Narrabri Mine Community Consultative Committee Meeting Minutes

Meeting No: 36

Date: Wednesday 15th March 2017

Time: 4:08pm

Location: Narrabri Mine Site Office

Present: Russell Stewart (RS) – Independent Chairman (Arrived late)
Rodney Dunlop (RD) – (Interim Independent Chair)
James Stieger (JS)
Peter Webb (PW)
Geoff Hunter (GH)
Dave Ellwood (DE) – Narrabri Mine Technical Services Superintendent
Steve Farrar (SF) – Narrabri Mine Environmental Superintendent

1. APOLOGIES

Steve Bow, Ron Campbell, Mark Foster, Lexie Frankham and Kirsten Gollogly

2. DECLARATION OF PECUNIARY OR OTHER INTERESTS

Nil

3. PREVIOUS MINUTES

Moved: JS Seconded: PW

3.1 BUSINESS ARISING FROM PREVIOUS MINUTES

GH asked about the tour of the subsidence area prior to the last meeting and if we could do it again as he wasn't at the last meeting. DE said we could do it again prior to the next meeting. SF said we would start an hour earlier for the tour. RD said you can't pick it in the landscape by eye and the biggest effect is where it goes through the causeways. SF said the only noticeable thing is the ponding on the surface and JS said if you knew the road before as he did then you can pick it. GH said he doesn't want to be asked in 20 years how did you let this happen and have to say that he didn't have a look. DE said we'll organise an hour before the next meeting. SF said we would ring the week before to see who is keen. JS asked if it is just for us or anybody, SF said we can take 12 in the bus. JS said he has a mate who wouldn't mind having a look around.

Regional dust network talk postponed to next meeting.

DE went through the exploration program to the south of the mine. DE said most of the drilling is in the State Forest and a couple will be on private land. GH asked if we have had a meeting with those guys. DE said we have to have agreements in place to do the work. GH asked if they were happy about it. DE said we have agreements with 2 landholders and Forestry. GH asked if this is everyone we need, which SF said there are a couple we won't have access too but that's fine. GH asked about the agreements and SF said they are for access but also have compensation clauses. GH asked about the hole abandon rules and SF stated there are guidelines for that and DE said we have to submit a bond as well and that is not returned until the landholder has signed off on the rehab. GH asked when that starts and DE said it will be done this FY. GH asked about the 30 we mentioned last time and DE explained where they are. GH asked where the landholders are which SF explained. JS asked where it goes and SF said there are 6 holes in private property but the boreholes in the State Forest go past Yarranabee Road. GH asked about the other landholders and SF went through the plan of current holes. DE said next FY we would like to go into the other properties. DE explained the seam splitting to the south which is what the drilling is to define. JS asked if one of the residents was still there and DE said yes. DE explained the work to commence shortly and what is planned next FY. JS asked about the seismic work and DE explained the process for 2D seismic surveys. DE said all the work is to define the area in the south. DE said we have 1 drill rig at the moment but we will getting a second drill rig shortly. DE explained the drilling done recently on mine-owned land. DE said the plan is to have 2 rigs in the

Forest for the next 4-6 months. JS asked about a fault line and DE said there are potentially a couple but in 6 months we should have a good idea. SF said there is 1 property in the ML that is private land. GH asked about roads in the State Forest and DE explained the existing roads and new roads for the exploration which includes rehab requirements from Forestry. GH said it would be useful for them and JS said the 5m wide road would be good and could be a firebreak and DE said we would prefer to leave it but we are required to rehab. SF said we will rehab the road and then when we get there for the mining operation we will have to clear it again.

RD asked about the licence to the north and DE explained where it is up to, which is currently with the coal allocation committee and no idea how long it will take. SF said it went out for a market test with no other applications so hopefully that will make it easier but DE said it could be 6-12 months. RD asked how far it goes and DE explained. JS asked where the fish farm is and DE explained and pointed out the railway line. SF said we own one block in the area and GH asked why and SF explained it was purchased for the GAB water licence. GH asked if we pump it out of the GAB and SF explained we don't use the water but it is for when we undermine the area to the west. DE explained the previous drilling done 20 years ago and the information we have. JS said they did seismic out of planes and killed fish in the fish farm but DE said we don't have any of that data. RD asked about the fish and JS said it affected the fingerlings. JS asked about the existing panels in the current mine and DE explained the mine plan. DE said we are looking into what the end game is and with 3-5 years for approvals we need to look now.

4. GENERAL BUSINESS

4.1 OPERATIONS PROGRESS REPORT

The operations update was provided as follows:

Mine Progress Report (to 28 February 2017)

Coal produced (t):	February 2017	545,536
	FY-to-date	5,541,976
Coal Railed (t):	February 2017	379,120
	FY-to-date	5,172,949
Average workforce numbers (February 2017):		
	NCO	Waged – 139
		Salary – 118
		Total – 257
	Contractors	Total – 123
Safety Update (FY to February 2017):		
	Lost Time Injury (LTI)	3
	Days LTI Free:	27
	Total Recordable Injuries:	12
	Planned Task Observations:	4,435
	Take 5 Assessments:	61,770
	Work Hours (Feb-17):	90,748

DE went through the operations report. RD asked what the production budget is and DE said 7.7Mt and we are on target. RD asked about the Gorilla sign on the way in and DE explained it is a safety initiative. SF said it is a behavioural based safety program. JS asked if the hours were year to date and SF explained that they are for the month of February 2017.

4.2 ENVIRONMENTAL OVERVIEW

SF went through the environmental report. SF said we do the groundwater monitoring monthly and RD asked why the change from quarterly and SF explained it come out of DPI-Water comments on the Extraction Plan. RD asked about the complaint from Baan Baa and was it around aesthetic dust and SF explained he has complained about dust on his roof but we have sampled in the past with no issues. SF explained he does not want us to sample again and will take it to the local member. JS asked if we have offered to put a first flush on his roof and SF said we have sampled and did not find any issues and JS said we could offer a couple of filters. SF explained he has also

complained about smell. JS said we could offer but not admit anything and SF asked if the water is in Baan Baa as yet and JS explained not yet but work has started. JS said we could offer the filters and SF said we would have to think about that and he is escalating that so we will wait and see what comes out of that. GH asked about the dust monitoring results and if we got any results from the hot day and fires. DE showed the results on the screen and when the HVAS was sampled and SF went through the results. RD asked if we could just provide a yearly graph which SF said yes but the reason they are setup that way is because the yearly reporting requires all results. GH asked why the graph is different to the one in the report and DE asked if it has every single line prints which SF said he assumed so. RD said some of the missing lines have been on previous reports. GH asked about the limits which SF explained and then SF said he would change the graphs to just show a year's results. GH said it certainly looks like coal dust when you get the north-westerly wind. RD asked if we have some triggers for works on the stockpiles and SF said there is a TARP. RD asked if it covered wind and temperature and SF said it is for dust generation. RD asked if it is predictive and SF said no. DE explained the coal stockpiles are dynamic.

RS arrived at approximately 4:50pm.

RD said we are talking about the graphs and changing them to just show a year. DE said it appears that some of the lines aren't printing when transferring into word. GH said it is worth noting that we could have something for wind or hot days and RD said we should have some predictive things for dust and potentially review TARP and SF said we can use the weather forecast but we don't have the fancy model predictive things that send out alerts. RS asked what weather we refer to and DE said we use our weather station onsite. RS mentioned another CCC meeting and the use of meters to measure methane while driving around and it was higher in the Hunter Valley. GH asked about methane before we mine and DE said we drain it beforehand but it's around 90% carbon dioxide. SF said we have two streams the gas we drain before we mine and then while we mine. The gas we drain during mining is very low percentages but large volumes. RD asked about reporting and DE said it is through NGERS.

5. NEW BUSINESS

RS asked about the water prices in the area which was raised by someone else and that it appears their inflated in the area due to the mines. GH asked if it was bore water or river water. RS said he thought river water but wasn't sure but must have been bore water. RD asked what licences Narrabri Coal had which SF explained. GH asked if we needed more water and SF said no we shouldn't as we are waiting for more to come from the underground but we are still using bore/river water. RS said the costs were around $4k/ML. SF said that is about the cost of high security surface water paid by other mines but not sure if they have any bore water. RS said they weren't complaining but they were discussing where the price is at.

GH asked about property purchases and if we have bought a property to the north. SF updated the committee on the current purchases. GH asked about a property to the south and SF updated the committee on what's happening there. RS said there might be concerns from the DPE meeting the other night as they are worried about land value and how the gas project might affect their property if there are gas operations next door and what compensation might be available and what about if they are on their place. SF said the valuations the mine gets done are based on agricultural potential and that shouldn't change. GH said that unfortunately the mine has paid more for some places and DE stated that was the case in the early days which now doesn't help. GH said that has a two-fold affect and if he wanted to buy a place the price has gone up and DE said that doesn't just hurt us but others around the mine as well. RS said that some landowners don't have an issue with the current people but are concerned the mine will be sold and then what. GH said one thing the mine could do better would be to lease mine owned land to nearby affected people rather than who it was purchased off as the case near Wean where the mine has bought property and a lot of people have left Boggabri as the land has been leased to a mate of a mate. DE said the agreements usually allow the seller to keep using the land and SF said the original agreements for the mine expire this year or next year and all new leases go out for competitive tender. SF explained the lease process recently for a property to the south. GH said there are places where the lease holder has left and someone is there that nobody knows and people are being disadvantaged.

6. NEXT MEETING

Wednesday 21st June 2017 at 3:00pm for site tour then meeting at 4:00pm at the Narrabri Mine Site Office. Confirm tour numbers week before.

7. CLOSURE OF MEETING

Meeting closed at 5:15pm.

Narrabri Mine Community Consultative Committee Meeting #36

Environmental Monitoring Report: December 2016 – February 2017

Noise Monitoring

Attended noise monitoring was undertaken between Tuesday 6th to Thursday 8th December 2016 (Tables 1-12) to verify if noise levels were within compliance limits. The results from this monitoring are detailed in the tables below.

Table 1: NM Operational Noise Monitoring Results – 6 December 2016 (day)					
Location	Time	Total dB(A), Leq (15 min)	Wind speed/direction	Temp Grad (˚C/100m)	Identified Noise Sources
R4 Oakleigh	12:53 pm	47	5.1/234	n/a	Wind (47), birds (34), traffic (26), NM inaudible
R13 Newhaven	4:19 pm	50	3.4/206	n/a	NM (32*), birds (27)
R16 Belah Park	2:33 pm	58	3.7/228	n/a	Birds (58), wind (41), traffic (36), NM inaudible

*Noise from water pump nearby monitoring location

Table 2: NM Operational Noise Monitoring Results – 6 December 2016 (evening)						
Location	Time	Total dB(A), Leq (15 min)	Wind speed/direction	Temp Grad (˚C/100m)	Stability Class	Identified Noise Sources
R4 Oakleigh	8:00 pm	41	7.4/202	Lapse	D,D	Birds & insects (41), NM (24)
R13 Newhaven	9:25 pm	51	2.7/164	Lapse	D,F	NM (33*), insects (36)
R16 Belah Park	8:40 pm	53	5.9/205	Lapse	D,D	Wind (53), traffic (31), NM inaudible

*Noise from water pump nearby monitoring location

Table 3: NM Operational Noise Monitoring Results – 6/7 December 2016 (Night)						
Location	Time	Total dB(A), Leq (15 min)	Wind speed/direction	Temp Grad (˚C/100m)		Identified Noise Sources
R4 Oakleigh	10:11 pm	43	1.4/97	+0.6	F,F,F,F	Insects (43), traffic (22), NM inaudible
R13 Newhaven	12:35 am	51	0.5/269	+0.4	F,F,F,F	NM (33*), insects (34)
R16 Belah Park	11:20 pm	38	2.6/324	+1.6	F,D,D,D	Insects (37), cattle (30), NM (23)

*Noise from water pump nearby monitoring location

Table 4: NM Operational Noise Monitoring Results – 7 December 2016 (day)					
Location	Time	Total dB(A), Leq (15 min)	Wind speed/direction	Temp Grad (˚C/100m)	Identified Noise Sources
R1 Bow Hills	10:58 am	43	0.5/286	n/a	Birds (43), traffic (29), NM inaudible
R2 Ardmona	10:32 am	46	1.6/82	n/a	Birds (44), traffic (41), NM inaudible
R4 Oakleigh	8:25 am	39	1.2/149	n/a	Birds (39), traffic (22), NM (20)
R6 Matilda	10:10 am	46	0.2/301	n/a	Birds & insects (46), NM inaudible
R13 Newhaven	1:14 pm	48	2.5/276	n/a	NM (30*), birds (26)
R16 Belah Park	11:27 am	40	0.8/209	n/a	Birds (37), cattle (35), traffic (31), NM inaudible

*Noise from water pump nearby monitoring location

Table 5: NM Operational Noise Monitoring Results – 7 December 2016 (evening)						
Location	Time	Total dB(A), Leq (15 min)	Wind speed/direction	Temp Grad (˚C/100m)	Stability Class	Identified Noise Sources
R1 Bow Hills	7:12 pm	46	1.1/264	Lapse	D	Traffic (44), birds & insects (41), NM (33)
R2 Ardmona	7:33 pm	47	0.6/249	Lapse	D	Traffic (46), birds & insects (38), NM (26)
R4 Oakleigh	7:59 pm	39	1.2/241	Lapse	D,D	Birds & insects (39), traffic (24), NM (22)
R6 Matilda	8:45 pm	48	1.5/295	Lapse	E	Insects (48), traffic (25), NM (23)
R13 Newhaven	9:13 pm	51	2.2/296	+0.1	E,E	NM (33*), frogs & insects (39)
R16 Belah Park	6:35 pm	52	1.8/272	Lapse	C,D	Cattle (52), insects (38), traffic (36), NM inaudible

*Noise from water pump nearby monitoring location

Table 6: NM Operational Noise Monitoring Results – 7/8 December 2016 (night)						
Location	Time	Total dB(A), Leq (15 min)	Wind speed/direction	Temp Grad (˚C/100m)	Stability Class	Identified Noise Sources
R1 Bow Hills	11:56 pm	41	0.3/251	+1.6	D	Frogs & insects (39), traffic (36), NM (25)
R2 Ardmona	11:37 pm	56	1.0/266	+2.0	E	Traffic (55), insects (48), NM (33)
R4 Oakleigh	10:00 pm	41	2.1/316	Lapse	E,E,E,E	Insects (40), NM (33), traffic (28)
R6 Matilda	11:14 pm	40	0.4/307	+0.2	D	Frogs & insects (39), NM (32), traffic (25)
R13 Newhaven	1:39 am	50	0.6/272	+2.4	D,D,E,G	NM (32*), frogs & insects (38)
R16 Belah Park	12:17 am	53	0.6/300	+1.8	F,F,F,F	Cattle (53), frogs & insects (36), traffic (35), NM (21)

*Noise from water pump nearby monitoring location

Table 7: NM Operational Noise Monitoring Results – 8 December 2016 (day)					
Location	Time	Total dB(A), Leq (15 min)	Wind speed/direction	Temp Grad (˚C/100m)	Identified Noise Sources
R4 Oakleigh	9:37 am	49	7.5/305	n/a	Wind (49), birds (26), traffic (26), NM inaudible
R13 Newhaven	1:25 pm	47	4.7/287	n/a	NM (29*), wind (30), birds (25)
R16 Belah Park	11:28 am	49	4.4/316	n/a	Wind (49), traffic (28), birds & insects (24), NM inaudible

*Noise from water pump nearby monitoring location

Table 8: NM Operational Noise Monitoring Results – 8 December 2016 (evening)						
Location	Time	Total dB(A), Leq (15 min)	Wind speed/direction	Temp Grad (˚C/100m)	Stability Class	Identified Noise Sources
R4 Oakleigh	9:28 pm	44	5.1/240	+5.0	D,D	Wind (44), NM (22)
R13 Newhaven	8:01 pm	49	6.5/305	+1.8	D,D	NM (31*), wind (35)
R16 Belah Park	8:45 pm	45	5.6/273	+2.4	D,D	Wind (45), frogs & insects (29), traffic (27), NM inaudible

*Noise from water pump nearby monitoring location

Table 9: NM Operational Noise Monitoring Results – 8/9 December 2016 (night)						
Location	Time	Total dB(A), Leq (15 min)	Wind speed/direction	Temp Grad (˚C/100m)	Stability Class	Identified Noise Sources
R4 Oakleigh	10:00 pm	36	4.4/251	+5.8	D,D,D,D	Wind (36), NM (23), traffic (21)
R13 Newhaven	12:55 am	51	2.9/287	+0.1	D,D,E,D	NM (33*), insects (29)
R16 Belah Park	11:31 pm	33	3.6/295	+2.8	D,D,D,D	Insects (30), traffic (28), wind (26), NM inaudible

*Noise from water pump nearby monitoring location

Table 10: NM Sleep Disturbance Monitoring Results – 6/7 December 2016 (night)					
Location	Time	dB(A),L1 (1 min)	Wind speed / direction	Temp Grad (˚C/100m)	Stability Class
R4 Oakleigh	10:11 pm	n/a	1.4/97	+0.6	F,F,F,F
R13 Newhaven	12:35 am	37*	0.5/269	+0.4	F,F,F,F
R16 Belah Park	11:20 pm	27	2.6/324	+1.6	F,D,D,D

*Noise from water pump nearby monitoring location

Table 11: NM Sleep Disturbance Monitoring Results – 7/8 December 2016 (night)					
Location	Time	dB(A),L1 (1 min)	Wind speed / direction	Temp Grad (˚C/100m)	Stability Class
R1 Bow Hills	11:56 pm	29	0.3/251	+1.6	D
R2 Ardmona	11:37 pm	37	1.0/266	+2.0	E
R4 Oakleigh	10:00 pm	39	2.1/316	Lapse	E,E,E,E
R6 Matilda	11:14 pm	36	0.4/307	+0.2	D
R13 Newhaven	1:39 am	36*	0.6/272	+2.4	D,D,E,G
R16 Belah Park	12:17 am	24	0.6/300	+1.8	F,F,F,F

*Noise from water pump nearby monitoring location

Table 12: NM Sleep Disturbance Monitoring Results – 8/9 December 2016 (night)					
Location	Time	dB(A),L1 (1 min)	Wind speed / direction	Temp Grad (˚C/100m)	Stability Class
R4 Oakleigh	10:00 pm	27	4.4/251	+5.8	D,D,D,D
R13 Newhaven	12:55 am	38*	2.9/287	+0.1	D,D,E,D
R16 Belah Park	11:31 pm	n/a	3.6/295	+2.8	D,D,D,D

*Noise from water pump nearby monitoring location

During the December 2016 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 monitoring locations.

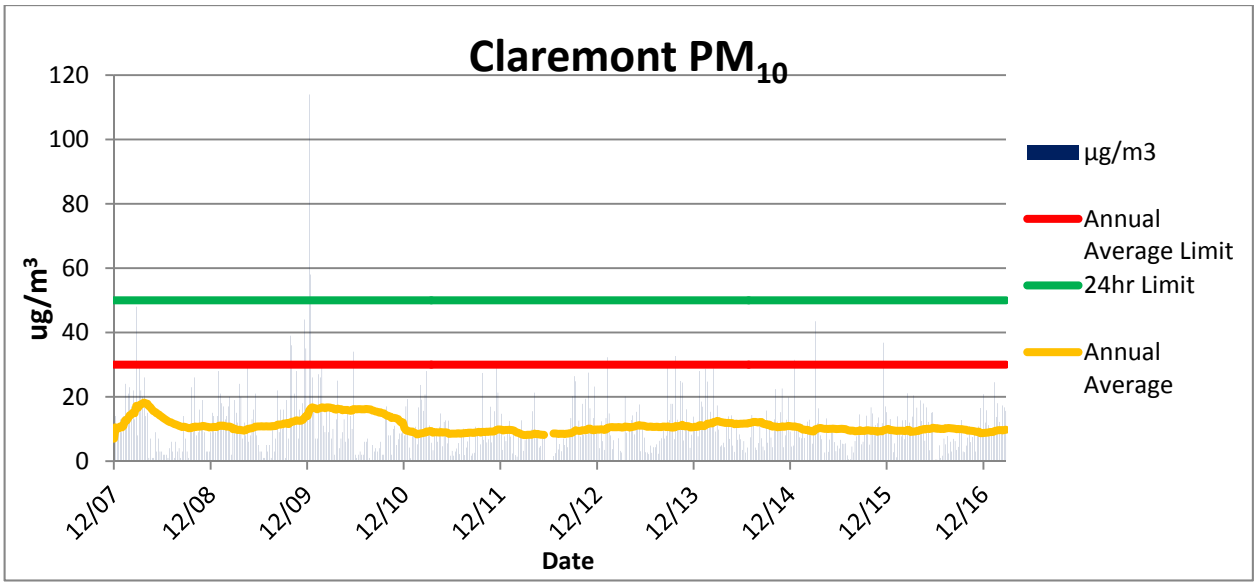
Deposited Dust Monitoring

Month	ND1 Turrabaa	ND2 Claremont	ND3 Bow Hills	ND4a New Matoppo	ND5 Claremont	ND6 Willarah	ND7 Claremont	ND8 Claremont	ND11 Oakleigh	ND12 Merriman
Mar-16	1.0	1.0	0.5	2.2	1.9	0.8	0.8	1.1	0.9	0.6
Apr-16	1.1	1.2	1.9	4.8	1.7	0.8	0.5	1.8	6.6	1.5
May-16	4.6	1.9	0.7	1.5	1.8	0.8	2.4	1.7	0.9	0.6
Jun-16	1.2	2.8	0.3	1.0	2.2	0.4	1.1	0.5	4.6	0.6
Jul-16	2.5	0.3	0.1	0.3	2.4	0.2	3.4	0.2	0.1	0.3
Aug-16	1.2	1.8	0.6	0.6	1.3	0.2	5.5	1.3	0.5	0.7
Sep-16	0.9	1.8	0.3	0.6	4.3	0.6	1.7	1.9	2.2	1.1
Oct-16	0.6	5.1	0.3	0.1	2.2	0.4	3.1	0.4	0.7	0.3
Nov-16	2.6	1.5	0.3	2.8	2.1	0.4	0.6	3.2	0.3	0.3
Dec-16	2.8	2.0	3.8	2.3	4.7	2.2	1.8	3.0	1.3	1.8
Jan-17	4.1	0.4	0.7	1.6	1.5	1.0	1.2	1.6	0.8	0.3
Feb-17	6.8	0.5	0.6	3.7	2.1	3.2	0.9	3.9	0.0	0.6
Annual Average	2.5	1.7	0.8	1.8	2.4	0.9	1.9	1.7	1.6	0.7

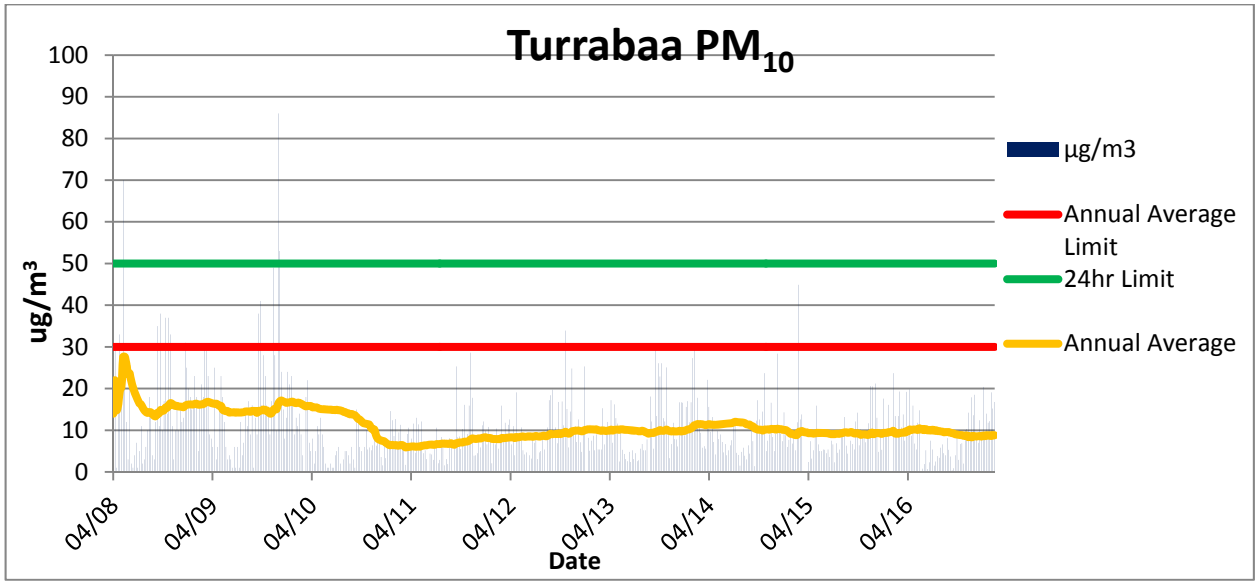
All deposited dust levels are within the compliance limit of 4 g/m^2/mth.

High Volume Air Sampling (PM_{10})

PM_{10} measurements taken to the end of February 2017 for the "Claremont" High Volume Air Sampler (HVAS) are returning a running annual average of 9.73 µg/m^3, which is well below the annual average limit of 30 µg/m^3.



