Narrabri Mine Community Consultative Committee Meeting Minutes

Meeting No: 40
Date: Wednesday 7th March 2018
Time: 5:05pm
Location: Narrabri Mine Site Office

Present: Russell Stewart (RS) – Independent Chair
Peter Webb (PW)
James Stieger (JS)
Mark Foster (MF)
Geoff Hunter (GH)
Ron Campbell (RC) – Narrabri Shire Council Representative (Arrived late)
Steve Bow (SB) – Narrabri mine General Manager
Dave Ellwood (DE) – Narrabri Mine Technical Services Superintendent

1. APOLOGIES

Rodney Dunlop and Steve Farrar.

2. DECLARATION OF PECUNIARY OR OTHER INTERESTS

TBA

3. PREVIOUS MINUTES

Moved: TBA Seconded: PW

3.1 BUSINESS ARISING FROM PREVIOUS MINUTES

Exploration and approvals update given by DE.

DE gave an update on the rubbish collection along the highway. JS said it looked good for a while but is coming back again. RC stated that most of it was litter. MF asked when it was last done. JS said about 3 years ago and SB said that's right for the highway but the area out the front of the mine is done a bit more frequently. DE said the collection will be done every quarter and include the highway. RC said a bin out the front would potentially create more issues. MF stated that instead of going to Baan Baa tip they would just use that. RC said you can only go the RTA after that and they would put a couple of wheelie bins there that would never get picked up and create a mess. JS said at Gins Leap there is a bit that goes in the bins which RC agreed but he said they don't pick them up often enough and it ends up scattered around the bins. RC said you wouldn't make much of a difference with a wheelie bin you would need an industrial one and that creates more issues with people trying to avoid tip fees. DE said the area around Jacks Creek Road is a dumping ground. JS said when they started charging for the tip people dumped rubbish anywhere.

4. GENERAL BUSINESS

4.1 OPERATIONS PROGRESS REPORT

The operations update was provided as follows:

Mine Progress Report (to 28 February 2018)

Coal produced (t):	February 2018	343,039
	FY-to-date	4,666,848
Coal Railed (t):	February 2018	356,963
	FY-to-date	4,610,581

Average workforce numbers (February 2018):

	NCO	Waged – 132
		Salary – 119
		Total – 251
	Contractors	Total – 208
Safety Update (FY to February 2018):		
	Lost Time Injury (LTI)	1
	Days LTI Free:	217
	Total Recordable Injuries:	10
	Planned Task Observations:	7,054
	Take 5 Assessments:	99,713
	Work Hours (Feb-18):	122,844

SB went through the operations report. MF asked what the problem was underground and SB said gravity which is generating roof falls. SB said we are getting deeper and we have gone from being quite stable to unstable in a short period and it takes longer to recover. SB said it has been a tough 4 months. MF asked if the plan is to go further west which SB confirmed. RS asked if tougher meant more inconsistency in the underground strata and SB confirmed it is to do with the integrity of the roof which is softer just above the seam and as we get deeper gravity and depth of cover create a slow mode of failure but at this mine it appears the nature of the strata has led from stable conditions to unstable conditions quickly. SB said there were some learnings from this but hopefully we are on top of it now. JS asked when we will finish this cut as it was originally now and SB said it is now probably around May with the next panel starting June/July. JS asked if the mine has considered going back to 300m wide and SB said no and DE explained the width isn't the driver for the problems. JS said he thought it would be quicker and SB explained that it would be quicker but you would still have the same issues and we just have to manage it as best we can.

MF asked about the lease towards Narrabri and DE explained that the application was denied by the State Government as they believe it is part of a larger resource that justifies its own mine. DE explained that it will take 3-5 years for them to investigate the area with the idea of a standalone mine which we would be welcome to bid for. RS asked why the Government would want to setup a new mine to annoy more people when there is one already here and DE said there were a range of issues including an increased depth of cover. DE explained the coal goes all the way to Moree but no one would mine under the river. DE explained the coal seam quality and depth restricts the area to be mined but the Government looks at the whole resource. RC asked how that affects this mine but SB said it would have been nice to mine to the north while we were mining the northern sections but we could get back there at a later date. RC asked if it was going to be a standalone mine and we tendered for it, would we just keep going which SB confirmed and RS agreed. RS said he didn't understand why they would want someone to build all this again. DE said it would be taken off the lease registry. GH asked what they say about the tonnes and DE said he wasn't sure. SB said we are mining engineers so we look at it from an economical point of view to work out what we can take and what would be left behind but the Government takes a geological view which means all the coal identified is the resource without taking into account if it is mineable. MF said he thought if we had that we would just go through the current mine which SB agreed. JS asked if we would then leave areas open to access these areas later which DE confirmed.

4.2 ENVIRONMENTAL OVERVIEW

DE went through the environmental report.

RC asked if we had any noise complaints and DE explained that we hadn't but we have had 1 dust complaint. GH asked if this was a good way to do it with the restrictions of the inversions and pick a day with no inversions and DE explained that it is hard to predict the inversions but the EPL monitoring is over a longer period. GH asked about the results for N5 and if they were all affected by inversions and DE went through the results. GH asked if there were no levels recorded outside inversion conditions at N6 over the 3 days and DE said he would follow the results up, including the IA noted in the report. RS asked if the mine could get back to GH in the interim and GH said he could wait and DE said he would get back to them. GH asked if we could take samples when there weren't inversions and SB said they are a feature of winter. GH said it is a bit of waste of time if they occur a lot and DE said he would get back to them.

MF asked where ND6 was located and DE explained the location. GH asked about the timing of the sampling and if they were done on the same day and DE explained that they are. GH said he was surprised that they are so low due to the winds and the dry weather we've had which DE agreed.

GH asked about the volume taken from the mine which SB explained we pump out about a 1.5ML/day but we use about a 1.5ML/day underground. JS asked about P11 as it seems to have dried out and DE said he would check and get back to him. JS asked what property it was on and DE explained it was on mine owned land.

5. NEW BUSINESS

DE gave an update on the Narrabri South Stage 3 approvals progress including the submission of the Gateway Certificate followed by an application for Secretary's Environmental Assessment Requirements (SEAR's). DE said he thinks the whole process would take about 3 years including the Federal Government application. JS asked does it start like this one with a public meeting and SB explained the consultation process. JS asked if we would do a community meeting and DE explained there is a consultation strategy. JS said he thought the community should be bought in earlier say at Baan Baa hall for a show and tell day. SB explained the strategy for the landholders down there and also that community consultation is part of this and JS said he thinks this would be a good idea. GH asked if we're approaching landholders down there for purchase and SB said we want to start that process. GH asked if the 3 years is to develop the EIS and DE said no it should be approved by then. GH asked where the EIS is up to and SB confirmed we are working on it now and explained that SEAR's are required first and the EIS is done following that. GH asked if we expect any different issues down there and SB explained that native title is a consideration as it is in the State Forest and DE explained that for the mining side of things we are not expecting too much difference down there. DE explained the native title application requirements. GH asked about property prices and DE explained the process and that the mine has engaged someone to act on the mine's behalf. MF asked if we would still use the valuer we use and DE explained the mine would but the new person is there to negotiate on the mine's behalf. MF asked about a landholder to the south and DE explained where it is up to. GH said he would like to suggest more conditions on the properties as the leasee's seem to flog the mine-owned land. MF said all leased country is flogged and GH said he thinks the prices are quite reasonable but it is just a pure observation. MF asked about the blocks being tendered and SB explained they do tender these days. DE explained there were a lot of legacy contracts that may be like that but now they go out to market.

RS said he recently had a company advertising for cleanskins and they approached the Chamber. RS said following that meeting they haven't heard much back and asked where it was up to and SB said he wasn't aware of the detail but the instructions to all contractors is to use local people and the rule of thumb is within an hour's drive from the mine. RS said earlier efforts were not great but if the right people aren't putting their hands up then there's not much you can do about that. SB said the mine is still recruiting and operators are fine but the trades are harder to find. SB said they are going further to places like Tamworth and Inverell. RC said he has being talking to a couple of electricians in towns and they seem concerned with the shift work and underground work. SB said it is not for everybody and they like to ply their trade and working underground requires other work as well and some don't like that. DE said that new guys are taken underground as they have to be comfortable as well. RC asked if the pay is higher than operator cleanskins for trade cleanskins and SB said he was sure it was. GH asked if we're putting on apprentices and SB said yes. GH asked if this was a better way to deal with the shortage and SB said yes but we only have 6 or 7 onsite in total and aim for a couple a year and we also have the cadet program this year for those want to study. MF asked what apprenticeships do they do and SB explained electricians and fitters. RS said that the Chamber would seek Whitehaven's support for the university centre by looking at what the mine's require. SB said the mine doesn't specify what Uni but there are specific courses to do.

6. NEXT MEETING

Wednesday 13th June 2018 at 5:00pm at the Narrabri Mine Site Office.

7. CLOSURE OF MEETING

Meeting closed at 6:00pm.

Narrabri Mine Community Consultative Committee Meeting #40

Environmental Monitoring Report: December 2017 – February 2018

Noise Monitoring

Attended noise monitoring was undertaken between Monday 18th to Wednesday 20th December 2017 (Tables 1 and 2) to verify if noise levels were within compliance limits. The draft results from this monitoring are detailed in the tables below.

Table 1: EPL Monitoring Location Results

EPL ID	Monitoring Date	Daytime Measured L_{Aeq} dB	Evening Measured Levels L_{Aeq} dB	Night Measured Levels L_{Aeq} dB	Night Measured Level $L_{A1,1minute}$ dB	Noise Limit(s)	Compliance
N5 Oakleigh	18/12/2017	NA	NA	<30	33	Day/Evening/Night LAeq,15minute: 35 dB Night LA1,1minute: 45 dB	Yes
N5 Oakleigh	19/12/2017	NA	<25	<30	30		Yes
N5 Oakleigh	20/12/2017	NA	NA	NA	NA		Yes
N6 Newhaven	18/12/2017	NA	IA	NA	NA	Day/Evening/Night LAeq,15minute: 35 dB Night LA1,1minute: 45 dB	Yes
N6 Newhaven	19/12/2017	NA	NA	NA	NA		Yes
N6 Newhaven	20/12/2017	NA	NA	NA	NA		Yes

Notes:

1. *Noise levels provided in these columns are highest NAR only contributions, where criteria were applicable, during each period;*
2. *Bolded results indicate exceedance of criteria;*
3. *As detailed in the EPL, noise emission limits apply under all meteorological conditions except:*
   - *Wind speeds greater than 3 m/s at 10 metres above ground level; or*
   - *Stability class F temperature inversion conditions, and wind speeds greater than 2 m/s at 10 metres above ground level; or*
   - *Stability class G temperature inversions;*
4. *'NA' denotes criteria were not applicable due to meteorological conditions for all measurements at this location during this period;*

Table 2: Noise Management Plan Monitoring Locations

Location	Monitoring Date/Time	Wind Speed m/s	Stability Class	VTG ˚C per 100m	Criterion dB	Criterion Applies	NAR $L_{Aeq,15min}$ dB	Exceedance
N1 Bow Hills	18/12/2017 14:50	5.1	A	-2.8	35	No	IA	NA
N1 Bow Hills	18/12/2017 21:00	2.2	F	1.8	35	No	<25	NA
N1 Bow Hills	18/12/2017 22:25	2.2	F	2.6	35	No	22	NA
N3 Ardmona	19/12/2017 11:22	6.1	A	-2.8	35	No	IA	NA
N3 Ardmona	19/12/2017 21:09	1.9	F	2.2	35	Yes	<25	Nil
N3 Ardmona	19/12/2017 23:12	2.6	F	2.8	35	No	23	NA
N7 Merriman	18/12/2017 17:04	5.2	A	-2.0	35	No	IA	NA
N7 Merriman	18/12/2017 21:24	2.5	F	2.2	35	No	IA	NA
N7 Merriman	18/12/2017 22:00	2.8	E	1.4	35	Yes	IA	Nil
N8 Matilda	19/12/2017 12:03	5.8	A	-2.6	35	No	IA	NA
N8 Matilda	19/12/2017 20:43	2.8	E	1.2	35	Yes	27	Nil
N8 Matilda	19/12/2017 23:40	3.3	F	2.2	35	No	26	NA

Notes:

1. *Atmospheric data is sourced from the NAR weather station and inversion tower;*
2. *In accordance with EPL and project approval, the noise criteria are to apply under all meteorological conditions except the following:*
   - *Wind speeds greater than 3 m/s at 10 metres above ground level; or*
   - *Stability class F temperature inversion conditions, and wind speeds greater than 2 m/s at 10 metres above ground level; or*
   - *Stability class G temperature inversion conditions.*
3. *Criterion may or may not apply due to rounding of meteorological data values;*
4. *Estimated or measured LAeq,15minute attributed to NAR;*
5. *Bolded results indicate exceedance of criteria (if applicable);*

6. *'NA' in exceedance column means atmospheric conditions outside conditions specified in development consent and so criterion is not applicable; and*
7. *'IA' denotes inaudible.*

During the December 2017 monitoring, under the operating and meteorological conditions at the time, for the worst-case 15-minute compliance measurement periods, the mine noise was compliant at all locations.

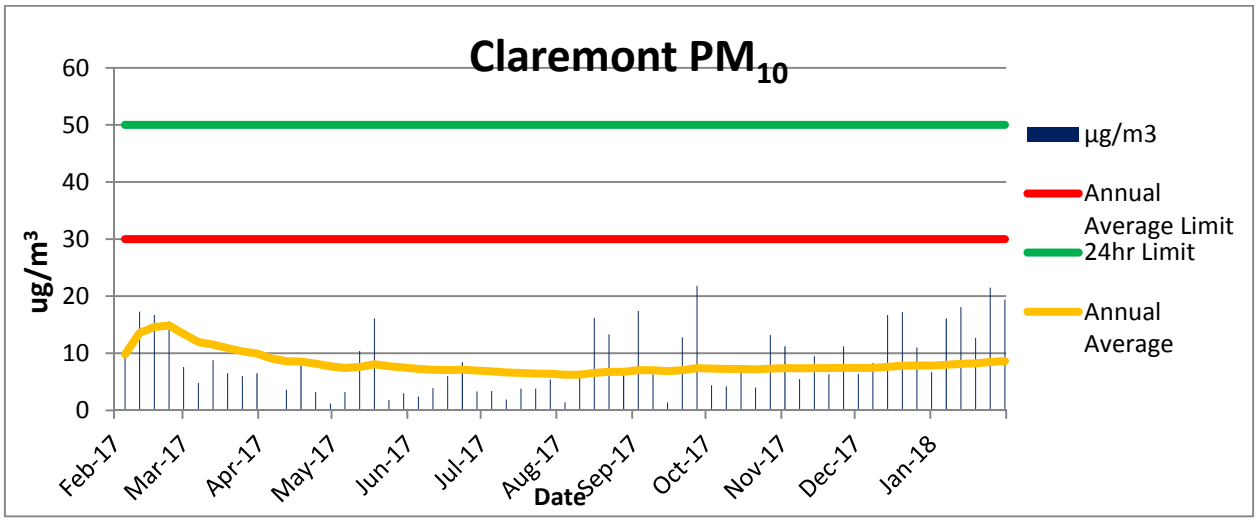
Deposited Dust Monitoring

Month	ND1 Turrabaa	ND2 Claremont	ND3 Bow Hills	ND4a New Matoppo	ND5 Claremont	ND6 Willarah	ND7 Claremont	ND8 Claremont	ND11 Oakleigh	ND12 Merriman
Mar-17	6.3	0.8	0.9	1.5	1.2	1.4	1.3	1.9	1.9	1.1
Apr-17	3.7	0.7	0.5	1.0	1.7	0.7	1.3	1.4	1.0	0.8
May-17	2.4	0.9	1.2	0.5	1.5	0.6	1.1	0.8	0.5	0.6
Jun-17	2.5	3.6	1.5	2.0	2.4	0.7	2.2	2.9	0.6	4.4
Jul-17	2.4	0.7	2.3	0.4	1.4	0.4	1.7	0.6	0.4	1.6
Aug-17	2.6	2.1	1.9	0.9	3.1	3.8	0.8	1.1	0.3	1.1
Sep-17	1.7	1.2	1.2	1.1	3.2	1.5	2.1	3.6	0.9	1.0
Oct-17	4.0	1.8	2.0	2.2	4.0	2.2	2.5	2.5	3.2	1.1
Nov-17	0.9	6.1	1.0	3.2	3.8	1.6	0.8	3.1	0.7	1.2
Dec-17	3.9	1.0	7.3	2.7	3.2	0.9	1.5	3.1	1.0	1.0
Jan-18	3.0	2.9	0.6	6.9	2.9	54.7	1.3	1.3	1.0	1.4
Feb-18	2.5	0.9	2.8	5.2	2.7	0.9	7.5	1.6	2.4	1.0
Annual Average	**3.0**	**1.9**	**1.9**	**2.3**	**2.6**	**5.8**	**2.0**	**2.0**	**1.2**	**1.4**

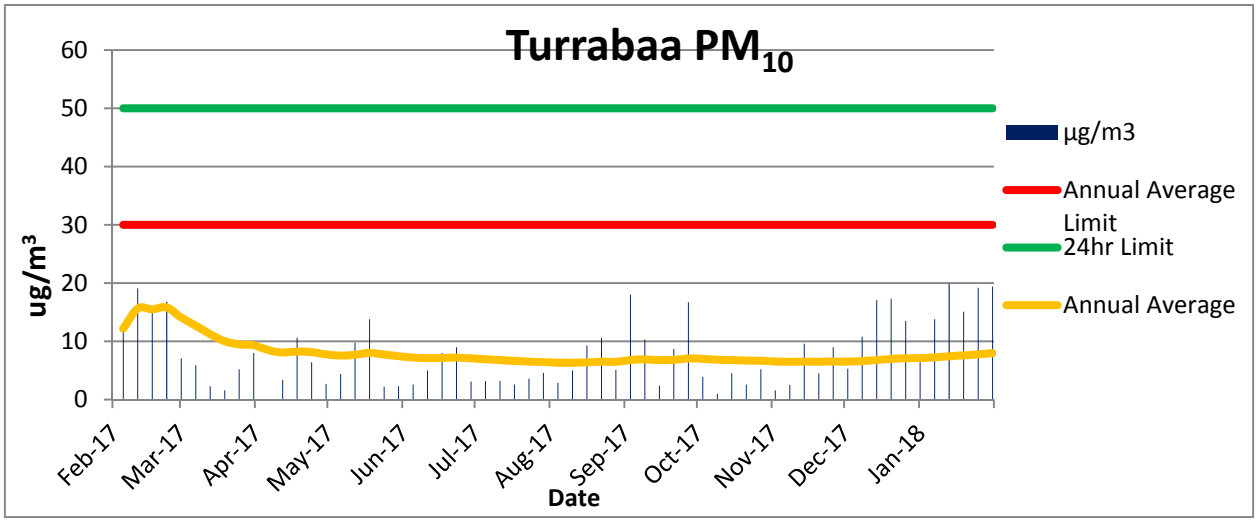
All deposited dust levels are within the compliance limit of 4 g/m2/mth with the exception of ND6 following a high result recorded in January 2018. This result was affected by significant contamination from organic matter (i.e. 98% of the deposited material), which is not attributable to site operations.

High Volume Air Sampling (PM10)

PM10 measurements taken to 31 January 2018 for the "Claremont" High Volume Air Sampler (HVAS) are returning a running annual average of 8.64 µg/m^3, which is well below the annual average limit of 30 µg/m^3.



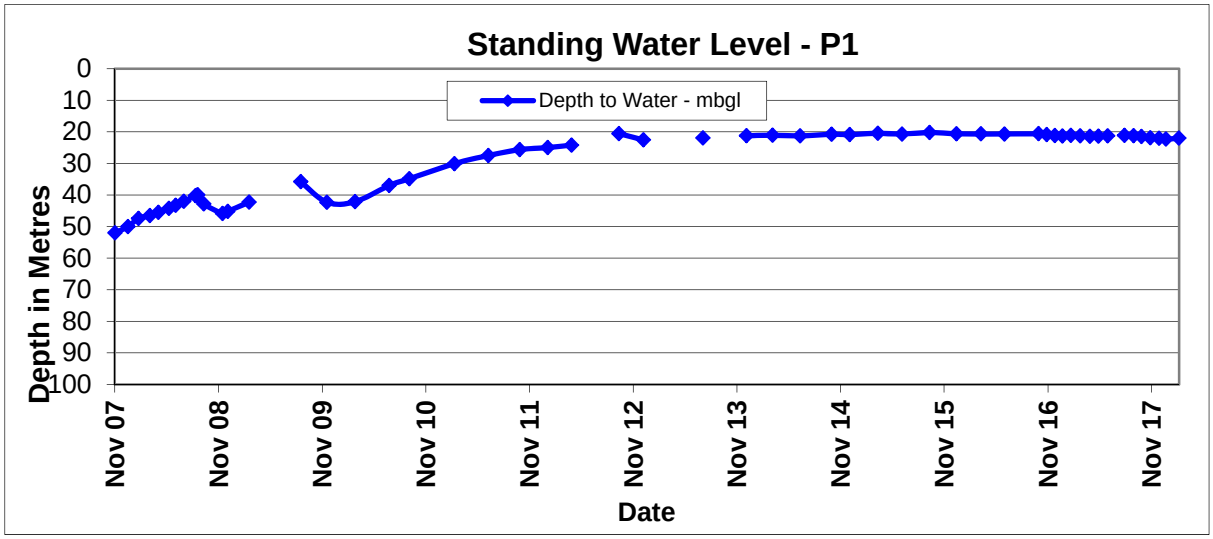
PM10 measurements taken to 31 January 2018 for the "Turrabaa" High Volume Air Sampler are returning a running annual average of 7.97 µg/m^3, which is also well below the annual average limit of 30 µg/m^3.

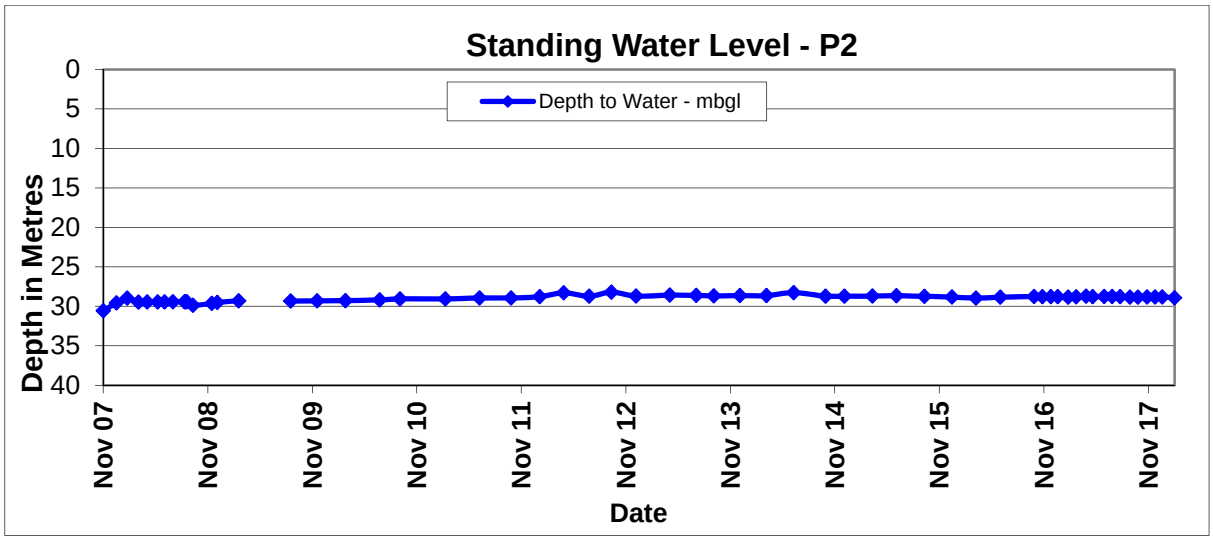


PM10 levels have remained compliant since the last meeting.

Groundwater Monitoring

Groundwater monitoring was completed in January 2018. Monitoring results are included below.

