Yancoal
Mount Thorley Warkworth Operations
Community Consultative Committee Meeting
Monday 19 February 2018

Attendance

Chairperson	
Colin Gellatly	Independent Chair MTW CCC
Company Representatives	
Jason McCallum	General Manager – MTW
Andrew Speechly	Manager Environment & Community (HVO/MTW)
Travis Bates	Specialist Community Relations
Community Representatives	
Ian Hedley	Community Representative
Stewart Mitchell	Community Representative
Christina Metlikovec	Community Representative
Observers / Presenters	
Hayley Frazer	Environmental Advisor / CCC Secretary
Michael Frankcombe	NSW Government Planning & Environment Senior Compliance Officer, Compliance Planning Services
Apologies	
Adrian Gallagher	Community Representative
Minutes	Sarah Purser

1. **Welcome;** Col greeted the CCC and noted that Adrian was an apology having just come off a 16 hour shift fire fighting.

   Acknowledgement of Country : Read by Hayley;
   We acknowledge the traditional owners, the Wonnarua people, of the land where we meet today and pay respect to Elders, past present and future.

2. **Apologies;** Advised and recorded

3. **Declaration of Pecuniary Interests / Conflict of Interest; Ongoing;** Col advised that both he and Sarah are engaged by Yancoal to provide the services of Independent Chairperson and meeting note taker.

4. **Out of Session Correspondence:-**

- ✓ Lydes Lane & Putty Road intersection update; email 12/12/17
- ✓ Activity of tenant parking excessive heavy equipment at Yancoal lease property, 1946 Putty Road, assessed against the tenancy agreement; email 14/12/17
- ✓ Distribution of Blast SMS information from meeting; email 22/12/17
- ✓ Previous Meeting Minutes as Draft for Comment; email from Sarah 28/12/17
- ✓ Putty Road Underpass Traffic Control Plan Update; 31/1/18
- ✓ Notification of Shop Front Closure; 25/1/18
- ✓ Agenda and Business Papers; 7/2/18

5. **Confirmation of the previous Meeting's Minutes;**
   Col confirmed that the Minutes for the Meeting 4 December 2017 had been circulated and following the comments period close were endorsed by Chair. Col asked if there were any matters to be raised by the CCC, no comments were put forward and the Minutes were taken as accepted.

6. Matters arising from the previous Meeting (Actions)

Col noted that Hayley had attended to a number of actions that had been raised at the December CCC, directly after that Meeting, and prior to the Meeting Minutes being prepared. Hayley confirmed that she had made sure that MTW got those out as quickly as possible, some being easily achievable with the action being for Hayley to just do physical follow ups. Hayley asked if there was anything further around these actions to please let her know, otherwise they had been addressed in the Minutes.

Actioned Post Meeting:-

✓ ***Concerns raised regarding the heavy equipment parked at 1946 Putty Road not aligned with Land Classification, creating Zoning issues;*** Hayley followed up post meeting with email detailing MTW's actions.

✓ ***Outstanding Action : Action 5 from the 5 August 2017 Meeting;*** *Michael (Department of Planning & Environment) to get in touch with Natasha (Environmental Protection Authority) to discuss Ian's request for monitoring at the Mount Thorley Industrial Estate and communicate any update to Ian out of session.* This had been followed up and correspondence from the EPA provided to the CCC and also tabled at this meeting.

✓ ***Query during meeting regarding whether patrons listed on the "Adopt-a-Road" Signage were current;*** Hayley followed up with Singleton Shire Council to confirm that patrons listed on this signage were Registered on the Attendance list.

On-going Actions:-

May 2017 CCC; MTW to keep the CCC up to date in matters pertaining to C&A's application to Singleton Council to close Wallaby Scrub Road, either at a meeting, or out of session should there be any update outside of two weeks prior to the next CCC Meeting.
Ongoing; Last update was by Andrew on 29 August 2017 and Hayley advised that should members have any questions around Wallaby Scrub Road that Andrew could answer those at today's meeting.

May 2017 CCC; MTW to keep the option for the company to reinstate the advertising of blast times as a meeting topic, as raised by Christina.
Complete; MTW have implemented an SMS subscription service to provide up to date information on blasting times.

December 2018 CCC; Andrew to keep the CCC posted as to when the Lease for the Cockfighter Tavern may be ready to go out for Public Tender and anticipated re-opening date for the Pub when known to Yancoal.
Ongoing; Update to be provided at each Meeting.

UPDATE ON YANCOAL'S ACQUISITION OF THE COCKFIGHTER TAVERN

Yancoal had commenced the process of engaging a Business Broker to assist finding an operator for the Tavern and were currently reviewing Broker submissions. The next step will be to appoint a Broker to take the business to market and find a suitable operator. Andrew hoped that within the next couple of months some ads would be seen going out.

Stewart asked if Yancoal were going to do some alterations and refurbishments to the Tavern and asked why some improvement works could not be commenced now. Stewart felt that the Tavern was starting to look quite run down and concern was raised about the state of the Australian Flag that Stewart had originally donated.

Andrew confirmed that Yancoal are working on getting licensing aspects and key elements sorted and the long term goal is to try and improve the amenity e.g. some outdoor areas need tidying up. Jason advised that Yancoal would like to have the new operator involved in some aspects of renovations, such as the kitchen needing to be re-fitted, as the design would therefore be dependent on what type of meals they would like to serve.

ACTION 1: Yancoal to look into replacing the Australian Flag at the Cockfighter Tavern in the near future, to improve visual amenity.

MTW BLAST NOTIFICATION SYSTEM OPERATIONAL

- Community Members are able to "Subscribe" to SMS alerts relating to MTW Road Closures.
- Send "Subscribe" to 0438 100 840.
- Notifications will be updated where significant delays are experienced or cancellations occur.
- Subscribers can unsubscribe at any time.
- To subscribe/unsubscribe at no cost contact Yancoal on 1800 727 745 to register your details for the service.
- Note; You can choose to subscribe or alter the subscription yourself, however it will be at your own cost, being your Mobile Carrier's SMS rate.
- SMS received by the subscriber are at no cost to the subscriber.

Hayley asked if any more CCC members were wanting to subscribe to the SMS blast notification system to utilise the above phone number or let her know at the end of this Meeting.

Stewart said that he had received two times given for blasting that morning and Hayley confirmed that there had been one for Mt Thorley and one for Warkworth. Should there be change due to environmental conditions or if MET was not favourable pushing the blast back, then there would be a new message - not necessarily a new blast.

Christina noted that the road closure advice had been for a three hour window and Hayley responded this should have been for only one hour, Jason asked Hayley to look into that.

ACTION 2: Hayley to clarify the day in which the blasting SMS insinuated the road was going to be closed for three hours.

Christina would like to see blasting minimised to 20 minutes per day and Stewart felt it would be helpful if the text message could differentiate between Mt Thorley and Warkworth.

ACTION 3: MTW to look into editing the text SMS system to differentiate between blasts at Mt Thorley and Warkworth.

Col asked members to provide any further feedback they may have to Hayley, so that this may potentially be fed back to assist with improvements for community subscribers.

7. Company Update - Jason McCallum

JOINT VENTURE

The Joint Venture continues to progress and MTW remains amalgamated with Mitsubishi.

SOUTH PIT & PUTTY ROAD UNDERPASS UPDATE

The underpass was well on its way to completion, anticipated to be prior to 1 April 2018. There had been a minor delay due to road paving not being completed in one day, therefore paving resources needed to be booked back in. Yancoal will next start to formulate that access to South Pit.

UNDERPASS PROJECT TRAFFIC CONTROL PLAN

Traffic was re-diverted over the bridge on 6 February. The reduced speed zone (60 km/h) was maintained for safety as the west bound lane was not completed. Speed will remain reduced (80 km/h) until the underpass is fully completed. Excavation below the bridge will occur over day and night shifts.

SAFETY SNAPSHOT

Members were provided with figures on Total Recordable Injury Frequency Rate (TRIFR) and Lost Time Injury Frequency Rate (LTIFR) for 2017 and 2018, along with detail of injuries since the December CCC and actions undertaken by Yancoal as a result of these. Jason advised that in terms of injury MTW were below industry average in 2017, so that had been a good year.

Ian asked how Yancoal determine a Recordable Injury (TRIFR) and Jason advised this is done over 1 million & 500,000 man hours and included in what MTW call a recordable injury, are any injuries that require somebody to receive medical assistance outside of the mine site. Jason noted there was a difference between Yancoal and Rio Tinto's measuring systems and what is deemed a recordable injury by each individual company.

Safety Share; Out of interest Ian had brought along some Safety Statics from his own business to share with the CCC and advised that anything entered into their First Aid Book is called reportable and recorded in statistics. Ian had wanted to show how his business had made significant improvements in relation to the number of accidents over ten years and the reasons for that. Ian noted that his staff start with a Safety Share at their Tool Box Talk every morning, which brings hazards into peoples' minds such as; watching out for kangaroos on roads, sun glare in different areas due to the change in season and that drivers may have car headlights on when departing from their homes in the dark. Ian advised this share had been an effective way for people to think about safety and noted that his company's accident rate had dropped down. Ian's experience was that detailed Safety Records had made a big difference to safety in his workplace.

OPERATONAL DOWNTIME 2016 V's 2017

Downtime YTD Totals (hours);

2017 : 8265.12 hours
Total Dust = 8030 / Truck Dust = 4044

2016 : 4499.62
Total Dust = 2598.8 / Truck Dust = 1277

Hayley noted that reflecting on 2017, there had been a fair bit more down time in terms of dust, with more than half of these hours related to trucks. 2017 down time for dust was well over double to that in 2016 and Hayley attributed that also to having had a very dry year. Hayley advised the reason for including the dust numbers for the CCC was to reflect the conditions of that year and to also show that MTW had been responding responsibly to dust alarms, with trucks having been the majority of shutdowns.

Col asked how downtime had been for 2018 and Jason responded that it is typical to lose a couple of hours per day.

MTW Noise Monitoring YTD 2017

	# CRO Assessments	# Individual Assessment above trigger	# Nights above trigger
2018 YTD	539	3	3
2017	5990	18	10
2016	4851	84	34

Andrew noted the substantial reduction in individual noise assessments above trigger when comparing 2016 being 84 to 2017 totalling 18 and that was indicative that noise management continues to improve. Stewart queried if 50% of the down time value is attributed to truck dust, what would be the cause for the other half. Hayley advised that cumulatively other equipment makes up the balance in hours and gave examples of pulling up for water carts and that a large amount of downtime is included in that. Hayley had just wanted to provided a snapshot in terms of noise versus dust and to indicate how much is truck downtime.

Michael asked if the dust issue with trucks is more wheel generated or around dumping and Andrew advised this is less likely around wheel generation but more typically the loading activities are associated with dust generation.

Ian felt that dust from trucks and the shovel had improved and that he had not been impacted as much but noted that blasts remain a major concern. Ian showed photos taken from his workshop at Mt Thorley Industrial Estate indicating dust coming off a blast on 9 February, that initially went straight upwards but once at altitude started spreading to the point where the mountains were no longer visible.

Ian felt that most dust issues are coming from the actual blasting and whilst he understood that Yancoal were doing all they could to minimise dust, he felt there was not enough being done to investigate what is happening in the upper atmosphere, as until the dust gets up there it is not really known where it is going to go. Ian advised that on 9 February the dust blew more to the south of Mt Thorley Industrial Estate and he feels that wind is not always the cause of a problem particularly as this happened on a still day.

Ian showed more photos taken on 11 February, indicating dust that had been potentially generated by the dragline and advised that this dust was seen to go up and head across to Bulga. Ian reiterated that he felt that there had been improvements but would like to see more work around blasting as he thought more could be done.

REHABILITATION

Rehabilitation target for 2017 = 122 hectares seeded.

Works completed 2017:

156.2 ha bulk shaped

- ✓ 125 ha topsoiled
- ✓ 135.3 ha composted
- ✓ 124 ha seeded

Key works for beginning 2018 (January to March):

- ❖ Ground preparation for autumn sowing
- ❖ 2018 target of 100 hectares

Hayley noted that it had been mentioned at the December Meeting that MTW had met targets and to wrap that up had ended up with a total of 124 hectares seeded, exceeding the rehab target for 2017. Andrew added that last year saw 156 hectares bulk shaped and the 124 hectares seeded is the material that is ready to get top soil on, with about 30 hectares ready to go for autumn. Coming into 2018 MTW has a rehab target of 100 hectares.

Ian would like to also see where material is being removed in the mapping and Hayley confirmed that this detail can be found in the business papers. As an example Ian indicated a large area, on the other side of Putty Road, that had been rehabbed and then went back to bare earth having had the top soil cleared off. Andrew noted that the Mt Thorley dump is going to come into that area.

ACTION 4: Hayley to provide the MTW January Disturbance Map to Ian.

Stewart noted that he had previously asked Andrew about how disturbance is defined and queried if MTW treated this as pre-stripping ahead of mining. Andrew responded that any type of disturbance is included, even rehabilitation. Stewart was concerned about the amount of land on MTW's property that is un-vegetated and felt that within the Mining Lease, east of Wallaby Scrub Road, it looked like 75% of land is exposed and or barren including the pit area. Andrew advised that it is a typical ratio for 30% of the total footprint to be rehabilitated.

Ian felt the mapping indicated areas being nice and green but part of those had been taken out again, he was concerned there had been very little vegetation on Mt Thorley for many years. Andrew noted that the presentation picture had been taken back in October 2017 and would get that updated. Michael asked if this had been a situation of dumping over old rehab and Andrew confirmed that had been the case.

VERTEBRAE PEST MANAGEMENT

MTW provided an overview on the types of pests they are targeting in this program, along with the duration and seasonal periods that the company conducts control activities. Col asked how MTW can identify whether a dog or fox takes a bait and Hayley responded there are some captured on camera.

Stewart asked from an ecological point of view, how much damage can hares do to the environment and Hayley responded that under NSW Pest Management they are part of the list of feral pests to be managed. Michael shared that when he was involved in soil conservation he had learned that an amount of rabbit burrows would lead to tunnel erosion but that hares did not tend to dig. It was also noted that wombat holes are another potential cause for erosion.

2018 - MTW SOUTHERN BIODIVERSITY AREA AUTUMN PLANTING

Map Reference	***Planting***
SBA1 (2)	20 hectares Central Hunter Grey-Box Ironbark Woodlands
SBA3 (3, 5, 6)	Replant 38 hectares Warkworth Sands Woodlands
SBA4 (8)	43 hectares Central Hunter Grey-Box Ironbark Woodlands
SBA5 (9)	11 hectares River Oak Forest, 75 hectares Central Hunter Grey-Box Ironbark Woodlands

Michael advised that Acacia Saligna and those types of species had been very problematic and asked if MTW continue to utilise those. Hayley confirmed that these used to be planted in rehab but not anymore. Hayley felt they had not been coming up in MTW's plant areas, as the seed bank was not quite there, and if coming up on their rehab they can cut and paste those, as far as Hayley understood the Saligna had not been coming through so much on the off-sets.

Michael felt the autumn planting would be dependent on rainfall forecasts and Hayley confirmed that MTW do try to plant in seasons when there is rainfall anticipated and that they also conduct watering. Michael advised that statistics he had seen a few weeks back on soil water decline, had indicated moisture levels declining in agriculture in NSW and had been the worst recorded for a very long time. Ian agreed that the water tables had been the worst he had ever seen.

COMMUNITY RELATIONS UPDATE

Near Neighbour Amenity Resource

- Approximately 106 tanks had been cleaned out at residential properties neighbouring MTW in 2017.
- Based on feedback, this year MTW are offering installation of under sink filters to residential properties surrounding their operation. This offer had been put out in writing in the last week of January to near neighbours and to date MTW have had 13 residents take this up. Travis asked the CCC to let him know if they would like to take up this offer.

Ian advised that the tank cleaning had been very much appreciated and queried if it was known how effective the under sink filters would be. Ian has three filters and could show the company some photos of cartridges that were taken in December. Travis advised that cartridges would be supplied with the filter installation and it was his understanding from the plumber that the cartridges would last a year. Ian noted that he has to change his cartridges every three months and Travis advised that he would like to take a look at Ian's experience with this.

Closure of John Street Office

- This office was closed on Friday 2 February.
- MTW's Community Team remain available to engage with community members to discuss operational matters and can be reached via existing contact details for phone and email (both remain unchanged).

SITE DONATIONS COMMITTEE (SDC) 2018

- The previous Coal and Allied Community Development Fund will no longer operate.
- Yancoal's Community Investment model, including site donations is to be announced/communicated soon.
- Applications for sponsorship and donations are currently being assessed on a case by case basis.

Currently most of MTW's site donations are going via Jason, however that model will change to go through Corporate Funding which will be cascaded down to site. Previously funding had been taken on a case by case basis with funds being allocated when the company was approached. Christina asked if there was a specific amount of funding allocated for donations and Justin explained that this is undefined, in that if something comes across that is worthy, Yancoal will then work to find the funds for this. Jason advised that Yancoal understand that they are a member of the community, that support has previously been provided, and the company will continue to do so. Travis noted that there are also some programs with Site partnerships still going.

8. Community and Department Feedback

Michael Frankcombe : NSW Gov't Planning & Environment

Independent Review; Michael explained that there had been a landholder with property quite a distance from the mine, that had approached MTW about blast damage to a tank and that the tank had fallen in. MTW engaged an independent specialist who concluded that this had not been as a result of a blast. The landowner disagreed with that determination so the company has referred the matter to the Secretary of the Department to review and address as an independent, separate entity to the company. Michael advised he would keep onto that.

Road Closures; Michael advised that correspondence had been sent to the Transport Minister regarding road closure times and from this Michael had asked Andrew for records of closure times going back to May. Michael was now looking at responding to that member of the community and the relevant Minister on that matter. Michael added that the timing and closure of roads had seemed to be a prevalent issue in the community with a fair bit of sensitivity around that.

Ian asked why the speed reduction to 60 km/h had remained in place over the weekend when it had appeared that road works were completed with guard rails up and line marking done. Andrew responded that he agreed that the road looked like it was ready to go, but as Jason had mentioned earlier, a third approach to the Bridge had not been completed.

MTW spoke with the RMS with the intent to run this speed zone back up to 80 km/h but the RMS preferred to keep the zone at 60 km/h. As MTW could not get the contractor back to do that work prior to the weekend, they were instructed to put line marking in place and keep the restricted 60 km/h zone. Works were finished on the Monday and the zoning could then be adjusted from 60 km/h to 80 km/h.

Ian felt that the 60 km/h zone was only to be in place when works were being conducted, being a daily user of Putty Road he felt that other than the colour of the road, there had not appeared to be any danger. Ian felt the 60 km/h restriction had been a bit over the top considering there was a well marked open road with what appeared to be a good surface.

Jason explained that this road does not belong to the mine and that MTW have to hand the road over in a fit and ready state, which involves quite a process with a lot of records. Ian asked if he could address the RMS directly to ask about this and a contact to follow up.

Stewart asked if Yancoal were required to do any maintenance on the Putty Road overpass project and Michael felt that when the road was handed over to the RMS there would have been a warranty type period, it was agreed there would definitely be a defects period. Stewart felt that when the Mine had built that road, there had been an undertaking for the company to do any necessary repairs for ten years prior to the RMS accepting control of it.

ACTION 5: Andrew to provide Ian with RMS contact to address speed zone enforcements.

Stewart Mitchell - Community

Road Closure Signage; Stewart had noted that Road Works signage was utilised for blasting road closures and Jason responded that he had followed up on that and was advised that MTW were not permitted to put "Blasting in Progress" or the like on signage. Andrew added that when MTW put together the Traffic Control Plan, they were told what signs to use and in terms of setting up speed restrictions, the sign must say Road Work.

Changeovers in Company personnel; Stewart noted different Managers in attendance at three consecutive CCC's and given that members communicate with these people, he asked if MTW could advise the CCC when changes are taking place. Andrew responded that the CCC Meetings had typically been utilised as the forum to do that and if there had been a long time between meetings that MTW had organised introductory meetings, particularly for members to meet with new Senior Management.

Jason advised that Tony Galvin from Glencore was the nominated General Manager for HVO and would be taking over Jason's dual role once the Joint Venture was set up. Andrew advised with the Environment & Community teams being split between MTW and HVO, going forward he will be allocated to HVO and there will be a new person appointed into the MTW role, most likely by the next CCC.

Property Acquisitions; Stewart had noted an acquisition in Wylies Flat and felt that was a long way from MTW mine site. Andrew responded that it was not that far when compared to properties on the western side, with a probable equidistance of being about 5 kilometres away. Andrew thought this was most likely part of acquisition out of the last E.I.S. Stewart asked if there may be any more properties around Wylies Flat / Hamilton Hill areas that would be subject to acquisition. Andrew was not sure if there were any remaining property acquisitions but felt there had been more than one.

Christina asked if this acquisition may have been a result of a mining extension. Christina advised this property at Wylies Flat had last been sold in 2013 and significant funds had been invested in it, she felt that this would not have been the case if there was going to be a foreseeable future impact from an extension of the mine. Andrew felt that the acquisition may have come out of the most recent E.I.S. but advised the CCC that he would need to check that detail.

Wallaby Scrub Road; Stewart had heard on the radio that there had been an Aboriginal claim on parts of Wallaby Scrub Road. Andrew had seen that in media as well and his understanding was that this was not a new claim but rather that there had been two; one over the whole road corridor and a second for pieces on sides of the road. Stewart asked given that Aboriginal land claims tend to be a notoriously slow process, if this would affect the date of closure for Wallaby Scrub Road which he felt had been suggested for September 2018. Andrew did not know however was able to advise that the Aboriginal land right claim and the decision to accept the closure of Wallaby Scrub Road sits with the same Minister who is involved in both decisions.

Staff Levels; Stewart had read in the press that staff levels had dropped at MTW and Jason responded that staff levels were staying the same. Stewart clarified that the report had been around Contract Labour and Jason advised that MTW had put a note out after Programmed had advised their employees, as a confirmation that was exactly what was happening, and also had worked with Programmed up and to the date of notification.

Stewart asked if those casual type workers would have been amongst the 1300 quoted as employees and Jason advised there were around 1360 total full time equivalents, including contractors and 748 permanent employees on site. Stewart asked if MTW anticipate any additional reductions in their workforce and Jason responded that the company would continue to review manning numbers, as is the same case for HVO, and that had been advised via the media as well.

Overburden Dump; Stewart questioned the dump to the east of West Pit, where MTW was currently dumping over a fairly long stretch, as that appeared to be getting extremely high and he asked if that area had reached its ultimate height. Andrew answered that there is an area on North Pit where MTW would be dumping and that area was currently nearing around 160 / 170 RL. Christina asked if that dump would go higher and Andrew envisaged that probably started at around 155 RL and has a couple of lifts on it. Stewart felt that MTW had been given an additional 20 to 30 for height and Andrew would have to check what that was. Stewart advised he would appreciate knowing the height as the dump has obscured his view of the mountains, he was also concerned about the visual impact when Saddle Ridge disappears and felt that 165 RL was considerably higher than the original landform.

ACTION 6: Andrew to advise Stewart of current overburden dump height to the east of West Pit.

Ian Hedley - Community

Utilisation of lane behind Ian's Workshop at Mt Thorley Industrial Estate; Ian advised that he had talked to Hayley about contractors using the lane behind his workshop and at the time there had just been equipment parked there. Previously when the contractors had departed they had left a terrible mess as there are no staff amenities in near proximity. Ian questioned why contractors would need to utilise that Lane that is located on the western side of his workshop when there is a big pad located down the road. Ian felt also if there is going to be a number of vehicle movements, then there will be a need to get some water along that Lane.

ACTION 7: Hayley to follow up why contractors are using the lane behind Ian's Workshop to set up equipment.

Keep Clear Signage; Ian advised that someone had cut off and removed this signage from his Workshops gateway creating an issue of people parking in front of those gates. Ian noted that it was critical for his business have those gates clear and vital to be able to open them in case of fire or emergency. Ian had asked that these vehicles be relocated and explained that if there was an incident, such as fire, there would not have been time to have had those vehicles moved.

New Safety Committee at Ian's Company; Ian advised there were all new committee members this year and that one member had raised issues about dust, questioning whether the PM_{10} in air settles and if it does, when his staff are cleaning up and blowing down equipment using air hoses could it be stirred up from the ground and cause any secondary effects. Ian asked if a representative from MTW could attend the next Safety Committee Meeting to help answer some of these type questions. Andrew felt that MTW was not in the best position to speak about health effects but could certainly talk about how MTW manage dust and what the company does in relation to Occupational Health i.e. respirators and personal hygiene. Andrew noted that MTW deal with those types of questions in the workplace where dust exists, such as where drillers, shot firers and also people cleaning machinery are working, and could assist with the question around how would a person protect themselves from potential dust.

ACTION 8 : MTW representative to attend a Safety Committee Meeting for Ian and provide detail on how the company manages Occupational Health & Safety with people that potentially work around dust

Solar Panelling; Ian had been looking at installing solar panels right across his workshop and had been told he would be wasting money due to the amount of dust in the region. Ian is currently testing a number of different panels and seeing what the effect a film of dust may have on their output. From this came a secondary OH&S issue for Ian associated with people having to go up on the roof to clean the panels and then questions around should the panels be wet down and could fine dust be regenerated after it had fallen to the ground.

Ian noted that he had only commenced investigating the solar panels late last year and hopes to find out soon if they will be effective. Ian was concerned that the contractors providing quotes had not been able to guarantee that he would get the performance that was expected from these panels and invited Hayley to take a look.

Ian understood there had been very dry conditions and also dusty days, however in the past dust had tended to get blown away. Ian raised a concern about an employee's car that was brand new and by lunch time on the first day it was taken to work the car had been covered in patches of dust and that had been very disappointing for the employee. Ian felt that this example indicated that rain brings dust out of the air and also confirmation that it does go off site.

Andrew acknowledged that mining produces dust and the company has a Licence that states how MTW are to go about managing that, he believed that MTW do try to manage that in a responsible way. In relation to the example of dust on vehicles, Andrew would really need to have a look at wind conditions on that day before providing a response. Ian felt that is where there is a problem with where monitoring is measured, as in this case the air was going one way but the clouds where the rain came from were travelling in a different direction.

Correspondence from the EPA 8 January 2018 via Col regarding Mount Thorley Particulate Monitor; Andrew advised this correspondence from the EPA had been provided to the CCC and that it included some information about the monitor that is currently located between Mt Thorley Warkworth and the Mt Thorley Industrial Estate, which he explained is basically just up wind. The location of this monitor should indicate if there was any dust from operations going across there. Andrew explained that this monitor was there for the purpose of MTW's Environmental Protection Licence, and as part of that, the company puts the monthly results up on a public website. Andrew let Ian know that he could help with instructions on how to access that data.

Col asked Ian if the EPA had gone out to his site at the Mount Thorley Industrial Estate and Ian advised no but confirmed that the EPA had said they would. Michael advised that he would get in touch with Natasha from the EPA to organise a joint inspection.

ACTION 9: Andrew to follow up with Ian on properties owned by Yancoal where there had been issues around dogs barking and roaming.

10. Next Meeting : 14 MAY 2018 : 2.00 to 4.00 p.m.

Stewart advised he would be an apology for the May Meeting

Future Meetings; 13 August and 12 November 2018

Actions arising from this Meeting - Page 11

ACTIONS ARISING FROM THIS MEETING

Action	Page	Description
1	2	**Yancoal to look into replacing the Australian Flag at the Cockfighter Tavern in the near future, to improve visual amenity.**
2	3	**Hayley to clarify the day in which the blasting SMS insinuated the road was going to be closed for three hours.**
3	3	**MTW to look into editing the text SMS system to differentiate between blasts at Mt Thorley and Warkworth.**
4	5	**Hayley to provide the MTW January Disturbance Map to Ian.**
5	7	**Andrew to provide Ian with RMS contact to address speed zone enforcements.**
6	9	**Andrew to advise Stewart of current overburden dump height to the east of West Pit.**
7	9	**Hayley to follow up why contractors are using the lane behind Ian's Workshop to set up equipment.**
8	9	**MTW representative to attend a Safety Committee Meeting for Ian and provide detail on how the company manages Occupational Health & Safety with people that potentially work around dust**
9	10	**Andrew to follow up with Ian on properties owned by Yancoal where there had been issues around dogs barking and roaming.**

ONGOING ACTIONS

May 2017 CCC; MTW to keep the CCC up to date in matters pertaining to C&A's application to Singleton Council to close Wallaby Scrub Road, either at a meeting, or out of session should there be any update outside of two weeks prior to the next CCC Meeting.

December 2018 CCC; Andrew to keep the CCC posted as to when the Lease for the Cockfighter Tavern may be ready to go out for Public Tender and anticipated re-opening date for the Pub when known to Yancoal.
Ongoing; Update to be provided at each Meeting.

Mount Thorley Warkworth (MTW)

Community Consultative Committee (CCC)

Monday 19 February, 2018

Time:

2pm – 3:30pm

Location:

Warkworth Office Boardroom

Independent Chairperson:

Col Gellatly

Minutes:

Sarah Purser

Hayley Frazer

19th February 2018

Reaching new horizons together

YANCOAL
兖煤澳大利亚有限公司

Acknowledgement of Country

We acknowledge the traditional owners, the Wonnarua people, of the land where we meet today and pay respect to Elders, past, present and future.

Agenda

1. Welcome (Col)
2. Apologies (Col)
3. Declaration of pecuniary interests / conflicts of interest (Col)
4. Correspondence (Col)
5. Confirmation of the previous meeting's minutes (Col)
6. Matters arising from previous meeting (MTW)
   - Items actioned/addressed post-meeting
   - Outstanding/Ongoing actions
   - Update on the "Cockfighter" Tavern
   - Blast SMS System – Subscription update
7. Company update (JM)
   - Joint Venture Update
   - South Pit Update
   - Underpass Project update
8. Operational update
   - Safety snapshot
   - Update on Underpass Project
   - Operational Downtime
   - EOY Rehabilitation update
   - 2018 Offsets Planting Schedule
   - Feral animal control update
   - Community update
9. Community feedback (round the table)
10. General business & Future Dates (Col)

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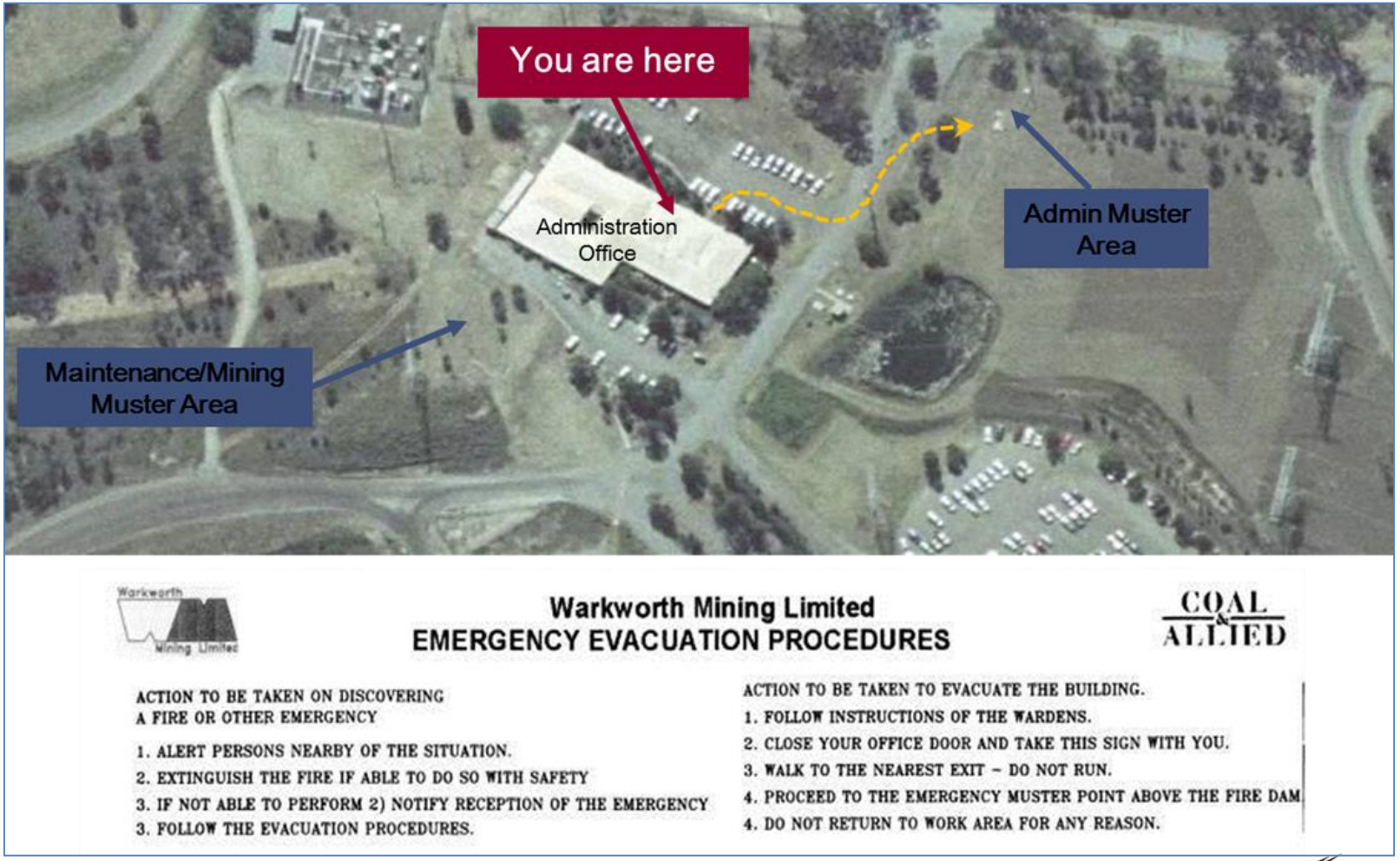
1. Welcome



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2. Apologies

- Adrian Gallagher

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3. Declaration of pecuniary interests / conflicts of interest

All members must declare interests.

These declarations should include any pecuniary or other interest (including any payment, gift or benefit) intended or likely to influence - or that could be reasonably perceived by an impartial observer as intended or likely to influence - the member to:

- act in a particular way (including making a particular decision);
- fail to act in a particular circumstance; and/or
- otherwise deviate from the proper exercise of their duty as a member.

Examples of pecuniary or other interests include holding shares in an entity carrying out the project, holding a private contract with the proponent, holding voluntary acquisition or mitigation rights under the proponent's consent, or receiving sitting fees or payments of personal expenses from the proponent; and if the member represents a stakeholder group, if the stakeholder group has received funding or a grant from the proponent.

Source: *Community consultative committees Guidelines (State Significant Projects), November 2016.*

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4. Correspondence

- Lydes Lane & Putty Rd intersection update (email 12/12/2017)
- Activity of tenant parking excessive heavy equipment at Yancoal lease property 1946 Putty Road assessed against the tenancy agreement (email 14/12/2017)
- Distribution of Blast SMS information from meeting (email 22/12/2018)
- Previous Minutes (email from Sarah 28/12/2017)
- Putty Road Underpass Traffic Control Plan Update (31/01/2018)
- Notification of Shop Front Closure (25/01/2018)
- Agenda & Business Papers (07/02/2018)

HF

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5. Confirmation of the Minutes

- Further feedback from Committee?
- Chairperson to confirm previous meeting's minutes

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6. Matters arising from previous meetings

Items Addressed Post Meeting (Actioned Post Meeting)
Concerns raised regarding the heavy equipment parked at 1946 Putty Road not aligned with Land Classification creating Zoning issues. [**Followed up:** HF followed up post meeting with email detailing actions]
Outstanding action: Action 5 from August Meet: *Michael (Department of Planning & Environment) to get in touch with Natasha (Environmental Protection Authority) to discuss Ian's request for monitoring at the Mount Thorley Industrial Estate and communicate any update to Ian out of session.* [**Followed up:** Letter from EPA provided to CCC and tabled at this meeting.]
Query during meeting regarding whether patrons listed on 'Adopt-a-Road' Signage were current. [**Followed up:** HF followed up with SSC to confirm that patrons listed on signage were Registered on the Attendance list.

HF

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6. Matters arising from previous meetings

	Actions – Ongoing
Action 17 (May CCC)	MTW to keep the CCC up to date in matters pertaining to C&A's application to Singleton Council to close Wallaby Scrub Road, either at a meeting, or out of session should there be any update outside of two weeks prior to the next CCC Meeting. [**Ongoing:** Last update by A.S on 29/8/17]
(May CCC)	MTW to keep the option for the company to reinstate the advertising of blast times as a meeting topic, as raised by Christina. [**Complete:** MTW have implemented a SMS subscription service to provide up to date information on blasting times.]
Action 1 (December CCC)	Andrew to keep the CCC posted as to when the Lease for the 'Cockfighter' Tavern may be ready to go out for Public Tender and anticipated re-opening date for the Pub when known to Yancoal. [**Ongoing:** Update provided at each meeting]

HF

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Update on Acquisition of the “Cockfighter” Tavern

- Processes has commenced to find an operator for the Bulga Tavern
- MTW will engage a broker to take the business to market and find a suitable operator

AS

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MTW Blast Notification System Operational

- Community Members will be able 'Subscribe' to SMS alerts relating to MTW Road Closures.
- Send "Subscribe" to 0438100840
- Notifications will be updated where significant delays are experienced or cancellations occur
- Subscribers can unsubscribe at anytime
- To subscribe/unsubscribe at no cost, please contact us on 1800 727 745 and we will register your details for the service
- Note – You can choose to subscribe or alter the subscription yourself, however it will be at your own cost (Mobile Carrier's SMS rate)
- SMS received by the subscriber are at no cost to subscriber.

HF

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GM and Company Update

- Joint Venture Update
- South Pit Update
- Putty Road Underpass Update

JM

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Underpass Project Traffic Control Plan (follow up)

- Traffic re-diverted over the bridge 6th February
- Maintained reduced speed zone for safety as west bound lane not completed. Speed will remain reduced until the RMS contracting company can come and finish works.
- Excavation below bridge will occur over day and night shifts
- Proposed Project end late March/ early April

JM

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Safety Snapshot

Total Recordable Injury Frequency Rate (TRIFR) 2017 – 7.31
Lost Time Injury Frequency Rate (LTIFR) 2017 - 1.0
Total Recordable Injury Frequency Rate (TRIFR) YTD 2018 – 13.18
Lost Time Injury Frequency Rate (LTIFR) YTD 2018 – 0

Potential - Medical Treatment Injury (MTI)

Actual – First aid injury (FAI)

30/01/2018
Electric Shock to a Light Vehicle Maintainer

A Light Vehicle Maintainer was demonstrating the correct use of an Air Conditioner Re-gassing Unit in the Light Vehicle Service Bay (VSB) to another Maintainer. The Maintainer touched the gas gauges of the unit and when he contacted the metal surround of the gauge he felt a “static” electric shock.

Actions
Investigate engineering solutions are available that monitors earth continuity for 240Vac appliances.

Toolbox will be developed which will cover:
- The importance of reporting electric shock incidents
- intermittent open circuits with earth continuity in extension leads

Incident to be raised and discussed at Site WHS Meeting and Maintenance WHS Meetings

Air conditioner re-gassing unit

Injuries since December CCC

MTW has not had LTI’s or MTI’s for the start of the year however we have had Three Restricted Work Injuries (RWI)

29th December 2017 dozer operator received laceration to forehead element from fire suppression system fell away.

On the 16th January 2018 a truck operator stepped from the ladder of a haul truck onto a loose rock rolling their ankle

On the 28th January 2018 maintainer fell through an opening left when a piece of the platform of 647 loader was removed

On the 29th January 2018 a truck operator was walking around the front of their truck and has stepped on a rock and rolled their ankle.

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Operational Update

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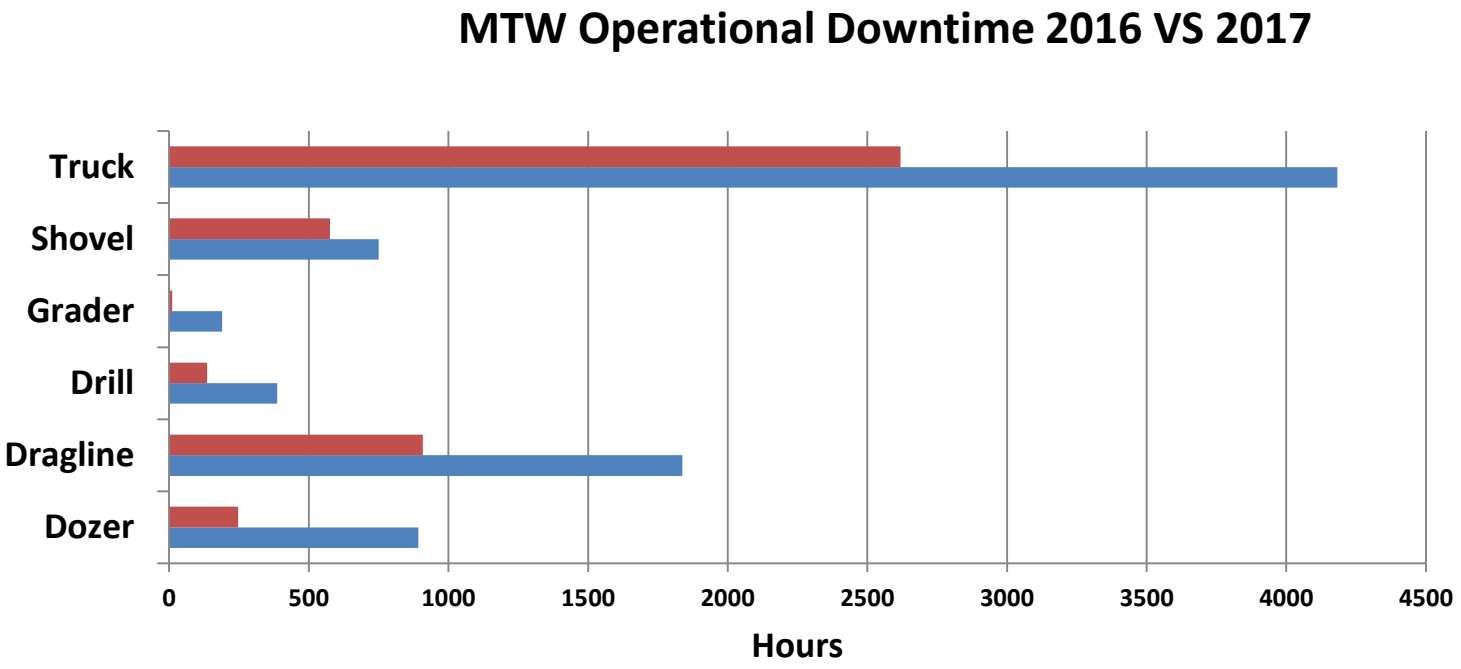
Operational Downtime



Downtime YTD Totals (hours)

2017 = 8265.12
Total Dust 2017 = 8030
Truck Dust 2017 = 4044

2016 = 4499.62
Total Dust 2016 = 2598.8
Truck Dust 2016 = 1277

2016

2017

MTW Noise Monitoring YTD			
	# CRO Assessments	# Individual assessment above trigger	# Nights above trigger
2018 **YTD**	539	3	3
2017	5990	18	10
2016	4851	84	34

HF

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MTW Rehabilitation

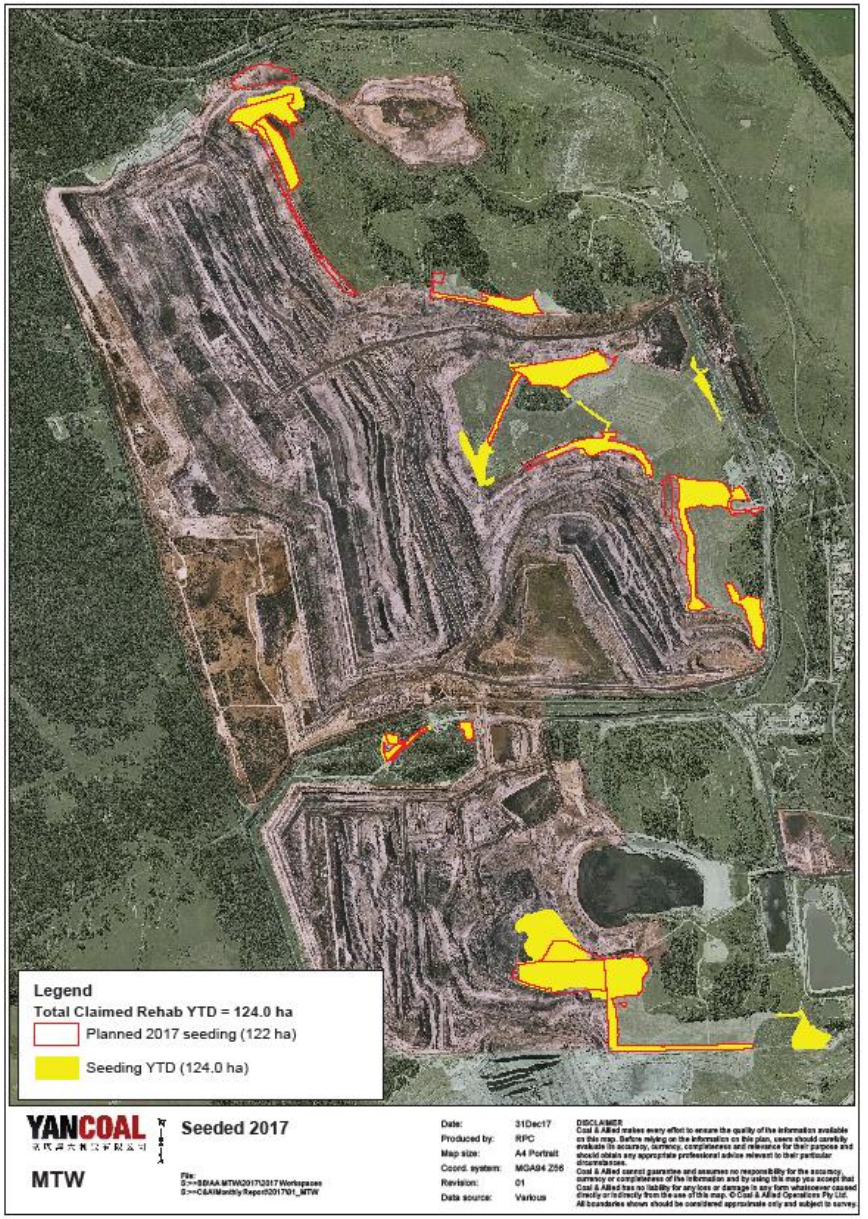
Rehabilitation target for 2017 = 124 ha seeded (outlined in red)

Works completed 2017:

- 156.2 ha bulk shaped
- 125 ha topsoiled
- 135.3 ha composted
- 124 ha seeded

Key works for beginning 2018 (January-March):

- Ground preparation for autumn sowing
- 2018 target of 100 hectares



HF

MTW Vertebrate Pest Management

Seasonal Vertebrate Pest Management

1080 Baiting - Three ground baiting programmes consisted of 60 bait sites using combination of meat baits and ejector baits.

Additional pest management programmes included soft jaw trapping across and shooting across MTW. The table below summarises the results from the programmes carried out at MTW during 2017.

Vertebrate Pest Control Summary 2017

Season	1080 Baiting			Trapping	Shooting			
	Total Lethal Baits Laid	Takes by Wild Dog	Takes by Fox	Wild Dog	Feral Pigs	Hares	Foxes	Rabbits
Summer	120	61	5	-	-	-	-	-
Autumn - Winter	120	63	3	1	2	25	-	5
Spring	120	64	5	-	3	15	6	6
Total	360	188	13	1	5	40	6	11

HF

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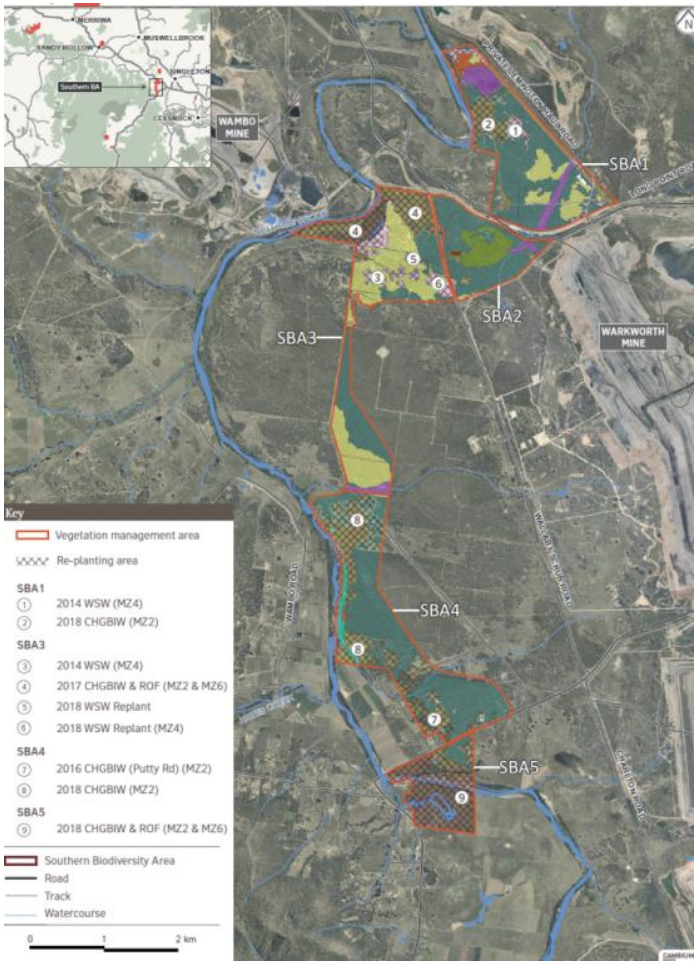
2018 Autumn Schedule

2018 - MTW Southern Biodiversity Area Autumn Planting



- SBA1 (2) - 20ha Central Hunter Grey-Box Ironbark Woodlands
- SBA3 (3,5,6) - Replant: 38 ha Warkworth Sands Woodlands
- SBA4 (8) - 43ha Central Hunter Grey-Box Ironbark Woodlands
- SBA5 (9) - 11ha River Oak Forest, 75ha Central Hunter Grey-Box Ironbark Woodlands

HF

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Community Relations update

Near Neighbour Amenity Resource

- In 2017, approximately 106 tanks were cleaned on residential properties around MTW
- In 2018 we have offered installation of under sink filters for residential properties surrounding our operation
    - Letter went out in last week of January and to date we have had 13 requests

Closure of John Street Office

- John Street Office was closed on Friday 2 February
- MTW's community team will continue to be available to engage with community members to discuss operational matters and can be contacted via existing contact details for phone and email (both remain unchanged).

TB

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Site Donations Committee (SDC) 2018

- Previous Coal and Allied Community Development Fund will no longer operate
- Yancoal Community Investment model (including site donations) to be announced/communicated soon.
- Applications for sponsorship and donations are currently being assessed on a case by case basis.

JM

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8.0 Feedback From Community Reps

Any feedback?

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9.0 General Business & Future Dates

General Business

Focus Topic Suggestions

Next Meeting Date

14th May 2018 – MTW Board Room

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End of meeting. Thank you.

Please travel safely.

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Mount Thorley Warkworth

Community Consultative Committee (CCC)

Business Papers – February 2018

Materials supplied to members for the meeting on the 19 February 2018.

