was audible, but at such low levels that an accurate assessment of noise level could not be determined;*
5. *Revised WML L_{Aeq} includes application of the INP Low Frequency modification factor penalty where applicable;*
6. *Low Frequency Penalty is not be applied where external noise sources influence the L_{Ceq} measurement, or during instances where the noise criteria do not apply (see note 1); and*
7. *INP assessment of Total L_{Ceq} minus Total L_{Aeq}. INP Low Frequency Penalty is applicable where this exceeds 15*

5.1.2 MTO Noise Assessment

Compliance assessments undertaken against the MTO noise criteria are presented in Table 7 to Table 9.

Table 7: LAeq, 15minute Mount Thorley - Impact Assessment Criteria – March 2016

Location	Date and Time	Wind Speed (m/s)[5]	VTG	Criterion dB	Criterion Applies?[1,6]	MTO L_{Aeq} dB[2,4]	Exceedance[3]	Total L_{Ceq} – L_{Aeq}[7]	Revised MTO L_{Aeq}[5,6]
MTIE	17/03/2016 22:47	2.2	3	NA	No	IA	NA	11	IA
Bulga Village	17/03/2016 23:39	2.1	0.5	40	Yes	36	Nil	18	41
Gouldsville Road	17/03/2016 22:23	2.6	0.5	44	Yes	IA	Nil	10	IA
Inlet Road West	18/03/2016 0:04	1.9	0.5	35	Yes	28	Nil	10	28
Long Point	17/03/2016 22:00	2.4	-1	39	Yes	IA	Nil	8	IA
Wollemi Peak Road	18/03/2016 0:37	2.1	3	38	Yes	30	Nil	7	30
South Bulga	18/03/2016 0:59	0.3	-1	37	Yes	32	Nil	20	37
Wambo Road	17/03/2016 23:18	2	0.5	40	Yes	32	Nil	13	32

Table 8: LAeq,15minute Mount Thorley – Land Acquisition Criteria – March 2016

Location	Date and Time	Wind Speed (m/s)[5]	VTG[5]	Criterion dB	Criterion Applies?[1,6]	MTO L_{Aeq} dB[2,4]	Exceedance[3]	Total L_{Ceq} – L_{Aeq}[7]	Revised MTO L_{Aeq}[5,6]
MTIE	17/03/2016 22:47	2.2	3	NA	No	IA	NA	11	IA
Bulga Village	17/03/2016 23:39	2.1	0.5	43	Yes	36	Nil	18	41
Gouldsville Road	17/03/2016 22:23	2.6	0.5	45	Yes	IA	Nil	10	IA
Inlet Road West	18/03/2016 0:04	1.9	0.5	43	Yes	28	Nil	10	28
Long Point	17/03/2016 22:00	2.4	-1	43	Yes	IA	Nil	8	IA
Wollemi Peak Road	18/03/2016 0:37	2.1	3	43	Yes	30	Nil	7	30
South Bulga	18/03/2016 0:59	0.3	-1	43	Yes	32	Nil	20	37
Wambo Road	17/03/2016 23:18	2	0.5	43	Yes	32	Nil	13	32

Table 9: LA1, 1Minute Mount Thorley - Impact Assessment Criteria – March 2016

Location	Date and Time	Wind Speed (m/s)[5]	VTG[5]	Criterion dB	Criterion Applies?[1,6]	MTO $L_{A1,\ 1min}$ dB[2,4]	Exceedance[3]
MTIE	17/03/2016 22:47	2.2	3	NA	No	IA	NA
Bulga Village	17/03/2016 23:39	2.1	0.5	48	Yes	43	Nil
Gouldsville Road	17/03/2016 22:23	2.6	0.5	47	Yes	IA	Nil
Inlet Road West	18/03/2016 0:04	1.9	0.5	48	Yes	35	Nil
Long Point	17/03/2016 22:00	2.4	-1	47	Yes	IA	Nil
Wollemi Peak Road	18/03/2016 0:37	2.1	3	48	Yes	35	Nil
South Bulga	18/03/2016 0:59	0.3	-1	48	Yes	38	Nil
Wambo Road	17/03/2016 23:18	2	0.5	48	Yes	35	Nil