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Depth in Metres
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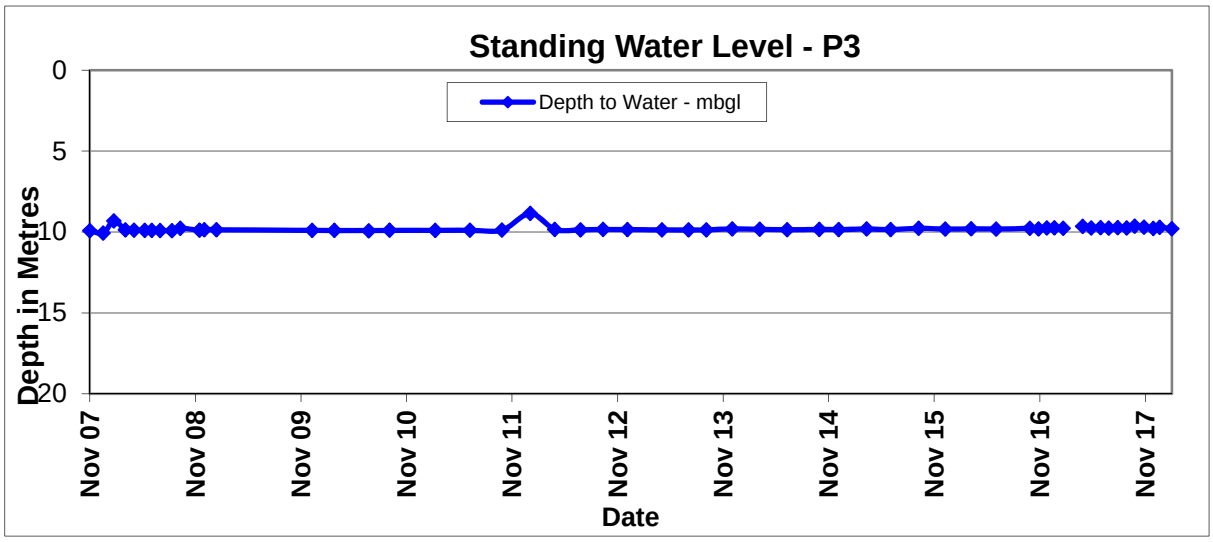
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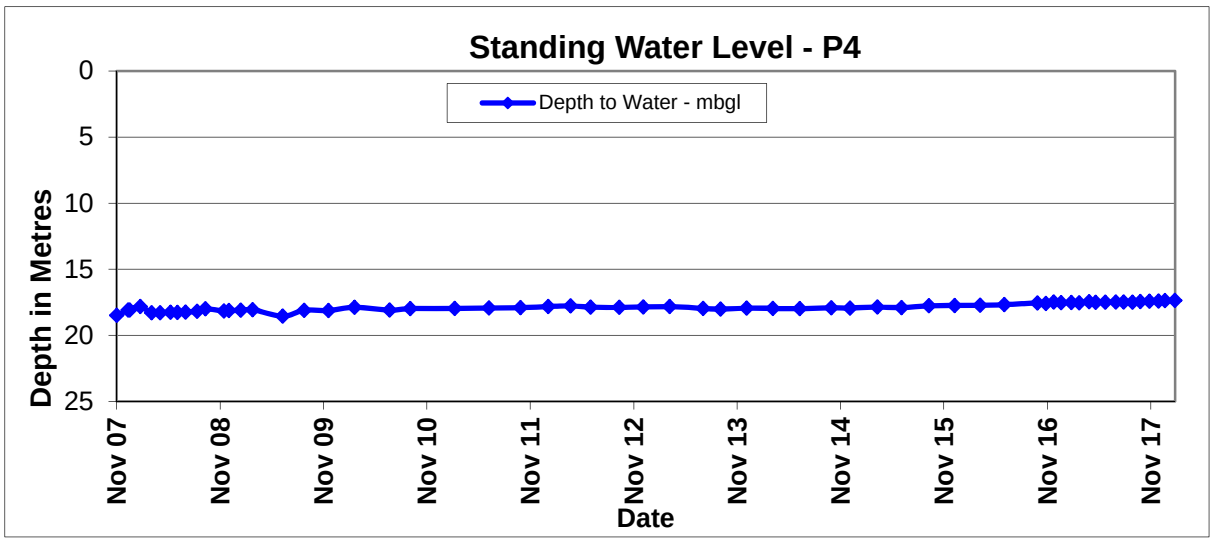
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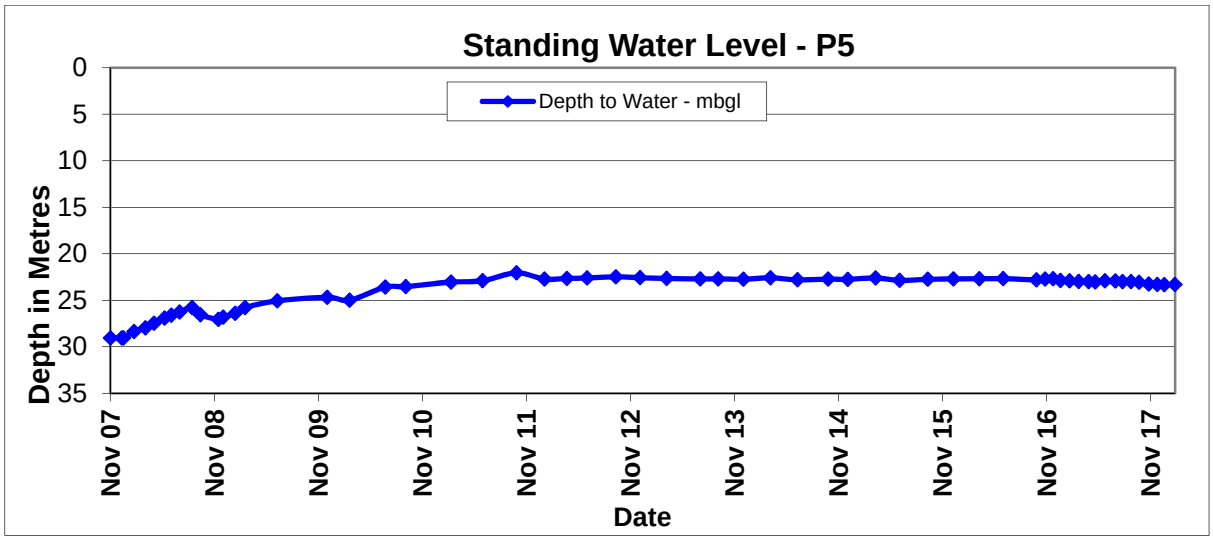
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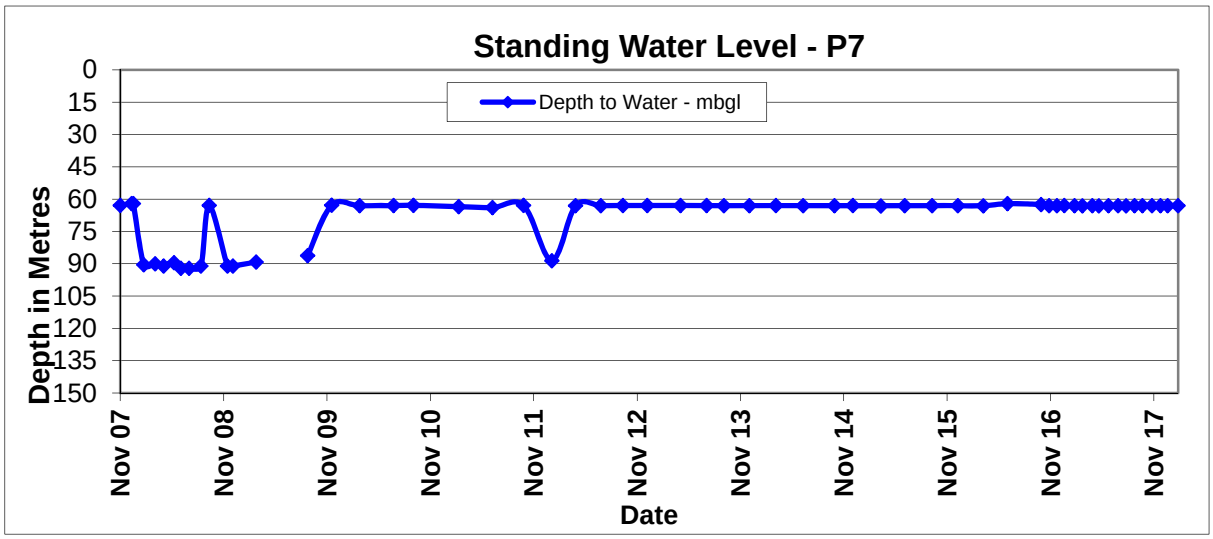
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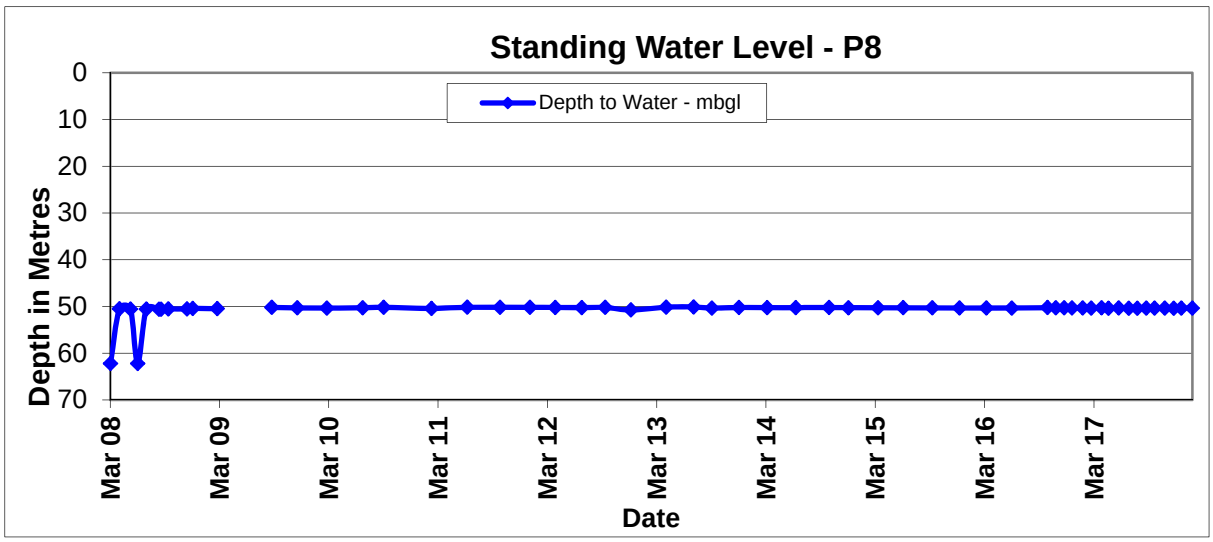
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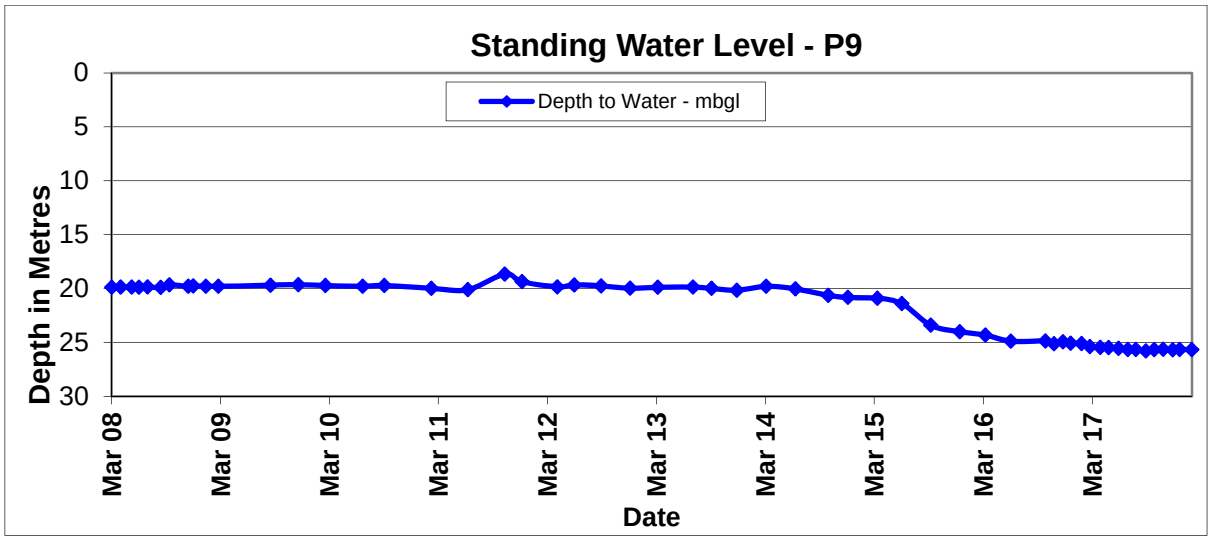
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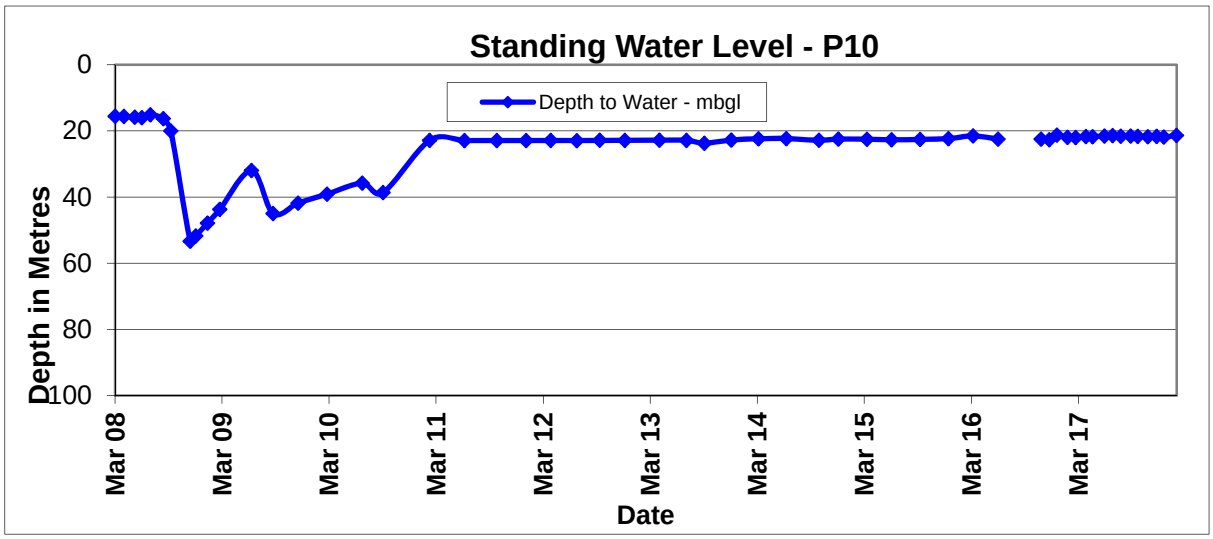
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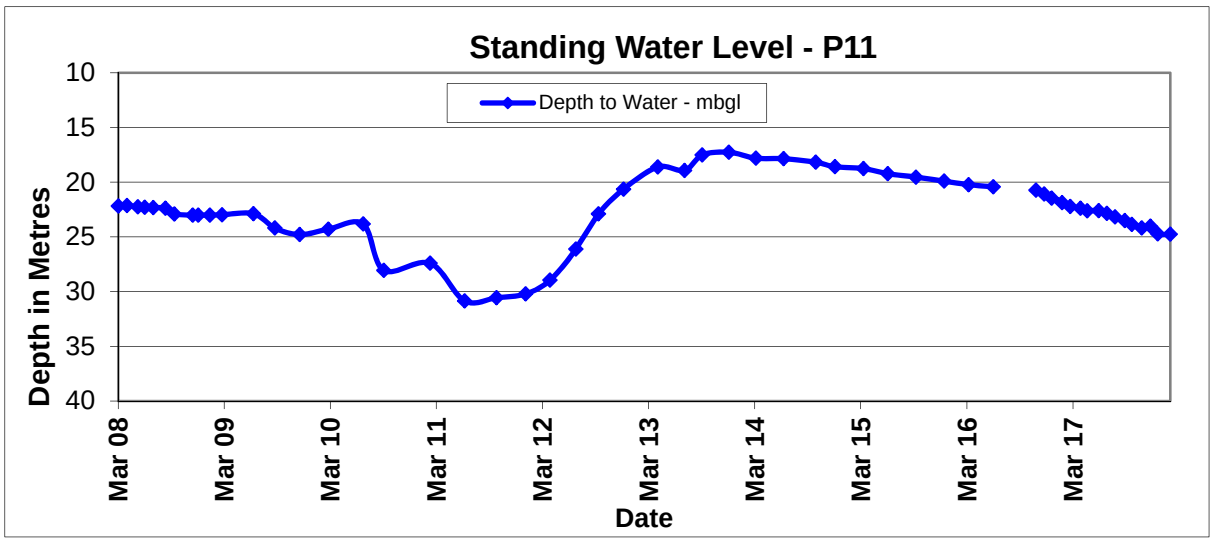
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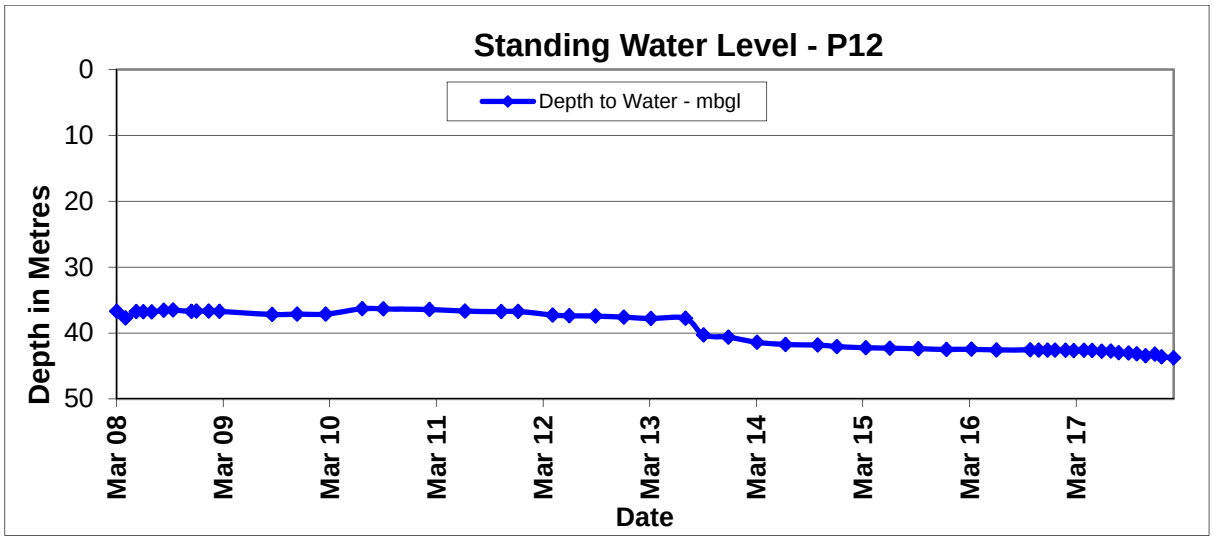
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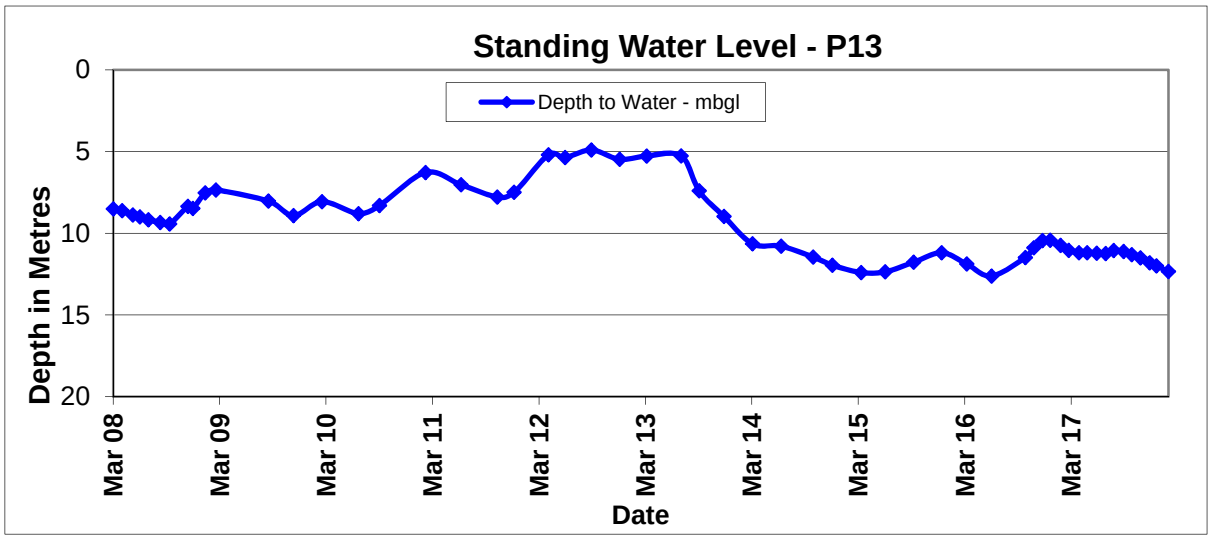
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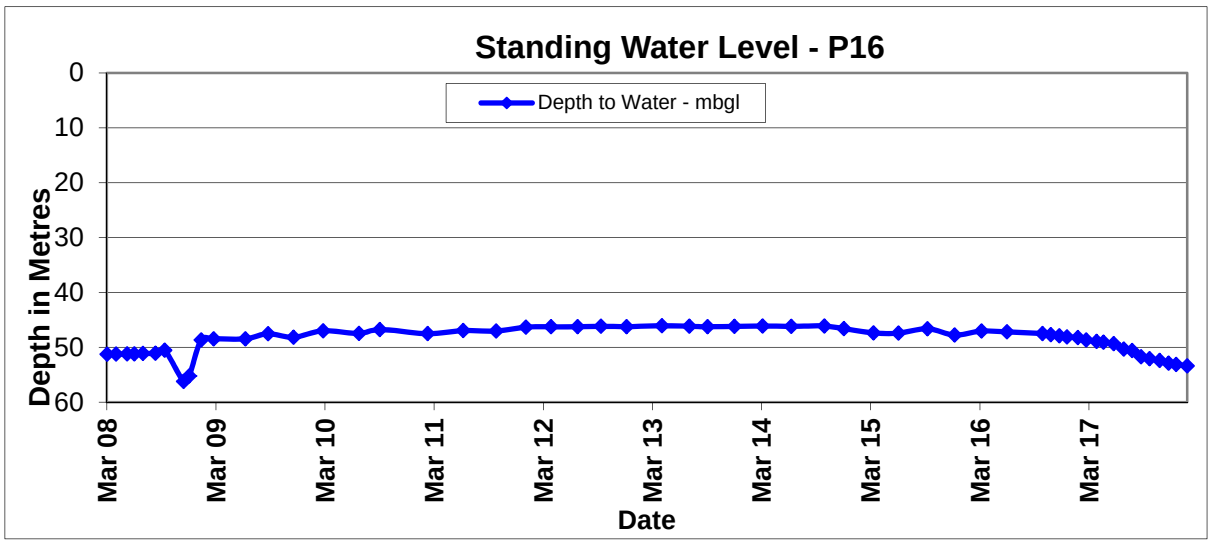
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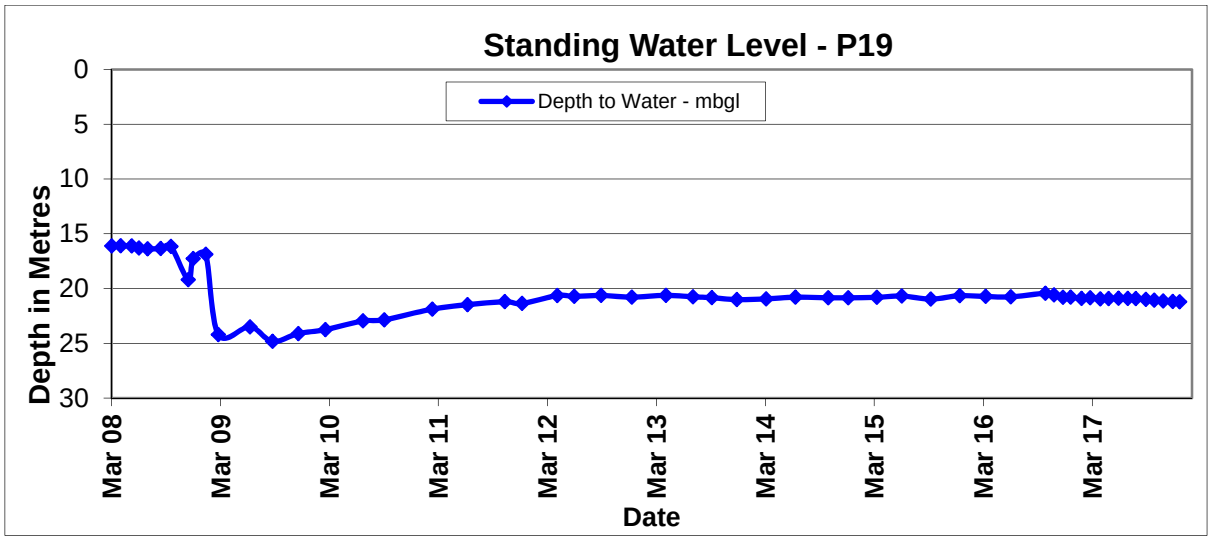
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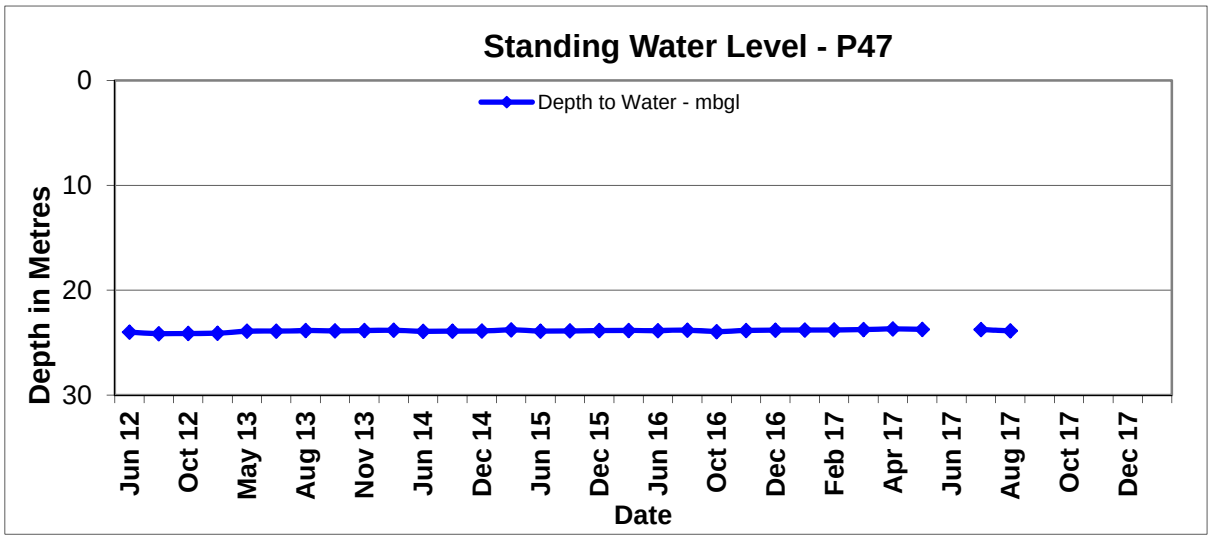
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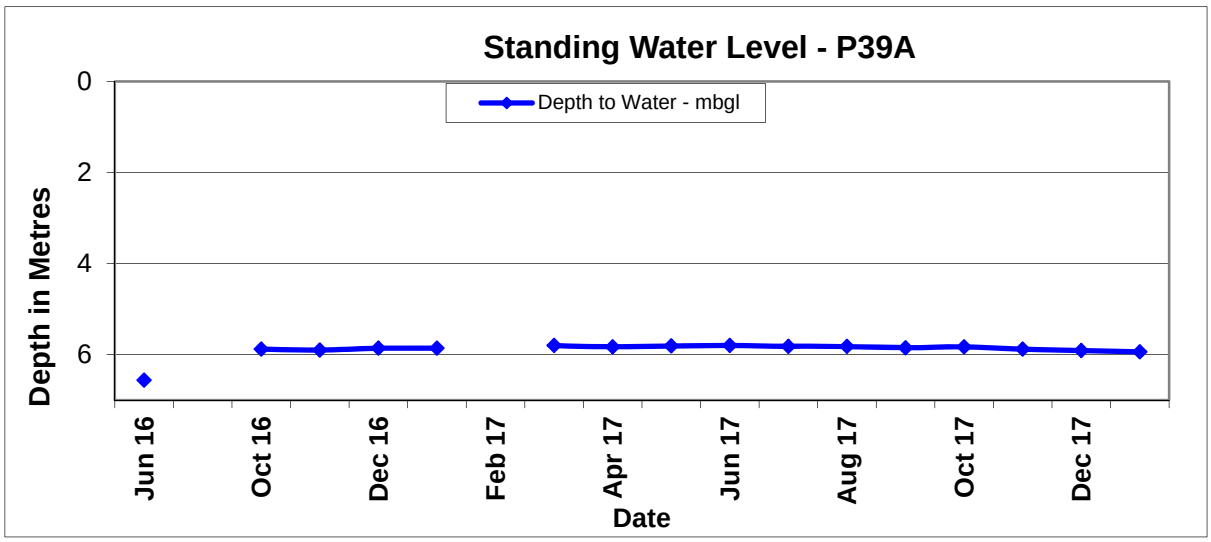
Dec 17
Date


Standing Water Level - P39A
Depth to Water - mbgl
Depth in Metres
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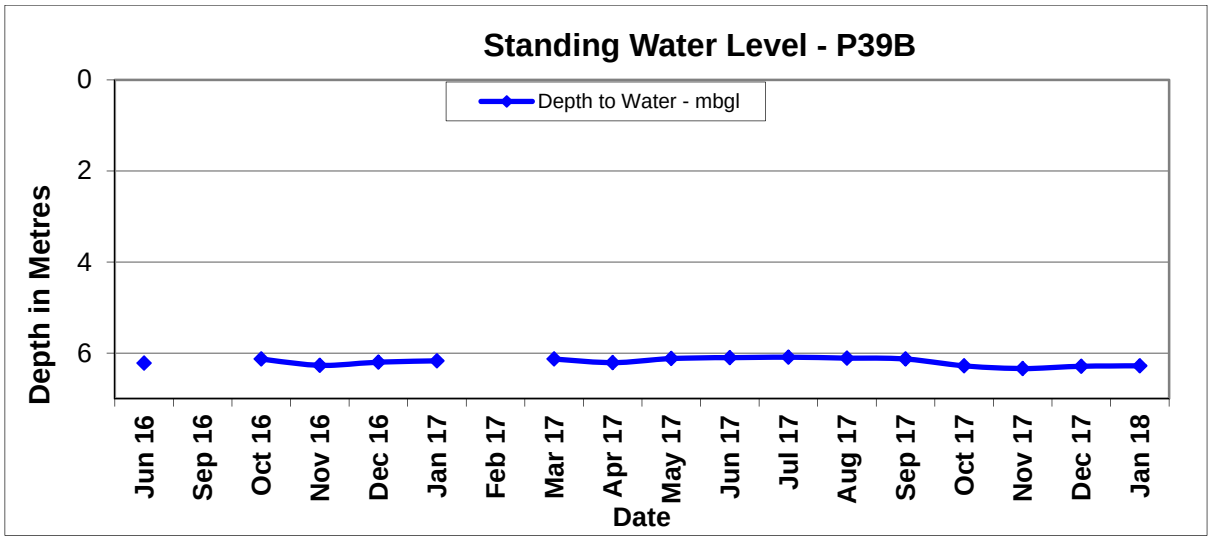
2
4
6
Jun 16
Oct 16
Dec 16
Feb 17
Apr 17
Jun 17
Aug 17
Oct 17
Dec 17
Date


Standing Water Level - P39B
Depth to Water - mbgl
Depth in Metres
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2
4
6
Jun 16
Sep 16
Oct 16
Nov 16
Dec 16
Jan 17
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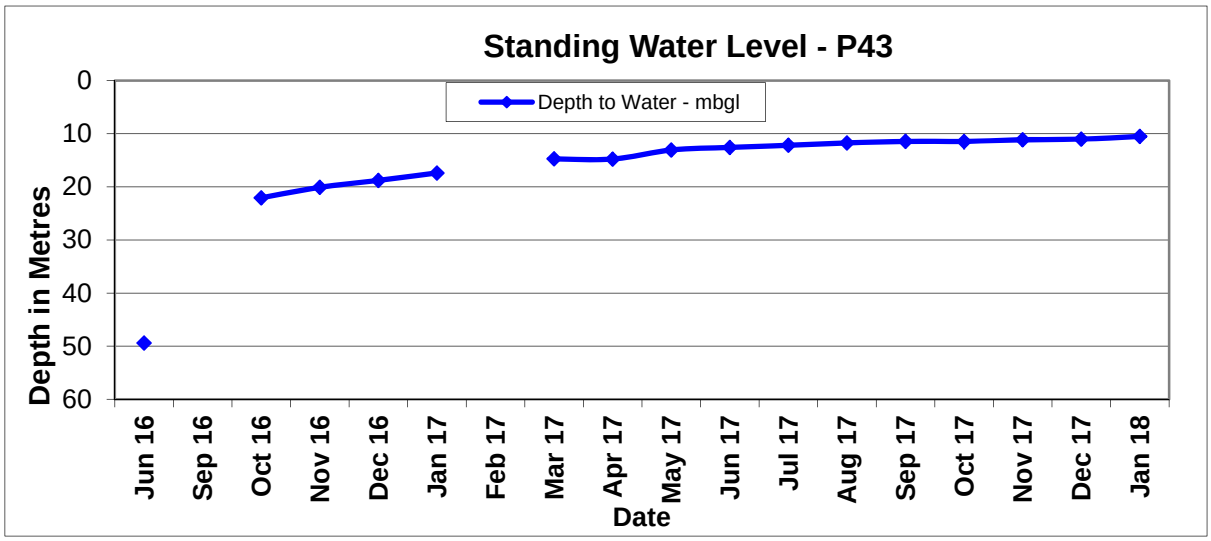
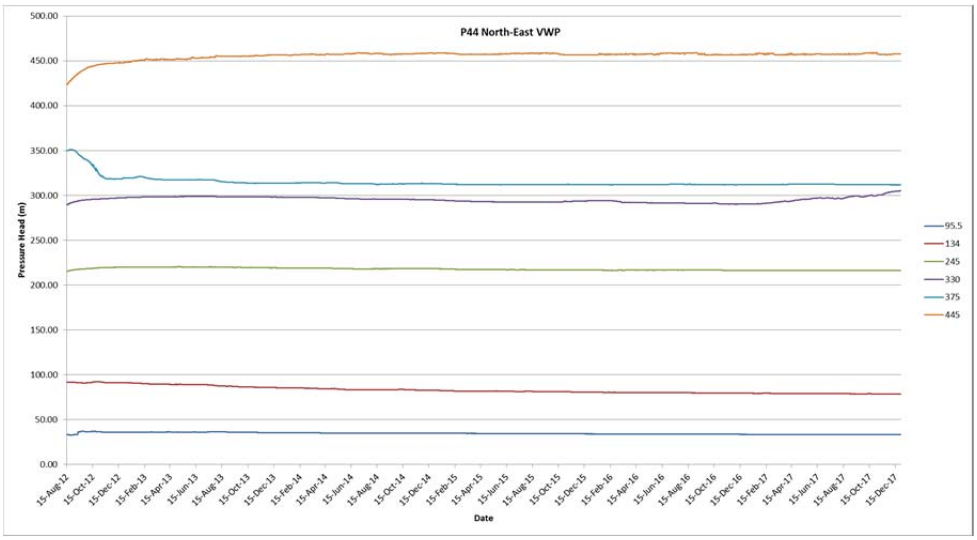
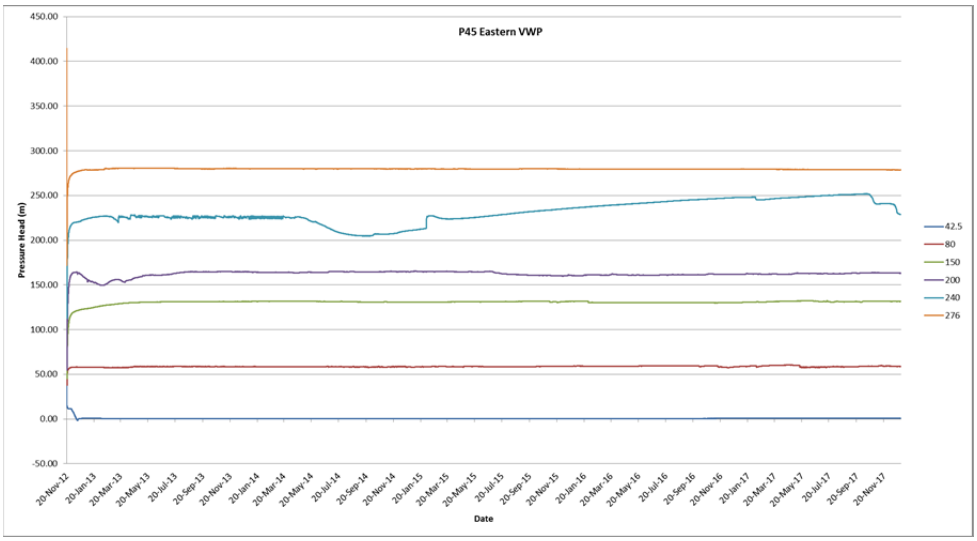
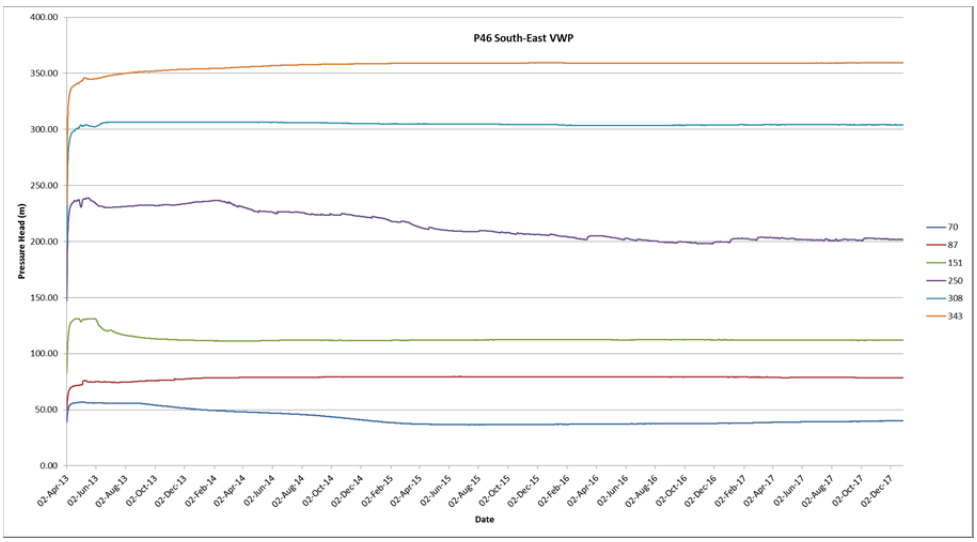
Mar 17
Apr 17
May 17
Jun 17
Jul 17
Aug 17
Sep 17
Oct 17
Nov 17
Dec 17
Jan 18
Date


Standing Water Level - P43
Depth to Water - mbgl
Depth in Metres
0
10
20
30
40
50
60
Jun 16
Sep 16
Oct 16
Nov 16
Dec 16
Jan 17
Feb 17
Mar 17
Apr 17
May 17
Jun 17
Jul 17
Aug 17
Sep 17
Oct 17
Nov 17
Dec 17
Jan 18
Date


P40 Western VWP
Pressure Head (m)
600.00
500.00
400.00
300.00
200.00
100.00
0.00
-100.00
95
135
307
321.75
346
357
Date







Monitoring results show the recent rounds have been relatively stable. As covered in previous reports, P13 is 30 m deep and targets the Garrawilla Volcanics. A production bore, WB2, is approximately 300 m to the south and targets the same aquifer and as such the drop in water level in P13 is likely associated with production from WB2.

Surface Water Monitoring

No wet weather discharges from licensed discharge points occurred during the December 2017 to February 2018 period.

Subsidence

Narrabri Mine has monitored the subsidence movement across the surface of LW103 to LW107 in accordance with the approved Extraction Plans (LW101 and LW102 are no longer monitored). The table below outlines the maximum subsidence parameters recorded as part of the subsidence monitoring program and a comparison with the maximum predicted subsidence parameters as outlined in the Extraction Plan.

Longwall Panels (LW) 103 to LW107		
	Maximum Predicted Extraction Plan	Maximum Measured
Line 101 – Centre of LW101 – Monitoring has ceased		
Line 102 – Centre of LW102 – Monitoring has ceased		
Line 103 – Centre of LW103 – Northern		
Subsidence (m)	2.75	2.729
Tilt (mm/m)	62	40.2
Tensile Strain (mm/m)	20 – 30^	18.8
Compressive Strain (mm/m)	26 – 39^	32.0
Angle of Draw (°, Degrees)	22.5 – 26.5	15.2
Line 103 – Centre of LW103 – Southern		
Subsidence (m)	2.75	2.583
Tilt (mm/m)	62	30.3
Tensile Strain (mm/m)	20 – 30^	9.3
Compressive Strain (mm/m)	26 – 39^	10.2
Angle of Draw (°, Degrees)	22.5 – 26.5	20.2
Line 104 – Centre of LW104 – Northern		
Subsidence (m)	2.75	2.802
Tilt (mm/m)	65	48.4
Tensile Strain (mm/m)	22 – 33^	42.6
Compressive Strain (mm/m)	28 – 42^	42.3
Angle of Draw (°, Degrees)	22.5 – 26.5	18.7
Line 104 – Centre of LW104 – Southern		
Subsidence (m)	2.75	2.709
Tilt (mm/m)	65	31.3
Tensile Strain (mm/m)	22 – 33^	8.1
Compressive Strain (mm/m)	28 – 42^	6.7
Angle of Draw (°, Degrees)	22.5 – 26.5	13.2
Line 105 – Centre of LW105 – Northern		
Subsidence (m)	2.75	2.674
Tilt (mm/m)	57	46.5
Tensile Strain (mm/m)	18 – 27^	18.1
Compressive Strain (mm/m)	23 – 35^	44.6
Angle of Draw (°, Degrees)	22.5 – 26.5	17.9
Line 105 – Centre of LW105 – Southern		
Subsidence (m)	2.75	2.623

Longwall Panels (LW) 103 to LW107		
	Maximum Predicted Extraction Plan	Maximum Measured
Tilt (mm/m)	57	25.1
Tensile Strain (mm/m)	18 – 27^	6.5
Compressive Strain (mm/m)	23 – 35^	9.3
Angle of Draw (°, Degrees)	22.5 – 26.5	14.4
Line 106 – Centre of LW106 – Northern		
Subsidence (m)	2.75	2.584*
Tilt (mm/m)	47	41*
Tensile Strain (mm/m)	14 – 21^	11.8*
Compressive Strain (mm/m)	18 – 27^	17.1*
Angle of Draw (°, Degrees)	22.5 – 26.5	25.5*
Line 107 – Centre of LW107 – Northern		
Subsidence (m)	2.75	2.738*
Tilt (mm/m)	53	28.0*
Tensile Strain (mm/m)	20	10.2*
Compressive Strain (mm/m)	24	12.4*
Angle of Draw (°, Degrees)	26.5	24.7*
Line A – Cross Panel Survey Line		
Subsidence (m)	2.75	2.680*
Tilt (mm/m)	65	56.3*
Tensile Strain (mm/m)	22 – 33^	39.0*
Compressive Strain (mm/m)	28 – 42^	33.0*
Angle of Draw (°, Degrees)	22.5 – 26.5	24.2*
Line B – Pine Creek Tributary 1 – Monitoring has ceased		
Line D – Pine Creek		
Subsidence (m)	2.75	2.842*
Tilt (mm/m)	65	45.5*
Tensile Strain (mm/m)	22 – 33^	10.7*
Compressive Strain (mm/m)	28 – 42^	15.2*
Gradient Change (%)	Up to 6	4.54*
Line E – Pine Creek Tributary 1 Crossline 1 – Monitoring has ceased		
Line F – Pine Creek Tributary 1 Crossline 2 – Monitoring has ceased		
Line G – Pine Creek Tributary 1 Crossline 3 – Monitoring has ceased		
Line H – Cross Panel Survey Line		
Subsidence (m)	2.75	2.410*
Tilt (mm/m)	53	29.9*
Tensile Strain (mm/m)	13 – 20^	7.4*
Compressive Strain (mm/m)	16 – 24^	5.6*

* - subsidence development incomplete.

^ - values for ‘smooth’ and ‘discontinuous’ (i.e. crack affected) subsidence profiles.

Based on the above table the subsidence predictions for the most recently completed survey, i.e. LW107 northern line, indicate:

- The maximum subsidence measurements were within the predicted value of 2.75 m with a maximum measured value of 2.738 m.
- The maximum tilt measurements recorded were within the predicted value of 44 mm/m with a maximum measured value of 28 mm/m.
- The maximum tensile strain measurements were within the predicted value of 20 mm/m with a maximum measured value of 10.2 mm/m.
- The maximum compressive strain measurements were within the predicted value of 24 mm/m with a maximum measured value of 12.4 mm/m.

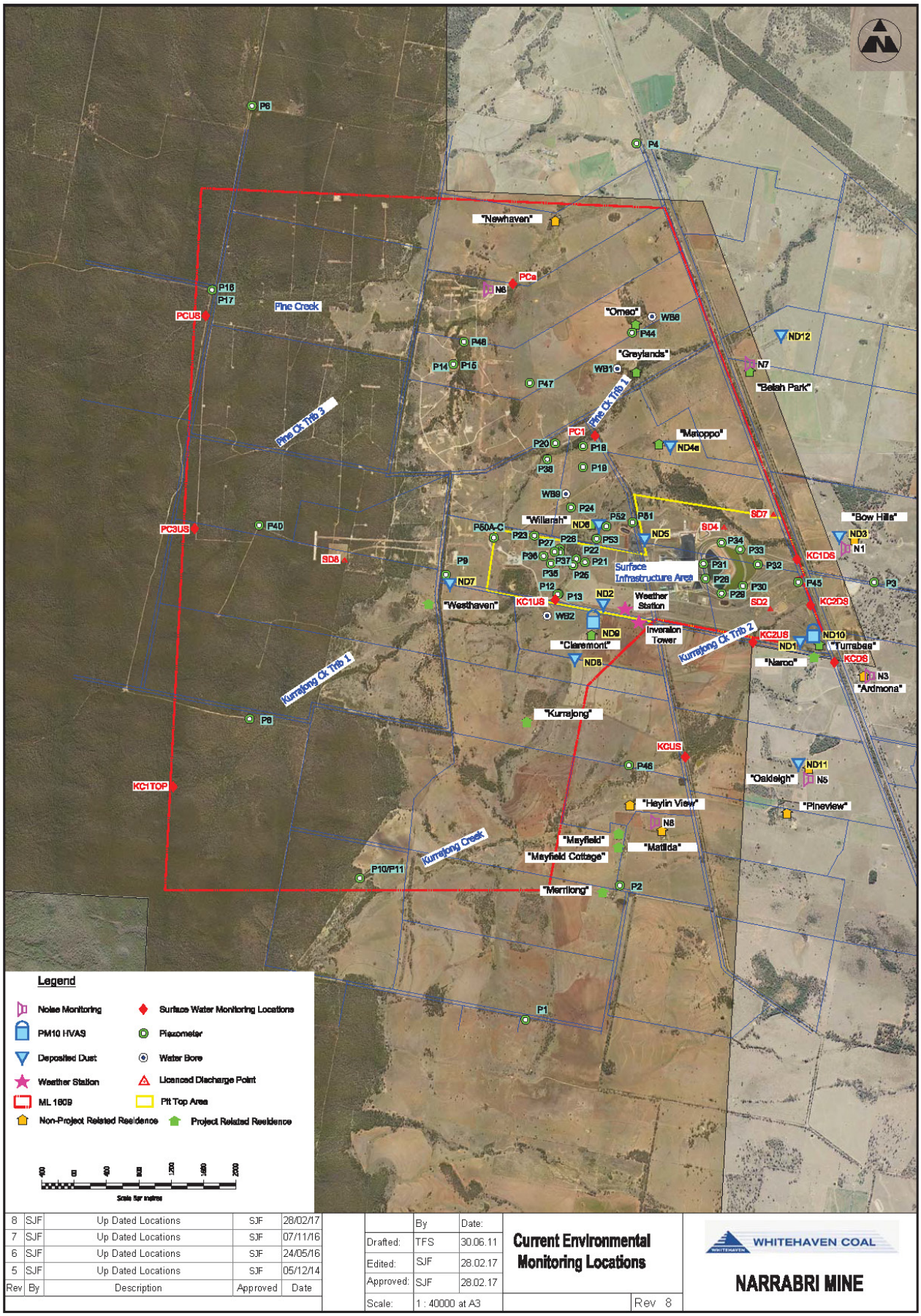
The centreline subsidence results for LW101 to LW107 indicate that the Garrawilla Volcanics and Basalt Sill have not reduced subsidence through spanning behaviour and that the maximum subsidence is also considered closer to 63% of the average mining height of 4.3m.

Complaints

One formal complaint was received during the period December 2017 to February 2018. The complaint was in relation to dust. The relevant parties were notified at the time and sprays activated.

Environmental Incident(s)

No environmental incidents occurred during the December 2017 to February 2018 period.



Rev	By	Description	Approved	Date
8	SJF	Up Dated Locations	SJF	28/02/17
7	SJF	Up Dated Locations	SJF	07/11/16
6	SJF	Up Dated Locations	SJF	24/05/16
5	SJF	Up Dated Locations	SJF	05/12/14

	By	Date:
Drafted:	TFS	30.06.11
Edited:	SJF	28.02.17
Approved:	SJF	28.02.17
Scale:	1 : 40000 at A3	

Current Environmental Monitoring Locations

Rev 8

WHITEHAVEN COAL

NARRABRI MINE

Narrabri Mine Community Consultative Committee Meeting Minutes

Meeting No: 41

Date: Wednesday 13th June 2018

Time: 5:00pm

Location: Narrabri Mine Site Office

Present: Russell Stewart (RS) – Independent Chair
Peter Webb (PW)
James Stieger (JS)
Mark Foster (MF)
Geoff Hunter (GH)
Rodney Dunlop (RD) (Arrived late)
Ron Campbell (RC) – Narrabri Shire Council Representative
Dave Ellwood (DE) – Narrabri Mine Technical Services Superintendent
Steve Farrar (SF) – Narrabri Mine Environmental Superintendent

1. APOLOGIES

Steve Bow.

2. DECLARATION OF PECUNIARY OR OTHER INTERESTS

RC contracts to the mine and MF leases land from the mine.

3. PREVIOUS MINUTES

Moved: JS Seconded: PW

3.1 BUSINESS ARISING FROM PREVIOUS MINUTES

GH asked about inversions and that some noise results didn't count due to inversions and the mine would follow up on that. SF explained how the monitoring is undertaken and GH asked how we set the dates for the monitoring to avoid inversions which SF explained. SF went through the latest results with 1 out of 12 measurements affecting by inversions. RS asked if GH's question was answered which it was not. RS asked if we changed anything to address the inversions and DE explained that in the last meeting DE wasn't sure what 'IA' meant thinking it was inversions, but it means 'inaudible' and SF explained that they are not related to inversions. GH requested the mine to summarise the previous 12 months monitoring for the next meeting.

RD arrived.