Contents page

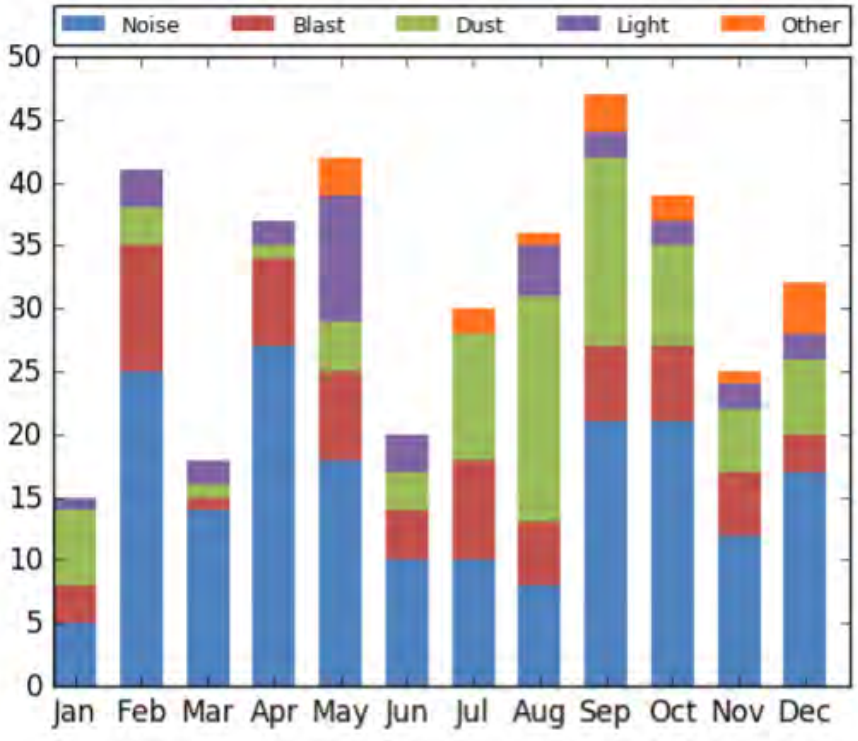
Appendices

1.0 Complaints

Complaints overview for end of month/end of year period 2017 (31.12.2017)

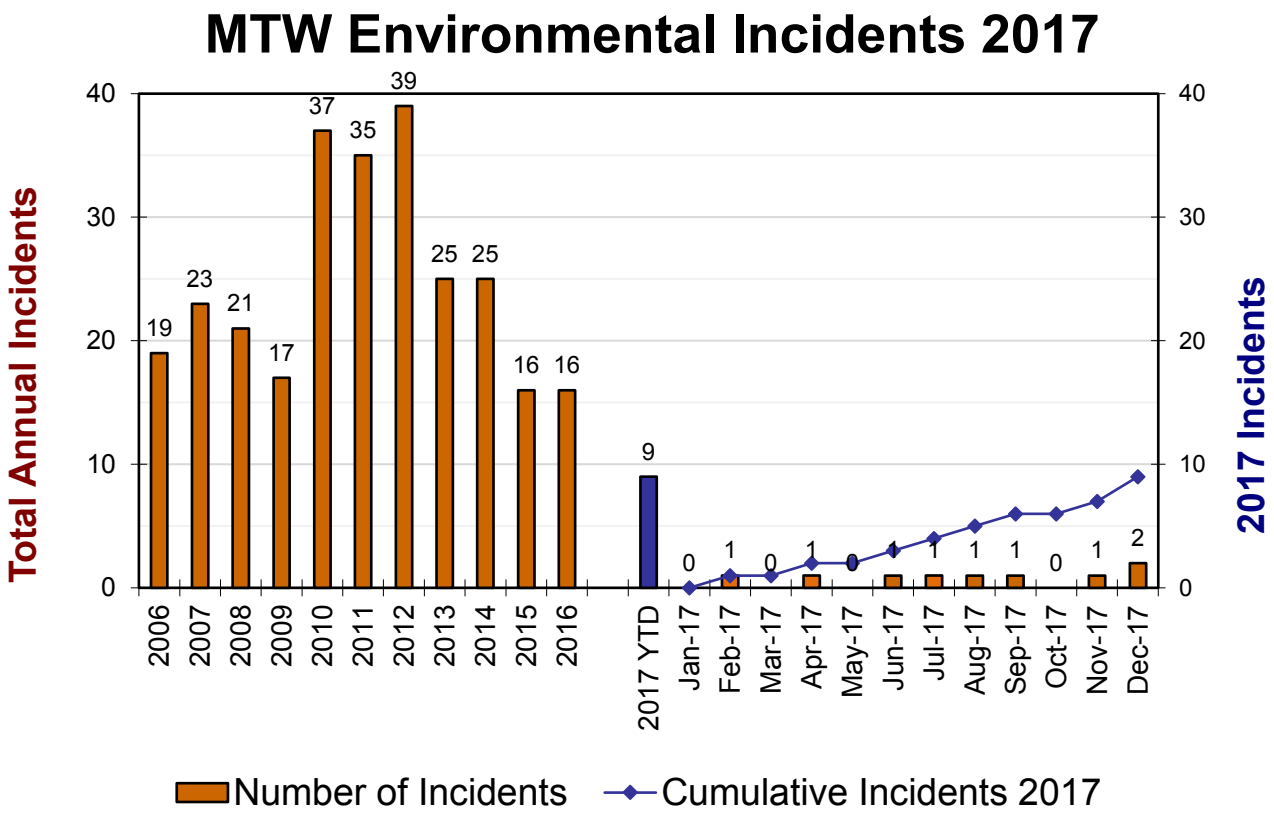
Mount Thorley Warkworth Monthly Complaints Summary

	Noise	Dust	Blast	Lighting	Other	Total
January	5	6	3	1	0	15
February	25	3	10	3	0	41
March	14	1	1	2	0	18
April	27	1	7	2	0	37
May	18	4	7	10	3	42
June	10	3	4	3	0	20
July	10	10	8	0	2	30
August	8	18	5	4	1	36
September	21	15	6	2	3	47
October	21	8	6	2	2	39
November	12	5	5	2	1	25
December	17	6	3	2	4	32
Total	188	80	65	33	16	382



2.0 Incidents

Overview of environmental incidents for period End of Year 2017



Incident summary for the period 01 November 2017 to 31 January 2018

Date	Details	Key Actions	Aspect
03-Jan-2018	Diesel spill caused by overtopping Orica MMU Process Fuel Tank. Orica MMU being re-fuelled when spill from top of the process fuel tank was noticed. Vehicle was isolated and spill contained. Approximately 100L was spilt; 70L on hard surface recovered using vacuum truck, 30L on soil transported to bioremediation area.	HSE Alert communicated to site. Spill was recovered. Material excavated and transferred to bioremediation pad.	Waste
19-January-2018	Blast Odour – Warkworth West Pit. MTW received complaint regarding odour from WML blast W34-RCD-PR11. Fume ranking of 0 (zero) was assigned by the shotfirer (Australian Explosives Industry and Safety Group rating scale). Change of wind conditions after shot was fired lead to migration of dust plume west as opposed to easterly direction of wind at time of blasting. Dust Plume migrated over established road closure with nil gas reading detected on the road prior to opening. Planning, execution and monitoring of the blast was in accordance with current project approval and relevant management plans.	Incident investigated. Self-report to EPA and DP&E Report provided to the DP&E . MTW reviewing predictive modelling tools, blasting permissions and shot size in the West Pit South area.	Blasting
04-Dec-2017	Storm water overflowed catchment drain. A catchment drain was overtopped resulting in approximately 23KL of water passing under Wallaby Scrub Road via a storm water culvert. Water then drained to MTW owned land and was contained in a dam where it was recovered with a vacuum truck and returned to site	Incident investigated. Self-report to relevant Authorities Water containment infrastructure re-instated. Water recovered	Substance/water

Date	Details	Key Actions	Aspect
20-Nov-2017	Non-Target plant species affected by herbicide. During weed management activities, non-target juvenile tree species (Angophora) were exposed to herbicide, killing some small saplings.	Incident investigated No further use of herbicide where juvenile Angophora Species are present.	Vegetation
18-Nov-2017	Minor diesel spill from crane. Crane dove off from Vehicle Service Bay (VSB) with hose still attached causing diesel spill. Spill occurred in contained area and recovered by waste management contractor.	HSE Alert communicated to site.	Waste

3.0 Environmental monitoring

Monthly summaries of environmental monitoring for the period 1 July 2017 to 30 September 2017

October 2017

Attached as Appendix A

November 2017

Attached as Appendix B

December 2017

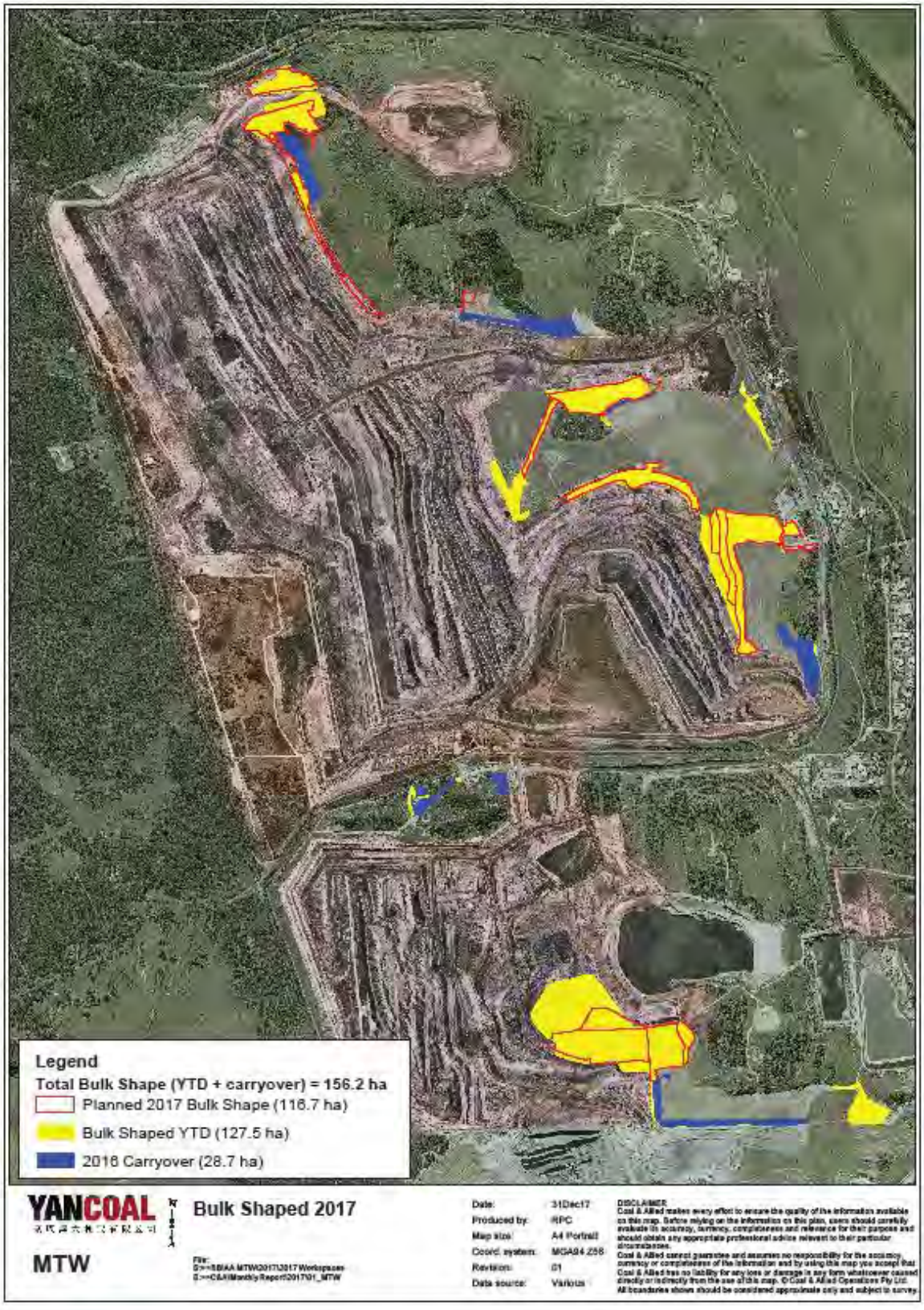
Attached as Appendix C

4.0 Rehabilitation plan

The 2017 rehabilitation plan was completed ahead of schedule with 124ha of rehabilitated mined land reported against an annual 2017 target of 122ha.

The 2018 rehab target at MTW is 100ha with 9.3ha of rehabilitated mined land currently reported. A further 35.2ha of mined area has been released to prepare for Autumn sowing.

The Year to date disturbance is 16.2ha. The disturbance during this period was evenly distributed between WML and MTO leases as a result of Pit advancement, infrastructure (including implementation of water management) and dumping preparation.


Legend
Total Bulk Shape (YTD + carryover) = 156.2 ha
Planned 2017 Bulk Shape (116.7 ha)
Bulk Shaped YTD (127.5 ha)
2016 Carryover (28.7 ha)
YANCOAL
Bulk Shaped 2017
MTW
Date: 31Dec17
Produced by: RPC
Map size: A4 Portrait
Coord. system: MGA94 Z56
Revision: 01
Data source: Various
DISCLAIMER
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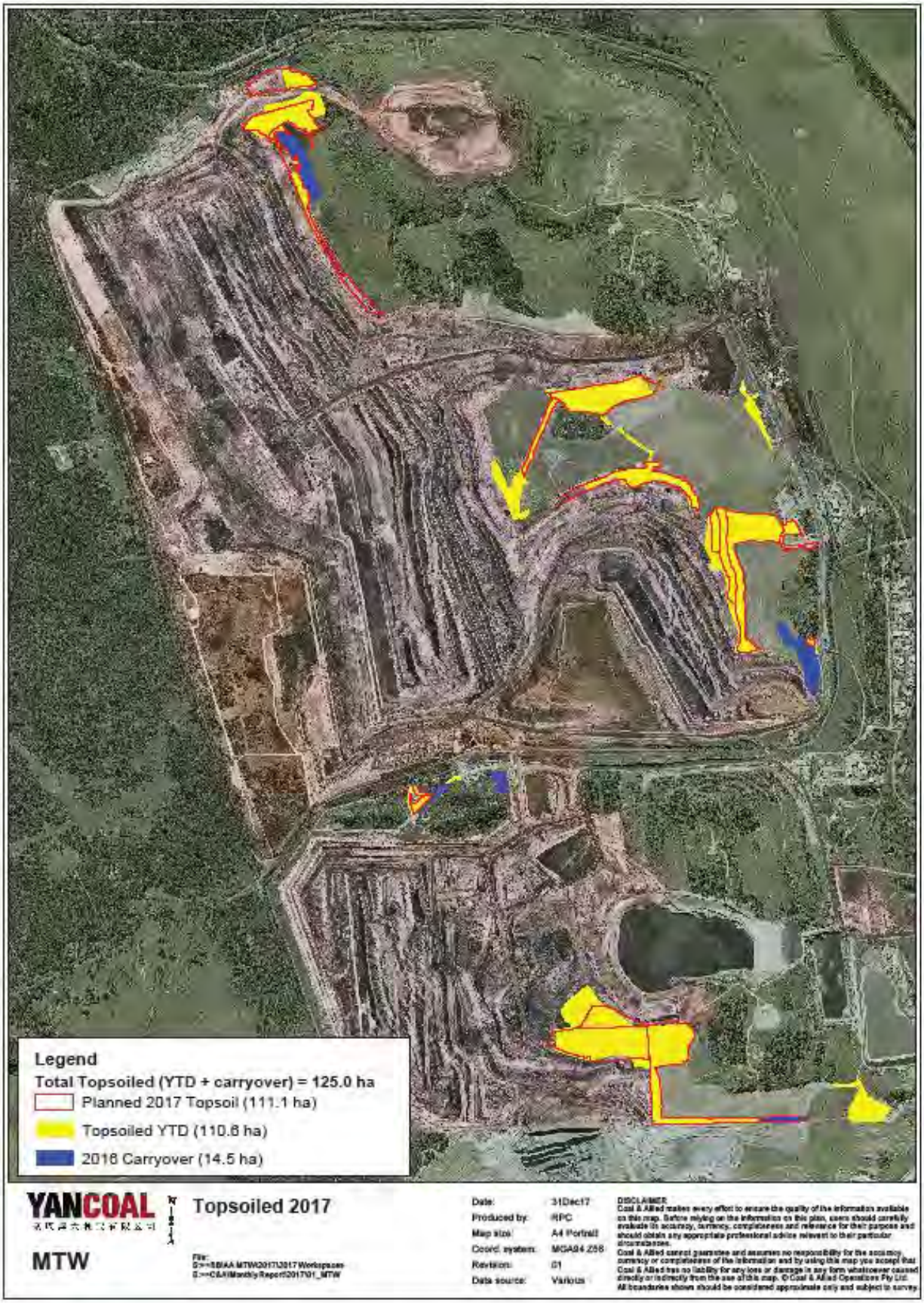
Legend
Total Topsoiled (YTD + carryover) = 125.0 ha
Planned 2017 Topsoil (111.1 ha)
Topsoiled YTD (110.8 ha)
2016 Carryover (14.5 ha)
YANCOAL
Topsoiled 2017
MTW
Date: 31Dec17
Produced by: RPC
Map size: A4 Portrait
Coord. system: MGA94 Z56
Revision: 01
Data source: Various
DISCLAIMER
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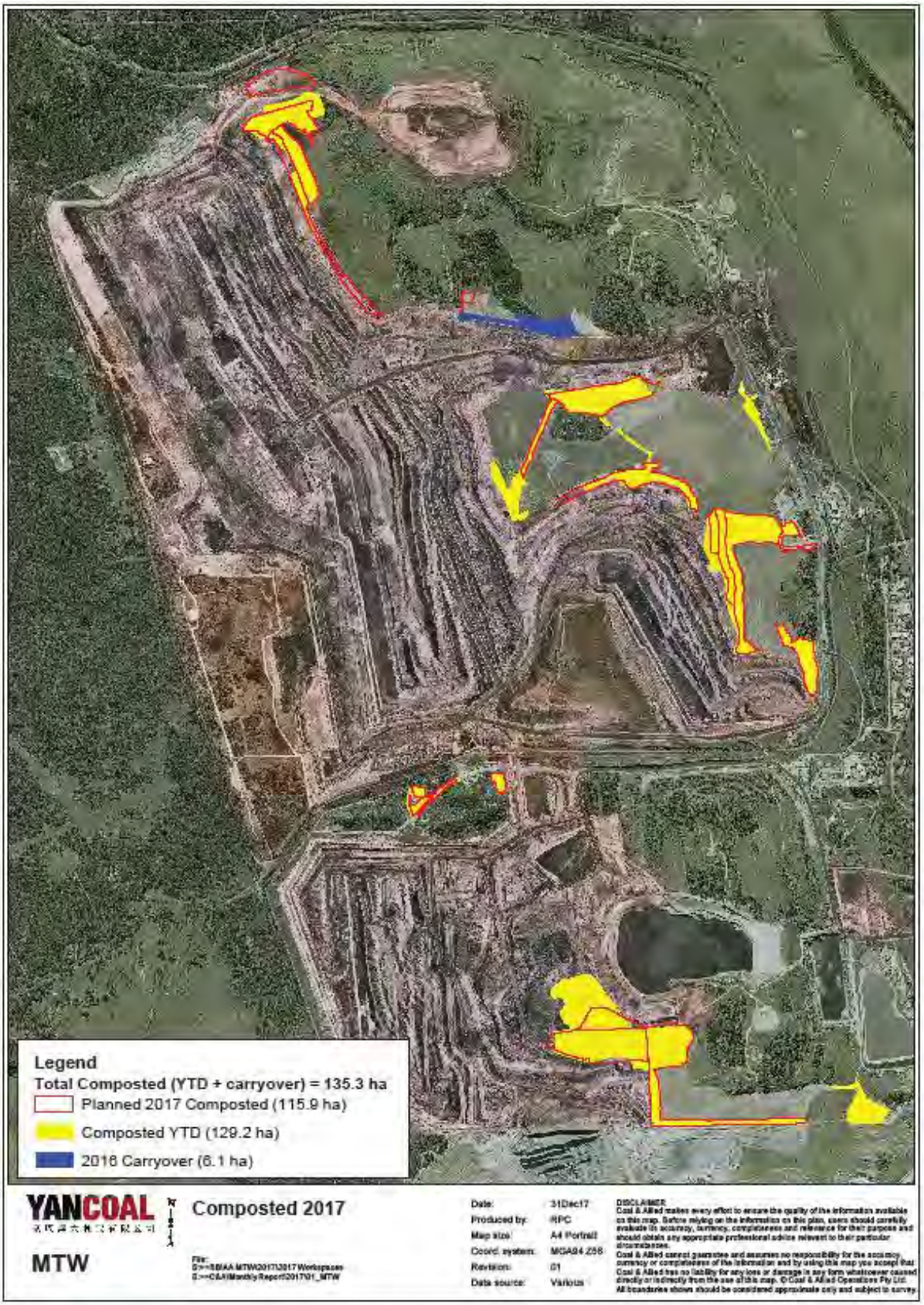
Legend
Total Composted (YTD + carryover) = 135.3 ha
Planned 2017 Composted (115.9 ha)
Composted YTD (129.2 ha)
2016 Carryover (6.1 ha)
YANCOAL
Composted 2017
MTW
Date: 31Dec17
Produced by: RPC
Map size: A4 Portrait
Coord. system: MGA94 Z56
Revision: 01
Data source: Various
DISCLAIMER
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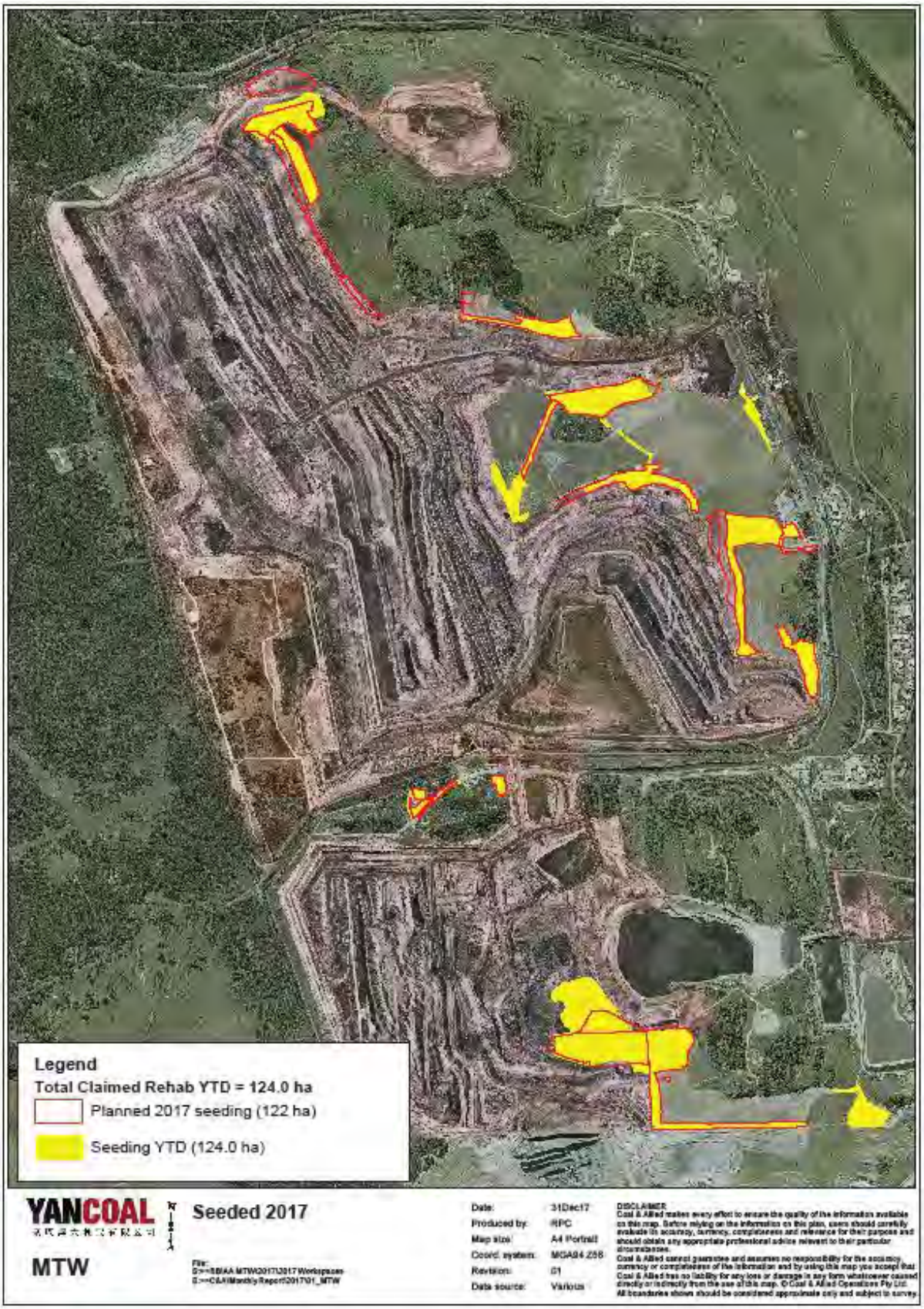
Legend
Total Claimed Rehab YTD = 124.0 ha
Planned 2017 seeding (122 ha)
Seeding YTD (124.0 ha)
YANCOAL
Seeded 2017
MTW
Date: 31Dec17
Produced by: RPC
Map size: A4 Portrait
Coord. system: MGA94 Z56
Revision: 01
Data source: Various
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Legend
Total Disturbance (new + rehab) = 74.9 ha
Planned 2017 New Disturbance (50 ha)
Planned 2017 Rehab Disturbance (38 ha)
Disturbance YTD (74.9 ha)
[New Dist. = 40.3 ha, Rehab Dist. = 34.5 ha]
YANCOAL
MTW
Disturbance 2017
Date: 31Dec17
Produced by: RPC
Map size: A4 Portrait
Coord. system: MGA94 Z56
Revision: 01
Data source: Various
DISCLAIMER
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5.0 Acquisition Update

A presentation with a property acquisition update for Mount Thorley Warkworth is included in Appendix D of this Business Paper.

Three properties have been acquired during the October-December 2017 period.

6.0 Website Uploads

Table 1 below is a list of all documents uploaded to the MTW library of the Yancoal Australia INSITE website since 01 January 2018. 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:

https://insite.yancoal.com.au/document-library/mtw

Table 1: Uploaded Documents to the Yancoal Australia INSITE Website

Document Title	Upload
MTW Pollution Incident Response Management Plan	Change
Hunter Valley Operations Environmental Monitoring Report October 2017	Addition
Mount Thorley Warkworth Environment ProtectionLicence 1376 1976 Monitoring Data December 2017	Addition
Hunter Valley Operations Environment Protection Licence 640 Monitoring Data December 2017	Addition
Hunter Valley Operations Environmental Monitoring Report November 2017	Addition
Mount Thorley Warkworth Environmental Monitoring Report November 2017	Addition
EPBC 2016/7640 Annual Compliance Report - 1 November 2016 to 31 October 2017	Addition

7.0 Community Investment & Support

Yancoal Corporate Investment

Details of the Yancoal Corporate investment fund are yet to be announced for 2018.

Appendix A

Environmental Monitoring
October 2017

Monthly Environmental Monitoring Report

Yancoal Mt Thorley Warkworth

October 2017

CONTENTS

Figures

Tables

Revision History

Version No.	Person Responsible	Document Status	Date
1.0	**Environmental Advisor**	**Draft**	**04/12/2017**
1.1	**Environmental Specialist**	**Final**	**08/12/2017**

1.0 INTRODUCTION

This report has been compiled to provide a monthly summary of environmental monitoring results for Mt Thorley Warkworth (MTW). This report includes all monitoring data collected for the period 1st October to 31st October 2017.

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

2017	Monthly Rainfall (mm)	Cumulative Rainfall (mm)
October	92.8	384.2

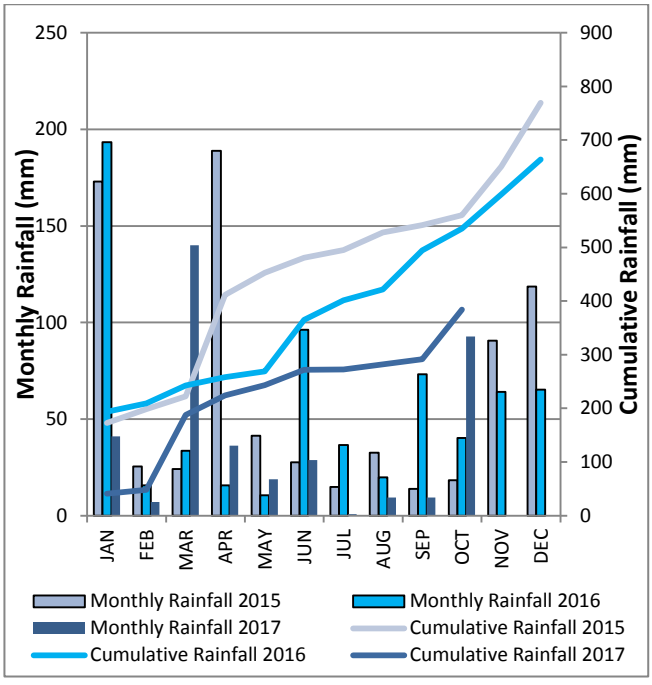

Figure 1: Rainfall Trend YTD

2.1.2 Wind Speed and Direction

Winds from the South and North-West were dominant throughout the reporting period as shown in Figure 2.

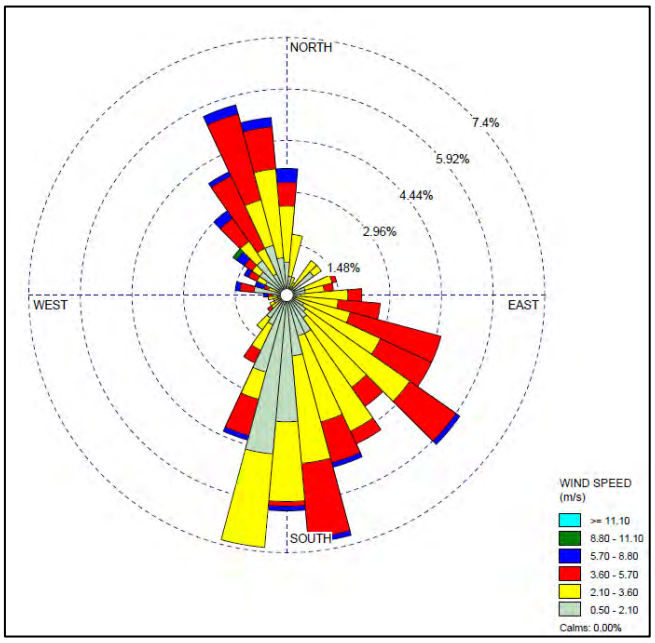

Figure 2: Charlton Ridge Wind Rose – October 2017

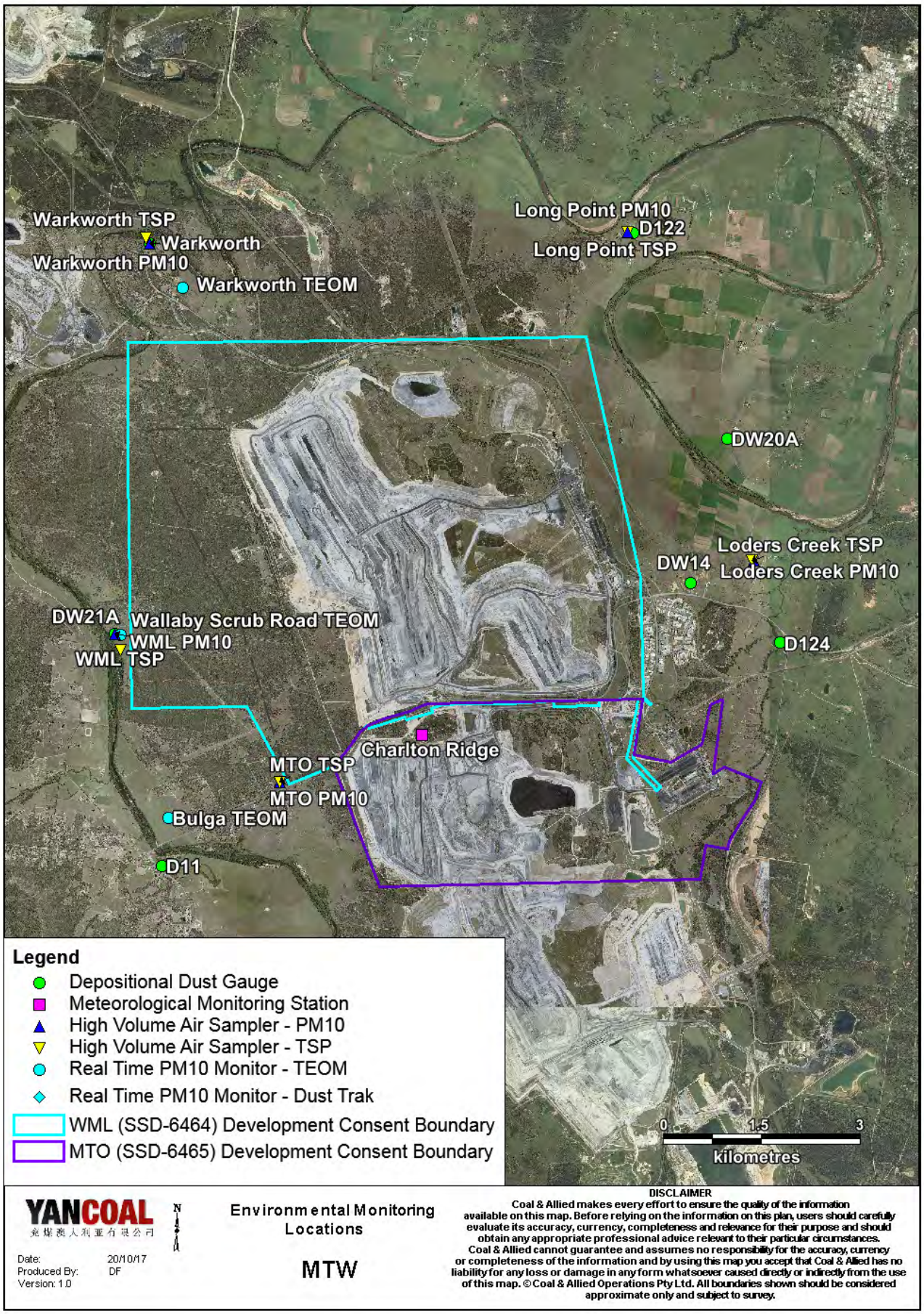

Figure 3: Air Quality Monitoring Locations

2.2 Depositional Dust

To monitor regional air quality, MTW operates and maintains a network of seven 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 and Warkworth monitors recorded a monthly result above the long term impact assessment criteria of 4.0 g/m^2 per month. Field notes associated with D124 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. There is no evidence to suggest that the Warkworth result is contaminated. Accordingly, the result will be included in the annual average calculation.

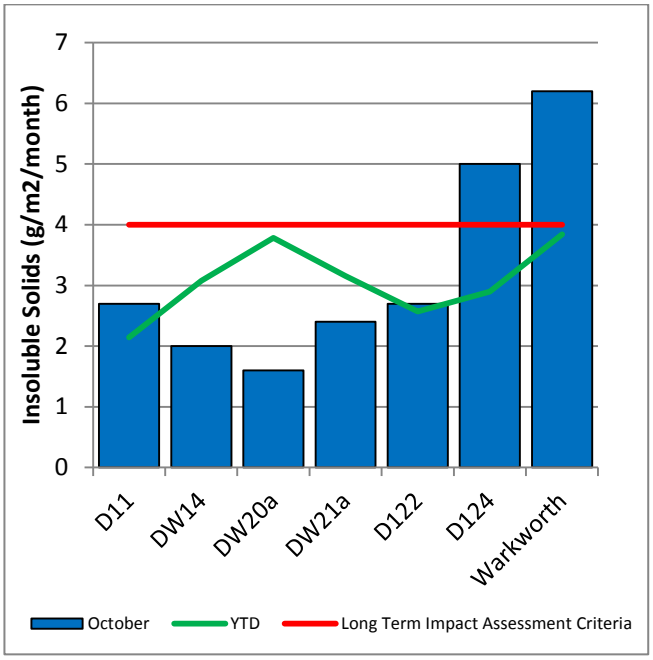

Figure 4: Depositional Dust – October 2017

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/m³.

On 09/10/2017 the Long Point HVAS PM_{10} unit recorded a result of 106µg/m^3, which is greater than the short term (24hr) PM10 impact assessment criteria.

Investigation determined that the wind direction was generally not from MTW's angle of influence at Long Point on the 9th of October. Accordingly, no further action is required.

Data was not available on 21/10/2017 at Long Point due to a power outage and on 27/10/2017 at Long Point or MTO HVAS due to collection of an invalid sample and a power outage, respectively.

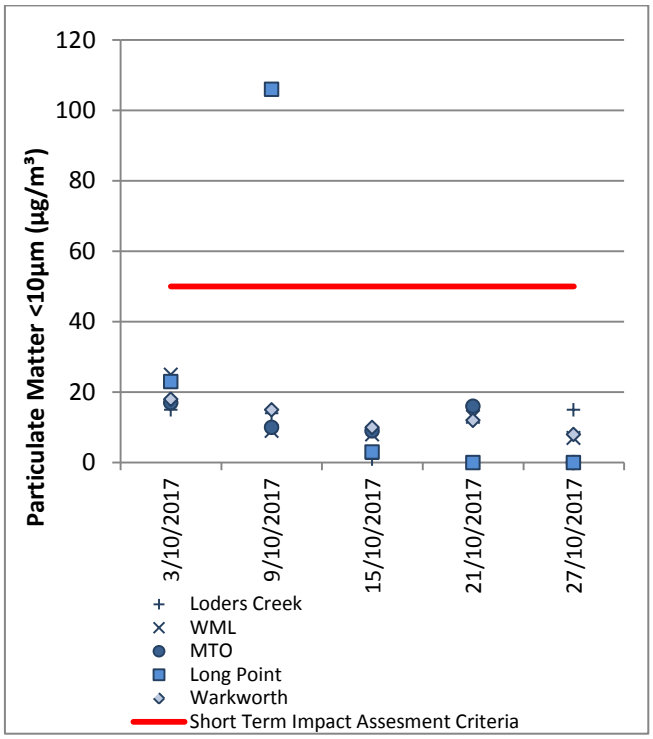

Figure 5: Individual PM_{10} Results – October 2017

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

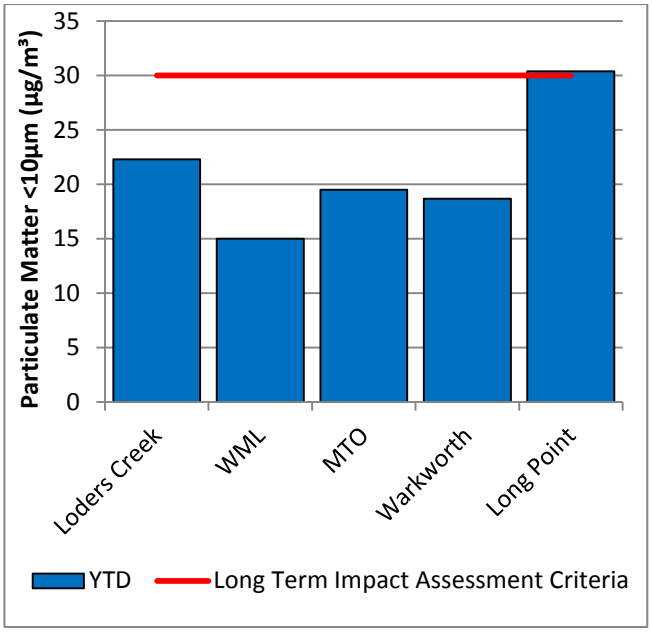

Figure 6: Annual Average PM_{10} – October 2017

2.3.2 TSP Results

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

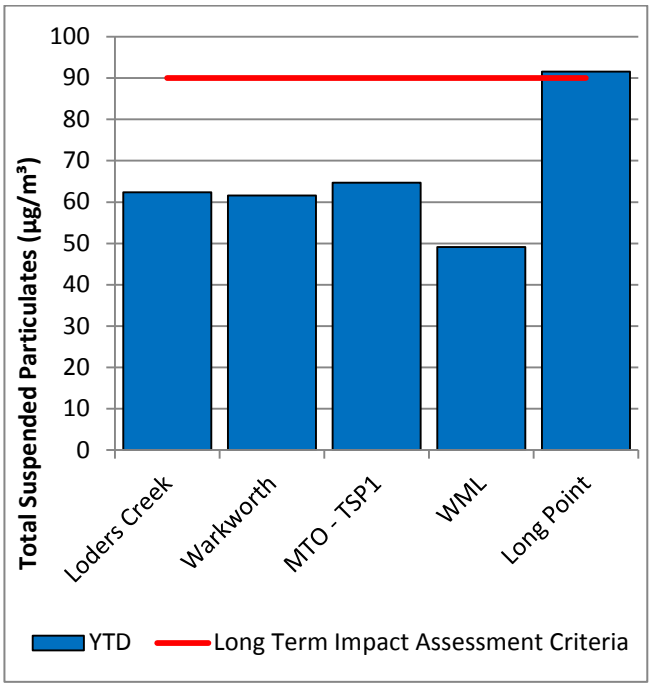

Figure 7: Annual Average Total Suspended Particulates – October 2017

2.3.3 Real Time PM_{10} Results

Mt 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 October, the real time monitoring system generated 143 automated air quality related alerts, including 11 alerts for adverse meteorological conditions and 132 alerts for elevated PM_{10} levels.

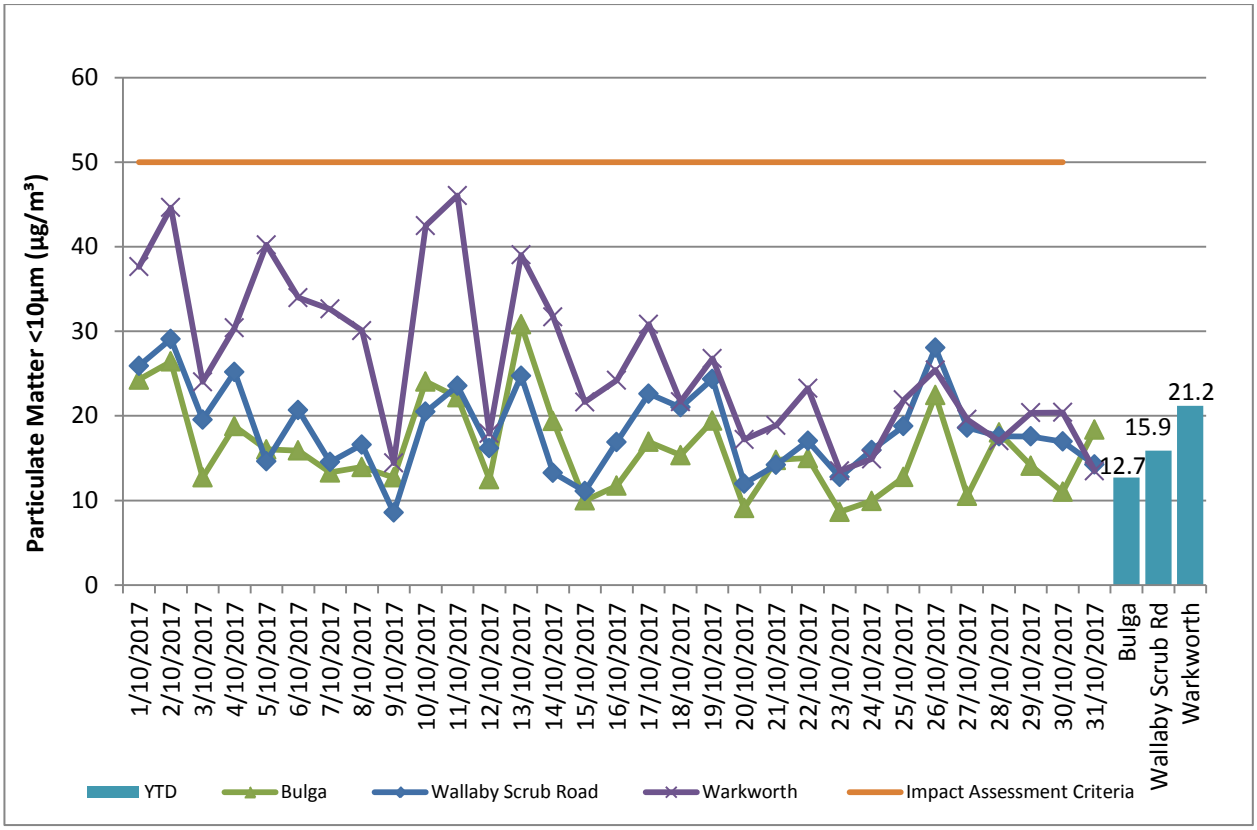

Figure 8: Real Time PM_{10} daily 24hr average and annual average – October 2017

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 December 2017 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 December 2017 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 October 2017, 21 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%

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

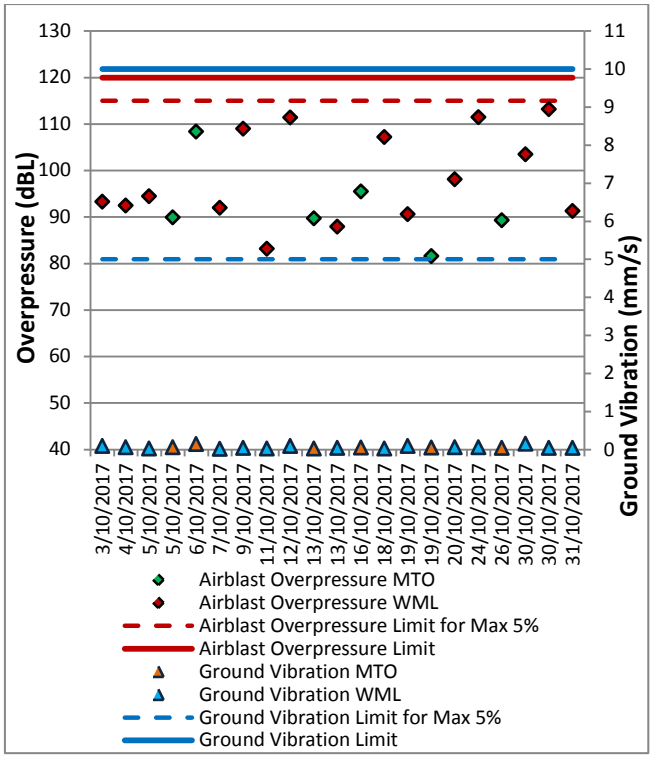

Figure 9: Abbey Green Blast Monitoring Results – October 2017

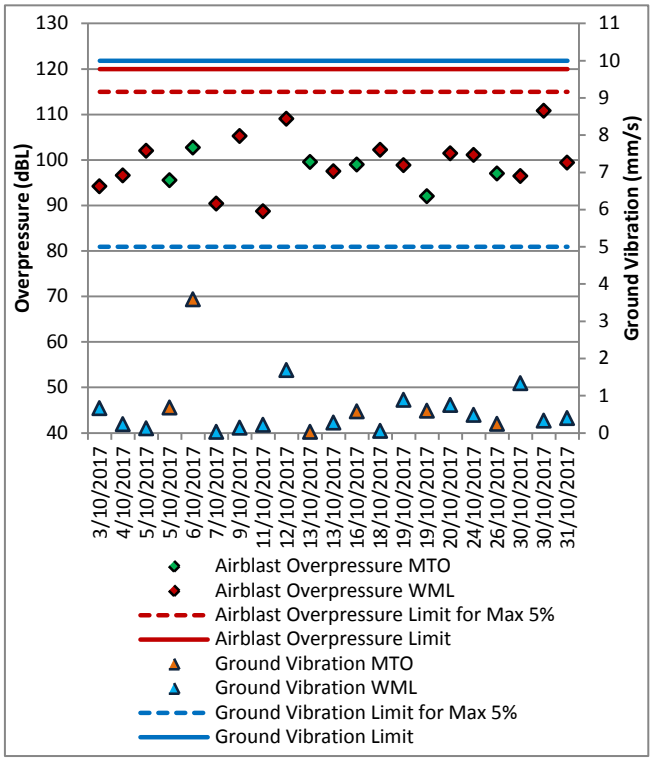

Figure 10: Bulga Village Blast Monitoring Results – October 2017

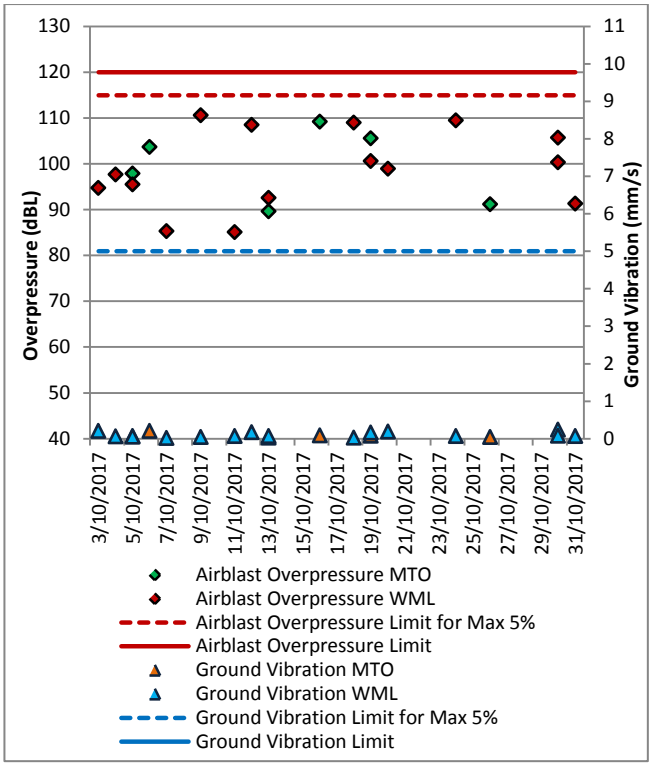

Figure 11: MTIE Blast Monitoring Results – October 2017

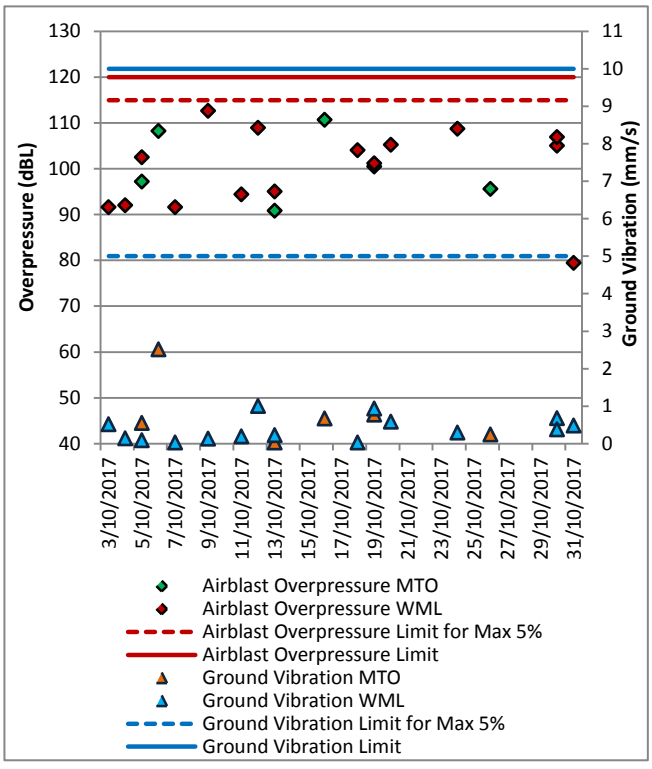

Figure 12: Wollemi Peak Road Blast Monitoring Results - October 2017

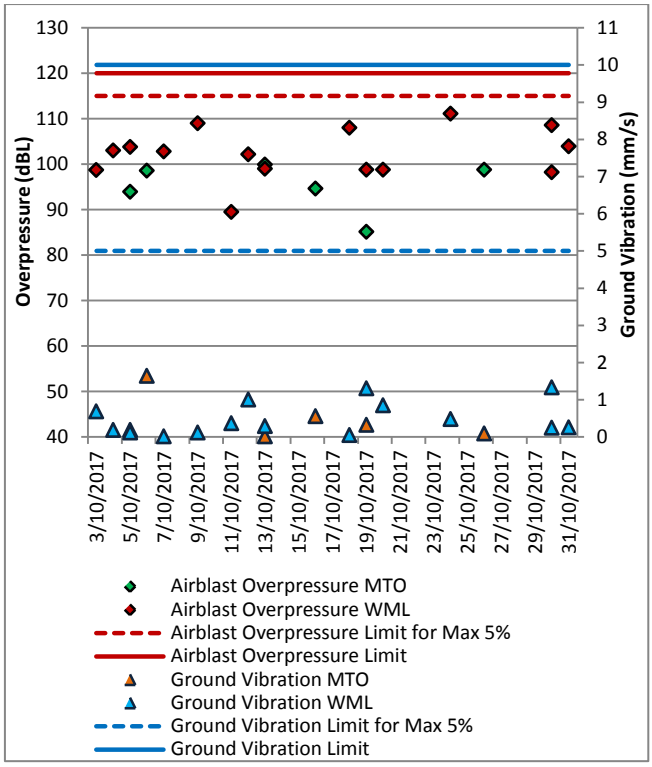

Figure 13: Wambo Road Blast Monitoring Results – October 2017

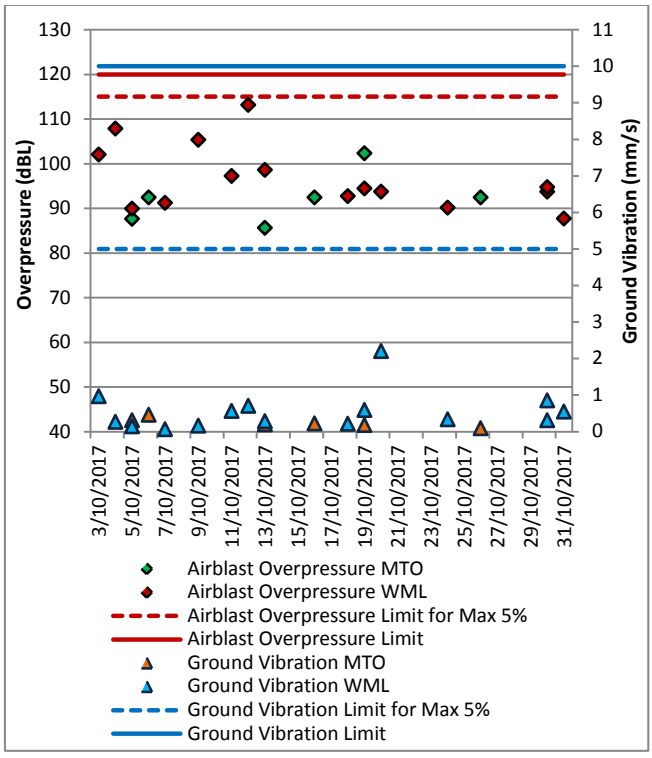

Figure 14: Warkworth Blast Monitoring Results - October 2017

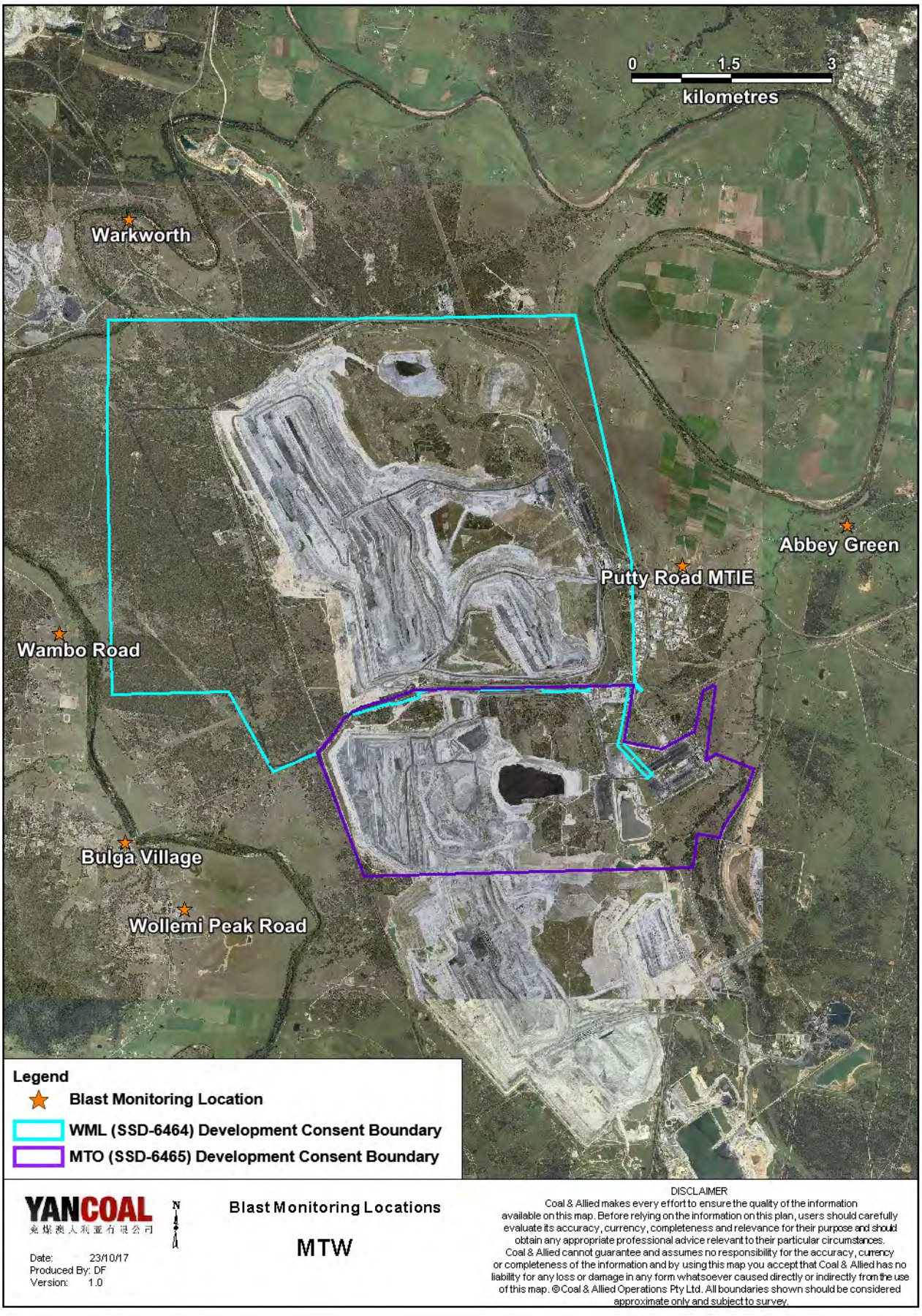

Figure 15: MTW Blast Monitoring Location Plan

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 night of 16th-17th October 2017. All measurements complied with the relevant criteria. Results are detailed in Table 3 to Table 6.