Notes

1. *Application of Criterion as per meteorological exclusions set out in the Approvals;*
2. *These are measured A-weighted noise levels (professional assessment of noise contribution from the target source (WML / MTO) only);*
3. *Exceedance is defined in the MTW Noise Management Plan. Bolded results in red are those greater than the relevant criterion;*
4. *Results denoted by "<" indicate that the relative contribution of the target consent area could not be absolutely determined, but is assessed up to a maximum of the recorded value. "IA" means that the target consent area as inaudible during the assessment. "NM" means that the target consent area was audible, but at such low levels that an accurate assessment of noise level could not be determined;*

5. *Revised WML L_{Aeq} includes application of the INP Low Frequency modification factor penalty where applicable;*
6. *Low Frequency Penalty is not be applied where external noise sources influence the L_{Ceq} measurement, or during instances where the noise criteria do not apply (see note 1); and*
7. *INP assessment of Total L_{Ceq} minus Total L_{Aeq}. INP Low Frequency Penalty is applicable where this exceeds 15*

5.1.3 INP Low Frequency Assessment

In accordance with the requirements of the Industrial Noise Policy, the low frequency modification factor has been applied where appropriate. It should be noted that the Industrial Noise Policy does not give guidance on the application of the penalty where more than one target source is audible. The L_{Ceq} levels reported above are "Total", or "Total mine noise" at best, and cannot be attributed accurately to a single mine. Accordingly, where the INP criteria for the application of the Low Frequency penalty is triggered, the penalty has been applied to the dominant mine noise source (either of WML or MTO).

Application of the low frequency modification factor during March 2016 results in a 1dB exceedance of the Mt Thorley L_{Aeq} criteria at the Bulga Village monitoring location. This result has been reported in writing to the Department of Planning & Environment.

Figure 67: Noise Monitoring Location Plan

5.2 Noise Management Measures

A program of targeted supplementary attended noise monitoring is in place at MTW, supported by the real-time directional monitoring network and ensuring the highest level of noise management is maintained. The supplementary program is undertaken by MTW personnel and involves:

- Routine inspections from both inside and outside the mine boundary;
- Routine and as-required handheld noise assessments (undertaken in response to noise alarm and/or community complaint), comparing measured levels against consent noise limits; and
- Validation monitoring following operational modifications to assess the adequacy of the modifications.

Where a noise assessment identifies noise emissions which are exceeding the relevant noise limit(s) for any particular residence, modifications will be made so as to ensure that the noise event is resolved within 75 minutes of identification. The actions taken are commensurate with the nature and severity of the noise event, but can include:

- Replacement of non-attenuated equipment with sound attenuated equipment;
- Changing the haul route to a less noise sensitive haul;
- Changing dump locations (in-pit or less exposed dump option)
- Reducing equipment numbers;
- Shut down of task; or
- Site shut down.
- A summary of these assessments undertaken during March are provided in Table 10.

Table 10: Supplementary Attended Noise Monitoring Data –March 2016

No. of assessments	No. of assessments > trigger	No. of nights where assessments > trigger	% greater than trigger
569	17	8	3.0

Note: Measurements are taken under all meteorological conditions, including conditions under which the consent noise criteria do not apply.

6.0 OPERATIONAL DOWNTIME

During March, a total of 235.8 hours of equipment downtime was logged in response to environmental events such as dust, noise and elevated wind impacts. Operational downtime by equipment type is shown in Figure 68.