GH asked about the rubbish and JS said they did a good job but more rubbish is there already. DE explained the current program. SF said the mine might do more out the front if it is full again after only 2½ weeks which DE agreed. MF said one of the drums was runover a while ago and DE said he wasn't sure who put them there.

DE went through some numbers for the cleanskin program including 43 operators from within 100km of the mine. GH asked how we know where they are from and DE explained the process. RS said the traffic to Tamworth has increased a lot. RS went through some census data and the location of the employees. DE said some that work at Werris Creek would probably be from Tamworth. RS said the figures didn't seem to correlate to the traffic. RS said you can't control where people shop and DE explained that it was a 50/50 split between Narrabri and Gunnedah. JS stated that flights from Tamworth might have something to do with it. RS said the Narrabri air service wont grow if people don't fly from Narrabri. RS explained why he fly's from Tamworth sometimes and RC said you need Government intervention in terms of flying times as this pushes people away from Narrabri as Council subsidises flights. JS said the traffic has increased a lot since 2000 when he moved to the farm. RS said Government workers get Qantas points so they will always fly to get there points for their own travel. RS said they should credit the points back to the organisation and not the individual. DE said they are planning on another 8-10 operators. GH asked DE to confirm the numbers which he did. GH asked if we are losing older workers as he has heard the more experienced workers are leaving to work out of Brisbane and DE explained that we are losing people to Qld as they offer large

money and better rosters. DE said this is why the mine targets locals as they are less likely to leave once trained. RS went through some trades numbers for immigrants in the north-west area for the last year and the in to the future. GH asked if the roster is the problem and DE explained the mines roster which is a residential roster. SF explained how the roster rotates and that the fly-in/fly-out roster is better suited to the even time roster. JS asked if the mine is losing people and DE said that they were as the mine can't compete with the Qld money/roster.

Exploration and approvals update given by DE. GH asked if the timing has slipped by a year which DE confirmed. GH asked if they could see the plan and DE said he would see if we can have it for the next meeting. GH stated that there would be no more vent fans etc expected down there then here and DE confirmed this. GH asked what the plan with the landholders down there was and DE explained where the acquisition process is up to. GH said that the feedback he has is that things have slowed down and DE said he has had that feedback as well and those directly on the mine footprint would be progressed. RS said they have been in limbo for a while and GH said that there was also talk of what will happen with a new mine and what's involved and DE explained that we will try and have a plan for the next meeting. RD asked if this was a new project which DE confirmed and will incorporate the existing mine.

4. GENERAL BUSINESS

4.1 OPERATIONS PROGRESS REPORT

The operations update was provided as follows:

Mine Progress Report (to 31 May 2018)

Coal produced (t):	May 2018	553,238
	FY-to-date	5,829,212
Coal Railed (t):	May 2018	297,358
	FY-to-date	5,590,865
Average workforce numbers (May 2018):		
	NCO	Waged – 128
		Salary – 119
		Total – 247
	Contractors	Total – 212
Safety Update (FY to May 2018):		
	Lost Time Injury (LTI)	3
	Days LTI Free:	14
	Total Recordable Injuries:	16
	Planned Task Observations:	10,168
	Take 5 Assessments:	150,720
	Work Hours (May-18):	142,149

DE went through the operations report. JS asked about the contractor numbers increasing and DE said the cut-flit project has resulted in increased numbers. JS asked about the project and DE explained the cut-flit process of underground roadway development and if the trial works the mine might use it into the future. RD asked about the safety aspects of the 15m plunges and DE explained the process. GH asked about the longwall collapses and DE explained that we are currently down but the mine thinks it is a different issue and people will be happy when the current longwall panel is finished. RD asked about the next block and DE explained that it should be better as we have a better understanding of the issues now.

4.2 ENVIRONMENTAL OVERVIEW

SF went through the environmental report. GH asked what VTG stands for which SF explained. GH asked what the limit is for dust which SF explained. GH asked about the trends in a few of the bores as some are going down. SF explained the different bores and their locations and what is likely affecting them. GH asked about the vibrating wire piezometers which SF explained. SF stated that the annual report hasn't been finalised but when it is the mine would provide a copy to the CCC.

5. NEW BUSINESS

GH asked about the trees out the front which SF explained.

DE gave an update on the exploration program with drilling for this FY complete and a new program planned of a similar size for the next FY. GH asked about the holes and DE explained the plan showing the locations and different drilling methods, e.g. cored holes or chip holes. SF said the approvals is being prepared now. SF explained the different boundaries on the plan including the different properties. RS asked if there were 5 people involved which DE explained including having the bottom two properties on hold as they may not be in the mining area leaving 3 main properties.

6. NEXT MEETING

Wednesday 12th September 2018 at 5:00pm at the Narrabri Mine Site Office.

7. CLOSURE OF MEETING

Meeting closed at 6:00pm.

Narrabri Mine Community Consultative Committee Meeting #41

Environmental Monitoring Report: March – May 2018

Noise Monitoring

Attended noise monitoring was undertaken between Monday 12th to Wednesday 14th March 2018 (Tables 1 and 2) to verify if noise levels were within compliance limits. The draft results from this monitoring are detailed in the tables below.

Table 1: EPL Monitoring Location Results

EPL ID	Monitoring Date	Daytime Measured L_{Aeq} dB	Evening Measured Levels L_{Aeq} dB	Night Measured Levels L_{Aeq} dB	Night Measured Level $L_{A1,1minute}$ dB	Noise Limit(s)	Compliance
N5 Oakleigh	12/03/2018	<25	IA	NA	NA	Day/Evening/Night LAeq,15minute: 35 dB Night LA1,1minute: 45 dB	Yes
N5 Oakleigh	13/03/2018	<30	<30	NM	NM		Yes
N5 Oakleigh	14/03/2018	IA	<20	<20	<20		Yes
N6 Newhaven	12/03/2018	IA	<30	<30	34	Day/Evening/Night LAeq,15minute: 35 dB Night LA1,1minute: 45 dB	Yes
N6 Newhaven	13/03/2018	IA	IA	<30	36		Yes
N6 Newhaven	14/03/2018	IA	NM	IA	IA		Yes

Notes:

1. *Noise levels provided in these columns are highest NAR only contributions, where criteria were applicable, during each period;*
2. *Bolded results indicate exceedance of criteria;*
3. *As detailed in the EPL, noise emission limits apply under all meteorological conditions except:*
   - *Wind speeds greater than 3 m/s at 10 metres above ground level; or*
   - *Stability class F temperature inversion conditions, and wind speeds greater than 2 m/s at 10 metres above ground level; or*
   - *Stability class G temperature inversions;*
4. *'NA' denotes criteria were not applicable due to meteorological conditions for all measurements at this location during this period;*

Table 2: Noise Management Plan Monitoring Locations

Location	Monitoring Date/Time	Wind Speed m/s	Stability Class	VTG ˚C per 100m	Criterion dB	Criterion Applies	NAR $L_{Aeq,15min}$ dB	Exceedance
N1 Bow Hills	13/03/2018 12:31	2.3	A	-2.6	35	Yes	IA	Nil
N1 Bow Hills	13/03/2018 20:06	1.3	F	1.6	35	Yes	IA	Nil
N1 Bow Hills	13/03/2018 23:25	1.5	F	2.2	35	Yes	<20	Nil
N3 Ardmona	13/03/2018 11:57	1.2	A	-2.4	35	Yes	<25	Nil
N3 Ardmona	13/03/2018 19:38	1.4	E	1.4	35	Yes	<20	Nil
N3 Ardmona	13/03/2018 23:52	1.0	F	3.4	35	Yes	**40**	**5**
N7 Merriman	14/03/2018 12:46	2.0	A	-2.2	35	Yes	IA	Nil
N7 Merriman	14/03/2018 20:25	0.6	F	3.0	35	Yes	<25	Nil
N7 Merriman	15/03/2018 00:05	2.1	G	4.2	35	No	<30	NA
N8 Matilda	14/03/2018 12:01	0.5	B	-1.8	35	Yes	IA	Nil
N8 Matilda	14/03/2018 19:47	2.3	F	2.4	35	No	IA	NA
N8 Matilda	14/03/2018 23:22	2.0	F	3.6	35	Yes	NM	Nil

Notes:

1. *Atmospheric data is sourced from the NAR weather station and inversion tower;*
2. *In accordance with EPL and project approval, the noise criteria are to apply under all meteorological conditions except the following:*
   - *Wind speeds greater than 3 m/s at 10 metres above ground level; or*
   - *Stability class F temperature inversion conditions, and wind speeds greater than 2 m/s at 10 metres above ground level; or*
   - *Stability class G temperature inversion conditions.*
3. *Criterion may or may not apply due to rounding of meteorological data values;*
4. *Estimated or measured LAeq,15minute attributed to NAR;*
5. *Bolded results indicate exceedance of criteria (if applicable);*

6. *'NA' in exceedance column means atmospheric conditions outside conditions specified in development consent and so criterion is not applicable; and*
7. *'IA' denotes inaudible.*

During the March 2018 monitoring, under the operating and meteorological conditions at the time, for the worst-case 15-minute compliance measurement periods, the mine noise was compliant at all locations with the exception of the night time measurement taken at N3. Notifications were made to the landholder and relevant agencies at the time.

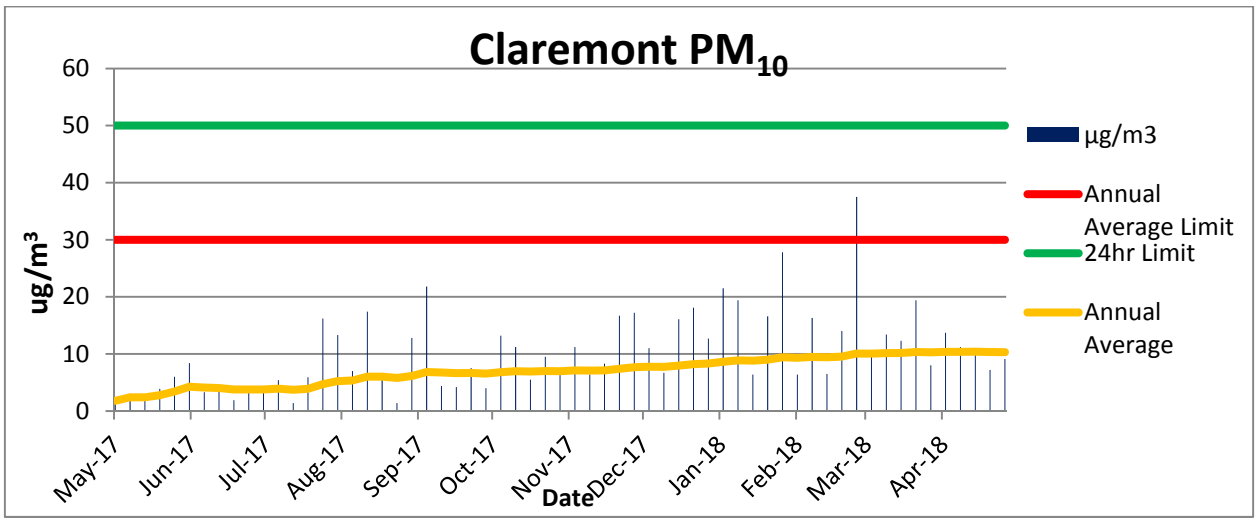
Deposited Dust Monitoring

Month	ND1 Turrabaa	ND2 Claremont	ND3 Bow Hills	ND4a New Matoppo	ND5 Claremont	ND6 Willarah	ND7 Claremont	ND8 Claremont	ND11 Oakleigh	ND12 Merriman
Jun-17	2.5	3.6	1.5	2.0	2.4	0.7	2.2	2.9	0.6	4.4
Jul-17	2.4	0.7	2.3	0.4	1.4	0.4	1.7	0.6	0.4	1.6
Aug-17	2.6	2.1	1.9	0.9	3.1	3.8	0.8	1.1	0.3	1.1
Sep-17	1.7	1.2	1.2	1.1	3.2	1.5	2.1	3.6	0.9	1.0
Oct-17	4.0	1.8	2.0	2.2	4.0	2.2	2.5	2.5	3.2	1.1
Nov-17	0.9	6.1	1.0	3.2	3.8	1.6	0.8	3.1	0.7	1.2
Dec-17	3.9	1.0	7.3	2.7	3.2	0.9	1.5	3.1	1.0	1.0
Jan-18	3.0	2.9	0.6	6.9	2.9	54.7	1.3	1.3	1.0	1.4
Feb-18	2.5	0.9	2.8	5.2	2.7	0.9	7.5	1.6	2.4	1.0
Mar-18	3.2	1.5	2.9	5.4	3.0	1.1	1.2	2.5	3.1	2.1
Apr-18	3.6	4.0	0.9	3.1	2.1	1.2	0.8	2.5	9.0	0.7
May-18	2.8	2.0	3.0	0.4	0.5	0.4	0.4	1.1	1.0	0.6
Annual Average	**2.8**	**2.3**	**2.3**	**2.8**	**2.7**	**5.8**	**1.9**	**2.2**	**2.0**	**1.4**

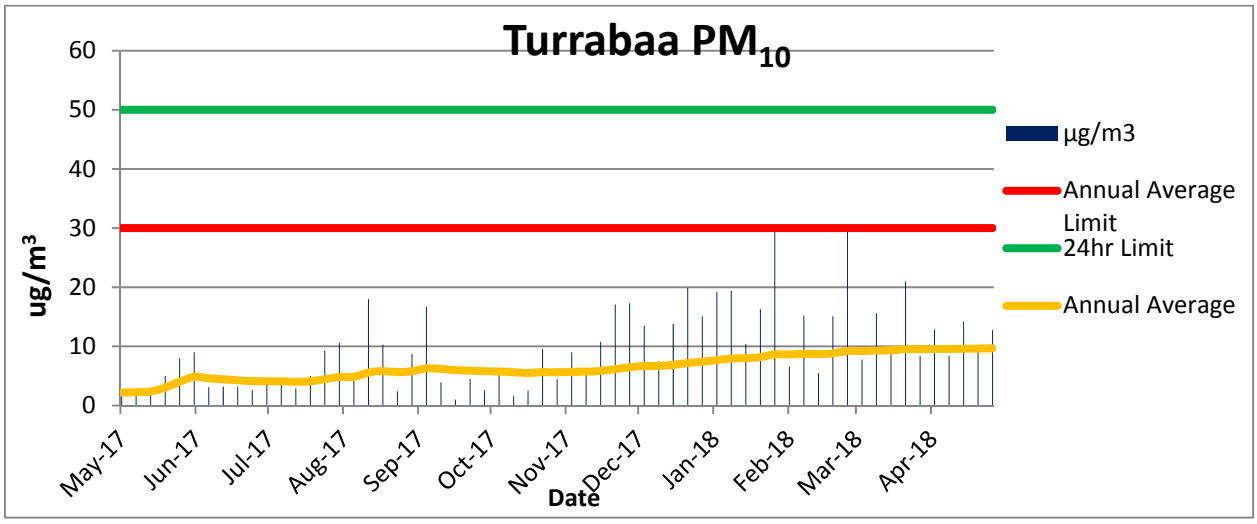
All deposited dust levels are within the compliance limit of 4 g/m2/mth with the exception of ND6 following a high result recorded in January 2018. This result was affected by significant contamination from organic matter (i.e. 98% of the deposited material), which is not attributable to site operations.

High Volume Air Sampling (PM10)

PM10 measurements taken to 19 May 2018 for the "Claremont" High Volume Air Sampler (HVAS) are returning a running annual average of 10.31 µg/m^3, which is well below the annual average limit of 30 µg/m^3.



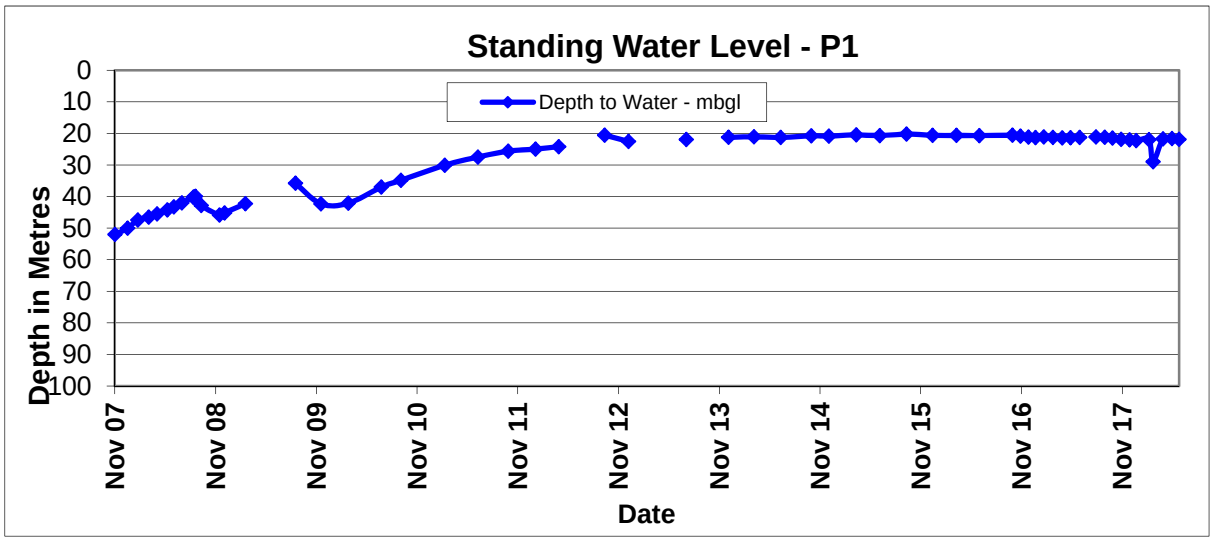
PM10 measurements taken to 19 May 2018 for the "Turrabaa" High Volume Air Sampler are returning a running annual average of 9.68 µg/m^3, which is also well below the annual average limit of 30 µg/m^3.

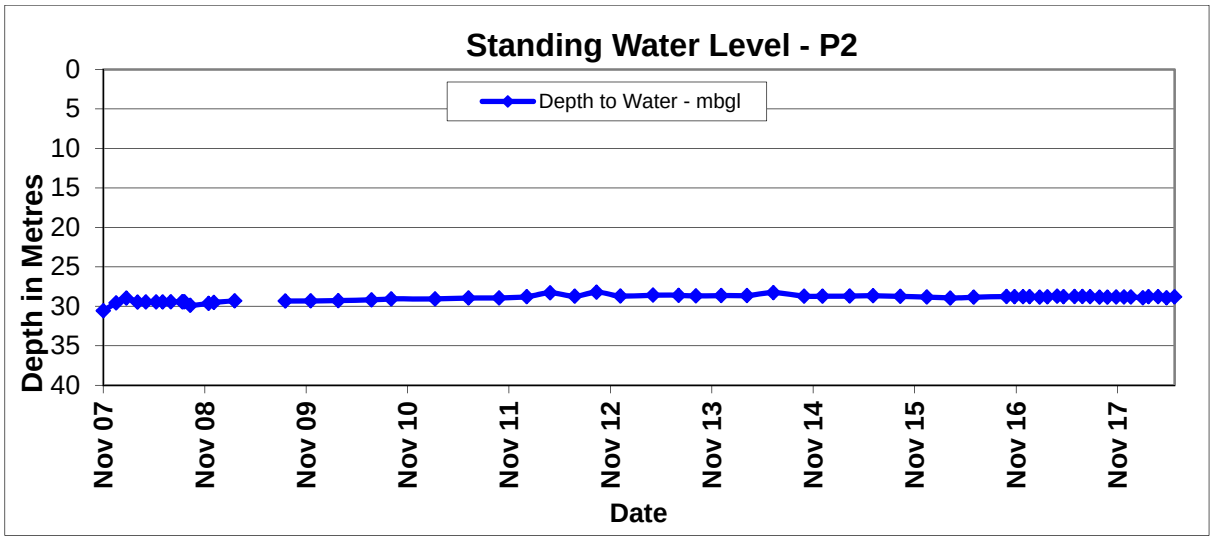


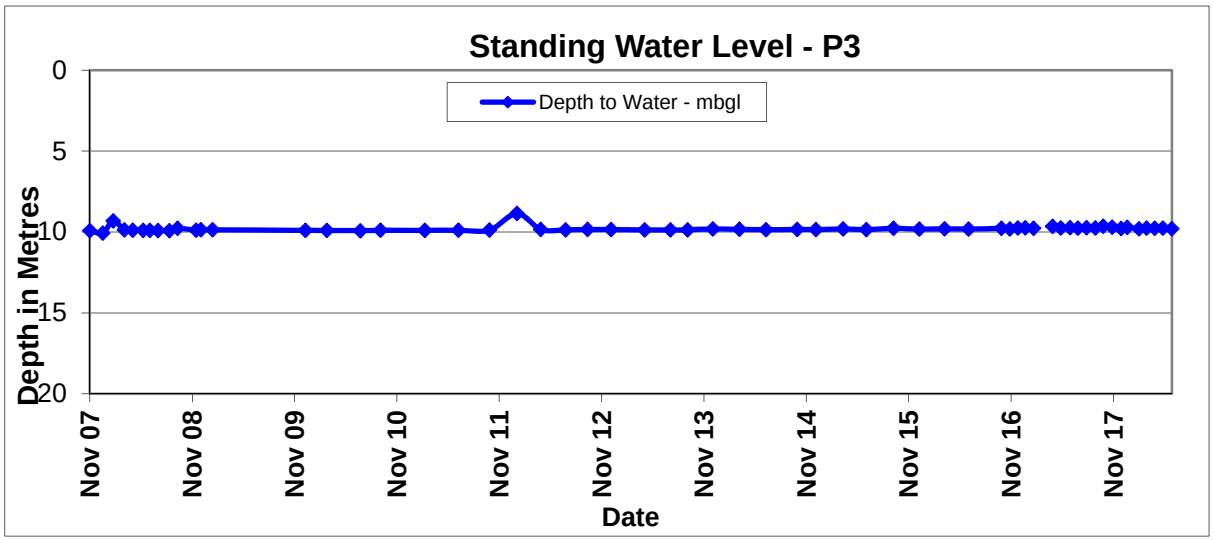
PM10 levels have remained compliant since the last meeting.

Groundwater Monitoring

Groundwater monitoring was completed in May 2018. Monitoring results are included below.




Standing Water Level - P2
Depth to Water - mbgl
Depth in Metres
0
5
10
15
20
25
30
35
40
Nov 07
Nov 08
Nov 09
Nov 10
Nov 11
Nov 12
Nov 13
Nov 14
Nov 15
Nov 16
Nov 17
Date


Standing Water Level - P3
Depth to Water - mbgl
Depth in Metres
0
5
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Nov 07
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Nov 10
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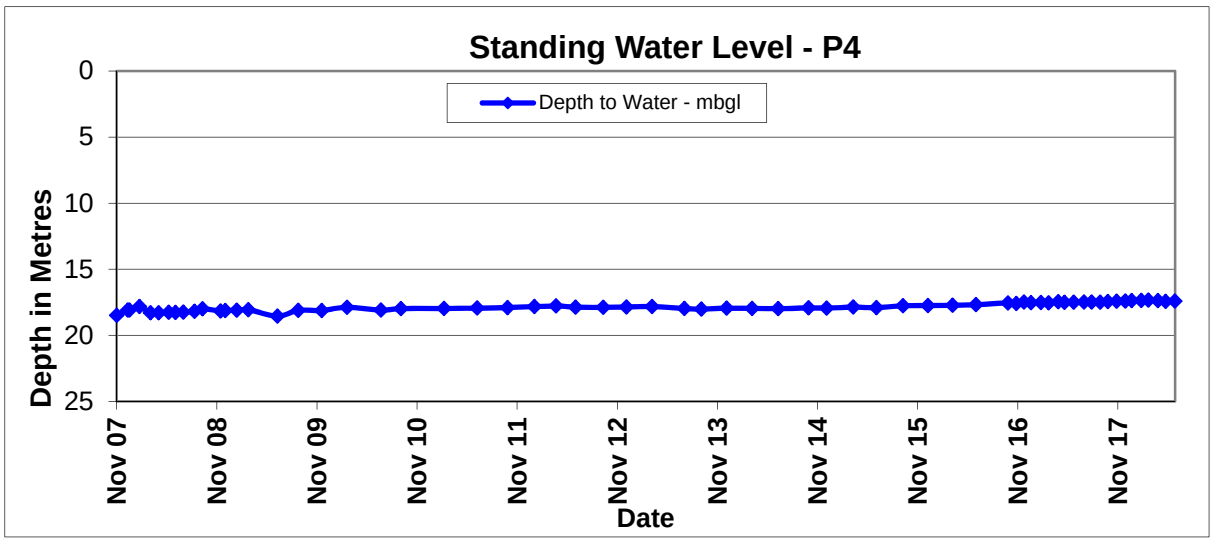
Nov 12
Nov 13
Nov 14
Nov 15
Nov 16
Nov 17
Date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Depth to Water - mbgl
Depth in Metres
0
5
10
15
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25
Nov 07
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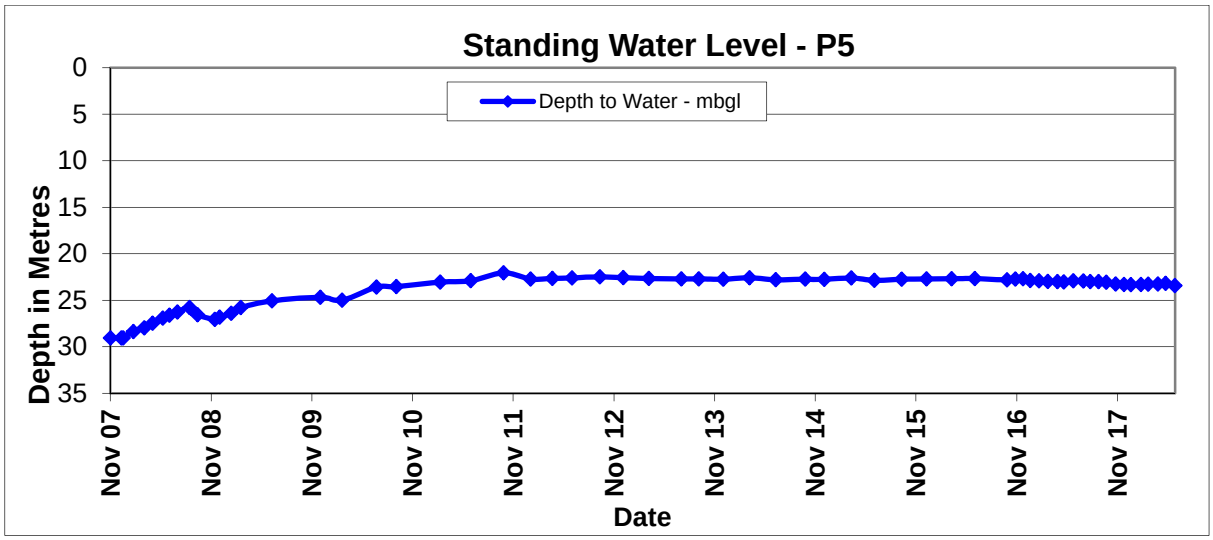
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Depth to Water - mbgl
Depth in Metres
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5
10
15
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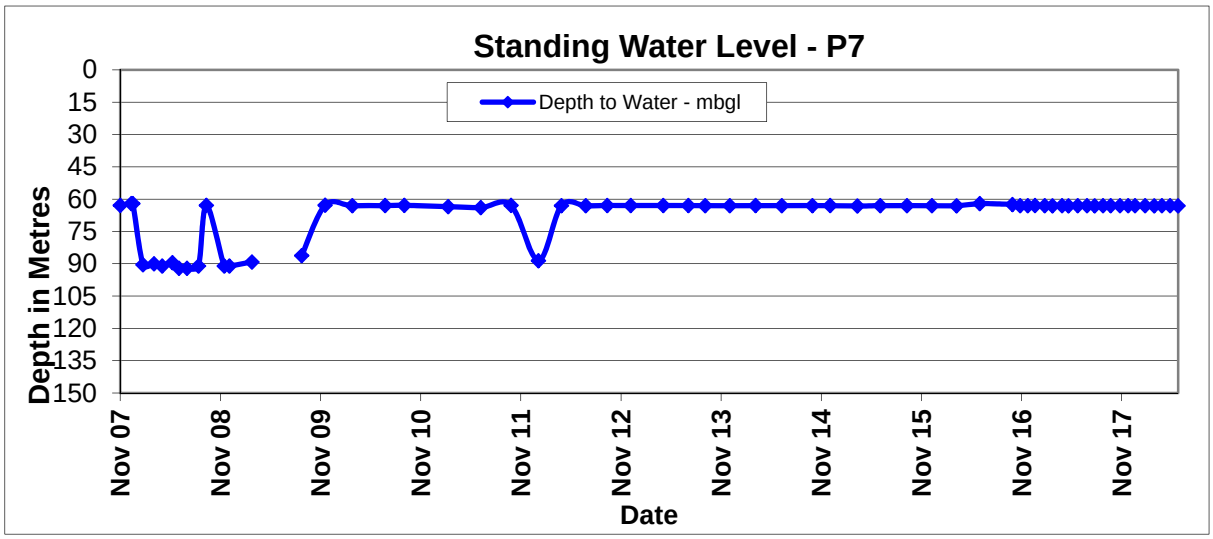
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Depth to Water - mbgl
Depth in Metres
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15
30
45
60
75
90
105
120
135
150
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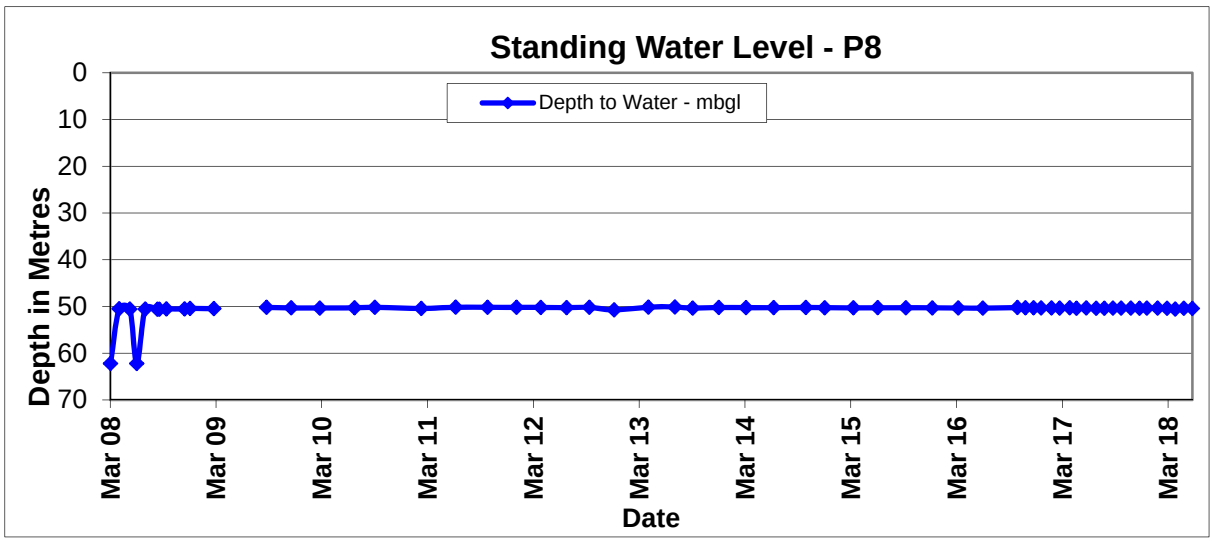
Nov 16
Nov 17
Date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Depth to Water - mbgl
Depth in Metres
0
10
20
30
40
50
60
70
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Mar 09
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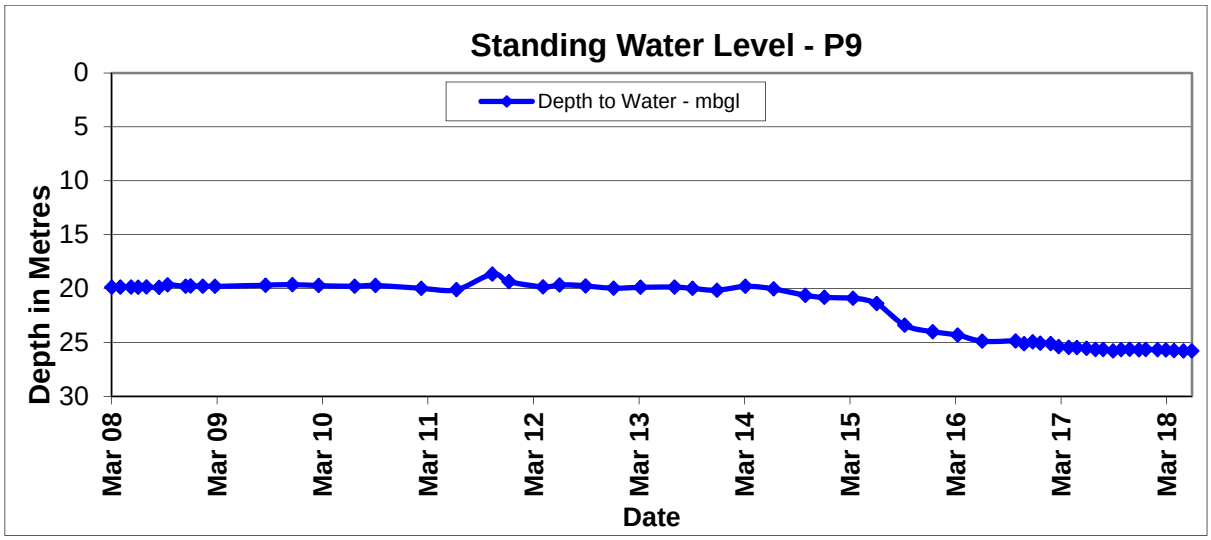
Mar 13
Mar 14
Mar 15
Mar 16
Mar 17
Mar 18
Date


Standing Water Level - P9
Depth to Water - mbgl
Depth in Metres
0
5
10
15
20
25
30
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Mar 16
Mar 17
Mar 18
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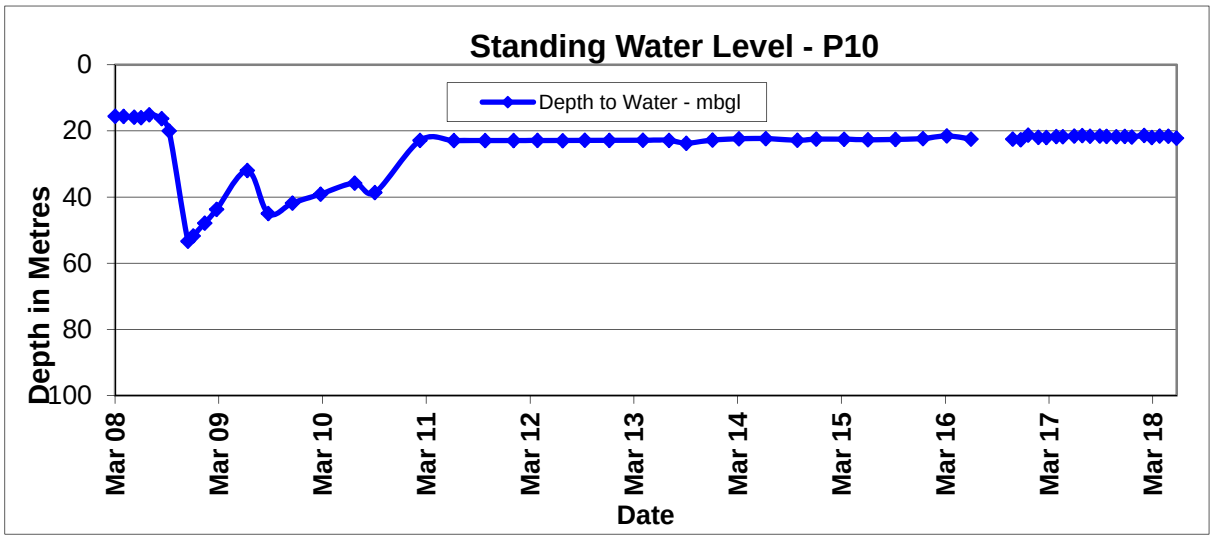
Standing Water Level - P10
Depth to Water - mbgl
Depth in Metres
0
20
40
60
80
100
Mar 08
Mar 09
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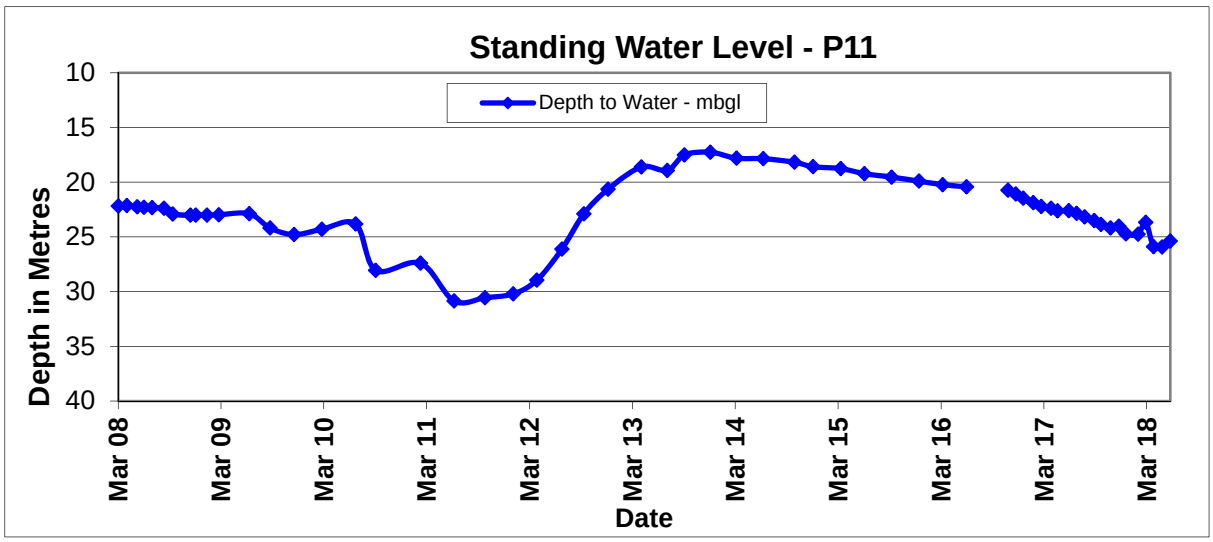
Mar 13
Mar 14
Mar 15
Mar 16
Mar 17
Mar 18
Date