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 –October 2017

Location	Date and Time	Wind Speed (m/s)[5]	Stability Class	Criterion (dB(A))	Criterion Applies?[1,5]	WML L_{Aeq} dB[2,4]	Exceedance[3]	Total L_{Ceq} – L_{Aeq}	Revised WML L_{Aeq}[5,6]
Bulga RFS	17/10/2017 1:09	3.1	D	37	No	31	NA	13	31
Bulga Village	16/10/2017 21:53	3.2	D	38	No	38	NA	19	NA
Gouldsville	16/10/2017 22:30	2.9	E	38	Yes	IA	Nil	21	IA
Inlet Rd	16/10/2017 21:02	3.3	D	37	No	35	NA	17	NA
Inlet Rd West	16/10/2017 21:26	3	D	35	Yes	<30	Nil	19	<35
Long Point	16/10/2017 22:01	3.1	D	35	No	IA	NA	21	IA
South Bulga	16/10/2017 23:32	2.6	D	35	Yes	IA	Nil	20	IA
Wambo Road	16/10/2017 22:33	2.9	E	38	Yes	34	Nil	15	39

Notes:
1. Noise emission limits apply during all meteorological conditions except the following: during periods of rain or hail; average wind speed at microphone height exceeds 5 m/s; wind speeds greater than 3 m/s measured at 10 metres above ground level; stability category F temperature inversion conditions and wind speeds greater than 2m/s at 10m above ground level; or stability category G temperature inversion conditions;
2. Estimated or measured LAeq,15minute attributed to WML;
3. NA means atmospheric conditions outside conditions specified in development consent and so criterion is not applicable;
4. Bolded results in red are possible exceedances of relevant criteria; and
5. Criterion may or may not apply due to rounding of meteorological data values.
6. Revised LAeq, 15minute level following application of low frequency noise penalty as per the INP where applicable.

Table 4: $L_{A1,\ 1\ minute}$ Warkworth - Impact Assessment Criteria – October 2017

Location	Date and Time	Wind Speed (m/s)[5]	Stability Class	Criterion dB	Criterion Applies?[1,5]	WML $L_{A1,\ 1min}$ dB[2,4]	Exceedance[3]
Bulga RFS	17/10/2017 1:09	3.1	D	47	No	NM	NA
Bulga Village	16/10/2017 21:53	3.2	D	48	No	45	NA
Gouldsville	16/10/2017 22:30	2.9	E	48	Yes	IA	Nil
Inlet Rd	16/10/2017 21:02	3.3	D	47	No	43	NA
Inlet Rd West	16/10/2017 21:26	3	D	45	Yes	35	Nil
Long Point	16/10/2017 22:01	3.1	D	45	No	IA	NA
South Bulga	16/10/2017 23:32	2.6	D	45	Yes	IA	Nil
Wambo Road	16/10/2017 22:33	2.9	E	48	Yes	48	Nil

Notes
1. Noise emission limits apply during all meteorological conditions except the following: during periods of rain or hail; average wind speed at microphone height exceeds 5 m/s; wind speeds greater than 3 m/s measured at 10 metres above ground level; stability category F temperature inversion conditions and wind speeds greater than 2m/s at 10m above ground level; or stability category G temperature inversion conditions;
2. Estimated or measured LA1,1minute attributed to Warkworth mine (WML);
3. NA in exceedance column means atmospheric conditions outside conditions specified in project approval and so criterion is not applicable. NA (not applicable) in criterion column means criterion not specified for this location;
4. Bolded results in red are possible exceedances of relevant criteria; and
5. Criterion may or may not apply due to rounding of meteorological data values.

5.1.3 MTO Noise Assessment

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

Table 5: $L_{Aeq,\ 15minute}$ Mount Thorley - Impact Assessment Criteria – October 2017

Location	Date and Time	Wind Speed (m/s)[5]	Stability Class	Criterion dB	Criterion Applies?[1,5]	MTO L_{Aeq} dB[2,4]	Exceedance[3]	Total L_{Ceq} – L_{Aeq}[7]	Revised MTO L_{Aeq}[5,6]
Bulga RFS	17/10/2017 1:09	3.1	D	37	No	34	NA	13	34
Bulga Village	16/10/2017 21:53	3.2	D	38	No	NM	NA	19	NM
Gouldsville	16/10/2017 22:30	2.9	E	35	Yes	IA	Nil	21	IA
Inlet Rd	16/10/2017 21:02	3.3	D	37	No	IA	NA	17	IA
Inlet Rd West	16/10/2017 21:26	3	D	35	Yes	IA	Nil	19	IA
Long Point	16/10/2017 22:01	3.1	D	35	No	IA	NA	21	IA
South Bulga	16/10/2017 23:32	2.6	D	36	Yes	31	Nil	20	36
Wambo Road	16/10/2017 22:33	2.9	E	38	Yes	IA	Nil	15	IA

Notes:
1. Noise emission limits apply during all meteorological conditions except the following: during periods of rain or hail; average wind speed at microphone height exceeds 5 m/s; wind speeds greater than 3 m/s measured at 10 metres above ground level; stability category F temperature inversion conditions and wind speeds greater than 2m/s at 10m above ground level; or stability category G temperature inversion conditions;
2. Estimated or measured LAeq,15minute attributed to WML;
3. NA means atmospheric conditions outside conditions specified in development consent and so criterion is not applicable;
4. Bolded results in red are possible exceedances of relevant criteria; and
5. Criterion may or may not apply due to rounding of meteorological data values.
6. Revised LAeq, 15minute level following application of low frequency noise penalty as per the INP where applicable.

Table 6: $L_{A1,\ 1Minute}$ Mount Thorley - Impact Assessment Criteria – October 2017

Location	Date and Time	Wind Speed (m/s)[5]	Stability Class	Criterion dB	Criterion Applies?[1,5]	MTO $L_{A1,\ 1min}$ dB[2,4]	Exceedance[3]
Bulga RFS	17/10/2017 1:09	3.1	D	47	No	43	NA
Bulga Village	16/10/2017 21:53	3.2	D	48	No	NM	NA
Gouldsville	16/10/2017 22:30	2.9	E	45	Yes	IA	Nil
Inlet Rd	16/10/2017 21:02	3.3	D	47	No	IA	NA
Inlet Rd West	16/10/2017 21:26	3	D	45	Yes	IA	Nil
Long Point	16/10/2017 22:01	3.1	D	45	No	IA	NA
South Bulga	16/10/2017 23:32	2.6	D	46	Yes	35	Nil
Wambo Road	16/10/2017 22:33	2.9	E	48	Yes	IA	Nil

Notes
1. Noise emission limits apply during all meteorological conditions except the following: during periods of rain or hail; average wind speed at microphone height exceeds 5 m/s; wind speeds greater than 3 m/s measured at 10 metres above ground level; stability category F temperature inversion conditions and wind speeds greater than 2m/s at 10m above ground level; or stability category G temperature inversion conditions;
2. Estimated or measured LA1,1minute attributed to Mt Thorley Operations (MTO);
3. NA in exceedance column means atmospheric conditions outside conditions specified in project approval and so criterion is not applicable. NA (not applicable) in criterion column means criterion not specified for this location;
4. Bolded results in red are possible exceedances of relevant criteria; and
5. Criterion may or may not apply due to rounding of meteorological data values.

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), as such resulting in the application of a 5 dB penalty to the site only L_{Aeq} for the measurements taken at Bulga Village, Inlet Road and Inlet Road West, South Bulga and Wambo Road.

Resulting L_{Aeq} noise levels exceed the WML impact assessment criteria at Wambo Road by 1 dB to the application of a 5 dB penalty to the site only $L_{Aeq.}$

MTW reports these measurements so as to ensure full disclosure, however it remains MTW's position that the prescribed methodology is unsuitable when applied to receptors at large distances from mine noise sources due to the nature of noise attenuation. Excess attenuation of noise with distance is greater for high frequency noise than it is for low frequency noise. At significant distance from a noise source (such as private residences from the MTW complex) this often results in large differentials between L_{Aeq} and L_{Ceq}. The NSW Industrial Noise Policy requires the penalty to be applied in these instances, irrespective of actual low frequency affectation. As such, MTW does not consider these instances to constitute non-compliance with the conditions of approval.

The result has been reported to the Department of Planning and Environment.

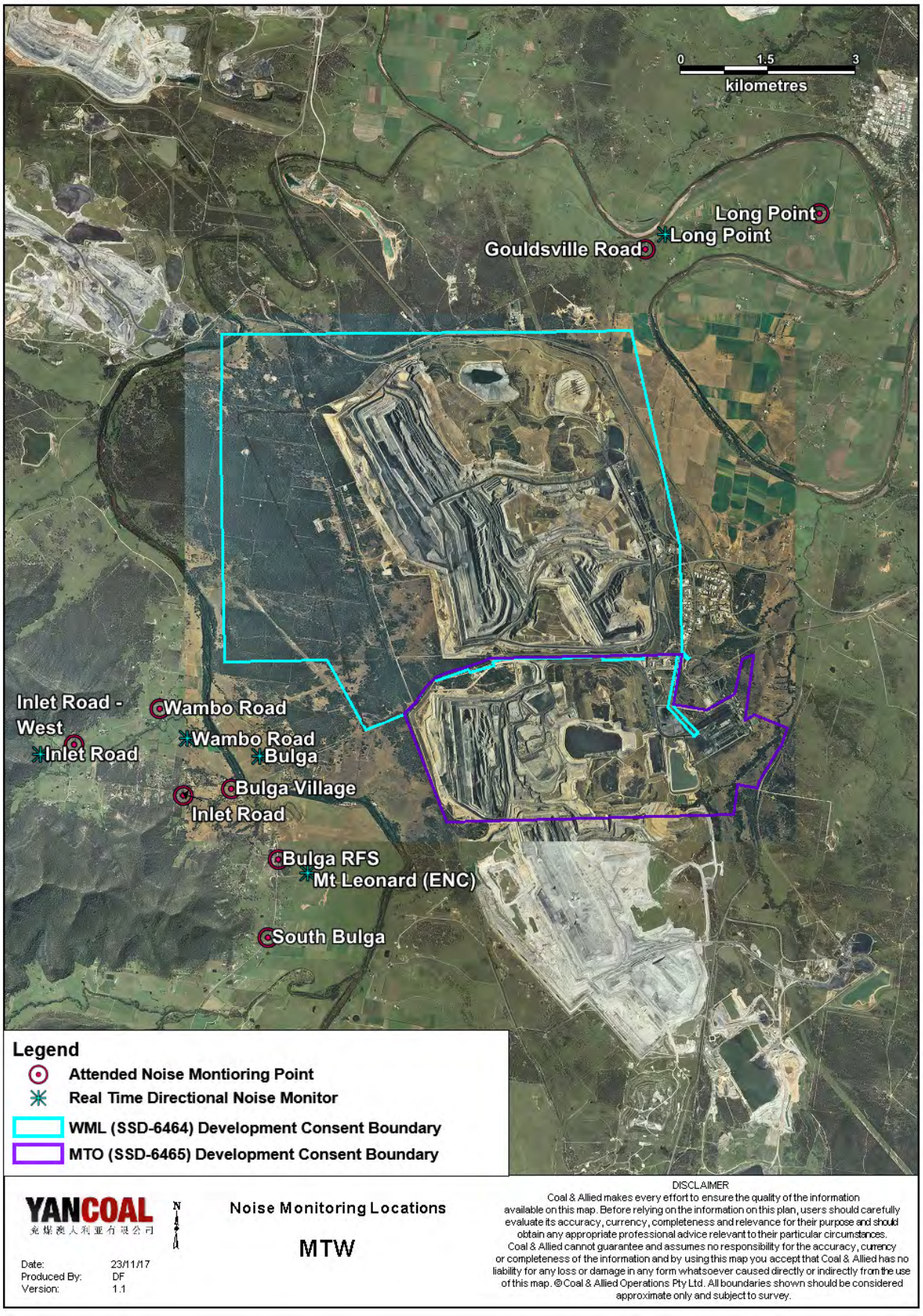

Figure 16: Noise Monitoring Location Plan

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:

- 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 October are provided in Table 7.

Table 7: Supplementary Attended Noise Monitoring Data – October 2017

No. of assessments	No. of assessments > trigger	No. of nights where assessments > trigger	% greater than trigger
324	0	0	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 October, a total of 283.3 hours of equipment downtime was logged in response to environmental events such as dust, noise and adverse meteorological conditions. Operational downtime by equipment type is shown in Figure 17.

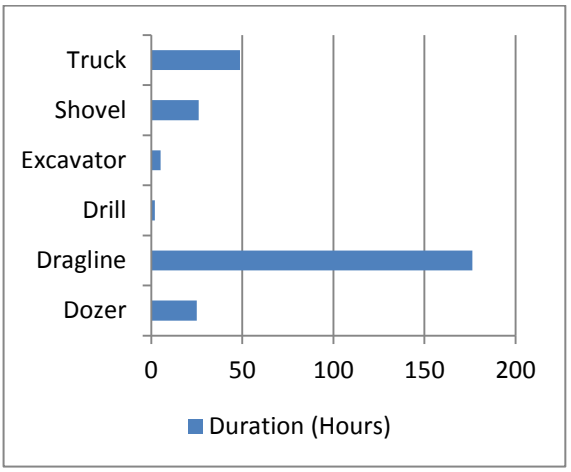

Figure 17: Operational Downtime by Equipment Type – October 2017

7.0 REHABILITATION

During October, 11.08 Ha of land was released, 11.75 Ha of land was bulk shaped, 6.57 Ha of land was topsoiled, 24.81 Ha of land was composted and 1.72 Ha of land was rehabilitated.

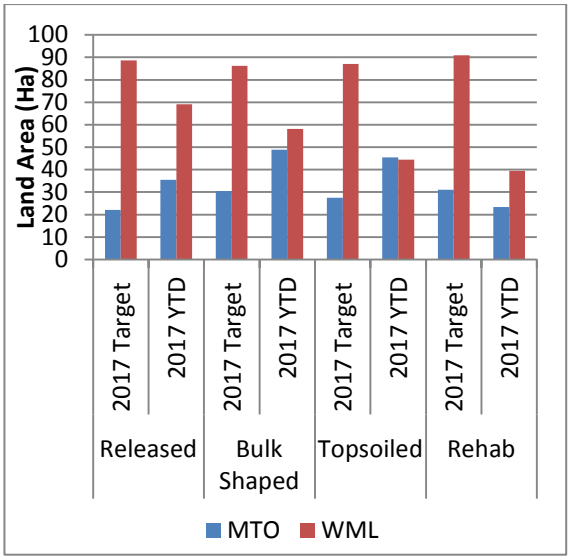

Figure 18: Rehabilitation YTD - October 2017

8.0 ENVIRONMENTAL INCIDENTS

During the reporting period there were no reportable environmental incidents.

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	5	6	3	1	0	15
February	25	3	10	3	0	41
March	14	1	1	2	0	18
April	27	1	7	2	0	37
May	18	4	7	10	3	42
June	10	3	4	3	0	20
July	10	10	8	0	2	30
August	8	18	5	4	1	36
September	21	15	6	2	3	47
October	21	8	6	2	2	39
November	-	-	-	-	-	-
December	-	-	-	-	-	-
Total	159	69	57	29	11	325

Figure 19: Complaints Summary – YTD October 2017

Appendix A: Meteorological Data

Table 8: Meteorological Data – Charlton Ridge Meteorological Station – October 2017

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)
1/10/2017	25.7	7.3	77.0	8.7	959	154.0	2.2	0.0
2/10/2017	22.5	9.5	78.2	27.4	932	159.1	2.3	0.0
3/10/2017	27.0	12.4	89.6	28.9	1201	163.5	1.9	0.2
4/10/2017	28.3	11.8	89.7	31.3	1057	164.0	2.2	0.0
5/10/2017	31.9	14.8	84.0	16.1	1114	208.2	2.5	0.0
6/10/2017	24.7	13.1	74.6	18.7	843	177.0	2.5	0.0
7/10/2017	22.7	11.1	77.6	32.6	1420	145.1	2.6	0.0
8/10/2017	20.5	10.1	89.9	51.8	568	213.0	1.8	1.2
9/10/2017	32.1	14.4	91.5	24.8	1058	254.5	3.6	0.2
10/10/2017	21.8	13.8	88.3	57.8	720	138.9	2.9	0.0
11/10/2017	32.1	15.2	83.5	24.6	1011	164.4	2.3	0.0
12/10/2017	31.0	15.3	86.6	10.7	1221	254.7	4.7	0.0
13/10/2017	29.8	12.3	81.1	16.2	1048	159.2	2.6	0.0
14/10/2017	20.0	13.3	94.6	56.3	968	157.8	4.1	4.0
15/10/2017	24.2	12.9	96.9	45.0	1364	136.9	3.1	6.8
16/10/2017	24.4	10.8	90.8	31.3	1291	143.7	3.2	0.0
17/10/2017	26.4	12.3	82.3	32.9	1364	126.0	3.8	0.0
18/10/2017	27.3	13.4	88.0	30.4	1327	113.8	3.4	0.0
19/10/2017	-	-	27.7	-	1039	132.8	2.2	0.0
20/10/2017	18.6	-	95.1	-	316	223.1	2.9	23.2
21/10/2017	21.1	9.4	86.0	34.9	1428	145.0	3.1	0.0
22/10/2017	22.6	7.6	92.0	30.5	1152	165.0	2.4	8.8
23/10/2017	21.9	9.0	96.4	44.5	1464	145.7	2.1	19.8
24/10/2017	28.9	8.9	94.9	20.3	1076	259.1	2.9	0.0
25/10/2017	31.0	15.0	63.0	16.3	1294	259.3	2.9	0.0
26/10/2017	30.5	10.2	95.3	33.3	1035	152.2	2.7	27.8
27/10/2017	24.6	11.0	96.3	47.3	1452	206.1	1.9	0.8
28/10/2017	27.9	13.2	93.7	32.5	1065	197.1	2.3	0.0
29/10/2017	32.8	17.6	67.3	22.7	1297	255.2	3.6	0.0
30/10/2017	36.2	14.6	74.6	7.4	1109	273.1	4.7	0.0
31/10/2017	22.5	11.1	64.9	19.5	1423	186.3	3.0	0.0

"-" Indicates that data was not available due to technical issues.

Appendix B

Environmental Monitoring
November 2017

Monthly Environmental Monitoring Report

Yancoal Mt Thorley Warkworth

November 2017

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Revision History

Version No.	Person Responsible	Document Status	Date
1.0	**Environmental Advisor**	**Draft**	**12/01/2018**
1.1	**Environmental Specialist**	**Final**	**15/01/2018**

1.0 INTRODUCTION

This report has been compiled to provide a monthly summary of environmental monitoring results for Mt Thorley Warkworth (MTW). This report includes all monitoring data collected for the period 1st November to 30th November 2017.

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

2017	Monthly Rainfall (mm)	Cumulative Rainfall (mm)
November	24.0	408.2

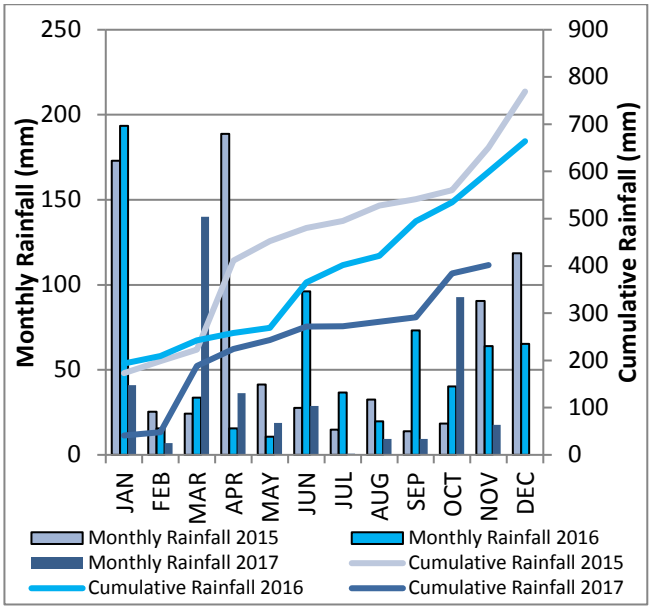


Figure 1: Rainfall Trend YTD

2.1.2 Wind Speed and Direction

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

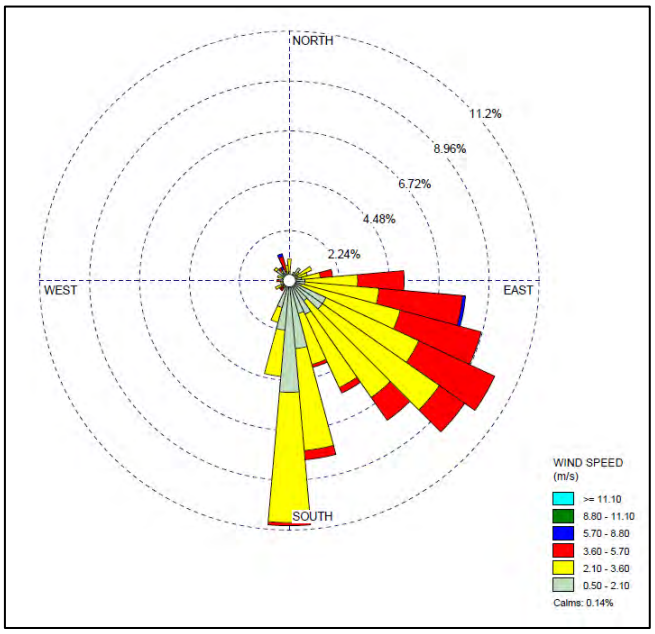


Figure 2: Charlton Ridge Wind Rose – November 2017

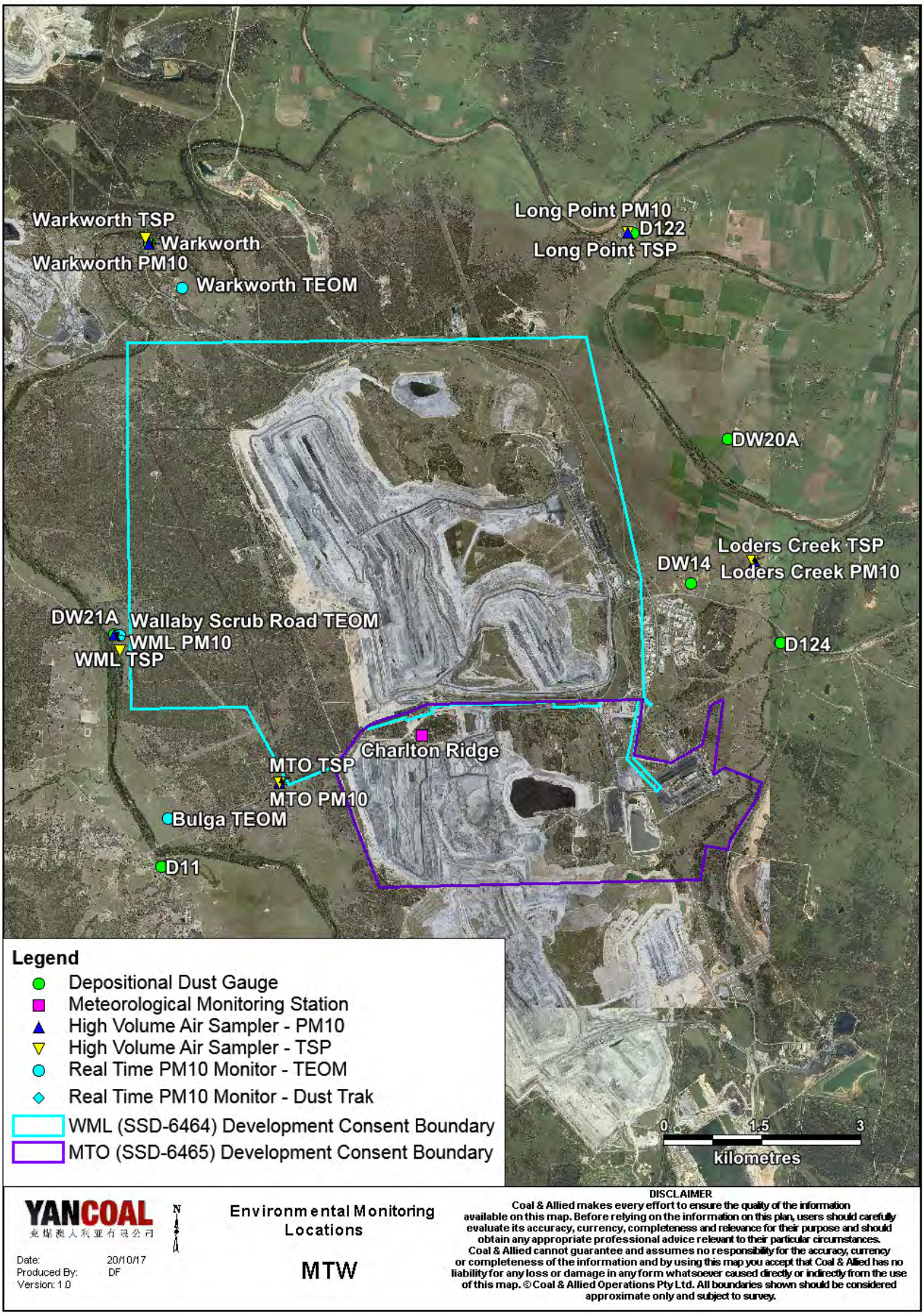


Figure 3: Air Quality Monitoring Locations

2.2 Depositional Dust

To monitor regional air quality, MTW operates and maintains a network of seven 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.

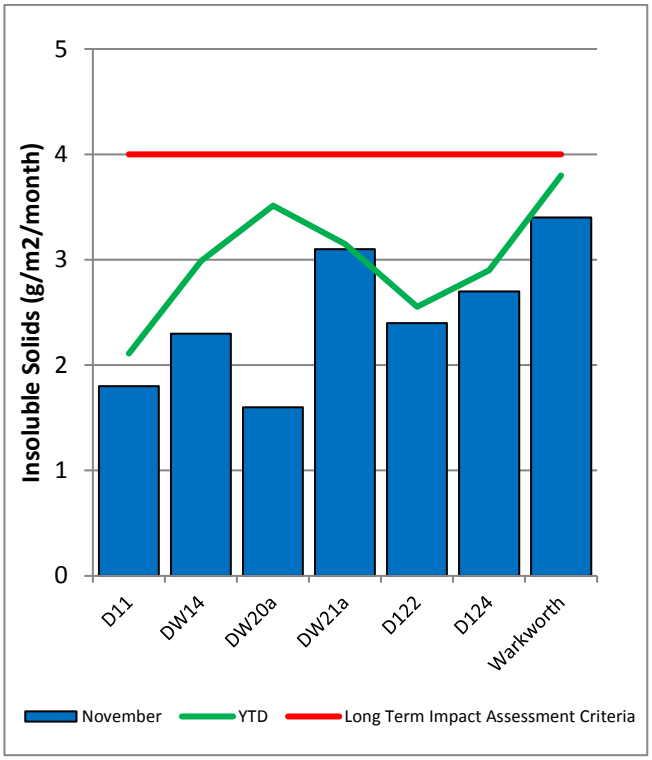


Figure 4: Depositional Dust – November 2017

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/m³.

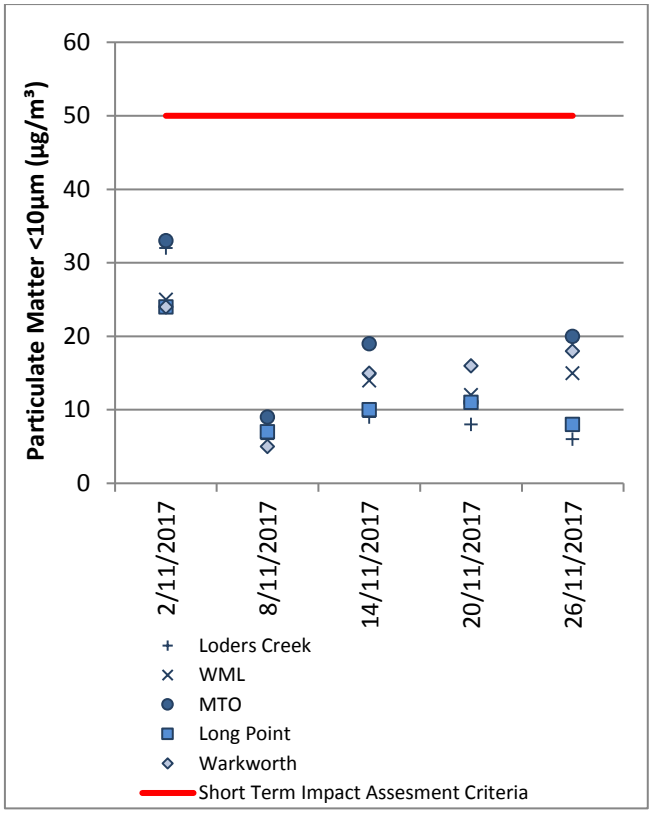


Figure 5: Individual PM_{10} Results – November 2017

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

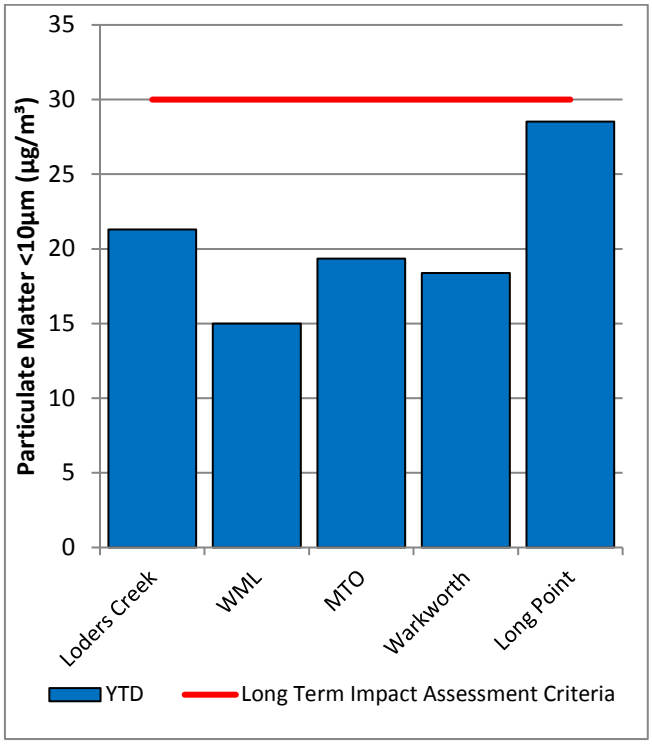


Figure 6: Annual Average PM_{10} – November 2017

2.3.2 TSP Results

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

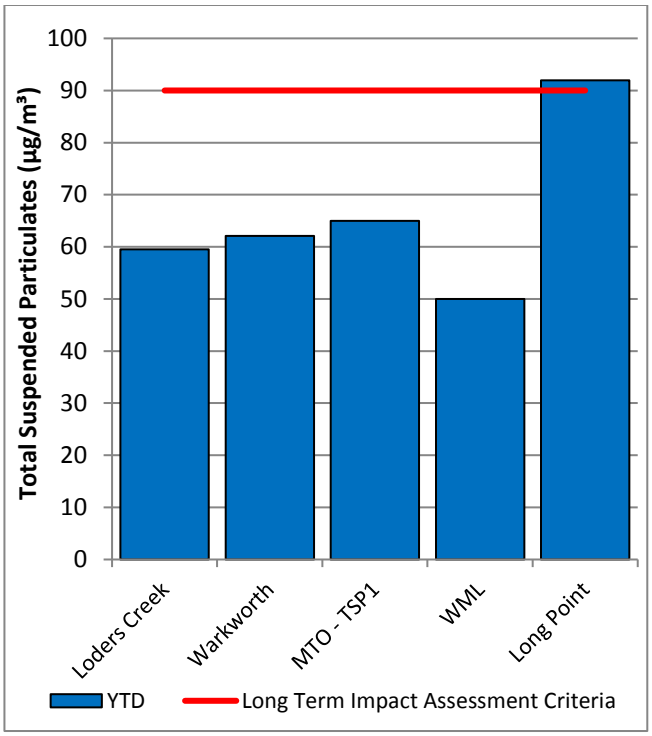


Figure 7: Annual Average Total Suspended Particulates – November 2017

2.3.3 Real Time PM_{10} Results

Mt 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 the 2nd and 6th November 2017 at the Wallaby Scrub Road monitor due to equipment malfunction resulting in erroneous data.

2.3.4 Real Time Alarms for Air Quality

During November, the real time monitoring system generated 47 automated air quality related alerts, including 1 alert for adverse meteorological conditions and 46 alerts for elevated PM_{10} levels.

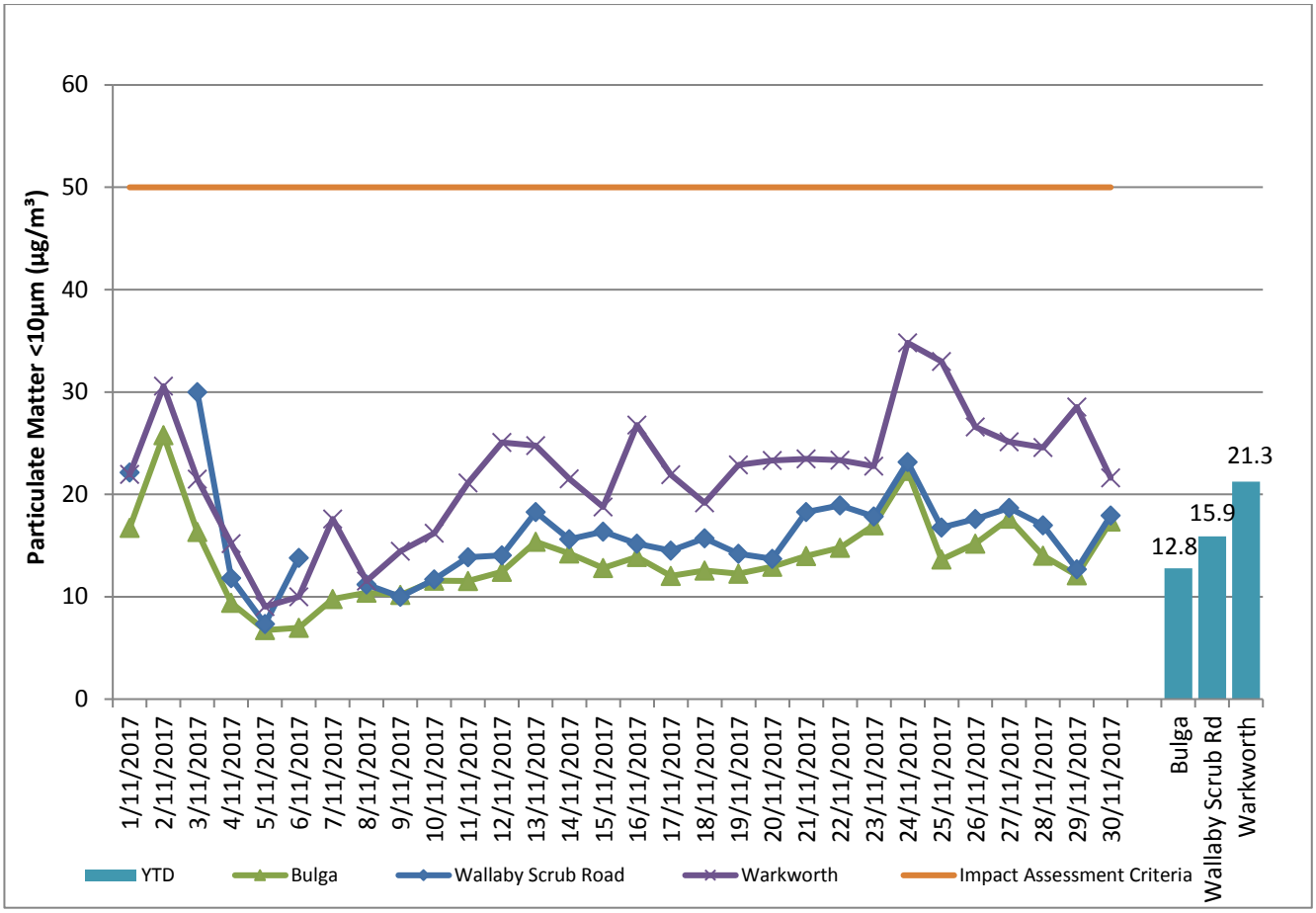


Figure 8: Real Time PM_{10} daily 24hr average and annual average – November 2017

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 December 2017 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 December 2017 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 November 2017, 20 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%

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

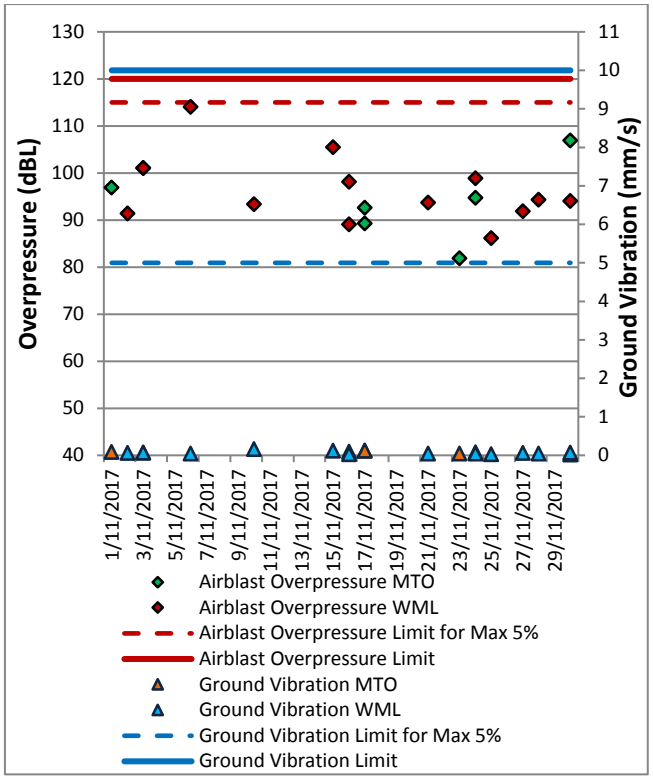


Figure 9: Abbey Green Blast Monitoring Results – November 2017

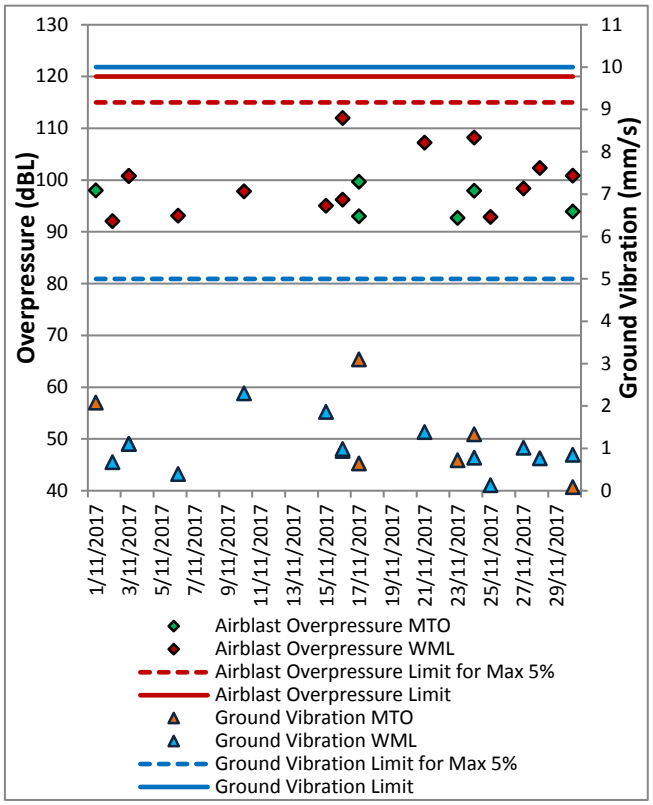


Figure 10: Bulga Village Blast Monitoring Results – November 2017

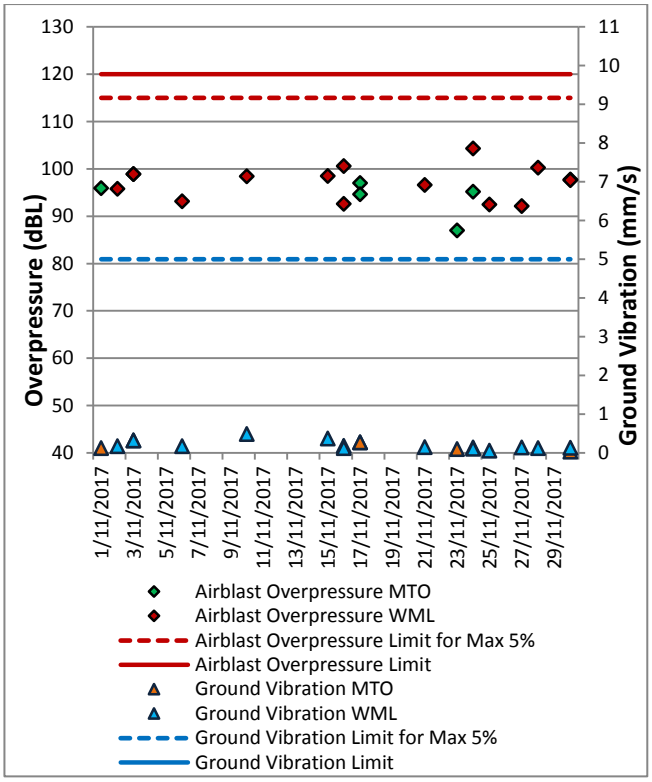


Figure 11: MTIE Blast Monitoring Results – November 2017

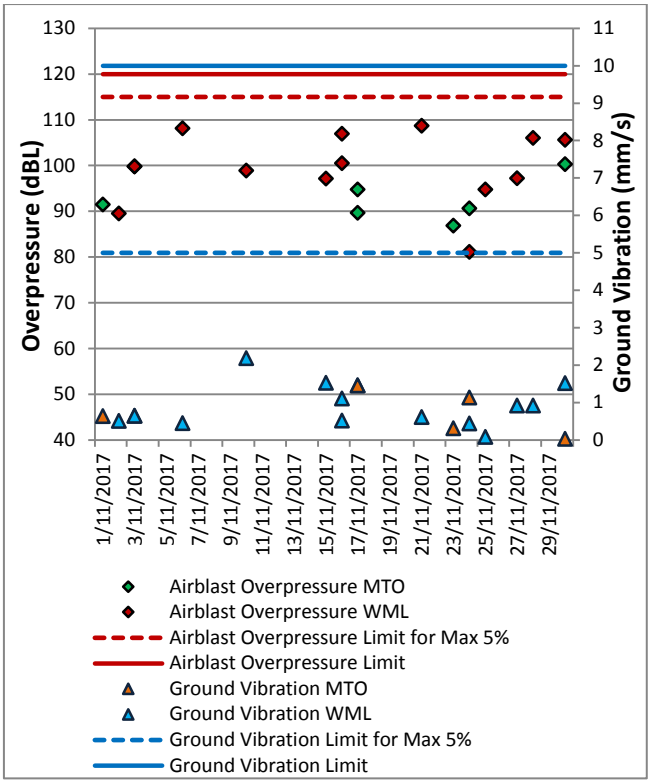


Figure 13: Wambo Road Blast Monitoring Results – November 2017

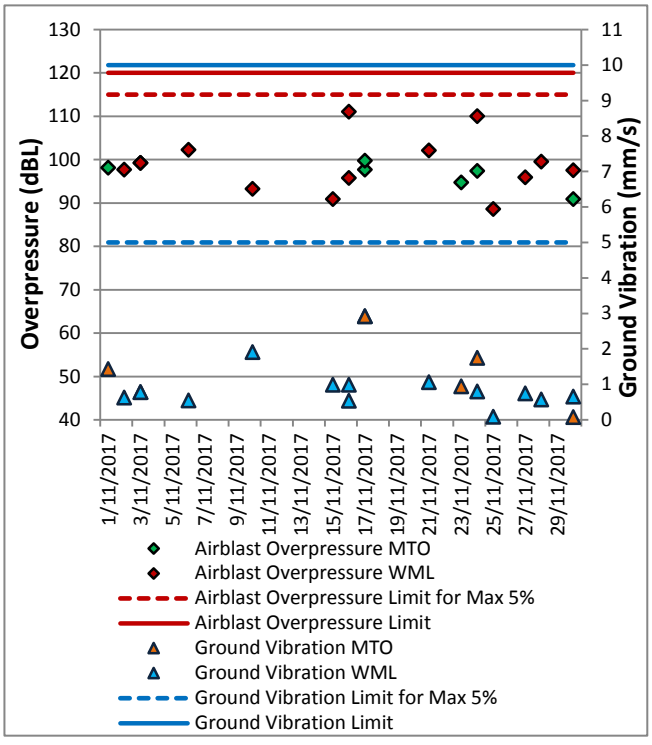


Figure 12: Wollemi Peak Road Blast Monitoring Results - November 2017

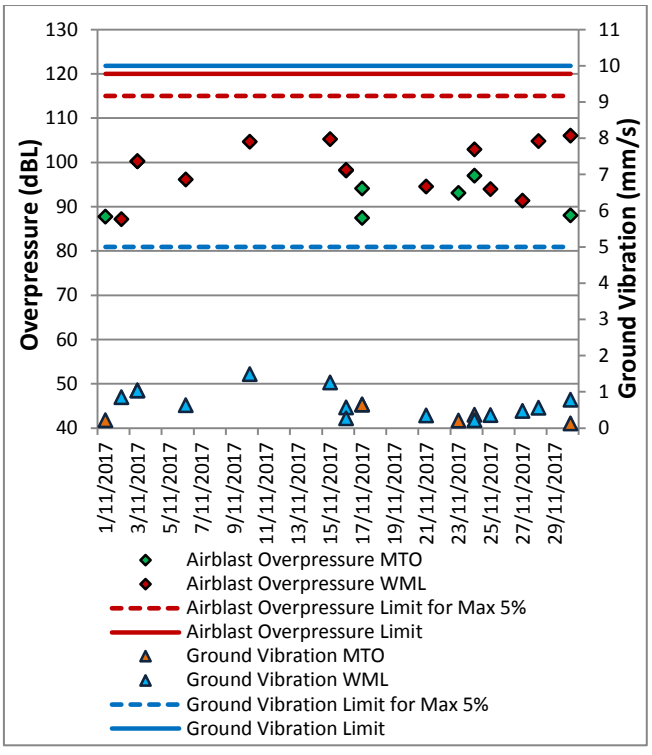


Figure 14: Warkworth Blast Monitoring Results - November 2017

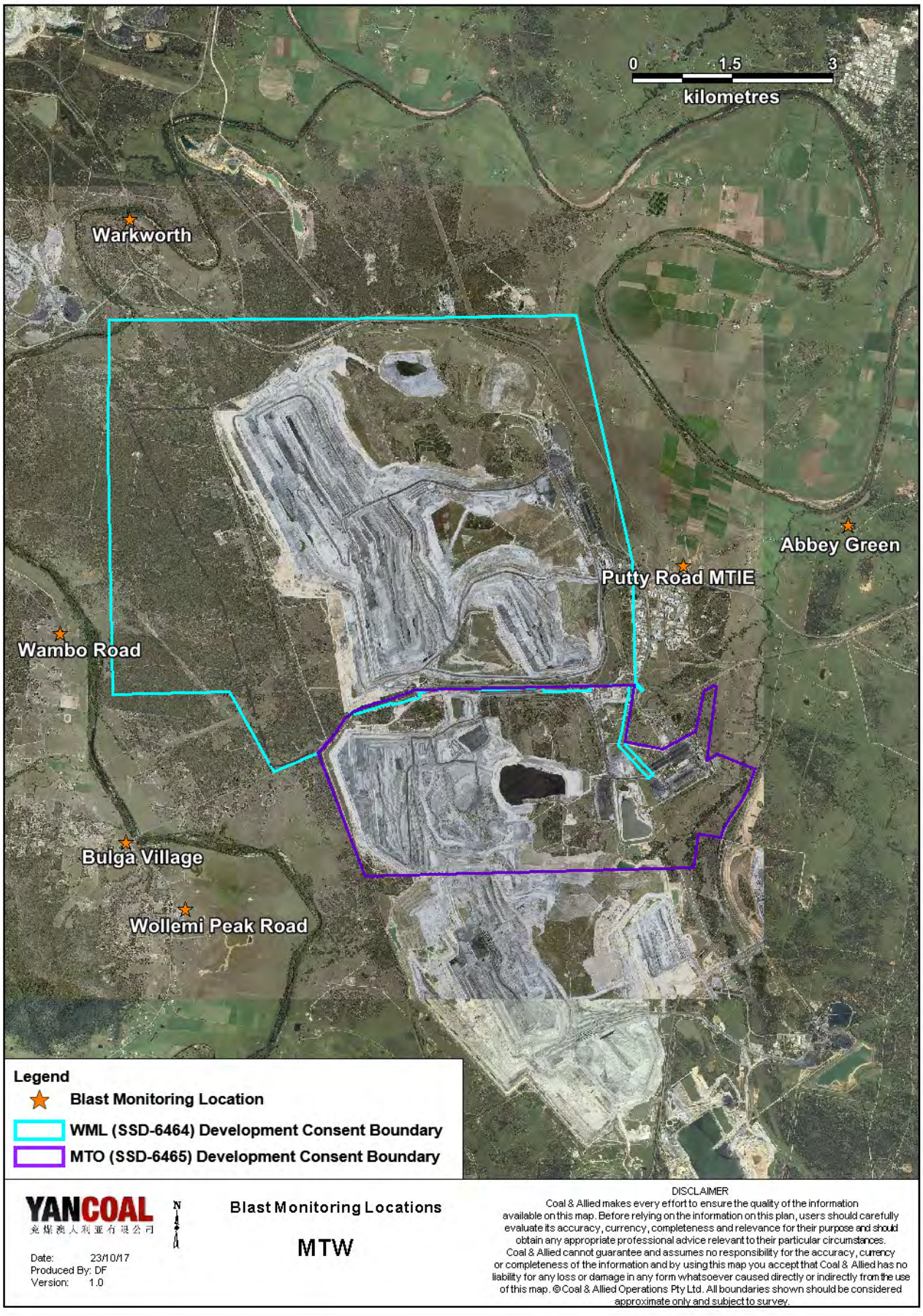


Figure 15: MTW Blast Monitoring Location Plan

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 night of 13-14 November 2017. All measurements complied with the relevant criteria. Results are detailed in Table 3 to Table 6.