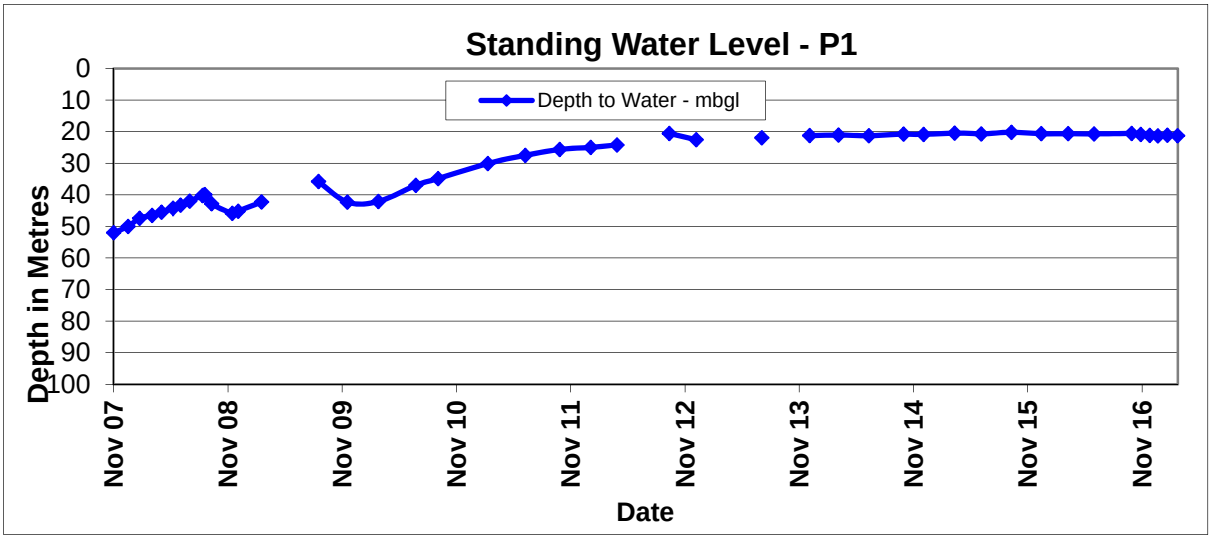
PM_{10} measurements taken to the end of February 2017 for the "Turrabaa" High Volume Air Sampler are returning a running annual average of 8.80 µg/m^3, which is also well below the annual average limit of 30 µg/m^3.

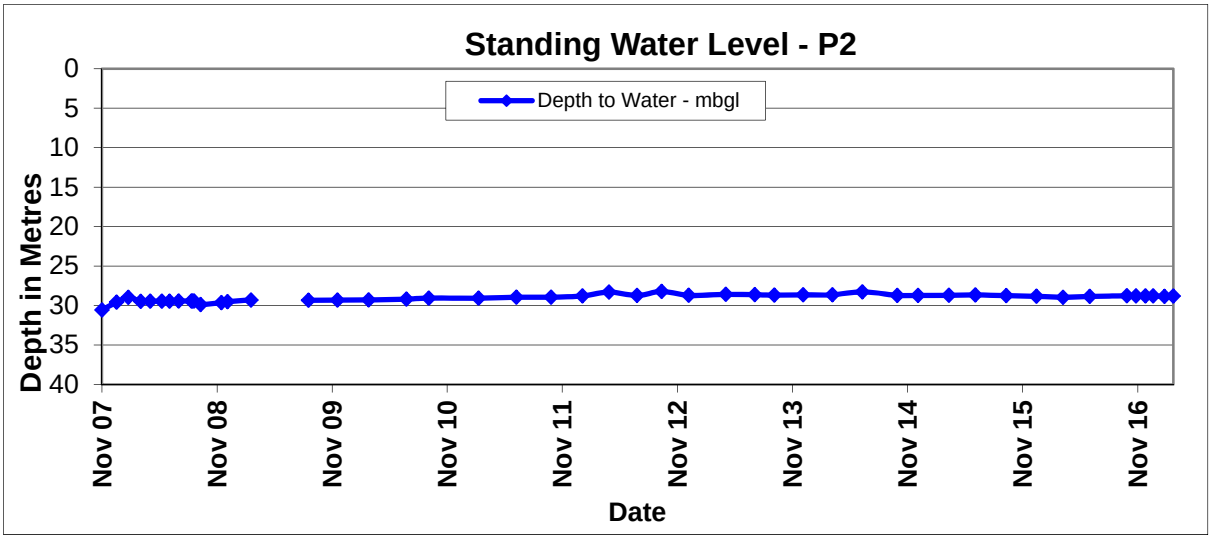


PM_{10} levels have remained compliant since the last meeting.

Groundwater Monitoring

Groundwater monitoring was completed in February 2017. 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
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Nov 09
Nov 10
Nov 11
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Nov 13
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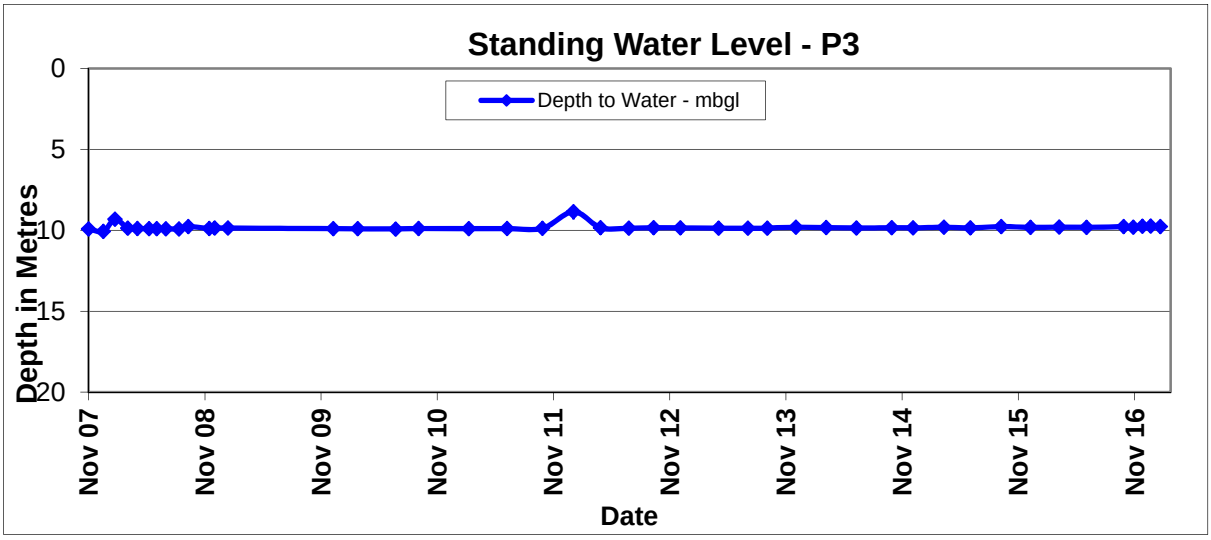
Nov 15
Nov 16
Date


Standing Water Level - P3
Depth to Water - mbgl
Depth in Metres
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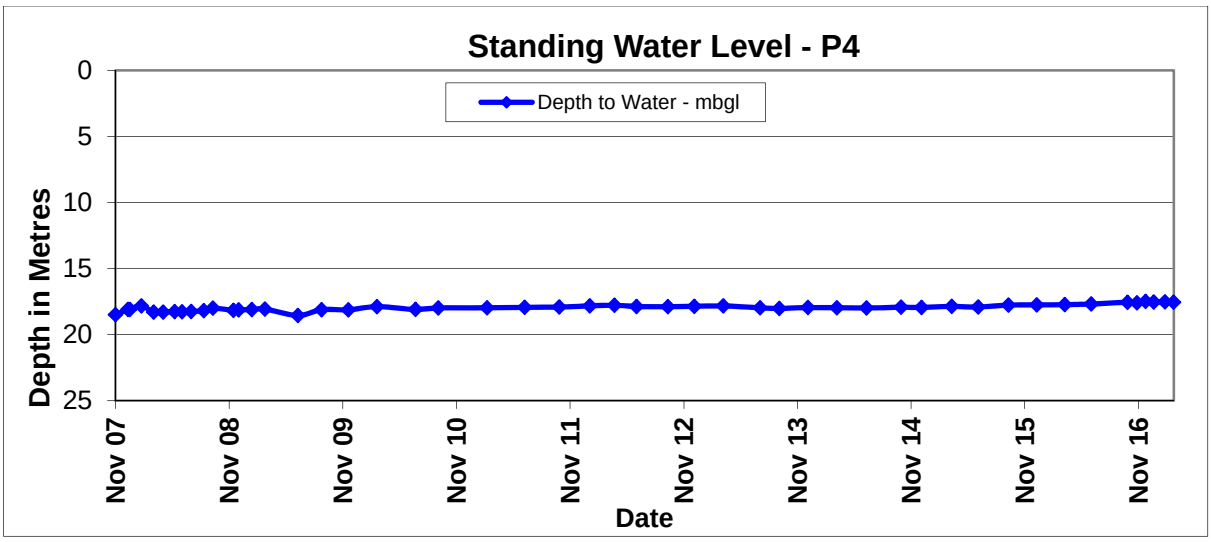
Standing Water Level - P4
Depth to Water - mbgl
Depth in Metres
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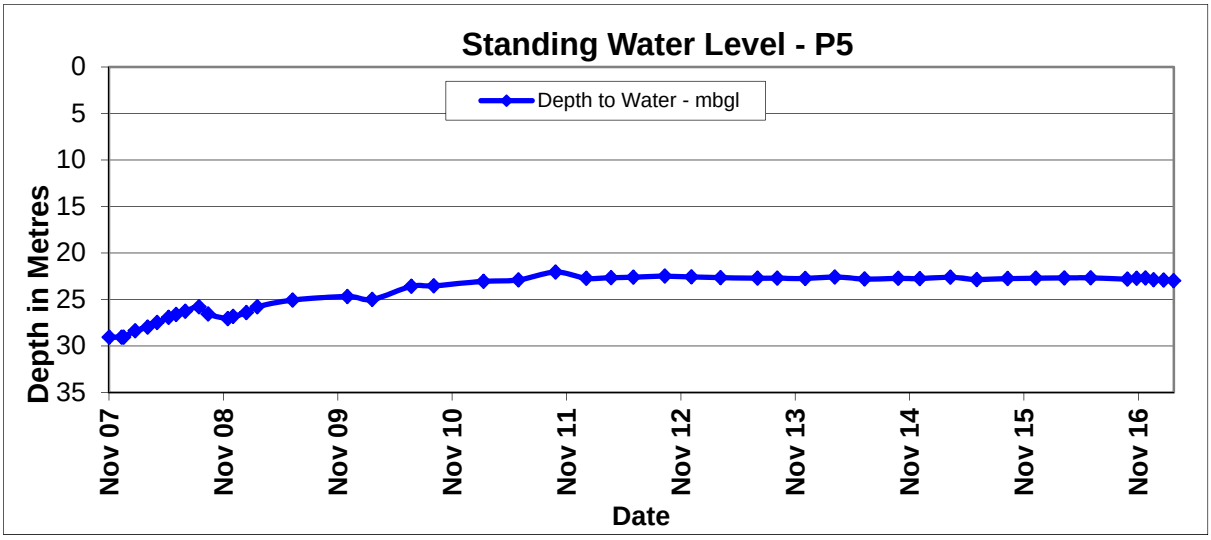
Standing Water Level - P5
Depth to Water - mbgl
Depth in Metres
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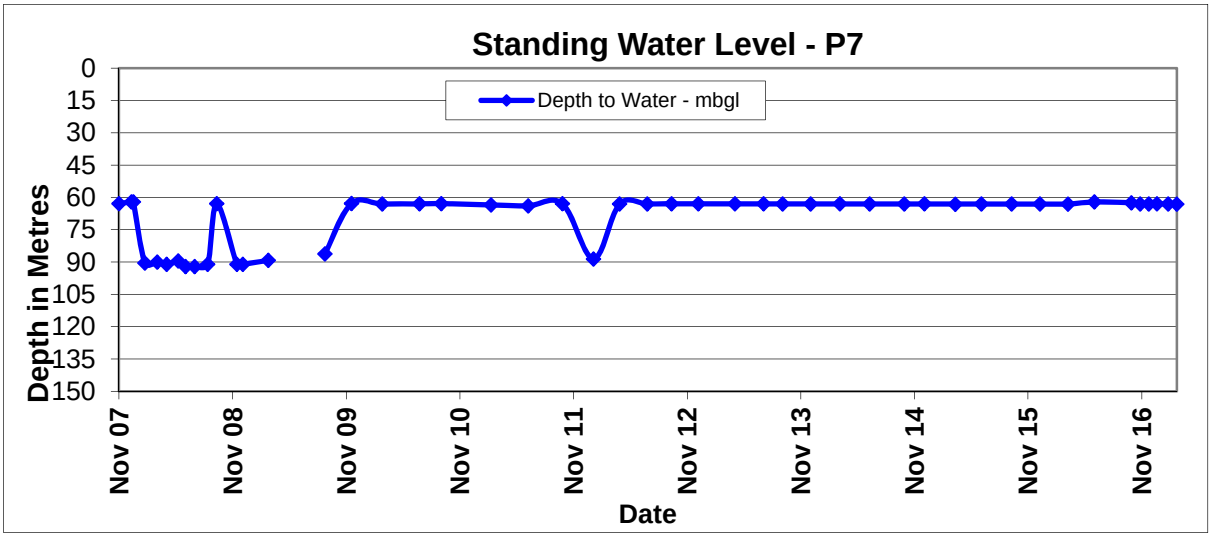
Nov 15
Nov 16
Date


Standing Water Level - P7
Depth to Water - mbgl
Depth in Metres
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30
45
60
75
90
105
120
135
150
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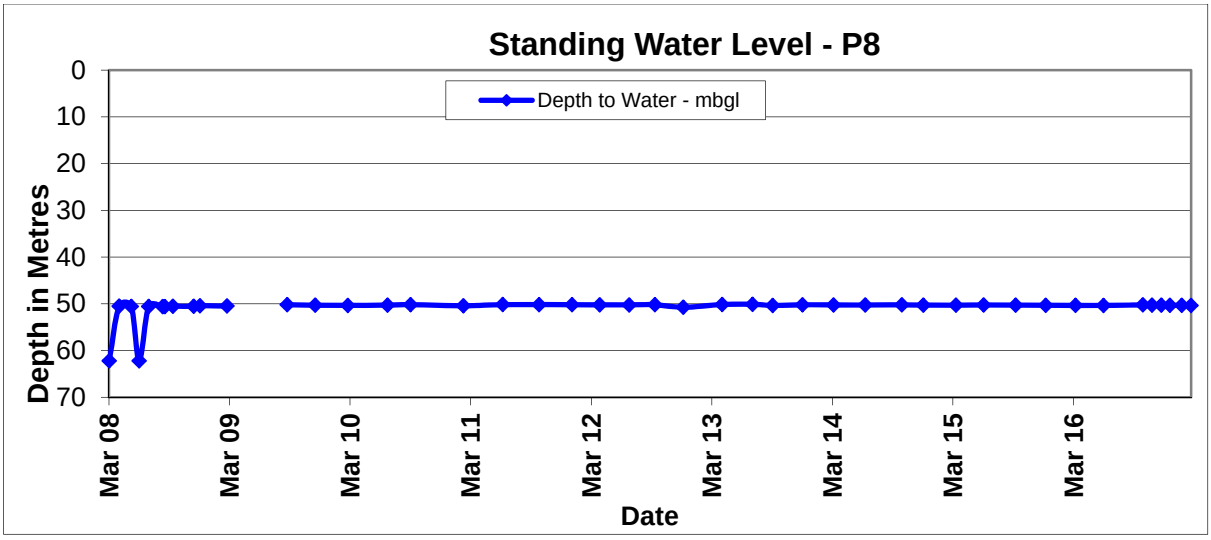
Standing Water Level - P8
Depth to Water - mbgl
Depth in Metres
0
10
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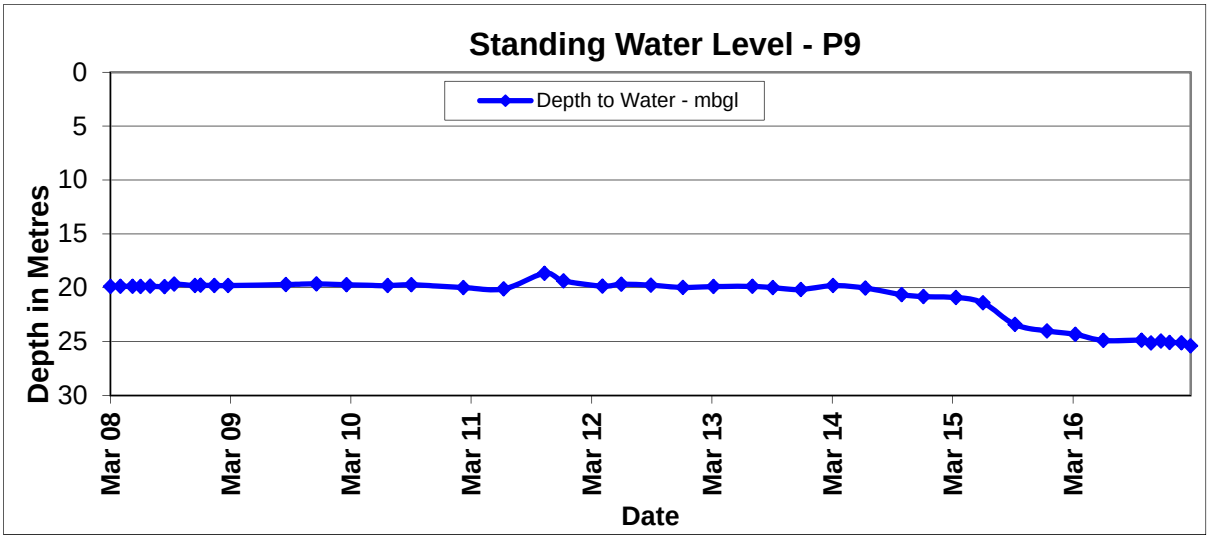
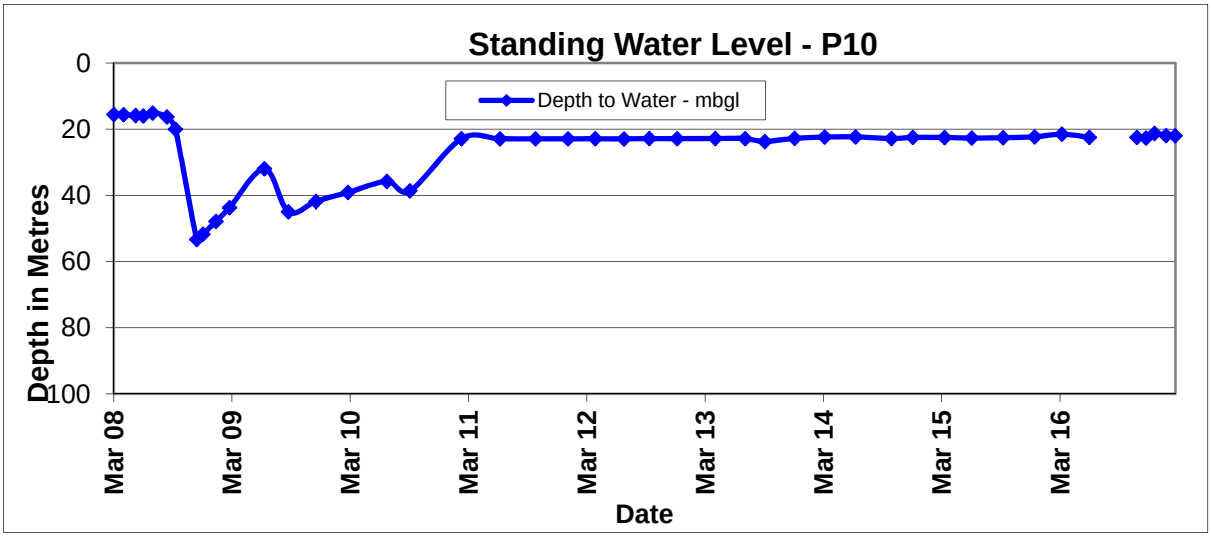
50
60
70
Mar 08
Mar 09
Mar 10
Mar 11
Mar 12
Mar 13
Mar 14
Mar 15
Mar 16
Date


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
Date


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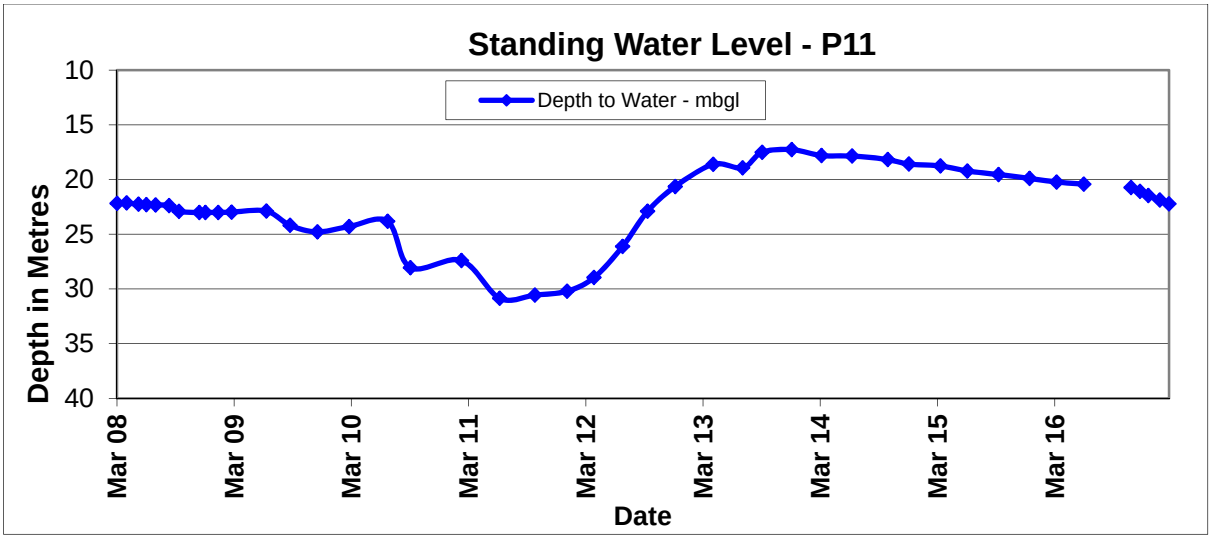
Mar 13
Mar 14
Mar 15
Mar 16
Date


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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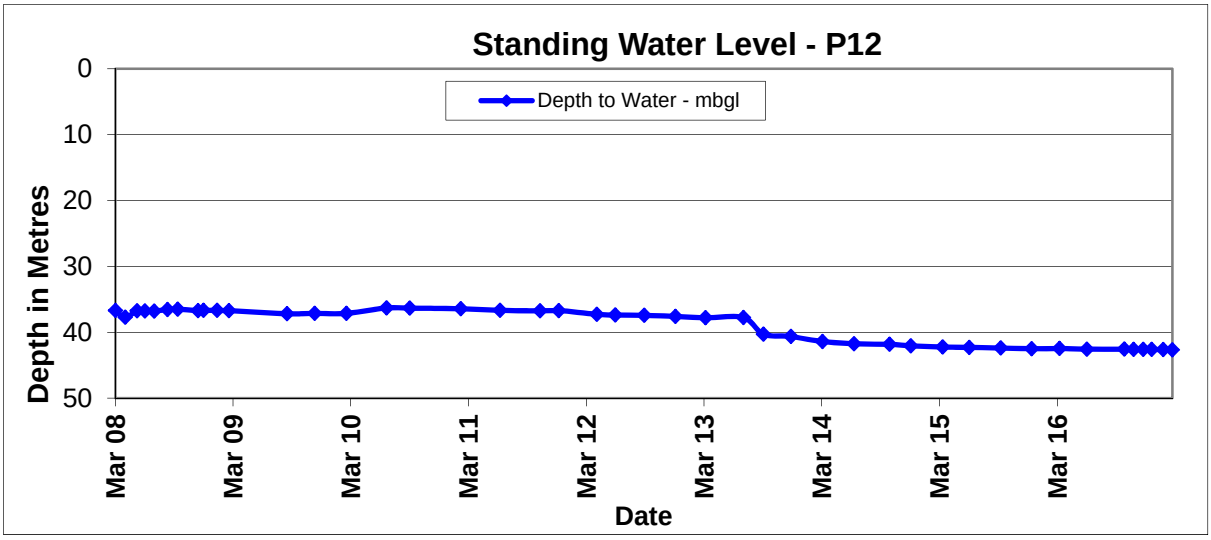
Mar 14
Mar 15
Mar 16
Date