Standing Water Level - P11
Depth to Water - mbgl
Depth in Metres
10
15
20
25
30
35
40
Mar 08
Mar 09
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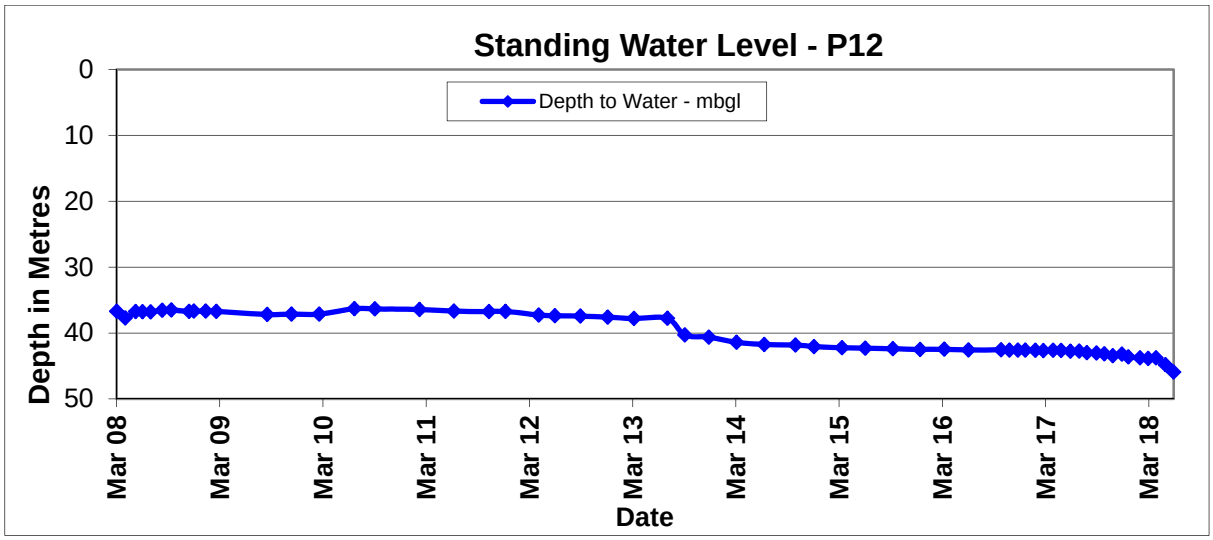
Mar 13
Mar 14
Mar 15
Mar 16
Mar 17
Mar 18
Date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Depth to Water - mbgl
Depth in Metres
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20
30
40
50
Mar 08
Mar 09
Mar 10
Mar 11
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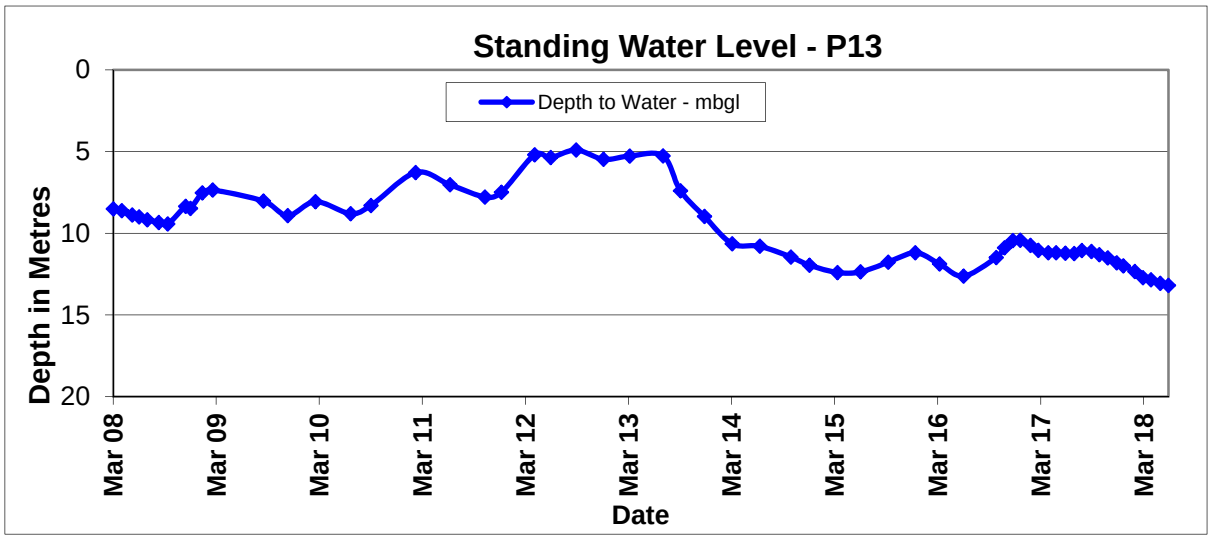
Mar 13
Mar 14
Mar 15
Mar 16
Mar 17
Mar 18
Date


Standing Water Level - P13
Depth to Water - mbgl
Depth in Metres
0
5
10
15
20
Mar 08
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Mar 11
Mar 12
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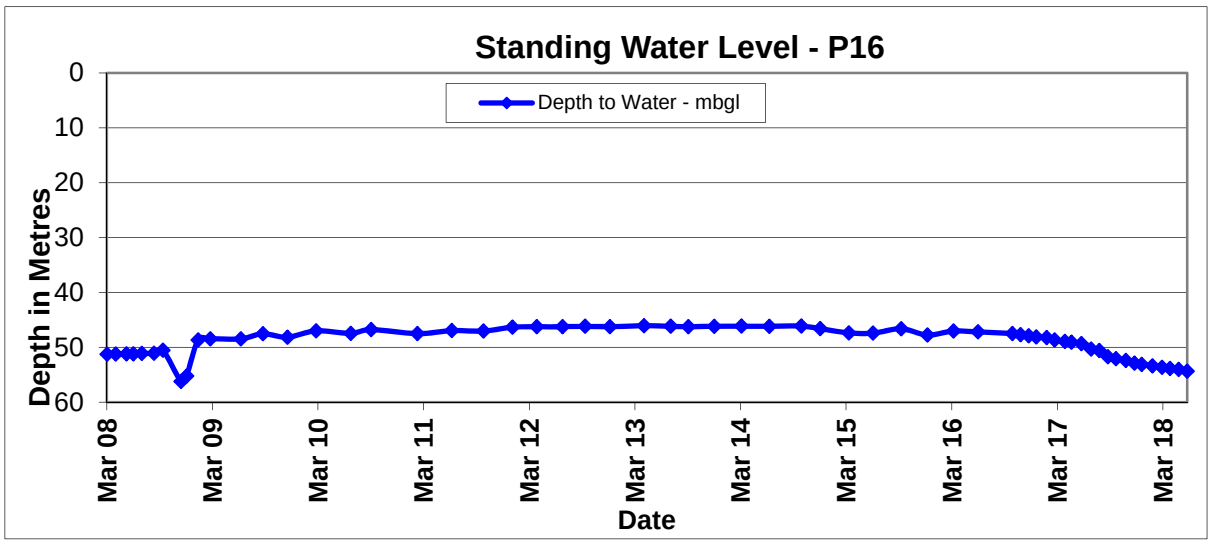
Mar 18
Date


Standing Water Level - P16
Depth to Water - mbgl
Depth in Metres
0
10
20
30
40
50
60
Mar 08
Mar 09
Mar 10
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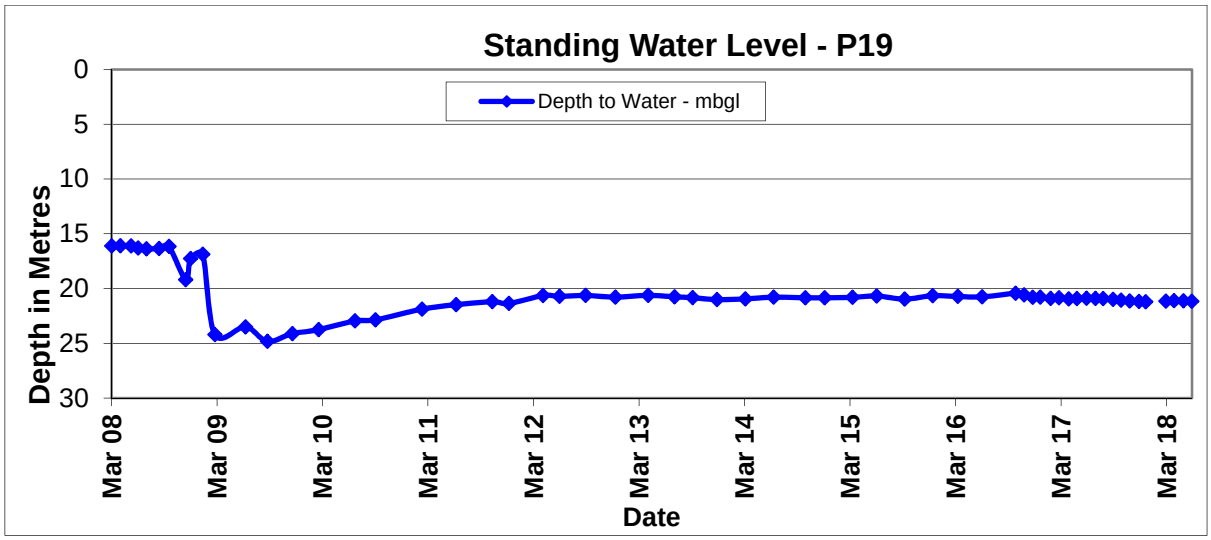
Mar 17
Mar 18
Date


Standing Water Level - P19
Depth to Water - mbgl
Depth in Metres
0
5
10
15
20
25
30
Mar 08
Mar 09
Mar 10
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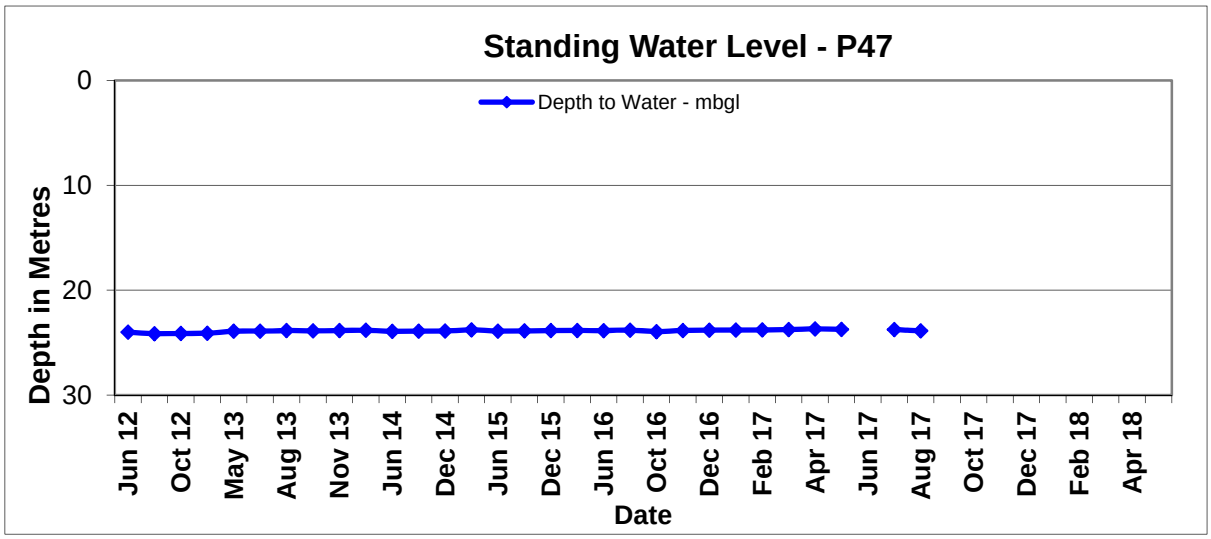
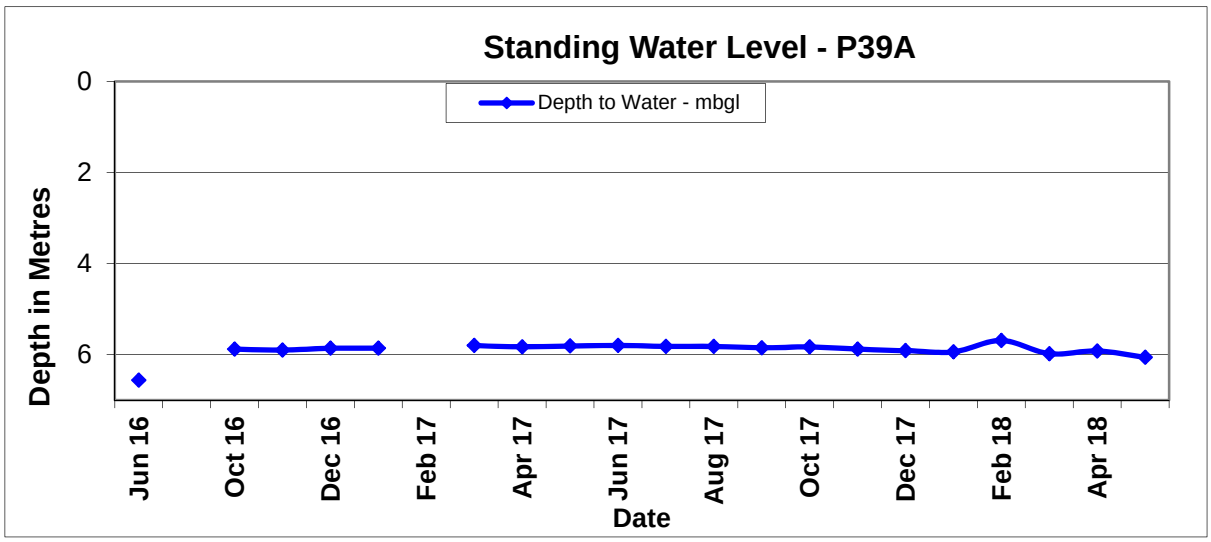
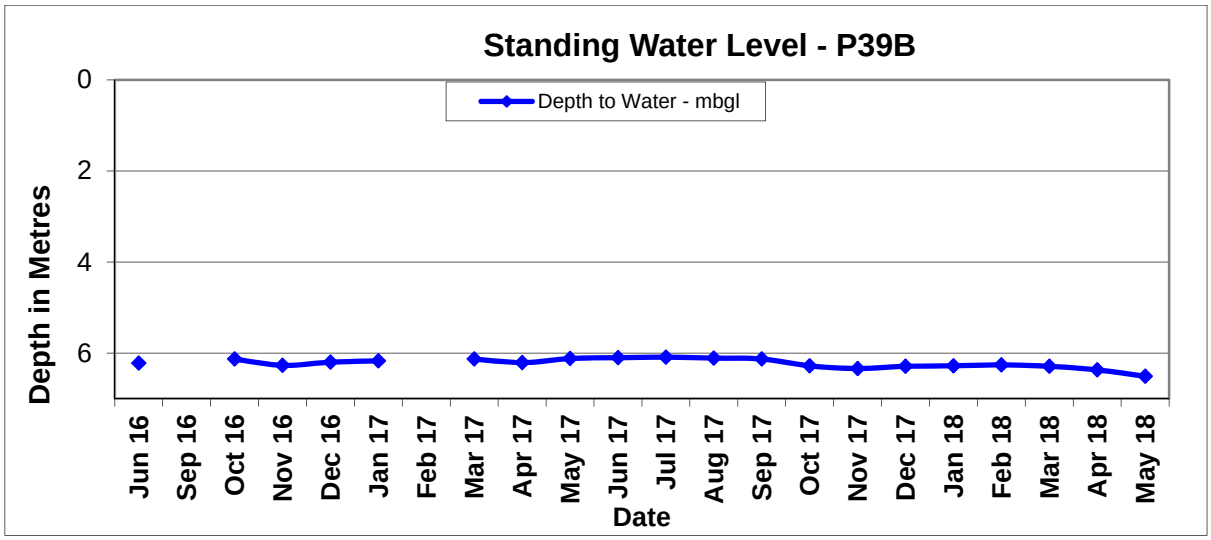
Mar 15
Mar 16
Mar 17
Mar 18
Date


Standing Water Level - P47
Depth to Water - mbgl
Depth in Metres
0
10
20
30
Jun 12
Oct 12
May 13
Aug 13
Nov 13
Jun 14
Dec 14
Jun 15
Dec 15
Jun 16
Oct 16
Dec 16
Feb 17
Apr 17
Jun 17
Aug 17
Oct 17
Dec 17
Feb 18
Apr 18
Date


Standing Water Level - P39A
Depth to Water - mbgl
Depth in Metres
0
2
4
6
Jun 16
Oct 16
Dec 16
Feb 17
Apr 17
Jun 17
Aug 17
Oct 17
Dec 17
Feb 18
Apr 18
Date


Standing Water Level - P39B
Depth to Water - mbgl
Depth in Metres
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2
4
6
Jun 16
Sep 16
Oct 16
Nov 16
Dec 16
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Feb 17
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Jul 17
Aug 17
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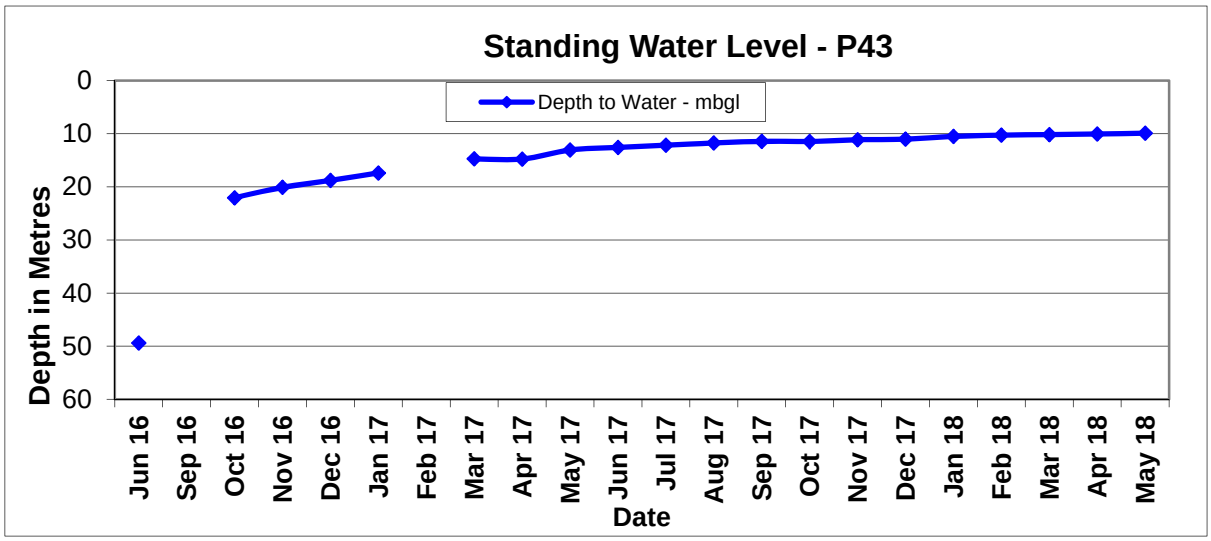
Oct 17
Nov 17
Dec 17
Jan 18
Feb 18
Mar 18
Apr 18
May 18
Date


Standing Water Level - P43
Depth to Water - mbgl
Depth in Metres
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10
20
30
40
50
60
Jun 16
Sep 16
Oct 16
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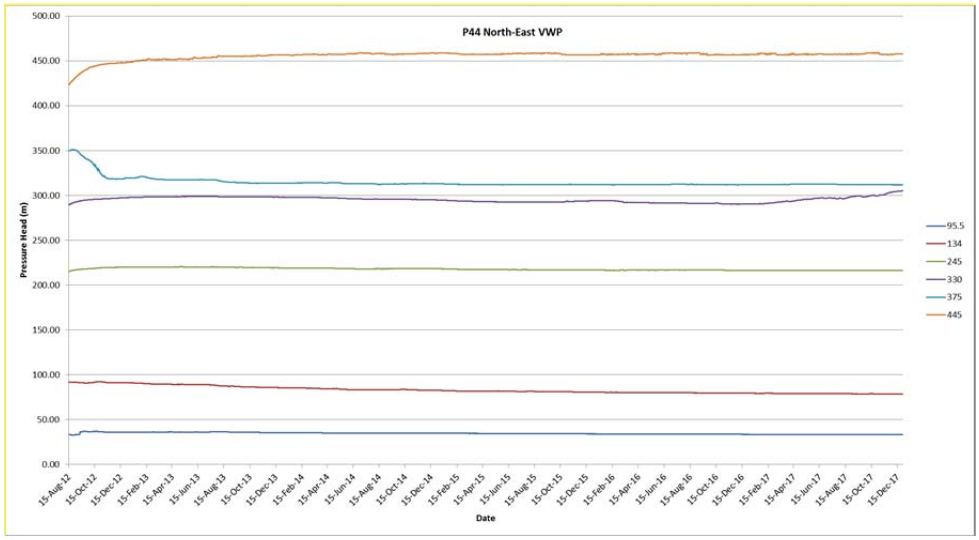
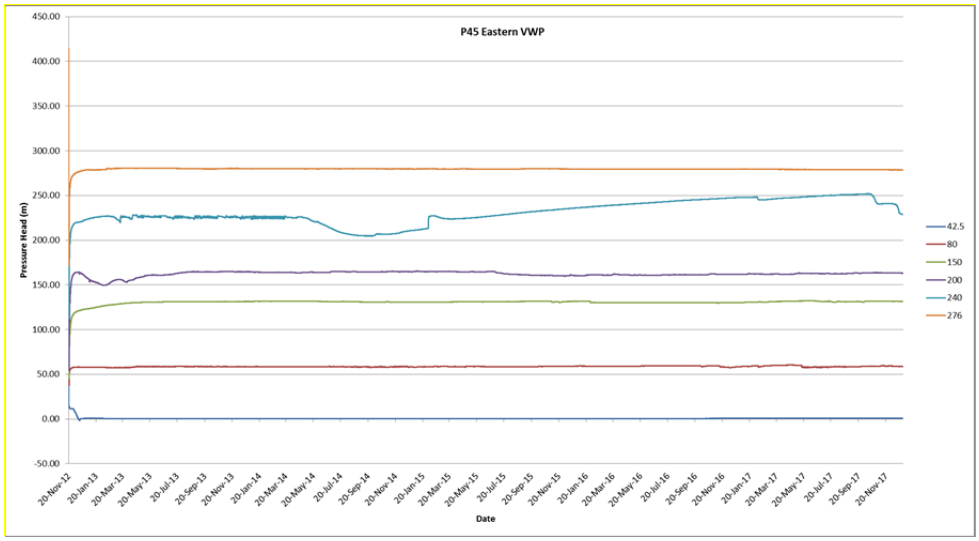
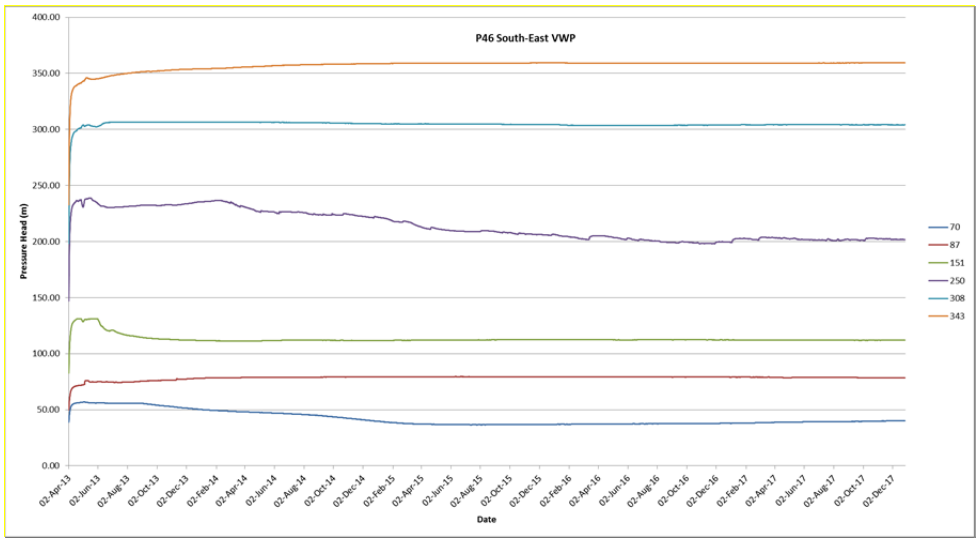
Jan 17
Feb 17
Mar 17
Apr 17
May 17
Jun 17
Jul 17
Aug 17
Sep 17
Oct 17
Nov 17
Dec 17
Jan 18
Feb 18
Mar 18
Apr 18
May 18
Date


P40 Western VWP
Pressure Head (m)
600.00
500.00
400.00
300.00
200.00
100.00
0.00
-100.00
95
135
307
321.75
346
357
Date







Monitoring results show the recent rounds have been relatively stable. As covered in previous reports, P13 is 30 m deep and targets the Garrawilla Volcanics. A production bore, WB2, is approximately 300 m to the south and targets the same aquifer and as such the drop in water level in P13 is likely associated with production from WB2.

Surface Water Monitoring

No wet weather discharges from licensed discharge points occurred during the March to May 2018 period.

Subsidence

Narrabri Mine has monitored the subsidence movement across the surface of LW103 to LW107 in accordance with the approved Extraction Plans (LW101 and LW102 are no longer monitored). The table below outlines the maximum subsidence parameters recorded as part of the subsidence monitoring program and a comparison with the maximum predicted subsidence parameters as outlined in the Extraction Plan.

Longwall Panels (LW) 103 to LW107		
	Maximum Predicted Extraction Plan	Maximum Measured
Line 101 – Centre of LW101 – Monitoring has ceased		
Line 102 – Centre of LW102 – Monitoring has ceased		
Line 103 – Centre of LW103 – Northern		
Subsidence (m)	2.75	2.729
Tilt (mm/m)	62	40.2
Tensile Strain (mm/m)	20 – 30^	18.8
Compressive Strain (mm/m)	26 – 39^	32.0
Angle of Draw (°, Degrees)	22.5 – 26.5	15.2
Line 103 – Centre of LW103 – Southern		
Subsidence (m)	2.75	2.583
Tilt (mm/m)	62	30.3
Tensile Strain (mm/m)	20 – 30^	9.3
Compressive Strain (mm/m)	26 – 39^	10.2
Angle of Draw (°, Degrees)	22.5 – 26.5	20.2
Line 104 – Centre of LW104 – Northern		
Subsidence (m)	2.75	2.802
Tilt (mm/m)	65	48.4
Tensile Strain (mm/m)	22 – 33^	42.6
Compressive Strain (mm/m)	28 – 42^	42.3
Angle of Draw (°, Degrees)	22.5 – 26.5	15.8
Line 104 – Centre of LW104 – Southern		
Subsidence (m)	2.75	2.713
Tilt (mm/m)	65	31.3
Tensile Strain (mm/m)	22 – 33^	8.1
Compressive Strain (mm/m)	28 – 42^	6.7
Angle of Draw (°, Degrees)	22.5 – 26.5	13.2
Line 105 – Centre of LW105 – Northern		
Subsidence (m)	2.75	2.674
Tilt (mm/m)	57	46.5
Tensile Strain (mm/m)	18 – 27^	18.1
Compressive Strain (mm/m)	23 – 35^	44.6
Angle of Draw (°, Degrees)	22.5 – 26.5	17.9
Line 105 – Centre of LW105 – Southern		
Subsidence (m)	2.75	2.626

Longwall Panels (LW) 103 to LW107		
	Maximum Predicted Extraction Plan	Maximum Measured
Tilt (mm/m)	57	25.2
Tensile Strain (mm/m)	18 – 27^	7.1
Compressive Strain (mm/m)	23 – 35^	9.9
Angle of Draw (°, Degrees)	22.5 – 26.5	16.6
Line 106 – Centre of LW106 – Northern		
Subsidence (m)	2.75	2.584
Tilt (mm/m)	47	41
Tensile Strain (mm/m)	14 – 21^	11.8
Compressive Strain (mm/m)	18 – 27^	17.1
Angle of Draw (°, Degrees)	22.5 – 26.5	25.5
Line 107 – Centre of LW107 – Northern		
Subsidence (m)	2.75	2.738*
Tilt (mm/m)	53	28.0*
Tensile Strain (mm/m)	20	10.2*
Compressive Strain (mm/m)	24	12.4*
Angle of Draw (°, Degrees)	26.5	24.7*
Line A – Cross Panel Survey Line		
Subsidence (m)	2.75	2.680*
Tilt (mm/m)	65	56.3*
Tensile Strain (mm/m)	22 – 33^	39.0*
Compressive Strain (mm/m)	28 – 42^	33.0*
Angle of Draw (°, Degrees)	22.5 – 26.5	24.2*
Line B – Pine Creek Tributary 1 – Monitoring has ceased		
Line D – Pine Creek		
Subsidence (m)	2.75	2.842*
Tilt (mm/m)	65	45.5*
Tensile Strain (mm/m)	22 – 33^	10.7*
Compressive Strain (mm/m)	28 – 42^	15.2*
Gradient Change (%)	Up to 6	4.54*
Line E – Pine Creek Tributary 1 Crossline 1 – Monitoring has ceased		
Line F – Pine Creek Tributary 1 Crossline 2 – Monitoring has ceased		
Line G – Pine Creek Tributary 1 Crossline 3 – Monitoring has ceased		
Line H – Cross Panel Survey Line		
Subsidence (m)	2.75	2.410*
Tilt (mm/m)	53	29.9*
Tensile Strain (mm/m)	13 – 20^	7.4*
Compressive Strain (mm/m)	16 – 24^	5.6*

* - subsidence development incomplete.

^ - values for ‘smooth’ and ‘discontinuous’ (i.e. crack affected) subsidence profiles.

Based on the above table the subsidence predictions for the most recently completed survey, i.e. LW107 northern line, indicate:

- The maximum subsidence measurements were within the predicted value of 2.75 m with a maximum measured value of 2.738 m.
- The maximum tilt measurements recorded were within the predicted value of 44 mm/m with a maximum measured value of 28 mm/m.
- The maximum tensile strain measurements were within the predicted value of 20 mm/m with a maximum measured value of 10.2 mm/m.
- The maximum compressive strain measurements were within the predicted value of 24 mm/m with a maximum measured value of 12.4 mm/m.

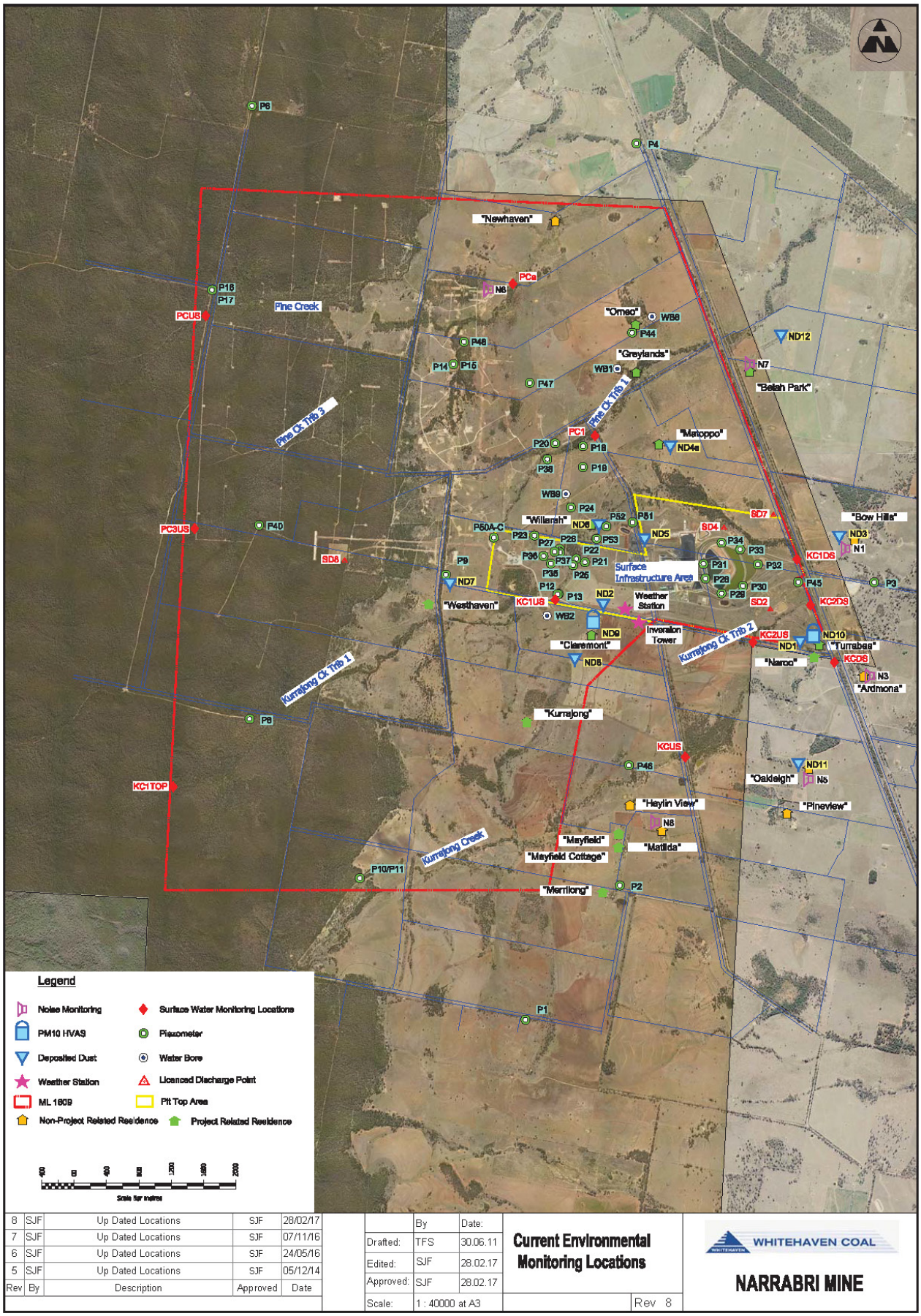
The centreline subsidence results for LW101 to LW107 indicate that the Garrawilla Volcanics and Basalt Sill have not reduced subsidence through spanning behaviour and that the maximum subsidence is also considered closer to 63% of the average mining height of 4.3m.

Complaints

One formal complaint was received during the period March to May 2018. The complaint was in relation to noise. A mobile noise unit is located at the property but no alarms were triggered at the time of the complaint.

Environmental Incident(s)

No environmental incidents occurred during the March to May 2018 period.



Rev	By	Description	Approved	Date
8	SJF	Up Dated Locations	SJF	28/02/17
7	SJF	Up Dated Locations	SJF	07/11/16
6	SJF	Up Dated Locations	SJF	24/05/16
5	SJF	Up Dated Locations	SJF	05/12/14

	By	Date:
Drafted:	TFS	30.06.11
Edited:	SJF	28.02.17
Approved:	SJF	28.02.17
Scale:	1 : 40000 at A3	

Current Environmental Monitoring Locations

Rev 8

WHITEHAVEN COAL

NARRABRI MINE

Narrabri Mine Community Consultative Committee Meeting Minutes

Meeting No: 42

Date: Wednesday 12th September 2018

Time: 5:05pm

Location: Narrabri Mine Site Office

Present: Russell Stewart (RS) – Independent Chair
Peter Webb (PW)
James Stieger (JS)
Mark Foster (MF)
Geoff Hunter (GH)
Rodney Dunlop (RD)
Owen Salisbury (OS) – Narrabri Mine Technical Services Manager
Steve Farrar (SF) – Narrabri Mine Environmental Superintendent

1. APOLOGIES

Steve Bow, David Ellwood and Ron Campbell.

2. DECLARATION OF PECUNIARY OR OTHER INTERESTS

MF leases land from the mine.

3. PREVIOUS MINUTES

GH asked for wording in Section 3.1 to be updated. With the update the following moved the minutes:

Moved: GH Seconded: MF

3.1 BUSINESS ARISING FROM PREVIOUS MINUTES

SF handed out copies of the 2017 Annual Review for the mine.

SF went through the noise monitoring and inversion conditions data for the last 12 months. GH asked SF to explain the graphs which he did. RD asked about the measurements that were affected by inversions and SF explained the graph colours and then summarised the data. GH asked about the numbers in the report last meeting and SF explained they are the worst 15-min period and the other data is not included. JS asked about the noise in winter and SF explained they are likely affected by inversion conditions. SF explained the other meteorological noise enhancing condition is wind speeds >3m/s.

SF presented the current Stage 3 mine plan. GH asked about the underground conveyor which SF confirmed. MF asked about different levels of mining which SF said it is all the one coal seam, i.e. one level. GH asked about the depth which OS explained relating to the existing operation. GH asked about property purchase and SF explained the current progress and the status of the other properties. GH asked about when a definitive plan would be ready and SF explained the current process and a decision should be made this year. GH said some of the residences don't have much certainty and SF explained once the Gateway application is submitted then the other modelling work will commence to inform any impacts to properties around the mine plan. MF asked about purchasing certain properties which SF said no unless noise modelling indicates otherwise. GH asked about the noise sources which SF explained. MF asked about the drilling and JS said the degassing holes will be needed which SF confirmed. RD asked if the mine had achieved a water surplus and SF said no. GH asked about the water being imported which SF explained including the licence amounts. RD asked about the groundwater modelling and SF said it will be updated.