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 – November 2017

Location	Date and Time	Wind Speed (m/s)[5]	Stability Class	Criterion dB(A)	Criterion Applies?[1,5]	WML L_{Aeq} dB[2,4]	Exceedance[3]
Bulga RFS	13/11/2017 23:27	2.6	E	37	Yes	IA	Nil
Bulga Village	13/11/2017 22:01	2.8	E	38	Yes	IA	Nil
Gouldsville	13/11/2017 21:00	2.4	F	38	No	<30	NA
Inlet Rd	13/11/2017 21:37	3	D	37	Yes	NM	Nil
Inlet Rd West	13/11/2017 21:10	2.6	E	35	Yes	<25	Nil
Long Point	13/11/2017 21:28	3	D	35	Yes	IA	Nil
South Bulga	14/11/2017 0:53	2.5	D	35	Yes	<25	Nil
Wambo Road	13/11/2017 22:30	2.3	F	38	No	29	NA

Notes:
1. Noise emission limits apply during all meteorological conditions except the following: during periods of rain or hail; average wind speed at microphone height exceeds 5 m/s; wind speeds greater than 3 m/s measured at 10 metres above ground level; stability category F temperature inversion conditions and wind speeds greater than 2m/s at 10m above ground level; or stability category G temperature inversion conditions;
2. Estimated or measured LAeq,15minute attributed to WML;
3. NA means atmospheric conditions outside conditions specified in development consent and so criterion is not applicable;
4. Bolded results in red are possible exceedances of relevant criteria; and
5. Criterion may or may not apply due to rounding of meteorological data values.
6. Revised LAeq, 15minute level following application of low frequency noise penalty as per the INP where applicable.

Table 4: $L_{A1,\ 1\ minute}$ Warkworth - Impact Assessment Criteria – November 2017

Location	Date and Time	Wind Speed (m/s)[5]	Stability Class	Criterion dB(A)	Criterion Applies?[1,5]	WML $L_{A1,\ 1min}$ dB[2,4]	Exceedance[3]
Bulga RFS	13/11/2017 23:27	2.6	E	47	Yes	IA	Nil
Bulga Village	13/11/2017 22:01	2.8	E	48	Yes	IA	Nil
Gouldsville	13/11/2017 21:00	2.4	F	48	No	30	NA
Inlet Rd	13/11/2017 21:37	3	D	47	Yes	NM	Nil
Inlet Rd West	13/11/2017 21:10	2.6	E	45	Yes	<25	Nil
Long Point	13/11/2017 21:28	3	D	45	Yes	IA	Nil
South Bulga	14/11/2017 0:53	2.5	D	45	Yes	<25	Nil
Wambo Road	13/11/2017 22:30	2.3	F	48	No	39	NA

Notes
1. Noise emission limits apply during all meteorological conditions except the following: during periods of rain or hail; average wind speed at microphone height exceeds 5 m/s; wind speeds greater than 3 m/s measured at 10 metres above ground level; stability category F temperature inversion conditions and wind speeds greater than 2m/s at 10m above ground level; or stability category G temperature inversion conditions;
2. Estimated or measured LA1,1minute attributed to Warkworth mine (WML);
3. NA in exceedance column means atmospheric conditions outside conditions specified in project approval and so criterion is not applicable. NA (not applicable) in criterion column means criterion not specified for this location;
4. Bolded results in red are possible exceedances of relevant criteria; and
5. Criterion may or may not apply due to rounding of meteorological data values.

5.1.3 MTO Noise Assessment

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

Table 5: $L_{Aeq,\ 15minute}$ Mount Thorley - Impact Assessment Criteria – November 2017

Location	Date and Time	Wind Speed (m/s)[5]	Stability Class	Criterion dB	Criterion Applies?[1,5]	MTO L_{Aeq} dB[2,4]	Exceedance[3]
Bulga RFS	13/11/2017 23:27	2.6	E	37	Yes	28	Nil
Bulga Village	13/11/2017 22:01	2.8	E	38	Yes	30	Nil
Gouldsville	13/11/2017 21:00	2.4	F	35	No	IA	NA
Inlet Rd	13/11/2017 21:37	3	D	37	Yes	32	Nil
Inlet Rd West	13/11/2017 21:10	0.5	E	35	Yes	26	Nil
Long Point	13/11/2017 21:28	3	D	35	Yes	IA	Nil
South Bulga	14/11/2017 0:53	2.5	D	36	Yes	<25	Nil
Wambo Road	13/11/2017 22:30	2.3	F	38	No	27	NA

Notes:
1. Noise emission limits apply during all meteorological conditions except the following: during periods of rain or hail; average wind speed at microphone height exceeds 5 m/s; wind speeds greater than 3 m/s measured at 10 metres above ground level; stability category F temperature inversion conditions and wind speeds greater than 2m/s at 10m above ground level; or stability category G temperature inversion conditions;
2. Estimated or measured LAeq,15minute attributed to WML;
3. NA means atmospheric conditions outside conditions specified in development consent and so criterion is not applicable;
4. Bolded results in red are possible exceedances of relevant criteria; and
5. Criterion may or may not apply due to rounding of meteorological data values.
6. Revised LAeq, 15minute level following application of low frequency noise penalty as per the INP where applicable.

Table 6: $L_{A1,\ 1Minute}$ Mount Thorley - Impact Assessment Criteria – November 2017

Location	Date and Time	Wind Speed (m/s)[5]	Stability Class	Criterion dB	Criterion Applies?[1,5]	MTO $L_{A1,\ 1min}$ dB[2,4]	Exceedance[3]
Bulga RFS	13/11/2017 23:27	2.6	E	47	Yes	35	Nil
Bulga Village	13/11/2017 22:01	2.8	E	48	Yes	34	Nil
Gouldsville	13/11/2017 21:00	2.4	F	45	No	IA	NA
Inlet Rd	13/11/2017 21:37	3	D	47	Yes	33	Nil
Inlet Rd West	13/11/2017 21:10	2.6	E	45	Yes	31	Nil
Long Point	13/11/2017 21:28	3	D	45	Yes	IA	Nil
South Bulga	14/11/2017 0:53	2.5	D	46	Yes	<25	Nil
Wambo Road	13/11/2017 22:30	2.3	F	48	No	29	NA

Notes
1. Noise emission limits apply during all meteorological conditions except the following: during periods of rain or hail; average wind speed at microphone height exceeds 5 m/s; wind speeds greater than 3 m/s measured at 10 metres above ground level; stability category F temperature inversion conditions and wind speeds greater than 2m/s at 10m above ground level; or stability category G temperature inversion conditions;
2. Estimated or measured LA1,1minute attributed to Mt Thorley Operations (MTO);
3. NA in exceedance column means atmospheric conditions outside conditions specified in project approval and so criterion is not applicable. NA (not applicable) in criterion column means criterion not specified for this location;
4. Bolded results in red are possible exceedances of relevant criteria; and
5. Criterion may or may not apply due to rounding of meteorological data values.

5.1.4 NPfI Low Frequency Assessment

In accordance with the requirements of the EPA's Noise Policy for Industry (NPfI), the applicability of the low frequency modification penalty has been assessed. During November 2017 no measurements required the penalty to be applied. The assessment for low frequency noise is shown in Table 7.

Table 7: Low Frequency Noise Modifying Factor Assessment – November 2017

Location	Date and Time	Measured Site Only LA_{eq} dB (WML/MTO)	Site Only L_{Ceq} dB[4] (WML/MTO)	Site Only LCeq – LAeq dB[1,4] (WML/MTO)	Result Max exceedance of ref spectrum dB (WML/MTO) [2,3,4]	Penalty dB(A)	Exceedance
Bulga RFS	13/11/2017 23:27	IA/28	NA	NA	NA	0	Nil
Bulga Village	13/11/2017 22:01	IA/30	NA/55	NA/25	NA/Nil	0	Nil
Gouldsville	13/11/2017 21:00	<30/IA	NA	NA	NA	0	Nil
Inlet Rd	13/11/2017 21:37	NM/32	NA/55	NA/23	NA/Nil	0	Nil
Inlet Rd West	13/11/2017 21:10	<25/26	NA/52	NA/24	NA/Nil	0	Nil
Long Point	13/11/2017 21:28	IA/IA	NA	NA	NA	0	Nil
South Bulga	14/11/2017 0:53	<25/<25	NA	NA	NA	0	Nil
Wambo Road	13/11/2017 22:30	29/27	51/49	22/22	Nil/Nil	0	Nil

Notes:
1. As per NPfI, if LCeq – LAeq >= 15 dB further assessment of low frequency noise required.
2. As per NPfI, compare measured spectrum against reference spectrum to determine if the low frequency modifying factor is triggered and application of penalty is required;
3. Bold results and penalties in red are where the relevant modifying factor trigger was exceeded; and
4. Where it is not possible to determine the site only result due to the presence of other low frequency noise sources occurring during the measurement, or where criteria were not applicable due to meteorological conditions, this is noted as NA (not available) and no further assessment has been undertaken.

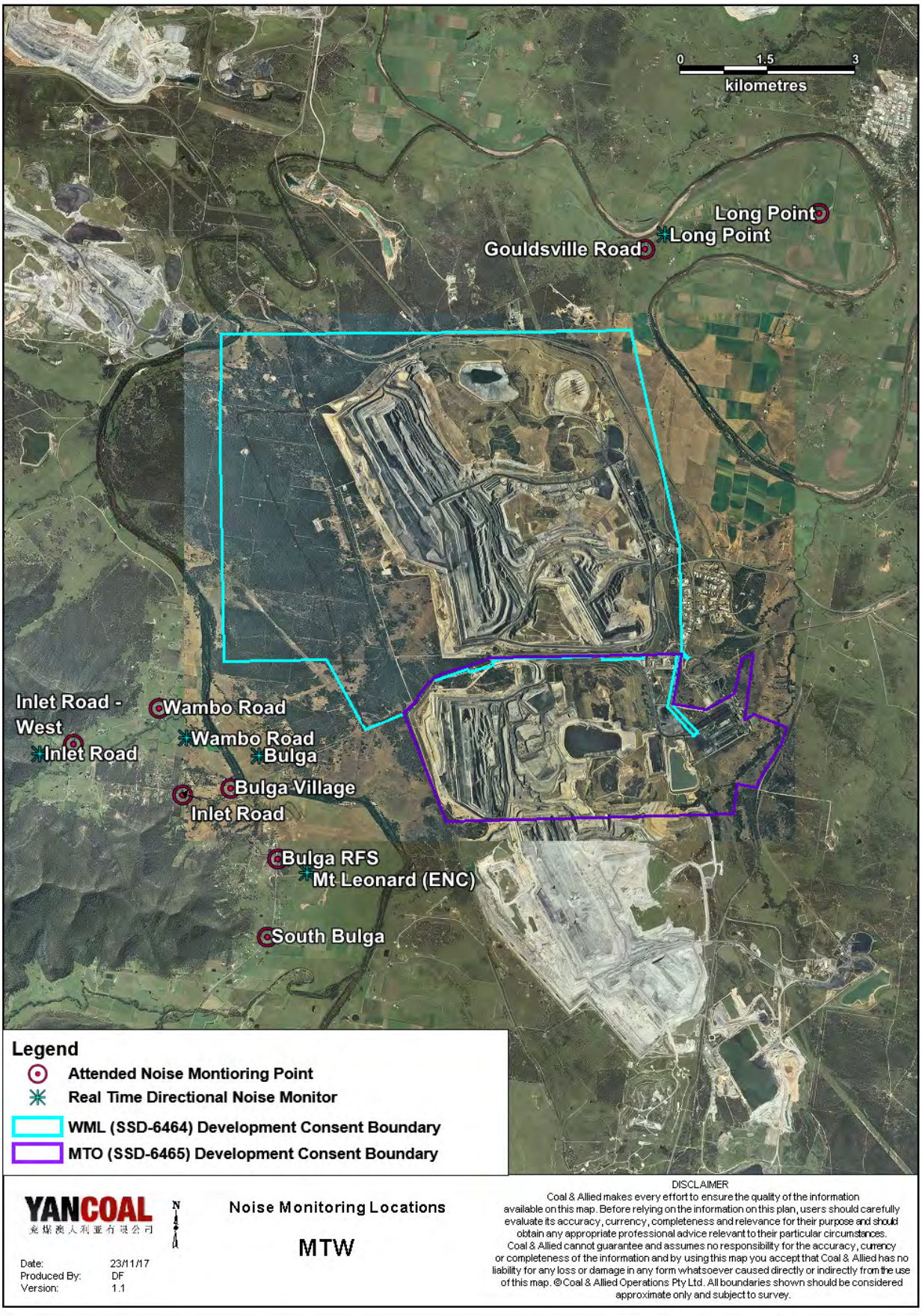


Figure 16: Noise Monitoring Location Plan

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:

- 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 November are provided in Table 8.

Table 8: Supplementary Attended Noise Monitoring Data – November 2017

No. of assessments	No. of assessments > trigger	No. of nights where assessments > trigger	% greater than trigger
516	0	0	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 November, a total of 617 hours of equipment downtime was logged in response to environmental events such as dust, noise and adverse meteorological conditions. Operational downtime by equipment type is shown in Figure 17.

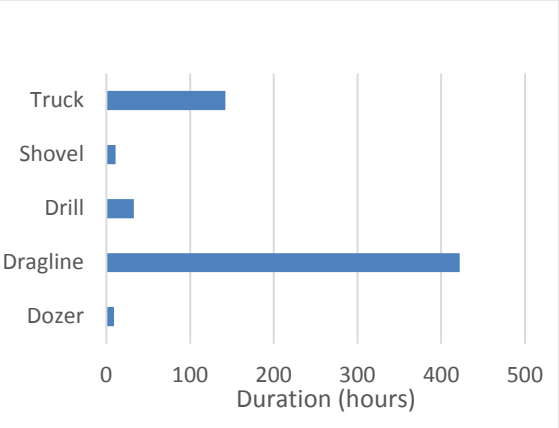


Figure 17: Operational Downtime by Equipment Type – November 2017

7.0 REHABILITATION

During November, 14.8 Ha of land was released, 18.6 Ha of land was bulk shaped, 15.5 Ha of land was topsoiled, 22.6 Ha of land was composted and 55.7 Ha of land was rehabilitated.

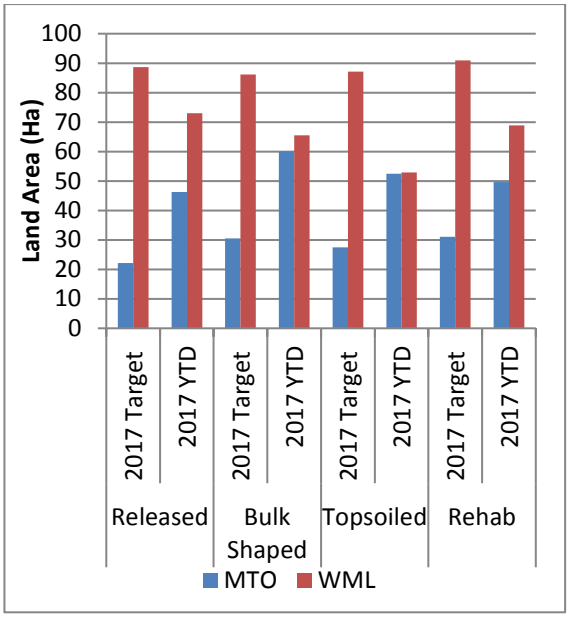


Figure 18: Rehabilitation YTD - November 2017

8.0 ENVIRONMENTAL INCIDENTS

During the reporting period there were no reportable environmental incidents.

9.0 COMPLAINTS

During the reporting period 25 complaints were received. Details of these complaints are shown in Figure 19 below.

	Noise	Dust	Blast	Lighting	Other	Total
January	5	6	3	1	0	15
February	25	3	10	3	0	41
March	14	1	1	2	0	18
April	27	1	7	2	0	37
May	18	4	7	10	3	42
June	10	3	4	3	0	20
July	10	10	8	0	2	30
August	8	18	5	4	1	36
September	21	15	6	2	3	47
October	21	8	6	2	2	39
November	12	5	5	2	1	25
December	-	-	-	-	-	-
Total	171	74	62	31	12	350

Figure 19: Complaints Summary – YTD November 2017

Appendix A: Meteorological Data

Table 9: Meteorological Data – Charlton Ridge Meteorological Station – November 2017

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)
1/11/2017	24.6	10.6	70.0	20.1	1364	167.3	2.3	0.0
2/11/2017	25.9	9.6	78.7	25.4	1099	156.8	2.5	0.0
3/11/2017	31.5	12.0	85.7	13.5	1119	244.3	3.0	0.6
4/11/2017	20.0	12.2	94.6	66.4	1162	152.4	2.5	7.8
5/11/2017	16.5	11.6	98.0	74.2	358	141.6	3.1	6.4
6/11/2017	27.7	13.0	96.1	36.1	1361	215.1	3.3	6.8
7/11/2017	22.9	9.9	87.9	33.6	1415	156.3	2.5	0.0
8/11/2017	20.0	10.6	94.1	47.2	1600	130.0	2.4	2.4
9/11/2017	22.9	8.6	91.4	37.7	1437	139.1	2.7	0.0
10/11/2017	24.6	9.3	87.9	33.6	1311	134.6	2.9	0.0
11/11/2017	24.7	10.6	88.1	33.2	1413	132.3	2.9	0.0
12/11/2017	25.2	10.4	88.0	31.5	1345	138.6	3.0	0.0
13/11/2017	24.5	13.1	79.4	36.5	1489	140.6	2.9	0.0
14/11/2017	25.4	10.6	84.1	35.6	1383	137.7	2.7	0.0
15/11/2017	28.5	12.2	86.2	24.5	1117	142.6	2.6	0.0
16/11/2017	24.8	13.0	87.3	41.6	1196	174.1	1.9	0.0
17/11/2017	27.9	14.2	91.6	43.4	1435	124.1	2.7	0.0
18/11/2017	24.4	15.2	78.9	38.8	941	107.0	2.6	0.0
19/11/2017	24.7	14.2	87.1	37.6	1063	128.7	3.3	0.0
20/11/2017	26.6	12.2	89.2	33.3	1430	135.5	3.3	0.0
21/11/2017	26.5	13.6	84.4	27.5	1249	133.6	3.2	0.0
22/11/2017	26.3	14.6	82.2	35.4	1446	123.6	2.9	0.0
23/11/2017	29.2	13.4	88.0	27.1	1217	140.6	2.0	0.0
24/11/2017	32.9	17.2	77.8	20.4	1063	151.6	2.9	0.0
25/11/2017	31.3	13.8	87.2	19.0	1118	143.0	3.3	0.0
26/11/2017	32.5	16.8	84.1	22.3	1157	126.5	2.9	0.0
27/11/2017	26.0	17.6	87.4	55.0	864	157.1	2.2	0.0
28/11/2017	30.7	15.9	92.5	36.6	1314	141.2	2.9	0.0
29/11/2017	30.0	17.7	86.6	40.9	1364	137.5	3.1	0.0
30/11/2017	32.3	18.2	88.2	30.5	1323	130.8	2.5	0.0

"-" Indicates that data was not available due to technical issues.

Appendix C

Environmental Monitoring
December 2017

Monthly Environmental Monitoring Report

Yancoal Mt Thorley Warkworth

December 2017

CONTENTS

Figures

Tables

Revision History

Version No.	Person Responsible	Document Status	Date
1.0	**Environmental Advisor**	**Draft**	**05/02/2018**
1.1	**Environmental Specialist**	**Final**	**7/02/2018**

1.0 INTRODUCTION

This report has been compiled to provide a monthly summary of environmental monitoring results for Mt Thorley Warkworth (MTW). This report includes all monitoring data collected for the period 1 December to 31 December 2017.

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 **Error! Reference source not found.**.

Table 1: Monthly Rainfall MTW

2017	Monthly Rainfall (mm)	Cumulative Rainfall (mm)
December	42.6	444.4

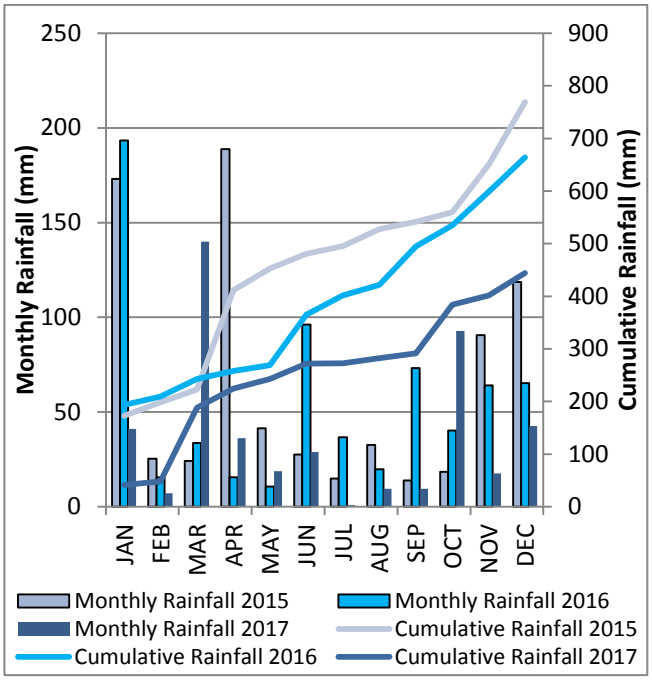


Figure 1: Rainfall Trends YTD

2.1.2 Wind Speed and Direction

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

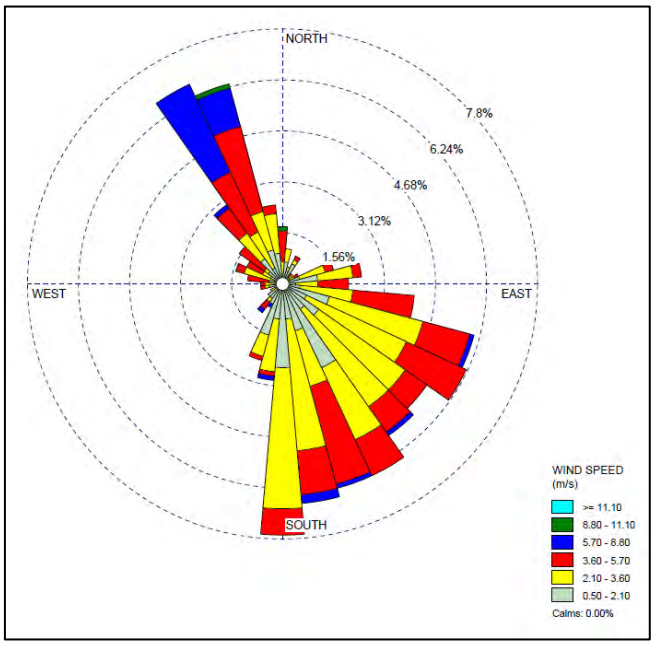


Figure 2: Charlton Ridge Wind Rose – December 2017

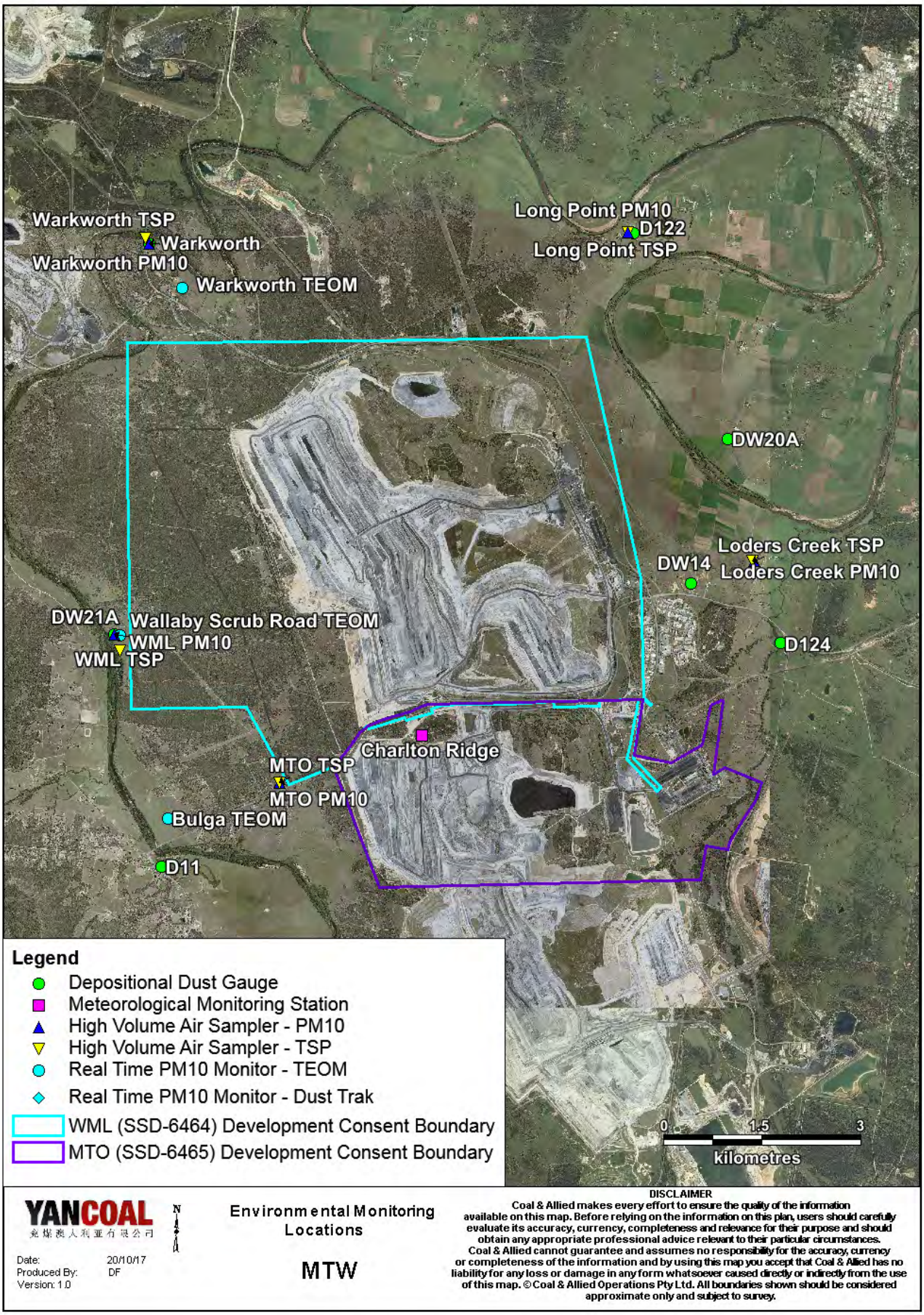


Figure 3: Air Quality Monitoring Locations

2.2 Depositional Dust

To monitor regional air quality, MTW operates and maintains a network of seven 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 DW20a, DW21a, D122 and Warkworth monitors recorded monthly results above the long term impact assessment criteria of 4.0 g/m^2 per month. Field notes associated with monitor D122 results confirm the presence of bird droppings and/or insects. As such the results are considered contaminated and will be excluded from calculation of the annual average.

There is no evidence to suggest that the DW20a, DW21a and Warkworth results are contaminated. Accordingly, the results will be included in the annual average calculation.

An annual assessment of MTW's compliance with the Long Term Impact Assessment Criteria will be provided in the 2017 Annual Review.

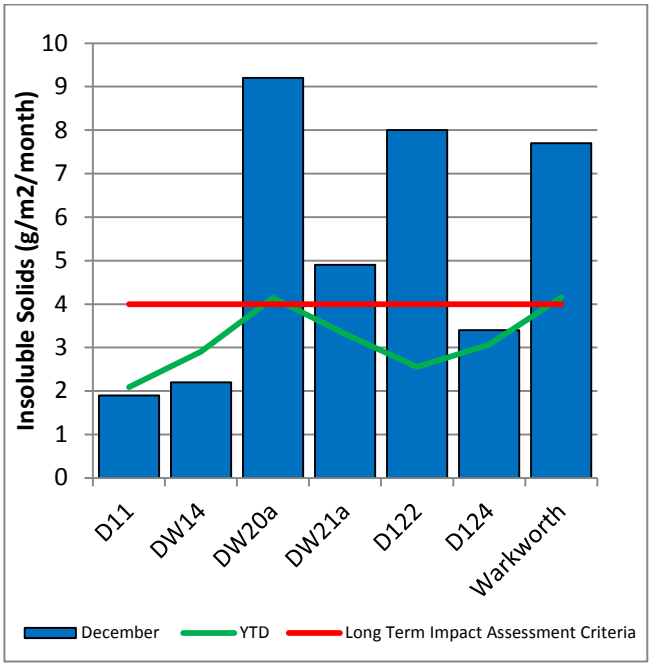


Figure 4: Depositional Dust – December 2017

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.

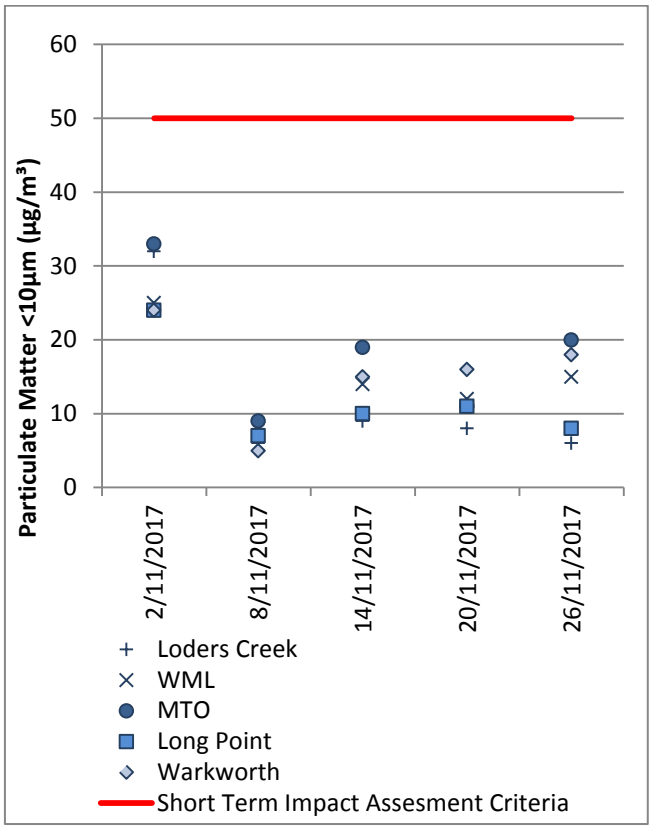


Figure 5: Individual PM_{10} Results – December 2017

Figure 6 shows the annual average PM_{10} results against the long term impact assessment criteria. An annual assessment of MTW's compliance with the Long Term Impact Assessment Criteria will be provided in the 2017 Annual Review.

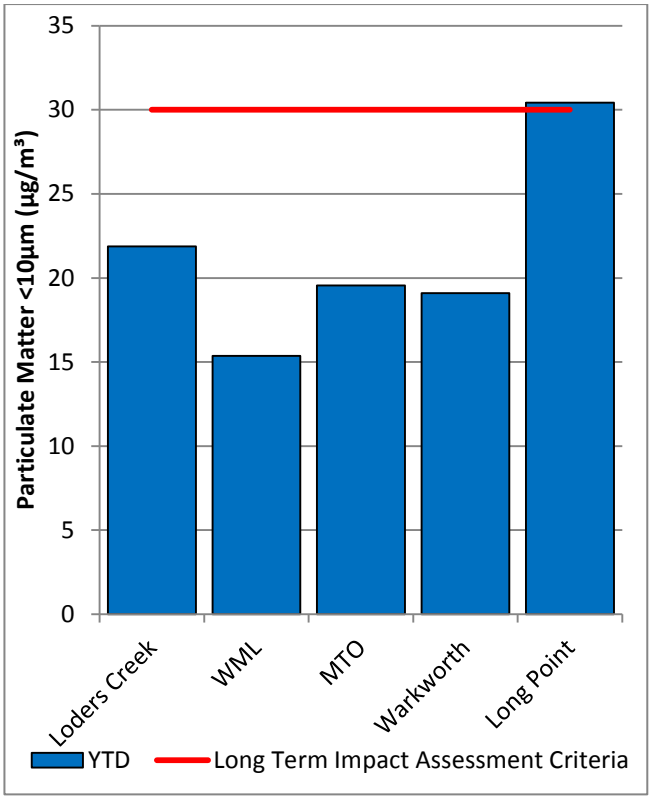


Figure 6: Annual Average PM_{10} –December 2017

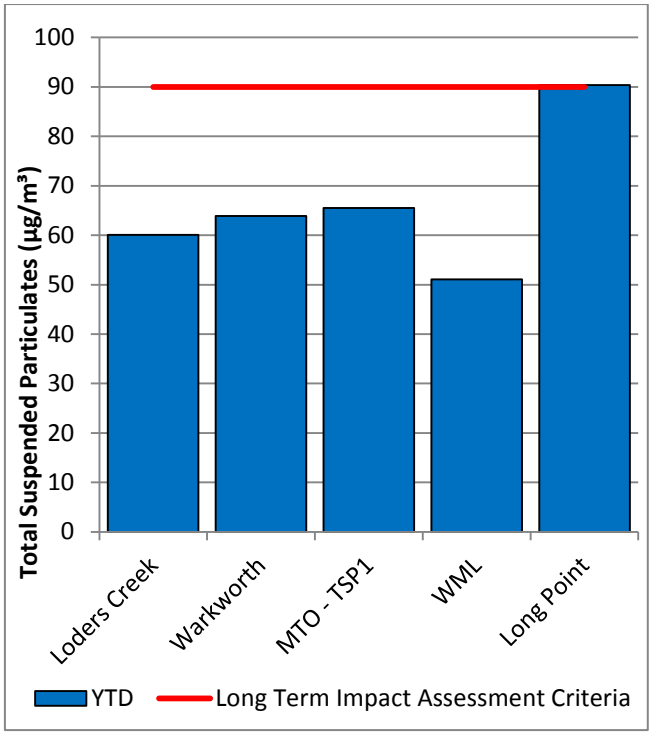


Figure 7: Annual Average Total Suspended Particulates – December 2017

2.3.2 TSP Results

Figure 7 shows the annual average TSP results compared against the long term impact assessment criteria of 90µg/m³. An annual assessment of MTW's compliance with the Long Term Impact Assessment Criteria will be provided in the 2017 Annual Review.

2.3.3 Real Time PM_{10} Results

Mt 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 year to date annual average PM_{10} result.

Ten 24 hour average PM_{10} results recorded at the Bulga TEOM which exceeded the short term (24hr) criteria during December 2017. An internal investigation determined that these elevated results had been heavily influenced by a local source to the monitor. As such data from the nearby Bulga OEH Air Quality Monitor has been used as representative data points for these days (15-19 December, 23-24 December and 28-30 December inclusive).

2.3.4 Real Time Alarms for Air Quality

During December, the real time monitoring system generated 118 automated air quality related alerts, including 11 alerts for adverse meteorological conditions and 107 alerts for elevated PM_{10} levels.

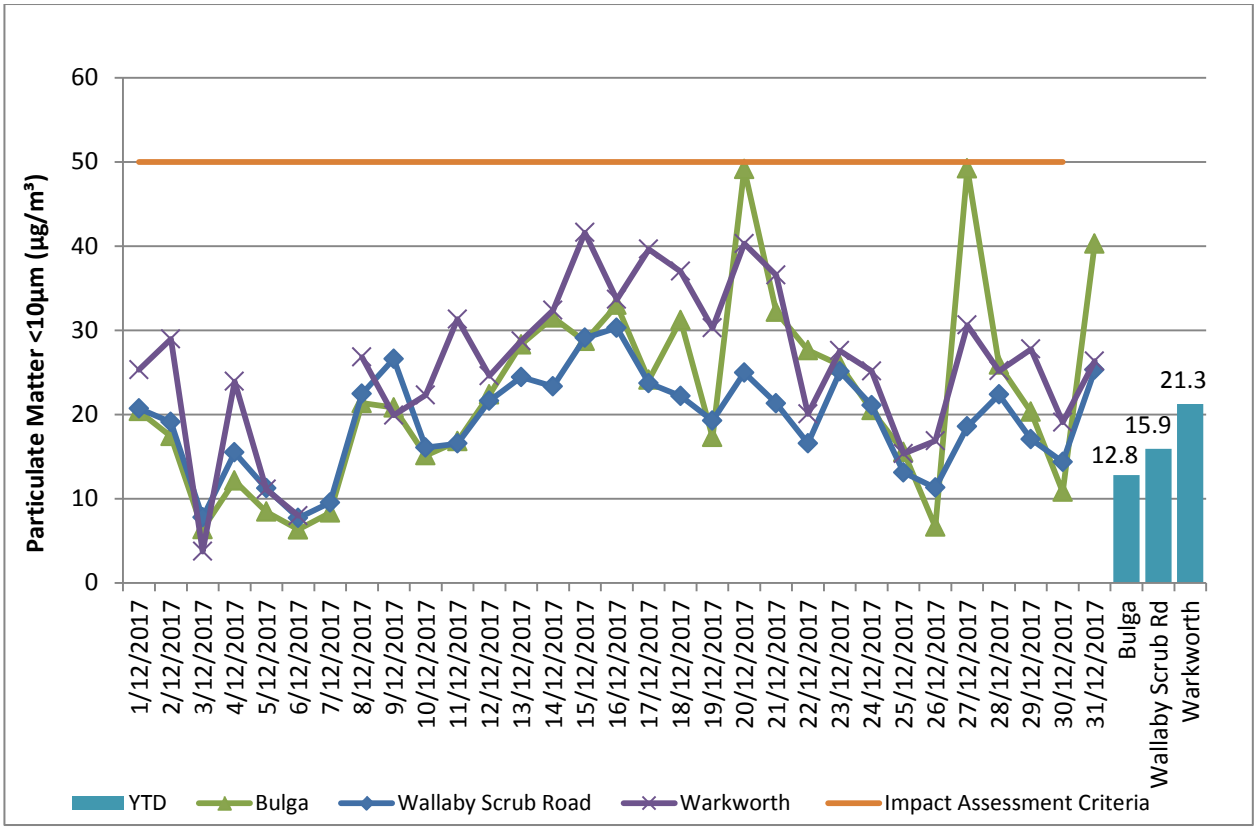


Figure 8: Real Time PM_{10} 24hr average and Year-to-date average – December 2017

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. 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 (2014 – current) within MTW mine dams. Figure 12 to Figure 14 show the long term surface water trend (2014 - current) in surrounding watercourses.

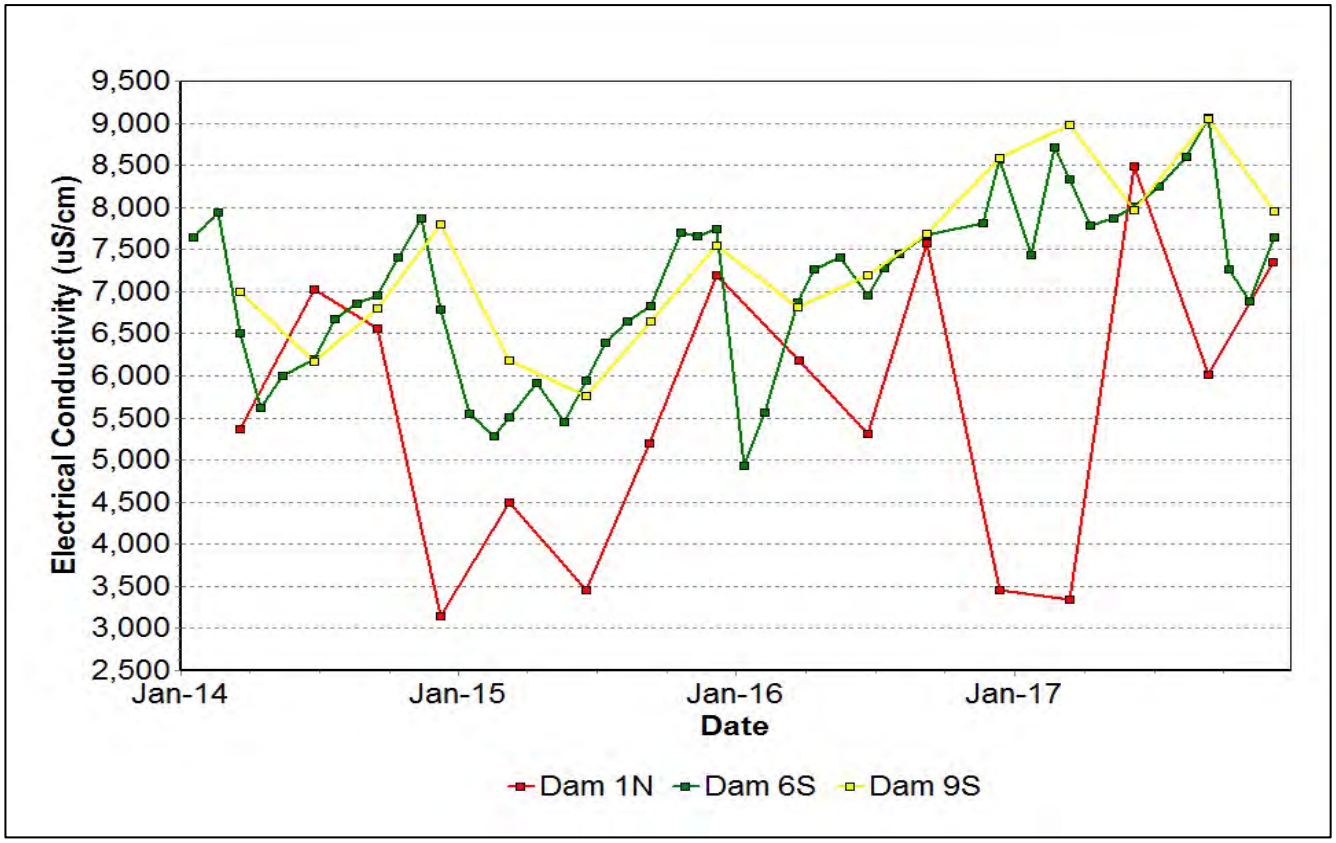


Figure 9: Site Dams Electrical Conductivity Trend – December 2017

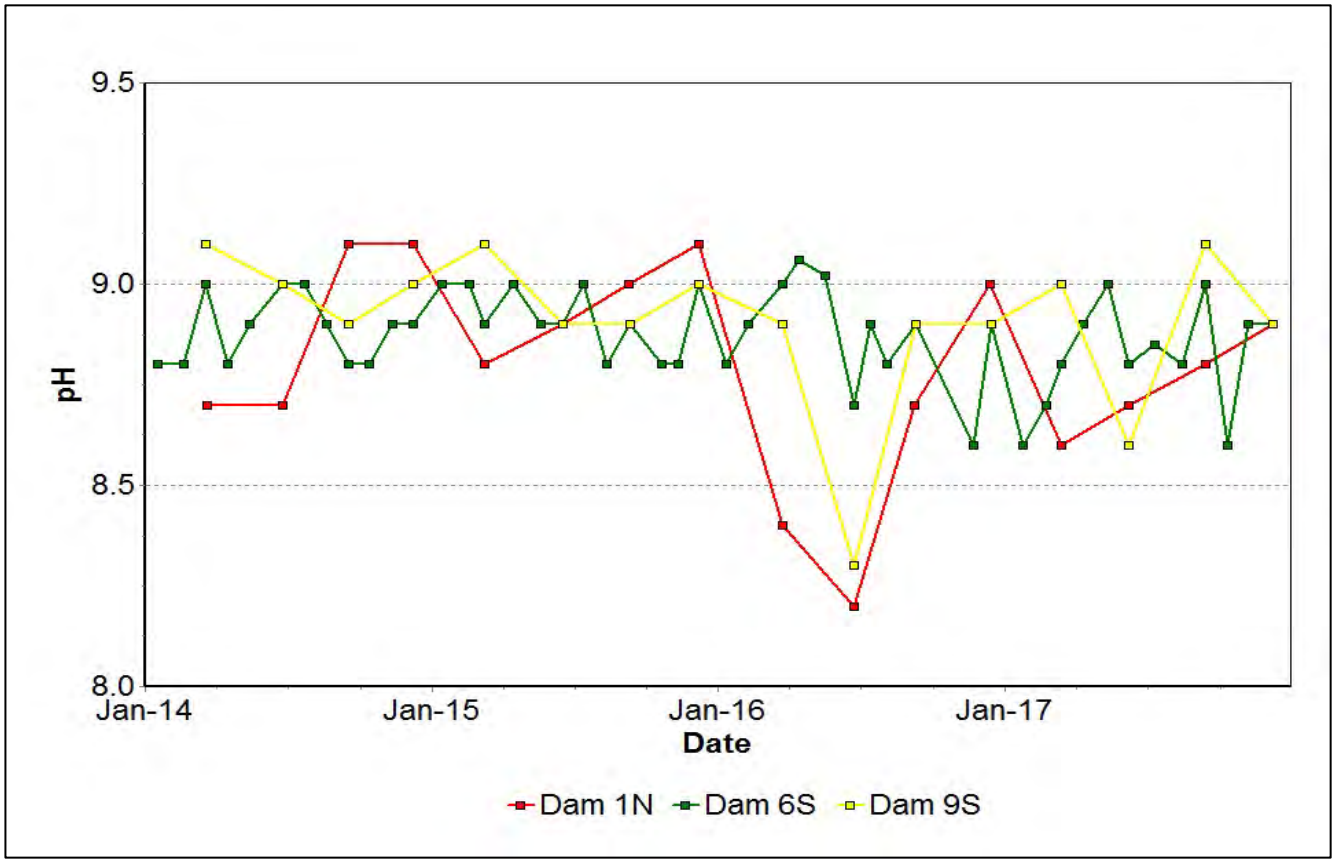


Figure 10: Site Dams pH Trend – December 2017

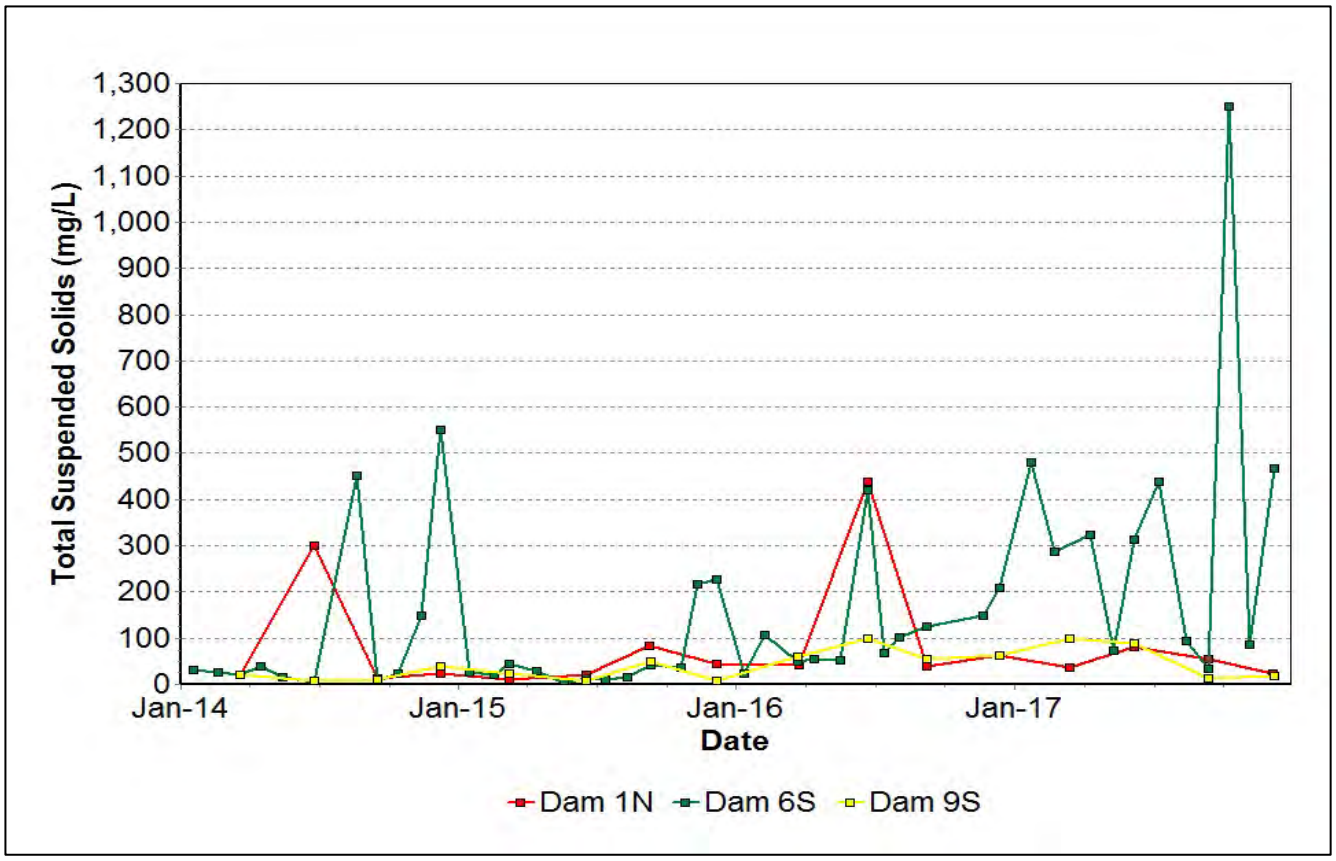


Figure 11: Site Dams Total Suspended Solids Trend – December 2017

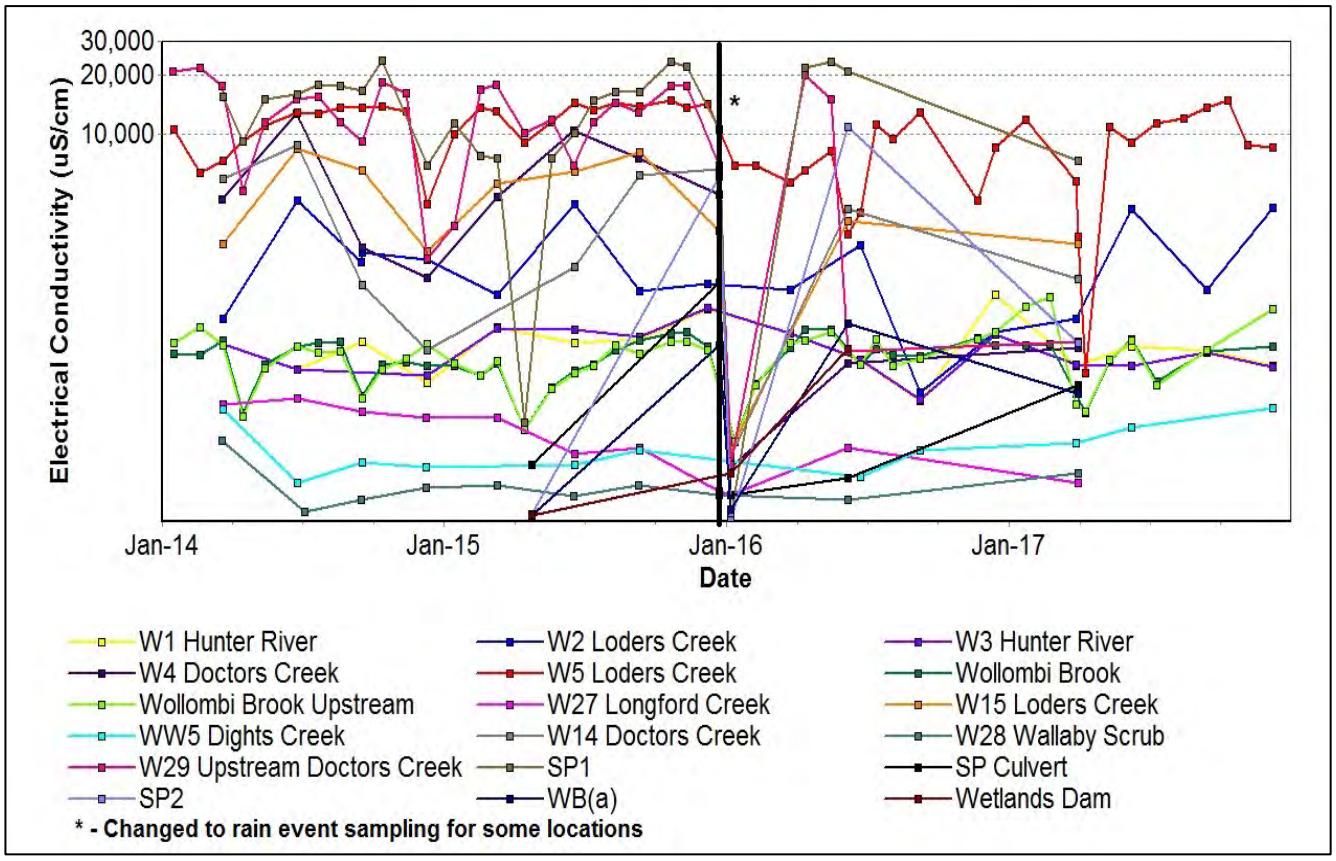


Figure 12: Watercourse Electrical Conductivity Trend – December 2017

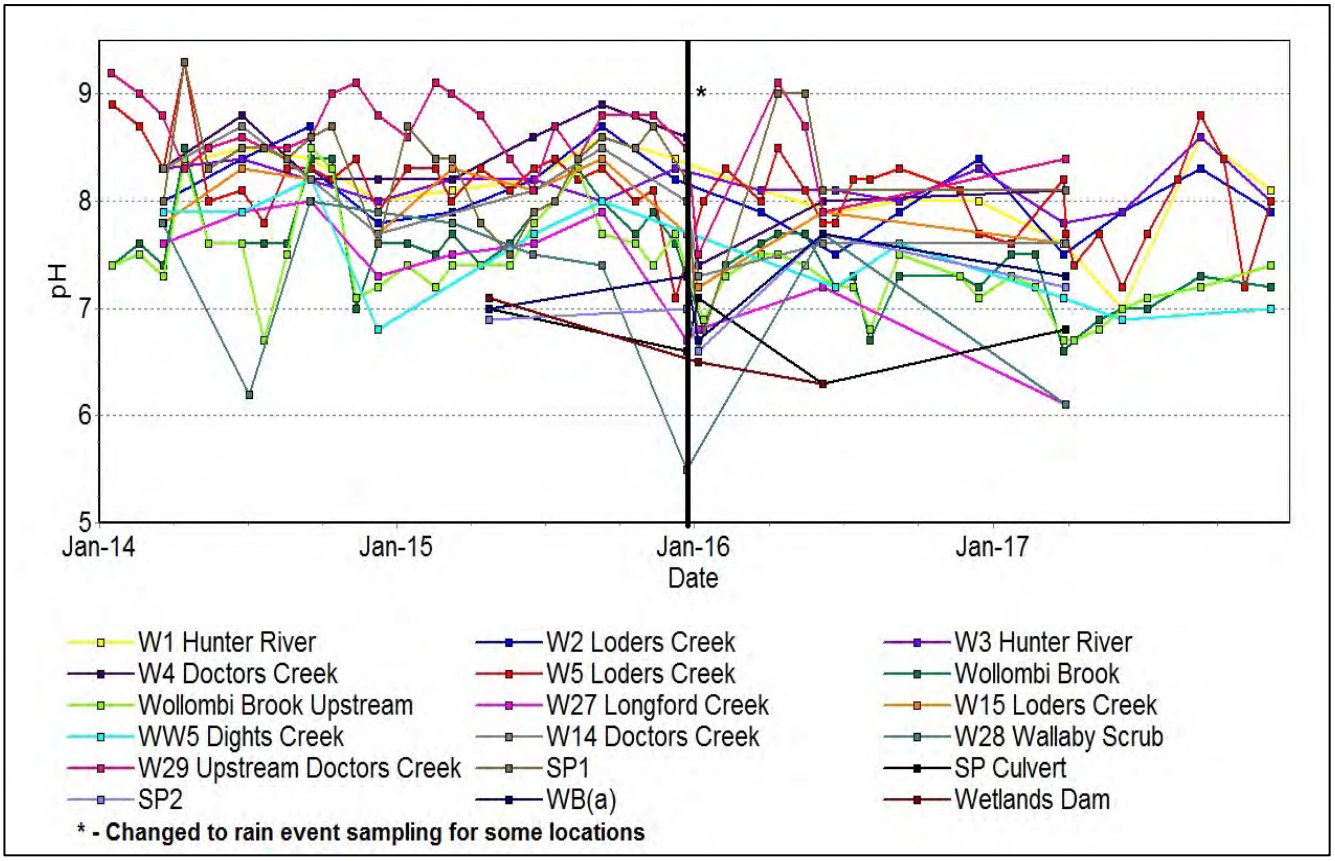


Figure 13: Watercourse pH Trend – December 2017

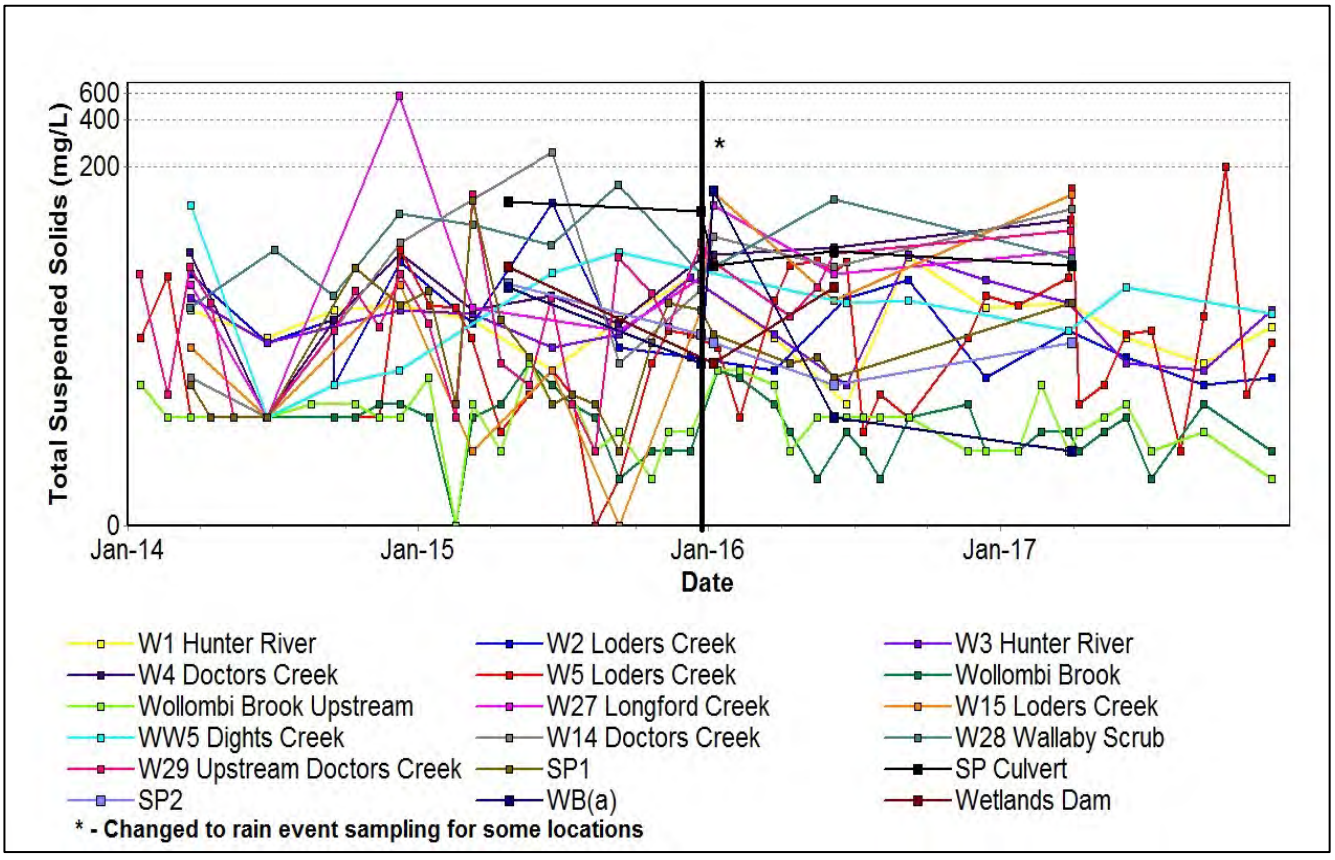


Figure 14: Watercourse Total Suspended Solids Trend – December 2017

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.