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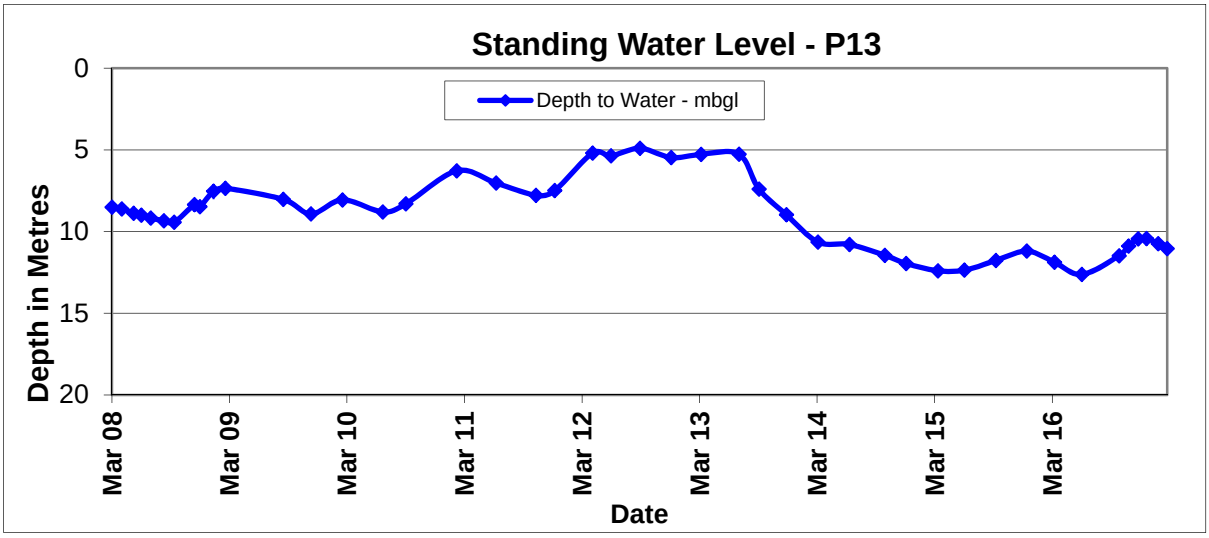
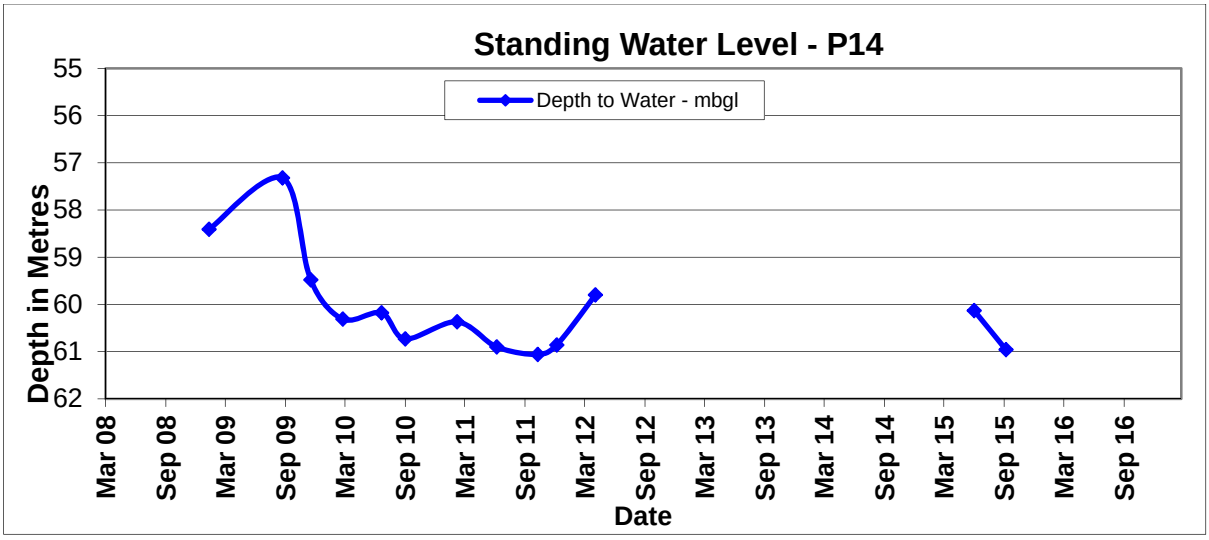
10
20
30
40
50
Mar 08
Mar 09
Mar 10
Mar 11
Mar 12
Mar 13
Mar 14
Mar 15
Mar 16
Date


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
Date


Standing Water Level - P14
Depth to Water - mbgl
Depth in Metres
55
56
57
58
59
60
61
62
Mar 08
Sep 08
Mar 09
Sep 09
Mar 10
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Sep 12
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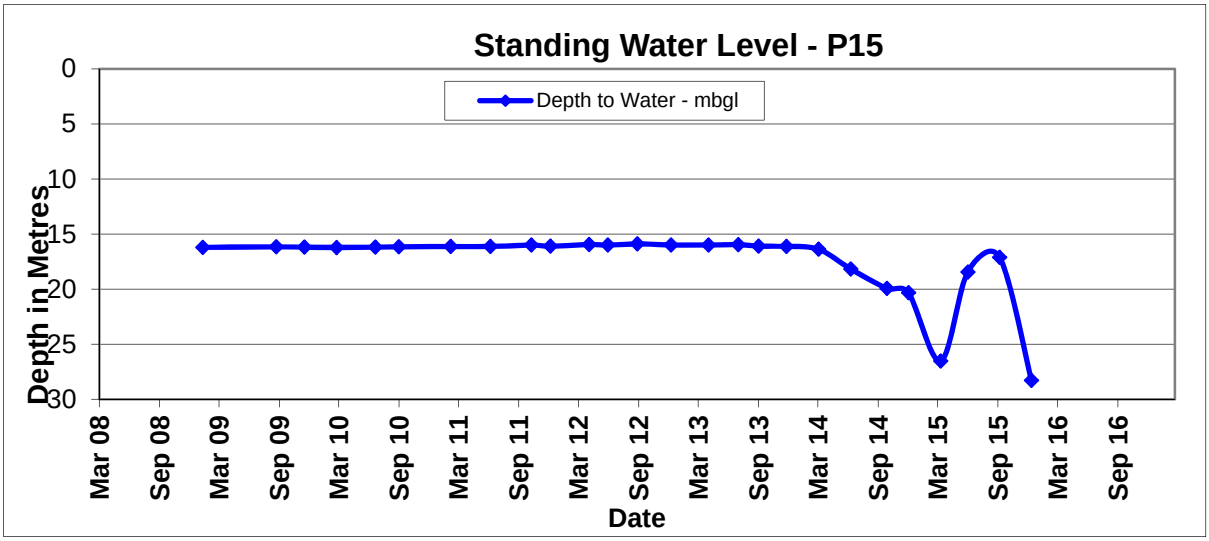
Mar 15
Sep 15
Mar 16
Sep 16
Date


Standing Water Level - P15
Depth to Water - mbgl
Depth in Metres
0
5
10
15
20
25
30
Mar 08
Sep 08
Mar 09
Sep 09
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Sep 12
Mar 13
Sep 13
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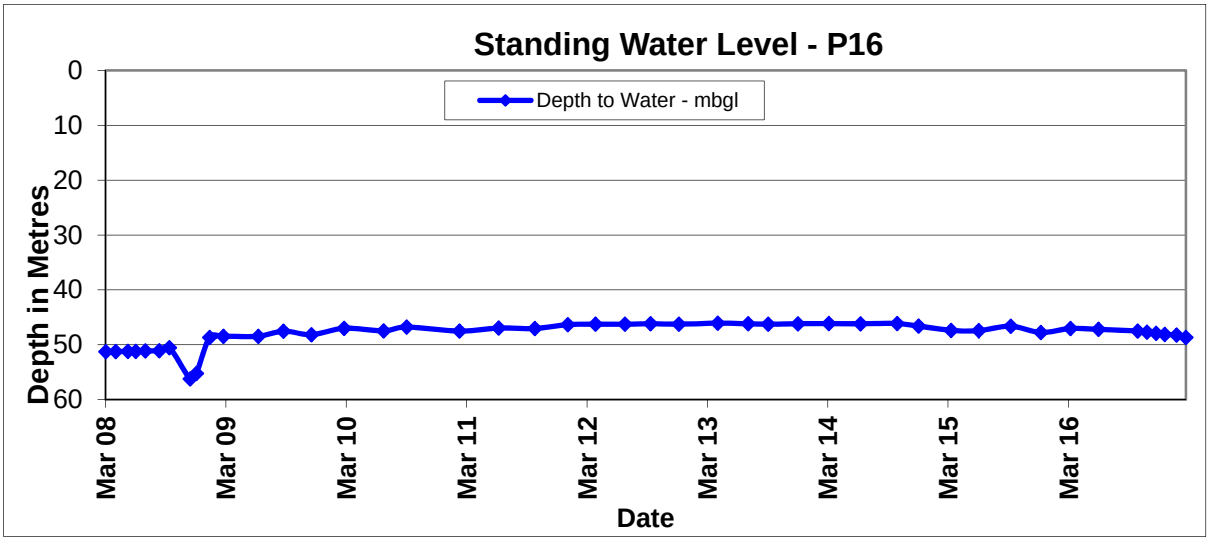
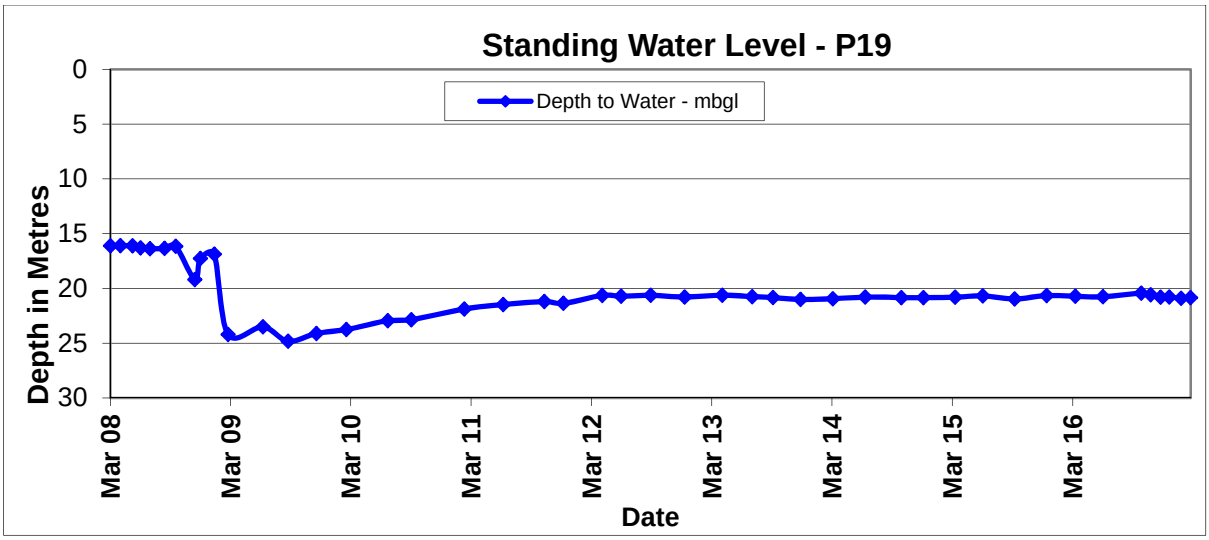
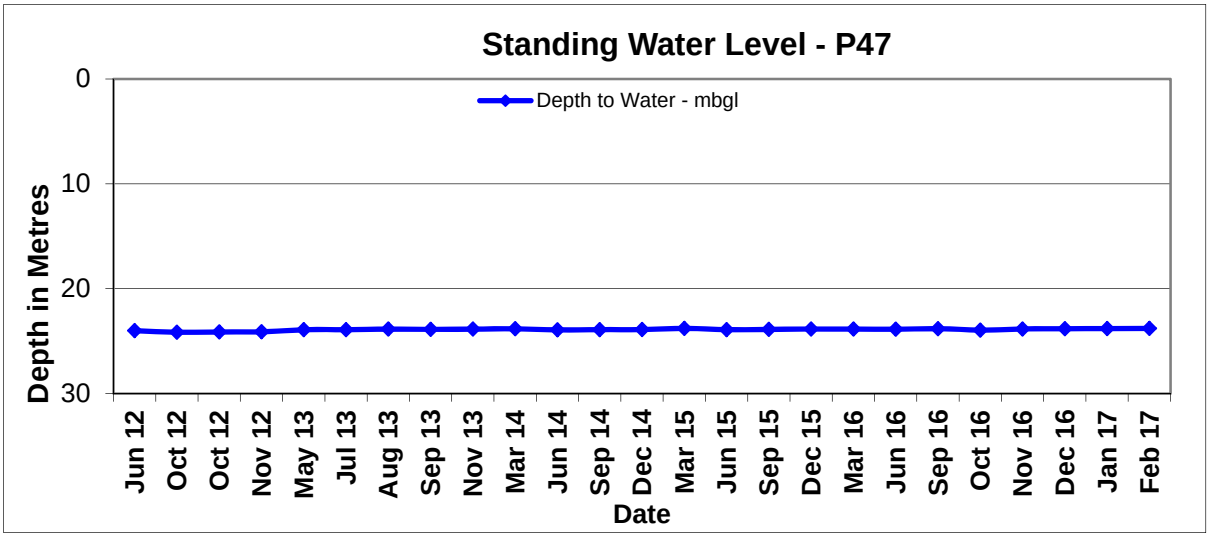
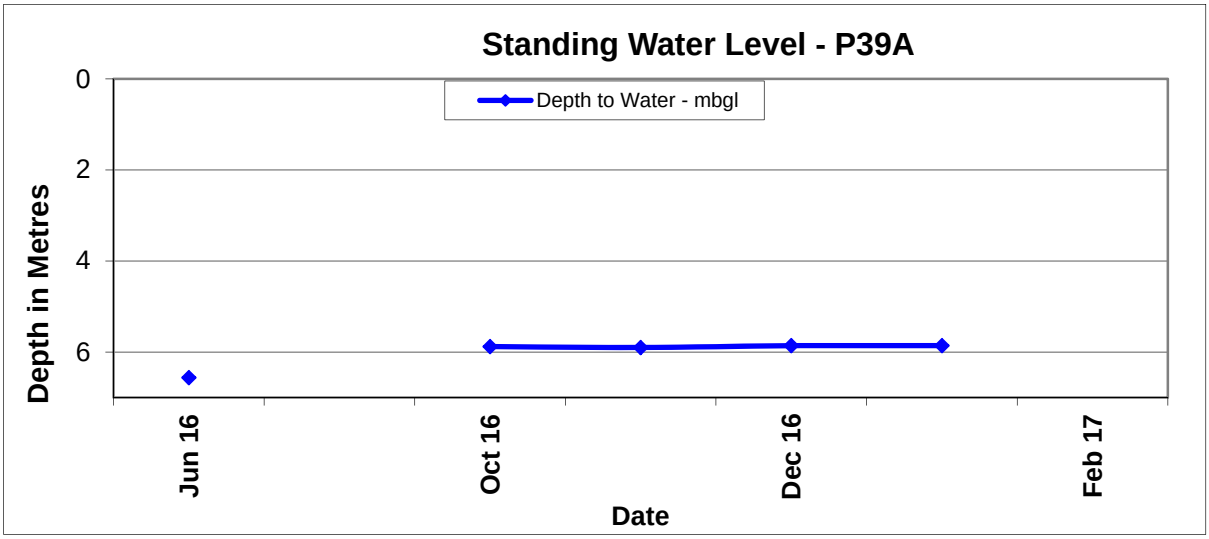
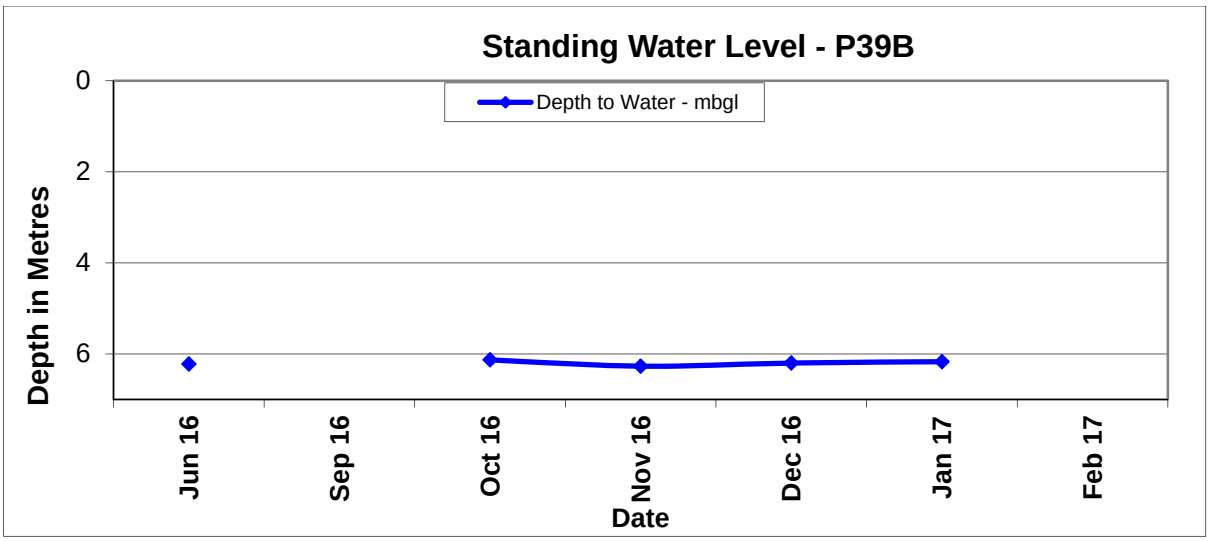
Sep 14
Mar 15
Sep 15
Mar 16
Sep 16
Date

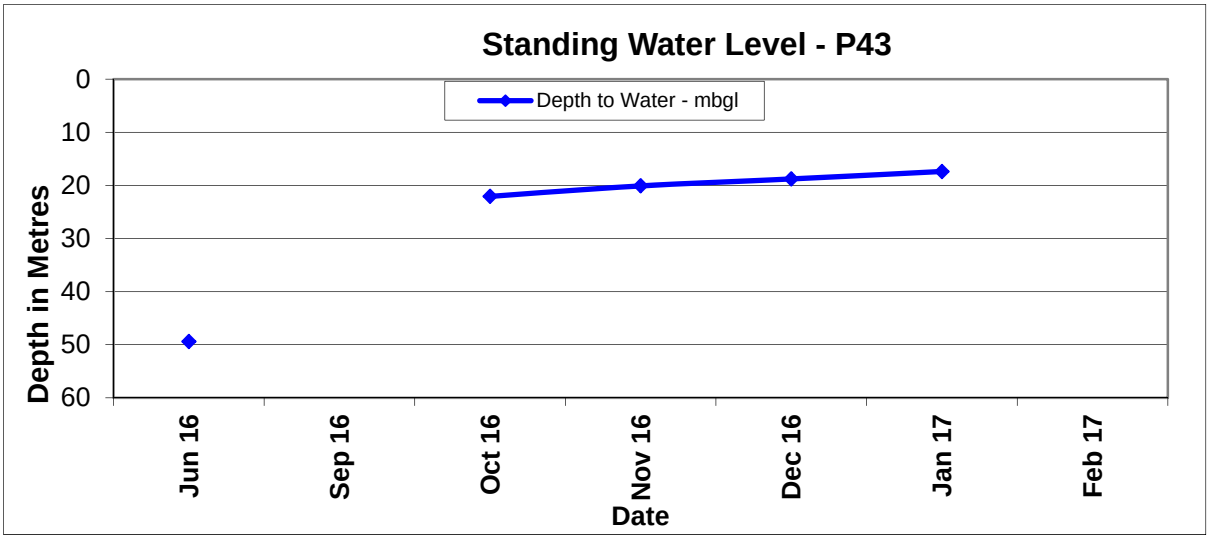

Standing Water Level - P16
Depth to Water - mbgl
Depth in Metres
0
10
20
30
40
50
60
Mar 08
Mar 09
Mar 10
Mar 11
Mar 12
Mar 13
Mar 14
Mar 15
Mar 16
Date

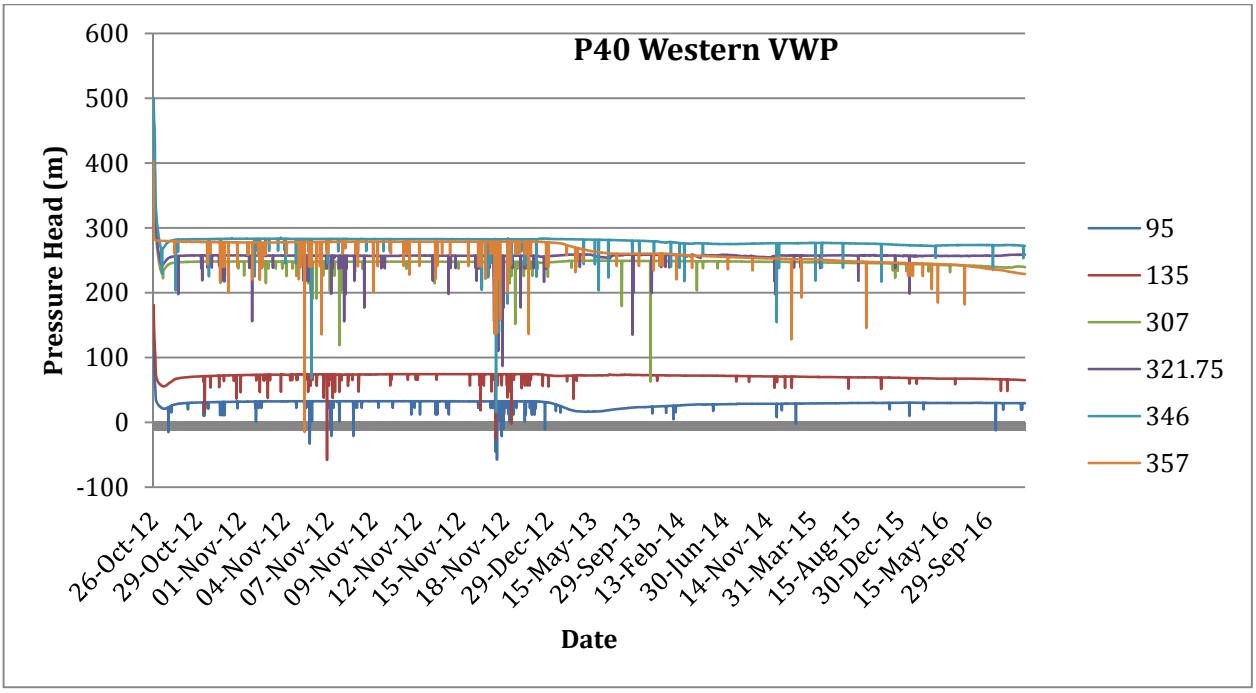

Standing Water Level - P19
Depth to Water - mbgl
Depth in Metres
0
5
10
15
20
25
30
Mar 08
Mar 09
Mar 10
Mar 11
Mar 12
Mar 13
Mar 14
Mar 15
Mar 16
Date

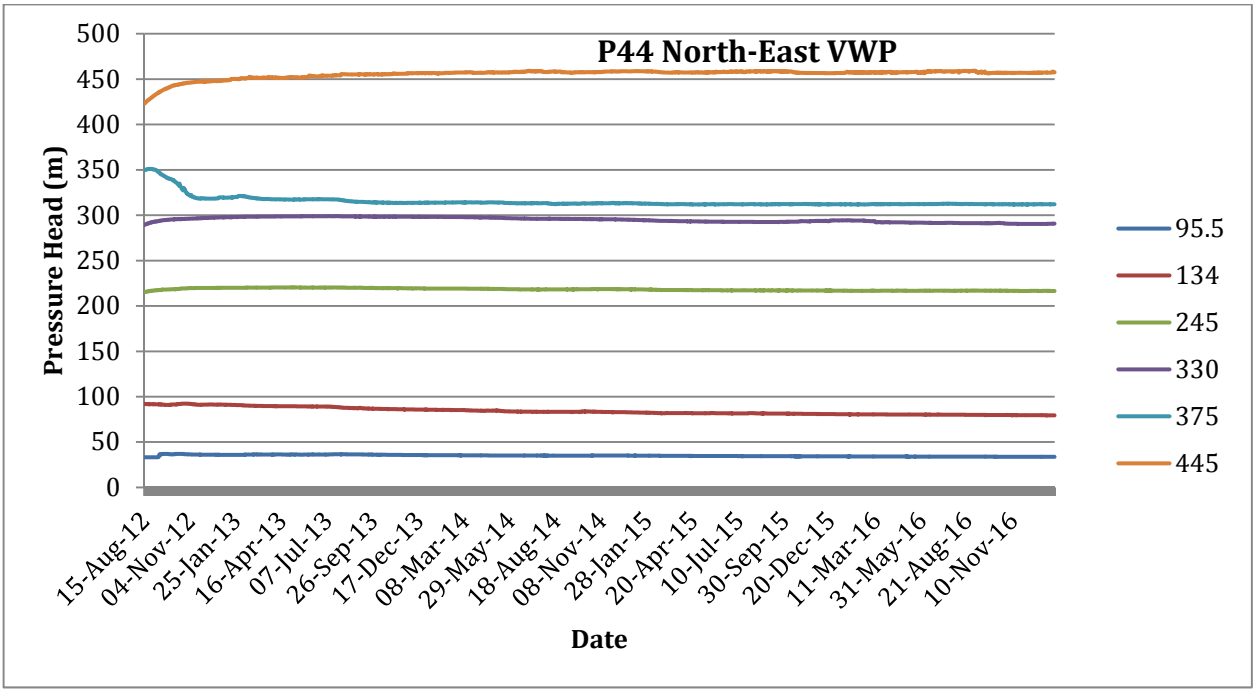

Standing Water Level - P47
Depth to Water - mbgl
Depth in Metres
0
10
20
30
Jun 12
Oct 12
Oct 12
Nov 12
May 13
Jul 13
Aug 13
Sep 13
Nov 13
Mar 14
Jun 14
Sep 14
Dec 14
Mar 15
Jun 15
Sep 15
Dec 15
Mar 16
Jun 16
Sep 16
Oct 16
Nov 16
Dec 16
Jan 17
Feb 17
Date

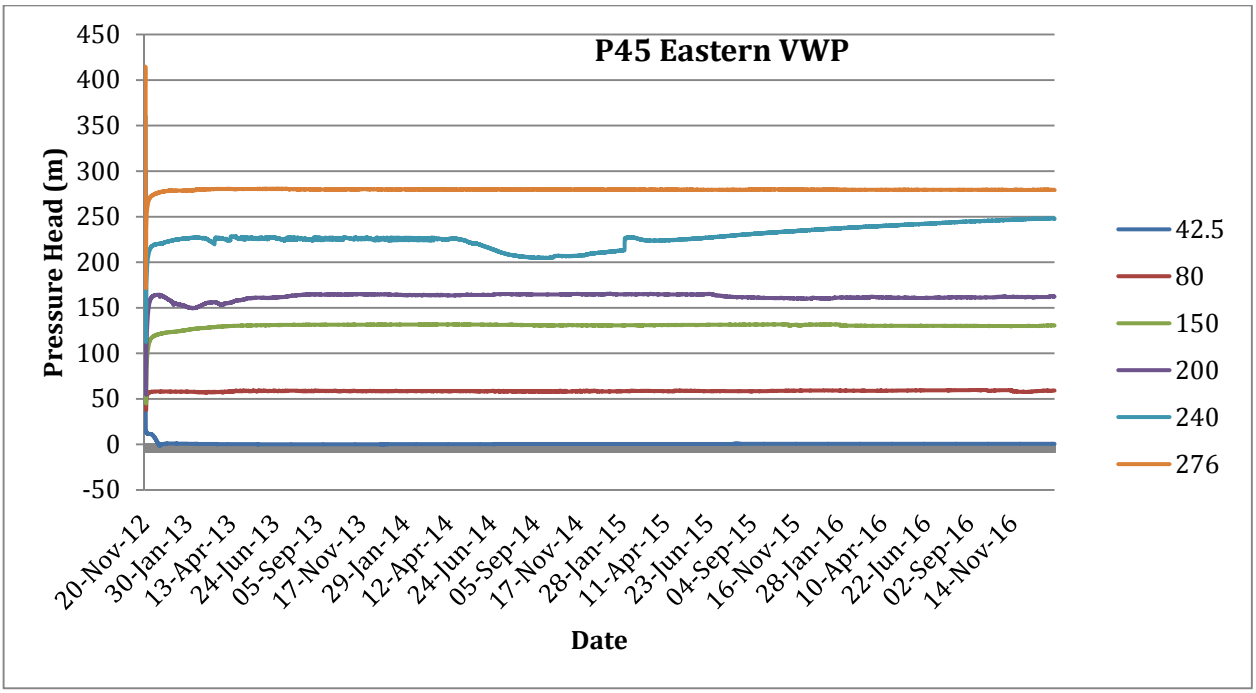

Standing Water Level - P39A
Depth to Water - mbgl
Depth in Metres
0
2
4
6
Jun 16
Oct 16
Dec 16
Feb 17
Date