4. GENERAL BUSINESS

4.1 OPERATIONS PROGRESS REPORT

The operations update was provided as follows:

Mine Progress Report (to 31 August 2018)

Coal produced (t):	August 2018	44,345
	FY-to-date	211,207
Coal Railed (t):	August 2018	134,801
	FY-to-date	622,708
Average workforce numbers (August 2018):		
	NCO	Waged – 120
		Salary – 119
		Total – 239
	Contractors	Total – 241
Safety Update (FY to August 2018):		
	Lost Time Injury (LTI)	0
	Days LTI Free:	63
	Total Recordable Injuries:	2
	Planned Task Observations:	2,075
	Take 5 Assessments:	33,842
	Work Hours (Aug-18):	151,007

OS went through the operations report. RD asked about production and OS explained the mine was behind by a couple of weeks at this stage. OS explained the activities associated with the longwall move and the gradual ramp up in production when the longwall starts again. MF asked about the longwall and SF explained where the mine was moving from/to. JS asked how many to go and SF explained. GH asked about the fire underground and OS explained the heating of the coal that occurred, what was done and it is all under control now. RD asked about the spon com propensity of the coal which OS explained. MF asked about monitoring which OS explained. OS explained the process to monitor the area and what the mine has done to stop oxygen getting into the area.

4.2 ENVIRONMENTAL OVERVIEW

SF went through the environmental report. GH asked about the coal and organic matter in the dust gauges and SF explained the combustible and organic matter components. GH asked the difference between wood smoke and coal dust in the gauges and SF explained the high volume air sampler would be best to measure wood smoke etc as it is weighed before and after. RD explained the dust gauges are total of anything that falls into the funnel. SF explained the samplers note what is in the dust gauges, e.g. organic matter. GH asked about the maximum subsidence compared to mining height and SF explained the initial model and the modelling done now is based off of data from the mine.

5. NEW BUSINESS

RD asked if the mine would consider bussing people to work to limit traffic/rubbish etc. SF said the mine utilises a couple of contractors that do have small busses but only a small amount. JS said at the start the mine said it would bus people in as most were contractors and would be bussed in but this never happened. RS stated that the road of an evening heading back to Narrabri is very busy. GH asked why it doesn't happen. SF said it is part of Maules Creek's development consent but not part of this mines' consent. GH said he thought with the shift work it would be easy to do. SF said he wasn't sure if they like the freedom of leaving when they want and RS asked if we can investigate and SF said we can ask the question. MF said some people at the end of the shift would need to do paperwork and SF said that's right but the majority would be leaving around the same time. RD said it would be a cultural shift but it could be done. RS asked where people drive from for work and SF said the furthest he knows is from Manilla. SF said he knows of a couple from Tamworth that work at Maules Creek. RD said that Whitehaven have the 100km policy and RS said that's why Tamworth Council want the Rangari Rd fixed up to allow people from Tamworth to get to the mines and Narrabri Council have said they wouldn't back it. RS suggested a survey of staff to see if they would use it.

GH asked about rehabilitation and SF explained where it is up to. GH asked about the staff numbers etc with the new plan and SF said it is the same at this stage. OS stated the plan is to maintain current levels of people and coal production. GH asked about the inland rail line and potential coal use and SF said he didn't believe it would be feasible but may offer an alternative to Newcastle. RS outlined the current project and detailed the end of the line near Brisbane and the issues there. JS said it would be hard to get a line through Brisbane and RS said you may be able to go north and JS said it would have to be up near Gladstone which would be a bottle neck with Adani coal. RS said the cost of the last section through Brisbane would be more than the rest of the rail project. JS said it is being built to go to Toowoomba for freight and RS said 80% of the freight is Coles/Woolworths and exports from China go around the west coast by ship ending up in Melbourne. RS said there is a big freight terminal in Toowoomba and Warwick. JS said they aren't worried about coal it will go to Newcastle and the rail line will end up in Toowoomba for freight. JS said they could do grain out of Brisbane but you still have to truck it in.

6. NEXT MEETING

Wednesday 5th December 2018 at 5:00pm at the Railway Hotel, Baan Baa.

7. CLOSURE OF MEETING

Meeting closed at 6:07pm.

Narrabri Mine Community Consultative Committee Meeting #42

Environmental Monitoring Report: June – August 2018

Noise Monitoring

Attended noise monitoring was undertaken between Tuesday 19th to Thursday 21st June 2018 (Table 1) to verify if noise levels were within compliance limits. The draft results from this monitoring are detailed in the table below.

Table 1: Monitoring Results

EPL ID	Monitoring Date	Daytime Measured L_{Aeq} dB	Evening Measured Levels L_{Aeq} dB	Night Measured Levels L_{Aeq} dB	Night Measured Level $L_{A1,1minute}$ dB	Noise Limit(s)	Compliance
N5 Oakleigh	19/06/2018	20	<20	NM	NM	Day/Evening/Night $L_{Aeq,15minute}$: 35 dB Night $L_{A1,1minute}$: 45 dB	Yes
N5 Oakleigh	20/06/2018	NM	IA	IA	IA		Yes
N5 Oakleigh	21/06/2018	23	34	IA	IA		Yes
N6 Newhaven	19/06/2018	<25	31	33	43		Yes
N6 Newhaven	20/06/2018	33	28	30	41		Yes
N6 Newhaven	21/06/2018	27	33	28	41		Yes
N1 Bow Hills	19/06/2018	<25	27	33	38		Yes
N3 Ardmona	19/06/2018	IA	IA	IA	IA		Yes
N7 Merriman	19/06/2018	NM	20	27	38		Yes
N8 Matilda	19/06/2018	IA	IA	IA	IA		Yes

Notes:

1. *Noise levels provided in these columns are highest NAR only contributions, where criteria were applicable, during each period;*
2. *Bolded results indicate exceedance of criteria;*
3. *As detailed in the EPL, noise emission limits apply under all meteorological conditions except:*
   - *Wind speeds greater than 3 m/s at 10 metres above ground level; or*
   - *Stability class F temperature inversion conditions, and wind speeds greater than 2 m/s at 10 metres above ground level; or*
   - *Stability class G temperature inversions;*
4. *'NM' denotes not measureable.*
5. *'IA' denotes inaudible.*

During the June 2018 monitoring, under the operating and meteorological conditions at the time, for the worst-case 15-minute compliance measurement periods, the mine noise was compliant at all locations.

Deposited Dust Monitoring

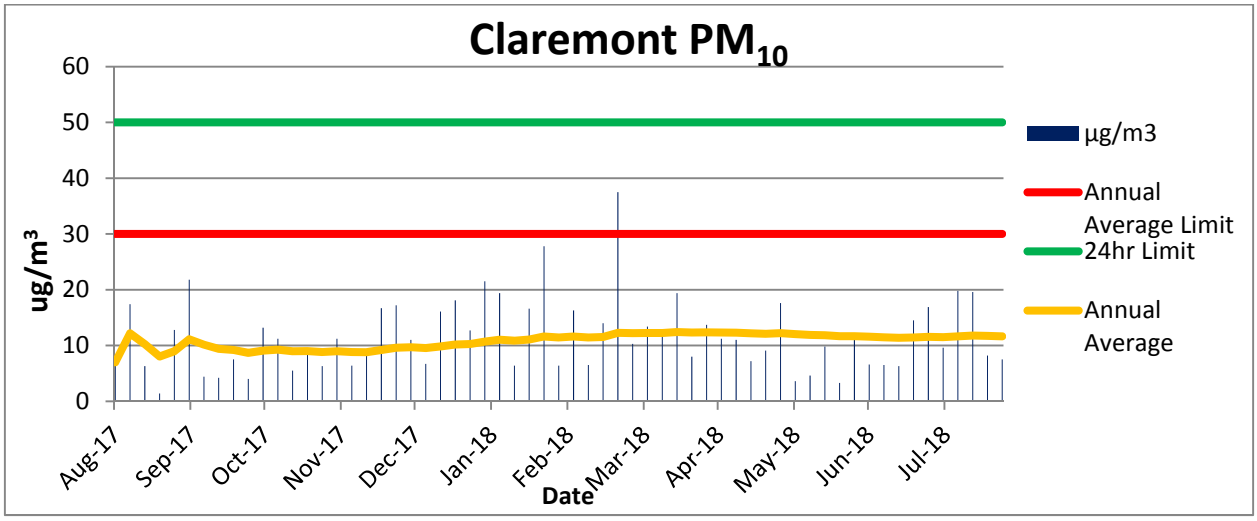
Month	ND1 Turrabaa	ND2 Claremont	ND3 Bow Hills	ND4a New Matoppo	ND5 Claremont	ND6 Willarah	ND7 Claremont	ND8 Claremont	ND11 Oakleigh	ND12 Merriman
Sep-17	1.7	1.2	1.2	1.1	3.2	1.5	2.1	3.6	0.9	1.0
Oct-17	4.0	1.8	2.0	2.2	4.0	2.2	2.5	2.5	3.2	1.1
Nov-17	0.9	6.1	1.0	3.2	3.8	1.6	0.8	3.1	0.7	1.2
Dec-17	3.9	1.0	7.3	2.7	3.2	0.9	1.5	3.1	1.0	1.0
Jan-18	3.0	2.9	0.6	6.9	2.9	54.7	1.3	1.3	1.0	1.4
Feb-18	2.5	0.9	2.8	5.2	2.7	0.9	7.5	1.6	2.4	1.0
Mar-18	3.2	1.5	2.9	5.4	3.0	1.1	1.2	2.5	3.1	2.1
Apr-18	3.6	4.0	0.9	3.1	2.1	1.2	0.8	2.5	9.0	0.7
May-18	2.8	2.0	3.0	0.4	0.5	0.4	0.4	1.1	1.0	0.6
Jun-18	20.7	0.5	4.6	1.4	3.4	2.4	1.5	0.7	0.6	3.1

Month	ND1 Turrabaa	ND2 Claremont	ND3 Bow Hills	ND4a New Matoppo	ND5 Claremont	ND6 Willarah	ND7 Claremont	ND8 Claremont	ND11 Oakleigh	ND12 Merriman
Jul-18	3.6	0.6	2.7	0.6	2.1	0.4	0.8	1.4	0.7	1.2
Aug-18	1.8	0.9	3.3	1.6	3.4	1.5	1.1	2.3	1.5	1.6
Annual Average	**4.3**	**2.0**	**2.7**	**2.8**	**2.9**	**5.7**	**1.8**	**2.1**	**2.1**	**1.3**

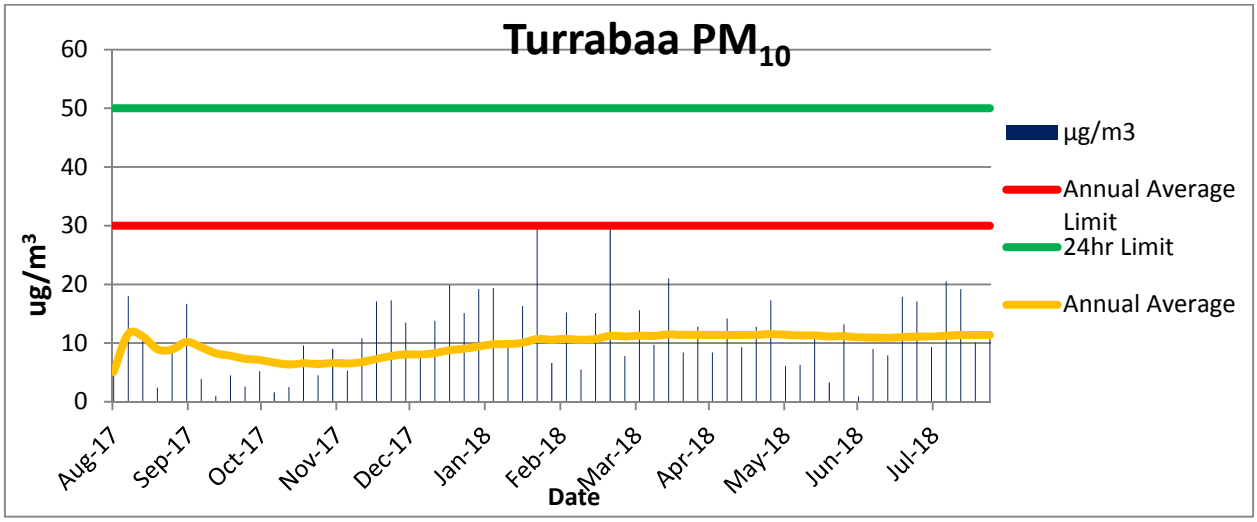
All deposited dust levels are within the compliance limit of 4 g/m^2/mth with the exception of ND1 and ND6. Both of these gauges annual ash limit, i.e. the component of the deposited dust attributable to mining, are well below the annual limit being 2.9 and 0.9 g/m^2/mth, respectively.

High Volume Air Sampling (PM10)

PM10 measurements taken to 23 August 2018 for the "Claremont" High Volume Air Sampler (HVAS) are returning a running annual average of 11.66 µg/m^3, which is well below the annual average limit of 30 µg/m^3.



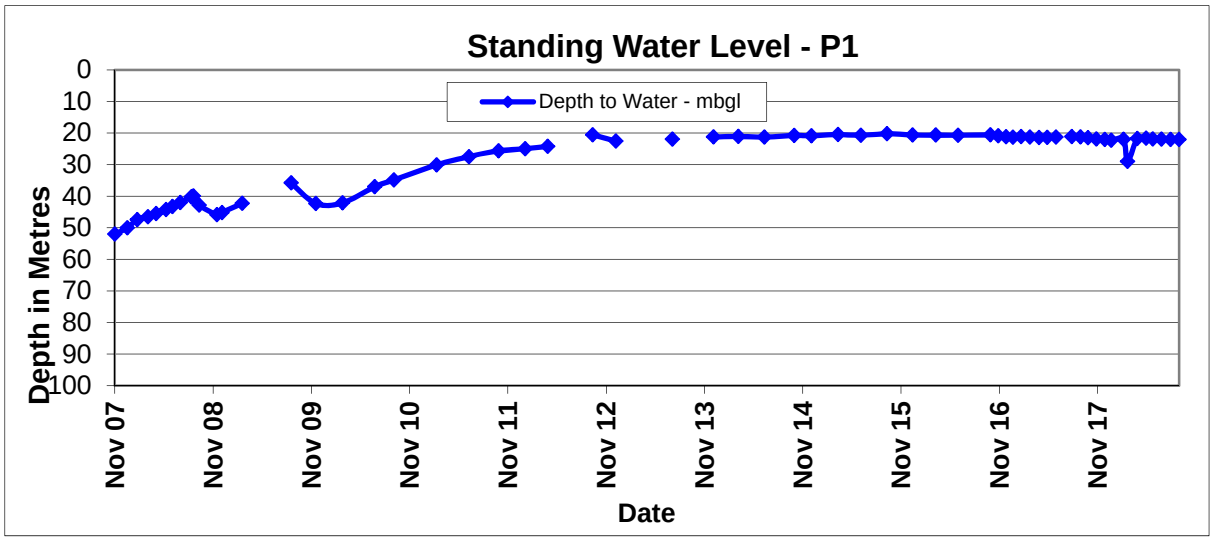
PM10 measurements taken to 23 August 2018 for the "Turrabaa" High Volume Air Sampler are returning a running annual average of 11.37 µg/m^3, which is also well below the annual average limit of 30 µg/m^3.

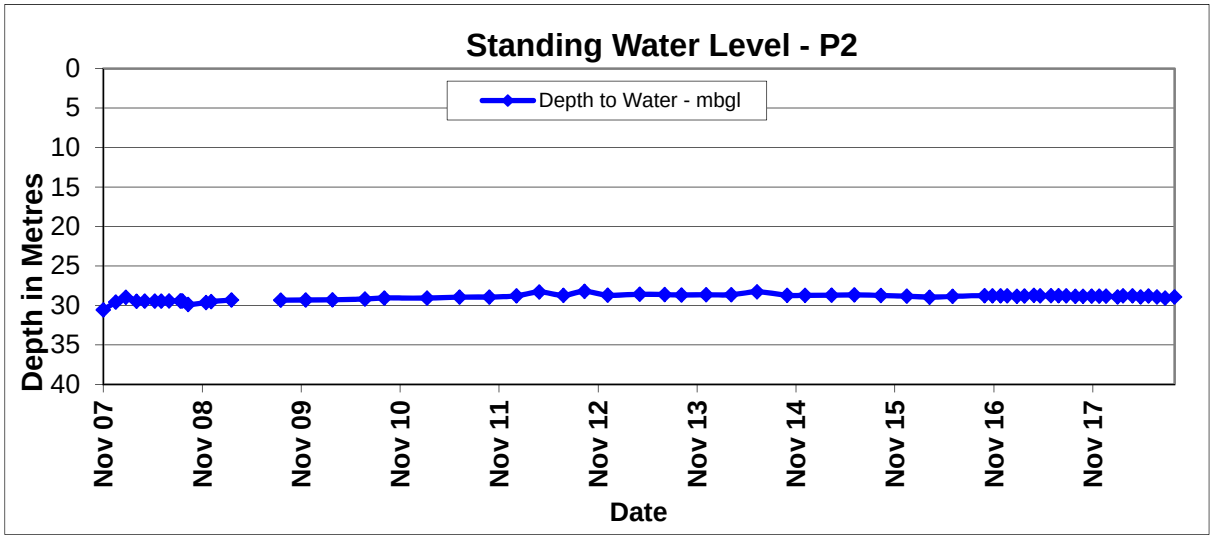


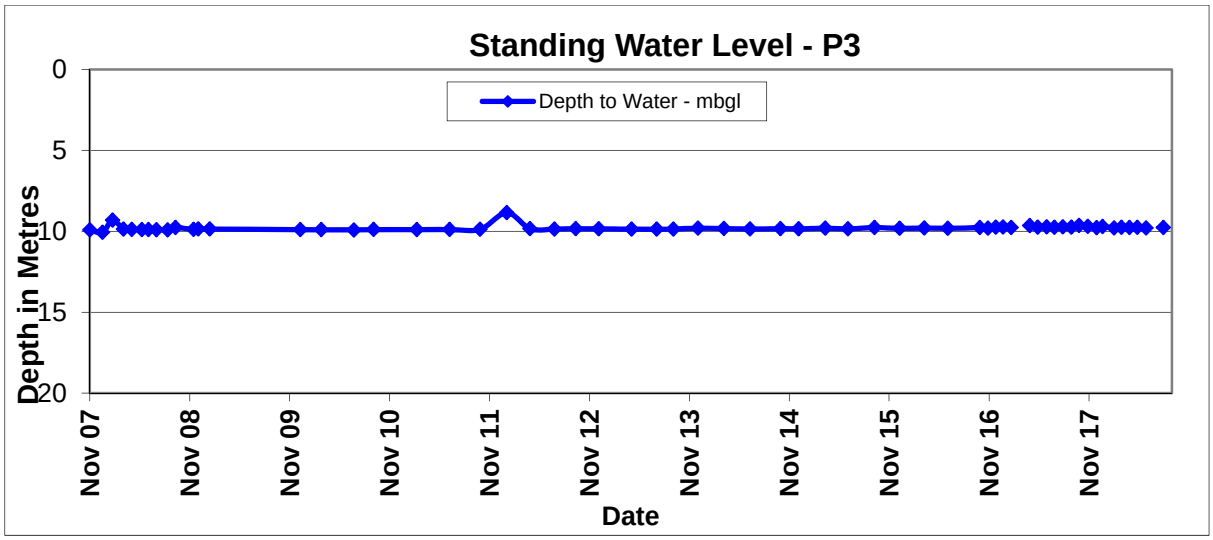
PM10 levels have remained compliant since the last meeting.

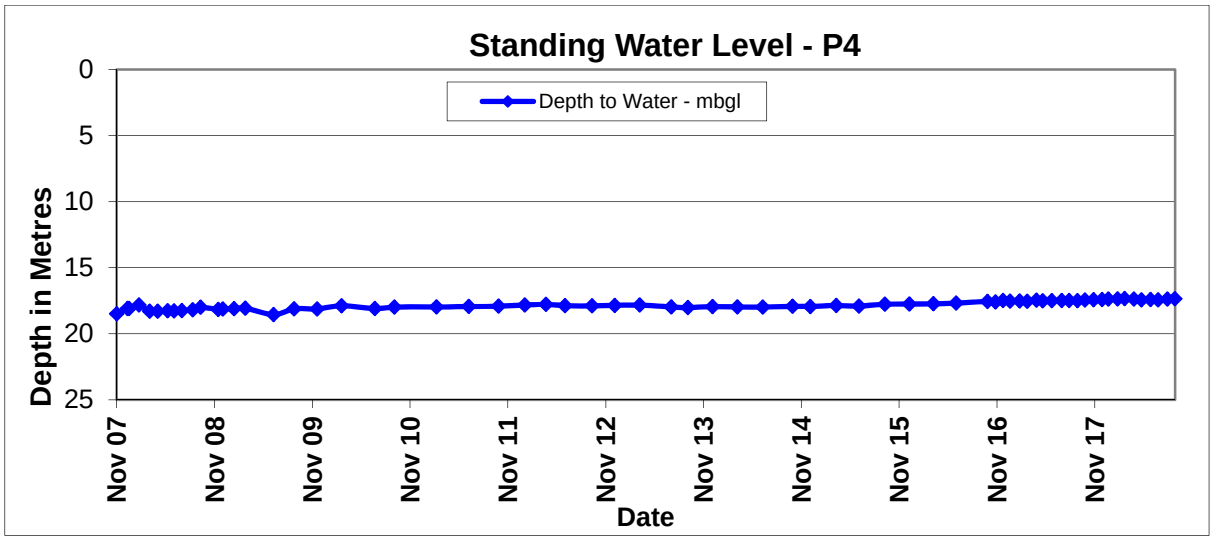
Groundwater Monitoring

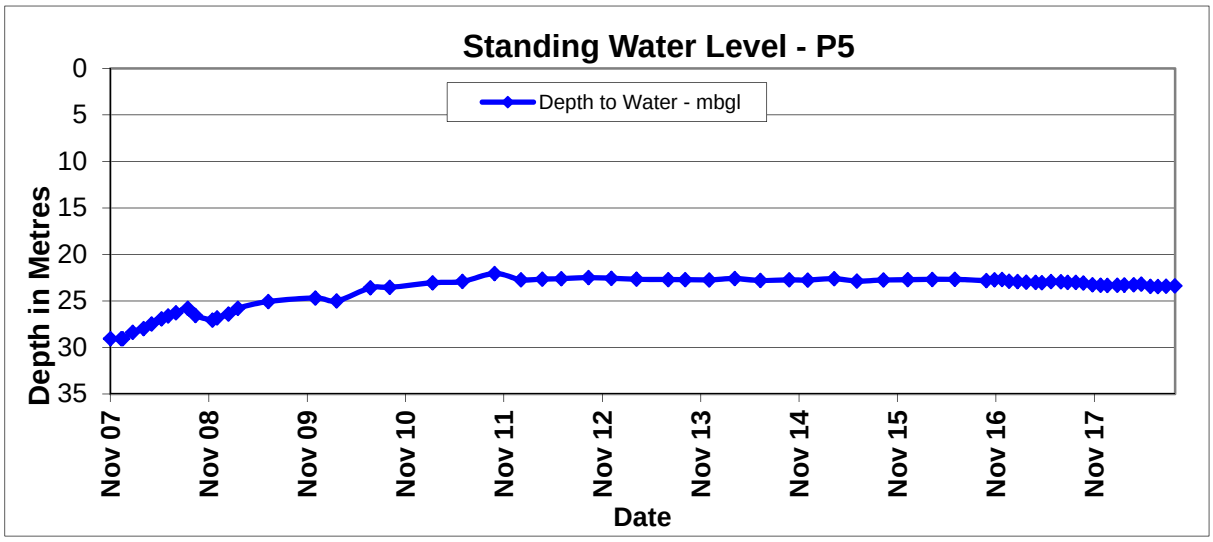
Groundwater monitoring was completed in June 2018. Monitoring results are included below.

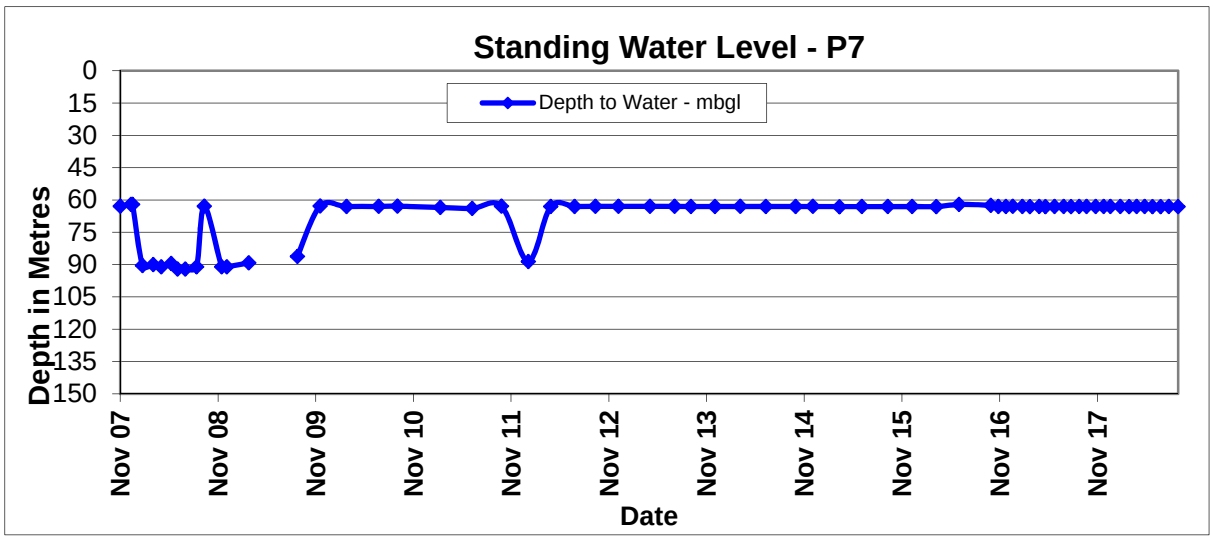


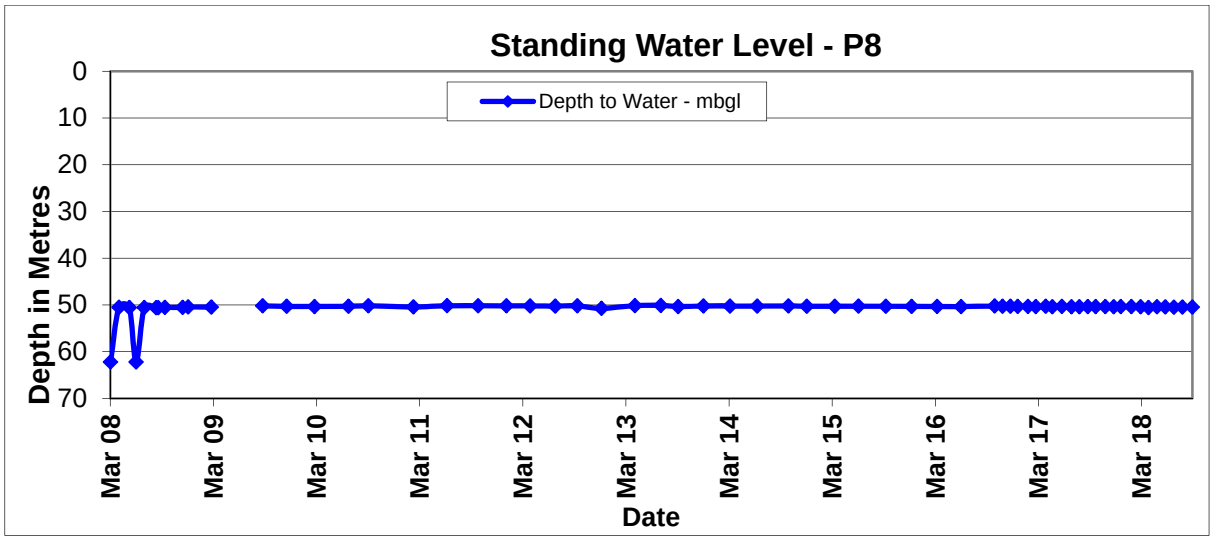


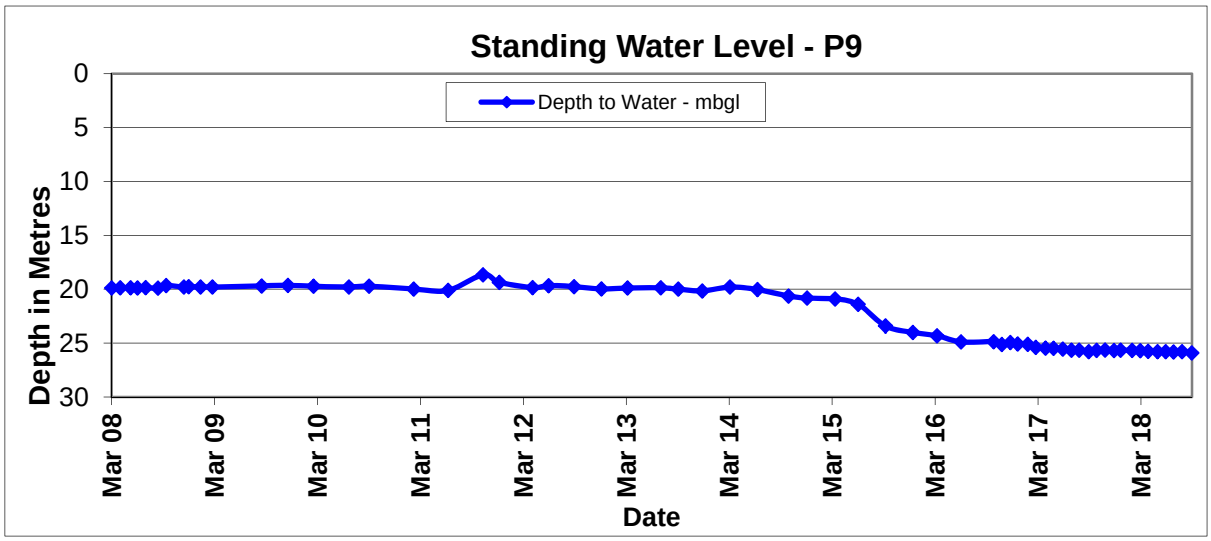


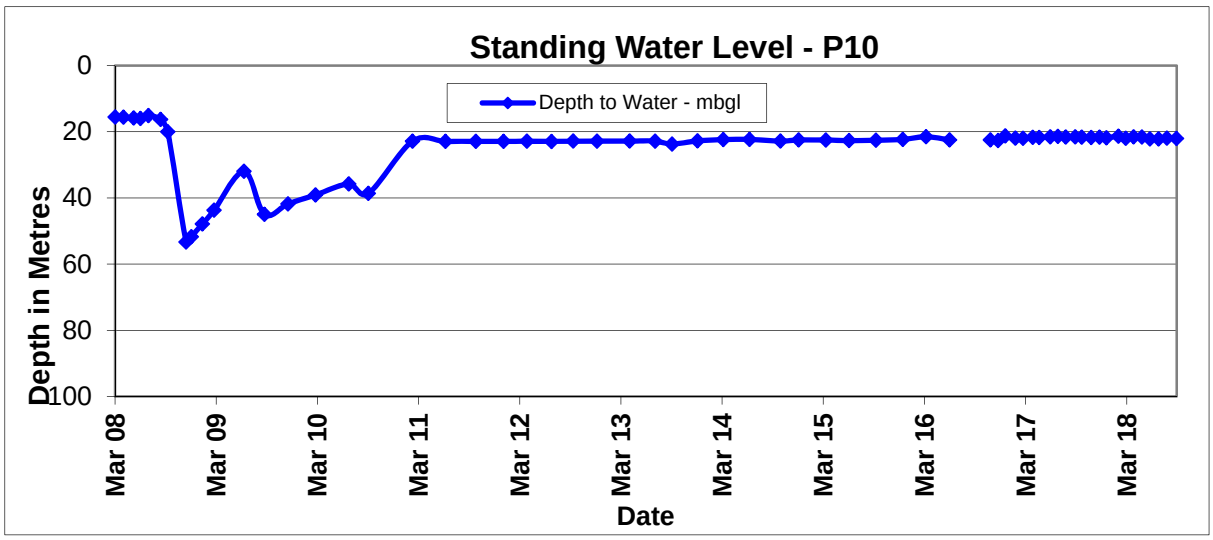

Standing Water Level - P4
Depth to Water - mbgl
Depth in Metres
0
5
10
15
20
25
Nov 07
Nov 08
Nov 09
Nov 10
Nov 11
Nov 12
Nov 13
Nov 14
Nov 15
Nov 16
Nov 17
Date

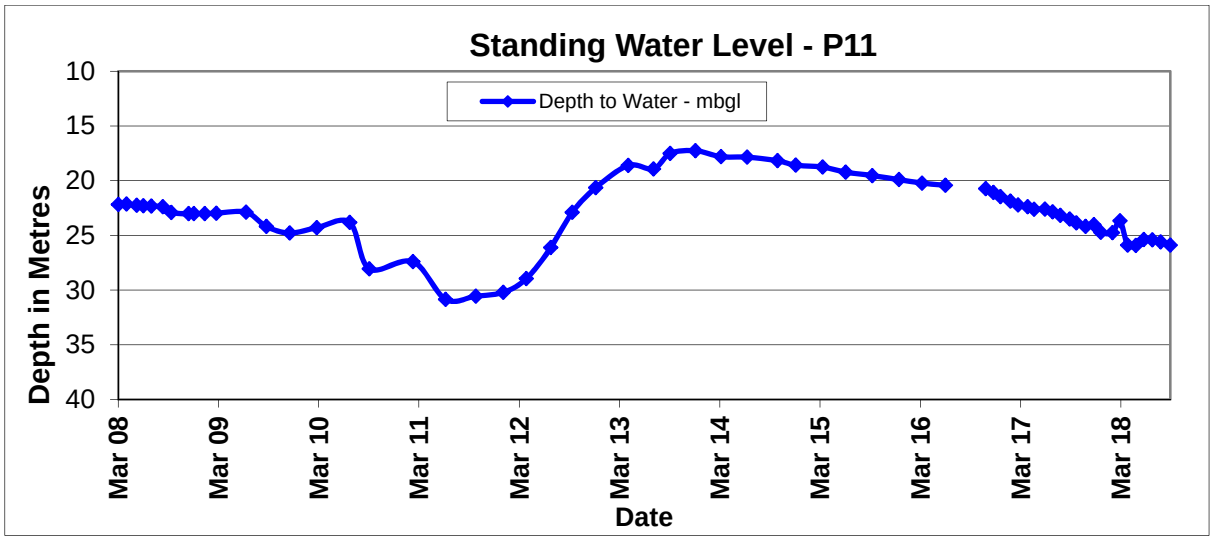

Standing Water Level - P5
Depth to Water - mbgl
Depth in Metres
0
5
10
15
20
25
30
35
Nov 07
Nov 08
Nov 09
Nov 10
Nov 11
Nov 12
Nov 13
Nov 14
Nov 15
Nov 16
Nov 17
Date

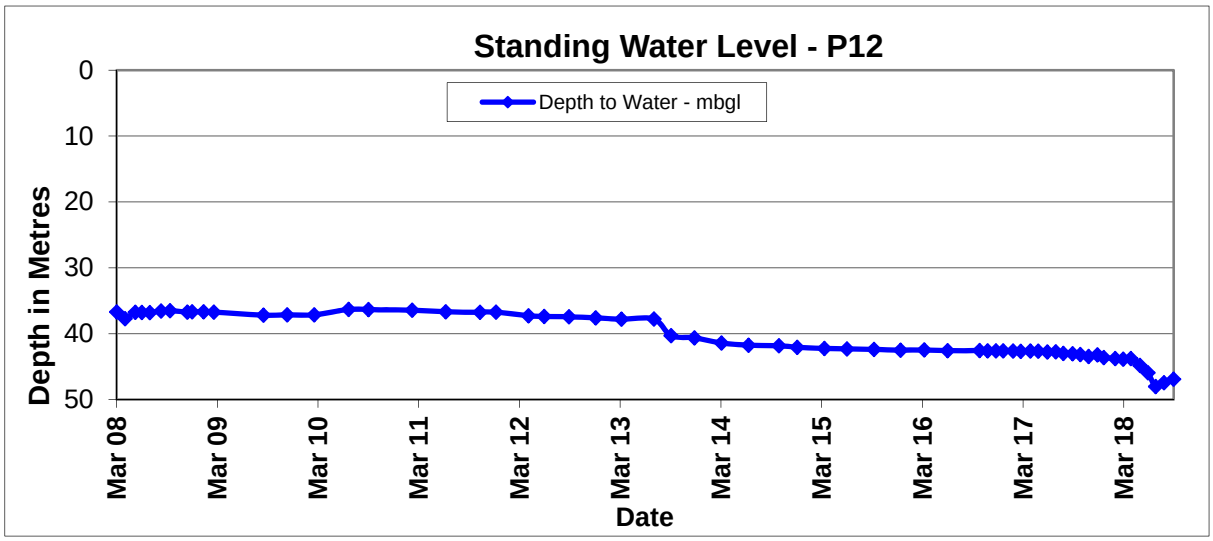

Standing Water Level - P7
Depth to Water - mbgl
Depth in Metres
0
15
30
45
60
75
90
105
120
135
150
Nov 07
Nov 08
Nov 09
Nov 10
Nov 11
Nov 12
Nov 13
Nov 14
Nov 15
Nov 16
Nov 17
Date