Current internal surface water trigger limit breaches are summarised in Table 2.

Table 2: Surface Water Trigger Tracking – December YTD 2017

Site	Date	Trigger Limit Breached	Action Taken in Response
W5	15/08/2017	EC –95th Percentile	Watching Brief*
W5	13/09/2017	EC –95th Percentile	Watching Brief*
W5	11/10/2017	EC –95th Percentile	Dry weather conditions and lack of surface flow in preceding months likely to have resulted in elevated EC reading, unlikely to be anthropogenic impact. Watching Brief to continue*
W1	28/03/2017	pH –5th Percentile	Watching Brief*
W1	08/06/2017	pH –5th Percentile	Watching Brief*
W1	13/09/2017	pH –95th Percentile	Natural Variability, watching brief.
W2	28/03/2017	pH –5th Percentile	Watching Brief*
W3	13/09/2017	pH –95th Percentile	Watching Brief*
W4	31/03/2017	pH –5th Percentile	Watching Brief*
W5	06/11/2017	pH –5th Percentile	Watching Brief*
W15	31/03/2017	pH –5th Percentile	Watching Brief*
W27	31/03/2017	pH –5th Percentile	Watching Brief*
W28	31/03/2017	pH –5th Percentile	Watching Brief*

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

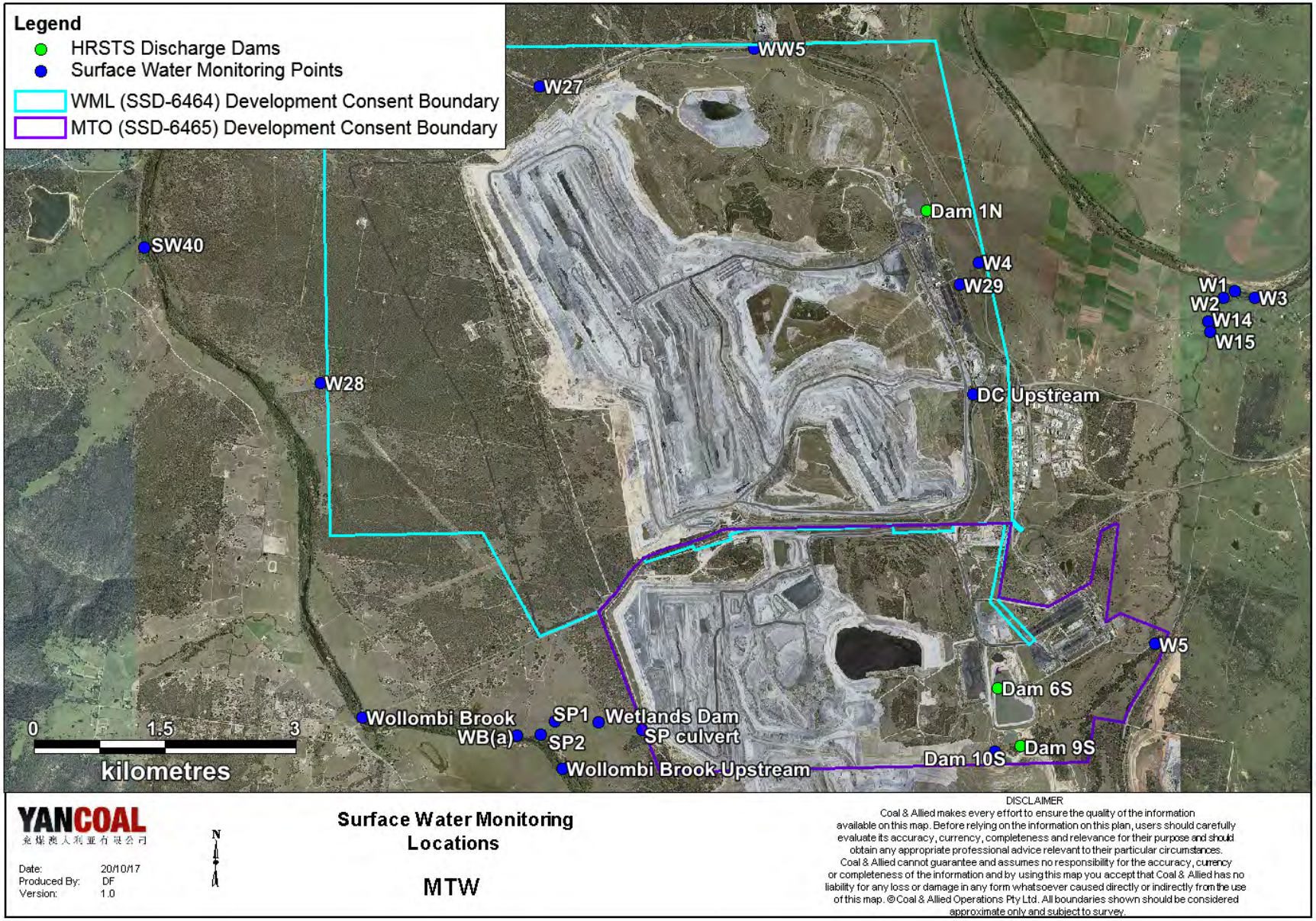


Figure 15: Surface Water Monitoring Location Plan

3.2 Groundwater Monitoring

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

Figure 16 to Figure 58 show the long term water quality trends (2014 – current) for groundwater bores monitored at MTW.