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
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
Date


P40 Western VWP
Pressure Head (m)
600
500
400
300
200
100
0
-100
26-Oct-12
29-Oct-12
01-Nov-12
04-Nov-12
07-Nov-12
09-Nov-12
12-Nov-12
15-Nov-12
18-Nov-12
29-Dec-12
15-May-13
29-Sep-13
13-Feb-14
30-Jun-14
14-Nov-14
31-Mar-15
15-Aug-15
30-Dec-15
15-May-16
29-Sep-16
Date
95
135
307
321.75
346
357


P44 North-East VWP
Pressure Head (m)
500
450
400
350
300
250
200
150
100
50
0
15-Aug-12
04-Nov-12
25-Jan-13
16-Apr-13
07-Jul-13
26-Sep-13
17-Dec-13
08-Mar-14
29-May-14
18-Aug-14
08-Nov-14
28-Jan-15
20-Apr-15
10-Jul-15
30-Sep-15
20-Dec-15
11-Mar-16
31-May-16
21-Aug-16
10-Nov-16
Date
95.5
134
245
330
375
445


P45 Eastern VWP
Pressure Head (m)
450
400
350
300
250
200
150
100
50
0
-50
20-Nov-12
30-Jan-13
13-Apr-13
24-Jun-13
05-Sep-13
17-Nov-13
29-Jan-14
12-Apr-14
24-Jun-14
05-Sep-14
17-Nov-14
28-Jan-15
11-Apr-15
23-Jun-15
04-Sep-15
16-Nov-15
28-Jan-16
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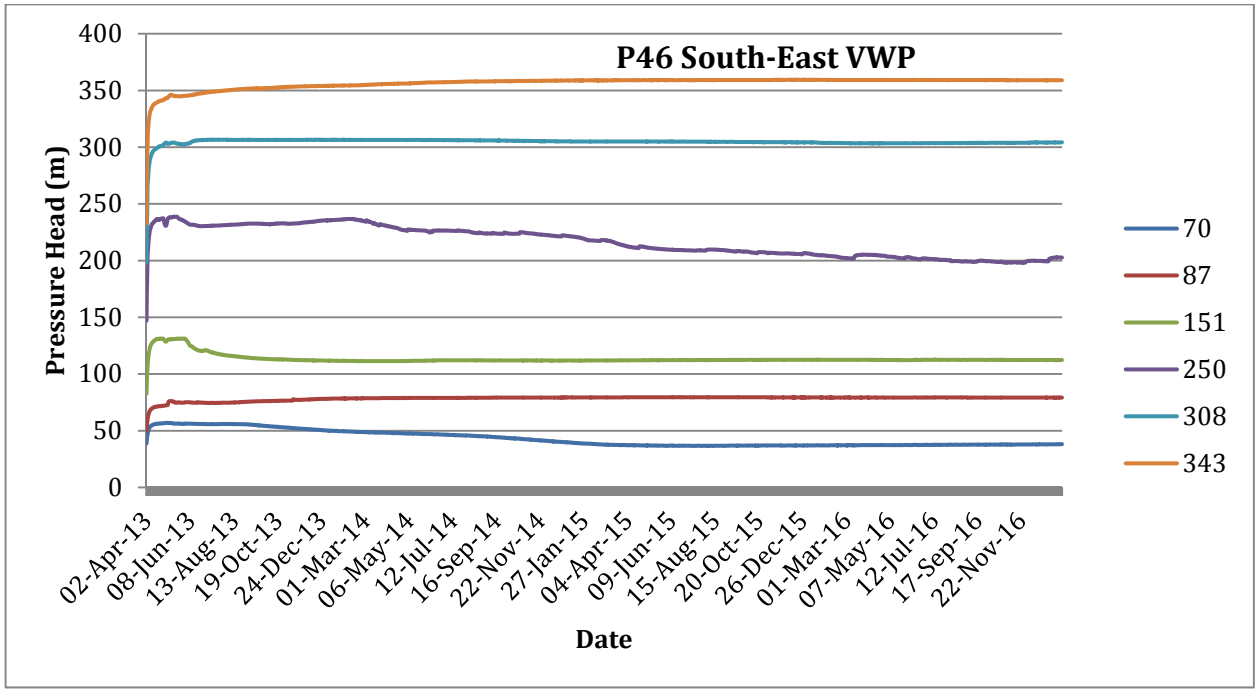
22-Jun-16
02-Sep-16
14-Nov-16
Date
42.5
80
150
200
240
276



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 or creek sampling occurred during December 2016 to February 2017 period.

Subsidence

Narrabri Mine has monitored the subsidence movement across the surface of LW101 to LW106 in accordance with the approved Extraction Plan. 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. Monitoring has been undertaken on the 11kv power line that traverses the southern end of LW101 to LW105, however, this line has now been decommissioned.

Longwall Panels (LW) 101 to LW106		
	Maximum Predicted Extraction Plan	Maximum Measured
Line 101 – Centre of LW101		
Subsidence (m)	2.69	2.633
Tilt (mm/m)	47	29.1 – 46.3
Tensile Strain (mm/m)	12.5 – 25^	8.7 – 20.7
Compressive Strain (mm/m)	16 – 32^	7.5 – 26.6
Angle of Draw (°, Degrees)	22.5 – 26.5	20.2
Line 102 – Centre of LW102		
Subsidence (m)	2.69	2.694
Tilt (mm/m)	45	43.7

Longwall Panels (LW) 101 to LW106		
	Maximum Predicted Extraction Plan	Maximum Measured
Tensile Strain (mm/m)	11.5 – 23^	20.5
Compressive Strain (mm/m)	15 – 30^	46.7
Angle of Draw (°, Degrees)	22.5 – 26.5	20.8
Line 103 – Centre of LW103 – Northern		
Subsidence (m)	2.75	2.729
Tilt (mm/m)	34	40.2
Tensile Strain (mm/m)	8 – 16^	18.8
Compressive Strain (mm/m)	10 – 20^	27.9
Angle of Draw (°, Degrees)	22.5 – 26.5	18.1
Line 103 – Centre of LW103 – Southern		
Subsidence (m)	2.75	2.575
Tilt (mm/m)	34	30.3
Tensile Strain (mm/m)	8 – 16^	9.3
Compressive Strain (mm/m)	10 – 20^	9.6
Angle of Draw (°, Degrees)	22.5 – 26.5	22.8
Line 104 – Centre of LW104 – Northern		
Subsidence (m)	2.75	2.794
Tilt (mm/m)	34	48.4
Tensile Strain (mm/m)	8 – 16^	42.6
Compressive Strain (mm/m)	20 – 40^	42.3
Angle of Draw (°, Degrees)	22.5 – 26.5	18.7
Line 104 – Centre of LW104 – Southern		
Subsidence (m)	2.75	2.690
Tilt (mm/m)	34	31.2
Tensile Strain (mm/m)	8 – 16^	8.1
Compressive Strain (mm/m)	20 – 40^	6.7
Angle of Draw (°, Degrees)	22.5 – 26.5	13.2
Line 105 – Centre of LW105 – Northern		
Subsidence (m)	2.75	2.663
Tilt (mm/m)	30	46.3
Tensile Strain (mm/m)	6.5 – 13	17.7
Compressive Strain (mm/m)	17 – 34	44.6
Angle of Draw (°, Degrees)	22.5 – 26.5	17.9
Line 105 – Centre of LW105 – Southern		
Subsidence (m)	2.75	2.614
Tilt (mm/m)	30	30.3
Tensile Strain (mm/m)	6.5 – 13	7.5
Compressive Strain (mm/m)	17 – 34	6.1

Longwall Panels (LW) 101 to LW106		
	Maximum Predicted Extraction Plan	Maximum Measured
Angle of Draw (°, Degrees)	22.5 – 26.5	14.4
Line 106 – Centre of LW106 – Northern		
Subsidence (m)	2.75	2.497
Tilt (mm/m)	46	41
Tensile Strain (mm/m)	14 – 28	11.8
Compressive Strain (mm/m)	18 – 36	17.1
Angle of Draw (°, Degrees)	22.5 – 26.5	18.5
Line A – Cross Panel Survey Line		
Subsidence (m)	2.75	2.655*
Tilt (mm/m)	47	56.3*
Tensile Strain (mm/m)	12.5 – 25^	39.0*
Compressive Strain (mm/m)	20 – 40^	33.0*
Angle of Draw (°, Degrees)	22.5 – 26.5	24.2*
Line B – Pine Creek Tributary 1		
Subsidence (m)	2.75	2.589
Tilt (mm/m)	47	54.8
Tensile Strain (mm/m)	12.5 – 25^	13.1
Compressive Strain (mm/m)	20 – 40^	11.0
Gradient Change (%)	Up to 6	5.47
Line D – Pine Creek		
Subsidence (m)	2.75	2.809*
Tilt (mm/m)	47	45.5*
Tensile Strain (mm/m)	12.5 – 25^	10.7*
Compressive Strain (mm/m)	20 – 40^	15.2*
Gradient Change (%)	Up to 6	4.54*
Line E – Pine Creek Tributary 1 Crossline 1		
Subsidence (m)	2.44	1.013
Tilt (mm/m)	47	26.9
Tensile Strain (mm/m)	11 – 22^	9.2
Compressive Strain (mm/m)	14 – 28^	2.9
Line F – Pine Creek Tributary 1 Crossline 2		
Subsidence (m)	2.75	2.698
Tilt (mm/m)	47	59.1
Tensile Strain (mm/m)	12.5 – 25^	6.6
Compressive Strain (mm/m)	20 – 40^	22.5
Line G – Pine Creek Tributary 1 Crossline 3		
Subsidence (m)	2.75	1.419
Tilt (mm/m)	47	29.2

Longwall Panels (LW) 101 to LW106		
	Maximum Predicted Extraction Plan	Maximum Measured
Tensile Strain (mm/m)	12.5 – 25^	12.0
Compressive Strain (mm/m)	20 – 40^	11.9

* - 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 recent complete longwall panel, i.e. LW106, indicate:

- The maximum subsidence measurements for the northern and southern monitoring lines in LW106 were within the predicted value of 2.75 m with a maximum measured value of 2.497 m.
- The maximum tilt measurements recorded for LW106 were within the predicted value of 46 mm/m with a maximum measured value of 41 mm/m.
- The maximum tensile strain measurements for LW106 were within the predicted value of 28 mm/m with a maximum measured value of 11.8 mm/m.
- The maximum compressive strain measurements for LW106 were within the predicted value of 36 mm/m with a maximum measured value of 17.1 mm/m.

The centreline subsidence results for LW101 to LW106 indicate that the Garrawilla Volcanics and Basalt Sill have not reduced subsidence through spanning behaviour.

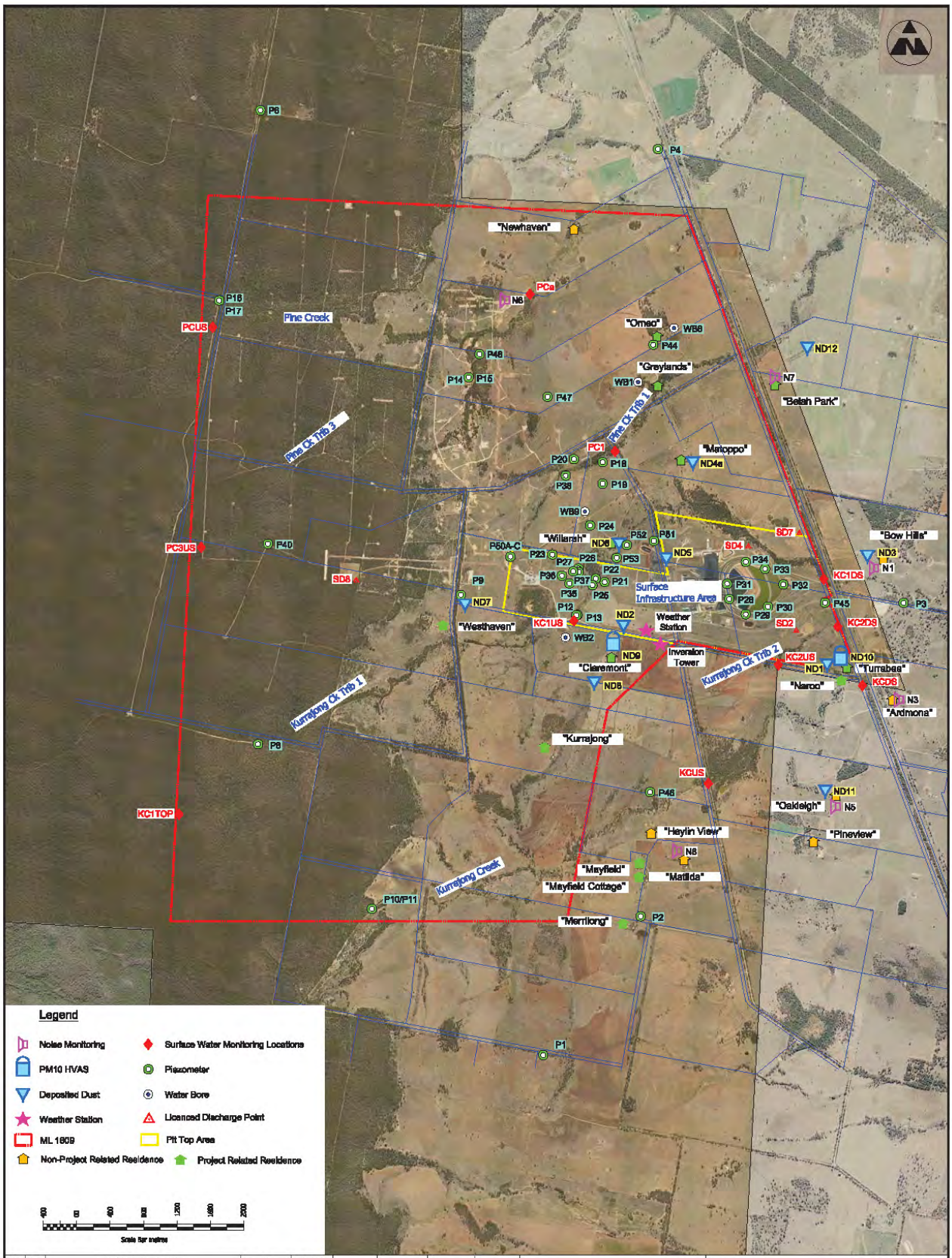
The maximum subsidence is also considered closer to 63% of the average mining height of 4.3m. The subsidence predictions have been updated as part of the latest modification and are included in the above table.

Complaints

Four formal complaints were received during the period December 2016 to February 2017. All four were in relation to dust. Three dust complaints were actioned at the time of the complaint with additional sprays activated or the tripper moved to the fixed chutes. One of the dust complaints related to dust in general with no specific date/time noted.

Environmental Incident(s)

No environmental incidents occurred during the December 2016 to February 2017 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	Rev 8

Current Environmental Monitoring Locations

WHITEHAVEN COAL

NARRABRI MINE

Narrabri Mine Community Consultative Committee Meeting Minutes

Meeting No: 37

Date: Wednesday 21st June 2017

Time: 3:00pm (Site Tour), 4:05pm Meeting

Location: Site tour followed by meeting at the Narrabri Mine Site Office

Present: Russell Stewart (RS) – Independent Chairman
Rodney Dunlop (RD)
Peter Webb (PW)
Geoff Hunter (GH)
Ron Campbell (RC) – Narrabri Shire Council Representative
Steve Bow (SB) – Narrabri mine General Manager
Dave Ellwood (DE) – Narrabri Mine Technical Services Superintendent
Steve Farrar (SF) – Narrabri Mine Environmental Superintendent

1. APOLOGIES

James Stieger, Mark Foster and Kirsten Gollogly.

2. DECLARATION OF PECUNIARY OR OTHER INTERESTS

RC declared one of his businesses contracts to the Narrabri Mine.

3. PREVIOUS MINUTES

Moved: GH Seconded: PW

3.1 SITE TOUR

RS and GH attended a site tour with DE and SF. The tour took in the coal handling area, box cut and subsidence areas over longwall panels LW101 to LW105, including the ponding area in LW101.

3.2 BUSINESS ARISING FROM PREVIOUS MINUTES

SF went through a presentation on the regional air quality monitoring network. RD asked if the 28 air quality monitors were just Whitehaven and SF explained that they were all of the mine industry monitors in the region. GH asked about the real-time data being available on a website which SF explained. GH asked how long this has been going for with the EPA and SF said he wasn't sure but a while.

DE updated the committee on the exploration program. DE explained for the next meeting he will present the next FY drilling locations most of which should be in the forest. GH asked if these were the 30 exploration holes which DE explained that they are but we will also have approx. 20 new ones generally confined to the State Forest. RC asked when we will be finishing the ones we were held up on and DE explained while it has pushed the program back the new ones will just roll on once the old ones are finished. RD asked about the new licence to the north-west and DE explained there isn't any update and is still under determination by the Government. GH stated he thought we already had the licence to the north-west but DE said we don't but we made the application about 4 months ago with no clear timeline on when it will be determined.

4. GENERAL BUSINESS

4.1 OPERATIONS PROGRESS REPORT

The operations update was provided as follows:

Mine Progress Report (to 31 May 2017)

Coal produced (t):	May 2017	706,691
	FY-to-date	6,492,112
Coal Railed (t):	May 2017	587,388
	FY-to-date	6,216,961
Average workforce numbers (May 2017):		
	NCO	Waged – 139
		Salary – 116
		Total – 255
	Contractors	Total – 116
Safety Update (FY to May 2017):		
	Lost Time Injury (LTI)	4
	Days LTI Free:	75
	Total Recordable Injuries:	18
	Planned Task Observations:	5,593
	Take 5 Assessments:	80,232
	Work Hours (May-17):	109,704

SB went through the operations report. RC asked about the type of injuries we report and SB explained the different levels of injury and how they are tracked for example those people injured who can't return to their next scheduled shift on their normal duties. RC asked about the extra 100m on the longwall which SB explained and that the new electrical upgrade is working well. RS said the mine needs to string a few good years together and SB explained the price of coal is staying up but China drive the world market. RS said the fed's are talking about closing down a couple of power stations and SB said it won't change our market but they are replacing 35 year old technology which needs an update. RC stated that coal mines are built to service a power station in the domestic market, which SB confirmed. SB asked RD about the mines he used to work at around Lithgow that feed power stations and that the price is a bit skinny and that they are built for each other and work well but it is older technology that needs to be updated. SB also explained that other countries are building new power stations that generate more power and pollute half of what we do. GH stated they are using our coal to do it as well. RD asked about the safety stats and asked if the Take 5 numbers are correct which SB explained that they are and we can do 9-10,000 a month. SB said we invest heavily in safety and this is one of the tools to keep people switched on especially for repetitive tasks.

SB went through the current cleanskin program. RS asked if we were getting much interest. DE explained that between October 2016 and March 2017 we had 1,775 applicants which were short listed down to Narrabri/Gunnedah shires. During February 5 were offered positions, March 3, April 44 were selected for assessment and in May 22 were selected for assessment. GH asked if these were just new people we needed and SB explained these are people that have never been in the industry before. GH asked if they are replacing existing people and SB explained that while we have a lot of local people our contract workforce comes mainly from the Hunter Valley and if there was a job closer to home they up and leave especially given the coal price going up, which means our people turn over goes up. SB said we have a tough selection process because it has to be but we are starting new people this week. Once they start you have to invest about 12 months in them. SB said we are advertising again a bit further afield to try and attract trades, electricians and fitters, as they are hard to get as the pool is small, but event then there is more training to do such as hydraulic and intrinsically safe courses. SB said our contractors are also bringing in clean skins as well. RS asked about how many come from the Narrabri Shire and SB said he could find out. RS said he wondering what sort of quality could be provided from the Shire. GH mentioned the trade centre. RS explained that Council is doing a study for a regional training centre and things like skill sets required for the mines could be considered in the study. SB stated that in terms of trades its electricians and fitter/mechanics that the mine is after and SF said that his doesn't mean someone with another trade wouldn't be considered. RC stated it is like engineers because there are a lot of different engineering types but they have skills and mind sets that can adapt very easily. SB said you have to have the right trade and gave an example of electrical engineers and the range of things they can do but we need heavy industry people exposed to high voltage work. SB said civil engineers are no good to us and RC asked about mining engineers. SB said we have a few onsite but we have just employed a senior mining

engineer. SB said we have around 9 or 10 apprentice's onsite at the moment which RC said was fantastic. RS asked about administration staff and would we advertise for them which SB confirmed that we would if there was a position. RS said he was pleased about the response from Whitehaven in relation to a day at the High School. RD said that mines are required by modern development consents to do social impact assessments which would include all of the numbers. RS said we can't put it all back on Whitehaven but we need to get this stuff in the study so we can respond to future requirements. GH asked how many people have been employed in the last 3 months and DE said he wasn't sure but it was around 20-30 people. GH asked if that was enough and SB said we are still going forward. GH asked what was the target and SB said it would be around 50-60 clean skins this year and we are probably about half way through that now. SB said when the coal price is up the reality is people from Newcastle want to go back there so we target local people so they stick around and that doesn't service the community. RC said it is an employment opportunity for locals and SB agreed. RS said he noticed Lucas Drilling ad's in local papers and DE said they do advertise for locals but they are also targeting trades.

4.2 ENVIRONMENTAL OVERVIEW

SF went through the environmental report.

GH asked about the types of noise and SF explained the compliance criteria which doesn't have a specific low frequency noise criteria. SF explained the monitoring periods and monitoring timeframes and that the report is for the worst 15 minutes recorded during the monitoring period. GH asked why some of the noise readings were non-applicable and SF explained the weather conditions under which the criteria do not apply because they would enhance the noise and are not representative of actual site noise. SF explained how the site measures temperature inversions conditions at the site.

GH asked about the environmental management plan for air quality and the requirement for continual improvement. SF explained the plan does require this and the EPA can add pollution reduction programs to the sites environmental protection licence as was the case for the stockpile sprays and fixed chute. GH asked if there were any programs planned for dust outside and SF said no we don't have a compliance issue it is more a visual issue and we'll keep doing what we are doing. SF explained the TARP that is in place which triggers the sprays to be used and this system is adequate. GH said he thinks the local perspective is that there are still dust issues and could we do more. SF said this is where it gets tricky because we comply so where do you stop. SB said we don't have specific activities underway now except for planting about 13,000 trees out the front of the mine which will help visually. RD stated that a recent fine for Maules Creek was more about not implementing measures in place and not the compliance criteria which shows a bit of a shift in their thinking. GH said you still see black coal dust on cars but not sure on what could be done.

GH asked about the subsidence modelling and what happens if you exceed the predicted levels. SF explained that if that happened you would have to consider the impact and if that increases from what was predicted, e.g. more ponding. SF also said the model has a 95% upper confidence limit so 5% of the results can be outside of the values predicted. SF said a good example are the trees that were killed in the first longwall panel which wasn't predicted to happen and the process that followed and these are now included in our offset calculations.

GH asked what was done in relation to the complaints and SF explained the actions taken following the complaints. GH asked about complaints for the mine lights and SF explained most light complaints are in relation to flashing lights on cars, which RD pointed out that you can be fined for, and lighting plants onsite positioned the wrong way but not the mine lights themselves.

GH said one comment he had from a local was in relation to gravel being taken down for drill pads and DE explained this was actually for driveway repair works to a neighbour to the south as part of an access agreement as we don't gravel exploration drill pads.

5. NEW BUSINESS

DE went through a presentation on the Narrabri South approval process to allow mining in the southern exploration area. GH asked why we would be applying for a mining lease while drilling is still ongoing and SB explained this is because of the timeframes associated with the approvals process and this needs to be started early. RD asked what coal seam is mined and DE advised it is the Hoskissons seam. GH asked if the impacts will be different and SB advised they will be similar to what we do now for noise and air quality as we are using the same infrastructure. RC stated that we are just replicating what we do now and SB said that's correct and then we will have the same activities that currently occur onsite such as gas drainage and subsidence but in terms of rail loops etc they stay the same. GH asked if we have to buy people in the mining lease and DE said no we can do it under an agreement. GH asked if we have any agreements for the current area and DE advised no. SB said the preference is to buy the farm. RS said there will be some people to talk to down there and DE went through the properties affected. RC asked if the farmers have been notified and DE said all but one. SB said we will start distributing information shortly that will be publicly available. GH asked if we would negotiate with anyone to buy properties until we get the approval as this will be the first question he will get, which SB confirmed and this could be 3-4 years. SF said there are other options but the preference would be to purchase properties. RS said the access agreements would be

tougher than straight purchase and GH said he didn't think people down there would want access agreements. DE said the preference is to purchase. RS asked if the new area is similar in size to the current mine and DE said slightly smaller. GH asked about more offsets and SF said there would be more offsetting requirements for the new area. GH asked if we access the State Forest and SF said we currently have an access agreement with State Forest. GH asked how much mining is in the current area to go and when would we be there and DE explained the current mine sequence would have the mine crossing the boundary around 2020/2021 for development and SB said around 2024 for the longwall. DE explained how the new area to the south may be joined with the current area to make one mining domain and RD said the development is the driver which SB confirmed.