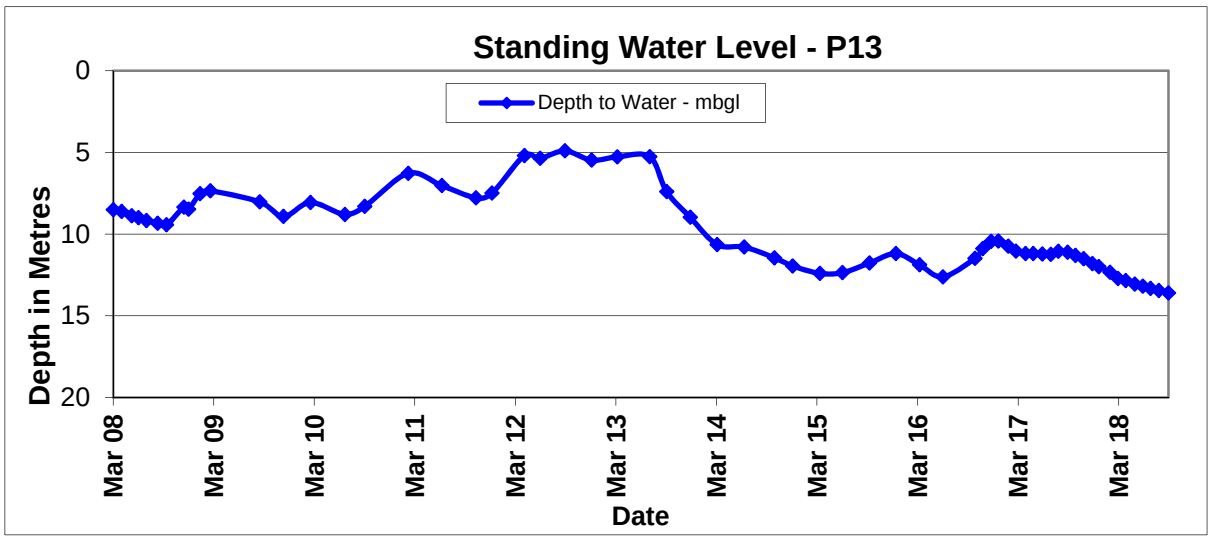

Standing Water Level - P8
Depth to Water - mbgl
Depth in Metres
0
10
20
30
40
50
60
70
Mar 08
Mar 09
Mar 10
Mar 11
Mar 12
Mar 13
Mar 14
Mar 15
Mar 16
Mar 17
Mar 18
Date

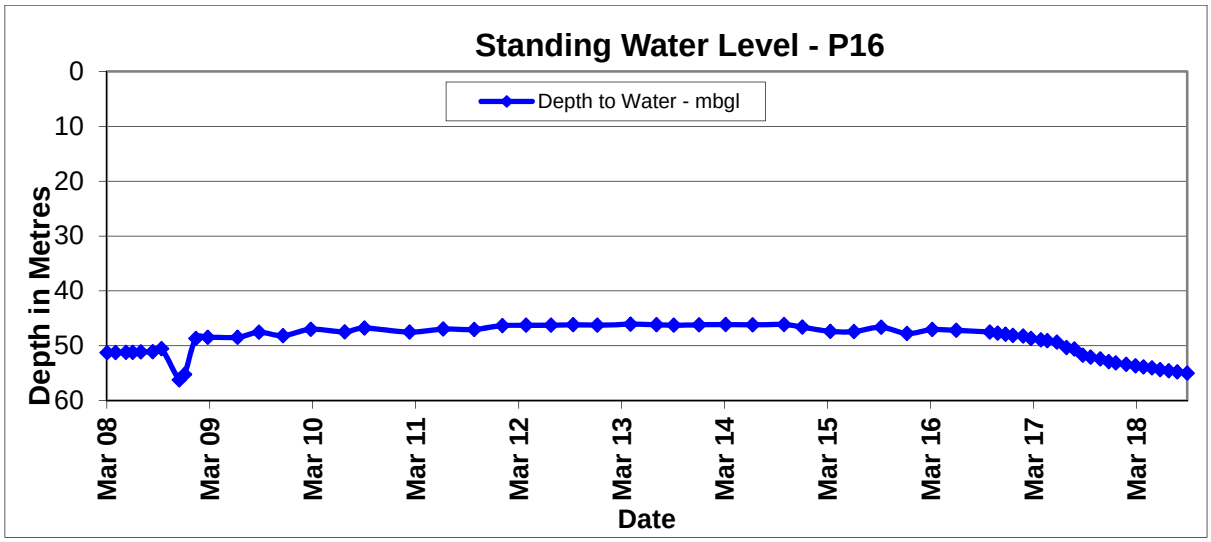

Standing Water Level - P9
Depth to Water - mbgl
Depth in Metres
0
5
10
15
20
25
30
Mar 08
Mar 09
Mar 10
Mar 11
Mar 12
Mar 13
Mar 14
Mar 15
Mar 16
Mar 17
Mar 18
Date

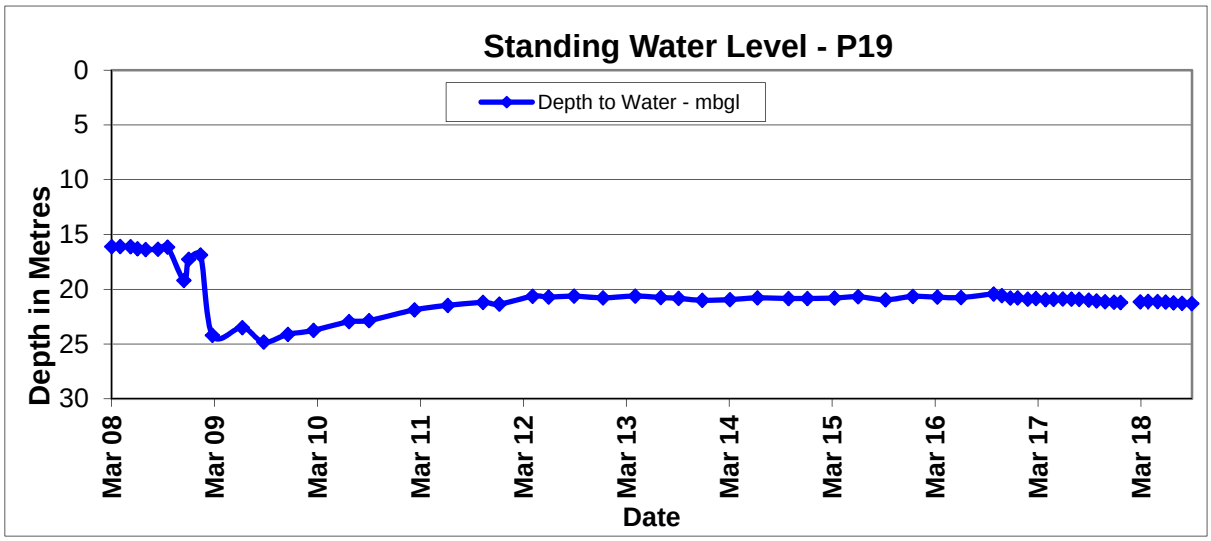

Standing Water Level - P10
Depth to Water - mbgl
Depth in Metres
0
20
40
60
80
100
Mar 08
Mar 09
Mar 10
Mar 11
Mar 12
Mar 13
Mar 14
Mar 15
Mar 16
Mar 17
Mar 18
Date

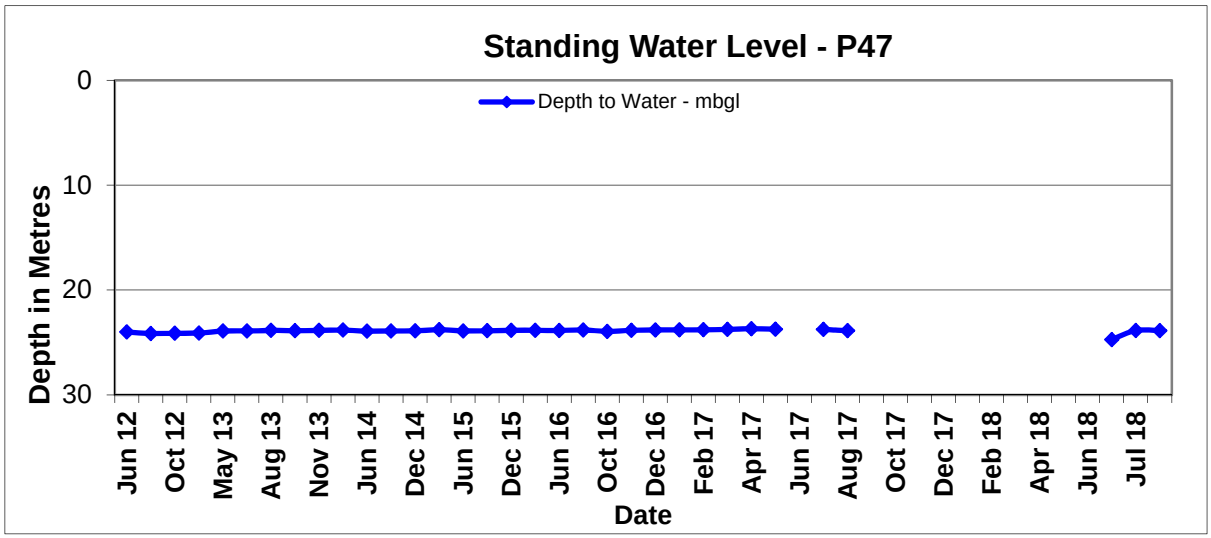

Standing Water Level - P11
Depth to Water - mbgl
Depth in Metres
10
15
20
25
30
35
40
Mar 08
Mar 09
Mar 10
Mar 11
Mar 12
Mar 13
Mar 14
Mar 15
Mar 16
Mar 17
Mar 18
Date

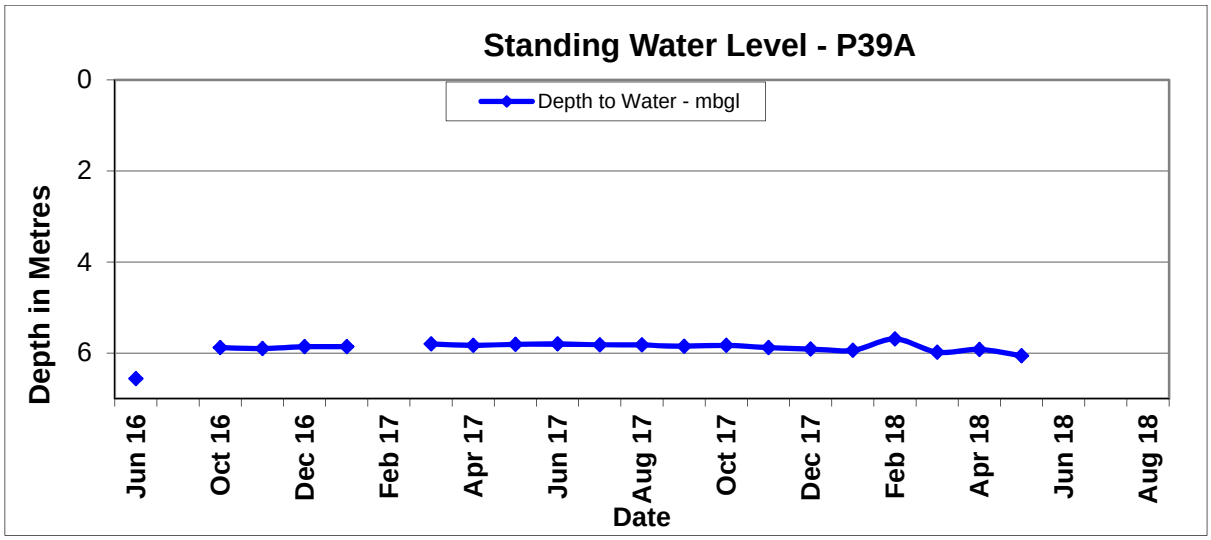

Standing Water Level - P12
Depth to Water - mbgl
Depth in Metres
0
10
20
30
40
50
Mar 08
Mar 09
Mar 10
Mar 11
Mar 12
Mar 13
Mar 14
Mar 15
Mar 16
Mar 17
Mar 18
Date

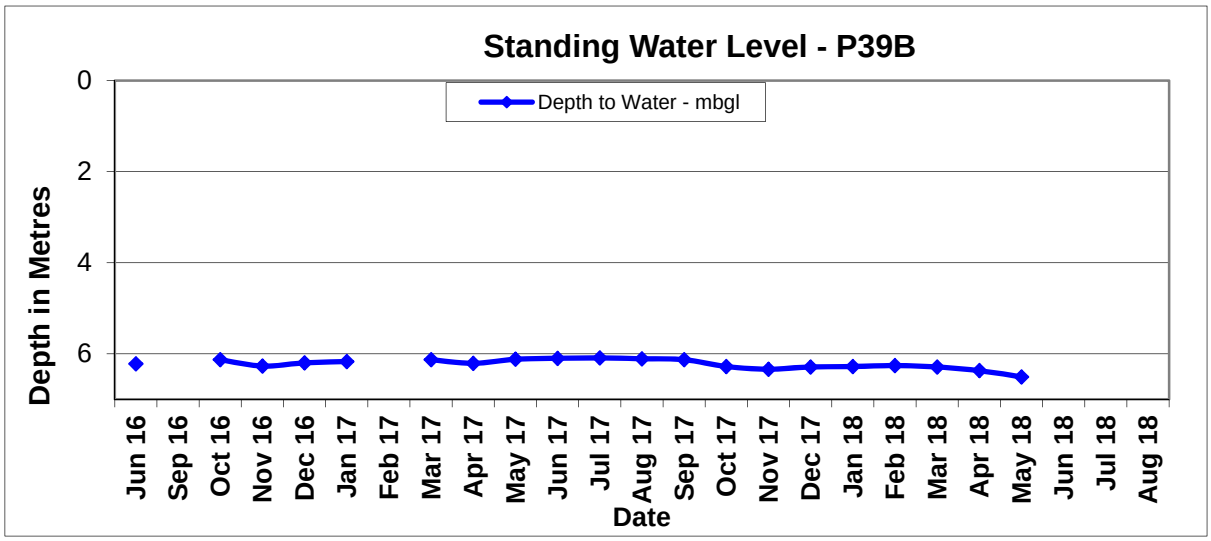

Standing Water Level - P13
Depth to Water - mbgl
Depth in Metres
0
5
10
15
20
Mar 08
Mar 09
Mar 10
Mar 11
Mar 12
Mar 13
Mar 14
Mar 15
Mar 16
Mar 17
Mar 18
Date

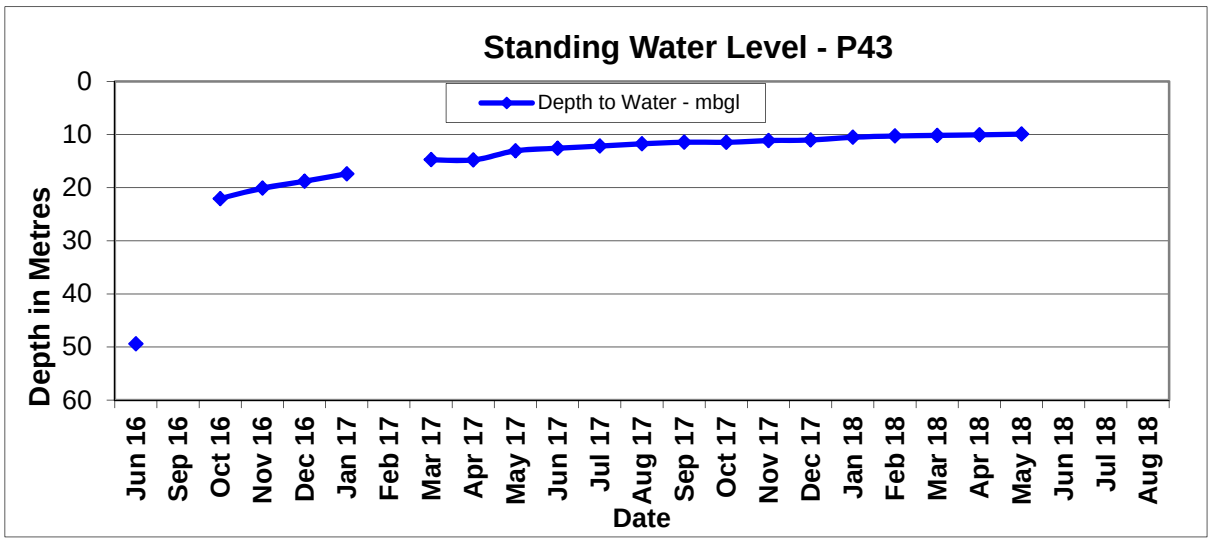

Standing Water Level - P16
Depth to Water - mbgl
Depth in Metres
0
10
20
30
40
50
60
Mar 08
Mar 09
Mar 10
Mar 11
Mar 12
Mar 13
Mar 14
Mar 15
Mar 16
Mar 17
Mar 18
Date


Standing Water Level - P19
Depth to Water - mbgl
Depth in Metres
0
5
10
15
20
25
30
Mar 08
Mar 09
Mar 10
Mar 11
Mar 12
Mar 13
Mar 14
Mar 15
Mar 16
Mar 17
Mar 18
Date

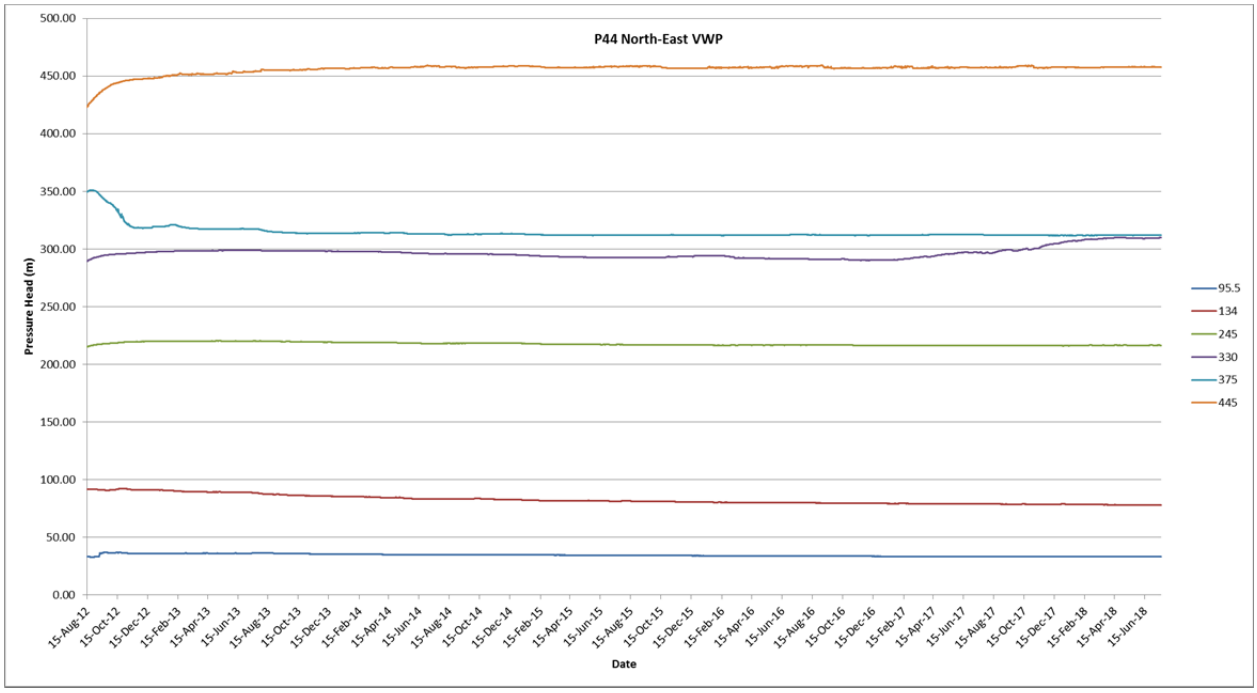

Standing Water Level - P47
Depth to Water - mbgl
Depth in Metres
0
10
20
30
Jun 12
Oct 12
May 13
Aug 13
Nov 13
Jun 14
Dec 14
Jun 15
Dec 15
Jun 16
Oct 16
Dec 16
Feb 17
Apr 17
Jun 17
Aug 17
Oct 17
Dec 17
Feb 18
Apr 18
Jun 18
Jul 18
Date

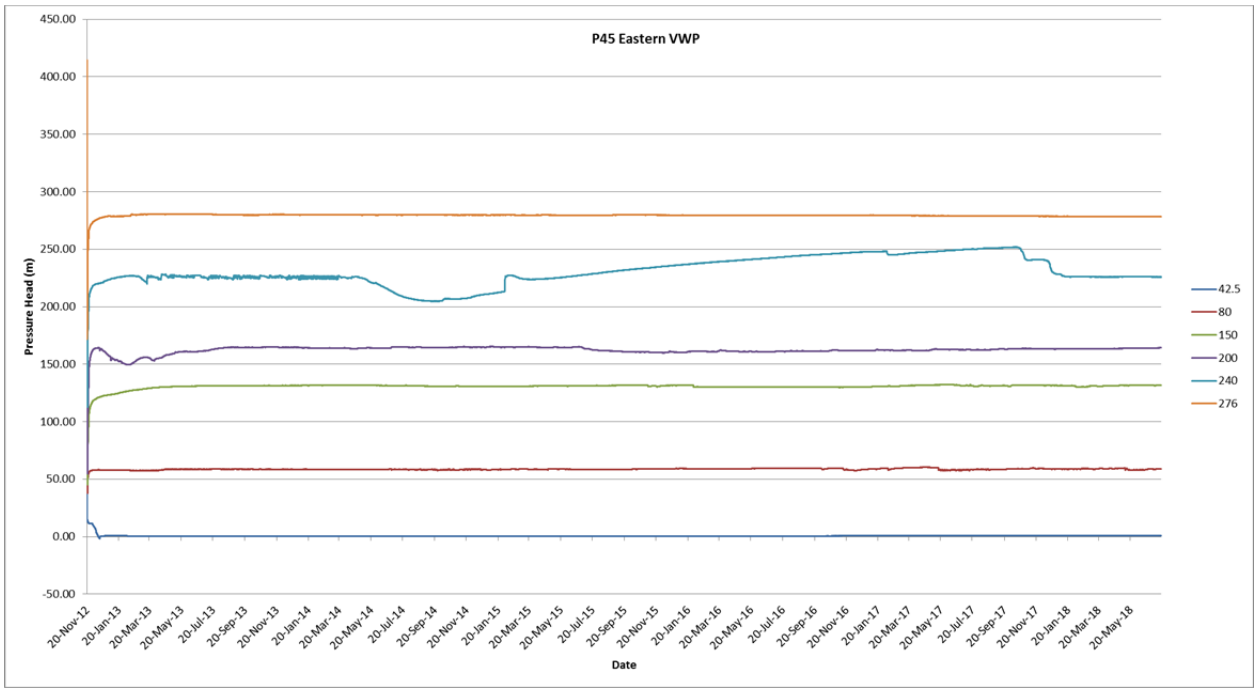

Standing Water Level - P39A
Depth to Water - mbgl
Depth in Metres
0
2
4
6
Jun 16
Oct 16
Dec 16
Feb 17
Apr 17
Jun 17
Aug 17
Oct 17
Dec 17
Feb 18
Apr 18
Jun 18
Aug 18
Date

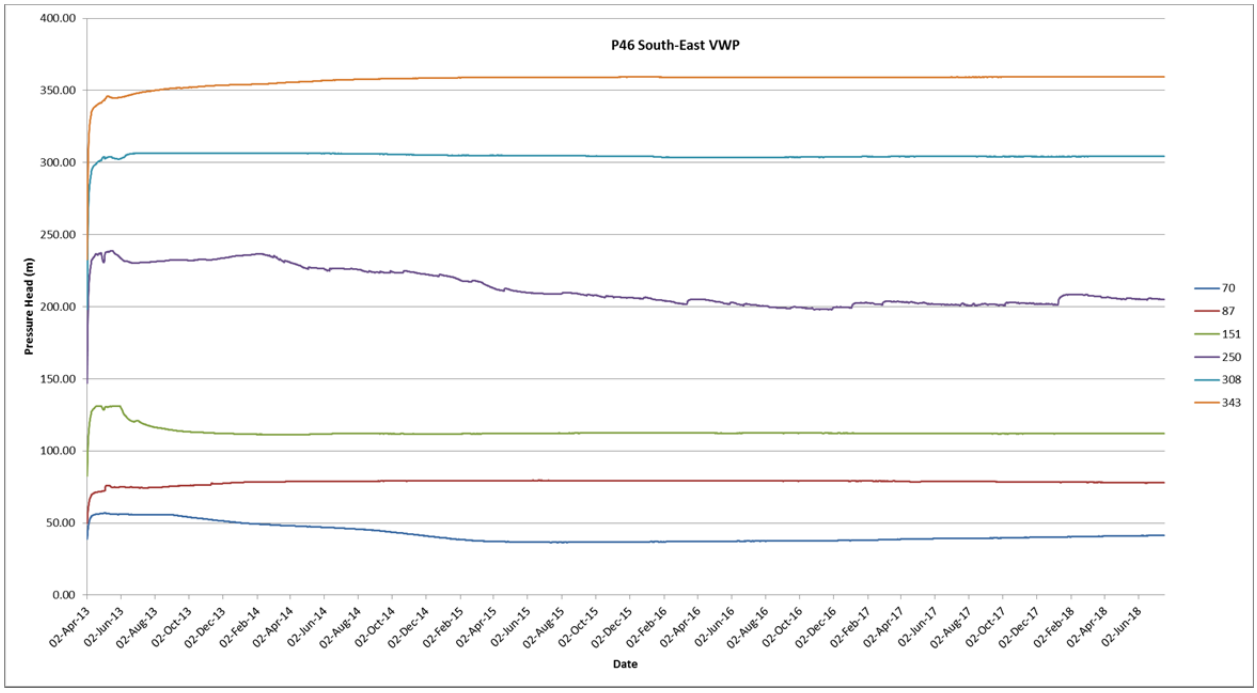

Standing Water Level - P39B
Depth to Water - mbgl
Depth in Metres
0
2
4
6
Jun 16
Sep 16
Oct 16
Nov 16
Dec 16
Jan 17
Feb 17
Mar 17
Apr 17
May 17
Jun 17
Jul 17
Aug 17
Sep 17
Oct 17
Nov 17
Dec 17
Jan 18
Feb 18
Mar 18
Apr 18
May 18
Jun 18
Jul 18
Aug 18
Date


Standing Water Level - P43
Depth to Water - mbgl
Depth in Metres
0
10
20
30
40
50
60
Jun 16
Sep 16
Oct 16
Nov 16
Dec 16
Jan 17
Feb 17
Mar 17
Apr 17
May 17
Jun 17
Jul 17
Aug 17
Sep 17
Oct 17
Nov 17
Dec 17
Jan 18
Feb 18
Mar 18
Apr 18
May 18
Jun 18
Jul 18
Aug 18
Date


P40 Western VWP
Pressure Head (m)
600.00
500.00
400.00
300.00
200.00
100.00
0.00
-100.00
Date
95
135
307
321.75
346
357


P44 North-East VWP
Pressure Head (m)
500.00
450.00
400.00
350.00
300.00
250.00
200.00
150.00
100.00
50.00
0.00
Date
95.5
134
245
330
375
445





Monitoring results show the recent rounds have been relatively stable. As covered in previous reports, P13 is 30 m deep and targets the Garrawilla Volcanics. A production bore, WB2, is approximately 300 m to the south and targets the same aquifer and as such the drop in water level in P13 is likely associated with production from WB2.

Surface Water Monitoring

No wet weather discharges from licensed discharge points occurred during the June to August 2018 period.

Subsidence

Narrabri Mine has monitored the subsidence movement across the surface of LW103 to LW107 in accordance with the approved Extraction Plans (LW101 and LW102 are no longer monitored). The table below outlines the maximum subsidence parameters recorded as part of the subsidence monitoring program and a comparison with the maximum predicted subsidence parameters as outlined in the Extraction Plan.

Longwall Panels (LW) 103 to LW107		
	Maximum Predicted Extraction Plan	Maximum Measured
Line 101 – Centre of LW101 – Monitoring has ceased		
Line 102 – Centre of LW102 – Monitoring has ceased		
Line 103 – Centre of LW103 – Northern		
Subsidence (m)	2.75	2.729
Tilt (mm/m)	62	40.2
Tensile Strain (mm/m)	20 – 30^	18.8
Compressive Strain (mm/m)	26 – 39^	32.0
Angle of Draw (°, Degrees)	22.5 – 26.5	15.2
Line 103 – Centre of LW103 – Southern		
Subsidence (m)	2.75	2.583
Tilt (mm/m)	62	30.3
Tensile Strain (mm/m)	20 – 30^	9.3
Compressive Strain (mm/m)	26 – 39^	10.2
Angle of Draw (°, Degrees)	22.5 – 26.5	20.2
Line 104 – Centre of LW104 – Northern		
Subsidence (m)	2.75	2.802
Tilt (mm/m)	65	48.4
Tensile Strain (mm/m)	22 – 33^	42.6
Compressive Strain (mm/m)	28 – 42^	42.3
Angle of Draw (°, Degrees)	22.5 – 26.5	15.8
Line 104 – Centre of LW104 – Southern		
Subsidence (m)	2.75	2.713
Tilt (mm/m)	65	31.3
Tensile Strain (mm/m)	22 – 33^	8.1
Compressive Strain (mm/m)	28 – 42^	6.7
Angle of Draw (°, Degrees)	22.5 – 26.5	13.2
Line 105 – Centre of LW105 – Northern		
Subsidence (m)	2.75	2.674
Tilt (mm/m)	57	46.5
Tensile Strain (mm/m)	18 – 27^	18.1
Compressive Strain (mm/m)	23 – 35^	44.6
Angle of Draw (°, Degrees)	22.5 – 26.5	17.9
Line 105 – Centre of LW105 – Southern		
Subsidence (m)	2.75	2.626
Tilt (mm/m)	57	25.2
Tensile Strain (mm/m)	18 – 27^	7.1
Compressive Strain (mm/m)	23 – 35^	9.9
Angle of Draw (°, Degrees)	22.5 – 26.5	16.6
Line 106 – Centre of LW106 – Northern		
Subsidence (m)	2.75	2.584
Tilt (mm/m)	47	41

Longwall Panels (LW) 103 to LW107		
	Maximum Predicted Extraction Plan	Maximum Measured
Tensile Strain (mm/m)	14 – 21^	11.8
Compressive Strain (mm/m)	18 – 27^	17.1
Angle of Draw (°, Degrees)	22.5 – 26.5	25.5
Line 107 – Centre of LW107 – Northern		
Subsidence (m)	2.75	2.738*
Tilt (mm/m)	53	28.0*
Tensile Strain (mm/m)	20	10.2*
Compressive Strain (mm/m)	24	12.4*
Angle of Draw (°, Degrees)	26.5	24.7*
Line A – Cross Panel Survey Line		
Subsidence (m)	2.75	2.680*
Tilt (mm/m)	65	56.3*
Tensile Strain (mm/m)	22 – 33^	39.0*
Compressive Strain (mm/m)	28 – 42^	33.0*
Angle of Draw (°, Degrees)	22.5 – 26.5	24.2*
Line B – Pine Creek Tributary 1 – Monitoring has ceased		
Line D – Pine Creek		
Subsidence (m)	2.75	2.842*
Tilt (mm/m)	65	45.5*
Tensile Strain (mm/m)	22 – 33^	10.8*
Compressive Strain (mm/m)	28 – 42^	15.2*
Gradient Change (%)	Up to 6	4.54*
Line E – Pine Creek Tributary 1 Crossline 1 – Monitoring has ceased		
Line F – Pine Creek Tributary 1 Crossline 2 – Monitoring has ceased		
Line G – Pine Creek Tributary 1 Crossline 3 – Monitoring has ceased		
Line H – Cross Panel Survey Line		
Subsidence (m)	2.75	2.410*
Tilt (mm/m)	53	29.9*
Tensile Strain (mm/m)	13 – 20^	7.4*
Compressive Strain (mm/m)	16 – 24^	5.6*

* - subsidence development incomplete.

^ - values for ‘smooth’ and ‘discontinuous’ (i.e. crack affected) subsidence profiles.

Based on the above table the subsidence predictions for the most recently completed survey, i.e. LW107 northern line, indicate:

- The maximum subsidence measurements were within the predicted value of 2.75 m with a maximum measured value of 2.738 m.
- The maximum tilt measurements recorded were within the predicted value of 44 mm/m with a maximum measured value of 28 mm/m.
- The maximum tensile strain measurements were within the predicted value of 20 mm/m with a maximum measured value of 10.2 mm/m.
- The maximum compressive strain measurements were within the predicted value of 24 mm/m with a maximum measured value of 12.4 mm/m.

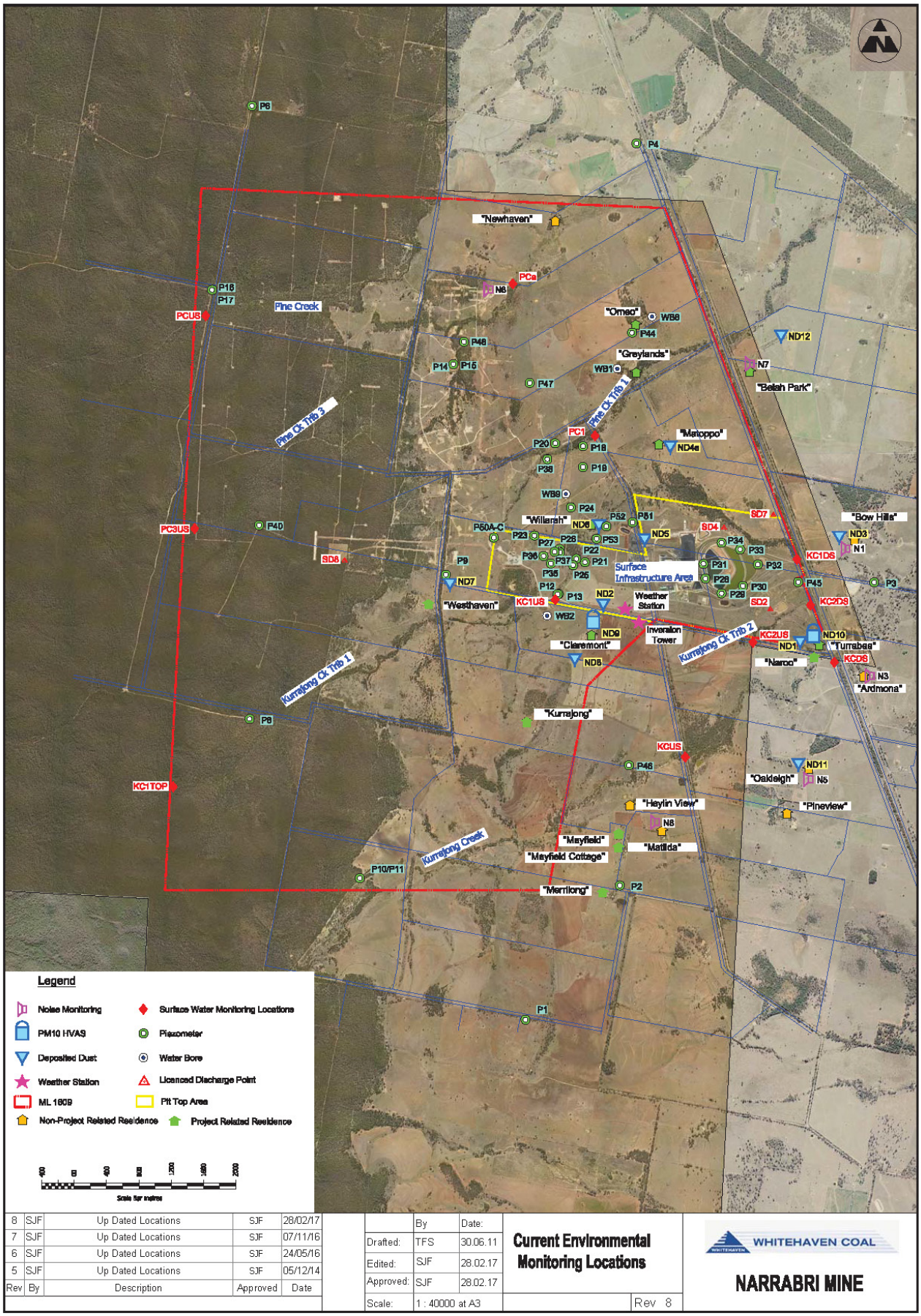
The centreline subsidence results for LW101 to LW107 indicate that the Garrawilla Volcanics and Basalt Sill have not reduced subsidence through spanning behaviour and that the maximum subsidence is also considered closer to 63% of the average mining height of 4.3m.

Complaints

Two formal complaints were received during the period June to August 2018. Both complaints were from the same complainant and related to noise. A mobile noise unit is located at the property with no alarms triggered for the first complaint. There alarms triggered for the second complaint with action taken by the CHPP. Inversion conditions were present at the time of both complaints.

Environmental Incident(s)

No environmental incidents occurred during the June to August 2018 period.



Rev	By	Description	Approved	Date
8	SJF	Up Dated Locations	SJF	28/02/17
7	SJF	Up Dated Locations	SJF	07/11/16
6	SJF	Up Dated Locations	SJF	24/05/16
5	SJF	Up Dated Locations	SJF	05/12/14

	By	Date:
Drafted:	TFS	30.06.11
Edited:	SJF	28.02.17
Approved:	SJF	28.02.17
Scale:	1 : 40000 at A3	

Current Environmental Monitoring Locations

Rev 8

WHITEHAVEN COAL

NARRABRI MINE

Narrabri Mine Community Consultative Committee Meeting Minutes

Meeting No: 43

Date: Wednesday 6th December 2018

Time: 5:05pm

Location: Railway Hotel, Baan Baa

Present: Russell Stewart (RS) – Independent Chair
Peter Webb (PW)
James Stieger (JS)
Geoff Hunter (GH)
Rodney Dunlop (RD)
Danielle Russell (DR) – CDM Smith
Cameron Staines (CS) – Narrabri Shire Council Delegate
Steve Bow (SB) – Narrabri Mine General Manager
David Ellwood (DE) – Technical Services Superintendent
Steve Farrar (SF) – Narrabri Mine Environmental Superintendent

1. APOLOGIES

Mark Foster.

2. DECLARATION OF PECUNIARY OR OTHER INTERESTS

None.