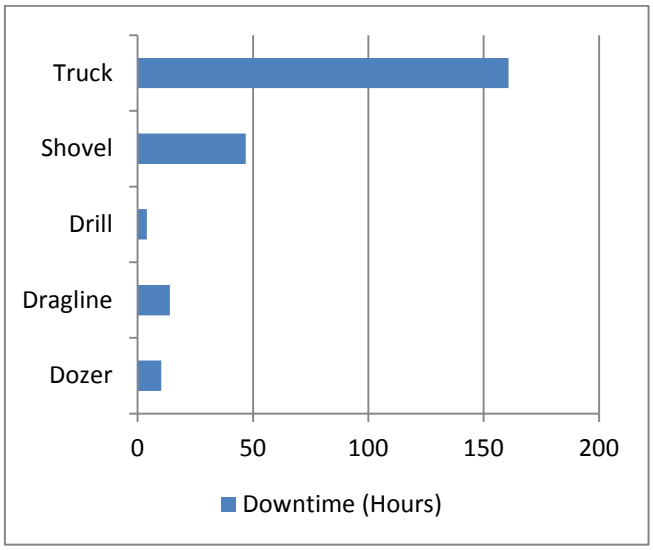

Figure 68: Operational Downtime by Equipment Type – March 2016

7.0 REHABILITATION

During March, 11.64 Ha of land was released and 6.67 Ha of land was bulk-shaped and 1.95 Ha was topsoiled. Year-to-date progress can be viewed in Figure 69.

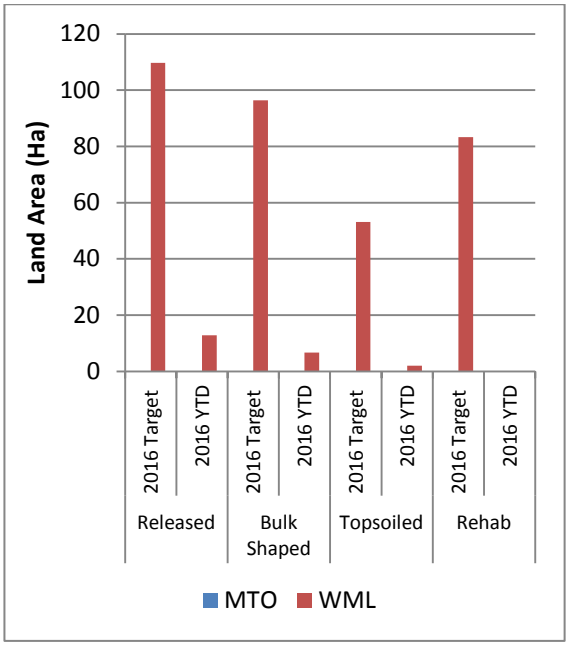

Figure 69: Rehabilitation YTD - March 2016

8.0 ENVIRONMENTAL INCIDENTS

During the reporting period there were no reportable environmental incidents.

9.0 COMPLAINTS

During the reporting period 48 complaints were received, details of these complaints are displayed on the Rio Tinto website via the following link and are also shown in Figure 70 below.
http://www.riotinto.com/documents/MTW%20Complaints%20Register%20March%202016.pdf

	Noise	Dust	Blast	Lighting	Other	Total
January	29	1	5	2	2	39
February	24	2	6	1	0	33
March	43	1	2	1	1	48
April	-	-	-	-	-	-
May	-	-	-	-	-	-
June	-	-	-	-	-	-
July	-	-	-	-	-	-
August	-	-	-	-	-	-
September	-	-	-	-	-	-
October	-	-	-	-	-	-
November	-	-	-	-	-	-
December	-	-	-	-	-	-
Total	96	4	13	4	3	120

Figure 70: Complaints Summary - YTD March 2016

Appendix A: Meteorological Data

Table 11: Meteorological Data – Charlton Ridge Meteorological Station – March 2016