6. NEXT MEETING

Wednesday 4th October 2017 at 4:00pm at the Narrabri Mine Site Office.

7. CLOSURE OF MEETING

Meeting closed at 5:25pm.

Narrabri Mine Community Consultative Committee Meeting #37

Environmental Monitoring Report: March – May 2017

Noise Monitoring

Attended noise monitoring was undertaken between Monday 27th to Wednesday 29th March 2017 (Tables 1 and 2) to verify if noise levels were within compliance limits. The 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	27/03/2017	<25	25	30	32	Day/Evening/Night LAeq,15minute: 35 dB Night LA1,1minute: 45 dB	Yes
N5 Oakleigh	28/03/2017	20	<20	24	33		Yes
N5 Oakleigh	29/03/2017	28	NA	NA	NA		Yes
N6 Newhaven	27/03/2017	<20	IA	20	24	Day/Evening/Night LAeq,15minute: 35 dB Night LA1,1minute: 45 dB	Yes
N6 Newhaven	28/03/2017	26	23	26	32		Yes
N6 Newhaven	29/03/2017	<30	IA	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 in red 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;*
5. *'IA' denotes inaudible.*

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	28/03/2017 13:47	1.7	D	-1.5	35	Yes	IA	Nil
N1 Bow Hills	28/03/2017 21:08	1.2	F	3.9	35	Yes	IA	Nil
N1 Bow Hills	28/03/2017 22:29	0.4	F	2.3	35	Yes	IA	Nil
N3 Ardmona	29/03/2017 14:23	2.4	B	-1.8	35	Yes	<30	Nil
N3 Ardmona	29/03/2017 21:00	4.7	E	0.9	35	No	26	NA
N3 Ardmona	30/03/2017 00:11	5.7	D	-0.8	35	No	<30	NA
N7 Merriman	29/03/2017 14:53	1.7	A	-1.9	35	Yes	IA	Nil
N7 Merriman	29/03/2017 21:25	3.1	E	0.6	35	No	IA	NA
N7 Merriman	29/03/2017 22:00	2.3	F	1.8	35	No	IA	NA
N8 Matilda	28/03/2017 13:09	2.2	A	-2.1	35	Yes	<25	Nil
N8 Matilda	28/03/2017 21:37	0.1	G	4.3	35	No	<20	NA
N8 Matilda	28/03/2017 22:00	0.6	F	3.2	35	Yes	<20	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 in red indicate exceedance of criteria (if applicable); and*

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

During the March 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 monitoring locations.

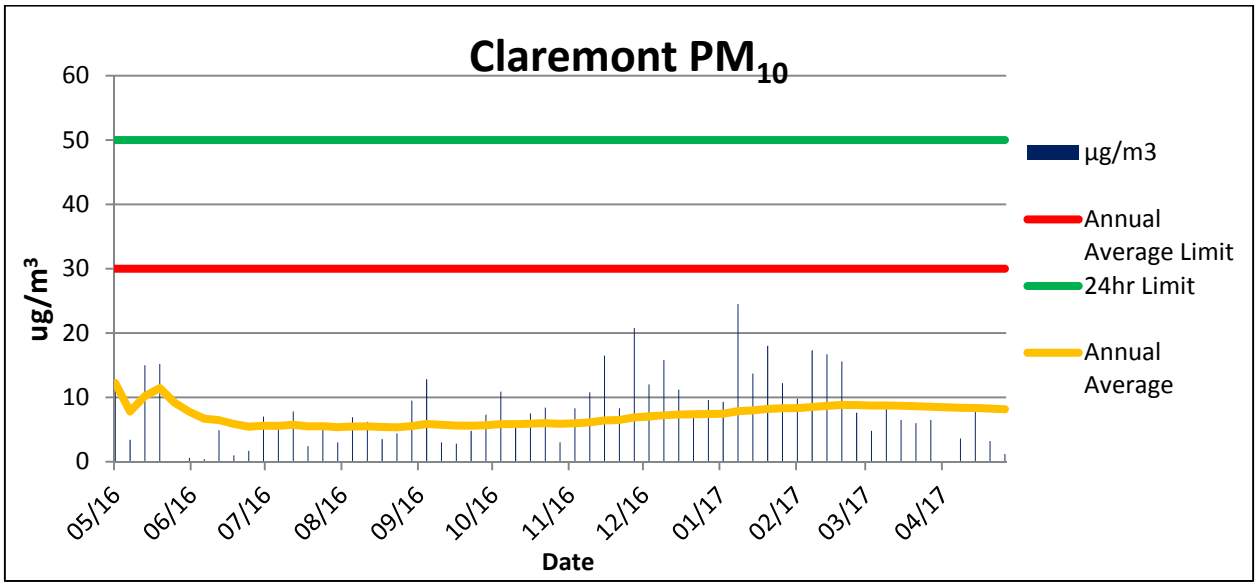
Deposited Dust Monitoring

Month	ND1 Turrabaa	ND2 Claremont	ND3 Bow Hills	ND4a New Matoppo	ND5 Claremont	ND6 Willarah	ND7 Claremont	ND8 Claremont	ND11 Oakleigh	ND12 Merriman
Jun-16	1.2	2.8	0.3	1.0	2.2	0.4	1.1	0.5	4.6	0.6
Jul-16	2.5	0.3	0.1	0.3	2.4	0.2	3.4	0.2	0.1	0.3
Aug-16	1.2	1.8	0.6	0.6	1.3	0.2	5.5	1.3	0.5	0.7
Sep-16	0.9	1.8	0.3	0.6	4.3	0.6	1.7	1.9	2.2	1.1
Oct-16	0.6	5.1	0.3	0.1	2.2	0.4	3.1	0.4	0.7	0.3
Nov-16	2.6	1.5	0.3	2.8	2.1	0.4	0.6	3.2	0.3	0.3
Dec-16	2.8	2.0	3.8	2.3	4.7	2.2	1.8	3.0	1.3	1.8
Jan-17	4.1	0.4	0.7	1.6	1.5	1.0	1.2	1.6	0.8	0.3
Feb-17	6.8	0.5	0.6	3.7	2.1	3.2	0.9	3.9	0.0	0.6
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
Annual Average	**2.9**	**1.6**	**0.8**	**1.3**	**2.3**	**0.9**	**1.9**	**1.7**	**1.2**	**0.7**

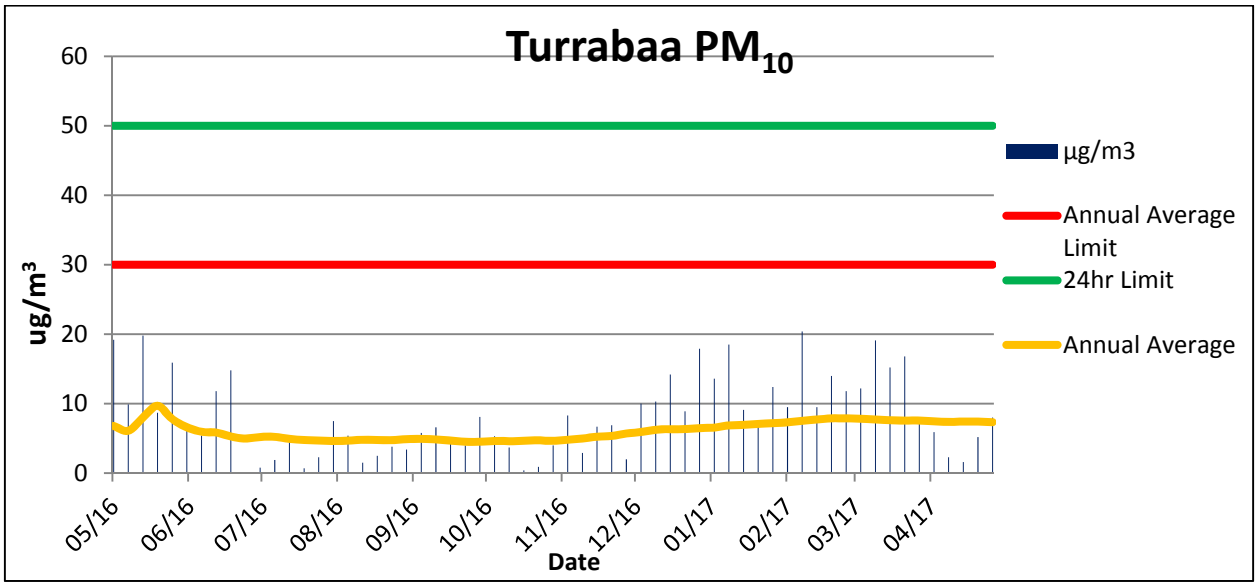
All deposited dust levels are within the compliance limit of 4 g/m^2/mth.

High Volume Air Sampling (PM10)

PM10 measurements taken to the end of April 2017 for the "Claremont" High Volume Air Sampler (HVAS) are returning a running annual average of 8.15 µg/m^3, which is well below the annual average limit of 30 µg/m^3.



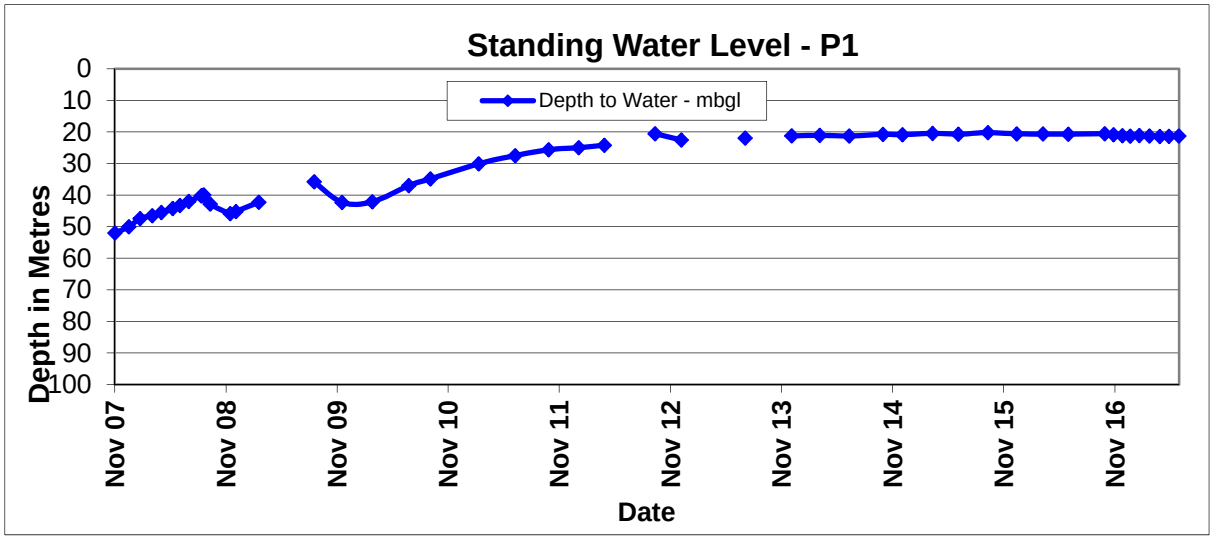
PM10 measurements taken to the end of April 2017 for the "Turrabaa" High Volume Air Sampler are returning a running annual average of 7.34 µg/m^3, which is also well below the annual average limit of 30 µg/m^3.

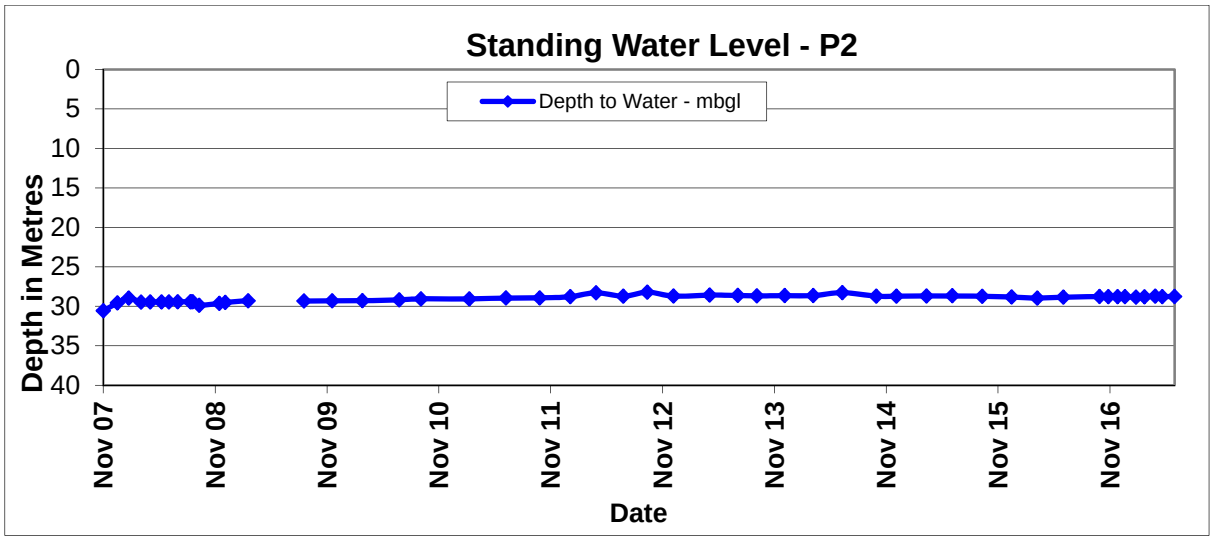


PM10 levels have remained compliant since the last meeting.

Groundwater Monitoring

Groundwater monitoring was completed in May 2017. Monitoring results are included below.