3. PREVIOUS MINUTES

Moved: GH Seconded: JS

3.1 BUSINESS ARISING FROM PREVIOUS MINUTES

GH asked about land acquisition. DE asked if DR could present the scoping study presentation, part of the Social Impact Assessment (SIA), first and then go into detail about the Stage 3 extension. JS asked where DR was based which she answered. DE/DR went through the scoping study presentation. GH asked about differences to the ROM stockpile and DE said there wouldn't be any. GH asked if the stockpiles would be full and DE said they may have been full once in the past. GH asked about rail movements and plans with future grain freight. DE said we can only rely on ARTC to determine if capacity exists. GH stated that crops have a shelf life so they would have priority and SB said that's right but we would only rail the coal to the port if the port and rail line had the capacity at that point in time. SF said the modelling that included the Caroona project predicted capacity was available and DE said if capacity gets to a certain point than that would trigger rail improvements to upgrade capacity. GH asked what the 11kv borehole was for and DE explained for power underground. JS asked if another sub would go in and DE stated probably but the studies are not complete as yet. GH asked about the north-south corridor and DE explained that's for access on the surface as all coal is transported underground to the existing infrastructure. GH asked about rehabilitation and DE explained that this relates to subsidence cracks and drill pads. GH asked about the studies for the Gateway Application and DE explained that most of the work is almost complete and the application should be ready early next year. GH asked about which local landholders and DE explained the people over the top of the mine would be consulted first. JS requested that we readvertise for a CCC position with the all the work that is happening, SB agreed. JS asked about a public meeting and DE stated he wasn't keen on a town hall style public meeting and JS said they all started with one of them meetings and the information is completely different to how the project ends up and gave some examples. GH said there's a suspicion that the mine knows what it will be and also stated that cumulative impacts need to be included. JS said it would be good to have a public meeting and take it on the chin and DE said he would consider it. DE said he is all for getting the info out there but a public meeting could get hijacked. RS asked about groups in Baan Baa that they could approach and JS/GH said there's a couple but their pretty quiet at the moment. RS asked whether a Baan Baa/Boggabri residents group may be good to approach to get the info out there without getting hijacked. JS said his other social impact is the increased traffic on the road. GH

stated it may be better managed at a local level. SB said road modelling will happen as part of the project and it's the mine's intent to engage with people. GH said the people on the perimeter also need to be consulted and DE said he will consult once the modelling and potential impacts are better known. CS said it's good to go around and introduce yourself and get the info out. JS said it would just give everyone a chance to have their say. SF explained to CS the actions and how they're tracked. RS suggested an independent presenter who can facilitate the public meetings. DE said he doesn't want to talk with people from further afield but wants to get the info to local people. GH clarified that the workforce would be similar which DE confirmed. GH asked about access to the south area and DE explained that this would be internal. SB explained the surface traffic within the mine. GH asked about Mayfield Road and DE said he would check and CS said this is an example of when we say something that isn't correct and DE said he would check if it would be required. RD asked about bussing people to the mine and SB explained why there are no plans to bus people to/from the mine. SB said it would be reviewed as part of the Stage 3 extension but no plans at this stage. CS asked if you could farm the land once subsided which DE confirmed. CS said you don't want to lose the land to trees and we need to keep cultivated land available and DE explained this is the aim but there are also requirements from the Government to secure offsets areas etc. GH said the mine also needs to take some responsibility for leased areas because the person renting them doesn't care for them. RD said the mine should add to the lease conditions around best agricultural practice etc. SB explained how the leases work and that he would check the leases and get back to them. GH stated concerns with coal dust and the monitors aren't good enough and the dust should be monitored all the time and go down to $PM_{2.5}$. SF asked if this is relating to regional dust issues and GH stated there should be local monitoring but also one at Boggabri. CS said that Council have being lobbying for a Boggabri one and a remote one as well. SF said the EPA was onsite yesterday and they mentioned Boggabri and GH said that would be good. GH asked about the Bulga hill and DE said he wasn't sure if the mine would impact that. GH asked about water use down the south and DE said the studies haven started as yet. GH asked about water use for dust suppression currently which DE explained. CS stated that if it wasn't for mining the town would be struggling as agriculture has had a tough ten years which RS agreed. CS stated that Boggabri was also looking good. RD asked about the mine closure impacts and if the SIA is the correct forum for what happens to the workforce and DR explained this. DR explained the process from here. GH asked about the timing of the study and DR confirmed this as well as explained the scope of the work involved with the SIA.

DE explained the status of the landholder purchases for the southern area. GH asked about the timing which DE explained. GH asked if the mine can go ahead without owning them and SB explained the process and that the mines' preference is to purchase the properties.

SB stated the mine has no plans to bus people and RD said it was raised because of the traffic on the road. RS asked about the buses on the road and SB explained where they come from and they are required by their approval. SB said at shift change there can be traffic at the intersection and this has been raised before. SB also said as a business operator it is too expensive. RD said the traffic isn't all the mines but it has increased which SB agreed.

4. GENERAL BUSINESS

4.1 OPERATIONS PROGRESS REPORT The operations update was provided as follows:

Mine Progress Report (to 30 November 2018)

Coal produced (t):	November 2018	866,778
	FY-to-date	2,122,069
Coal Railed (t):	November 2018	521,277
	FY-to-date	2,034,286
Average workforce numbers (November 2018):		
	NCO	Waged – 124
		Salary – 125
		Total – 249
	Contractors	Total – 266
Safety Update (FY to November 2018):		
	Lost Time Injury (LTI)	2
	Days LTI Free:	89
	Total Recordable Injuries:	6
	Planned Task Observations:	5,343
	Take 5 Assessments:	83,029

Work Hours (Nov-18): 115,097

SB went through the operations report. GH asked how the turnover was going and SB explained the status. SB stated that the mine is chasing cadets again and CS said this is where the country university is going to help. GH asked why people don't want to come here and SB explained that geography is the issue and there are plenty of jobs at the moment. RS said that you only need them to try but it is hard.

4.2 ENVIRONMENTAL OVERVIEW

SF went through the environmental report. JS asked if the subsidence results were because we're getting deeper and SF explained that is more related to the start of the panels. JS asked about the tags for animal control which SF explained.

5. NEW BUSINESS

RS stated that he is a member of the CSG CCC and that a member had stated that a white substance is left around boreholes that Whitehaven have drilled in the Forest. DE said he would investigate but didn't know what it could be other than cement.

6. NEXT MEETING

Wednesday 6th March 2019 at 5:00pm at the Narrabri Mine Site Office.

7. CLOSURE OF MEETING

Meeting closed at 6:33pm.

Narrabri Mine Community Consultative Committee Meeting #43

Environmental Monitoring Report: September – November 2018

Noise Monitoring

Attended noise monitoring was undertaken between Monday 17th to Thursday 20th September 2018 (Table 1) to verify if noise levels were within compliance limits. The results from this monitoring are detailed in the table below.

Table 1: Monitoring Results

EPL ID	Monitoring Date	Daytime Measured L_{Aeq} dB	Evening Measured Levels L_{Aeq} dB	Night Measured Levels L_{Aeq} dB	Night Measured Level $L_{A1,1minute}$ dB	Noise Limit(s)	Compliance
N5 Oakleigh	18/09/2018	NM	34	32	42	Day/Evening/Night $L_{Aeq,15minute}$: 35 dB Night $L_{A1,1minute}$: 45 dB	Yes
	19/09/2018	NM	IA	IA	IA		Yes
	20/09/2018	27	IA	IA	IA		Yes
N6 Newhaven	18/09/2018	NM	IA	IA	IA		Yes
	19/09/2018	NM	33	35	43		Yes
	20/09/2018	30	31	33	39		Yes
N1 Bow Hills	17/09/2018	IA	IA	IA	IA		Yes
N3 Ardmona	18/09/2018	IA	IA	32	39		Yes
N7 Merriman	18/09/2018	NM	IA	IA	IA		Yes
N8 Matilda	17/09/2018	NM	30	29	31		Yes

Notes:

1. *Noise levels provided in these columns are highest NAR only contributions, where criteria were applicable, during each period;*
2. *Bolded results indicate exceedance of criteria;*
3. *As detailed in the EPL, noise emission limits apply under all meteorological conditions except:*
   - Wind speeds greater than 3 m/s at 10 metres above ground level; or
   - Stability class F temperature inversion conditions, and wind speeds greater than 2 m/s at 10 metres above ground level; or
   - Stability class G temperature inversions;
4. *'NM' denotes not measureable.*
5. *'IA' denotes inaudible.*

During the September 2018 monitoring, under the operating and meteorological conditions at the time, for the worst-case 15-minute compliance measurement periods, the mine noise was compliant at all locations.

Deposited Dust Monitoring

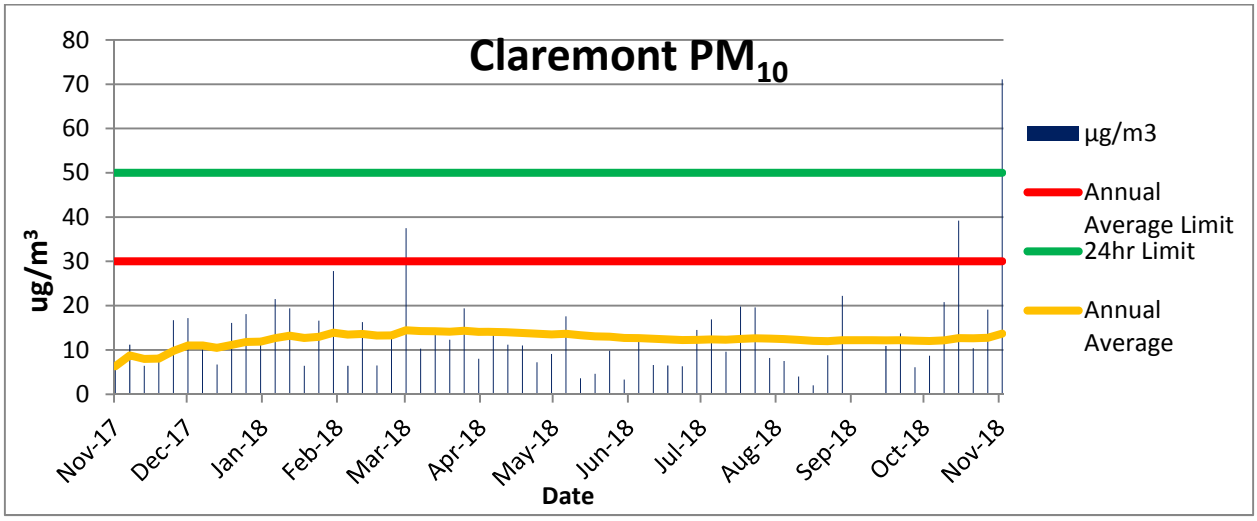
Month	ND1 Turrabaa	ND2 Claremont	ND3 Bow Hills	ND4a New Matoppo	ND5 Claremont	ND6 Willarah	ND7 Claremont	ND8 Claremont	ND11 Oakleigh	ND12 Merriman
Dec-17	3.9	1.0	7.3	2.7	3.2	0.9	1.5	3.1	1.0	1.0
Jan-18	3.0	2.9	0.6	6.9	2.9	54.7	1.3	1.3	1.0	1.4
Feb-18	2.5	0.9	2.8	5.2	2.7	0.9	7.5	1.6	2.4	1.0
Mar-18	3.2	1.5	2.9	5.4	3.0	1.1	1.2	2.5	3.1	2.1
Apr-18	3.6	4.0	0.9	3.1	2.1	1.2	0.8	2.5	9.0	0.7
May-18	2.8	2.0	3.0	0.4	0.5	0.4	0.4	1.1	1.0	0.6
Jun-18	20.7	0.5	4.6	1.4	3.4	2.4	1.5	0.7	0.6	3.1
Jul-18	3.6	0.6	2.7	0.6	2.1	0.4	0.8	1.4	0.7	1.2
Aug-18	1.8	0.9	3.3	1.6	3.4	1.5	1.1	2.3	1.5	1.6
Sep-18	5.6	1.5	3.2	2.2	5.4	2.4	2.0	8.3	-	3.0

Month	ND1 Turrabaa	ND2 Claremont	ND3 Bow Hills	ND4a New Matoppo	ND5 Claremont	ND6 Willarah	ND7 Claremont	ND8 Claremont	ND11 Oakleigh	ND12 Merriman
Oct-18	2.8	1.8	0.5	1.0	1.9	1.3	1.0	9.1	0.8	1.3
Nov-18	5.1	1.7	3.8	2.5	2.9	4.5	3.2	6.8	3.7	2.5
Annual Average	**4.9**	**1.6**	**3.0**	**2.7**	**2.8**	**6.0**	**1.9**	**3.4**	**2.3**	**1.6**

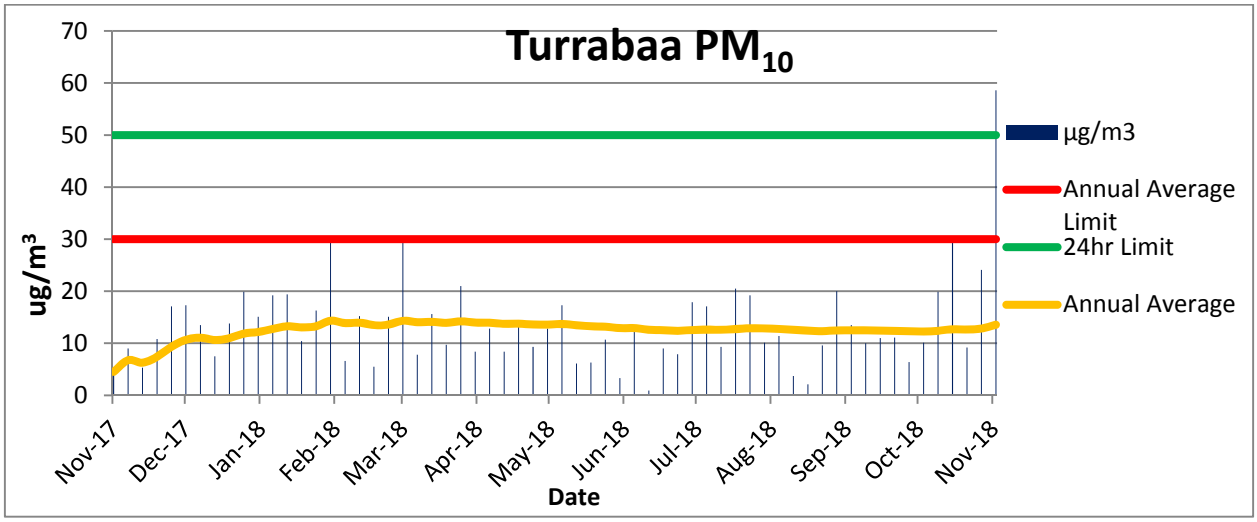
All deposited dust levels are within the compliance limit of 4 g/m^2/mth with the exception of ND1 and ND6. Both of these gauges annual ash limit, i.e. the component of the deposited dust attributable to mining, are below the annual limit being 3.5 and 1.1 g/m^2/mth, respectively.

High Volume Air Sampling (PM10)

PM10 measurements taken to 21 November 2018 for the "Claremont" High Volume Air Sampler (HVAS) are returning a running annual average of 13.70 µg/m^3, which is well below the annual average limit of 30 µg/m^3.



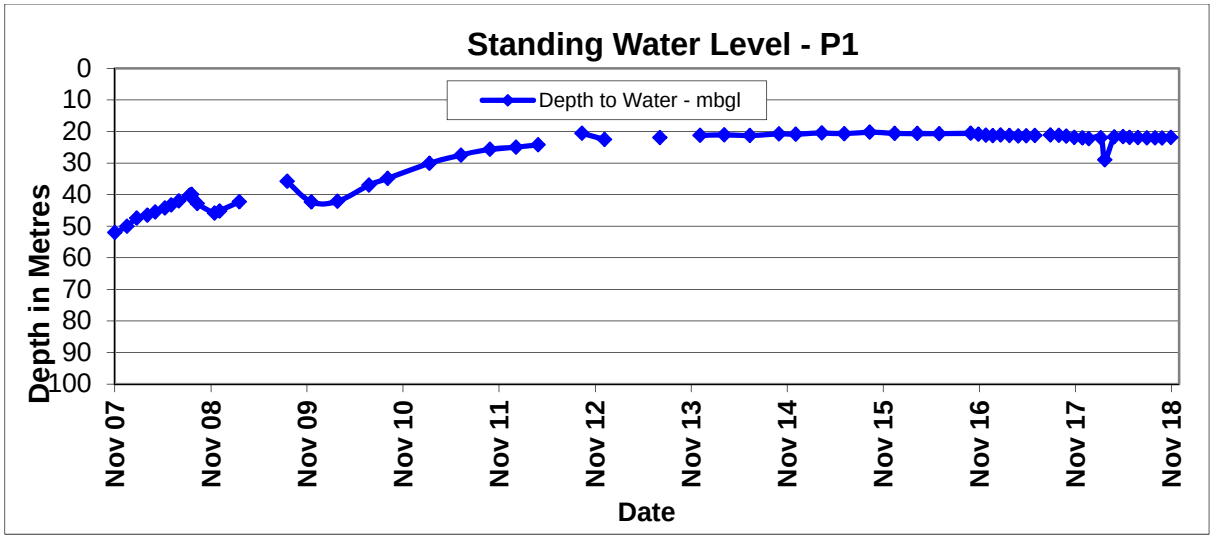
PM10 measurements taken to 21 November 2018 for the "Turrabaa" High Volume Air Sampler are returning a running annual average of 13.56 µg/m^3, which is also well below the annual average limit of 30 µg/m^3.

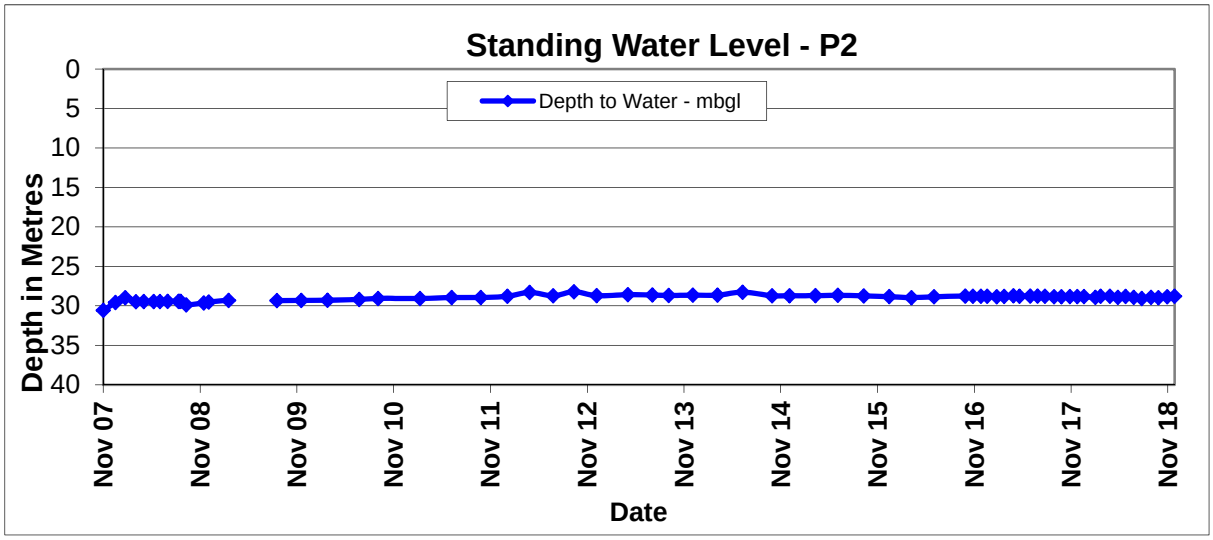


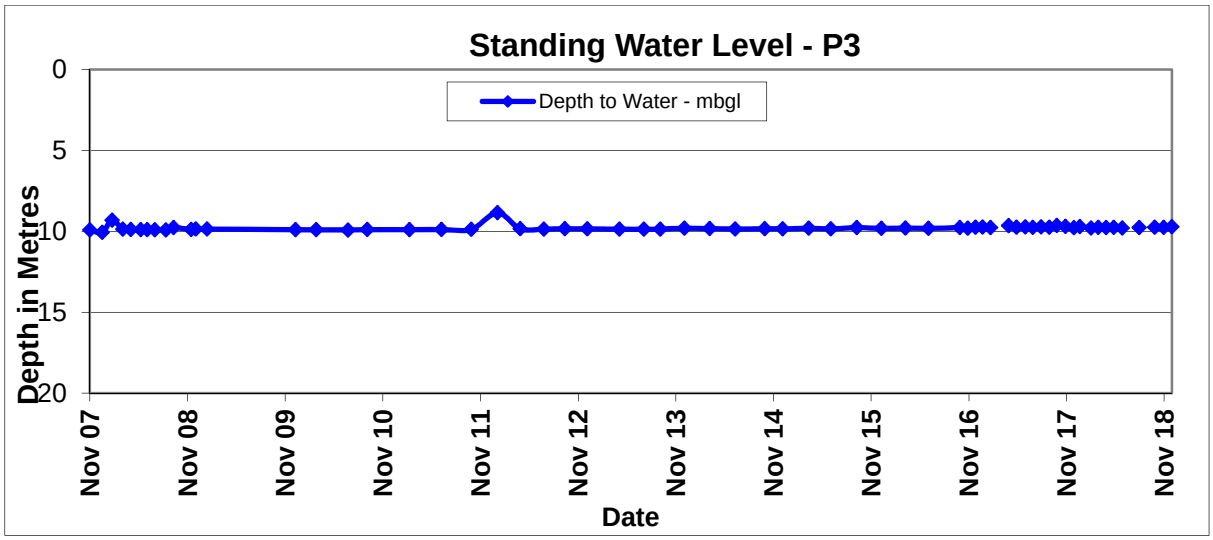
PM10 annual average levels have remained compliant since the last meeting. ND9 and ND10 both recorded exceedances on the 21st of November as a result of the dust storm that affected much of NSW that week. The mine notified the DP&E as required by the sites' Air Quality Management Plan.

Groundwater Monitoring

Groundwater monitoring was completed in November 2018. Monitoring results are included below.






Standing Water Level - P3
Depth to Water - mbgl
Depth in Metres
0
5
10
15
20
Nov 07
Nov 08
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Nov 11
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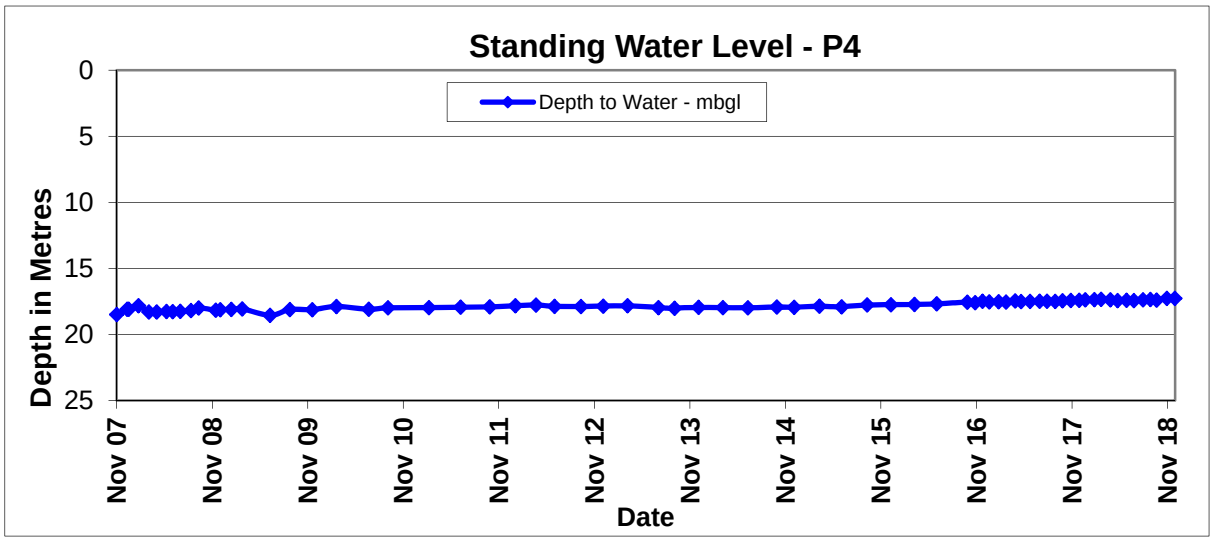
Nov 16
Nov 17
Nov 18
Date


Standing Water Level - P4
Depth to Water - mbgl
Depth in Metres
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15
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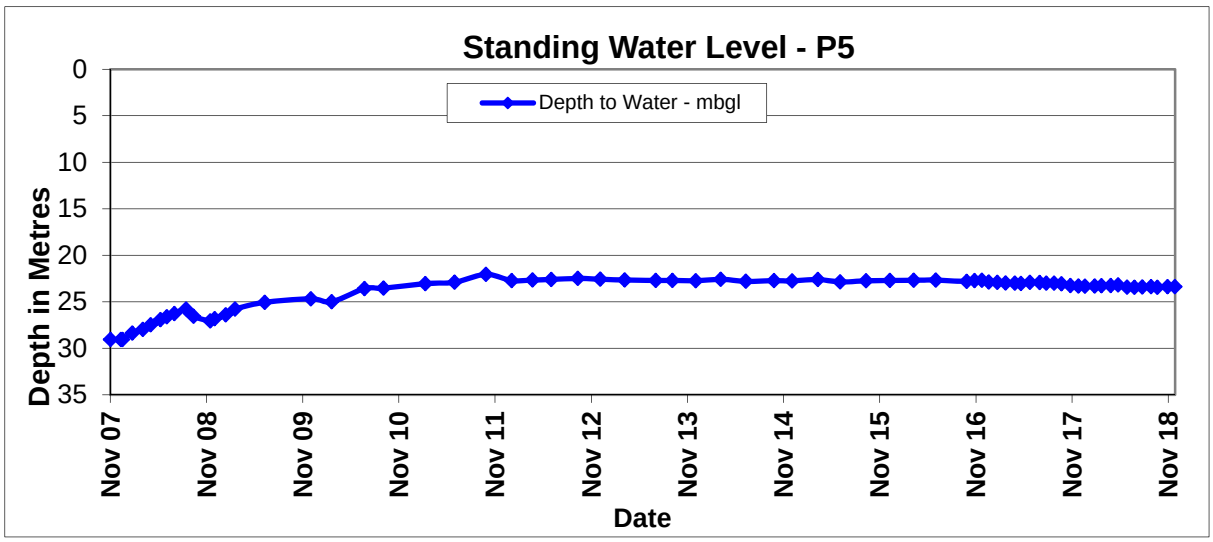
Standing Water Level - P5
Depth to Water - mbgl
Depth in Metres
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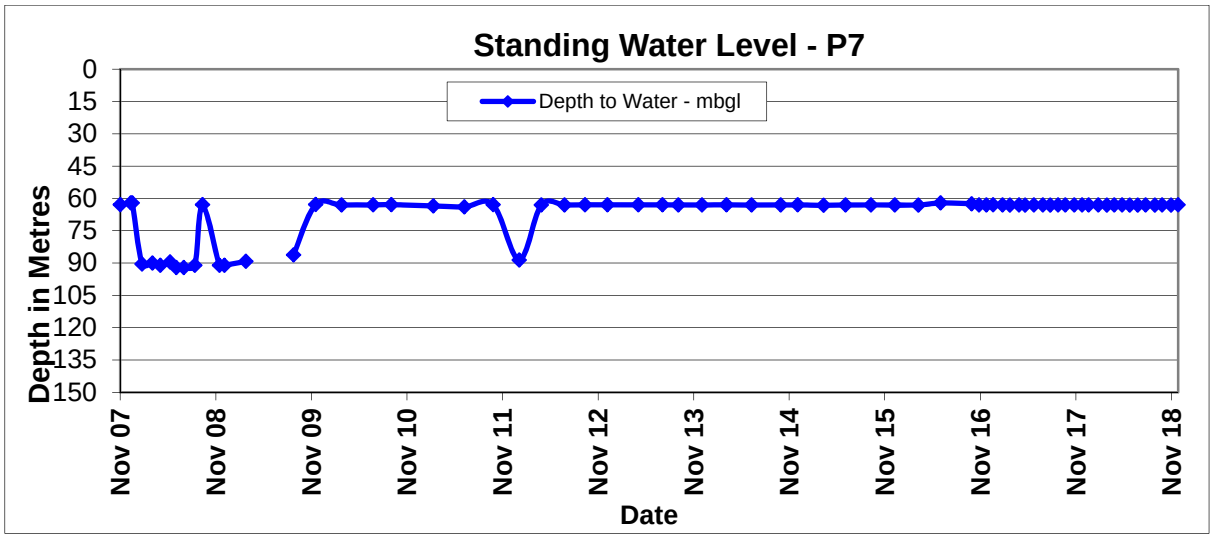
Standing Water Level - P7
Depth to Water - mbgl
Depth in Metres
0
15
30
45
60
75
90
105
120
135
150
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Nov 16
Nov 17
Nov 18
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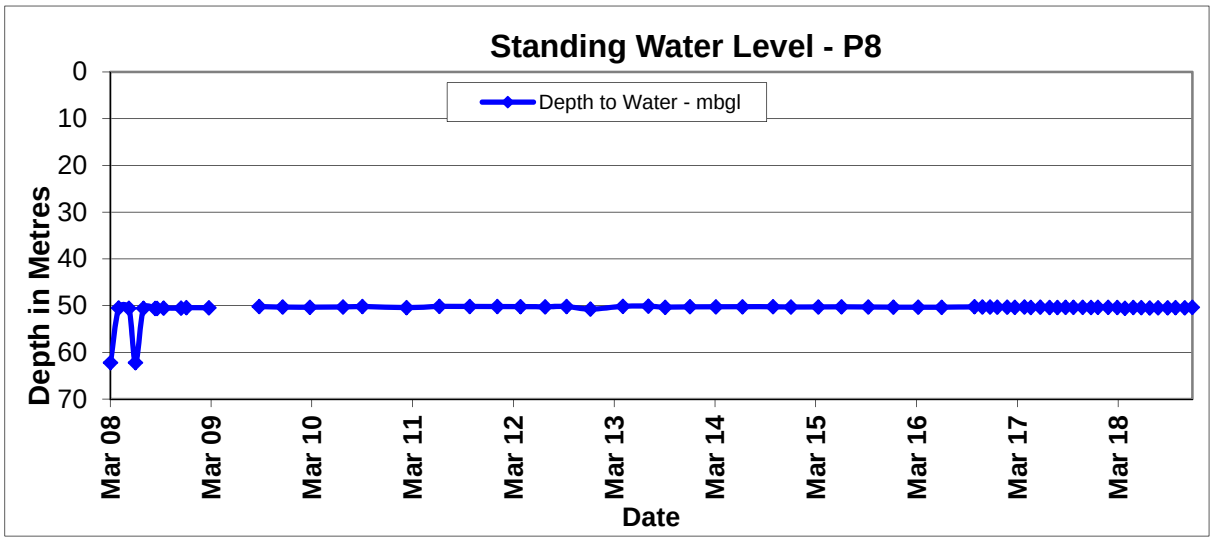
Standing Water Level - P8
Depth to Water - mbgl
Depth in Metres
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10
20
30
40
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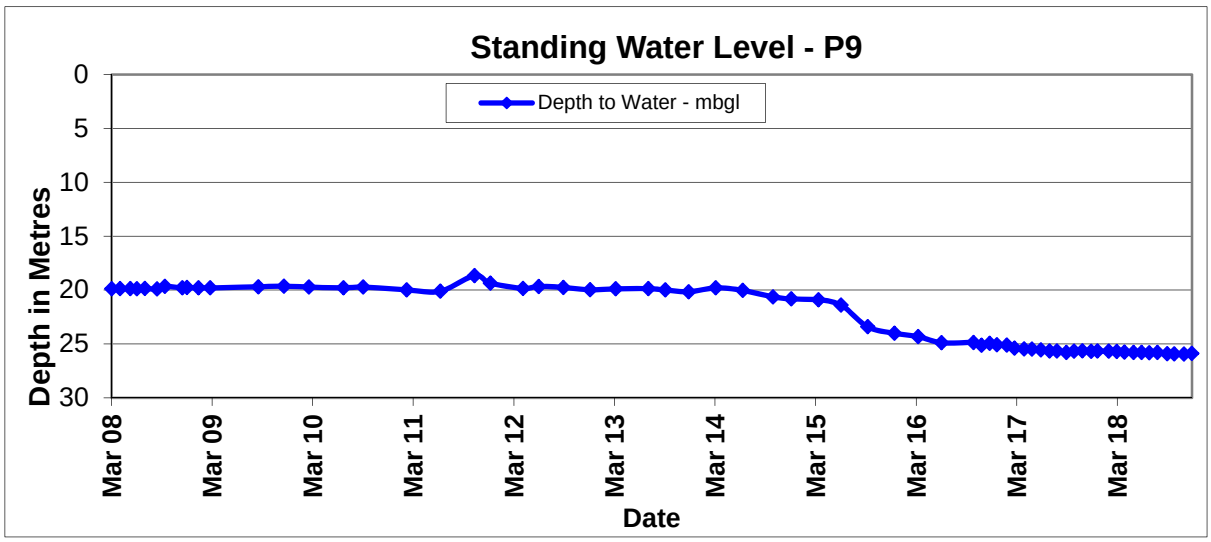
Standing Water Level - P9
Depth to Water - mbgl
Depth in Metres
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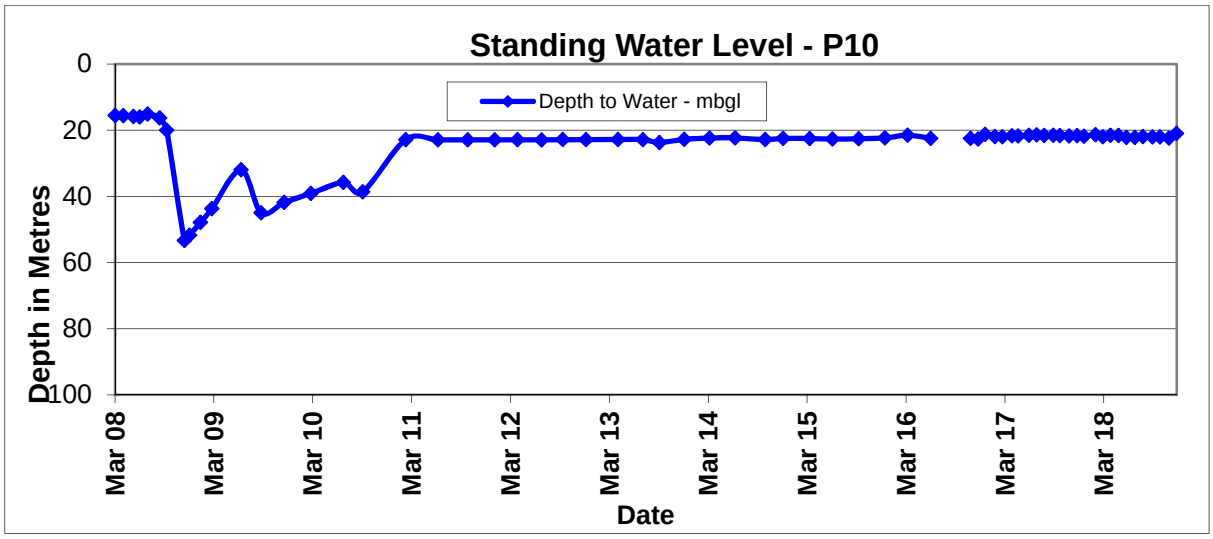
Standing Water Level - P10
Depth to Water - mbgl
Depth in Metres
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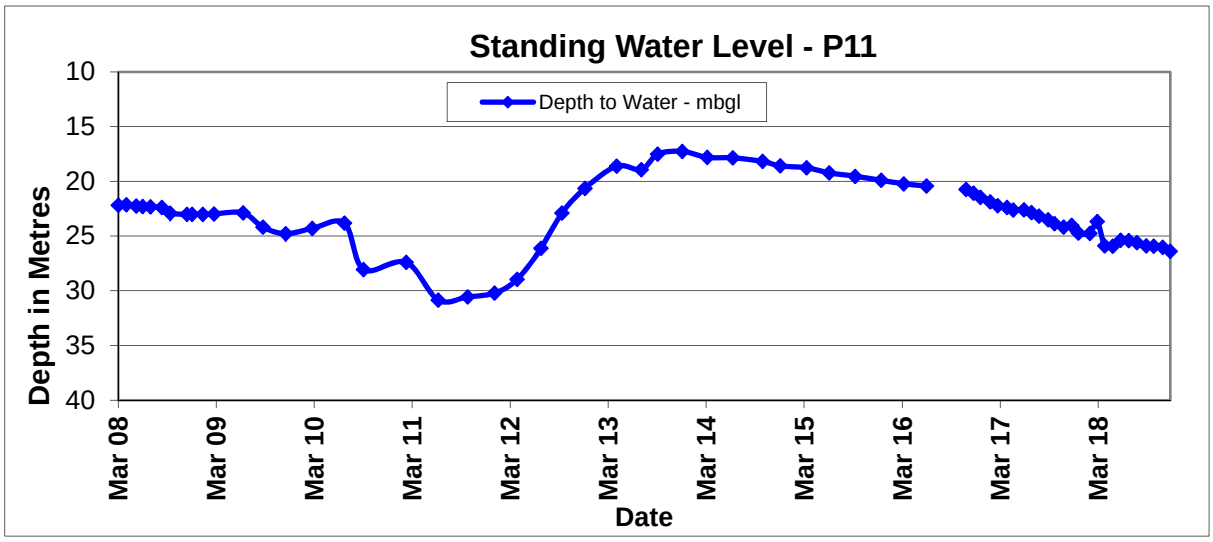
Standing Water Level - P11
Depth to Water - mbgl
Depth in Metres
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Mar 18
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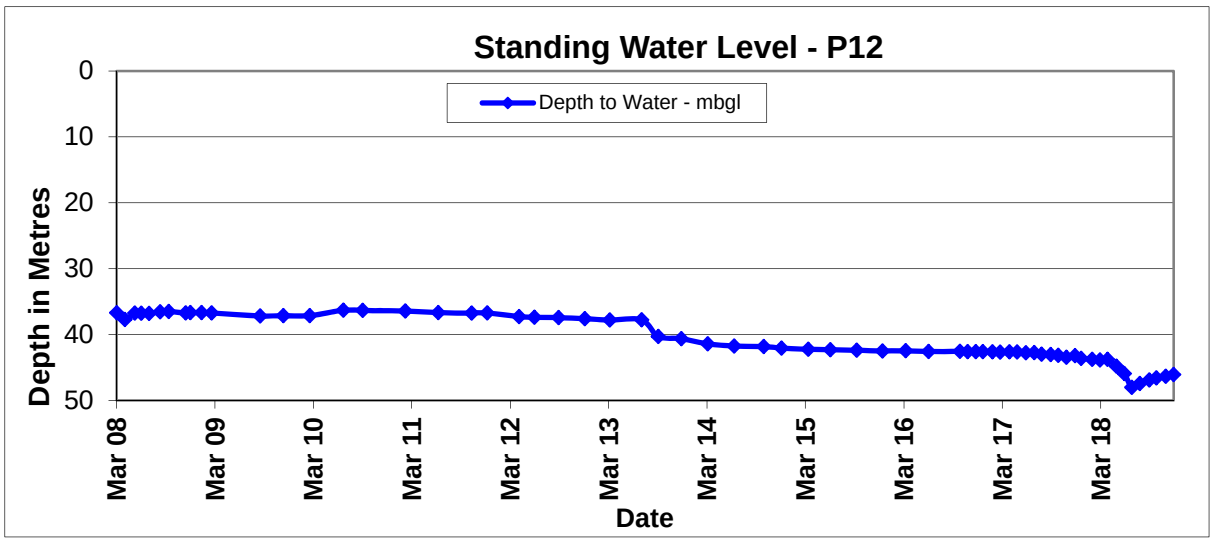
Standing Water Level - P12
Depth to Water - mbgl
Depth in Metres
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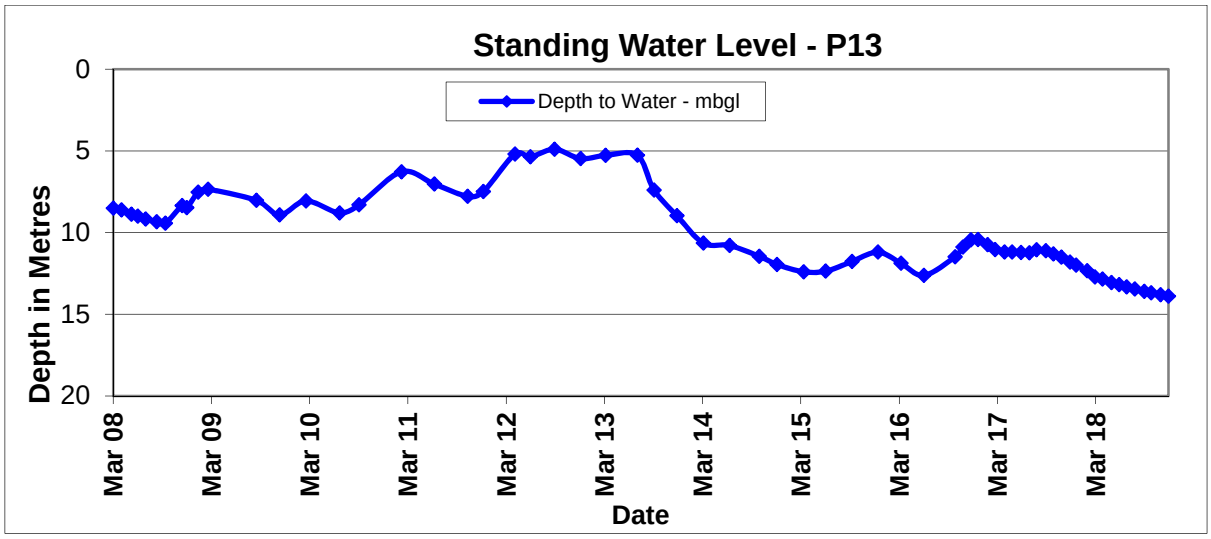
Standing Water Level - P13
Depth to Water - mbgl
Depth in Metres
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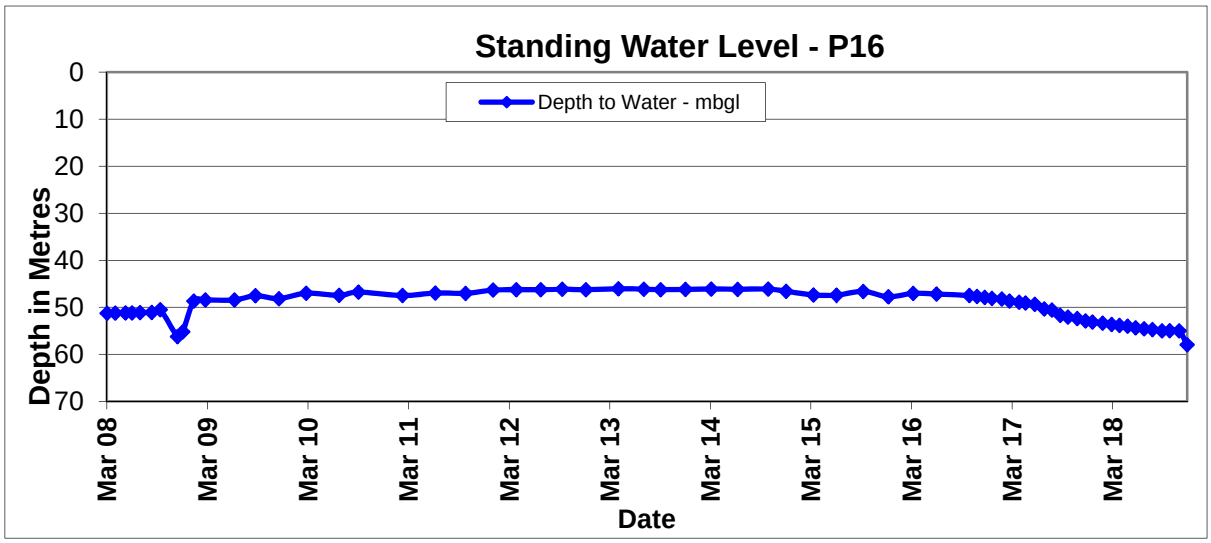
Standing Water Level - P16
Depth to Water - mbgl
Depth in Metres
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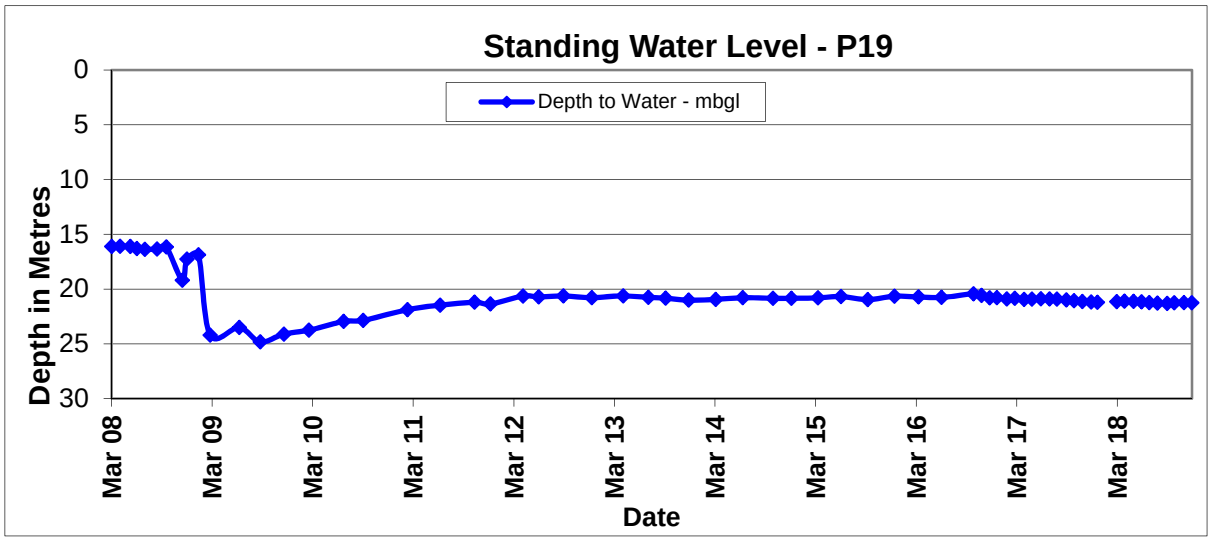
Standing Water Level - P19
Depth to Water - mbgl
Depth in Metres
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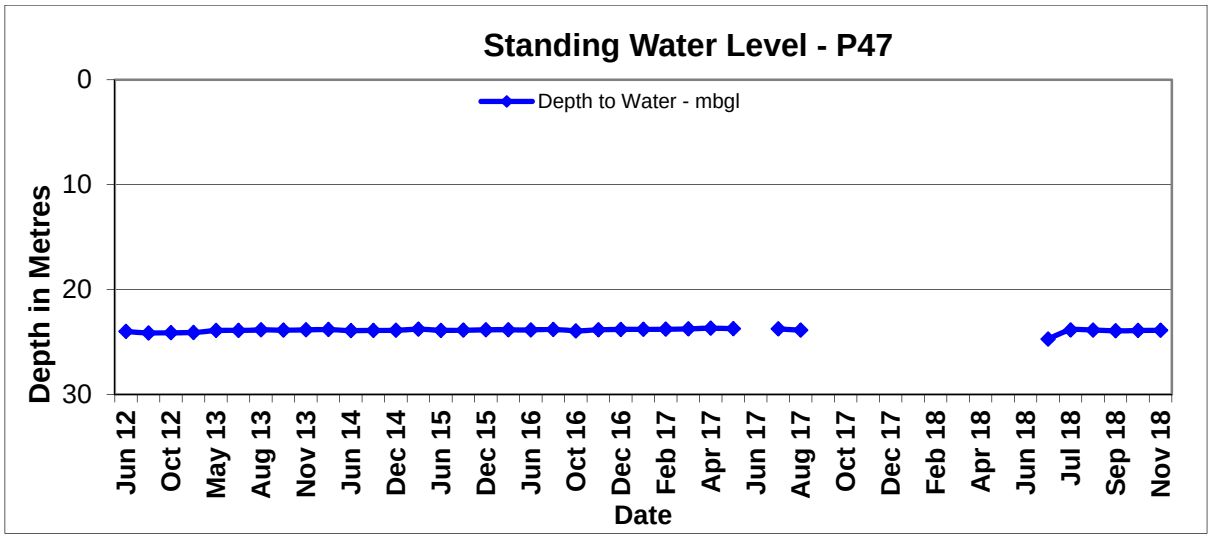
Mar 18
Date