Date	Air Temperature Maximum (°C)	Air Temperature Minimum (°C)	Relative Humidity Maximum (%)	Relative Humidity Minimum (%)	Solar Radiation Maximum (W/Sq. M)	Wind Direction Average (°)	Wind Speed Average (m/sec)	Rainfall(mm)
1/03/2016	30.7	16.1	90.4	35.2	1225	140.0	2.8	0.0
2/03/2016	34.0	15.0	94.2	24.8	977	162.8	2.0	0.0
3/03/2016	34.0	16.5	93.9	24.4	929	150.9	2.1	0.0
4/03/2016	31.6	19.1	87.9	41.9	1264	137.4	2.8	0.0
5/03/2016	31.8	17.5	90.0	26.6	1139	148.6	2.5	0.0
6/03/2016	33.4	15.5	91.5	31.5	1036	153.4	2.8	0.0
7/03/2016	34.6	18.5	91.0	26.4	903	144.5	1.9	0.0
8/03/2016	32.7	18.8	88.2	27.5	1073	143.1	3.1	0.0
9/03/2016	35.0	18.7	92.0	25.4	915	138.2	2.0	0.0
10/03/2016	36.0	19.6	90.8	21.3	981	161.7	2.0	0.0
11/03/2016	34.7	20.1	86.9	24.0	1057	163.7	2.3	0.0
12/03/2016	34.8	18.6	93.6	29.3	881	159.5	2.5	0.0
13/03/2016	33.5	19.0	86.6	28.0	1013	156.0	2.5	0.0
14/03/2016	32.7	18.5	95.3	38.6	1273	186.6	1.7	11.4
15/03/2016	24.2	19.1	91.7	63.4	902	170.5	3.5	0.0
16/03/2016	25.1	16.8	95.5	61.6	1333	164.7	2.6	5.6
17/03/2016	28.6	16.4	92.3	46.7	1275	155.8	2.3	0.2
18/03/2016	28.8	16.0	95.9	50.0	1061	251.8	2.7	2.0
19/03/2016	26.0	10.4	84.3	23.3	925	210.9	2.5	0.0
20/03/2016	22.9	13.2	83.4	51.7	1181	171.4	3.4	0.0
21/03/2016	24.1	13.9	92.7	45.2	1283	171.0	3.8	0.4
22/03/2016	26.0	13.9	81.6	34.0	1174	175.6	3.2	0.0
23/03/2016	27.8	11.9	84.9	23.7	898	183.3	1.7	0.0
24/03/2016	30.7	12.9	86.0	20.9	853	166.1	2.0	0.0
25/03/2016	24.7	13.1	81.6	42.3	661	190.6	1.6	0.4
26/03/2016	30.1	13.7	87.2	27.4	884	165.9	2.4	0.0
27/03/2016	30.6	15.6	93.4	37.0	976	162.5	2.9	0.0
28/03/2016	29.5	17.1	90.8	32.5	884	167.0	1.6	0.0
29/03/2016	28.5	18.1	95.7	52.9	1161	165.2	1.9	13.4
30/03/2016	27.5	15.6	96.6	33.0	1137	239.8	2.5	0.2
31/03/2016	27.7	12.7	84.4	29.4	827	192.3	2.0	0.0

COAL & ALLIED

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Appendix D

Acquisition Update - Mount Thorley Warkworth Property Portfolio

Mount Thorley Warkworth property portfolio update

March 2016

Approach

Property purchases are based on the following:

- Regulatory criteria (those properties identified as being within a zone of acquisition due to predicted impacts under current operating consent. The majority of properties owned by Coal & Allied fall into this category);

How are properties managed?

- Properties within the mining lease may or may not be tenanted depending on their distance from the operation.
- Some of the properties were purchased as part of consent conditions requiring offer of acquisition to owners. Many have been owned for some time over the 30 year life of the operation (e.g. along Putty Road).
- Properties that are tenanted are offered for lease on the open market at market rates, and are managed through local real estate agents.
- Properties must be managed in accordance with Coal & Allied's standards of property management.

Current property portfolio

1909 Putty Road, Bulga
1870 Putty Road, Bulga
1758 Putty Road, Bulga
1804 Putty Road, Bulga
1855 Putty Road, Bulga
1893 Putty Road, Bulga
1906 Putty Road, Bulga
1951 Putty Road, Bulga
2119 Putty Road, Bulga
2042 Putty Road, Bulga
1946 Putty Road, Bulga
1946 Putty Road, Bulga
608 Hambledon Hill Road, Singleton
271 Wallaby Scrub Road, Bulga
277 Wallaby Scrub Road, Bulga
896 Putty Rd, Mt Thorley
288 Jerrys Plains Road, Singleton
11 Inlet Road , Bulga
36 Inlet Road, Bulga
1 Wambo Rd, Bulga
89 Wambo Rd , Bulga
910 Putty Rd, Mt Thorley
129 Wambo Rd, Bulga
181 Wambo Rd, Bulga
313 Wambo Road, Bulga
317 Wambo Rd, Bulga
248 Wambo Road, Bulga
367 Wambo Rd, Bulga