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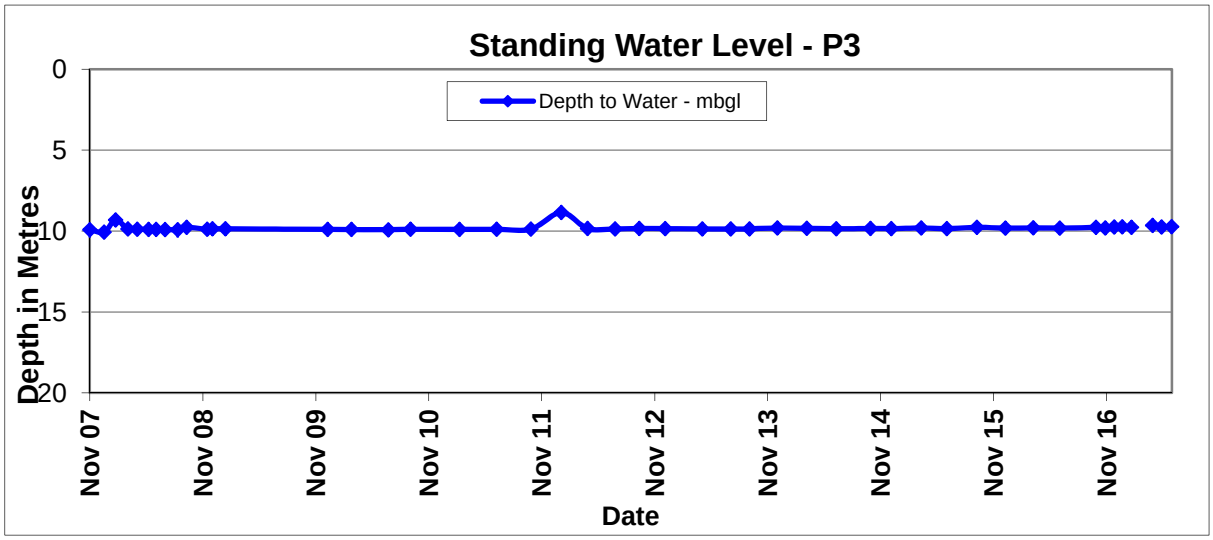
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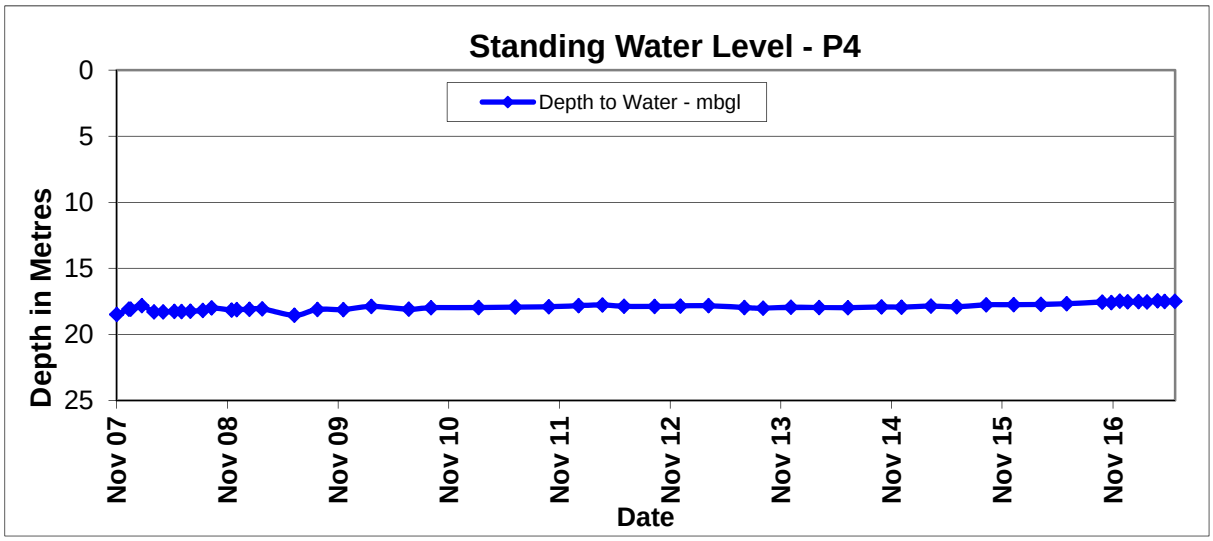
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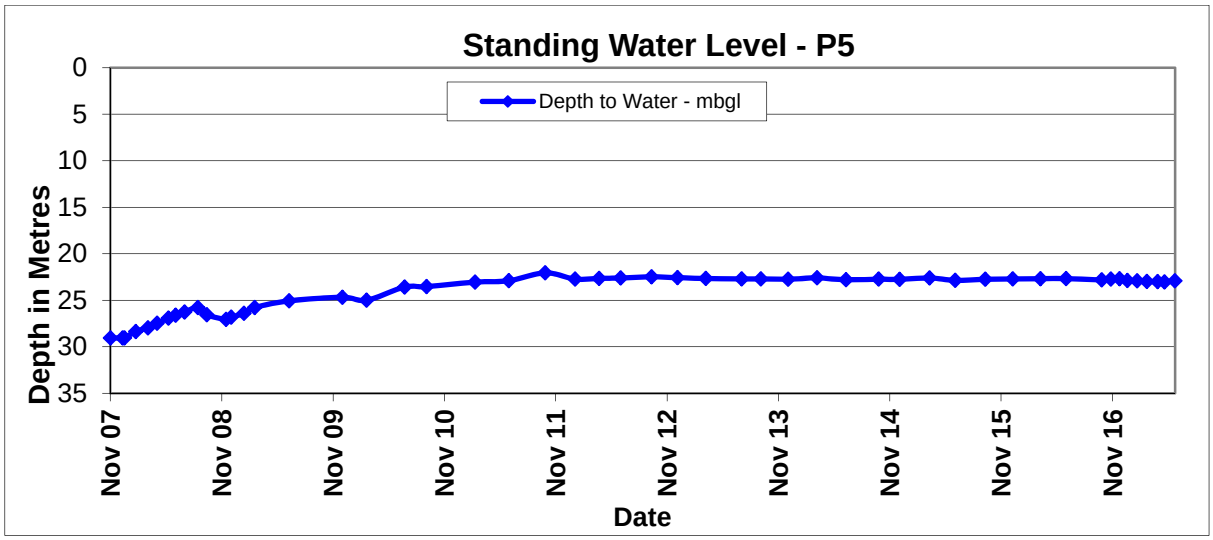
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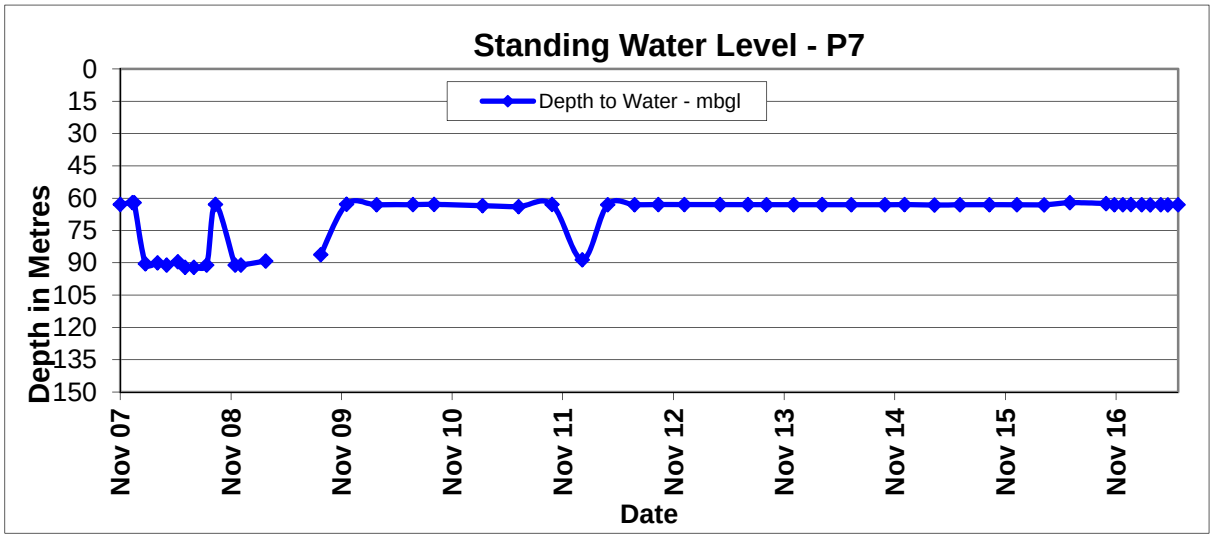
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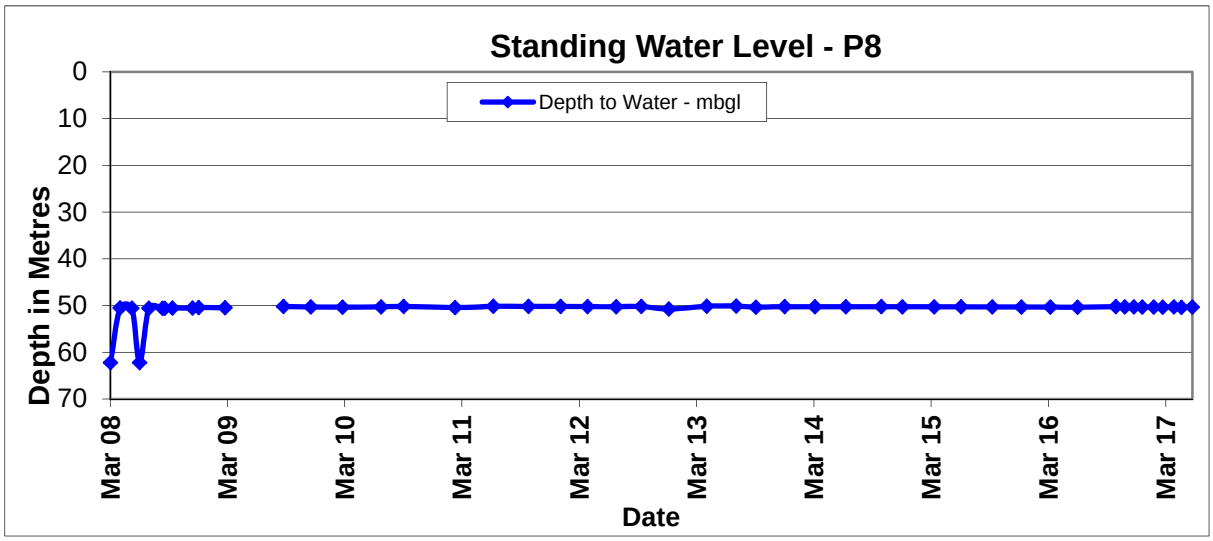
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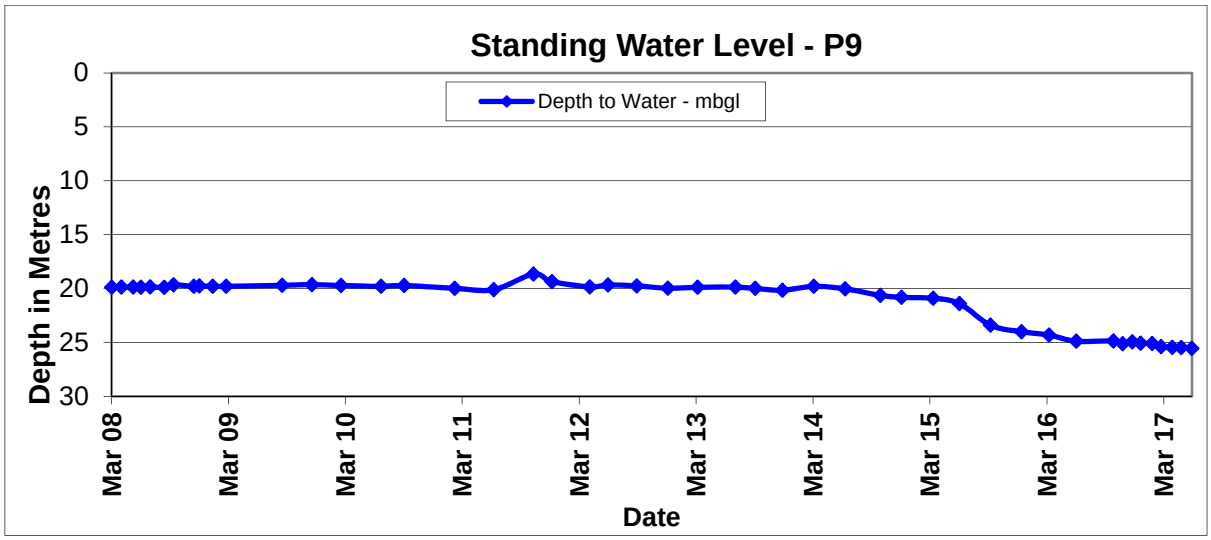
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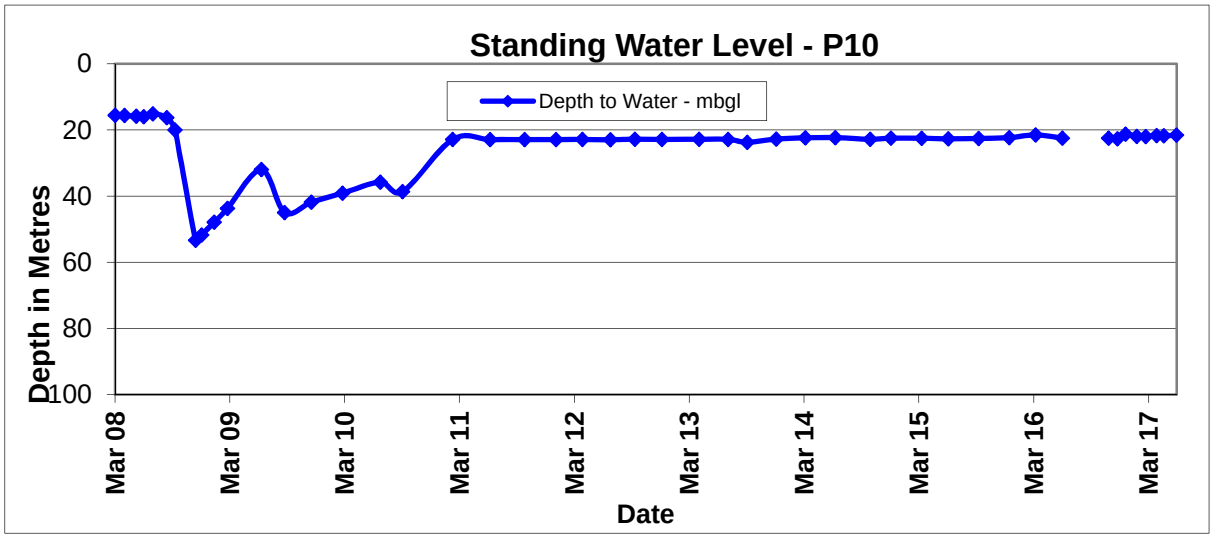
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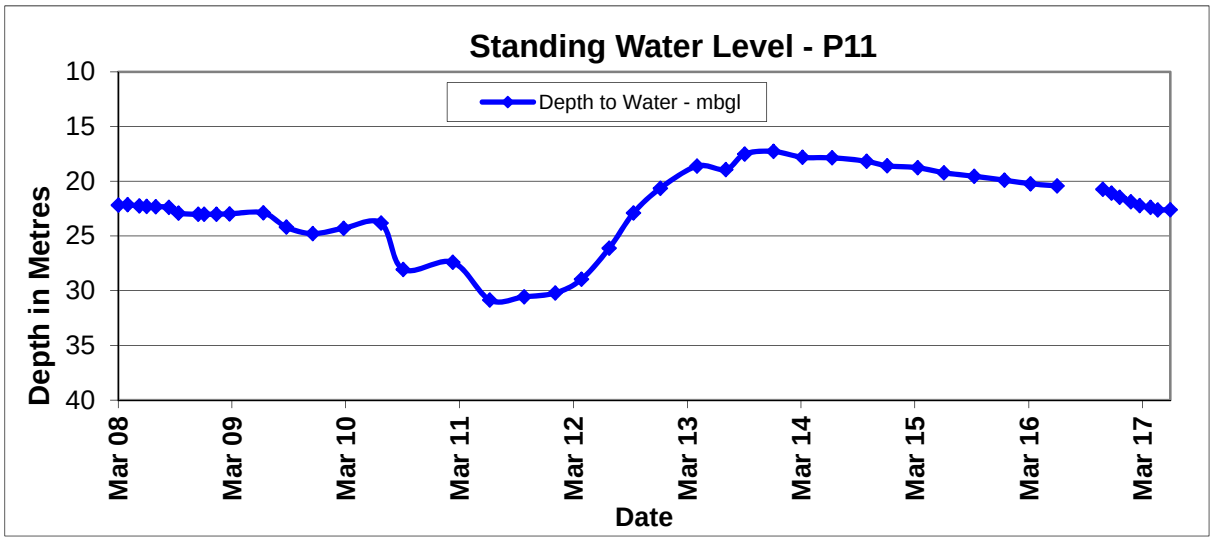
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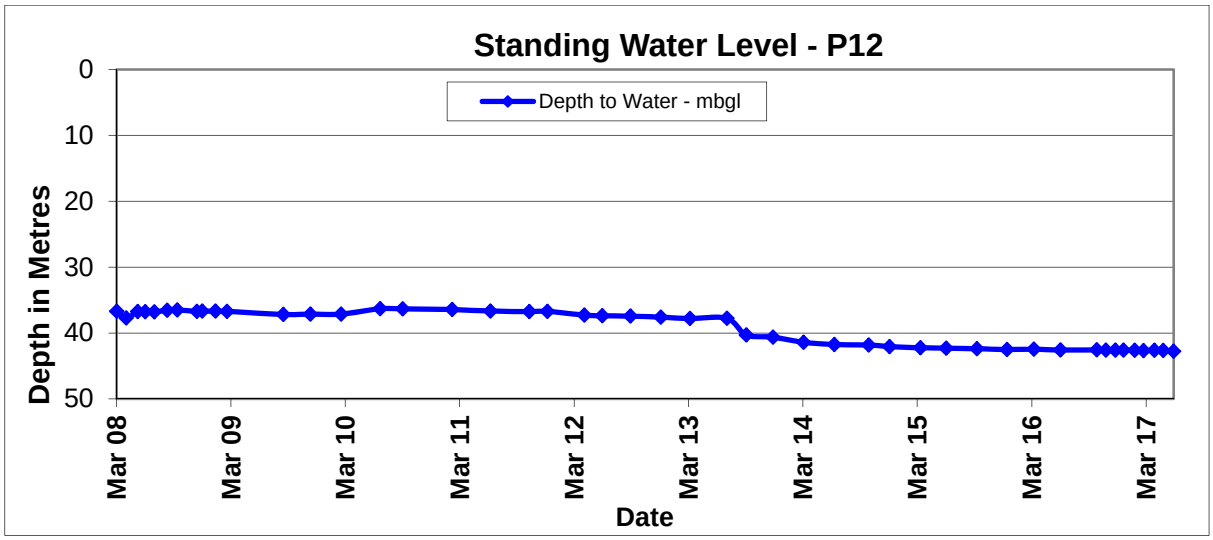
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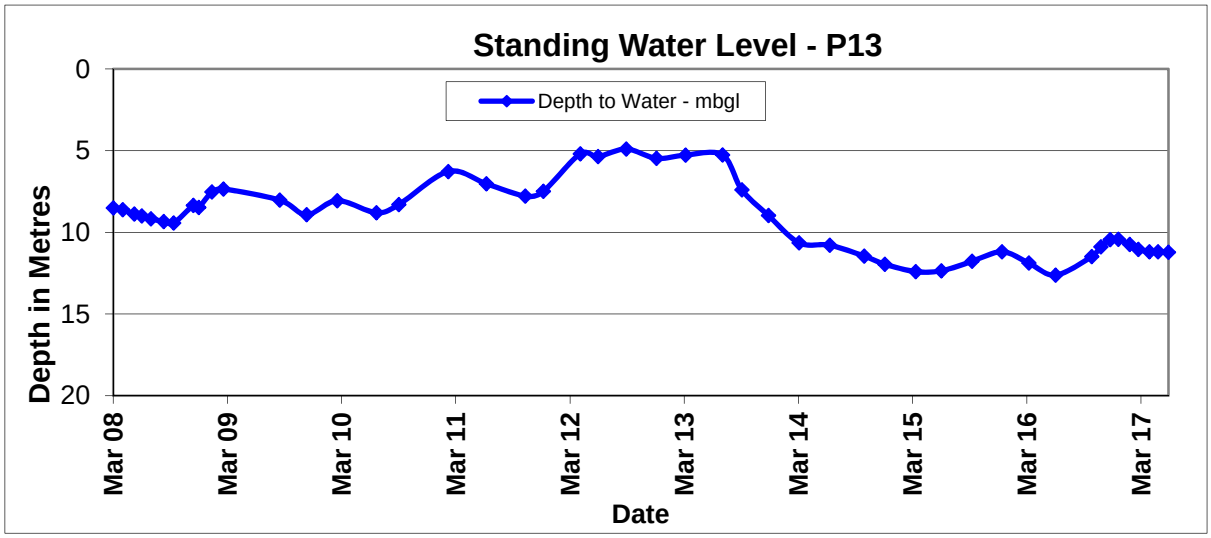
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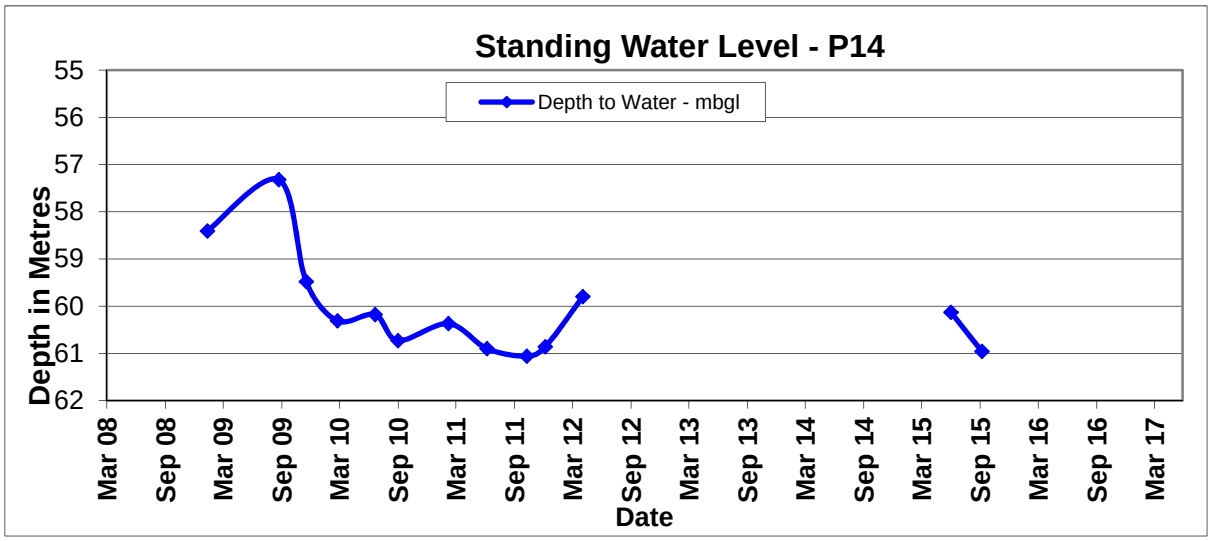
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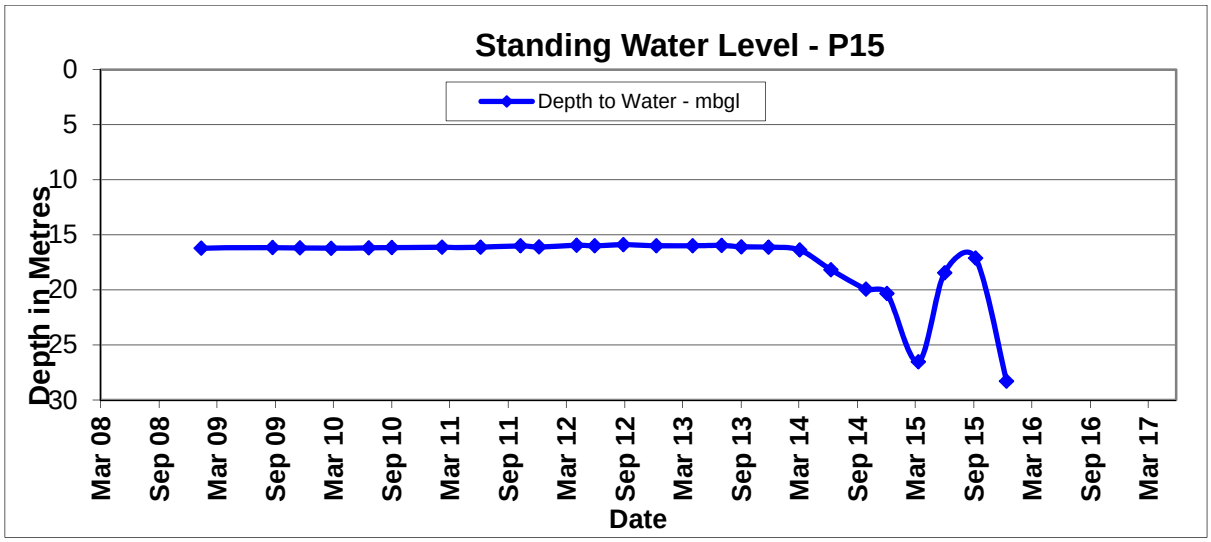
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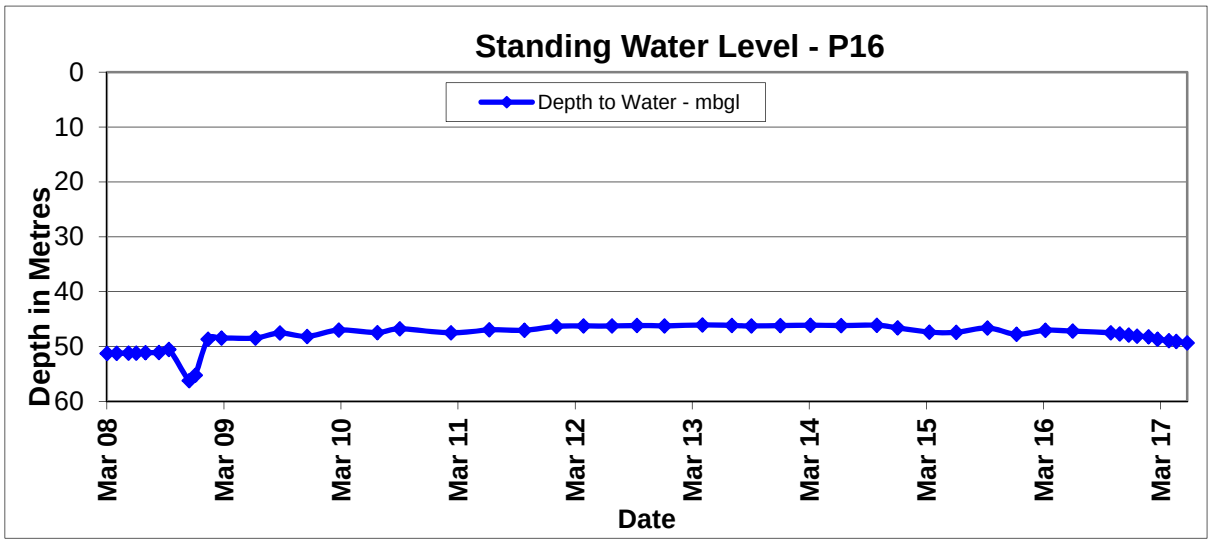
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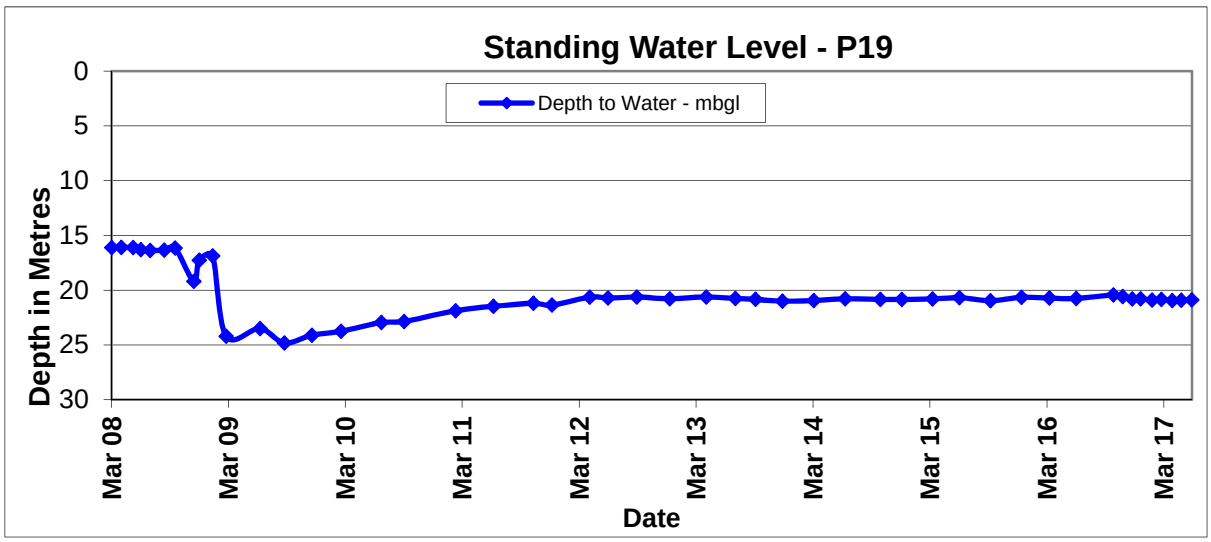
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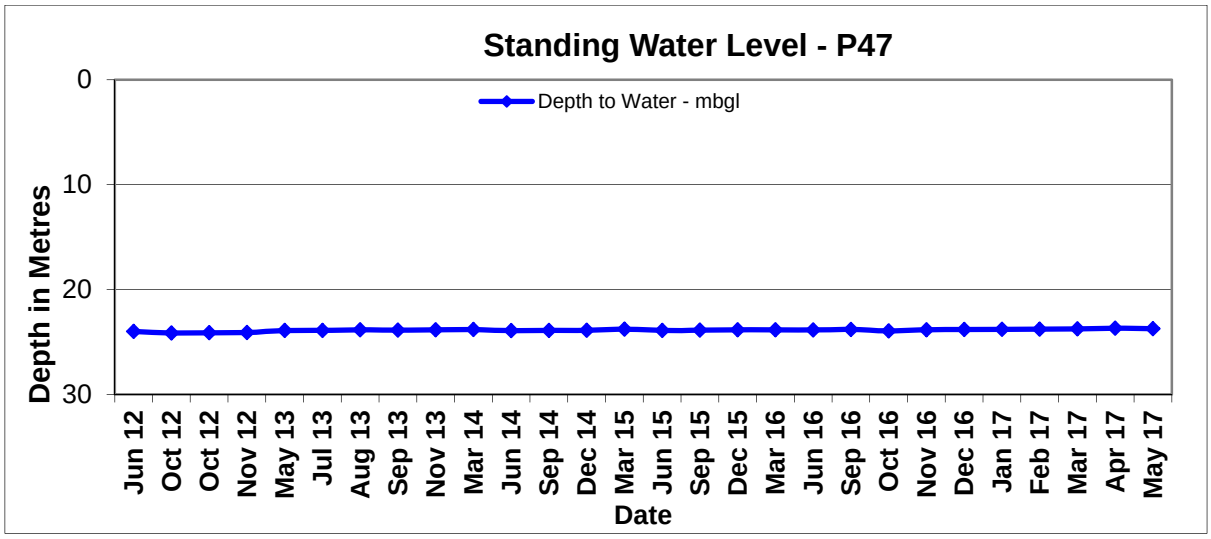
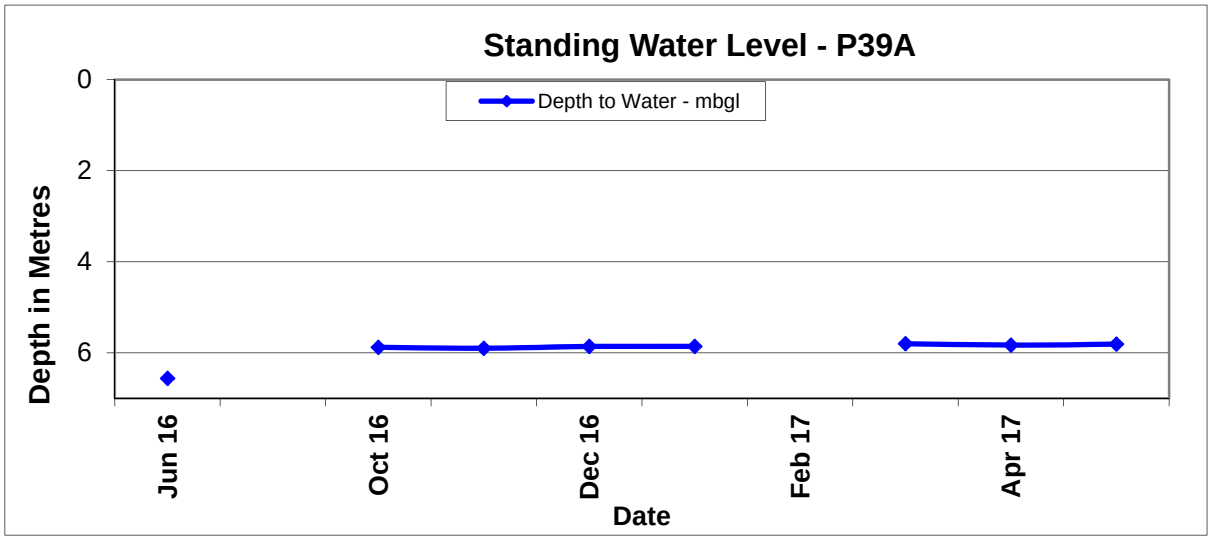
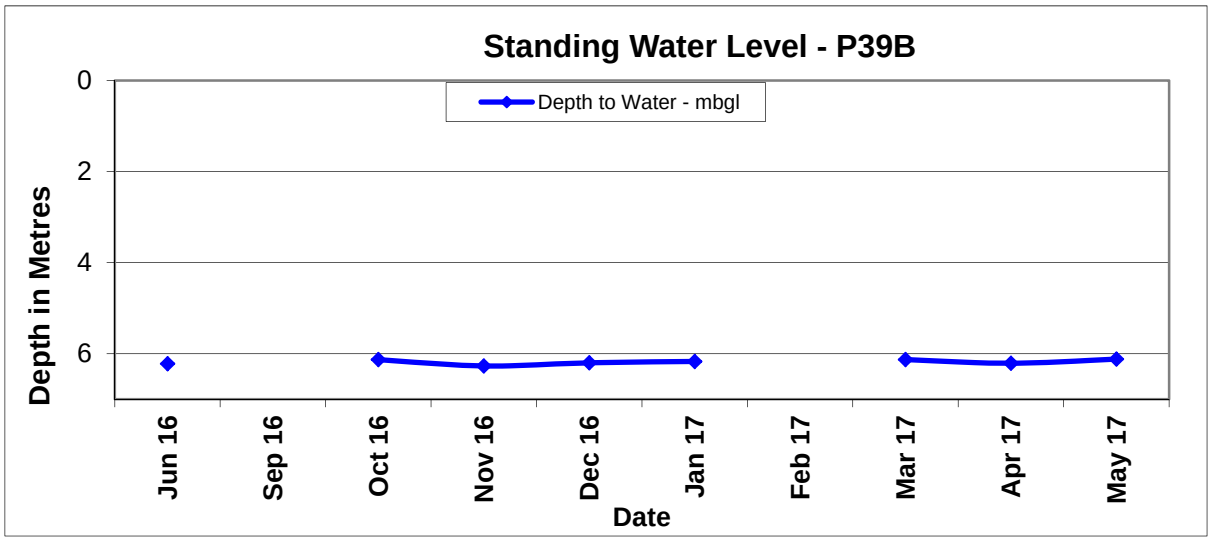
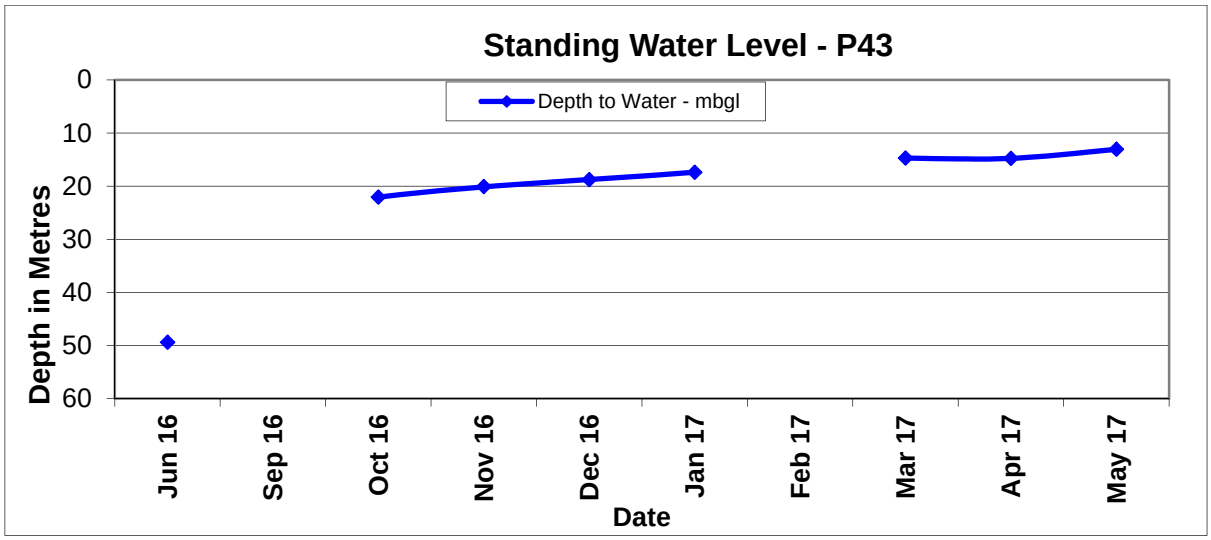
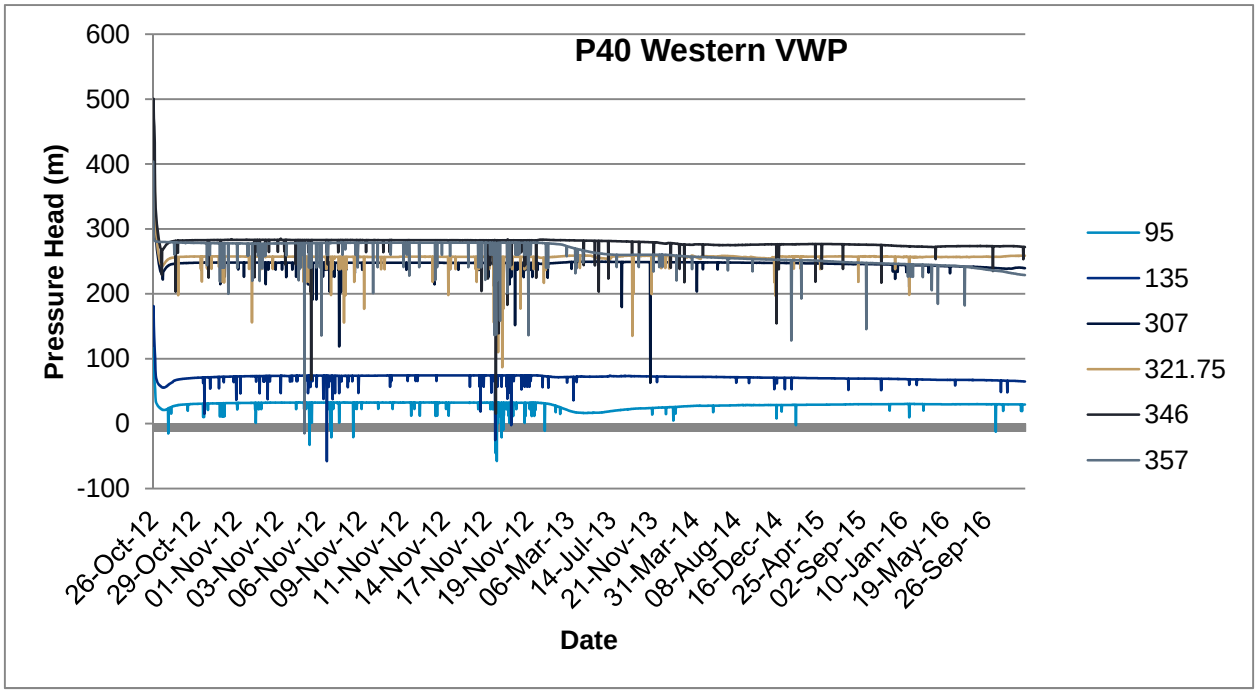
Mar 17
Date