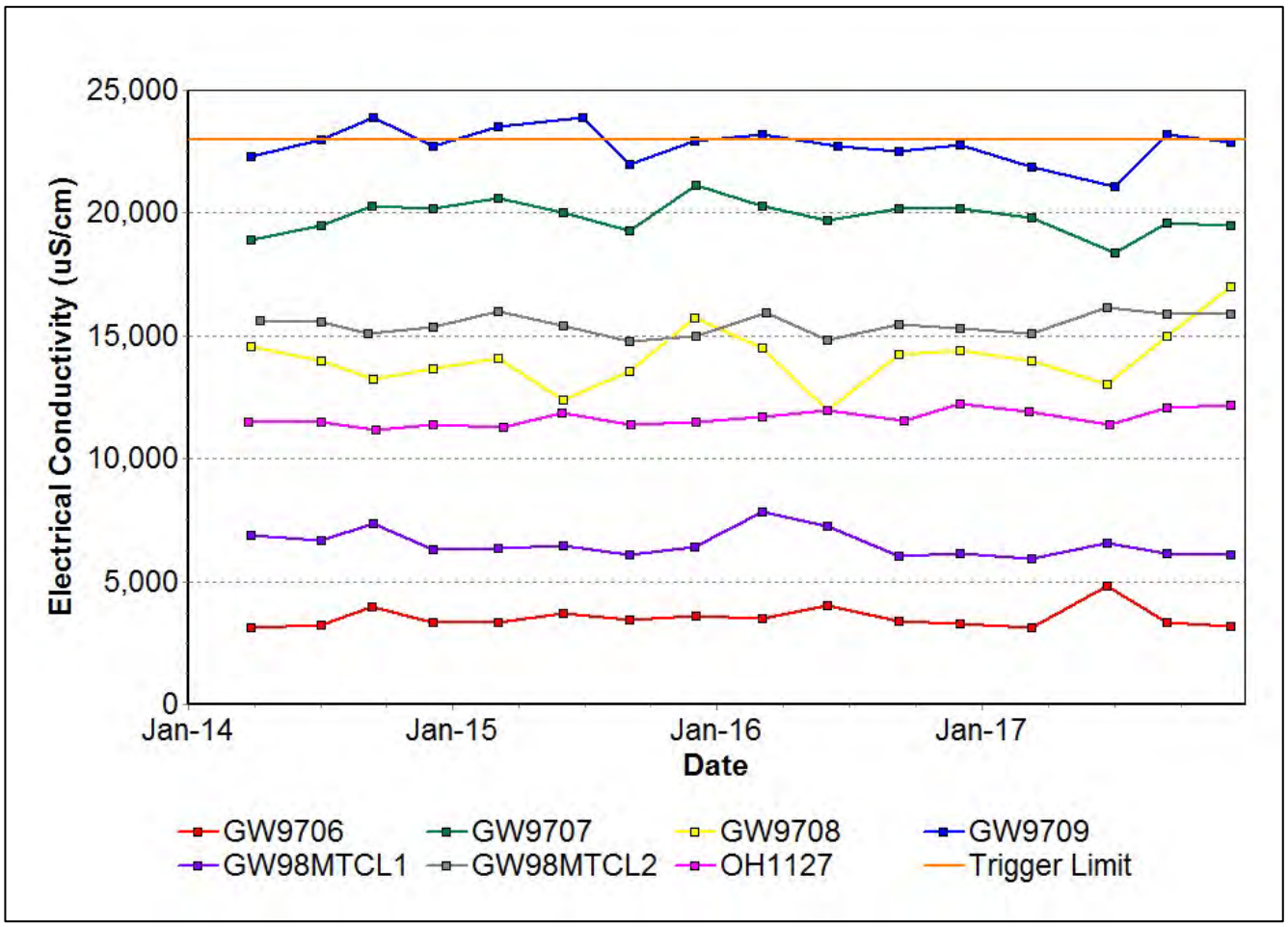


Figure 16: Bayswater Seam Electrical Conductivity Trend – December 2017

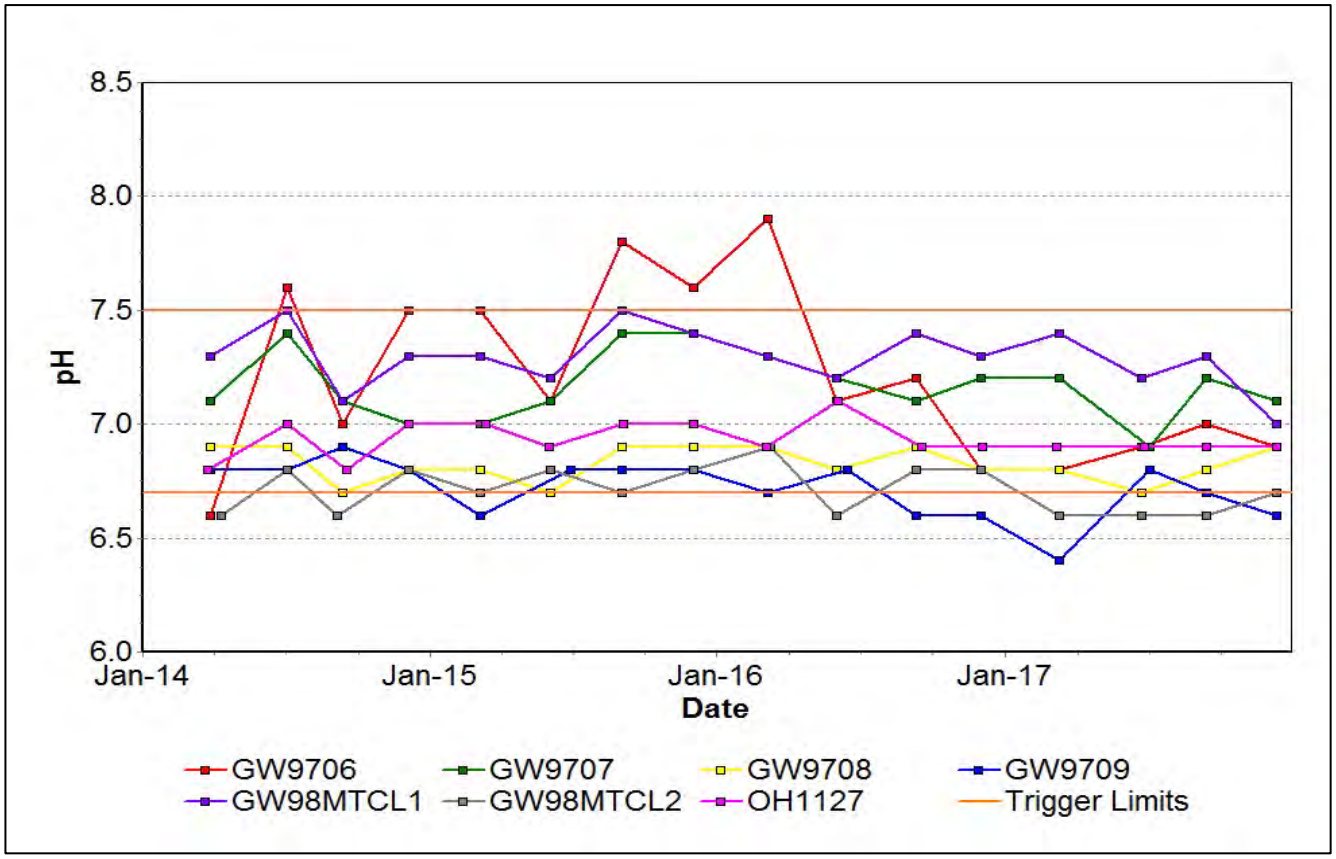


Figure 17: Bayswater Seam pH Trend – December 2017

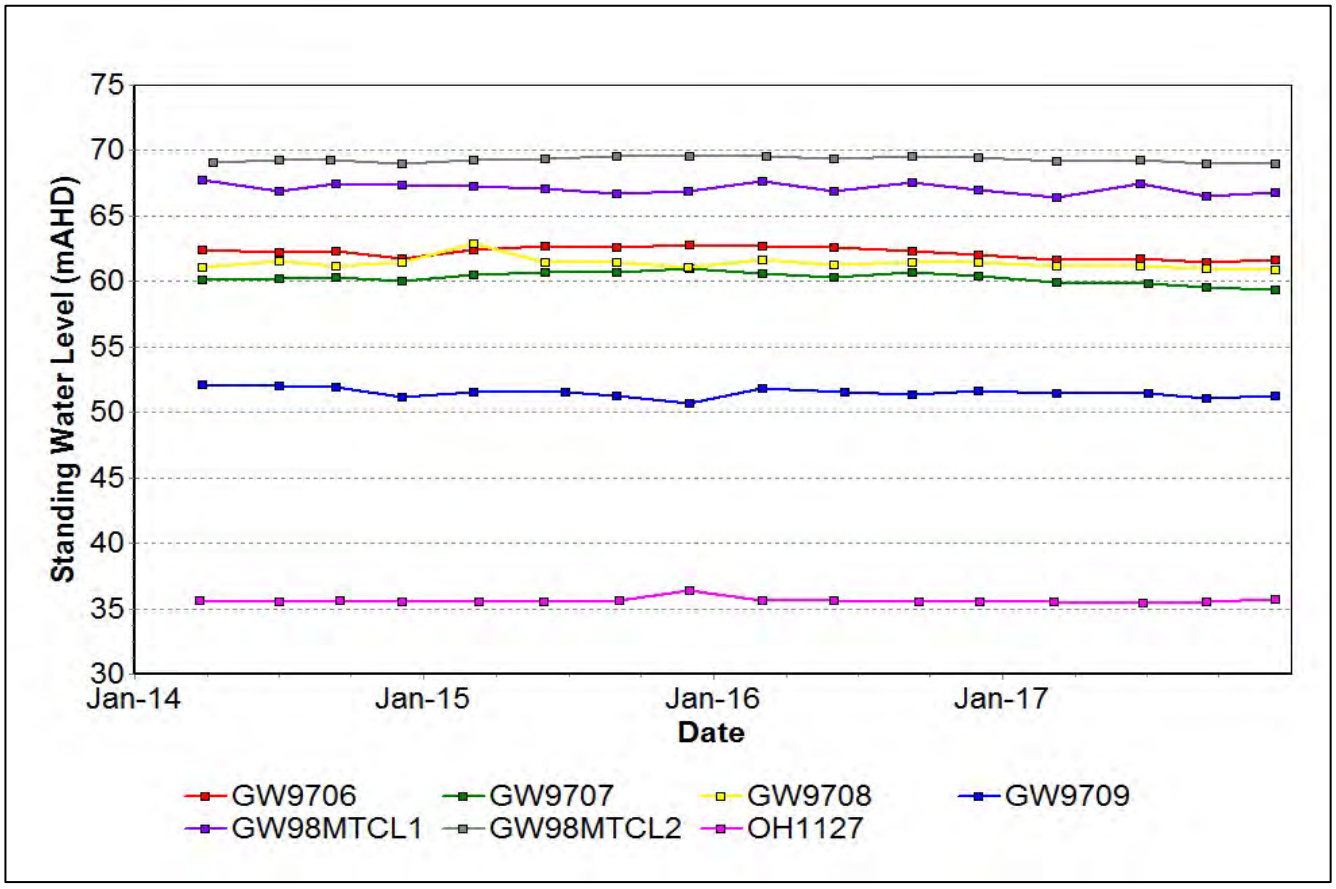


Figure 18: Bayswater Seam Standing Water Level Trend – December 2017

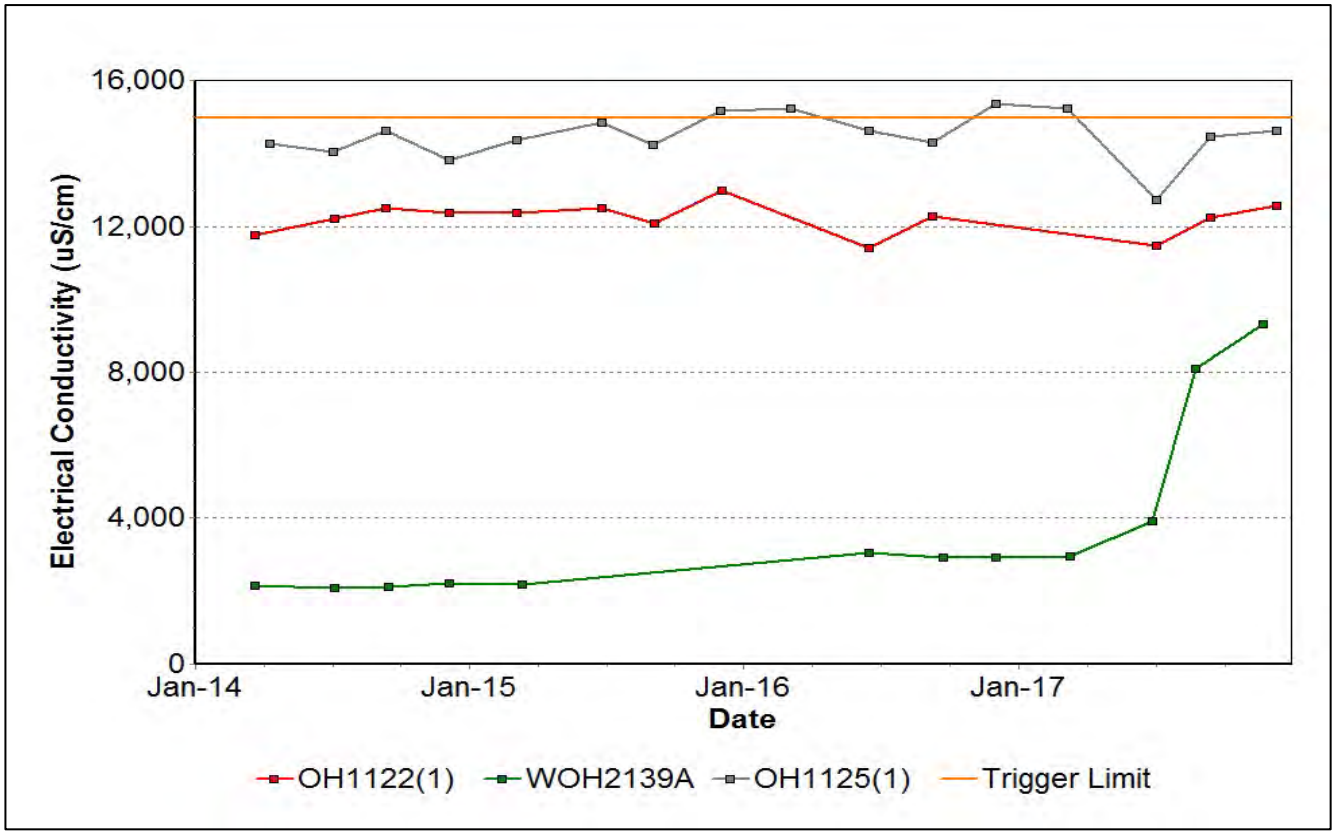


Figure 19: Blakefield Seam Electrical Conductivity Trend – December 2017

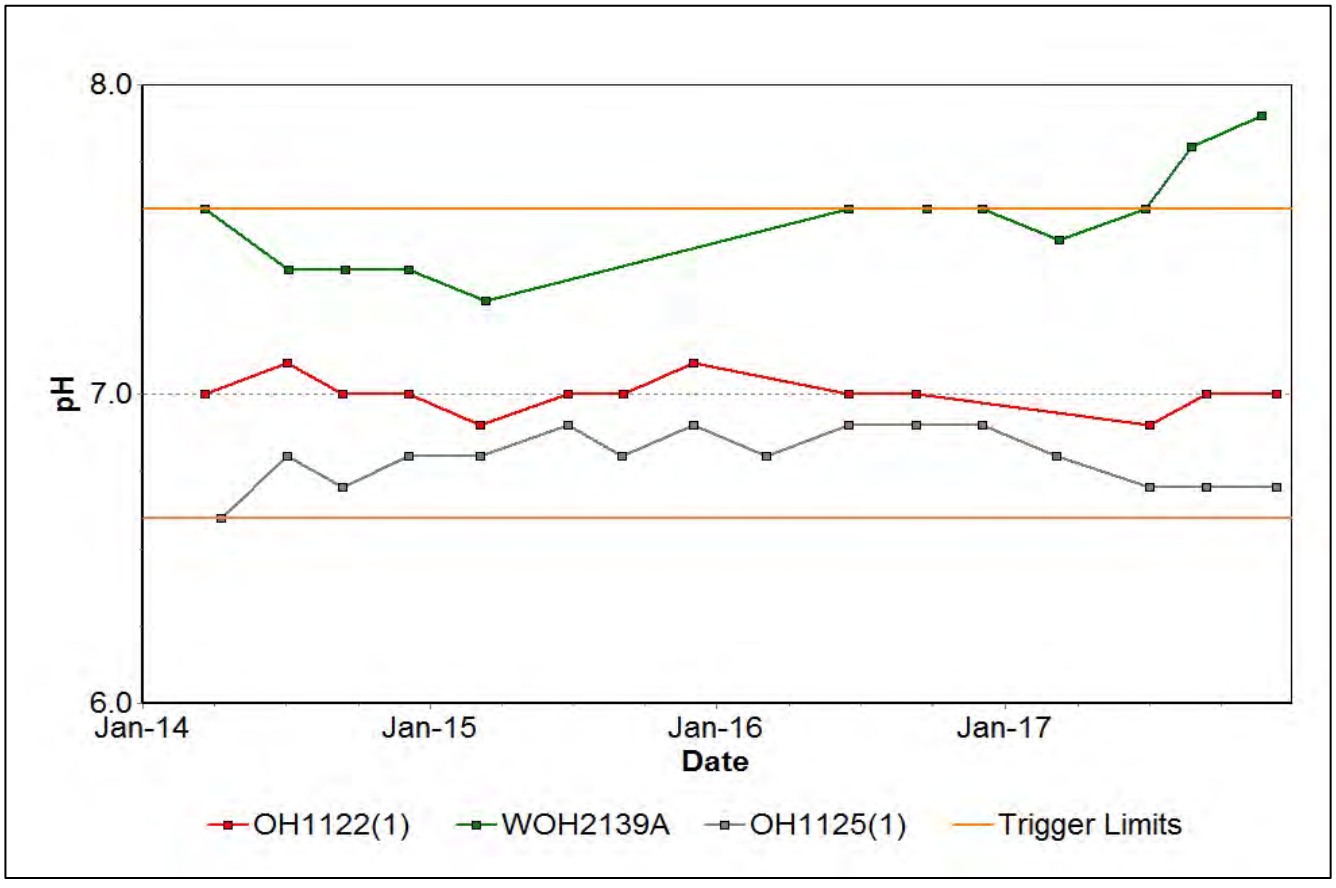


Figure 20: Blakefield Seam pH Trend – December 2017

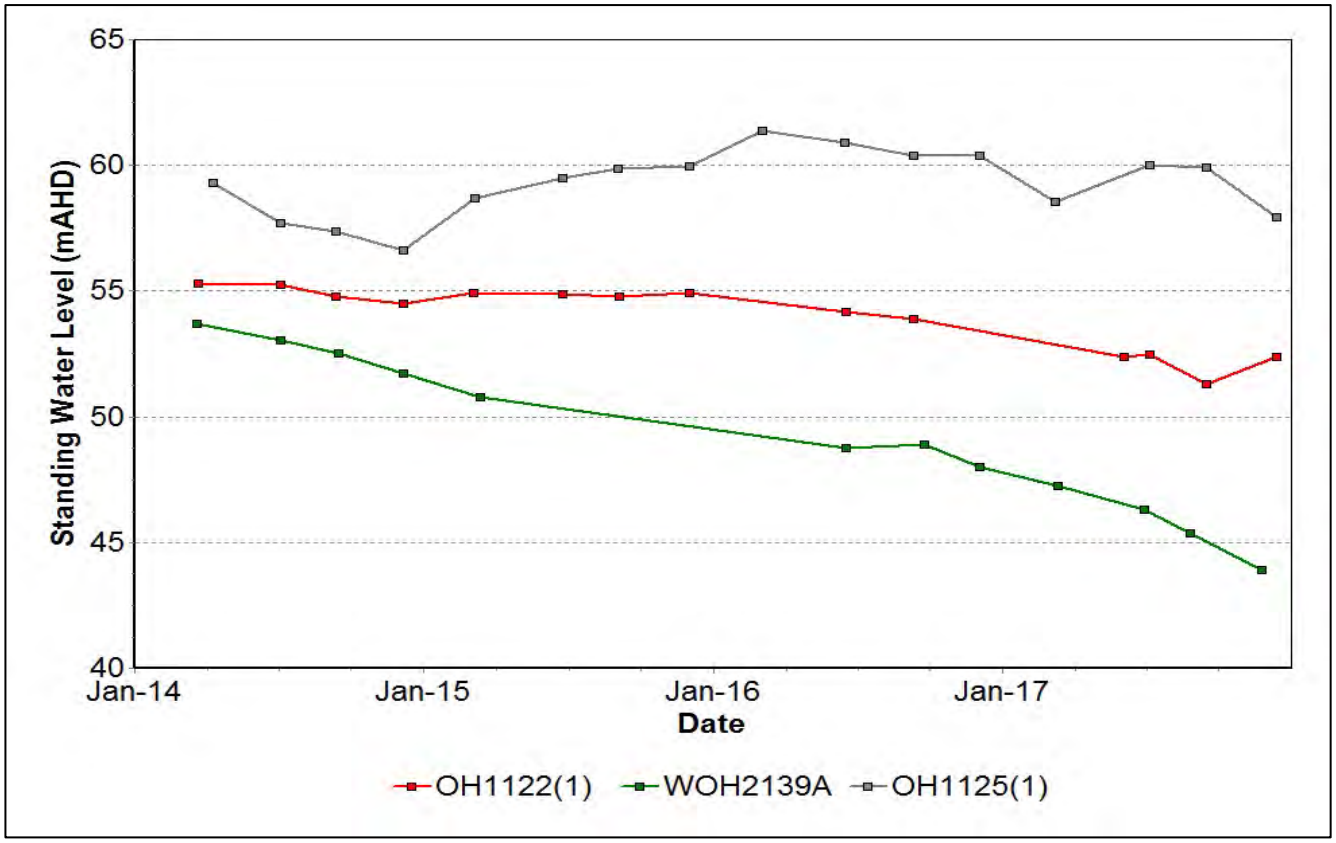


Figure 21: Blakefield Seam Standing Water Level Trend – December 2017

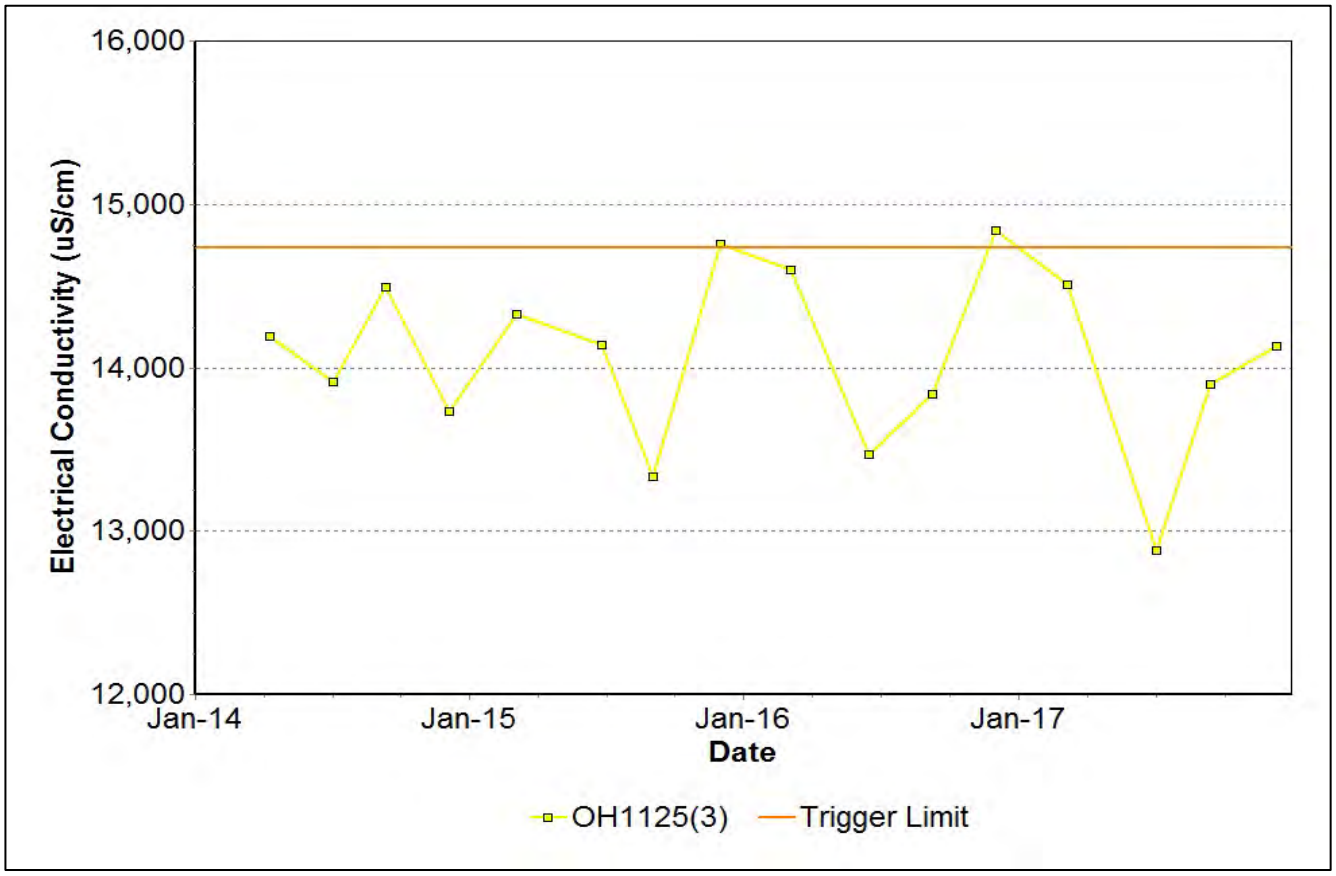


Figure 22: Bowfield Seam Electrical Conductivity Trend – December 2017

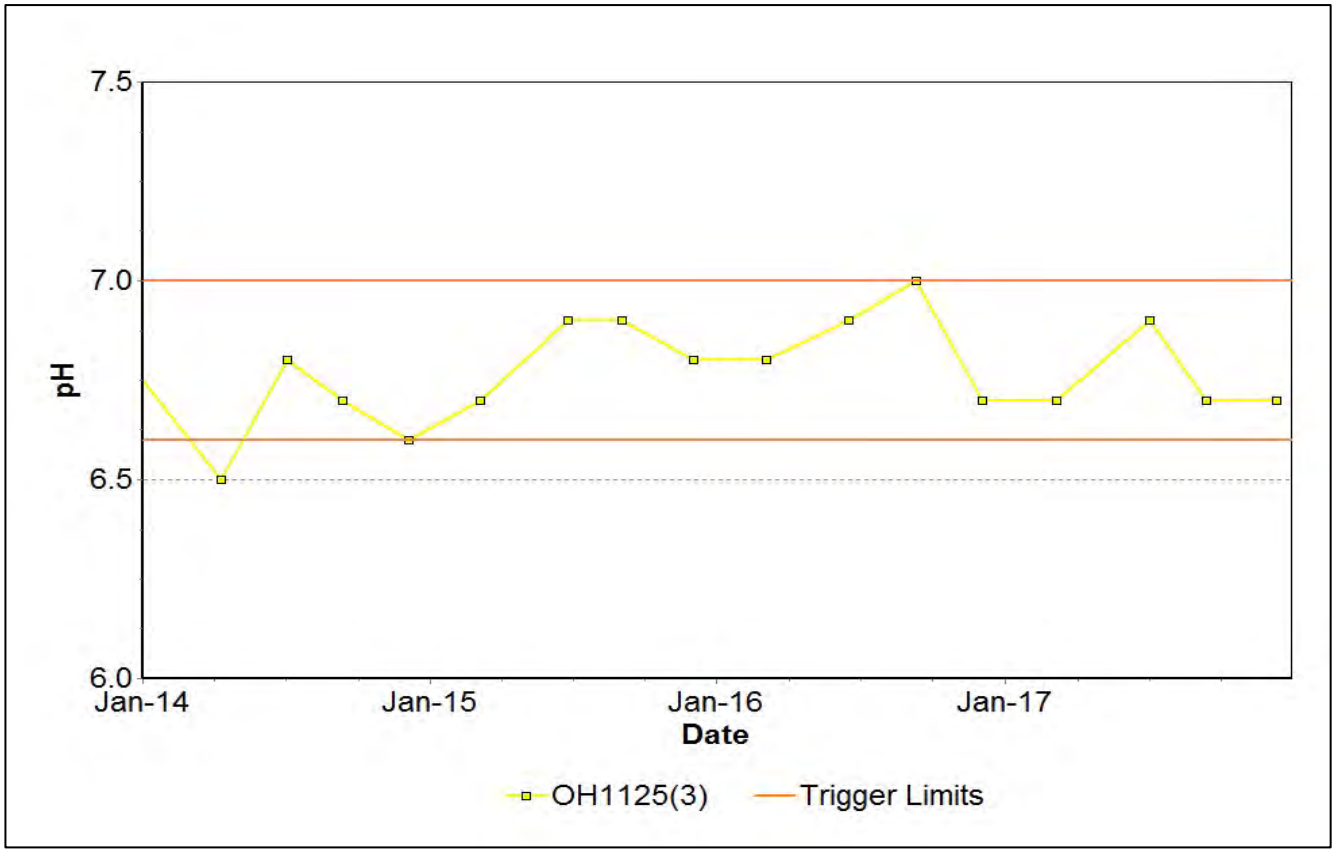


Figure 23: Bowfield Seam pH Trend – December 2017

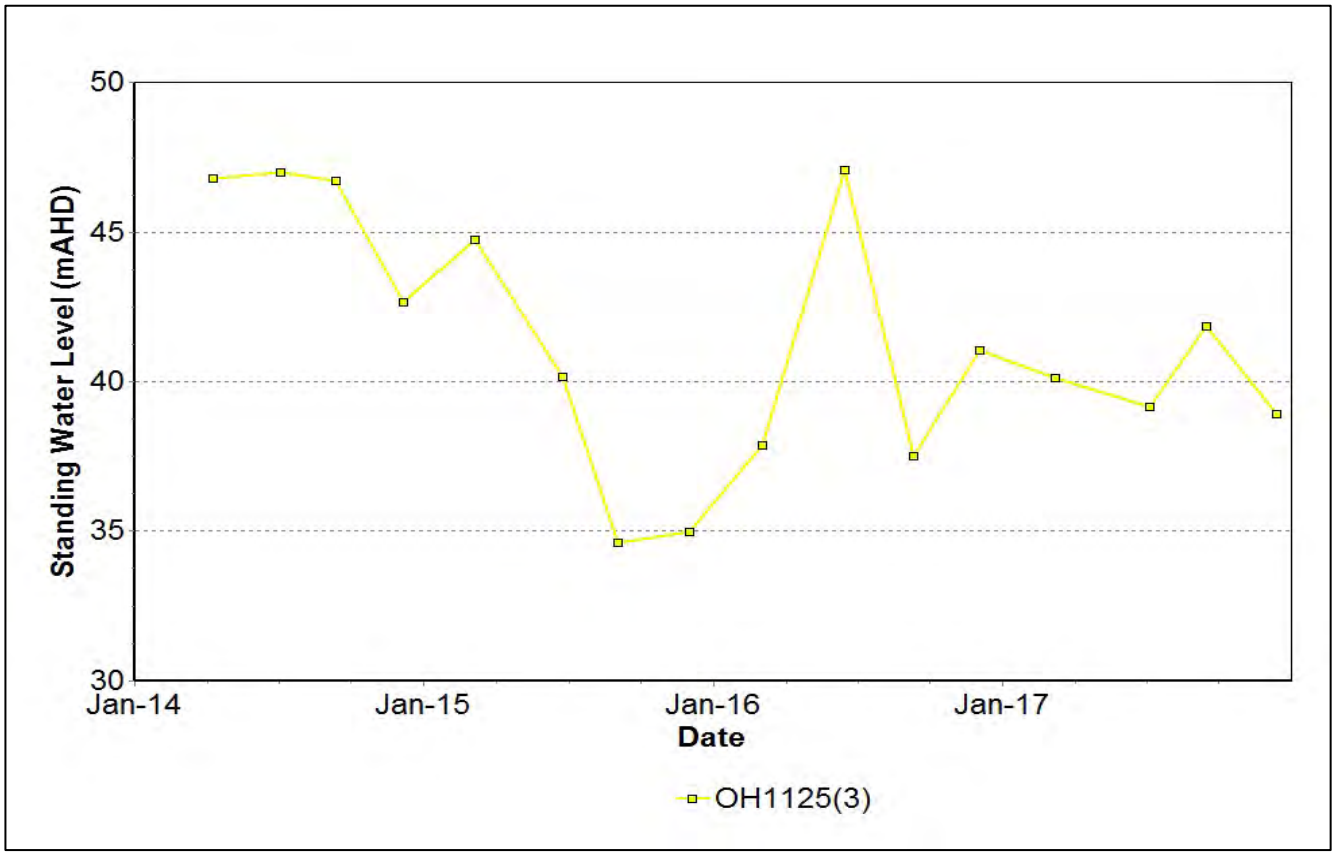


Figure 24: Bowfield Seam Standing Water Level Trend – December 2017

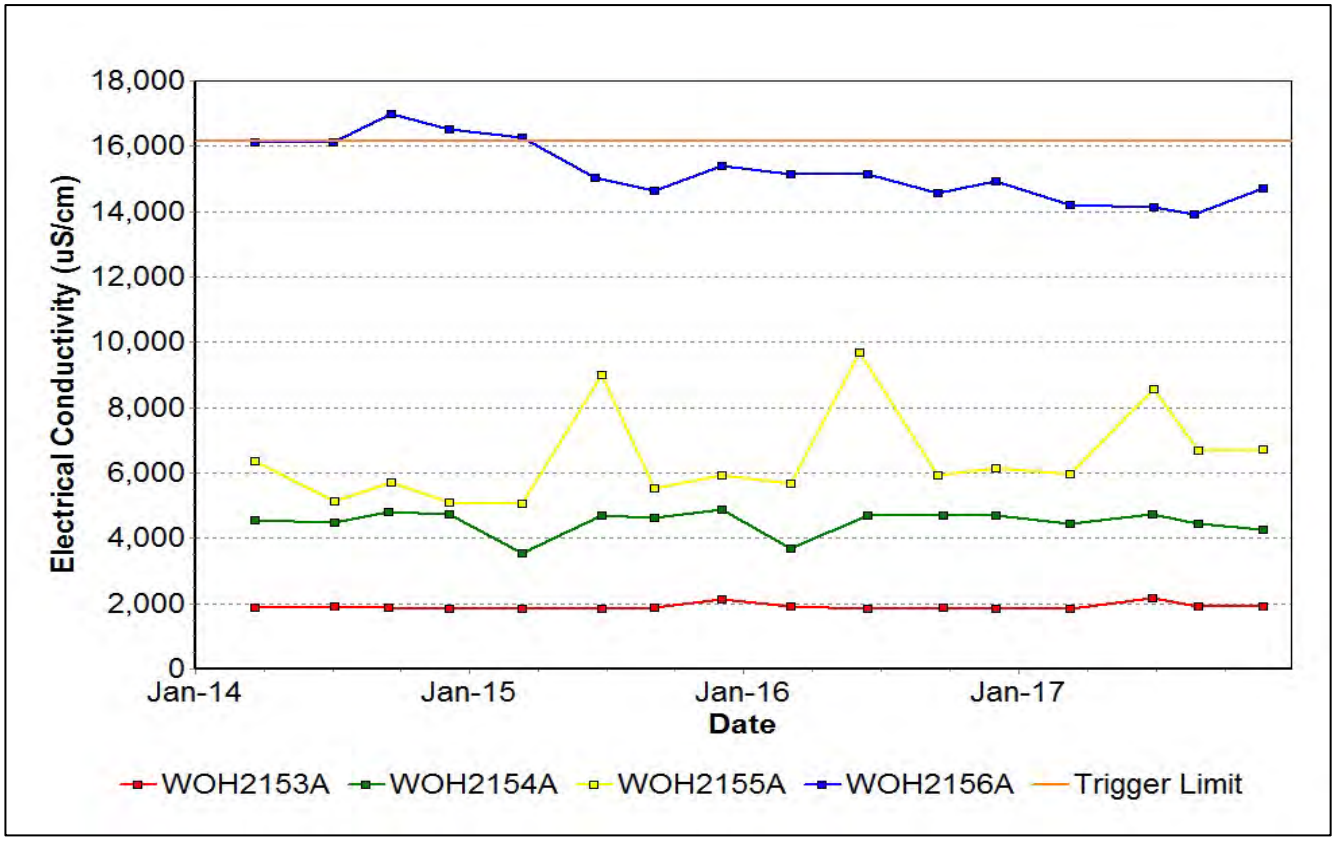


Figure 25: Redbank Seam Electrical Conductivity Trend – December 2017

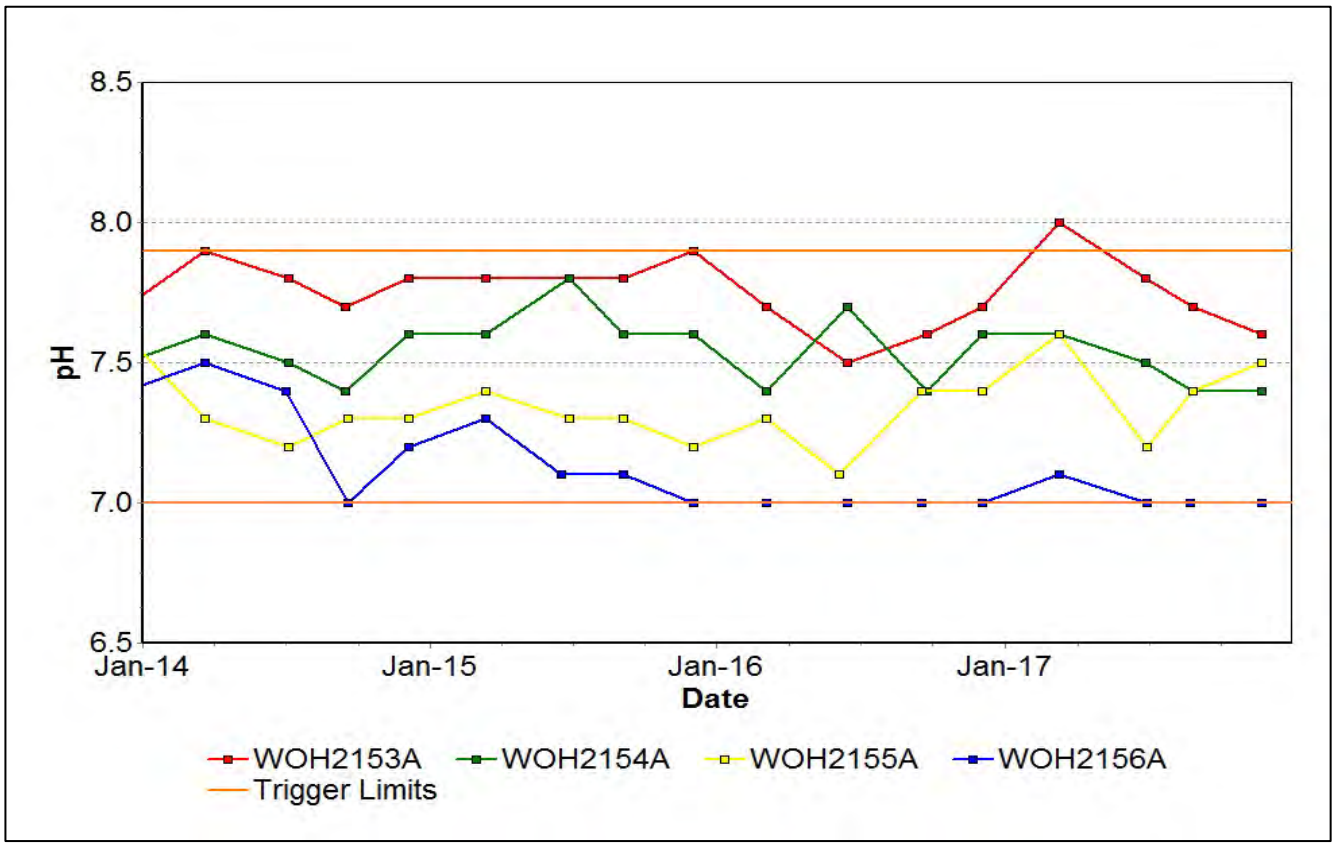


Figure 26: Redbank Seam pH Trend – December 2017

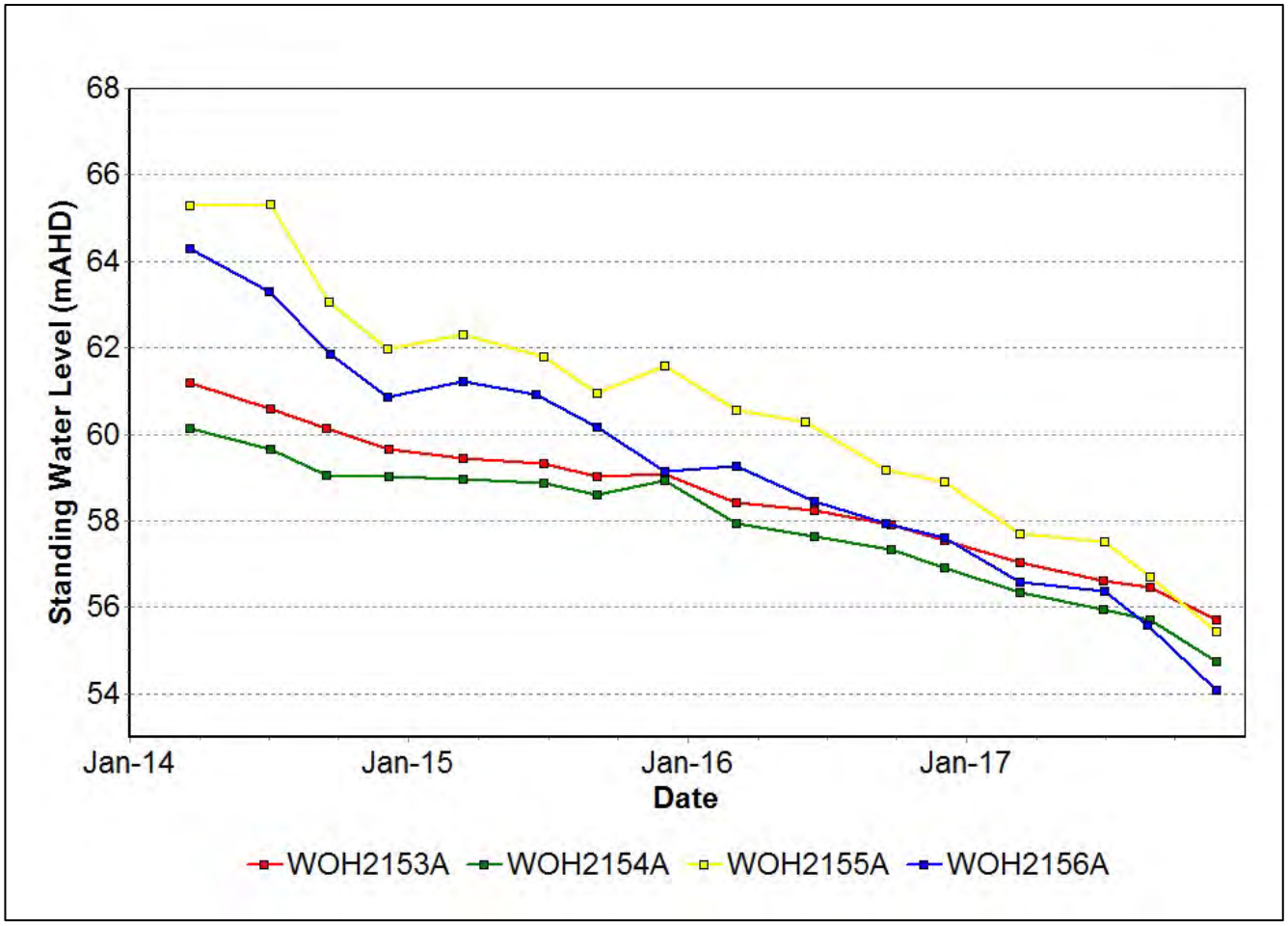


Figure 27: Redbank Seam Standing Water Level Trend – December 2017

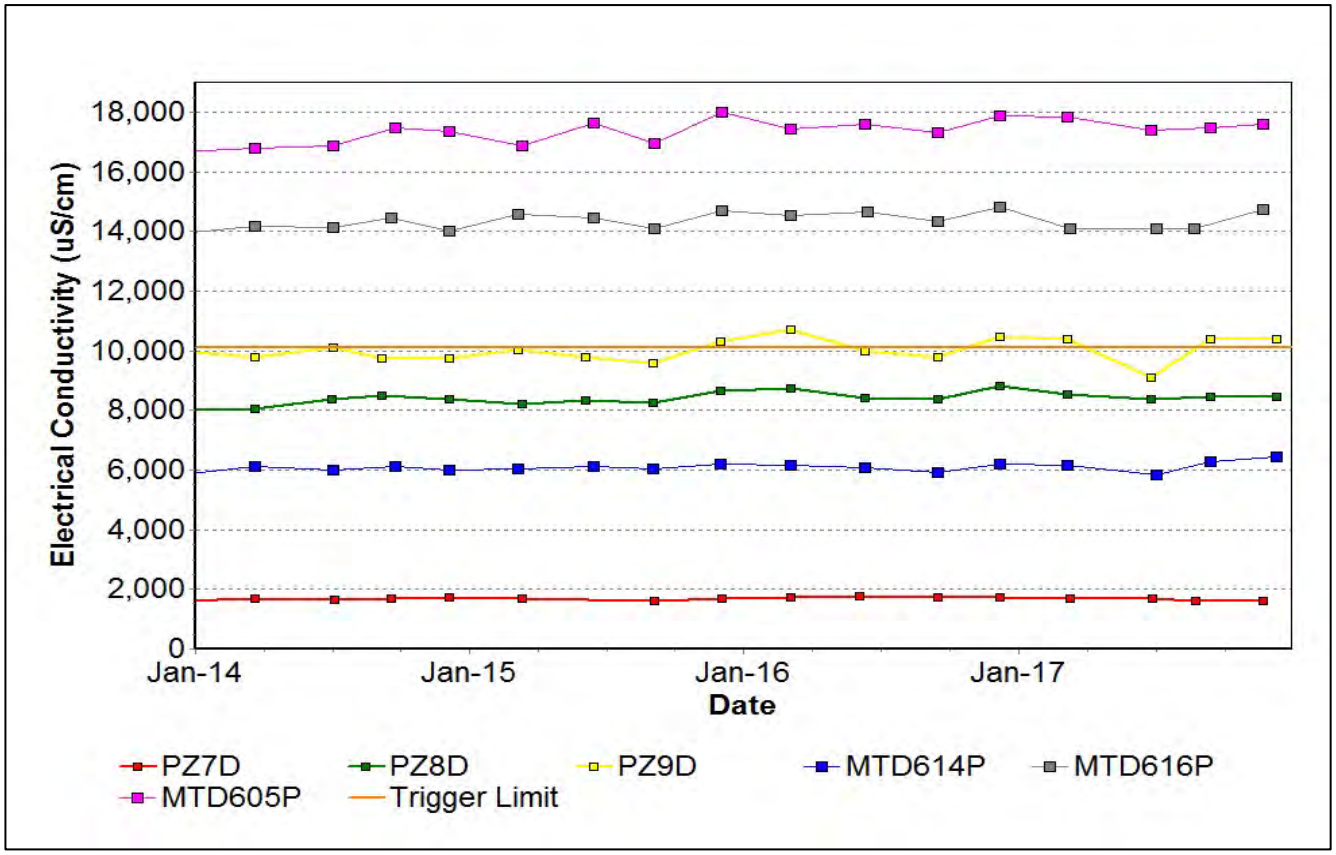


Figure 28: Shallow Overburden Seam Electrical Conductivity Trend – December 2017

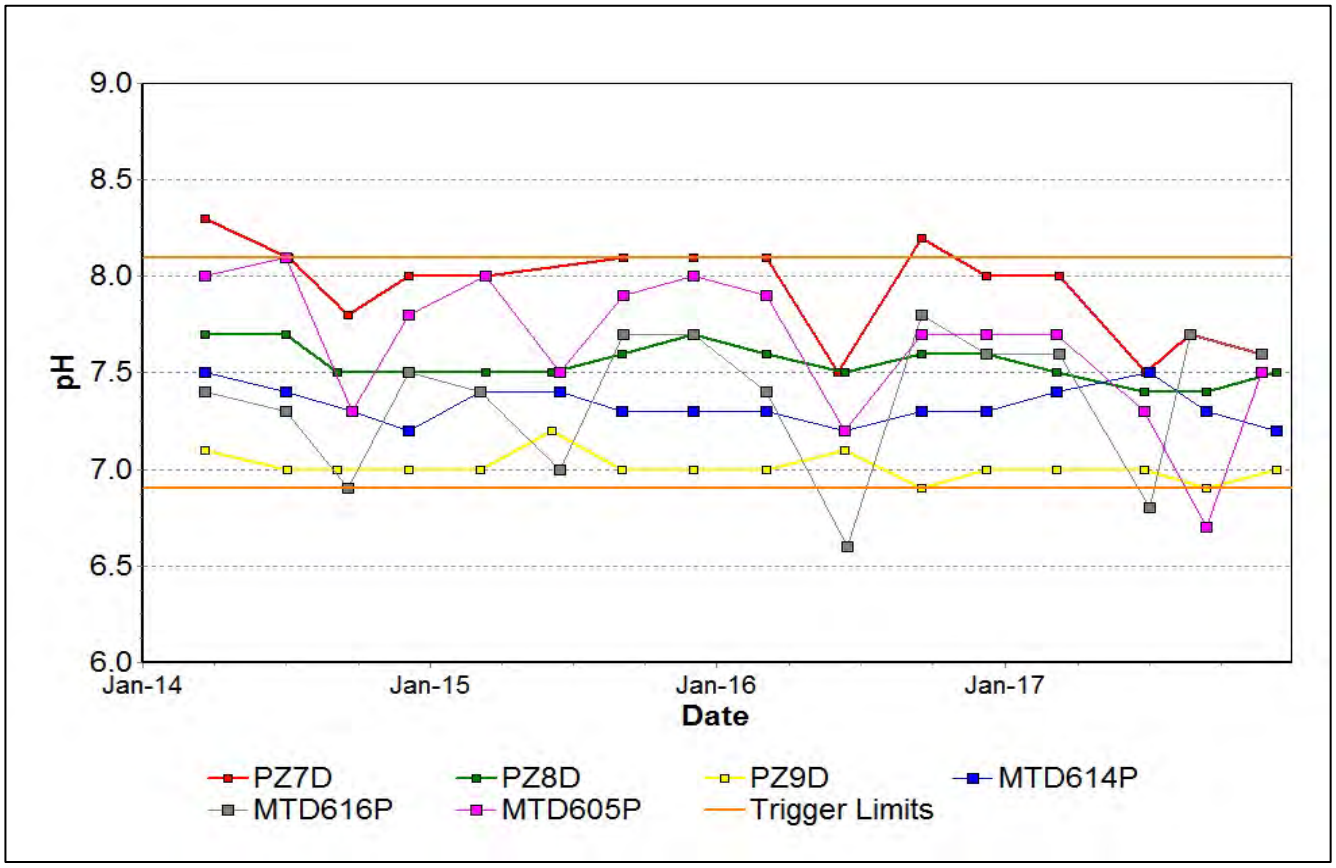


Figure 29: Shallow Overburden Seam pH Trend – December 2017

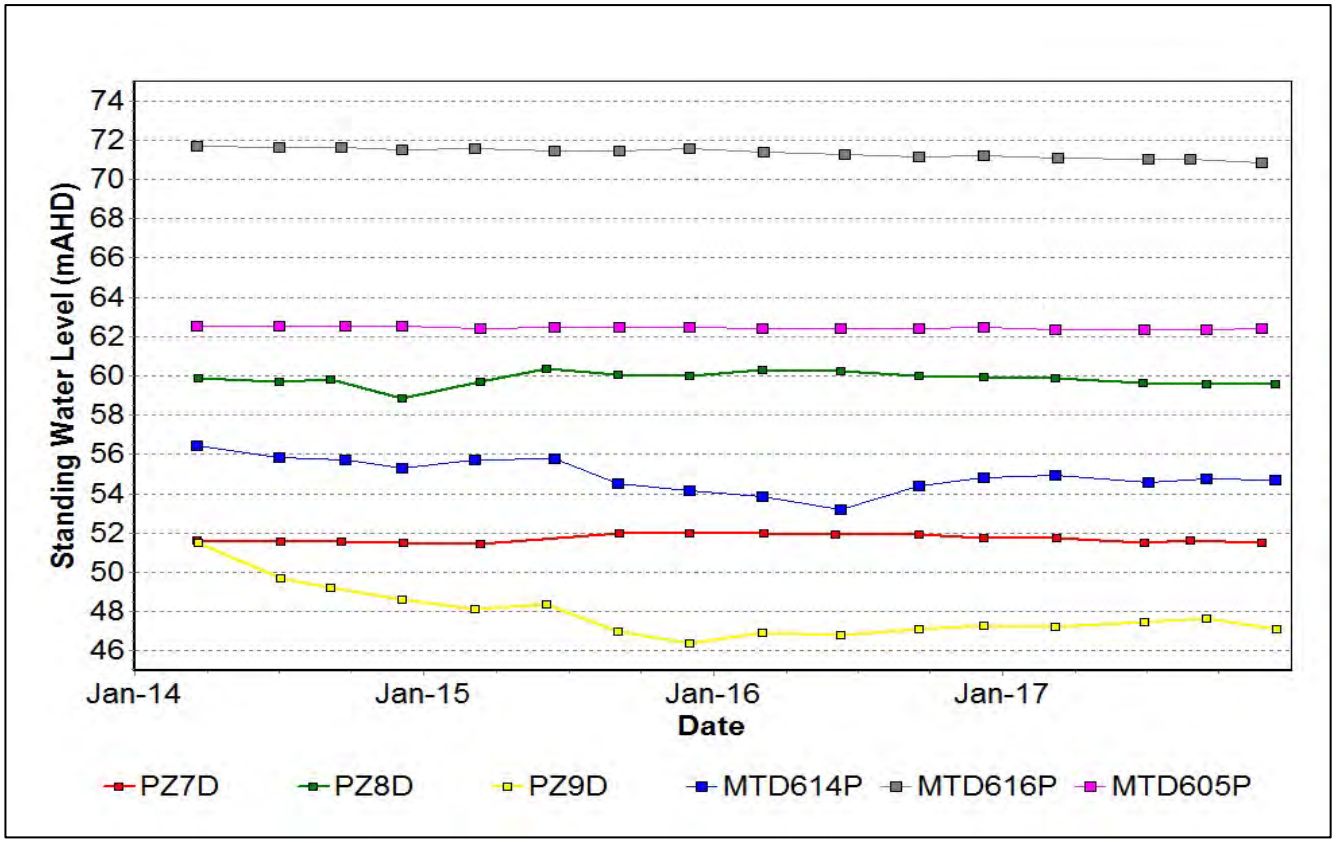


Figure 30: Shallow Overburden Seam Standing Water Level Trend – December 2017

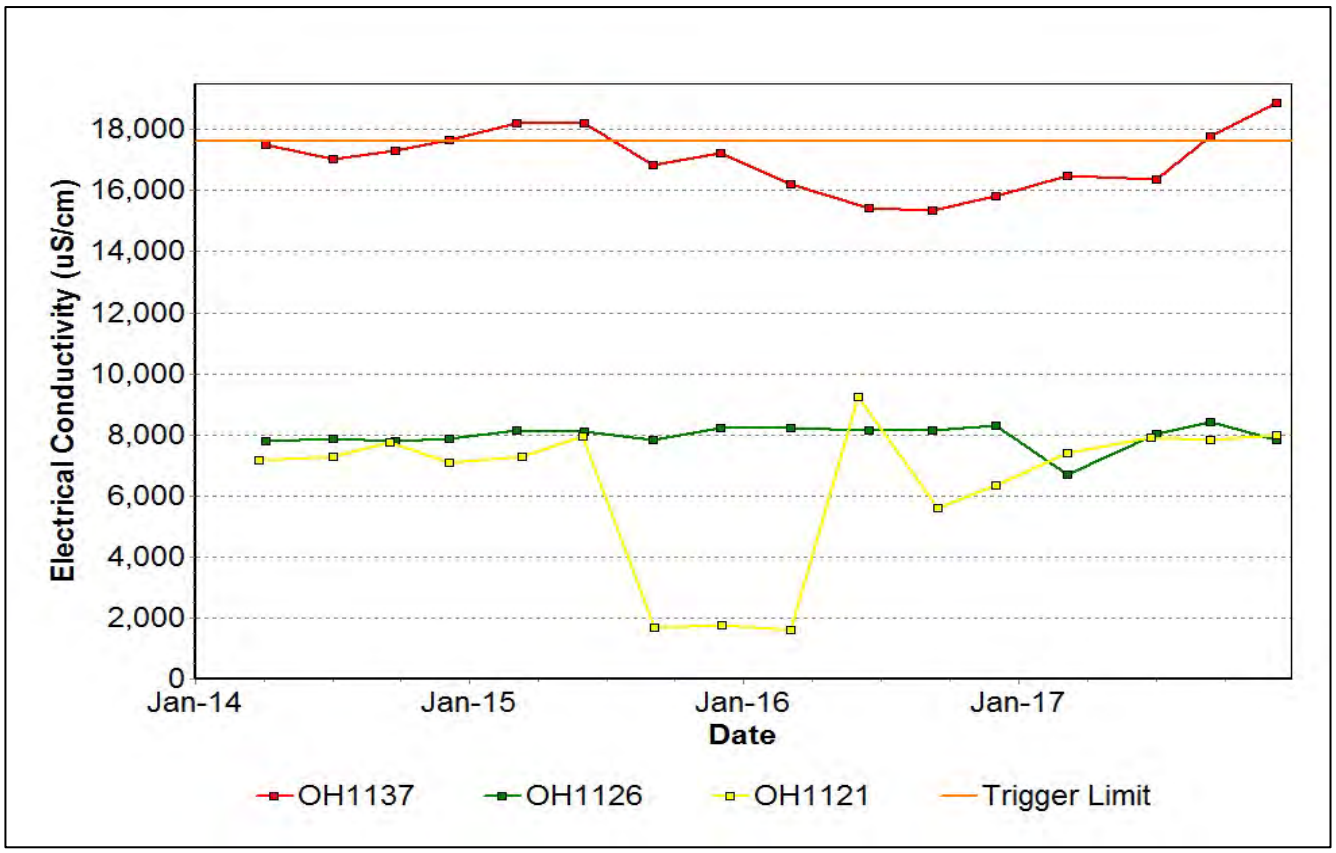


Figure 31: Vaux Seam Electrical Conductivity Trend – December 2017

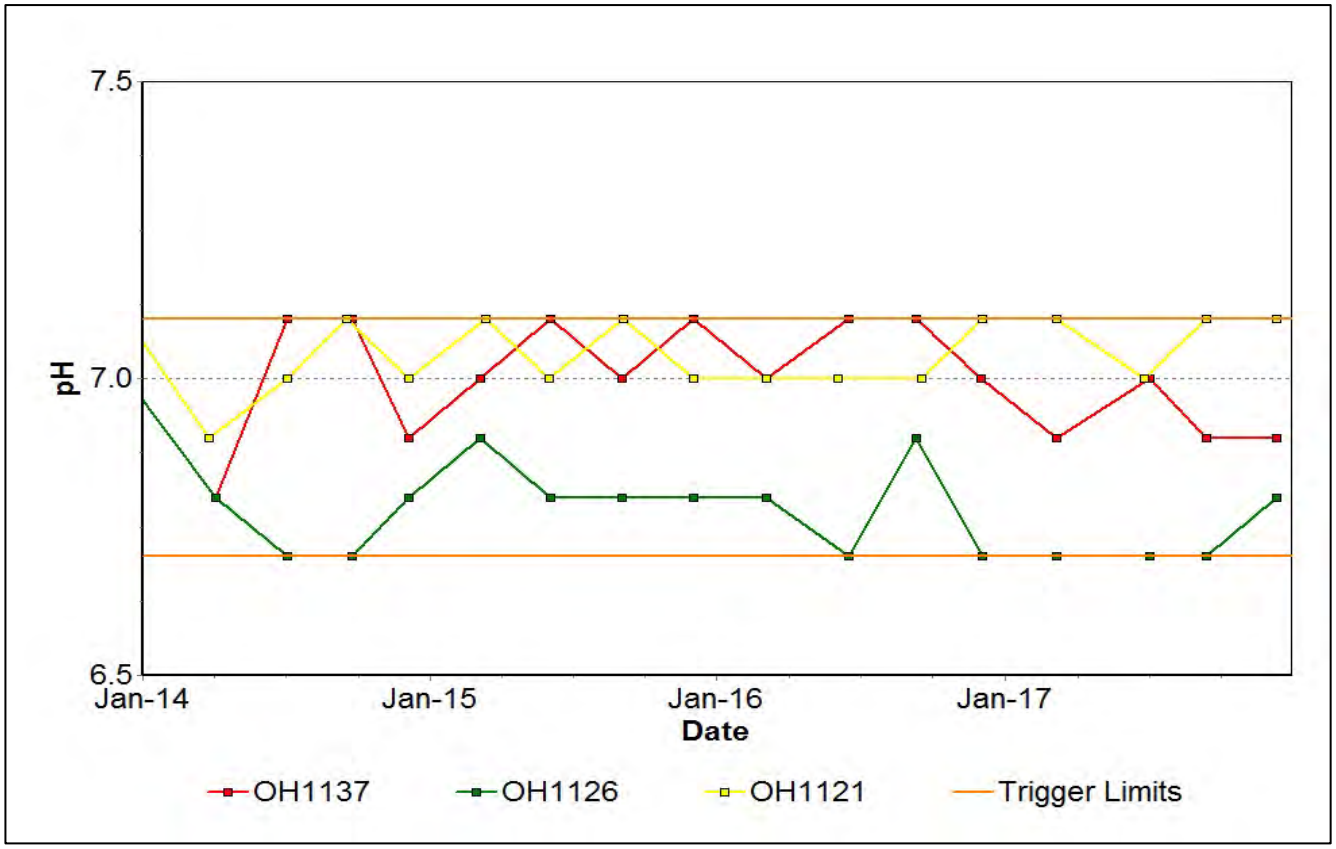


Figure 32: Vaux Seam pH Trend – December 2017

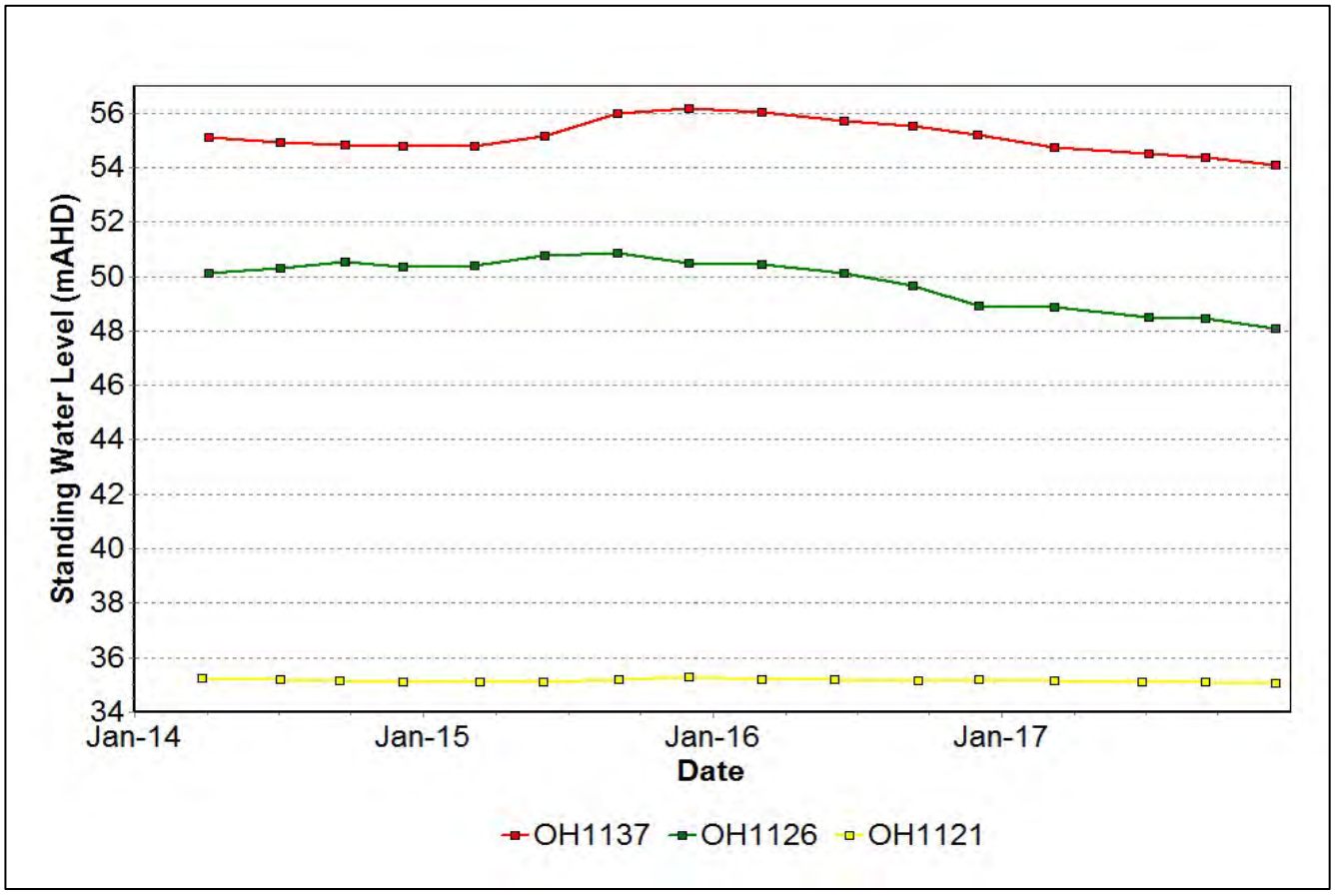


Figure 33: Vaux Seam Standing Water Level Trend – December 2017

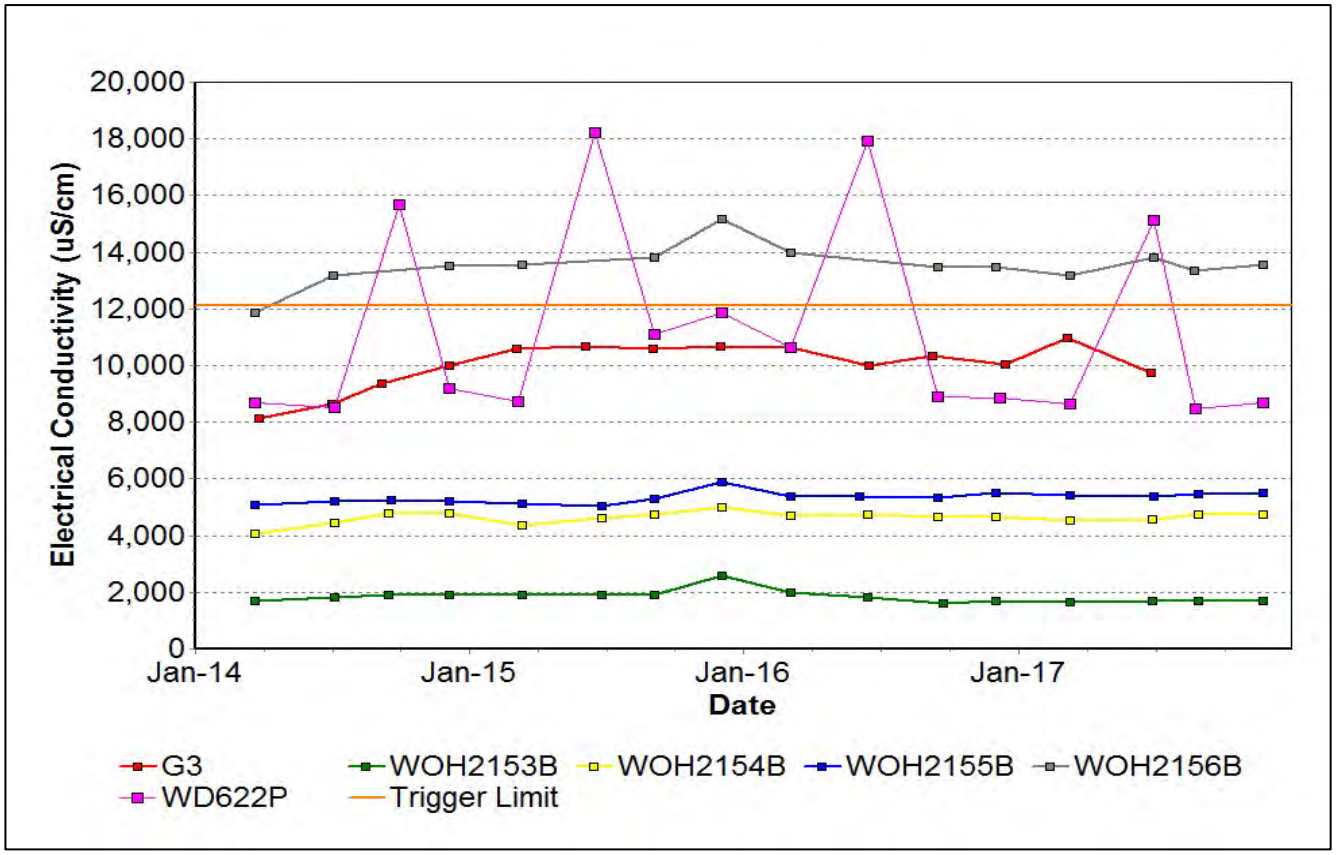


Figure 34: Wambo Seam Electrical Conductivity Trend – December 2017

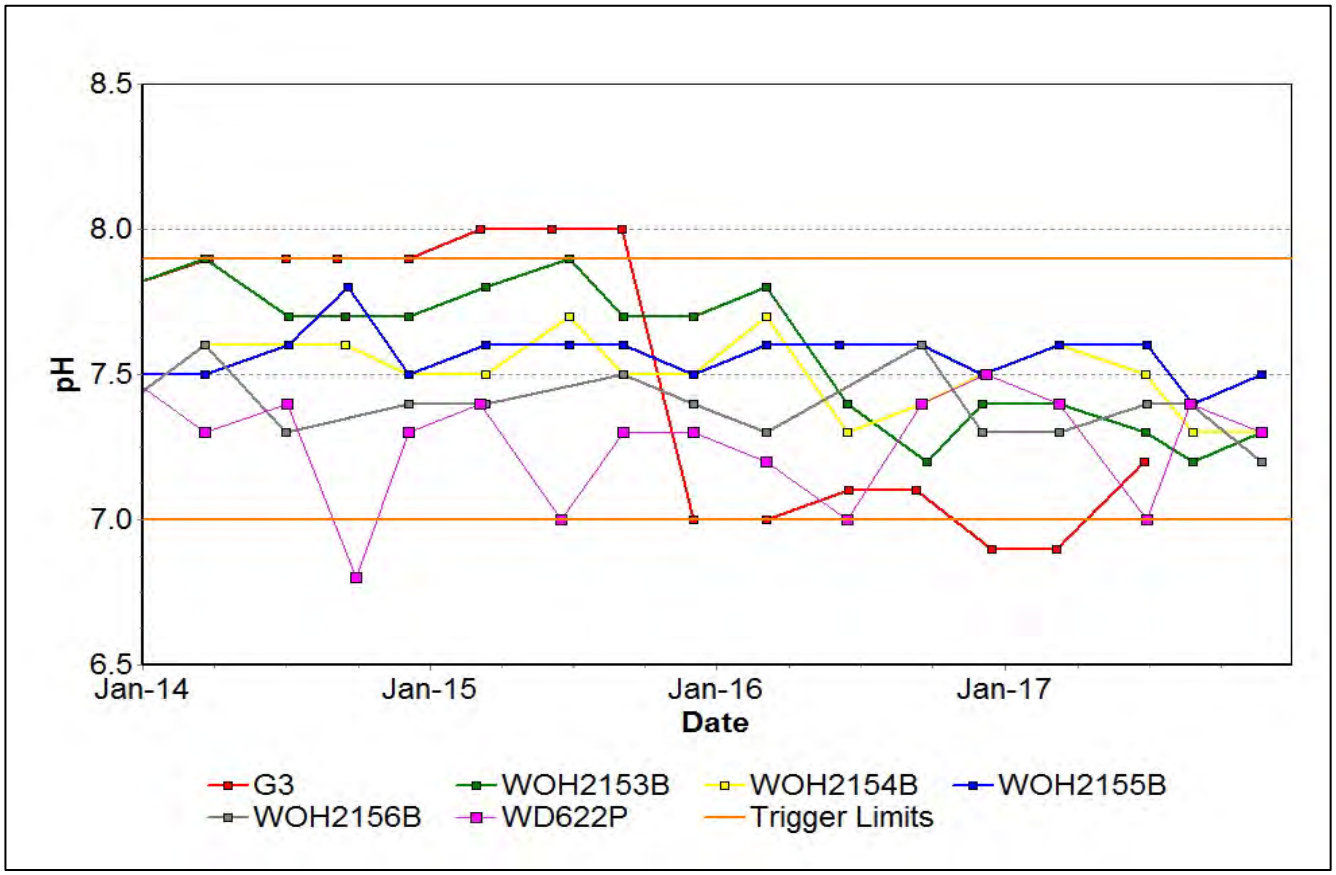


Figure 35: Wambo Seam pH Trend – December 2017