Standing Water Level - P47
Depth to Water - mbgl
Depth in Metres
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20
30
Jun 12
Oct 12
May 13
Aug 13
Nov 13
Jun 14
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Jun 15
Dec 15
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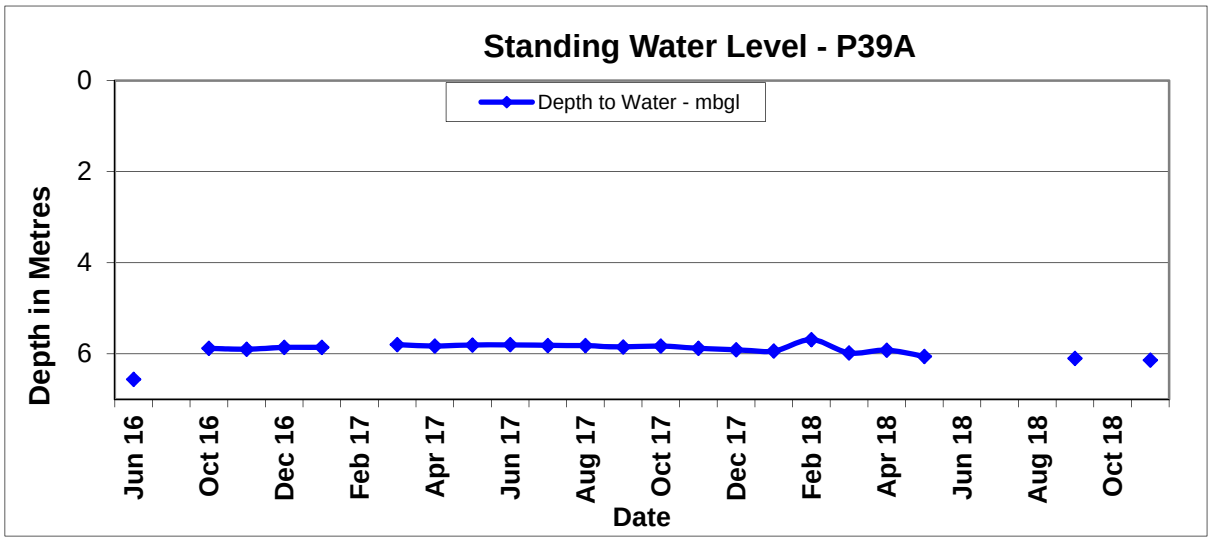
Feb 18
Apr 18
Jun 18
Jul 18
Sep 18
Nov 18
Date


Standing Water Level - P39A
Depth to Water - mbgl
Depth in Metres
0
2
4
6
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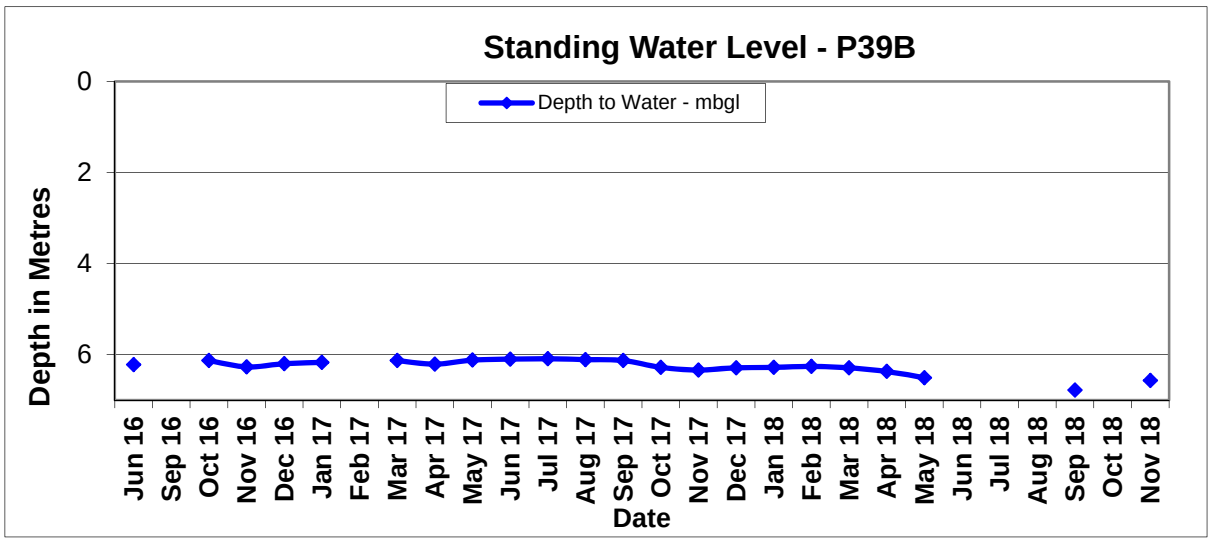
Dec 17
Feb 18
Apr 18
Jun 18
Aug 18
Oct 18
Date


Standing Water Level - P39B
Depth to Water - mbgl
Depth in Metres
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2
4
6
Jun 16
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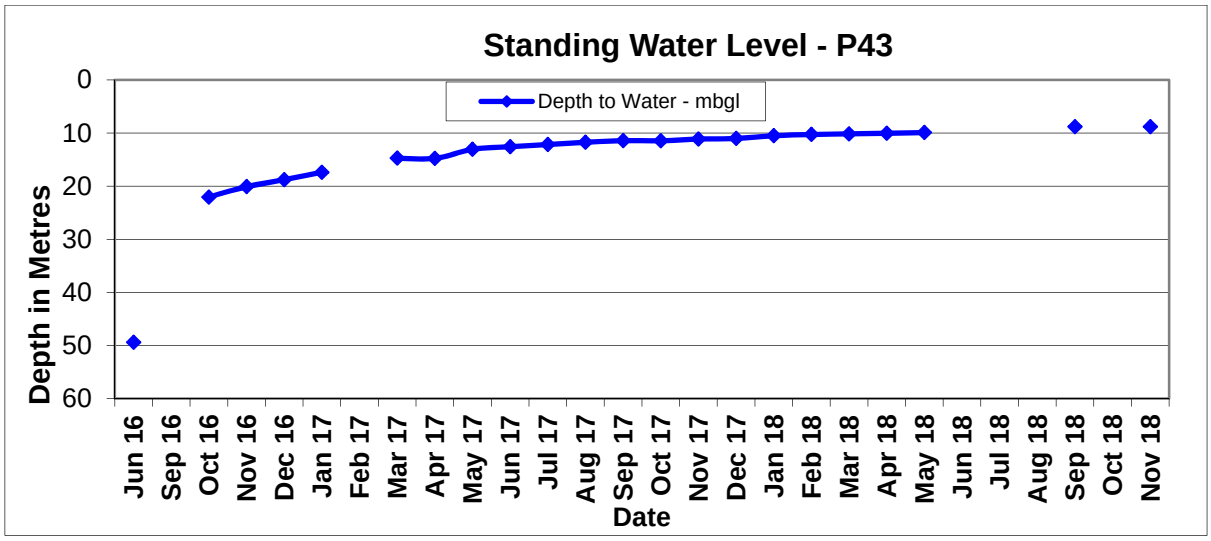
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Depth to Water - mbgl
Depth in Metres
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Sep 16
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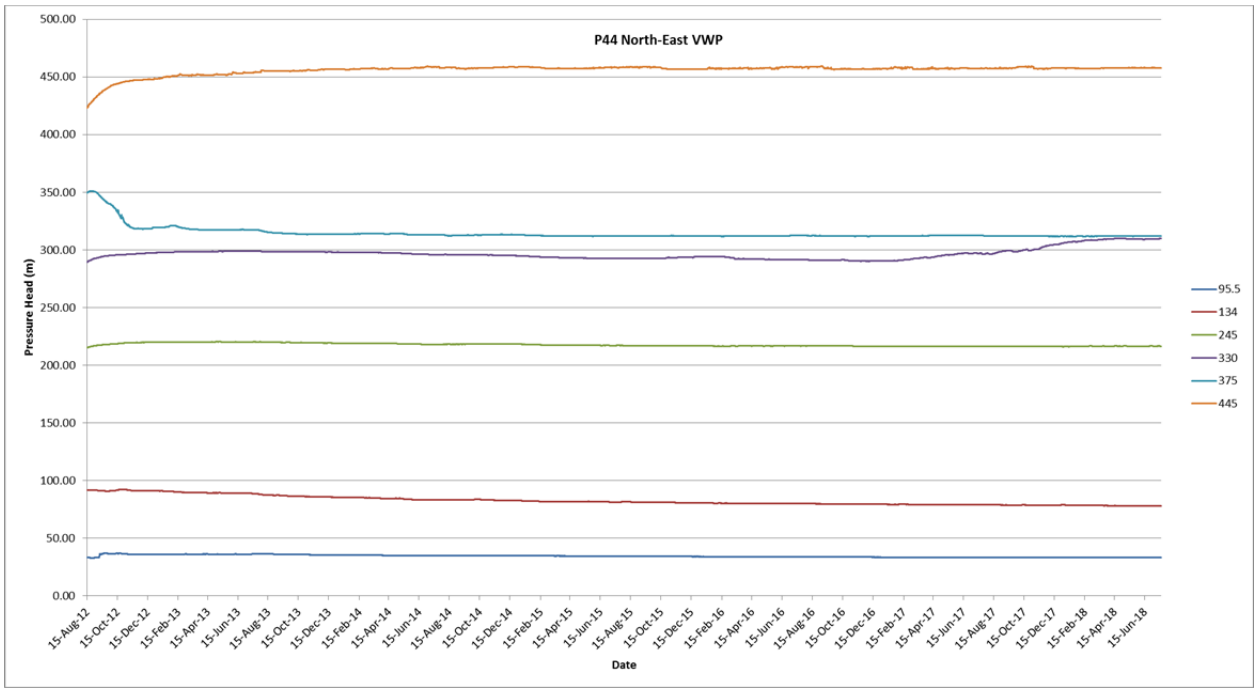
Mar 17
Apr 17
May 17
Jun 17
Jul 17
Aug 17
Sep 17
Oct 17
Nov 17
Dec 17
Jan 18
Feb 18
Mar 18
Apr 18
May 18
Jun 18
Jul 18
Aug 18
Sep 18
Oct 18
Nov 18
Date


P40 Western VWP
Pressure Head (m)
600.00
500.00
400.00
300.00
200.00
100.00
0.00
-100.00
95
135
307
321.75
346
357
Date


P44 North-East VWP
Pressure Head (m)
500.00
450.00
400.00
350.00
300.00
250.00
200.00
150.00
100.00
50.00
0.00
15-Aug-12
15-Oct-12
15-Dec-12
15-Feb-13
15-Apr-13
15-Jun-13
15-Aug-13
15-Oct-13
15-Dec-13
15-Feb-14
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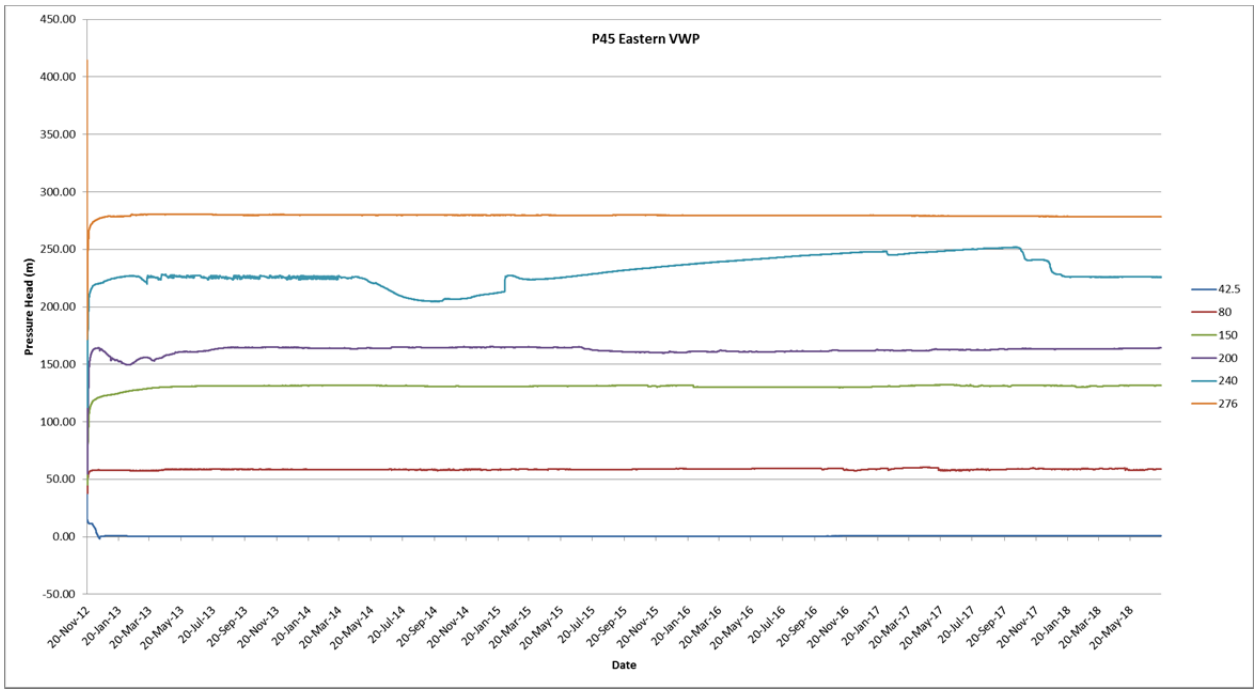
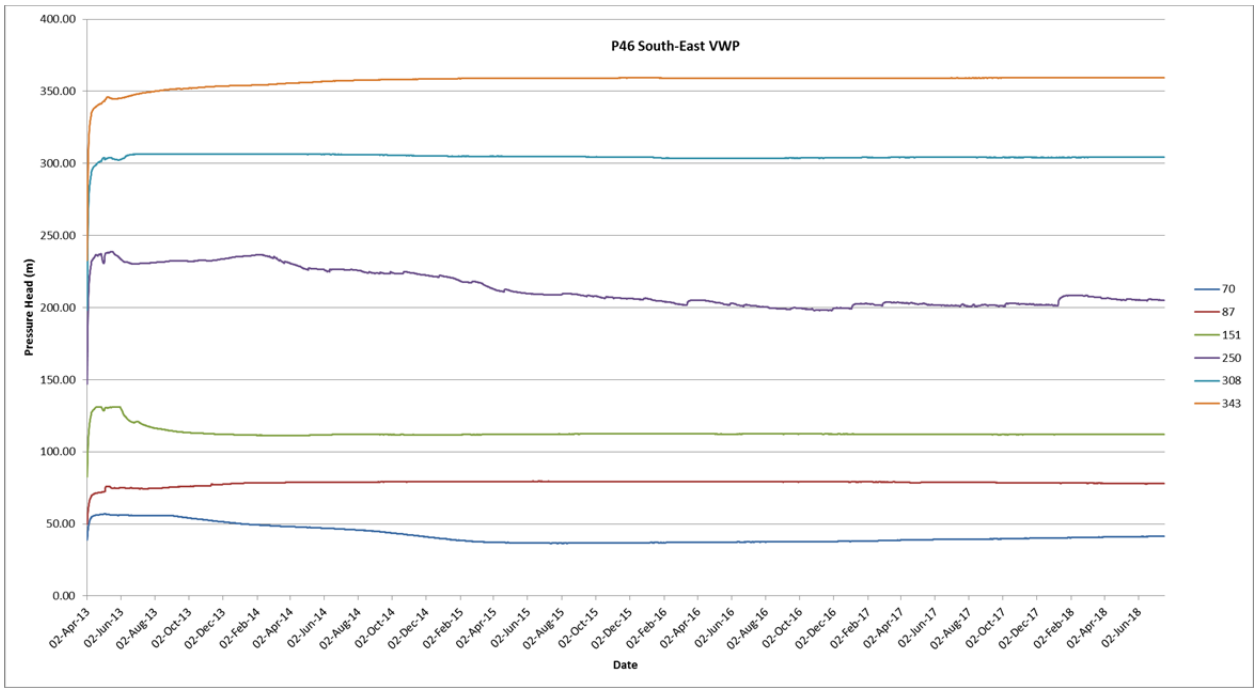
15-Dec-16
15-Feb-17
15-Apr-17
15-Jun-17
15-Aug-17
15-Oct-17
15-Dec-17
15-Feb-18
15-Apr-18
15-Jun-18
Date
95.5
134
245
330
375
445


P45 Eastern VWP
Pressure Head (m)
450.00
400.00
350.00
300.00
250.00
200.00
150.00
100.00
50.00
0.00
-50.00
20-Nov-12
20-Jan-13
20-Mar-13
20-May-13
20-Jul-13
20-Sep-13
20-Nov-13
20-Jan-14
20-Mar-14
20-May-14
20-Jul-14
20-Sep-14
20-Nov-14
20-Jan-15
20-Mar-15
20-May-15
20-Jul-15
20-Sep-15
20-Nov-15
20-Jan-16
20-Mar-16
20-May-16
20-Jul-16
20-Sep-16
20-Nov-16
20-Jan-17
20-Mar-17
20-May-17
20-Jul-17
20-Sep-17
20-Nov-17
20-Jan-18
20-Mar-18
20-May-18
Date
42.5
80
150
200
240
276



Monitoring results show the recent rounds have been relatively stable. As covered in previous reports, P13 is 30 m deep and targets the Garrawilla Volcanics. A production bore, WB2, is approximately 300 m to the south and targets the same aquifer and as such the drop in water level in P13 is likely associated with production from WB2.

Surface Water Monitoring

No wet weather discharges from licensed discharge points occurred during the September to November 2018 period.

Subsidence

Narrabri Mine has monitored the subsidence movement across the surface of LW103 to LW108 in accordance with the approved Extraction Plans (LW101 and LW102 are no longer monitored). The table below outlines the maximum subsidence parameters recorded as part of the subsidence monitoring program and a comparison with the maximum predicted subsidence parameters as outlined in the Extraction Plan.

Longwall Panels (LW) 103 to LW108		
	Maximum Predicted Extraction Plan	Maximum Measured
Line 101 – Centre of LW101 – Monitoring has ceased		
Line 102 – Centre of LW102 – Monitoring has ceased		
Line 103 – Centre of LW103 – Northern		
Subsidence (m)	2.75	2.729
Tilt (mm/m)	62	40.2
Tensile Strain (mm/m)	20 – 30^	18.8
Compressive Strain (mm/m)	26 – 39^	32.0
Angle of Draw (°, Degrees)	22.5 – 26.5	15.2
Line 103 – Centre of LW103 – Southern		
Subsidence (m)	2.75	2.583
Tilt (mm/m)	62	30.3
Tensile Strain (mm/m)	20 – 30^	9.3
Compressive Strain (mm/m)	26 – 39^	10.2
Angle of Draw (°, Degrees)	22.5 – 26.5	20.2

Longwall Panels (LW) 103 to LW108		
	Maximum Predicted Extraction Plan	Maximum Measured
Line 104 – Centre of LW104 – Northern		
Subsidence (m)	2.75	2.802
Tilt (mm/m)	65	48.4
Tensile Strain (mm/m)	22 – 33^	42.6
Compressive Strain (mm/m)	28 – 42^	42.3
Angle of Draw (°, Degrees)	22.5 – 26.5	15.8
Line 104 – Centre of LW104 – Southern		
Subsidence (m)	2.75	2.713
Tilt (mm/m)	65	31.3
Tensile Strain (mm/m)	22 – 33^	8.1
Compressive Strain (mm/m)	28 – 42^	6.7
Angle of Draw (°, Degrees)	22.5 – 26.5	13.2
Line 105 – Centre of LW105 – Northern		
Subsidence (m)	2.75	2.674
Tilt (mm/m)	57	46.5
Tensile Strain (mm/m)	18 – 27^	18.1
Compressive Strain (mm/m)	23 – 35^	44.6
Angle of Draw (°, Degrees)	22.5 – 26.5	17.9
Line 105 – Centre of LW105 – Southern		
Subsidence (m)	2.75	2.626
Tilt (mm/m)	57	25.2
Tensile Strain (mm/m)	18 – 27^	7.1
Compressive Strain (mm/m)	23 – 35^	9.9
Angle of Draw (°, Degrees)	22.5 – 26.5	16.6
Line 106 – Centre of LW106 – Northern		
Subsidence (m)	2.75	2.584*
Tilt (mm/m)	47	41*
Tensile Strain (mm/m)	14 – 21^	12.2*
Compressive Strain (mm/m)	18 – 27^	17.1*
Angle of Draw (°, Degrees)	22.5 – 26.5	25.5*
Line 107 – Centre of LW107 – Northern		
Subsidence (m)	2.75	2.738*
Tilt (mm/m)	53	28.0*
Tensile Strain (mm/m)	20	10.3*
Compressive Strain (mm/m)	24	12.4*
Angle of Draw (°, Degrees)	26.5	24.7*
Line 108 – Centre of LW108 – Northern		
Subsidence (m)	2.75	2.515*
Tilt (mm/m)	46	36.3*
Tensile Strain (mm/m)	15	16.2*
Compressive Strain (mm/m)	20	38.9*

Longwall Panels (LW) 103 to LW108		
	Maximum Predicted Extraction Plan	Maximum Measured
Angle of Draw (°, Degrees)	32.1	27.6*
Line A – Cross Panel Survey Line		
Subsidence (m)	2.75	2.680*
Tilt (mm/m)	65	56.3*
Tensile Strain (mm/m)	22 – 33^	39.0*
Compressive Strain (mm/m)	28 – 42^	33.0*
Angle of Draw (°, Degrees)	22.5 – 26.5	24.2*
Line B – Pine Creek Tributary 1 – Monitoring has ceased		
Line D – Pine Creek		
Subsidence (m)	2.75	2.842*
Tilt (mm/m)	65	45.5*
Tensile Strain (mm/m)	22 – 33^	10.8*
Compressive Strain (mm/m)	28 – 42^	15.2*
Gradient Change (%)	Up to 6	4.54*
Line E – Pine Creek Tributary 1 Crossline 1 – Monitoring has ceased		
Line F – Pine Creek Tributary 1 Crossline 2 – Monitoring has ceased		
Line G – Pine Creek Tributary 1 Crossline 3 – Monitoring has ceased		
Line H – Cross Panel Survey Line		
Subsidence (m)	2.75	2.669*
Tilt (mm/m)	53	32.0*
Tensile Strain (mm/m)	13 – 20^	9.2*
Compressive Strain (mm/m)	16 – 24^	5.9*

* - subsidence development incomplete.

^ - values for ‘smooth’ and ‘discontinuous’ (i.e. crack affected) subsidence profiles.

Based on the above table the subsidence predictions for the most recently completed survey, i.e. LW108 northern line, indicate:

- The maximum subsidence measurements were within the predicted value of 2.75 m with a maximum measured value of 2.515 m.
- The maximum tilt measurements recorded were within the predicted value of 46 mm/m with a maximum measured value of 27.0 mm/m.
- The maximum tensile strain measurement, i.e. 16.1 mm/m, exceeded the maximum predicted value of 15 mm/m. However, 98% of all values were within the predicted range.
- The maximum compressive strain measurement, i.e. 35.4 mm/m, exceeded the maximum predicted value of 20 mm/m. However, 97% of all values were within the predicted range.

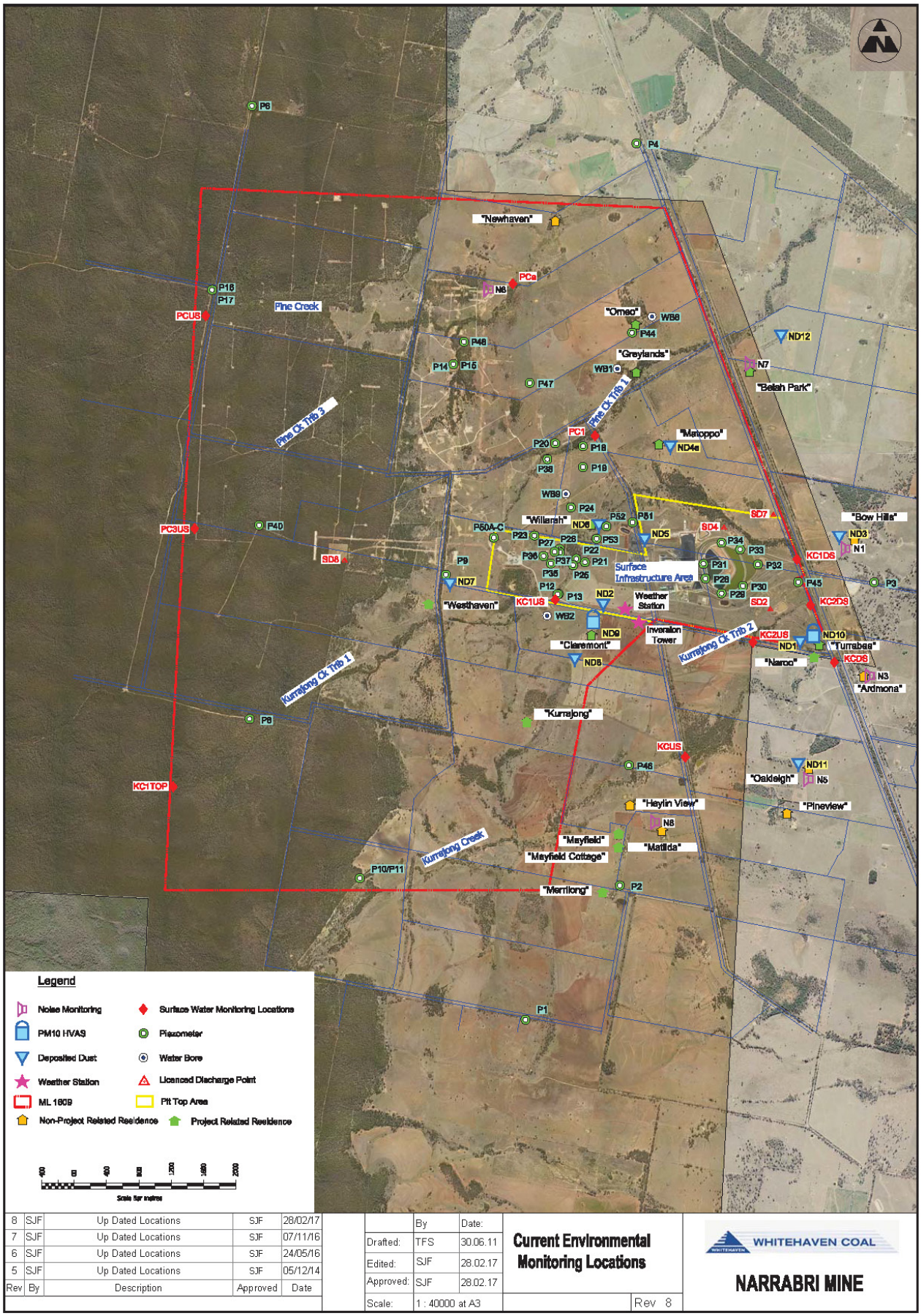
The centreline subsidence results for LW101 to LW108 indicate that the Garrawilla Volcanics and Basalt Sill have not reduced subsidence through spanning behaviour and that the maximum subsidence is also considered closer to 63% of the average mining height of 4.3m.

Complaints

Two formal complaints were received during the period September to November 2018. Both complaints were from the same complainant (the second complaint was made via the EPA) and related to noise. The first complaint also related to odour, property values and offset area management. The mine undertook additional attended noise monitoring at the residence which did not identify any issues. A Kangaroo culling has been arranged for December 2018 in relation to the complaint and animal management in the offset area.

Environmental Incident(s)

No environmental incidents occurred during the September to November 2018 period.



Rev	By	Description	Approved	Date
8	SJF	Up Dated Locations	SJF	28/02/17
7	SJF	Up Dated Locations	SJF	07/11/16
6	SJF	Up Dated Locations	SJF	24/05/16
5	SJF	Up Dated Locations	SJF	05/12/14

	By	Date:
Drafted:	TFS	30.06.11
Edited:	SJF	28.02.17
Approved:	SJF	28.02.17
Scale:	1 : 40000 at A3	

Current Environmental Monitoring Locations

Rev 8

WHITEHAVEN COAL

NARRABRI MINE