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


P40 Western VWP
Pressure Head (m)
600
500
400
300
200
100
0
-100
26-Oct-12
29-Oct-12
01-Nov-12
03-Nov-12
06-Nov-12
09-Nov-12
11-Nov-12
14-Nov-12
17-Nov-12
19-Nov-12
06-Mar-13
14-Jul-13
21-Nov-13
31-Mar-14
08-Aug-14
16-Dec-14
25-Apr-15
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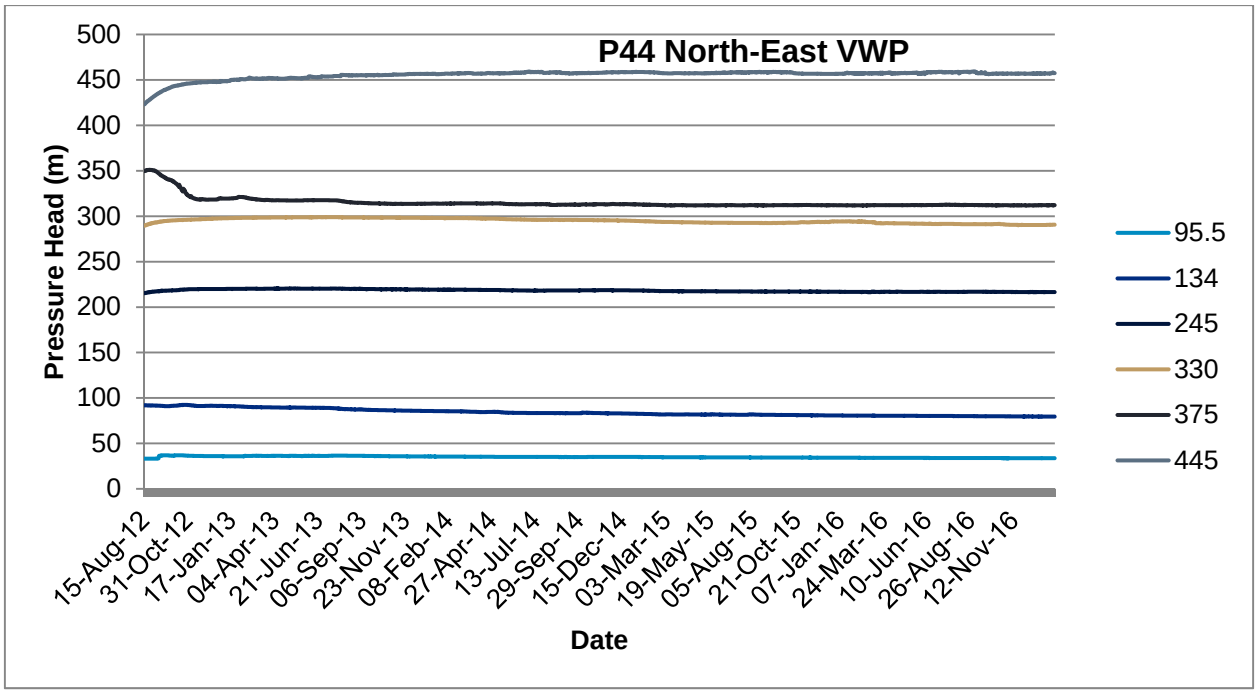
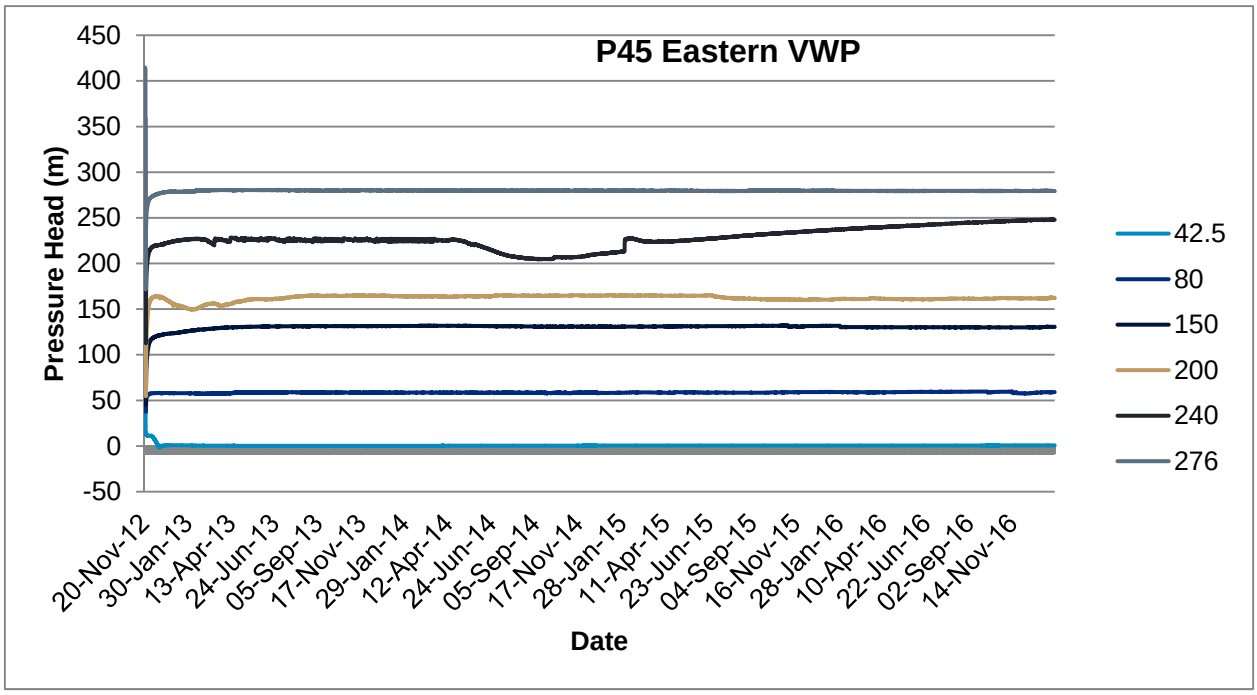
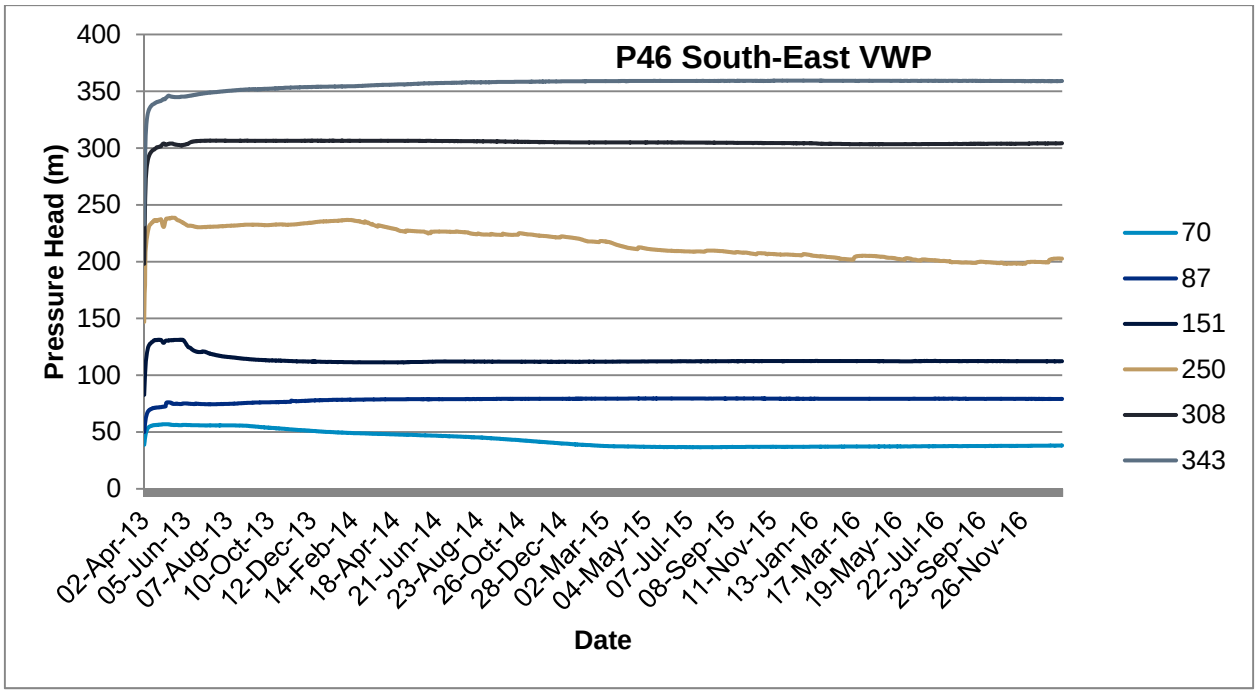
10-Jan-16
19-May-16
26-Sep-16
Date
95
135
307
321.75
346
357


P44 North-East VWP
Pressure Head (m)
500
450
400
350
300
250
200
150
100
50
0
15-Aug-12
31-Oct-12
17-Jan-13
04-Apr-13
21-Jun-13
06-Sep-13
23-Nov-13
08-Feb-14
27-Apr-14
13-Jul-14
29-Sep-14
15-Dec-14
03-Mar-15
19-May-15
05-Aug-15
21-Oct-15
07-Jan-16
24-Mar-16
10-Jun-16
26-Aug-16
12-Nov-16
Date
95.5
134
245
330
375
445


P45 Eastern VWP
Pressure Head (m)
450
400
350
300
250
200
150
100
50
0
-50
20-Nov-12
30-Jan-13
13-Apr-13
24-Jun-13
05-Sep-13
17-Nov-13
29-Jan-14
12-Apr-14
24-Jun-14
05-Sep-14
17-Nov-14
28-Jan-15
11-Apr-15
23-Jun-15
04-Sep-15
16-Nov-15
28-Jan-16
10-Apr-16
22-Jun-16
02-Sep-16
14-Nov-16
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 March to May 2017. For the same period, the surrounding creeks were sampled on one occasion: 14th March 2017.

Subsidence

Narrabri Mine has monitored the subsidence movement across the surface of LW101 to LW107 in accordance with the approved Extraction Plans. 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) 101 to LW107		
	Maximum Predicted Extraction Plan	Maximum Measured
Line 101 – Centre of LW101		
Subsidence (m)	2.69	2.633
Tilt (mm/m)	47	29.1 – 46.3
Tensile Strain (mm/m)	12.5 – 25^	8.7 – 20.7
Compressive Strain (mm/m)	16 – 32^	7.5 – 26.6
Angle of Draw (°, Degrees)	22.5 – 26.5	20.2
Line 102 – Centre of LW102		
Subsidence (m)	2.69	2.694
Tilt (mm/m)	45	43.7
Tensile Strain (mm/m)	11.5 – 23^	20.5
Compressive Strain (mm/m)	15 – 30^	46.7
Angle of Draw (°, Degrees)	22.5 – 26.5	20.8
Line 103 – Centre of LW103 – Northern		
Subsidence (m)	2.75	2.729

Longwall Panels (LW) 101 to LW107		
	Maximum Predicted Extraction Plan	Maximum Measured
Tilt (mm/m)	34	40.2
Tensile Strain (mm/m)	8 – 16^	18.8
Compressive Strain (mm/m)	10 – 20^	27.9
Angle of Draw (°, Degrees)	22.5 – 26.5	18.1
Line 103 – Centre of LW103 – Southern		
Subsidence (m)	2.75	2.575
Tilt (mm/m)	34	30.3
Tensile Strain (mm/m)	8 – 16^	9.3
Compressive Strain (mm/m)	10 – 20^	9.6
Angle of Draw (°, Degrees)	22.5 – 26.5	22.8
Line 104 – Centre of LW104 – Northern		
Subsidence (m)	2.75	2.794
Tilt (mm/m)	34	48.4
Tensile Strain (mm/m)	8 – 16^	42.6
Compressive Strain (mm/m)	20 – 40^	42.3
Angle of Draw (°, Degrees)	22.5 – 26.5	18.7
Line 104 – Centre of LW104 – Southern		
Subsidence (m)	2.75	2.690
Tilt (mm/m)	34	31.2
Tensile Strain (mm/m)	8 – 16^	8.1
Compressive Strain (mm/m)	20 – 40^	6.7
Angle of Draw (°, Degrees)	22.5 – 26.5	13.2
Line 105 – Centre of LW105 – Northern		
Subsidence (m)	2.75	2.663
Tilt (mm/m)	30	46.3
Tensile Strain (mm/m)	6.5 – 13	17.7
Compressive Strain (mm/m)	17 – 34	44.6
Angle of Draw (°, Degrees)	22.5 – 26.5	17.9
Line 105 – Centre of LW105 – Southern		
Subsidence (m)	2.75	2.614
Tilt (mm/m)	30	30.3
Tensile Strain (mm/m)	6.5 – 13	7.5
Compressive Strain (mm/m)	17 – 34	6.1
Angle of Draw (°, Degrees)	22.5 – 26.5	14.4
Line 106 – Centre of LW106 – Northern		
Subsidence (m)	2.75	2.497*
Tilt (mm/m)	46	41*
Tensile Strain (mm/m)	14 – 28	11.8*
Compressive Strain (mm/m)	18 – 36	17.1*
Angle of Draw (°, Degrees)	22.5 – 26.5	18.5*
Line 107 – Centre of LW107 – Northern		

Longwall Panels (LW) 101 to LW107		
	Maximum Predicted Extraction Plan	Maximum Measured
Subsidence (m)	2.75	2.633*
Tilt (mm/m)	44	28.0*
Tensile Strain (mm/m)	20	9.4*
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	2.655*
Tilt (mm/m)	47	56.3*
Tensile Strain (mm/m)	12.5 – 25^	39.0*
Compressive Strain (mm/m)	20 – 40^	33.0*
Angle of Draw (°, Degrees)	22.5 – 26.5	24.2*
Line B – Pine Creek Tributary 1		
Subsidence (m)	2.75	2.589
Tilt (mm/m)	47	54.8
Tensile Strain (mm/m)	12.5 – 25^	13.1
Compressive Strain (mm/m)	20 – 40^	11.0
Gradient Change (%)	Up to 6	5.47
Line D – Pine Creek		
Subsidence (m)	2.75	2.809*
Tilt (mm/m)	47	45.5*
Tensile Strain (mm/m)	12.5 – 25^	10.7*
Compressive Strain (mm/m)	20 – 40^	15.2*
Gradient Change (%)	Up to 6	4.54*
Line E – Pine Creek Tributary 1 Crossline 1		
Subsidence (m)	2.44	1.013
Tilt (mm/m)	47	26.9
Tensile Strain (mm/m)	11 – 22^	9.2
Compressive Strain (mm/m)	14 – 28^	2.9
Line F – Pine Creek Tributary 1 Crossline 2		
Subsidence (m)	2.75	2.698
Tilt (mm/m)	47	59.1
Tensile Strain (mm/m)	12.5 – 25^	6.6
Compressive Strain (mm/m)	20 – 40^	22.5
Line G – Pine Creek Tributary 1 Crossline 3		
Subsidence (m)	2.75	1.419
Tilt (mm/m)	47	29.2
Tensile Strain (mm/m)	12.5 – 25^	12.0
Compressive Strain (mm/m)	20 – 40^	11.9

* - 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. LW107 northern line, indicate:

- The maximum subsidence measurements were within the predicted value of 2.75 m with a maximum measured value of 2.633 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 9.4 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.

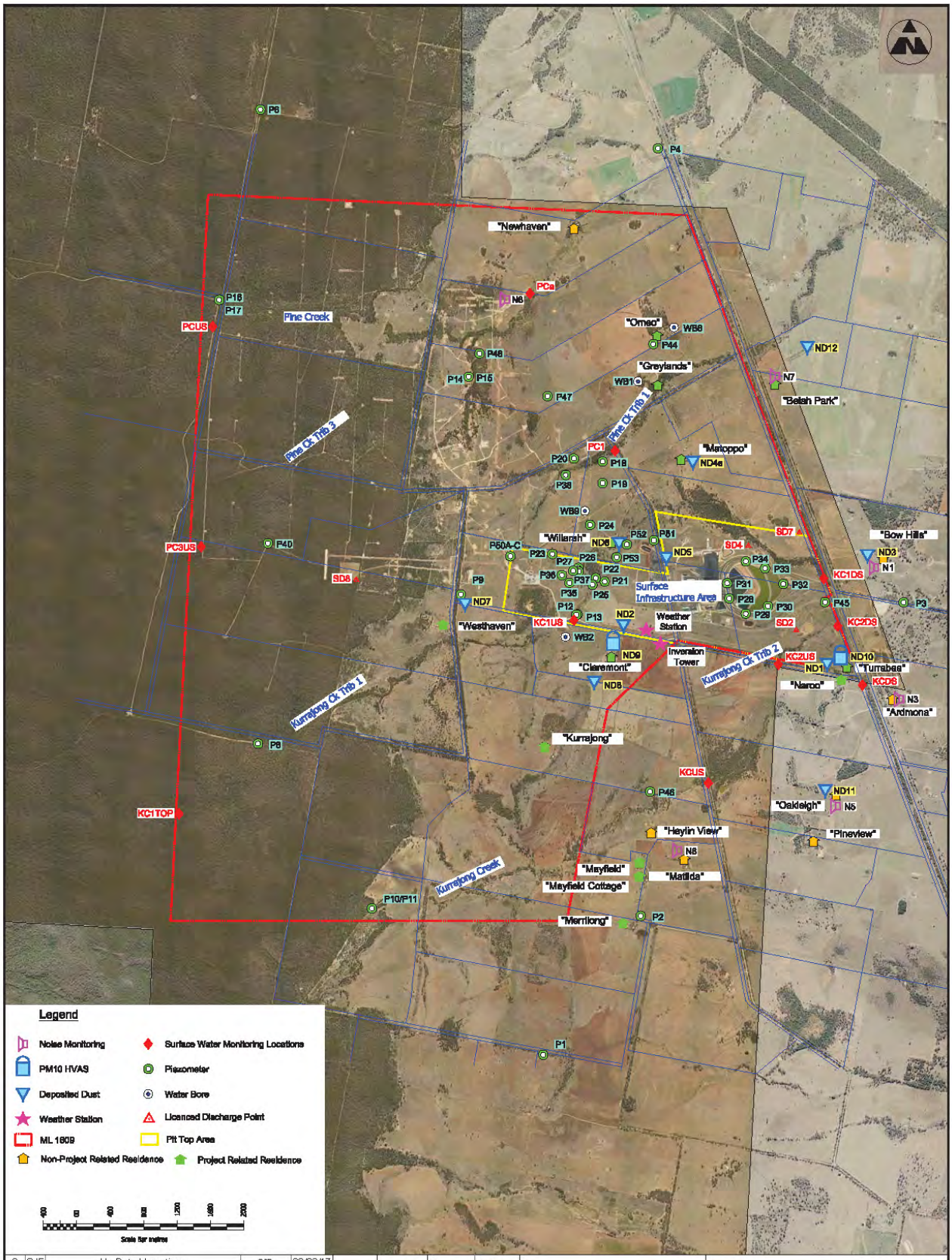
The maximum subsidence is also considered closer to 63% of the average mining height of 4.3m. The subsidence predictions have been updated as part of the latest Extraction Plan and are included in the above table.

Complaints

Six formal complaints were received during the period March to May 2017. Three were in relation to noise, two were in relation to dust and one was in relation to lights. The noise complaints were investigated at the time and were affected by environmental factors, e.g. wind and inversion conditions. The dust and light complaints were actioned at the time.

Environmental Incident(s)

No environmental incidents occurred during the March to May 2017 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: 38

Date: Wednesday 4th October 2017

Time: 4:05pm Meeting

Location: Narrabri Mine Site Office

Present: Russell Stewart (RS) – Independent Chairman
Rodney Dunlop (RD)
Peter Webb (PW)
James Stieger (JS)
Mark Foster (MF)
Tony Welbourne (TW) – Global Acoustics
Steve Bow (SB) – Narrabri mine General Manager
Dave Ellwood (DE) – Narrabri Mine Technical Services Superintendent

1. APOLOGIES

Ron Campbell, Geoff Hunter and Steve Farrar.

2. DECLARATION OF PECUNIARY OR OTHER INTERESTS

None.

3. PREVIOUS MINUTES

Moved: RD Seconded: PW

3.1 BUSINESS ARISING FROM PREVIOUS MINUTES

DE gave an update on the cleanskin program with 5 intakes and a sixth to occur soon employing 35 people. DE explained where they are from. MF asked how many in total and SB explained applications were in the hundreds. JS asked how many were knocked out and SB said he wasn't sure but the mine is after a particular mine set and attitude, which includes a psych test. RD asked if that is replacing people that have left or new jobs and SB explained a bit of both but more people are required onsite. JS asked if they are on drill rigs and SB explained no those are contractors but they are looking locally as well. JS asked when you do the next round and SB explained it can be done in parallel. RS said it was good to see locals wanting to work at the mine and MF asked if we retest the people onsite and SB explained no. DE explained the type of people (ages, time in industry) that are more likely to get hurt according to the stat's. SB explained there is a lot more technology available these days as well which can help as people grow up with it. RS said an agriculture program has been developed and they have looked at marks not necessarily attitude in the past but this is now changing.

DE gave an update on the exploration program. JS asked about the seismic program and DE explained the process with shot firing and another one was done using a vibrating truck. JS asked about the results and DE explained that the coal is not as good to the south, there is a seam split, seam thins and ash content increases. DE explained the holes to date are confirming this trend. RS asked about the agreements and DE explained mining is 10 years down the track. RS asked about access and SB explained the current status. MF asked about rehab and DE explained the process for rehabbing the exploration boreholes. JS asked about the north-western lease and DE explained that there is no change as there has been no feedback from the Government as yet. JS asked about the location and DE explained it is basically due north.

TW from Global Acoustics gave a presentation on noise. RS asked about individual humans being able to hear different frequencies and gave an example of a high frequency noise he and a couple of others could hear but others couldn't and TW said that's correct but you will lose that ability with age. JS asked about the sharp loud noise and RD gave the example of the dozer backing up and JS asked if that was cut out and TW explained no it used to be

but the L_{Aeq} accounts for that. JS asked about the background noise level and TW explained what this is and how it is determined. TW explained why high frequency noise doesn't travel far through things compared to low frequency noise and RS said he used play in bands and you could feel the bass in your back and TW explained how this works. RD asked about certain hertz and TW explained how the meter records the info and gives a statistical summary. RD asked about hearing the highway and TW said you will hear that and then sometimes you won't due to the weather. JS asked about noise going over his property as he was originally told and TW explained how the wind effects noise movement. RD said it is louder further away under inversions and TW said that's right as the noise can bypass features. RS said he has been in areas louder when they were further away from the source and TW explained how the inversions work and the hotter the day the less noise there should be. TW stated that clouds don't bounce noise and explained why that is. RD asked about mine's not wanting to blast on cloudy days due to noise and TW explained why that shouldn't be the case. SB asked about the inversions and TW explained how they work with a positive temperature change over height. JS said he can notice the temperature difference on different areas of his farm.

4. GENERAL BUSINESS

4.1 OPERATIONS PROGRESS REPORT

The operations update was provided as follows:

Mine Progress Report (to 31 August 2017)

Coal produced (t):	August 2017	703,812
	FY-to-date	1,396,422
Coal Railed (t):	August 2017	671,649
	FY-to-date	1,393,865
Average workforce numbers (August 2017):		
	NCO	Waged – 136
		Salary – 120
		Total – 256
	Contractors	Total – 177
Safety Update (FY to August 2017):		
	Lost Time Injury (LTI)	1
	Days LTI Free:	36
	Total Recordable Injuries:	4
	Planned Task Observations:	1,322
	Take 5 Assessments:	23,466
	Work Hours (May-17):	123,971

SB went through the operations report.