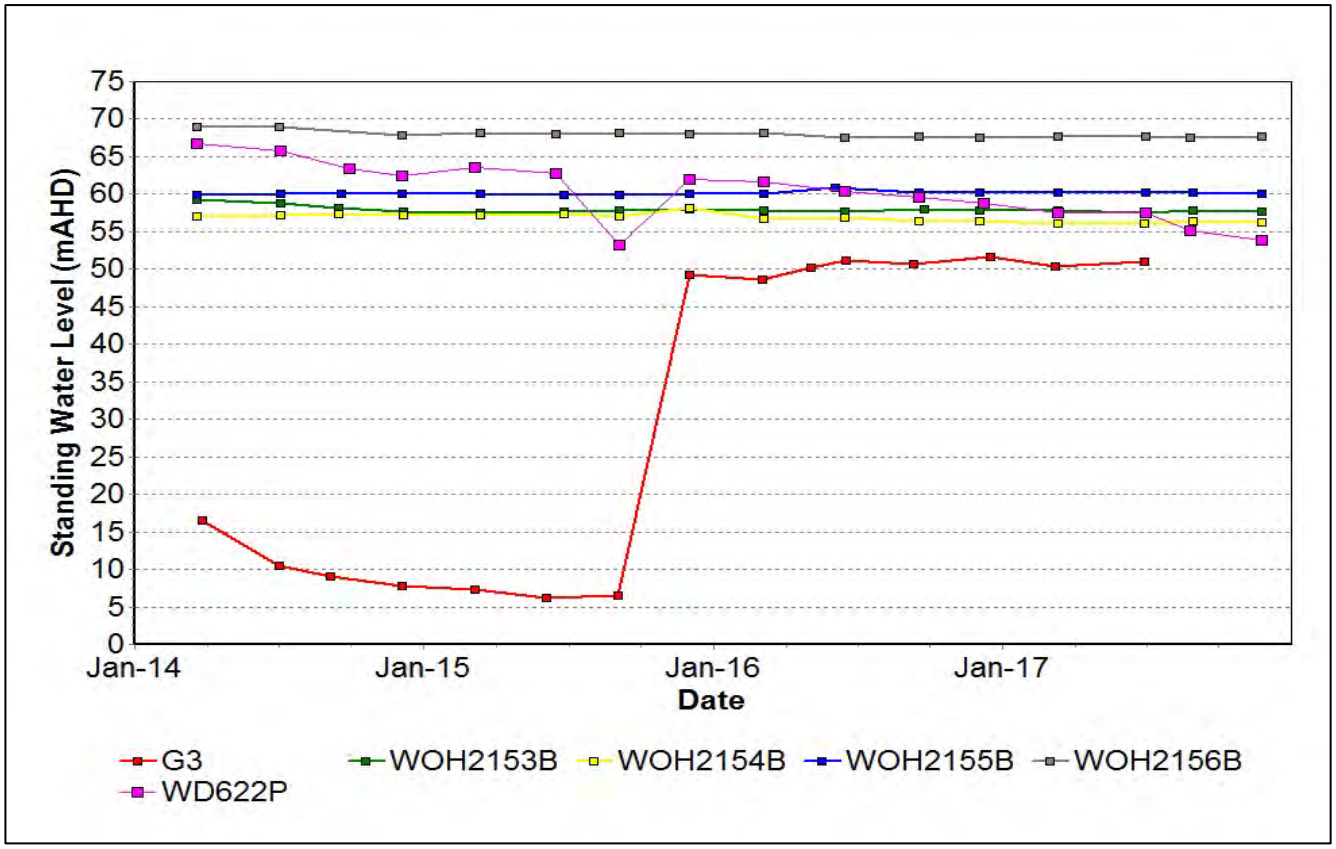


Figure 36: Wambo Seam Standing Water Level Trend – December 2017

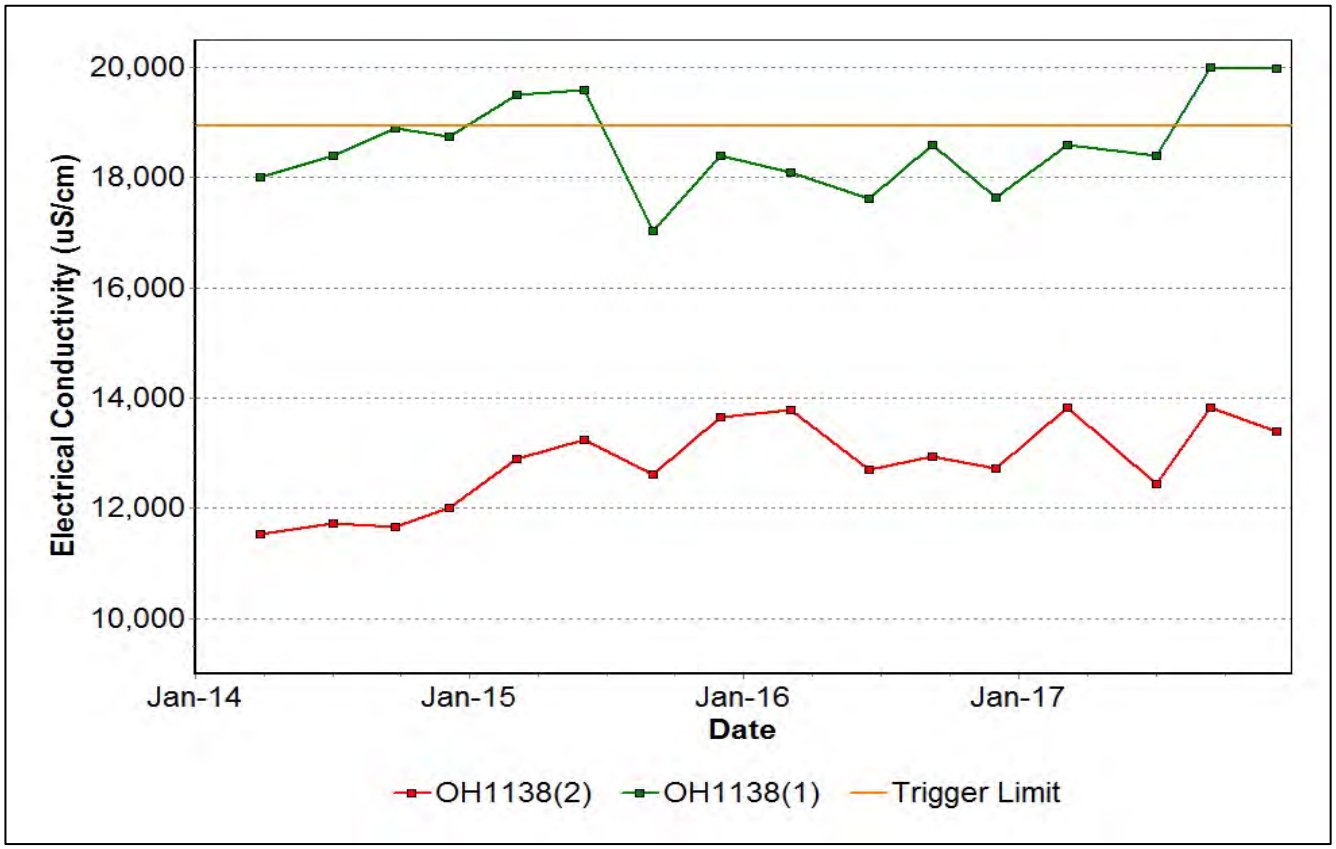


Figure 37: Warkworth Seam Electrical Conductivity Trend – December 2017

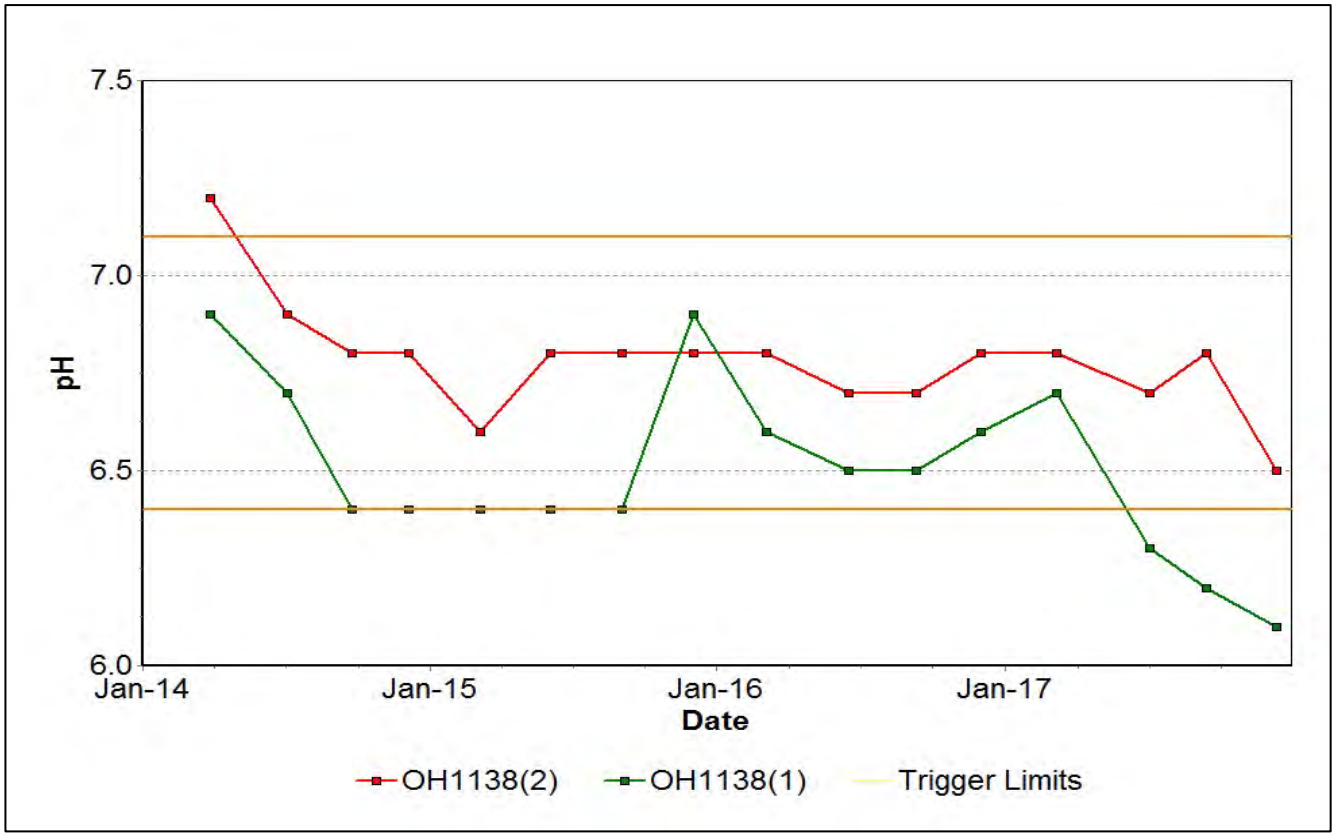


Figure 38: Warkworth Seam pH Trend – December 2017

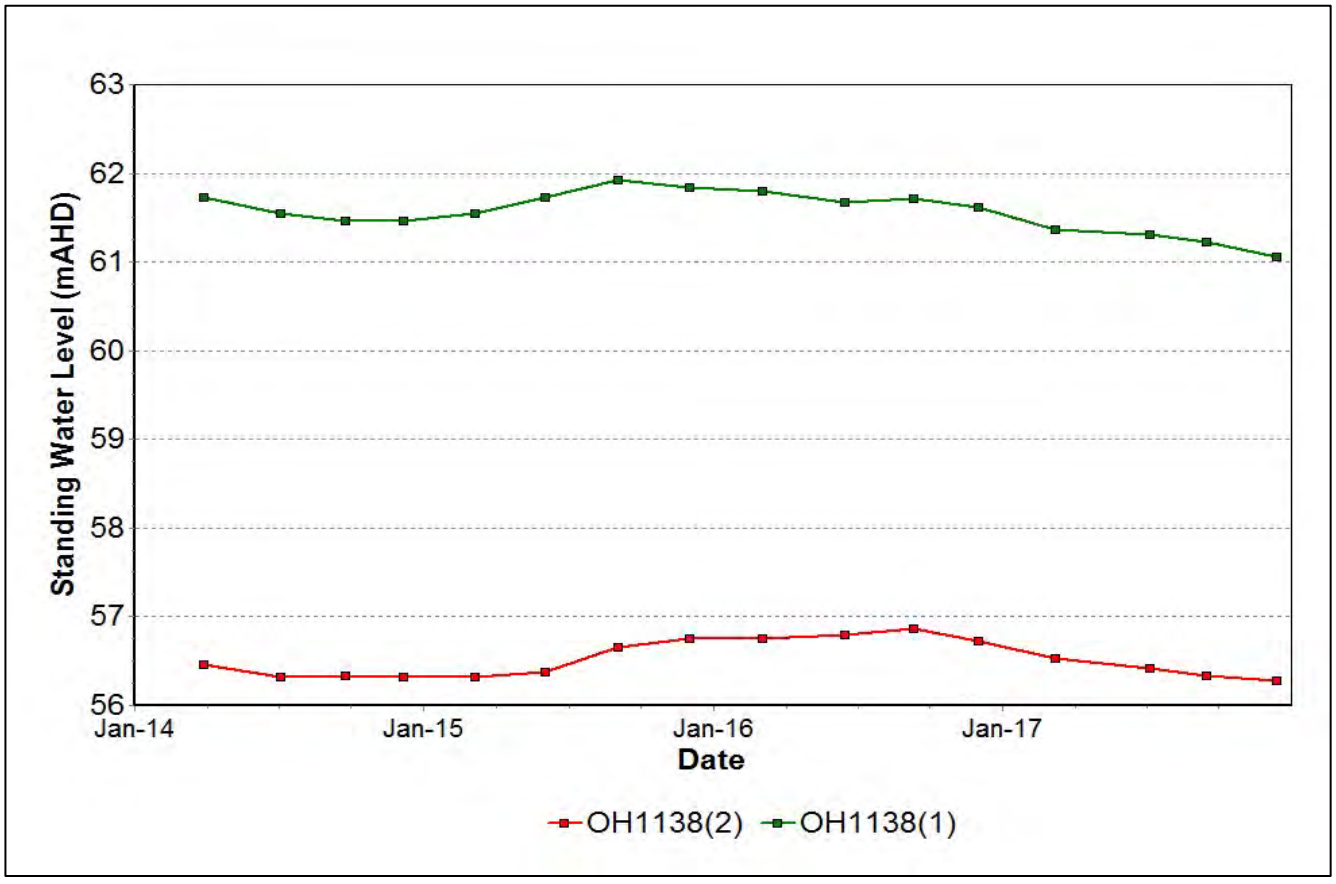


Figure 39: Warkworth Seam Standing Water Level Trend – December 2017

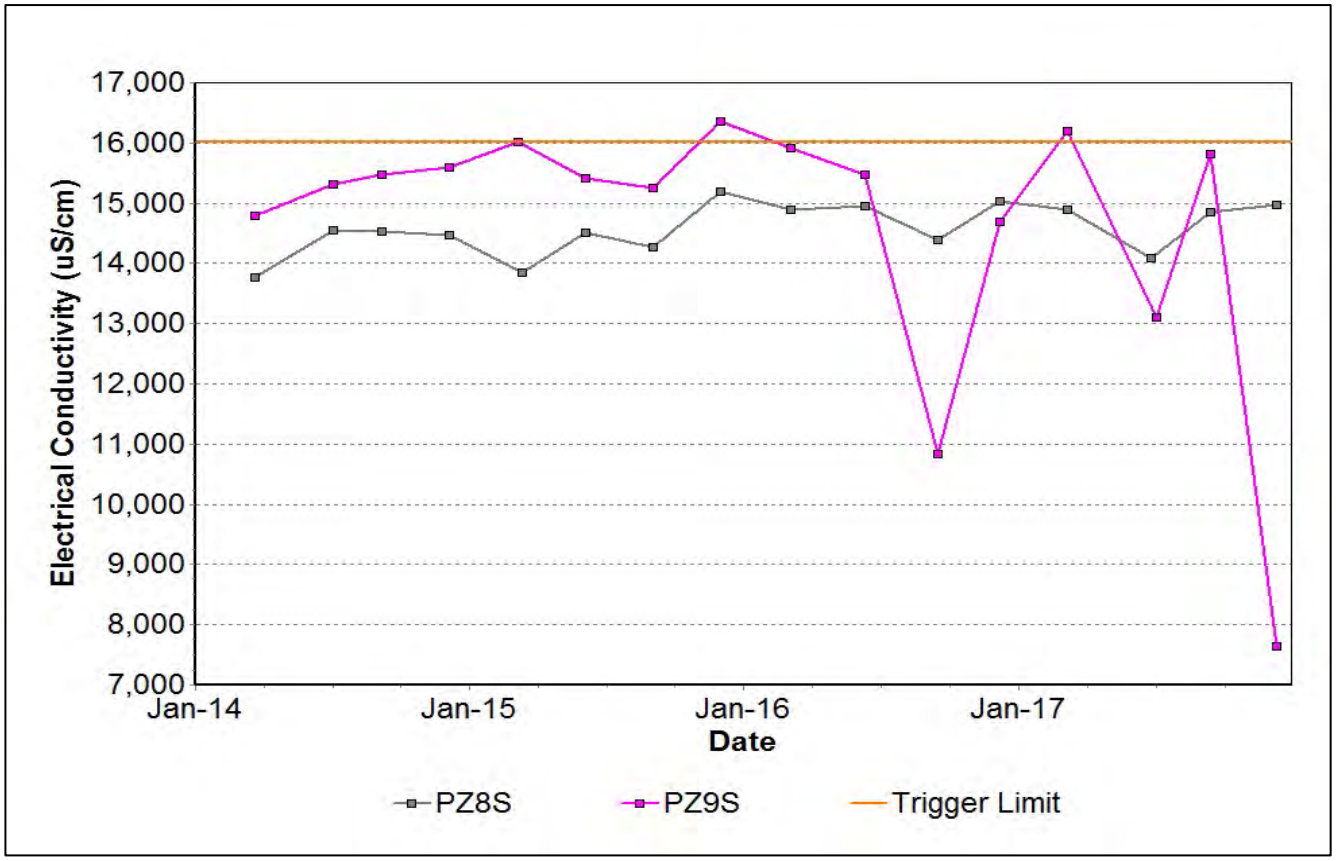


Figure 40: Wollombi Alluvium Electrical Conductivity Trend – December 2017

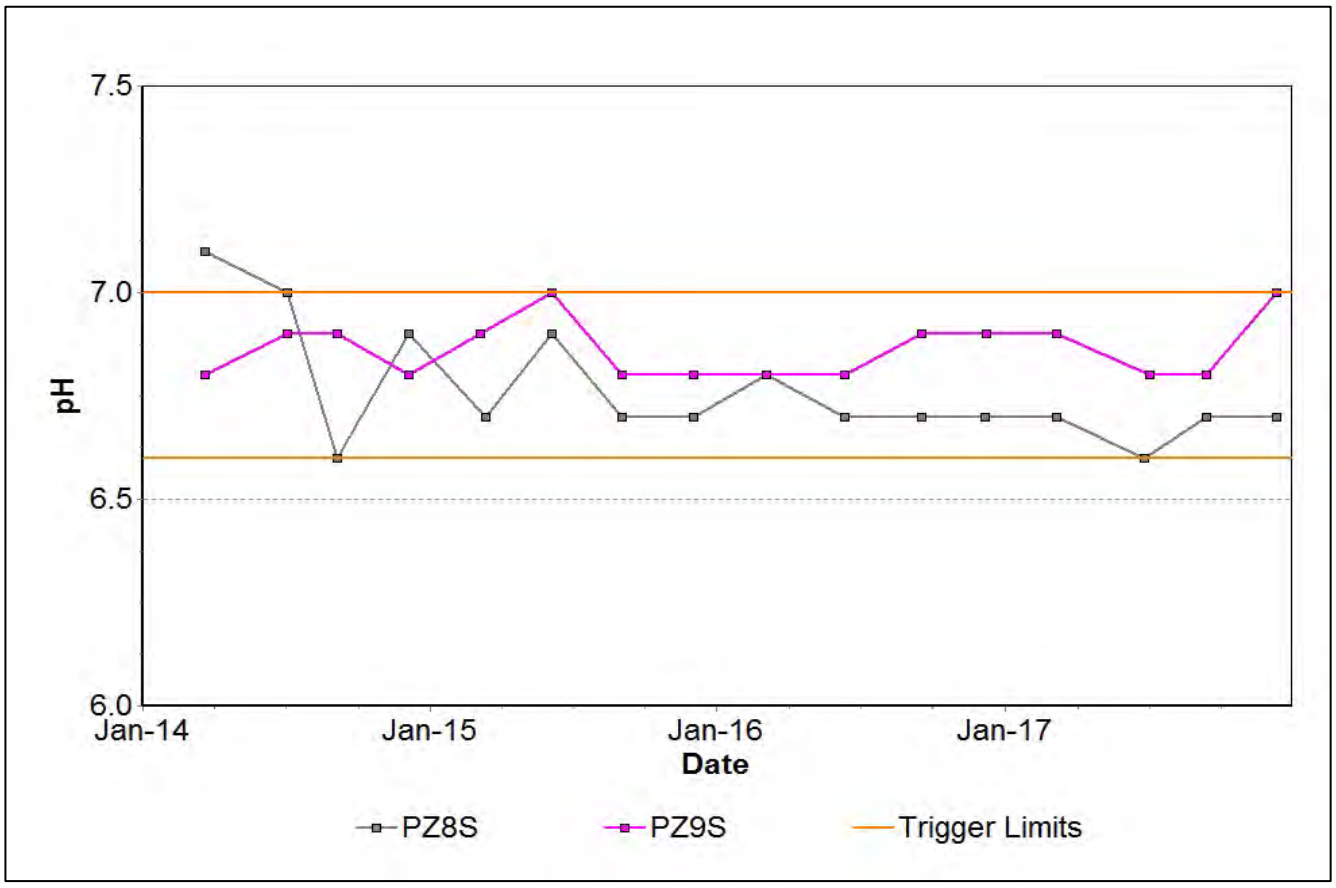


Figure 41: Wollombi Alluvium pH Trend – December 2017

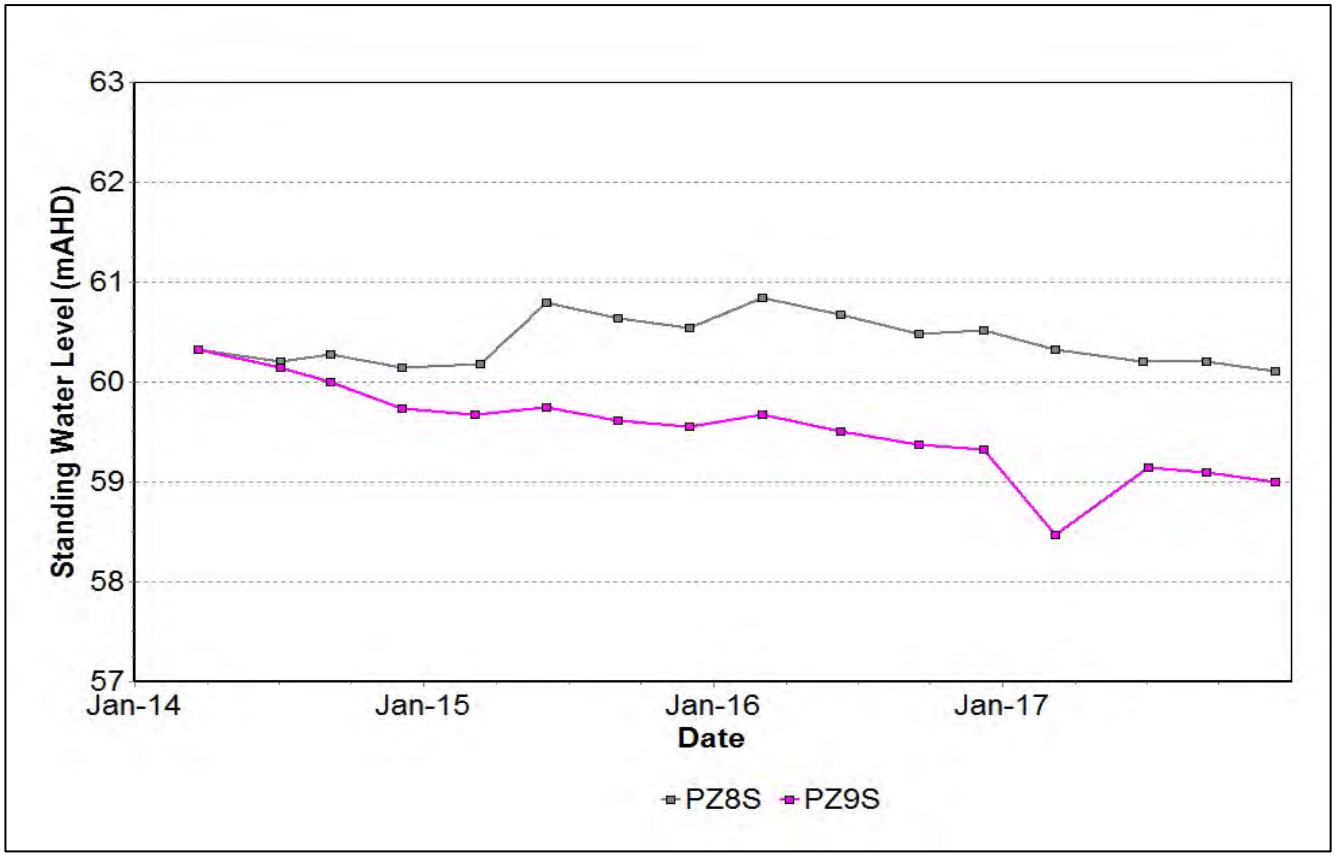


Figure 42: Wollombi Alluvium Standing Water Level Trend – December 2017

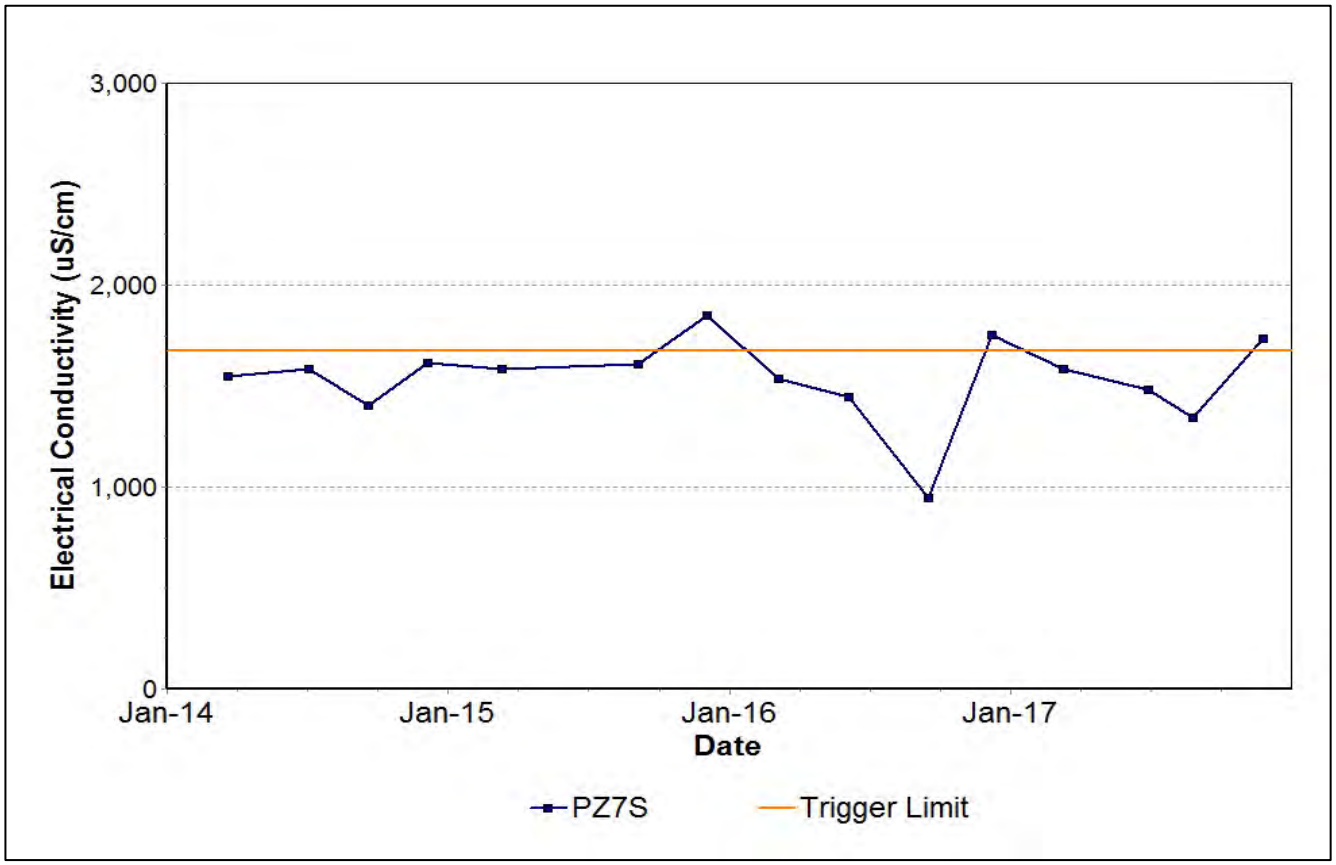


Figure 43: Aeolian Warkworth Sands Electrical Conductivity Trend – December 2017

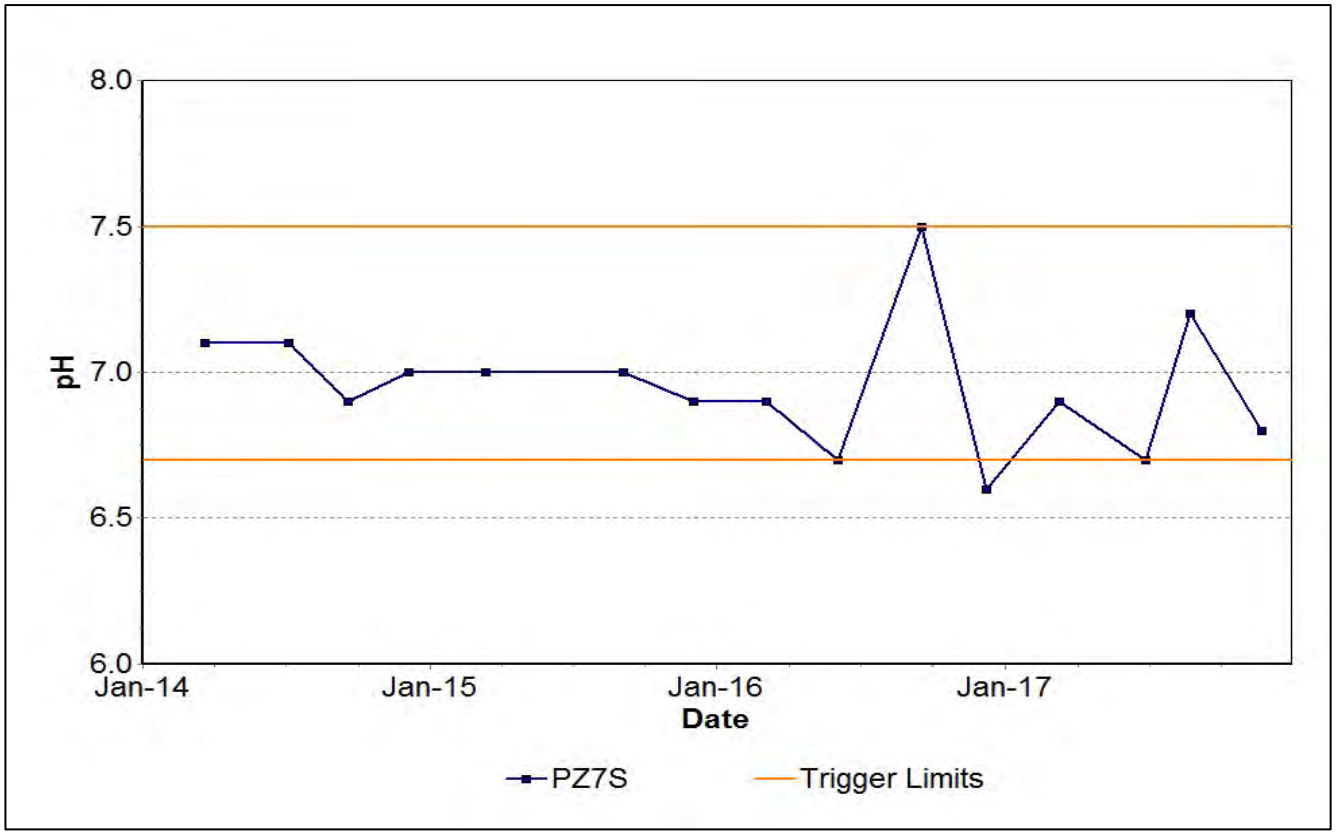


Figure 44: Aeolian Warkworth Sands pH Trend – December 2017

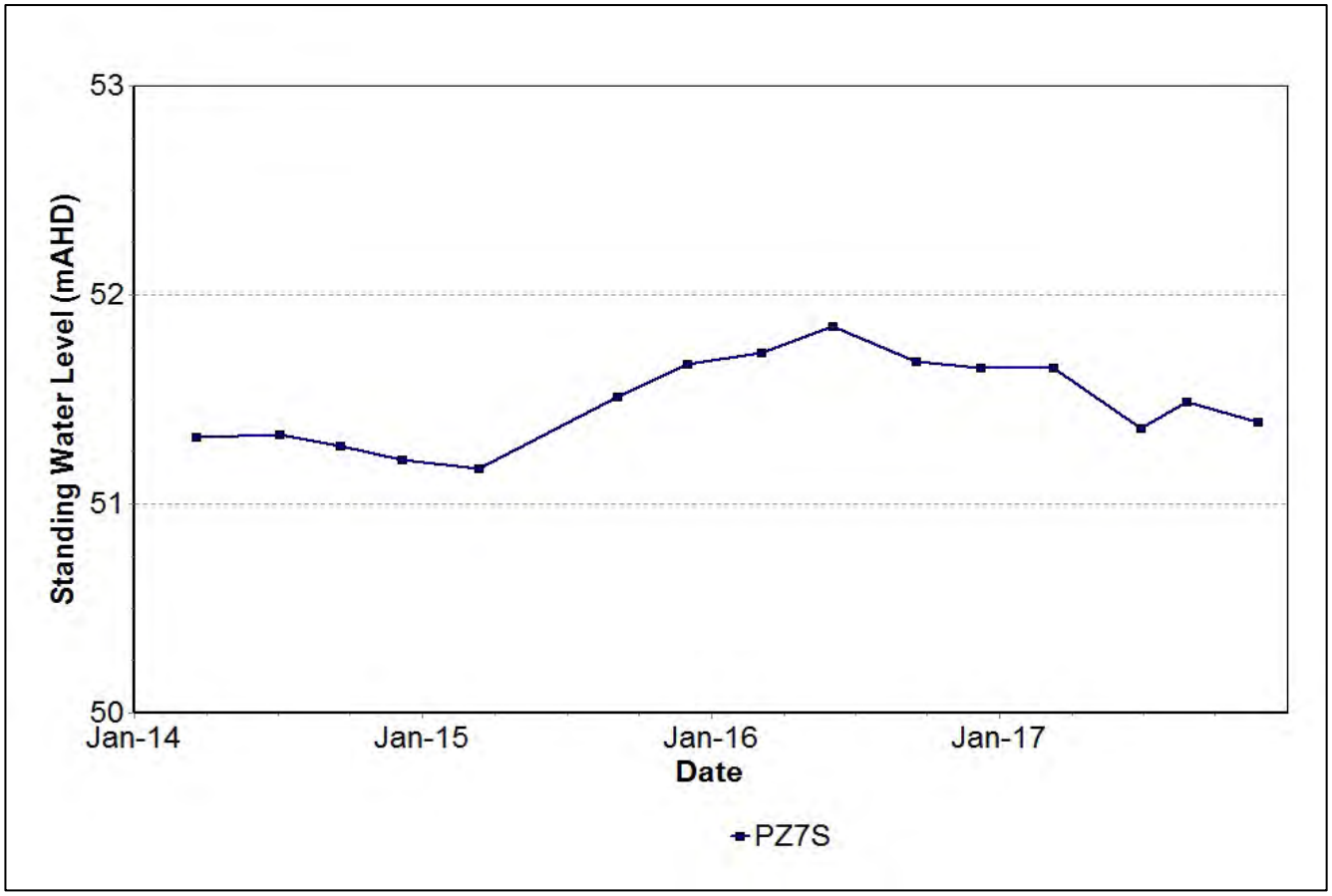


Figure 45: Aeolian Warkworth Sands Standing Water Level Trend – December 2017

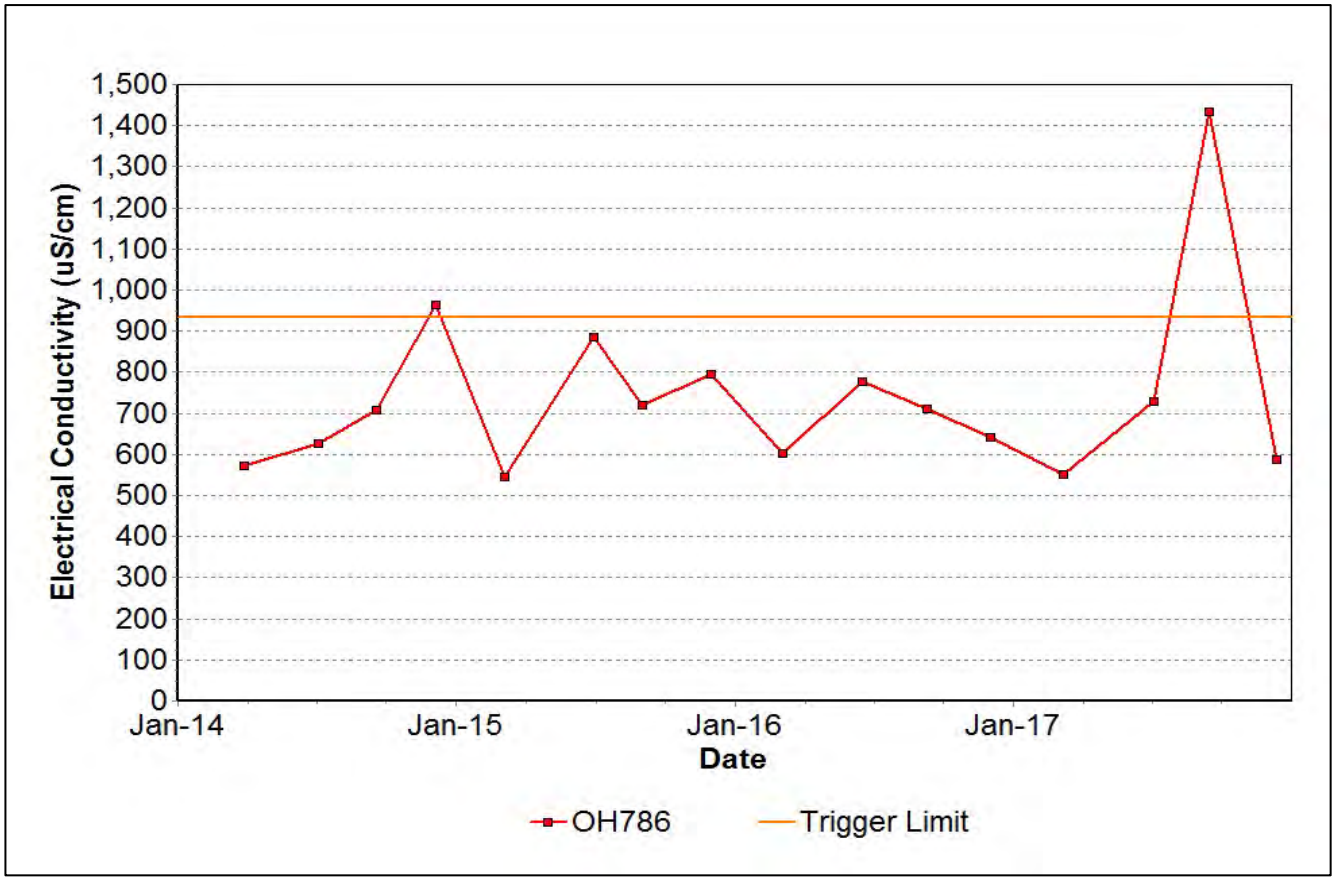


Figure 46: Hunter River Alluvium 1 Seam Electrical Conductivity Trend – December 2017

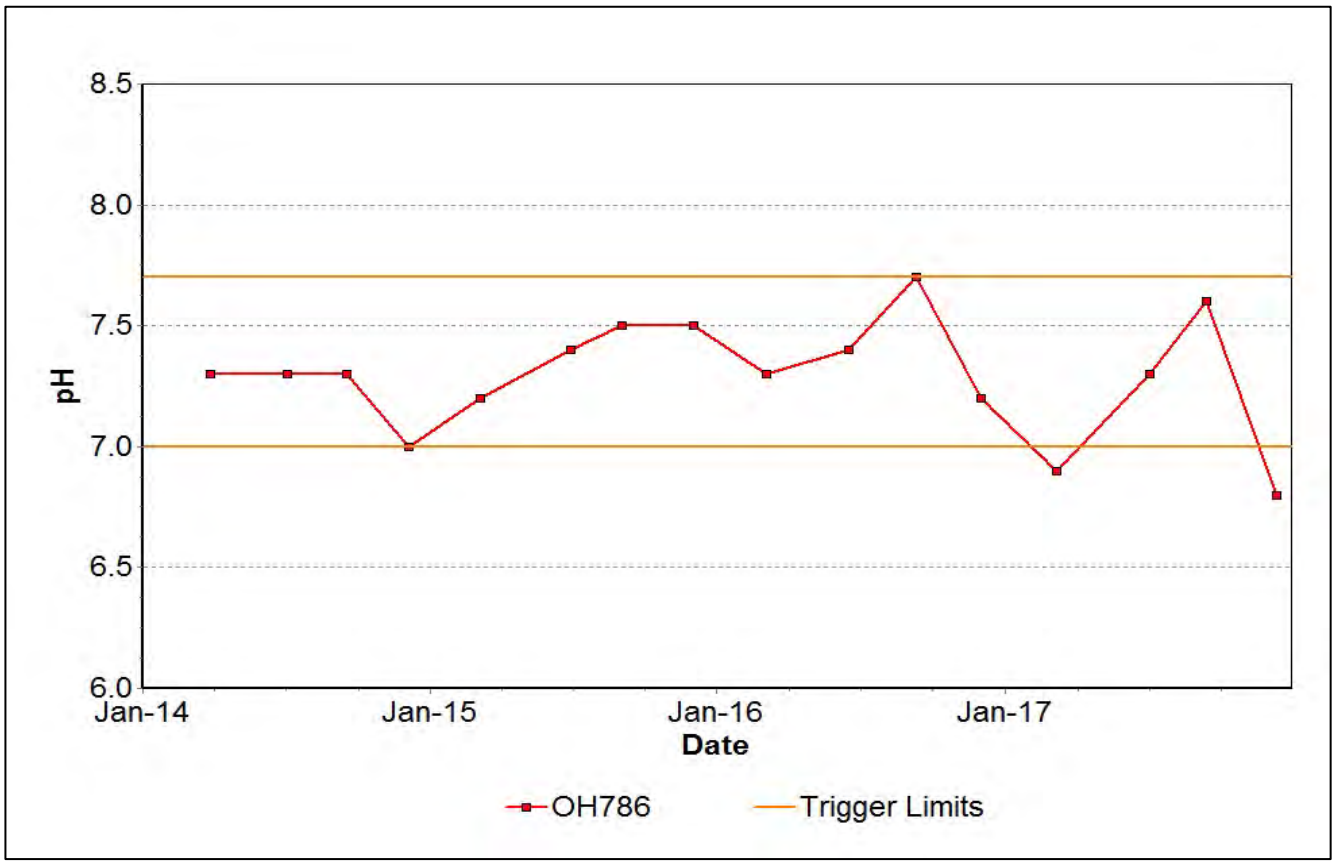


Figure 47: Hunter River Alluvium 1 Seam pH Trend – December 2017

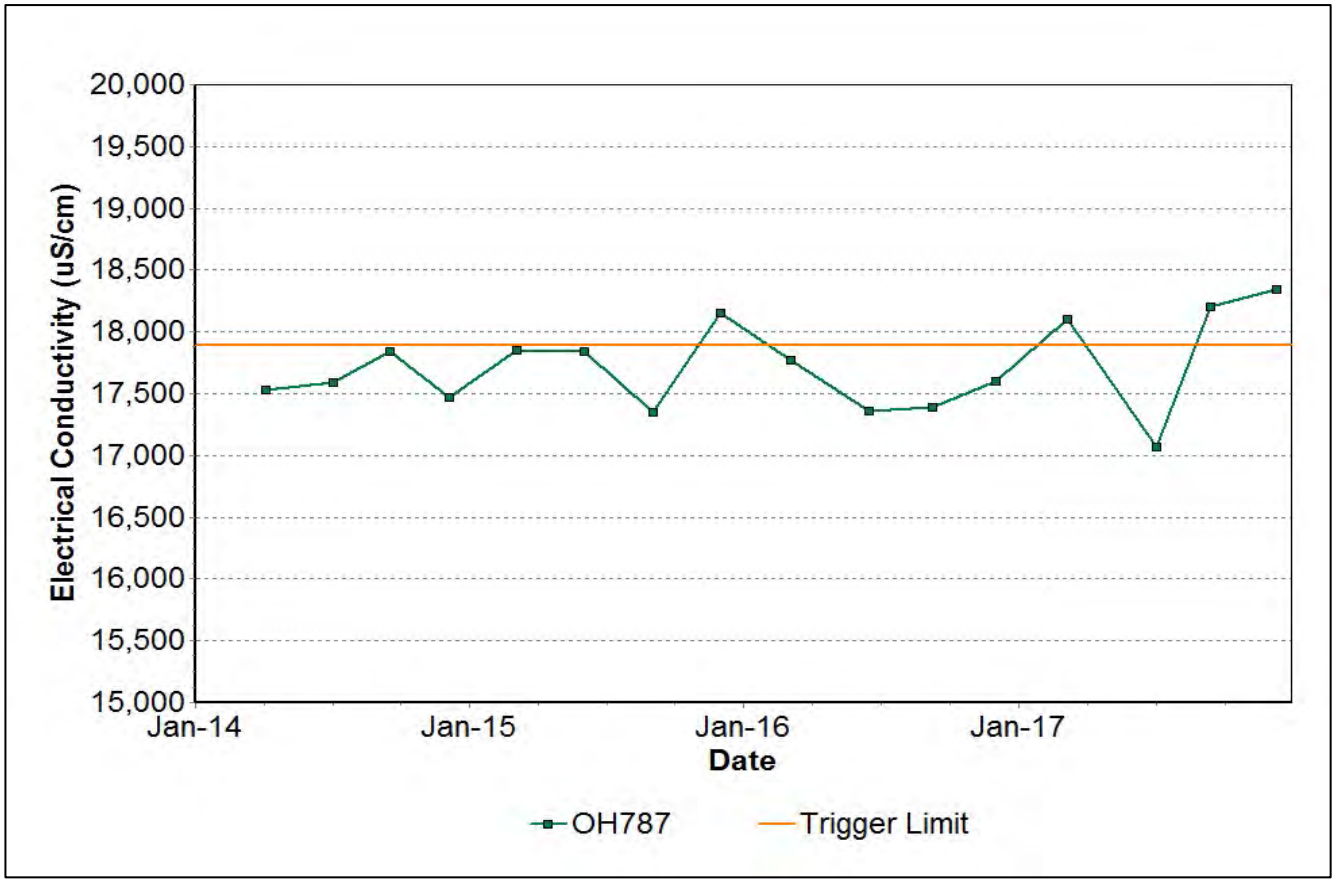


Figure 48: Hunter River Alluvium 2 Seam Electrical Conductivity Trend – December 2017

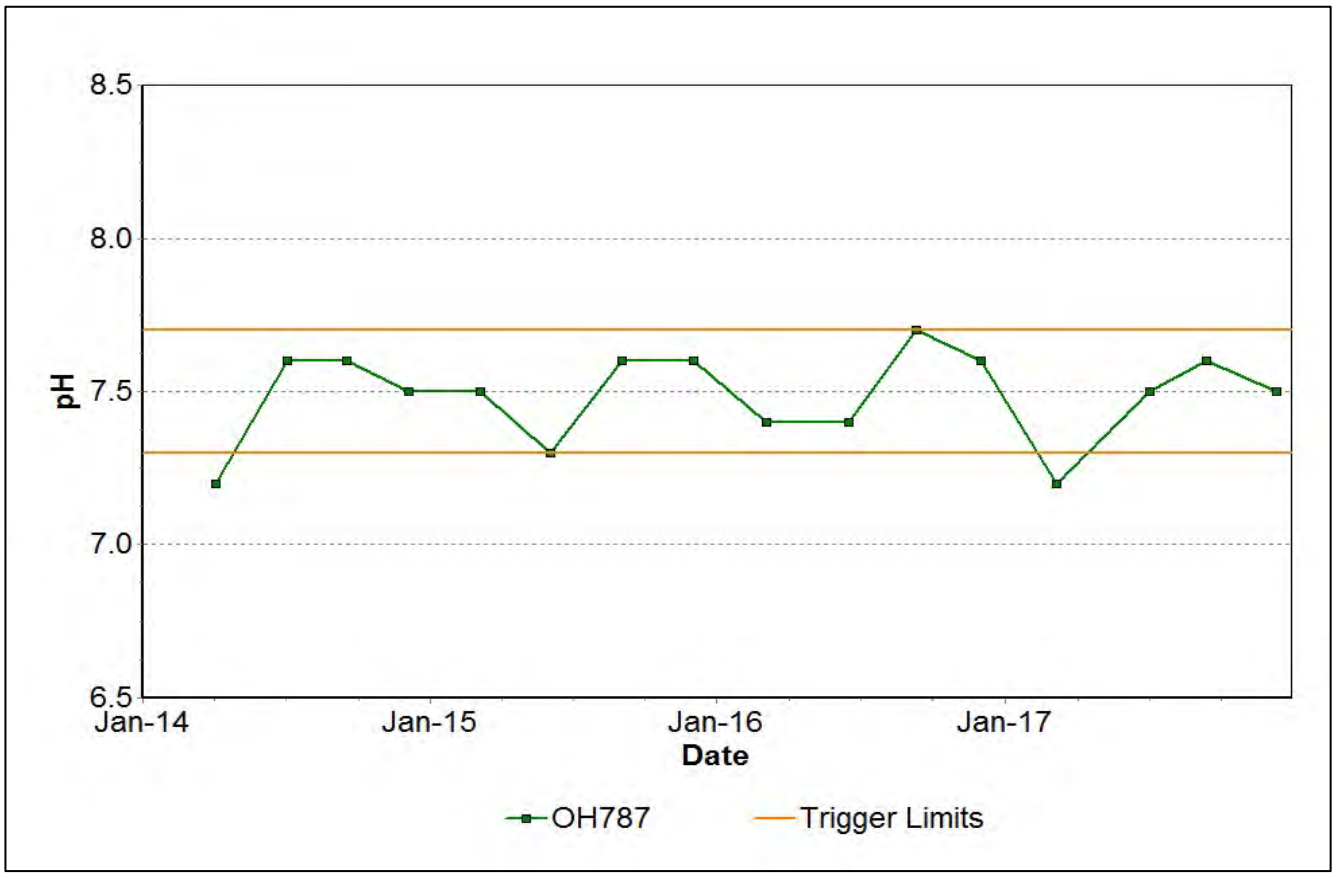


Figure 49: Hunter River Alluvium 2 Seam pH Trend – December 2017

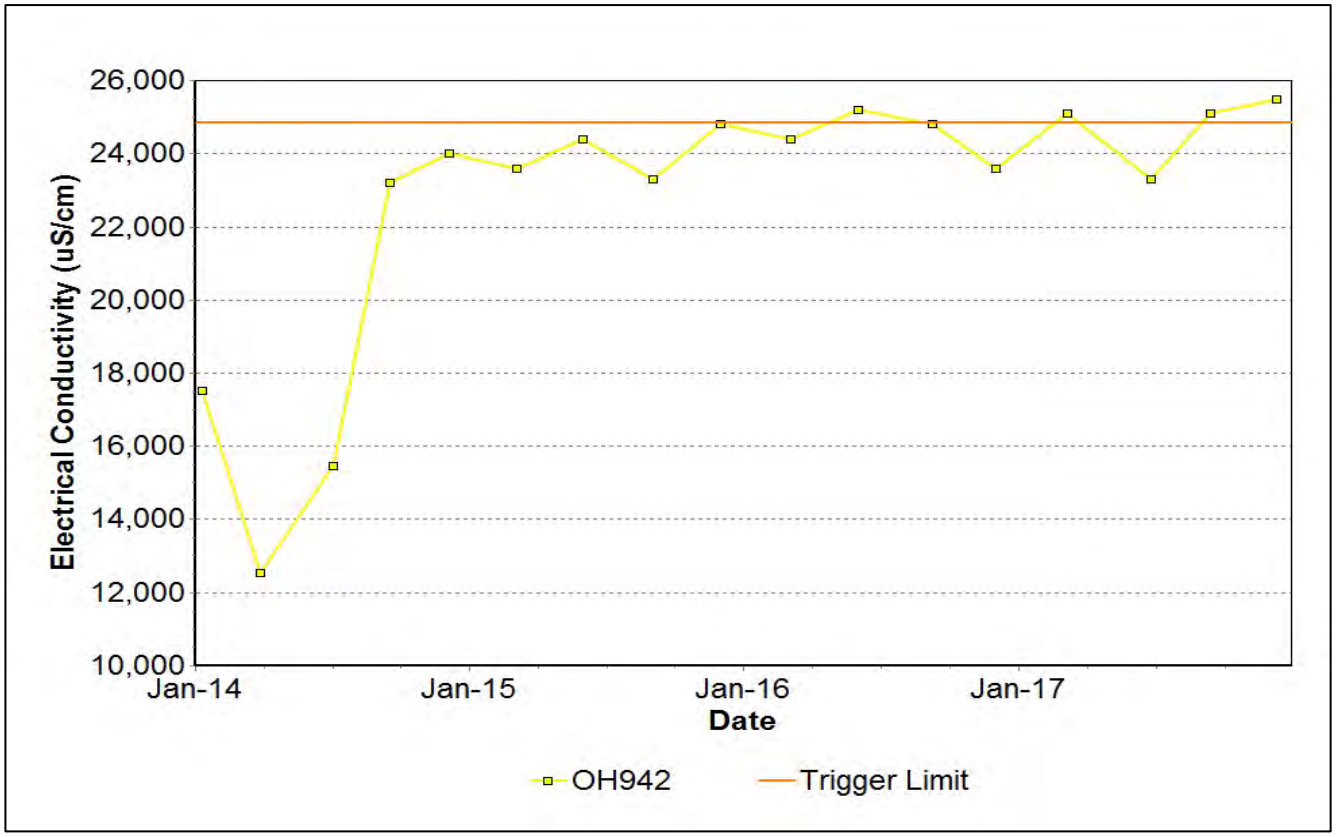


Figure 50: Hunter River Alluvium 3 Seam Electrical Conductivity Trend – December 2017

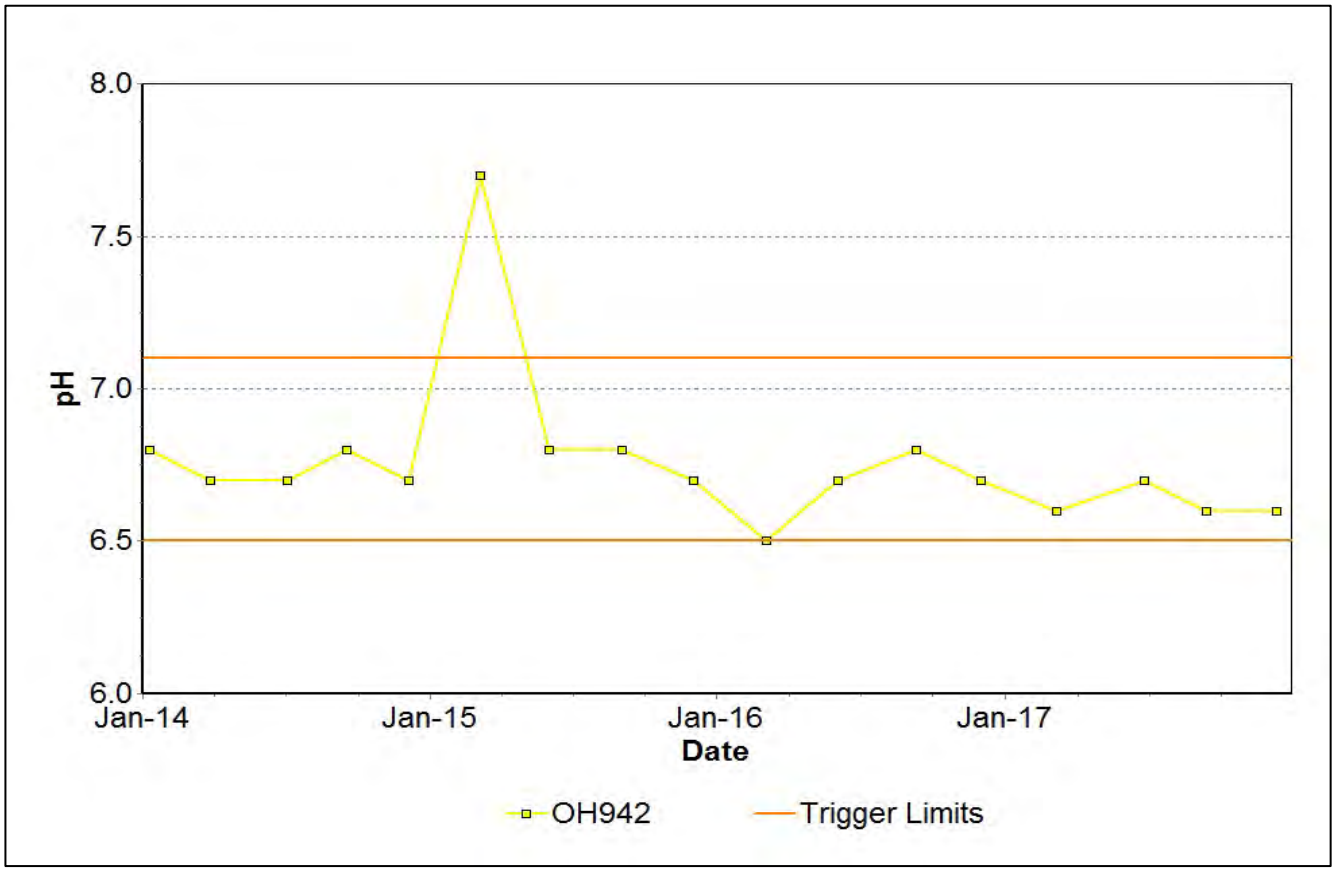


Figure 51: Hunter River Alluvium 3 Seam pH Trend – December 2017

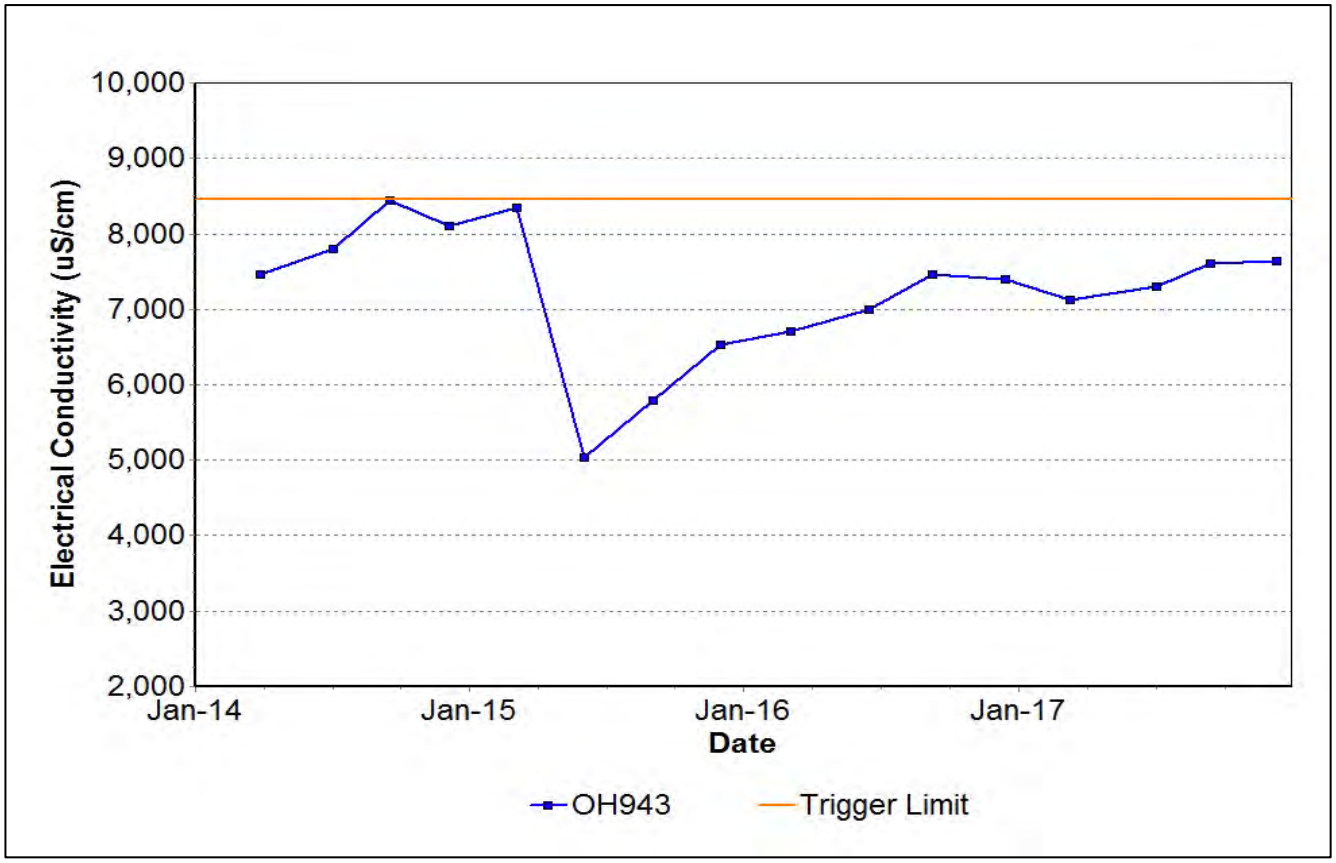


Figure 52: Hunter River Alluvium 4 Seam Electrical Conductivity Trend – December 2017

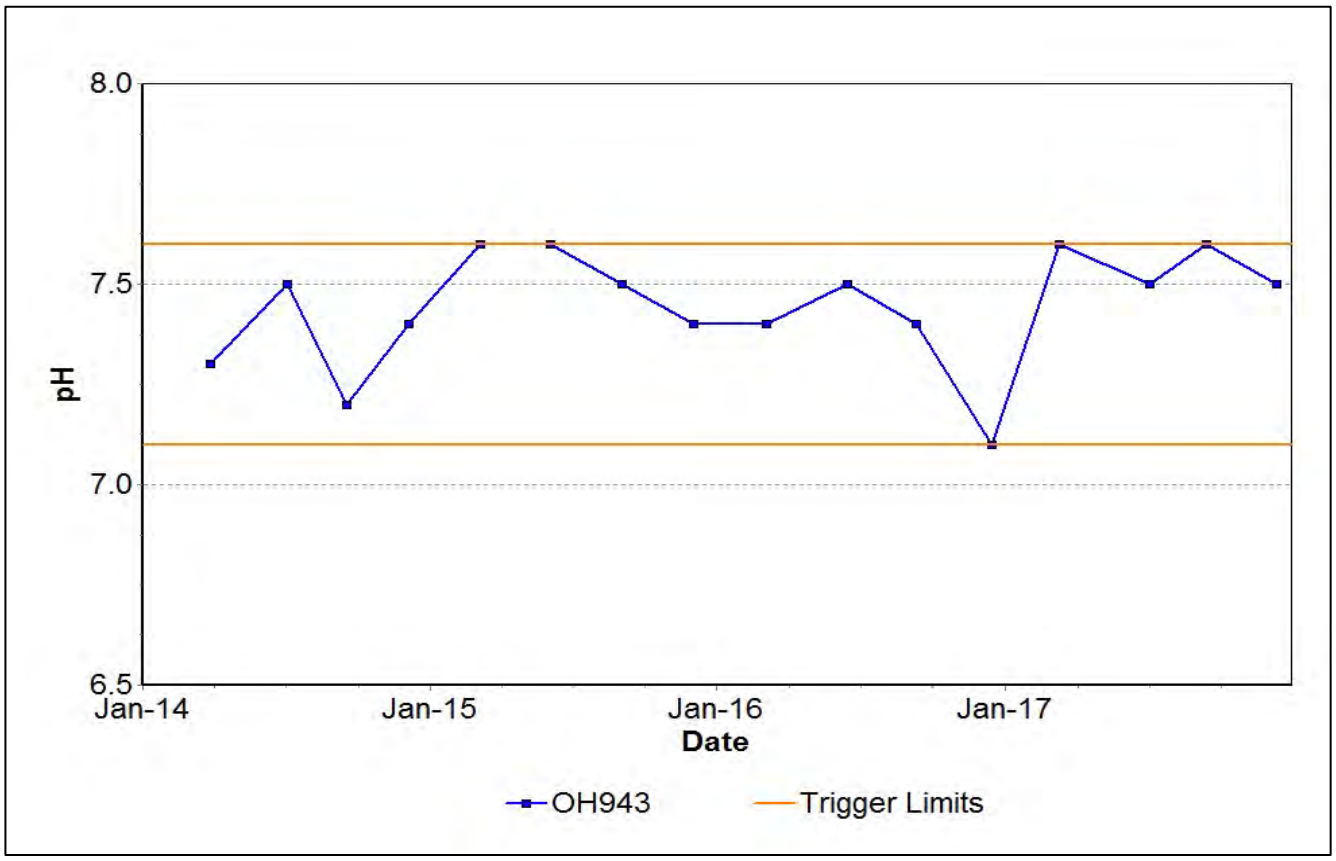
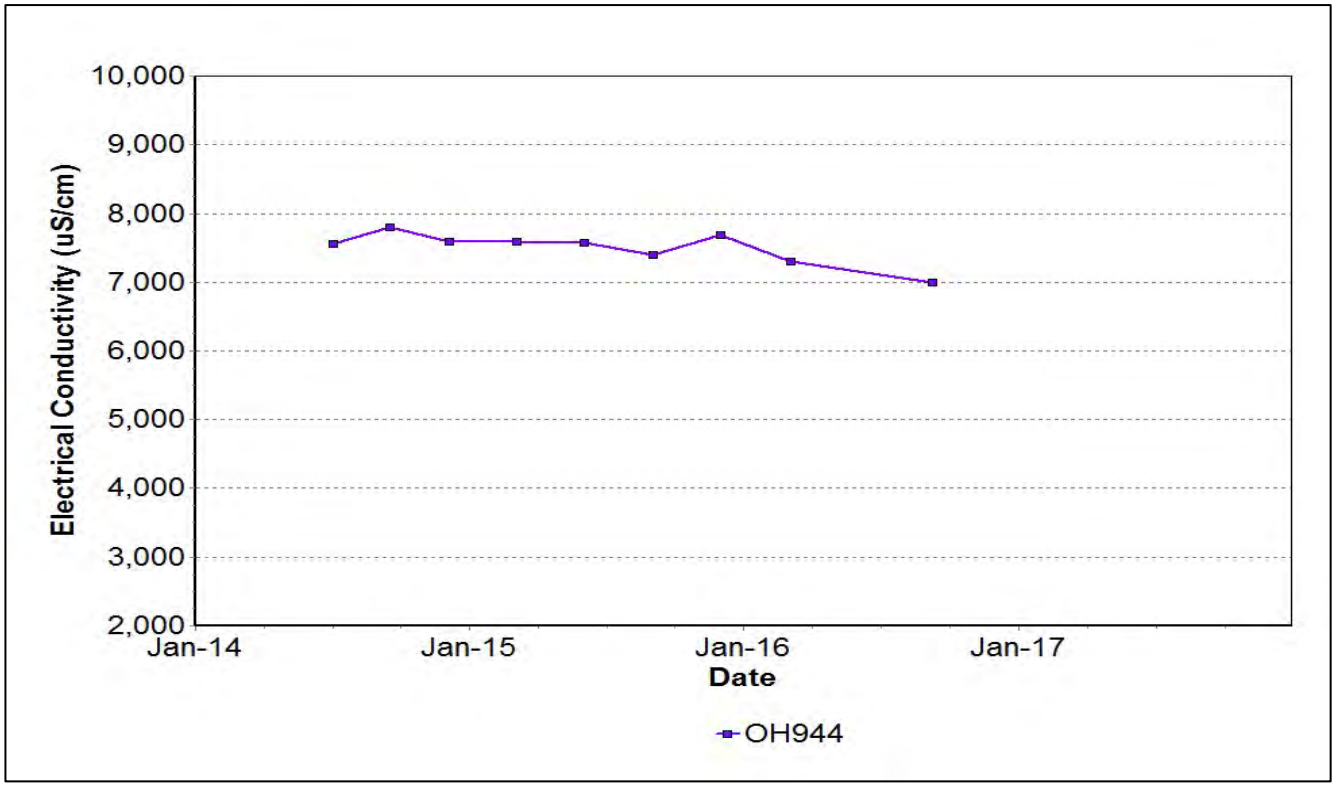


Figure 53: Hunter River Alluvium 4 Seam pH Trend – December 2017



Note: There has been insufficient water to sample since September 2016.

Figure 54: Hunter River Alluvium 5 Seam Electrical Conductivity Trend – December 2017

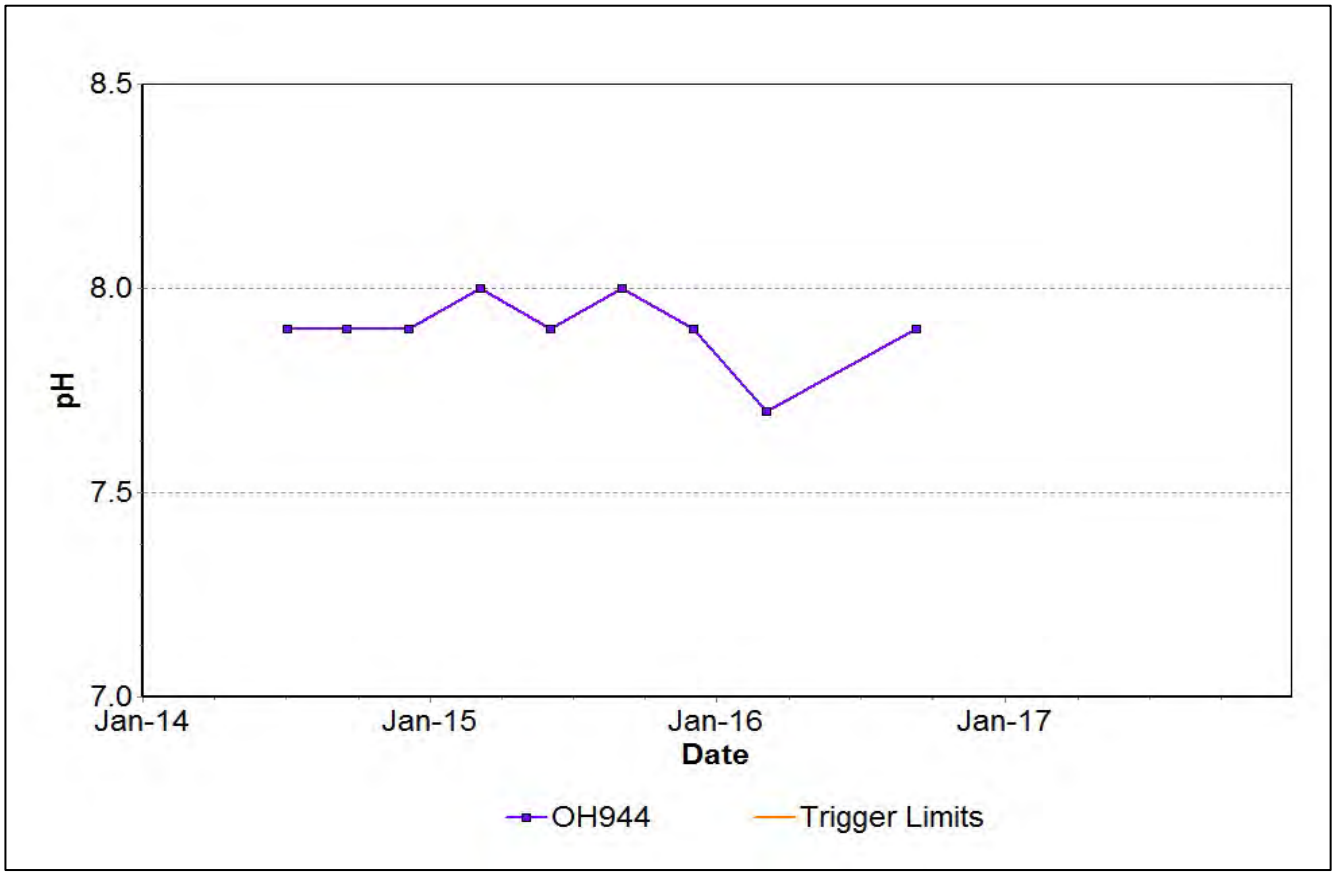


Figure 55: Hunter River Alluvium 5 Seam pH Trend – December 2017

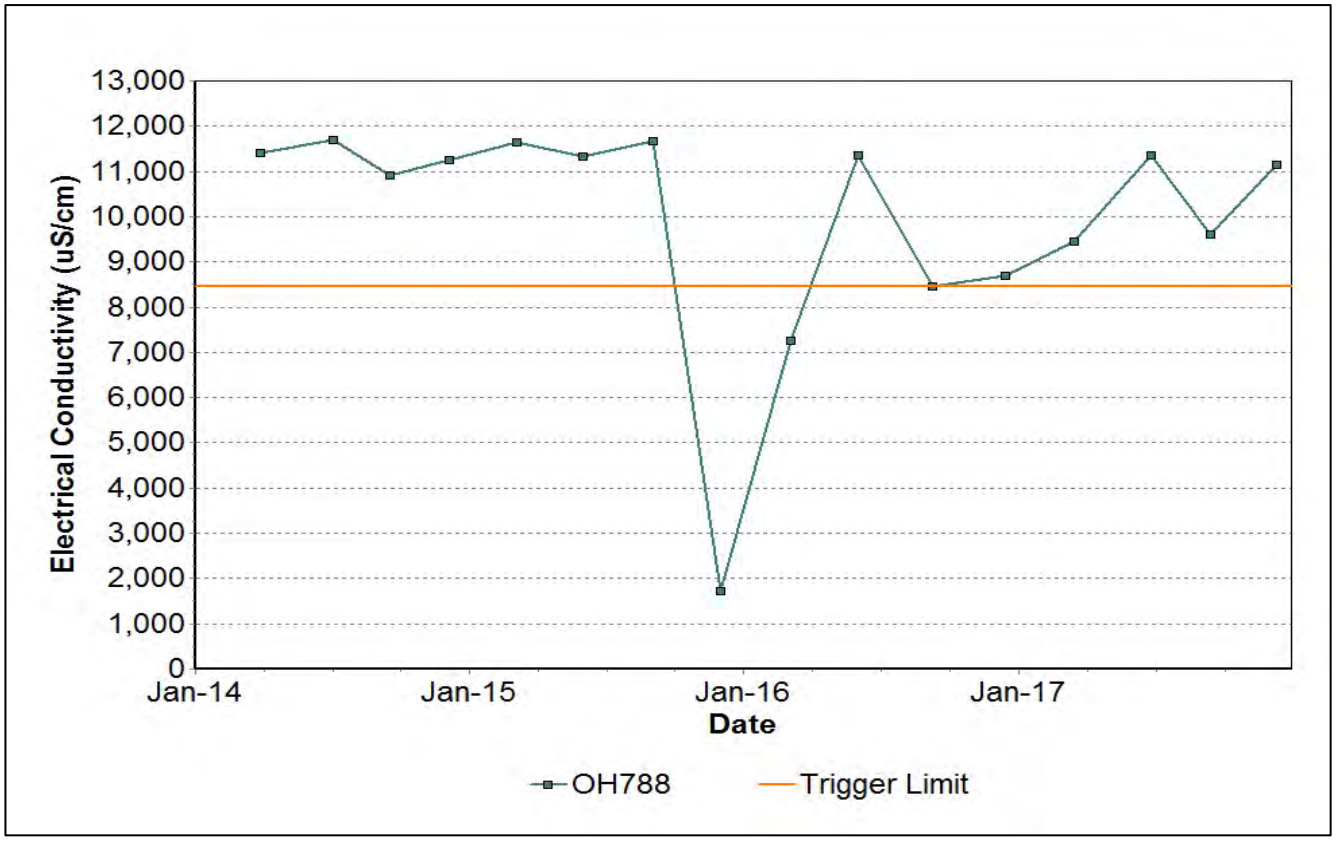


Figure 56: Hunter River Alluvium 6 Seam Electrical Conductivity – December 2017

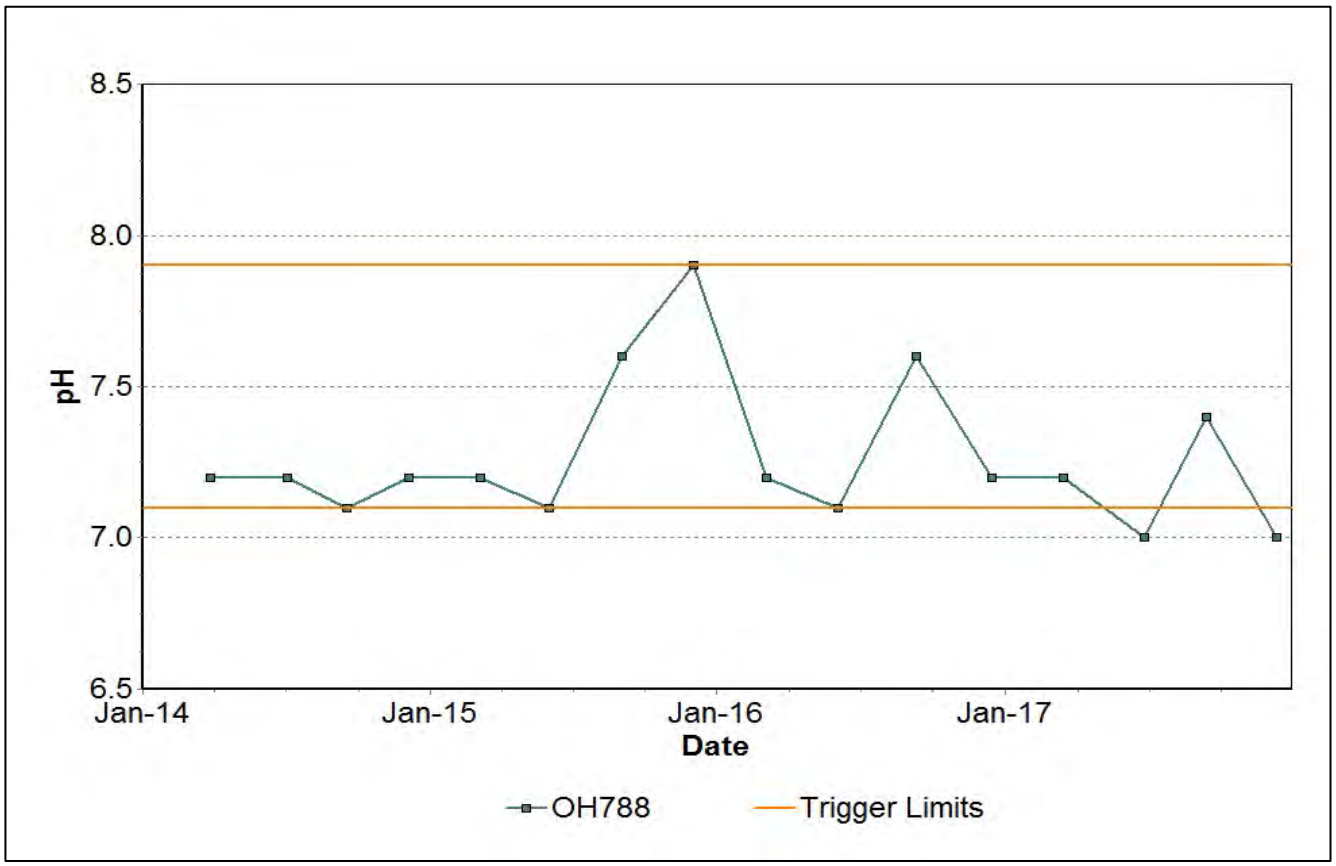


Figure 57: Hunter River Alluvium 6 Seam pH Trend – December 2017

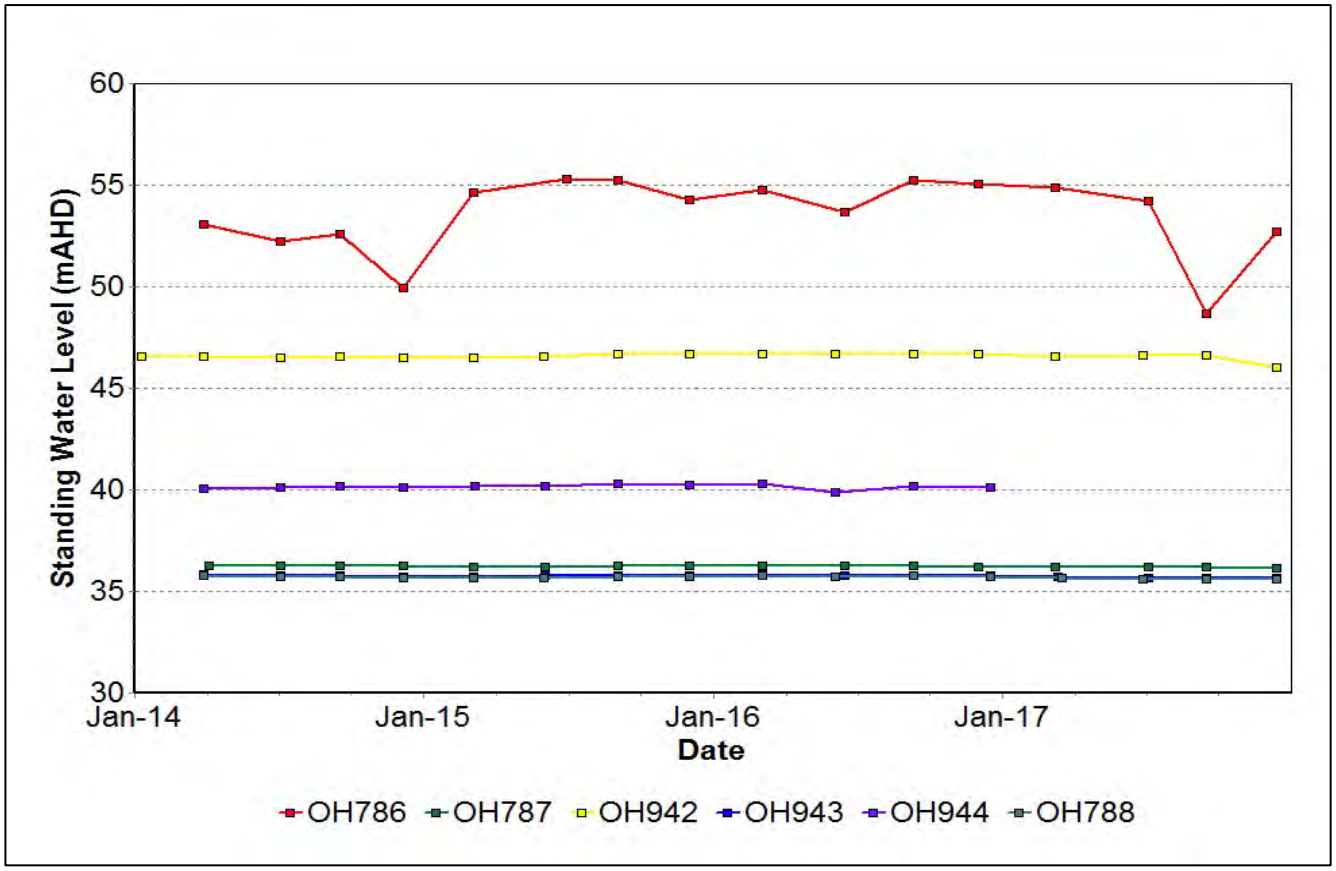


Figure 58: Hunter River Alluvium Standing Water Level Trend – December 2017

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.

Current internal groundwater trigger limit breaches are summarised in Table 3.

Table 3: Groundwater Triggers - 2017

Site	Date	Trigger Limit Breached	Action Taken in Response
OH 786	14/09/2017	EC – 95th Percentile	Watching Brief*
OH 787	07/03/2017	EC – 95th Percentile	Watching Brief*
OH 787	14/09/2017	EC – 95th Percentile	Watching Brief*
OH 787	11/12/2017	EC – 95th Percentile	Watching Brief*
OH942	07/03/2017	EC – 95th Percentile	Watching Brief*
OH942	14/09/2017	EC – 95th Percentile	Watching Brief*
PZ7S	23/11/2017	EC – 95th Percentile	Watching Brief*
GW 9709	14/09/2017	EC – 95th Percentile	Watching Brief*
MTD616P	10/03/2017	EC – 95th Percentile	Data is stable and consistent with historical trend; significant natural variability in water quality is typical of low-conductivity shallow overburden material. No further action.
MTD616P	03/07/2017	EC – 95th Percentile	Watching Brief*
MTD616P	24/08/2017	EC – 95th Percentile	Data is stable and consistent with historical trend; significant natural variability in water quality is typical of low-conductivity shallow overburden material. No further action
MTD616P	23/11/2017	EC – 95th Percentile	Watching Brief*
MB15MTW02D	25/08/2017	EC – 95th Percentile	Watching Brief*
MBW02	01/09/2017	EC – 95th Percentile	Watching Brief*
MB15MTW03	28/08/2017	EC – 95th Percentile	Watching Brief*
MTD605P	07/03/2017	EC – 95th Percentile	Data is stable and consistent with historical trend; significant natural variability in water quality is typical of low-conductivity shallow overburden material. No further action.
MTD605P	27/06/2017	EC – 95th Percentile	Watching Brief*
MTD605P	14/09/2017	EC – 95th Percentile	Data is stable and consistent with historical trend; significant natural variability in water quality is typical of low-conductivity shallow overburden material. No further action.

MTD605P	23/11/2017	EC – 95th Percentile	Watching Brief*
MB15MTW03	25/08/2017	EC – 95th Percentile	Watching Brief*
MB15MTW03	23/11/2017	EC – 95th Percentile	Watching Brief*
PZ9D	07/03/2017	EC – 95th Percentile	Watching Brief*
PZ9D	14/09/2017	EC – 95th Percentile	Watching Brief*
PZ9D	11/12/2017	EC – 95th Percentile	Watching Brief*
OH1137	14/09/2017	EC – 95th Percentile	Watching Brief*
OH1137	11/12/2017	EC – 95th Percentile	Watching Brief*
WD622P	30/06/2017	EC – 95th Percentile	Watching Brief*
MBW04	01/09/2017	EC – 95th Percentile	Watching Brief*
MBW04	24/11/2017	EC – 95th Percentile	Watching Brief*
WOH2156B	10/03/2017	EC – 95th Percentile	Data is stable and consistent with historical trend; no further action.
WOH2156B	30/06/2017	EC – 95th Percentile	Watching Brief*
WOH2156B	24/08/2017	EC – 95th Percentile	Data is stable and consistent with historical trend; no further action.
WOH2156B	23/11/2017	EC – 95th Percentile	Watching Brief*
OH1138(1)	14/09/2017	EC – 95th Percentile	Watching Brief*
OH1138(2)	11/12/2017	EC – 95th Percentile	Watching Brief*
OH786	07/03/2017	PH –5th Percentile	Watching Brief*
OH786	11/12/2017	PH –5th Percentile	Watching Brief*
OH787	07/03/2017	PH –5th Percentile	Watching Brief*
OH943	11/12/2017	PH –5th Percentile	Watching Brief*
OH788	26/06/2017	PH –5th Percentile	Watching Brief*
GW9709	10/03/2017	PH –5th Percentile	Data broadly in line with historical range; EC or water level do not show a rising or falling trend. Watching brief to be maintained.

GW9709	11/12/2017	PH –5th Percentile	Watching Brief*
GW98MTCL2	10/03/2017	PH –5th Percentile	Watching Brief*
GW98MTCL2	23/07/2017	PH –5th Percentile	Watching Brief*
GW98MTCL2	14/09/2017	PH –5th Percentile	Results in line with historical data, continue to watch and monitor.
MTD616P	03/07/2017	PH –5th Percentile	Watching Brief*
MTD605P	14/09/2017	PH –5th Percentile	Watching Brief*
G3	07/03/2017	PH –5th Percentile	Bore partially collapsed in early 2016 so data may not be representative of aquifer. Removal from monitoring programme has been recommended following review of data from nearby bores.
OH1138(1)	04/07/2017	PH –5th Percentile	Watching Brief*
OH1138(1)	14/09/2017	PH –5th Percentile	Watching Brief*
OH1138(1)	11/12/2017	PH –5th Percentile	Investigation into pH trend commenced. Results to be reported in Annual Review
MB15MTW03	23/11/2017	PH –5th Percentile	Watching Brief*
WOH2139A	25/08/2017	PH –95th Percentile	Watching Brief*
WOH2139A	23/11/2017	PH –95th Percentile	Watching Brief*

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

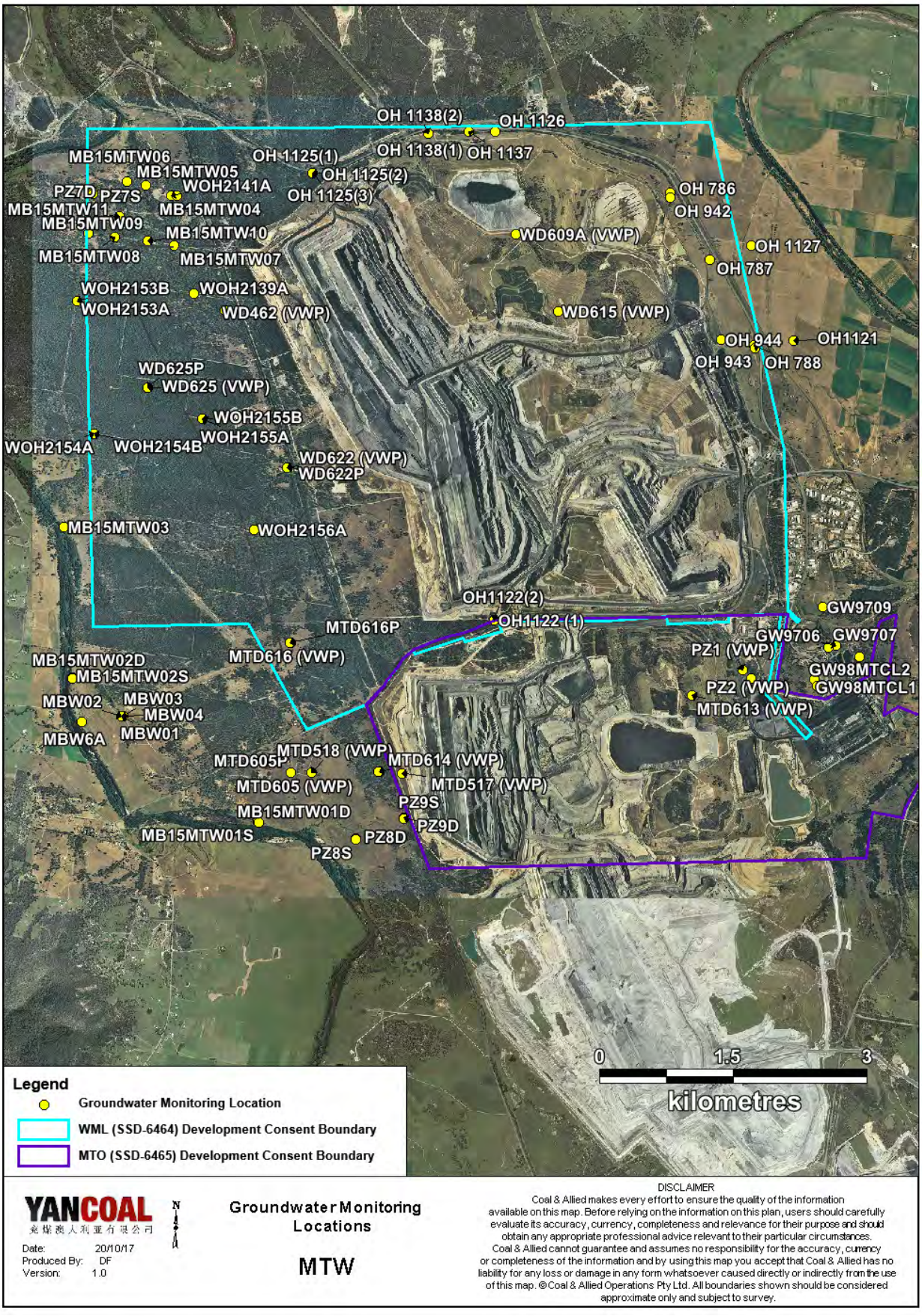


Figure 59: Groundwater Monitoring Location Plan

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 December 2017, 22 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

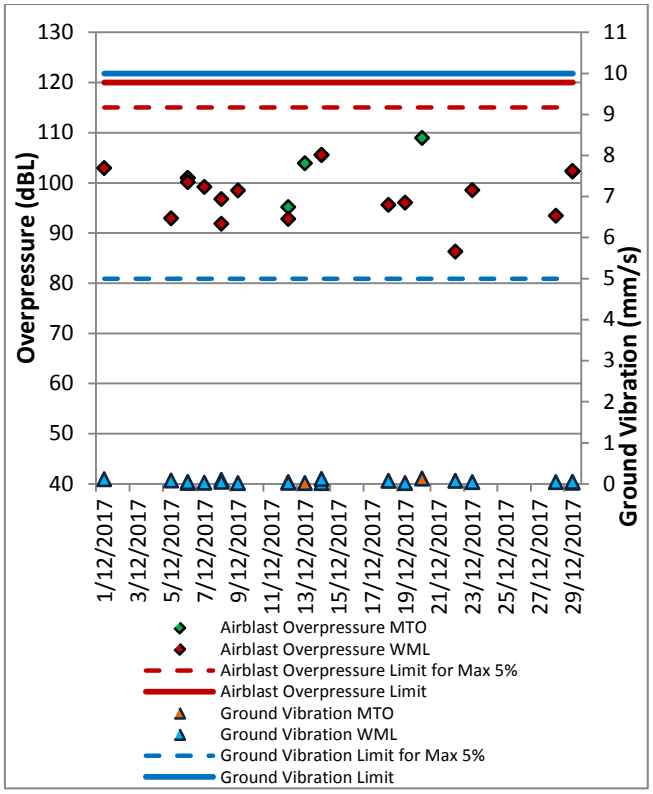


Figure 60: Abbey Green Blast Monitoring Results – December 2017

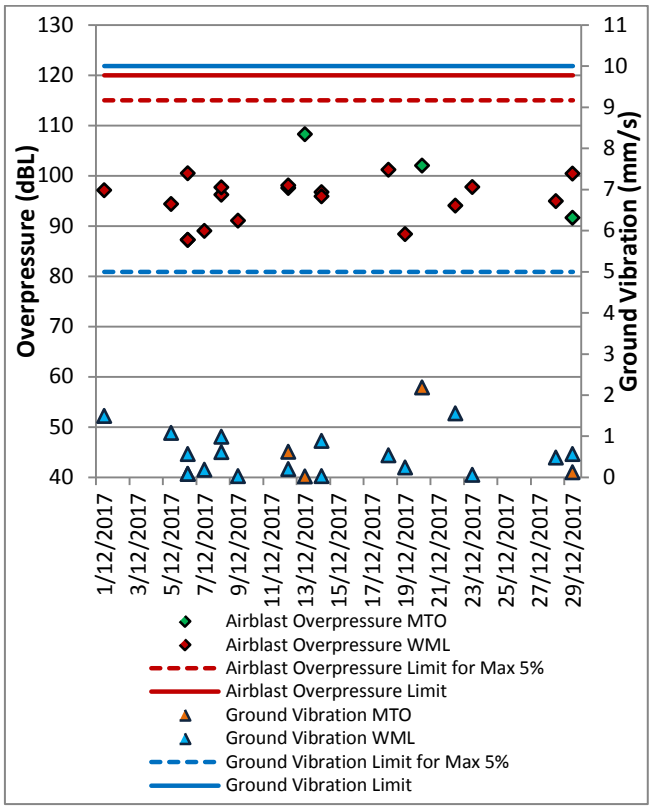


Figure 61: Bulga Village Blast Monitoring Results – December 2017

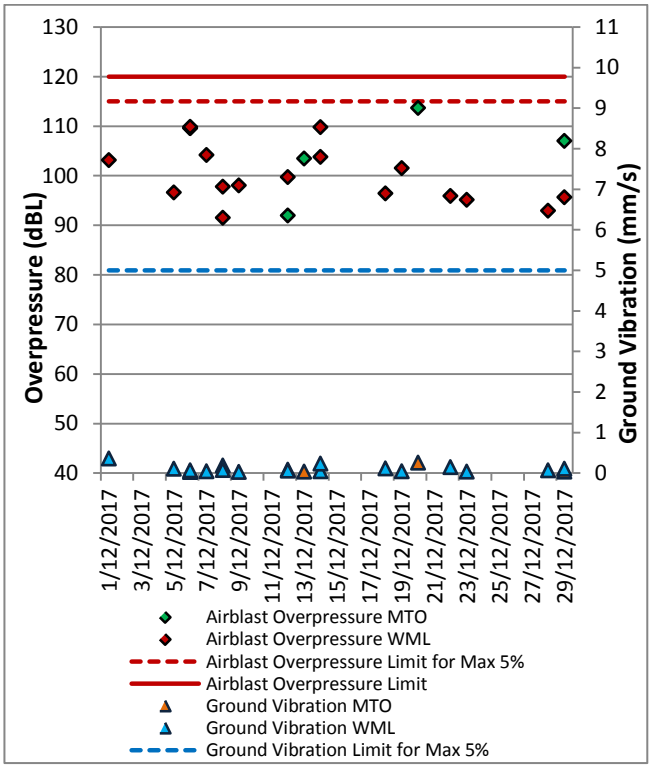


Figure 62: MTIE Blast Monitoring Results – December 2017

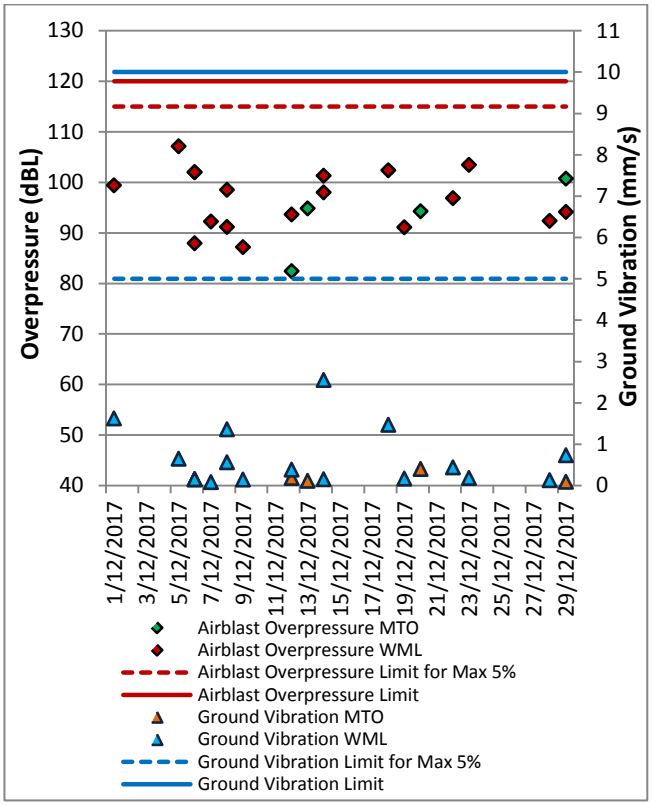


Figure 63: Warkworth Blast Monitoring Results - December 2017

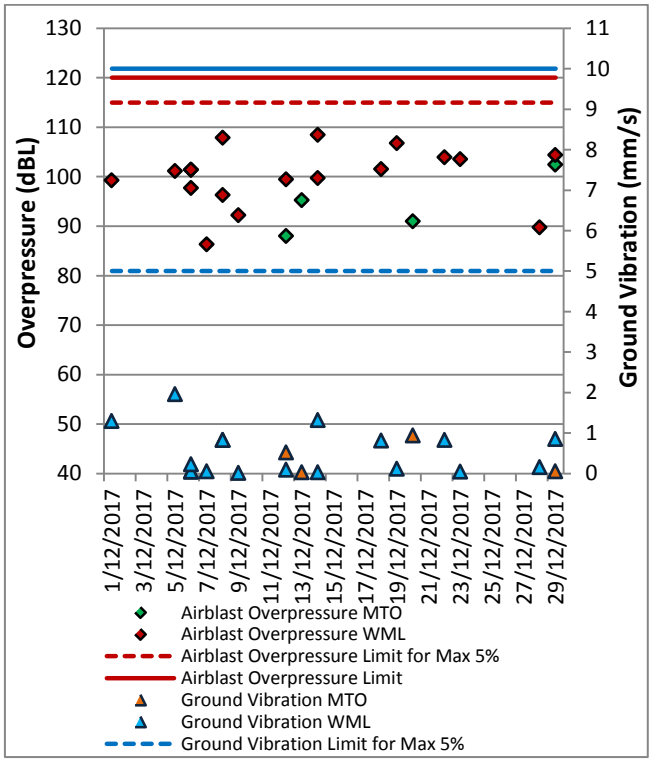


Figure 64: Wambo Road Blast Monitoring Results – December 2017

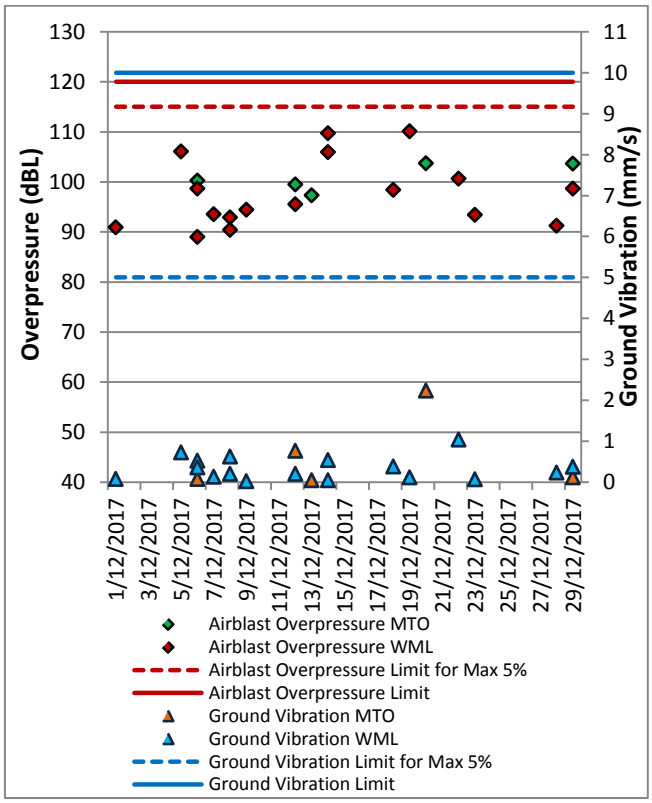


Figure 65: Wollemi Peak Road Blast Monitoring Results - December 2017

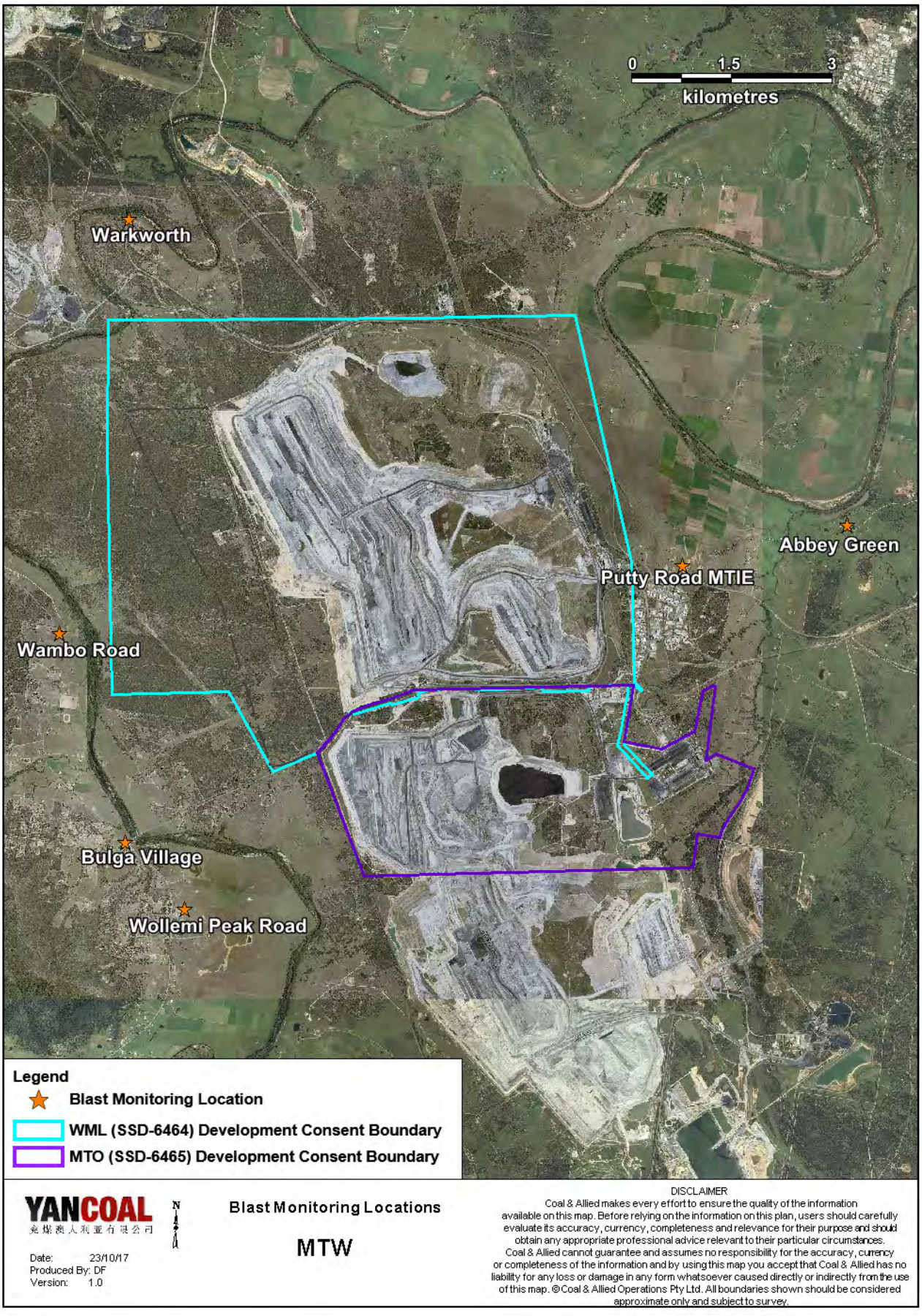


Figure 66: Blast and Vibration Monitoring Location Plan

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 five 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 4 December 2017. All measurements complied with the relevant criteria. Results are detailed in Table 5 to Table 8.

5.1.1 WML Noise Assessment

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

Table 5: $L_{Aeq,\ 15\ minute}$ Warkworth Impact Assessment Criteria – December 2017

Location	Date and Time	Wind Speed (m/s)[5]	Stability Class	Criterion (dB(A))	Criterion Applies?[1,5]	WML L_{Aeq} dB[2,4]	Exceedance[3]
Bulga RFS	4/12/2017 21:02	3.7	D	37	No	IA	NA
Bulga Village	4/12/2017 21:59	3.7	D	38	No	IA	NA
Gouldsville	4/12/2017 22:53	3.9	D	38	No	<30	NA
Inlet Rd	4/12/2017 21:09	3.7	D	37	No	IA	NA
Inlet Rd West	4/12/2017 21:32	3.5	D	35	No	IA	NA
Long Point	4/12/2017 22:29	4.4	D	35	No	IA	NA
South Bulga	4/12/2017 21:40	4.6	D	35	No	IA	NA
Wambo Road	4/12/2017 22:22	4.1	D	38	No	IA	NA

Notes:
1. Noise emission limits apply during all meteorological conditions except the following: during periods of rain or hail; average wind speed at microphone height exceeds 5 m/s; wind speeds greater than 3 m/s measured at 10 metres above ground level; stability category F temperature inversion conditions and wind speeds greater than 2m/s at 10m above ground level; or stability category G temperature inversion conditions;
2. Estimated or measured LAeq,15minute attributed to WML;
3. NA means atmospheric conditions outside conditions specified in development consent and so criterion is not applicable;
4. Bolded results in red are possible exceedances of relevant criteria; and
5. Criterion may or may not apply due to rounding of meteorological data values.

Table 6: $L_{A1,\ 1\ minute}$ Warkworth Impact Assessment Criteria – December 2017

Location	Date and Time	Wind Speed (m/s)[5]	Stability Class	Criterion (dB(A))	Criterion Applies?[1,5]	WML L_{Aeq} dB[2,4]	Exceedance[3]
Bulga RFS	4/12/2017 21:02	3.7	D	47	No	IA	NA
Bulga Village	4/12/2017 21:59	3.7	D	48	No	IA	NA
Gouldsville	4/12/2017 22:53	3.9	D	48	No	<30	NA
Inlet Rd	4/12/2017 21:09	3.7	D	47	No	IA	NA
Inlet Rd West	4/12/2017 21:32	3.5	D	45	No	IA	NA
Long Point	4/12/2017 22:29	4.4	D	45	No	IA	NA
South Bulga	4/12/2017 21:40	4.6	D	45	No	IA	NA
Wambo Road	4/12/2017 22:22	4.1	D	48	No	IA	NA

Notes:
1. Noise emission limits apply during all meteorological conditions except the following: during periods of rain or hail; average wind speed at microphone height exceeds 5 m/s; wind speeds greater than 3 m/s measured at 10 metres above ground level; stability category F temperature inversion conditions and wind speeds greater than 2m/s at 10m above ground level; or stability category G temperature inversion conditions;
2. Estimated or measured LA1,1minute attributed to Warkworth mine (WML);
3. NA in exceedance column means atmospheric conditions outside conditions specified in project approval and so criterion is not applicable.
4. Bolded results in red are possible exceedances of relevant criteria; and
5. Criterion may or may not apply due to rounding of meteorological data values.

5.1.2 MTO Noise Assessment

Compliance assessments undertaken against the MTO noise criteria are presented in Table 7and Table 8..

Table 7: $L_{Aeq, 15minute}$ Mount Thorley Operations - Impact Assessment Criteria – December 2017

Location	Date and Time	Wind Speed (m/s)[5]	Stability Class	Criterion dB	Criterion Applies?[1,5]	MTO L_{Aeq} dB[2,4]	Exceedance[3]
Bulga RFS	4/12/2017 21:02	3.7	D	37	No	25	NA
Bulga Village	4/12/2017 21:59	3.7	D	38	No	28	NA
Gouldsville	4/12/2017 22:53	3.9	D	35	No	IA	NA
Inlet Rd	4/12/2017 21:09	3.7	D	37	No	<25	NA
Inlet Rd West	4/12/2017 21:32	3.5	D	35	No	26	NA
Long Point	4/12/2017 22:29	4.4	D	35	No	IA	NA
South Bulga	4/12/2017 21:40	4.6	D	36	No	25	NA
Wambo Road	4/12/2017 22:22	4.1	D	38	No	30	NA

Notes:
1. Noise emission limits apply during all meteorological conditions except the following: during periods of rain or hail; average wind speed at microphone height exceeds 5 m/s; wind speeds greater than 3 m/s measured at 10 metres above ground level; stability category F temperature inversion conditions and wind speeds greater than 2m/s at 10m above ground level; or stability category G temperature inversion conditions;
2. Estimated or measured LAeq,15minute attributed to MTO;
3. NA means atmospheric conditions outside conditions specified in development consent and so criterion is not applicable;
4. Bolded results in red are possible exceedances of relevant criteria; and
5. Criterion may or may not apply due to rounding of meteorological data values.

Table 8: $L_{A1, 1Minute}$ Mount Thorley Operations - Impact Assessment Criteria – December 2017

Location	Date and Time	Wind Speed (m/s)[5]	Stability Class	Criterion dB	Criterion Applies?[1,5]	MTO $L_{A1, 1min}$ dB[2,4]	Exceedance[3]
Bulga RFS	4/12/2017 21:02	3.7	D	47	No	30	NA
Bulga Village	4/12/2017 21:59	3.7	D	48	No	32	NA
Gouldsville	4/12/2017 22:53	3.9	D	45	No	IA	NA
Inlet Rd	4/12/2017 21:09	3.7	D	47	No	NM	NA
Inlet Rd West	4/12/2017 21:32	3.5	D	45	No	NM	NA
Long Point	4/12/2017 22:29	4.4	D	45	No	IA	NA
South Bulga	4/12/2017 21:40	4.6	D	46	No	33	NA
Wambo Road	4/12/2017 22:22	4.1	D	48	No	33	NA

Notes
1. Noise emission limits apply during all meteorological conditions except the following: during periods of rain or hail; average wind speed at microphone height exceeds 5 m/s; wind speeds greater than 3 m/s measured at 10 metres above ground level; stability category F temperature inversion conditions and wind speeds greater than 2m/s at 10m above ground level; or stability category G temperature inversion conditions;
2. Estimated or measured LA1,1minute attributed to MTO;
3. NA in exceedance column means atmospheric conditions outside conditions specified in project approval and so criterion is not applicable.
4. Bolded results in red are possible exceedances of relevant criteria; and
5. Criterion may or may not apply due to rounding of meteorological data values.

5.1.3 Low Frequency Assessment

In accordance with the requirements of the EPA's Noise Policy for Industry (NPfI), the applicability of the low frequency modification penalty has been assessed. During December 2017 no measurements required the penalty to be applied. The assessment for low frequency noise is shown in Table 9

Table 9: Low Frequency Noise Assessment - December 2017

Location	Date and Time	Measured Site Only LA_{eq} dB (WML/MTO)	Site Only LC_{eq} dB[4] (WML/MTO)	Site Only LC_{eq}-LA_{eq} dB $_{1,4}$ (WML/MTO)	Result Max exceedance of ref spectrum dB[2,3,4] (WML/MTO)	Penalty dB(A) (WML/MTO)	Exceedance
Bulga RFS	4/12/2017 21:02	IA/25	NA/NA	NA/NA	NA/NA	NA/NA	NA
Bulga Village	4/12/2017 21:59	IA/28	NA/55	NA/27	NA/Nil	NA/0	NA
Gouldsville	4/12/2017 22:53	<30/IA	NA/NA	NA/NA	NA/NA	NA/NA	NA
Inlet Rd	4/12/2017 21:09	IA/<25	NA/NA	NA/NA	NA/NA	NA/NA	NA
Inlet Rd West	4/12/2017 21:32	IA/26	NA/52	NA/26	NA/Nil	NA/0	NA
Long Point	4/12/2017 22:29	IA/IA	NA/NA	NA/NA	NA/NA	NA/NA	NA
South Bulga	4/12/2017 21:40	IA/25	NA/NA	NA/NA	NA/NA	NA/NA	NA
Wambo Road	4/12/2017 22:22	IA/30	NA/54	NA/24	NA/Nil	NA/0	NA

Notes:
1. As per NPfI, if LCeq – LAeq >= 15 dB further assessment of low frequency noise required.
2. As per NPfI, compare measured spectrum against reference spectrum to determine if the low frequency modifying factor is triggered and application of penalty is required;
3. Bold results and penalties in red are where the relevant modifying factor trigger was exceeded; and
4. Where it is not possible to determine the site only result due to the presence of other low frequency noise sources occurring during the measurement, or where criteria were not applicable due to meteorological conditions, this is noted as NA (not available) and no further assessment has been undertaken.

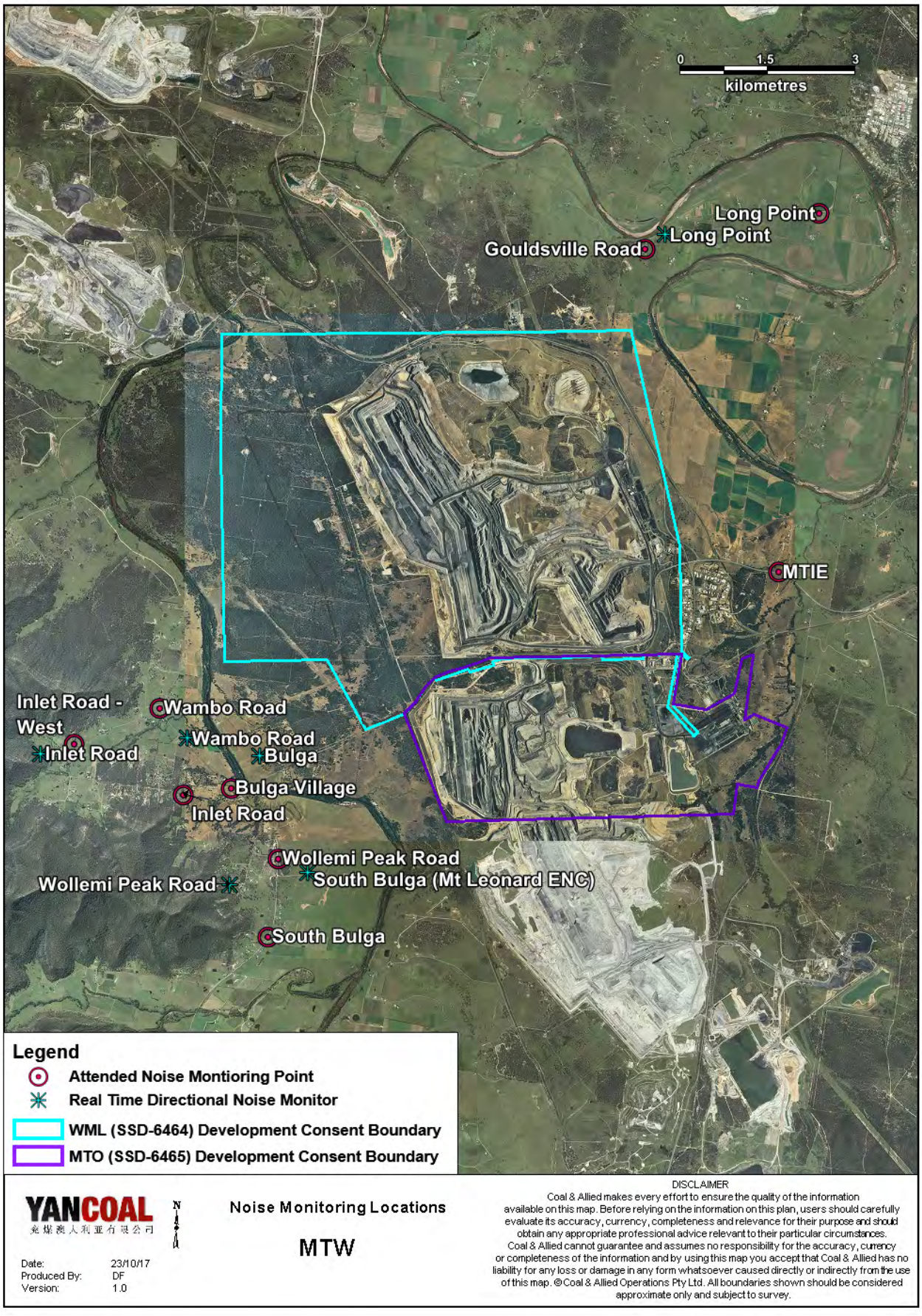


Figure 67: Noise Monitoring Location Plan

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:

- 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 December are provided in Table 10.

Table 10: Supplementary Attended Noise Monitoring Data –December 2017

No. of assessments	No. of assessments > trigger	No. of nights where assessments > trigger	% greater than trigger
525	3	2	0.6

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

6.0 OPERATIONAL DOWNTIME

During December a total of 1520 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.

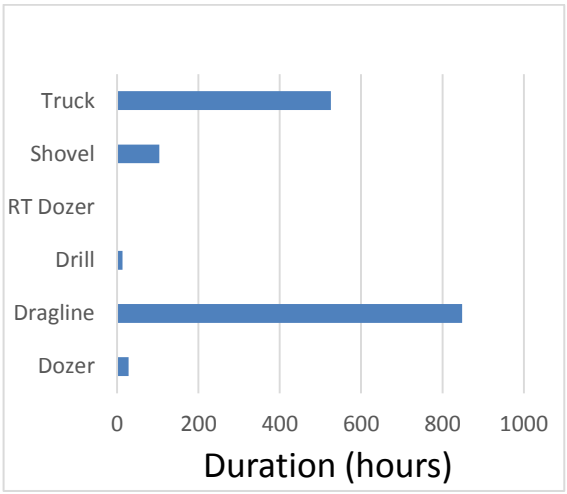


Figure 68: Operational Downtime by Equipment Type – December 2017

7.0 REHABILITATION

During December, 0.8Ha of land was released, 2.0Ha was bulk shaped, 5.2Ha was top soiled, 2.8Ha was composted and 5.5Ha was rehabilitated. Year-to-date progress can be viewed in Figure 69

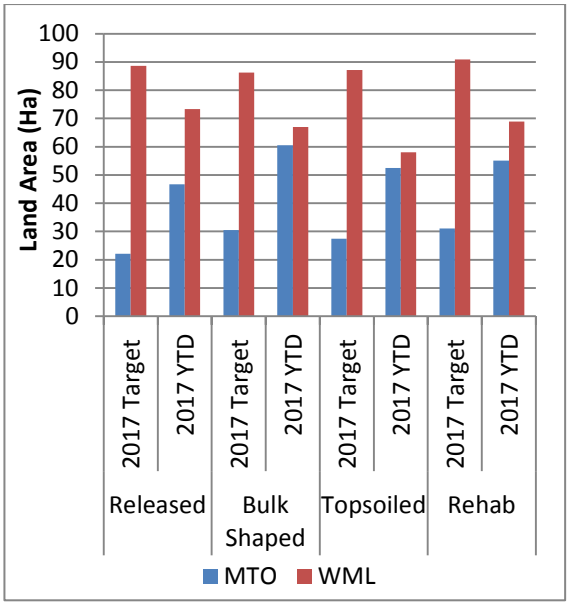


Figure 69: Rehabilitation YTD - December 2017

8.0 ENVIRONMENTAL INCIDENTS

There were no reportable environmental incidents during the reporting period.

9.0 COMPLAINTS

During the reporting period 32 complaints were received, details of these complaints are displayed in Figure 70 below.

	Noise	Dust	Blast	Lighting	Other	Total
January	5	6	3	1	0	15
February	25	3	10	3	0	41
March	14	1	1	2	0	18
April	27	1	7	2	0	37
May	18	4	7	10	3	42
June	10	3	4	3	0	20
July	10	10	8	0	2	30
August	8	18	5	4	1	36
September	21	15	6	2	3	47
October	21	8	6	2	2	39
November	12	5	5	2	1	25
December	17	6	3	2	4	32
Total	188	80	65	33	16	382

Figure 70: Complaints Summary - YTD December 2017

Appendix A: Meteorological Data

Table 11: Meteorological Data – Charlton Ridge Meteorological Station – December 2017

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)
1/12/2017	36	17	88	22	1208	162	2.5	0.0
2/12/2017	30	15	96	38	1144	237	4.3	13.8
3/12/2017	27	15	89	32	1223	299	5.0	0.2
4/12/2017	25	15	84	47	1455	164	3.2	0.0
5/12/2017	28	14	94	38	1478	159	2.8	16.2
6/12/2017	25	18	67	35	1003	277	2.6	0.0
7/12/2017	33	14	82	12	1271	253	2.5	0.0
8/12/2017	35	15	82	13	1417	173	2.9	0.0
9/12/2017	27	15	90	35	1561	141	2.7	0.8
10/12/2017	30	13	85	27	1396	140	2.5	0.0
11/12/2017	32	13	83	24	1124	142	2.8	0.0
12/12/2017	34	16	81	22	1108	136	2.9	0.0
13/12/2017	37	17	83	15	1171	182	2.4	0.0
14/12/2017	40	19	63	9	1119	221	3.1	0.0
15/12/2017	34	21	80	32	1207	150	3.4	0.4
16/12/2017	39	19	93	12	1302	141	2.2	3.0
17/12/2017	34	20	80	35	1098	156	3.2	0.0
18/12/2017	36	19	86	26	1181	166	2.3	0.6
19/12/2017	39	20	89	19	1328	256	3.1	3.2
20/12/2017	42	20	89	12	1228	240	4.0	0.0
21/12/2017	25	17	91	54	402	130	2.9	0.0
22/12/2017	27	17	96	49	1270	133	2.1	0.6
23/12/2017	36	18	87	22	1248	150	2.1	0.0
24/12/2017	40	19	81	7	1271	222	3.5	0.0
25/12/2017	23	16	88	64	550	155	3.7	0.0
26/12/2017	21	15	97	67	604	145	3.0	2.8
27/12/2017	30	16	96	41	1606	122	3.5	0.2
28/12/2017	36	15	91	15	1251	137	2.1	0.0
29/12/2017	39	20	84	15	1210	209	2.5	0.0
30/12/2017	36	20	88	23	1385	276	4.3	0.8
31/12/2017	28	19	86	50	1558	117	3.4	0.0

"-" Indicates that data was not available due to technical issues.

Appendix D

Acquisition Update - Mount Thorley Warkworth Property Portfolio

Mount Thorley Warkworth Property Portfolio Update

As of 31st January 2018

YANCOAL
兖煤澳大利亚有限公司

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).

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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 standards of property and land management.

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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 Road, Mt Thorley
- 288 Jerrys Plains Road, Jerrys Plains
- 11 Inlet Road , Bulga
- 36 Inlet Road, Bulga
- 1 Wambo Road, Bulga
- 89 Wambo Road , Bulga
- 910 Putty Road, Mt Thorley
- 129 Wambo Road, Bulga
- 181 Wambo Road, Bulga
- 313 Wambo Road, Bulga
- 317 Wambo Road, Bulga
- 248 Wambo Road, Bulga
- 367 Wambo Road, Bulga
- Lot 84 Jerrys Plains Road, Warkworth
- 28 Inlet Road, Bulga
- 42 Inlet Road, Bulga
- 5A Wollemi Peak Road, Bulga
- 2041 Putty Road, Bulga
- 16 Inlet Road, Bulga
- 30 Inlet Road, Bulga
- 2068 Putty Road, Bulga
- 34 Wambo Road, Bulga
- 910A Putty Road, Mt Thorley
- 218 Wambo Road, Bulga
- 100 Trefolly Road, Wylies Flat
- 2038 Putty Road, Bulga

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