RS said he was impressed with Paul Flynn's talk at the awards. RS said it was interesting when he was talking about how to get investment into mining with the Government saying they will lock in the electricity price which locks in what companies can charge for the raw product. SB said it has been a good year for mining and Whitehaven with coal prices up. SB explained Vickery is the next project on the books. JS said they may have to back off going close to the river and SB said he wasn't sure of the detail. SB said the markets are good at the moment.

4.2 ENVIRONMENTAL OVERVIEW

DE went through the environmental report.

RD asked about the noise level increases relating to the exceedances which TW explained. TW also explained the 2dB allowance in the Industrial Noise Policy. JS asked about the resident where the exceedance was recorded and DE said he wasn't sure who it is.

RD asked about P15 and DE said we have mined through the area already. RD asked about the two dips and DE explained he thinks it is development and then longwall mining but he will get more information for the next meeting. MF asked about the complaint as he is the only one that lives on the road and DE said he would take it on notice as he is not sure.

5. NEW BUSINESS

DE handed RS a copy of the Annual Review. JS requested a copy as well.

RS talked about the country university site and Narrabri is in a good position and said it would be good for Whitehaven and the broader community by allowing training in the local area so people to have to leave. RD asked what universities they are and RS explained the universities involved. MF asked where it would be setup and RS explained where it could go as the TAFE may not be suitable. RS said he would be seeking a rep from Whitehaven for input. RS said it would be good to offer opportunities early, say Year 10, to keep young people in the area.

6. NEXT MEETING

Wednesday 6th December 2017 at 5:00pm at the Railway Hotel, Baan Baa.

7. CLOSURE OF MEETING

Meeting closed at 5:30pm.

Narrabri Mine Community Consultative Committee Meeting #38

Environmental Monitoring Report: June – August 2017

Noise Monitoring

Attended noise monitoring was undertaken between Monday 26th to Thursday 29th June 2017 (Tables 1 and 2) to verify if noise levels were within compliance limits. The 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	26/06/2017	IA	IA	<20	20	Day/Evening/Night LAeq,15minute: 35 dB Night LA1,1minute: 45 dB	Yes
N5 Oakleigh	27/06/2017	33	<25	**37**	**46**		No
N5 Oakleigh	28/06/2017	28	<25	IA	IA		Yes
N6 Newhaven	26/06/2017	<25	31	32	44	Day/Evening/Night LAeq,15minute: 35 dB Night LA1,1minute: 45 dB	Yes
N6 Newhaven	27/06/2017	31	IA	NM	33		Yes
N6 Newhaven	28/06/2017	34	33	**38**	42		No

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;*
5. *'IA' denotes inaudible.*

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	27/06/2017 17:10	1.5	E	1.2	35	Yes	IA	Nil
N1 Bow Hills	27/06/2017 18:26	1.6	E	1.2	35	Yes	IA	Nil
N1 Bow Hills	29/06/2017 23:52	1.5	E	0.6	35	Yes	33	Nil
N3 Ardmona	27/06/2017 16:48	2.0	E	1.0	35	Yes	IA	Nil
N3 Ardmona	27/06/2017 19:53	1.6	F	2.0	35	Yes	23	Nil
N3 Ardmona	28/06/2017 01:16	2.4	E	1.2	35	Yes	21	Nil
N7 Merriman	27/06/2017 17:35	1.3	E	1.4	35	Yes	<25	Nil
N7 Merriman	27/06/2017 18:02	1.0	E	1.2	35	Yes	IA	Nil
N7 Merriman	28/06/2017 01:40	2.4	E	0.6	35	Yes	32	Nil
N8 Matilda	27/06/2017 16:26	2.1	E	0.2	35	Yes	<30	Nil
N8 Matilda	27/06/2017 20:58	1.5	F	2.0	35	Yes	<30	Nil
N8 Matilda	29/06/2017 23:25	2.0	E	0.6	35	Yes	IA	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;*
7. *'IA' denotes inaudible; and*
8. *Night measurement could not be completed within 24 hours due to rain delays and was conducted during the next available night period at N1 and N8.*

During the August 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 with the exception of the following:

- 38dB(A) at the "Newhaven" residence (EPL ID N6).

  Please note other exceedances were recorded: 3 at "Newhaven"; and 3 at "Oakleigh" (EPL ID N5), however these results were within 2dB of the criteria and as such are not considered to be non-compliances in accordance with the Industrial Noise Policy. It should also be noted that monitoring at the Newhaven residence is not permitted and the identified level is a calculation based off of a measurement from the mine's boundary with Newhaven, which may not represent actual noise levels at the receiver.

The mine notified the landowner, EPA and Department of Planning and undertook additional monitoring in August 2017 at the residence, as permission was granted to enter the property, with no issues identified.

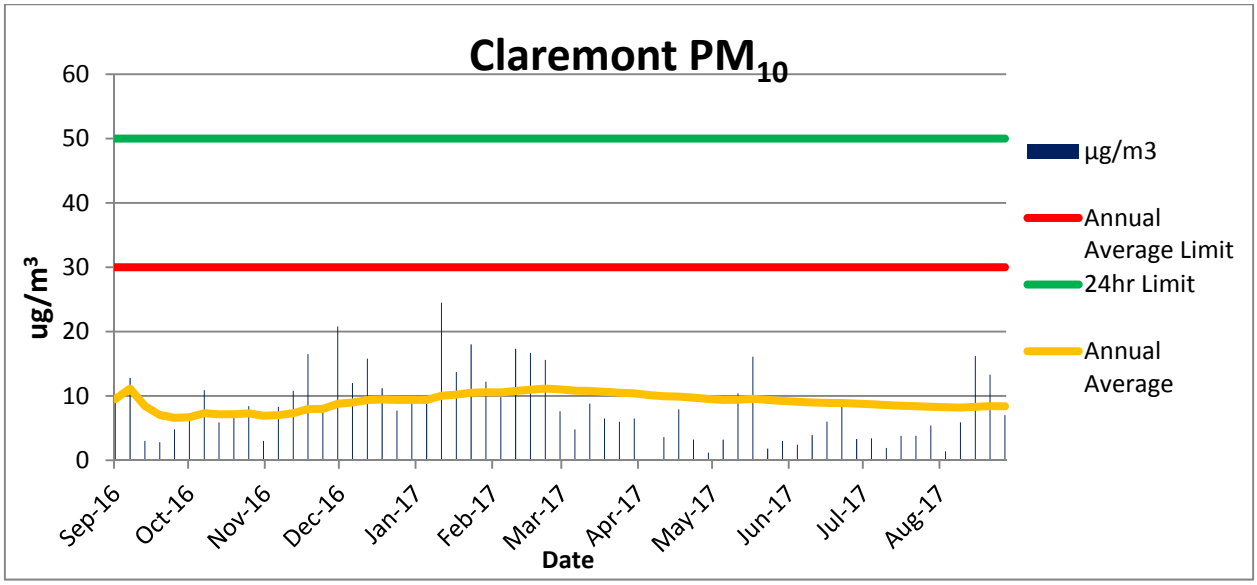
Deposited Dust Monitoring

Month	ND1 Turrabaa	ND2 Claremont	ND3 Bow Hills	ND4a New Matoppo	ND5 Claremont	ND6 Willarah	ND7 Claremont	ND8 Claremont	ND11 Oakleigh	ND12 Merriman
Sep-16	0.9	1.8	0.3	0.6	4.3	0.6	1.7	1.9	2.2	1.1
Oct-16	0.6	5.1	0.3	0.1	2.2	0.4	3.1	0.4	0.7	0.3
Nov-16	2.6	1.5	0.3	2.8	2.1	0.4	0.6	3.2	0.3	0.3
Dec-16	2.8	2.0	3.8	2.3	4.7	2.2	1.8	3.0	1.3	1.8
Jan-17	4.1	0.4	0.7	1.6	1.5	1.0	1.2	1.6	0.8	0.3
Feb-17	6.8	0.5	0.6	3.7	2.1	3.2	0.9	3.9	0.0	0.6
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
Annual Average	**3.1**	**1.7**	**1.2**	**1.5**	**2.4**	**1.3**	**1.5**	**1.9**	**0.8**	**1.2**

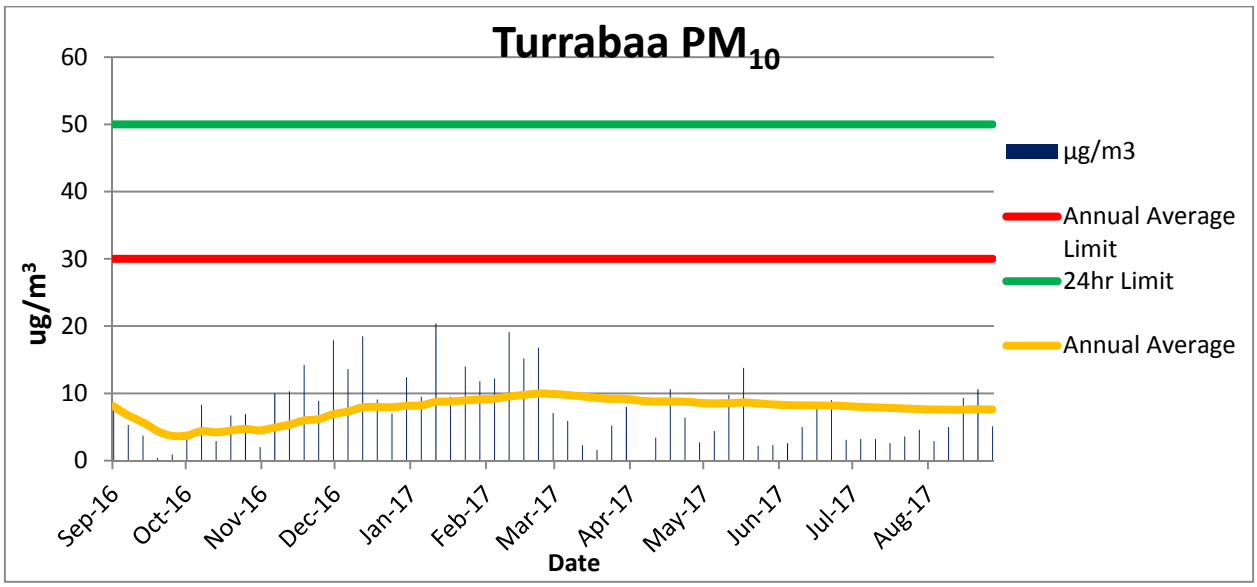
All deposited dust levels are within the compliance limit of 4 g/m^2/mth.

High Volume Air Sampling (PM10)

PM10 measurements taken to the end of August 2017 for the "Claremont" High Volume Air Sampler (HVAS) are returning a running annual average of 8.37 µg/m^3, which is well below the annual average limit of 30 µg/m^3.



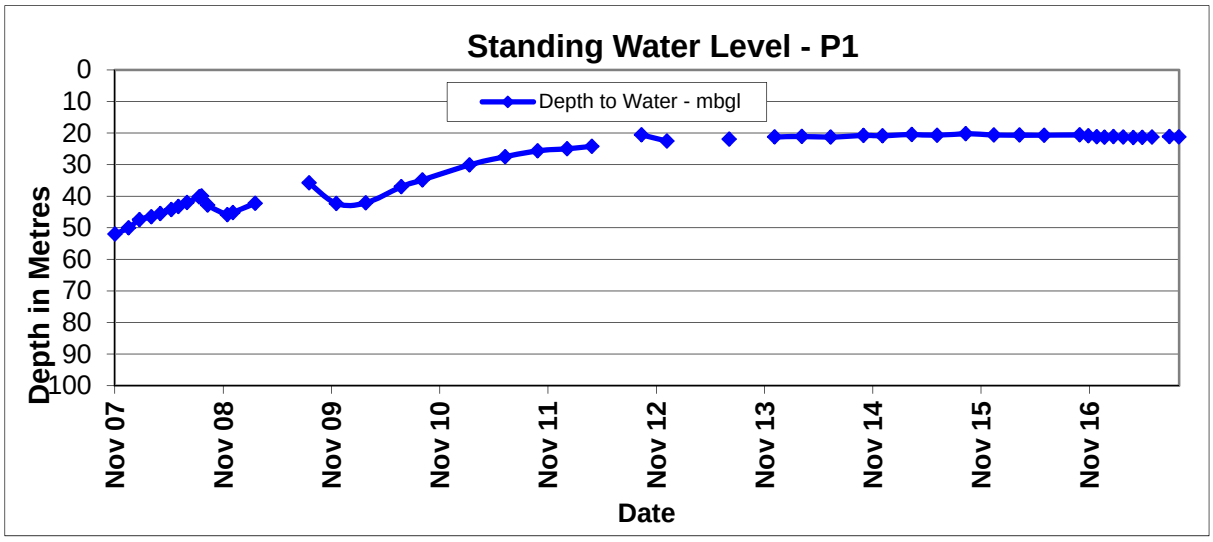
PM10 measurements taken to the end of April 2017 for the "Turrabaa" High Volume Air Sampler are returning a running annual average of 7.59 µg/m^3, which is also well below the annual average limit of 30 µg/m^3.

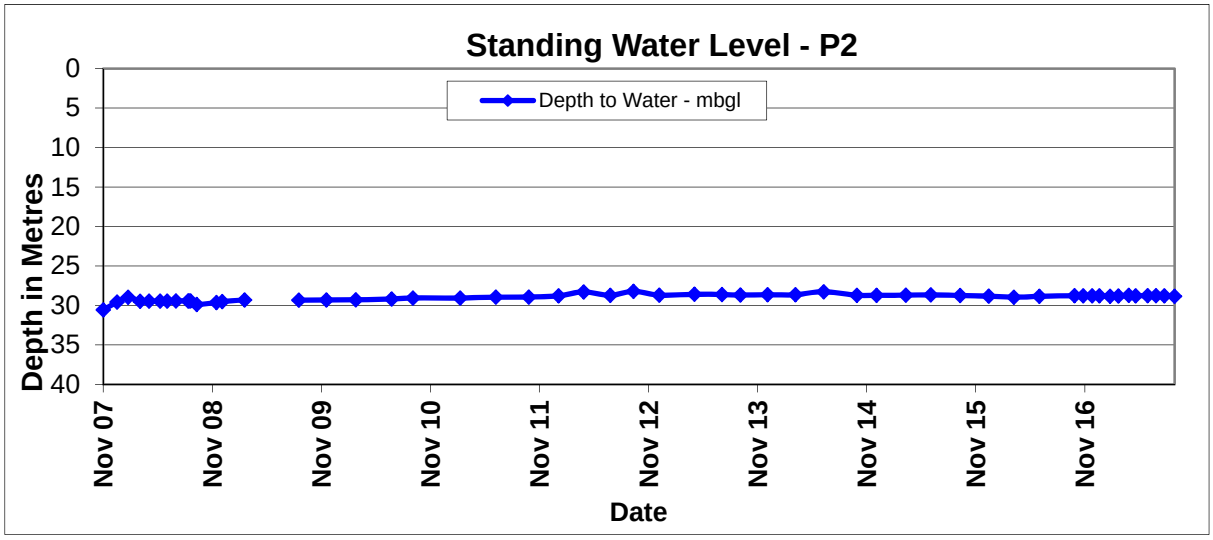


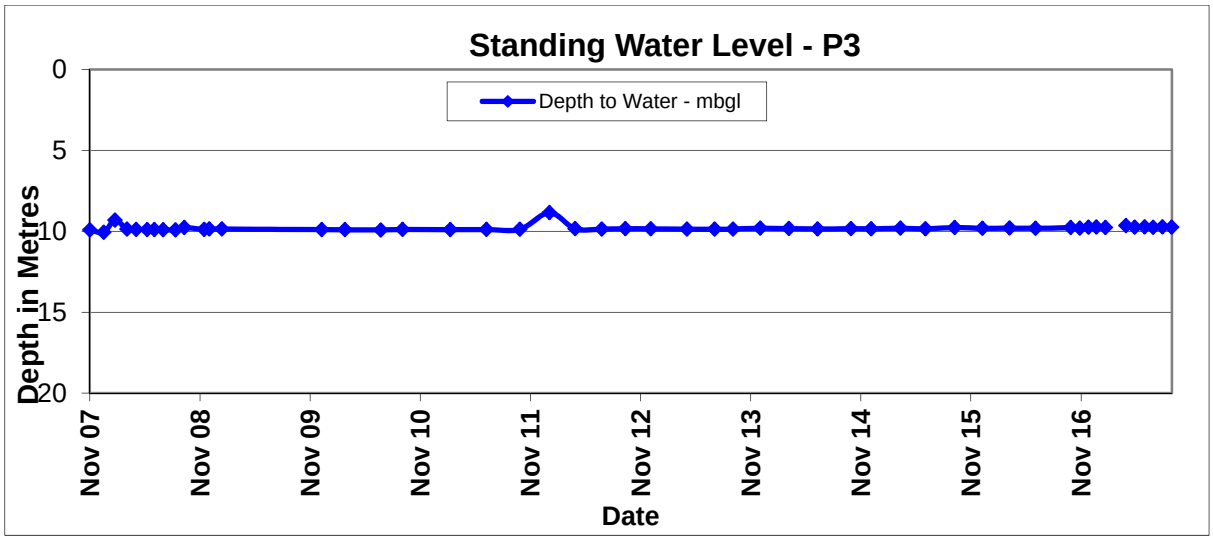
PM10 levels have remained compliant since the last meeting.

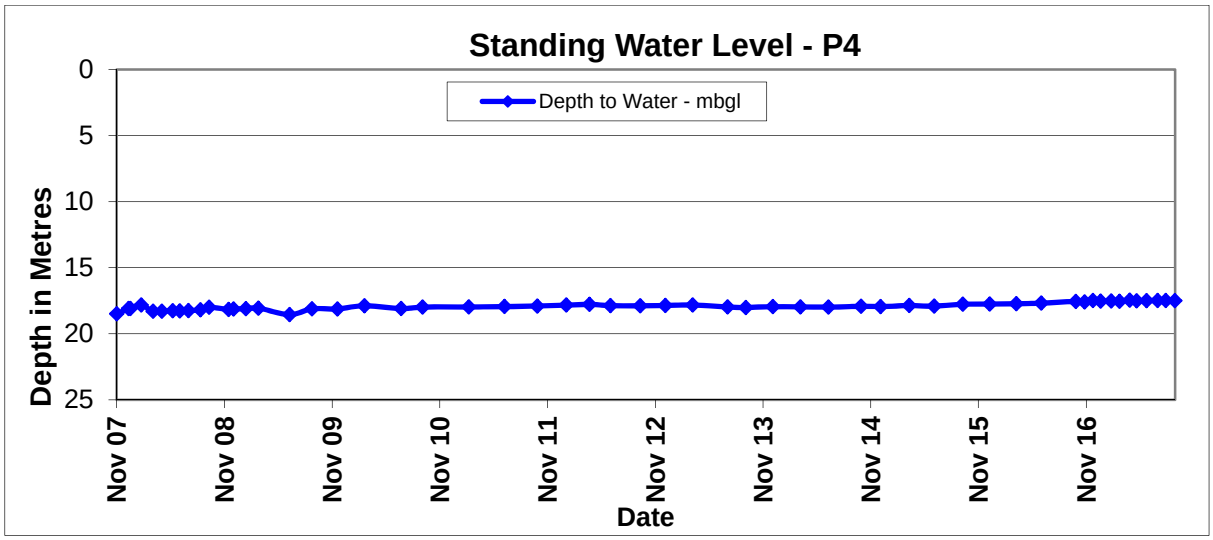
Groundwater Monitoring

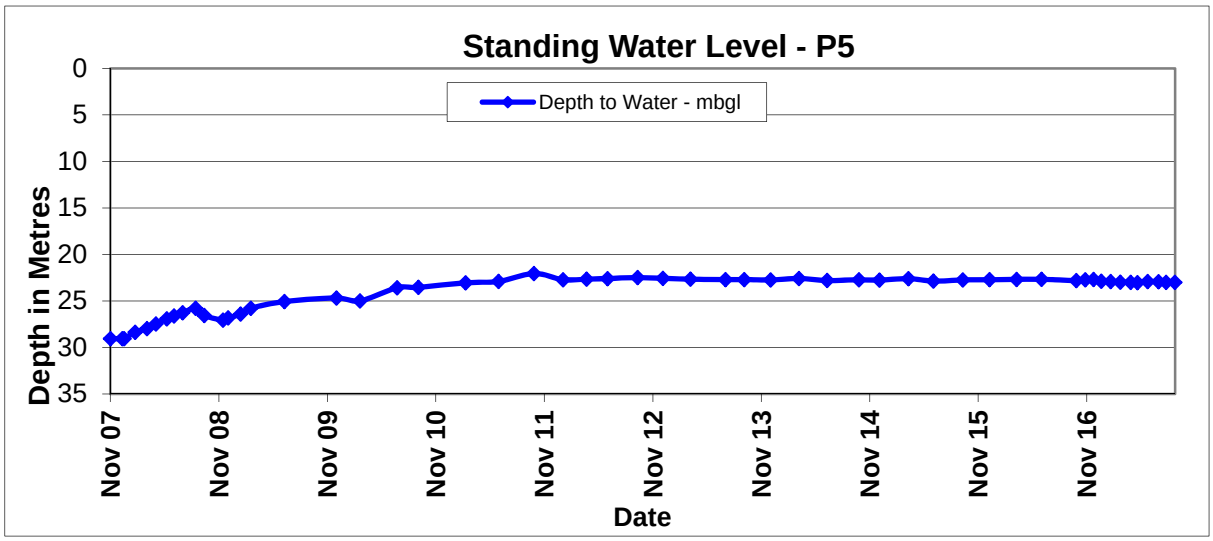
Groundwater monitoring was completed in August 2017. Monitoring results are included below.

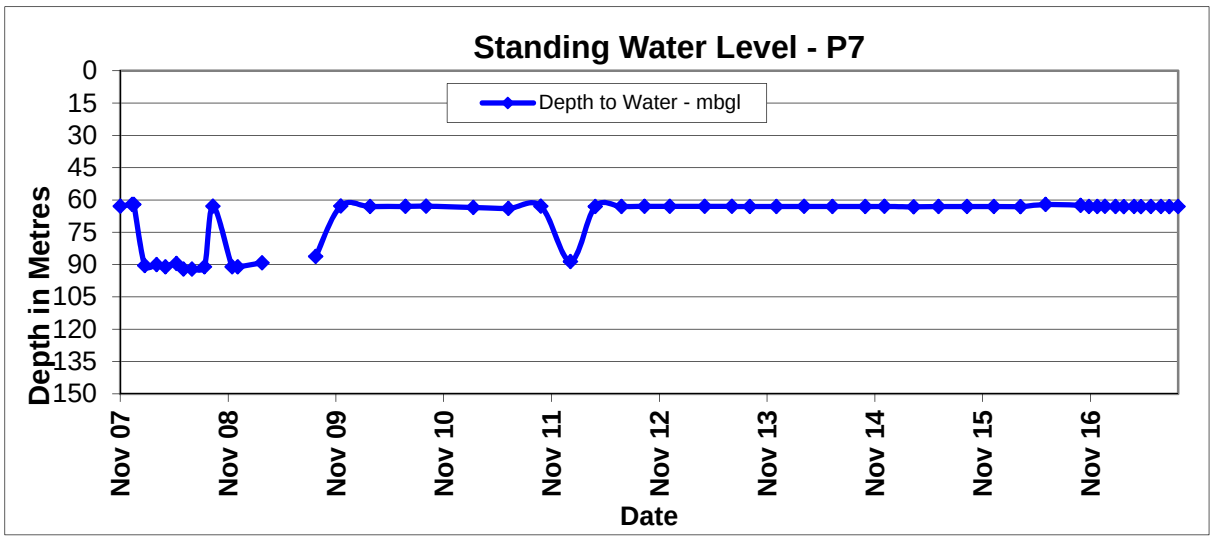


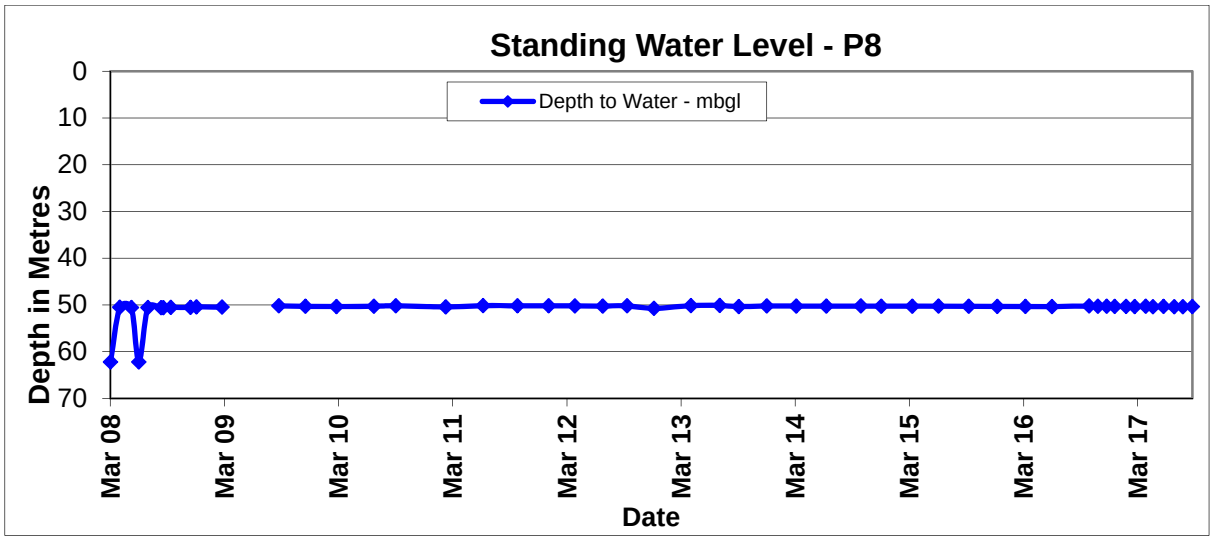


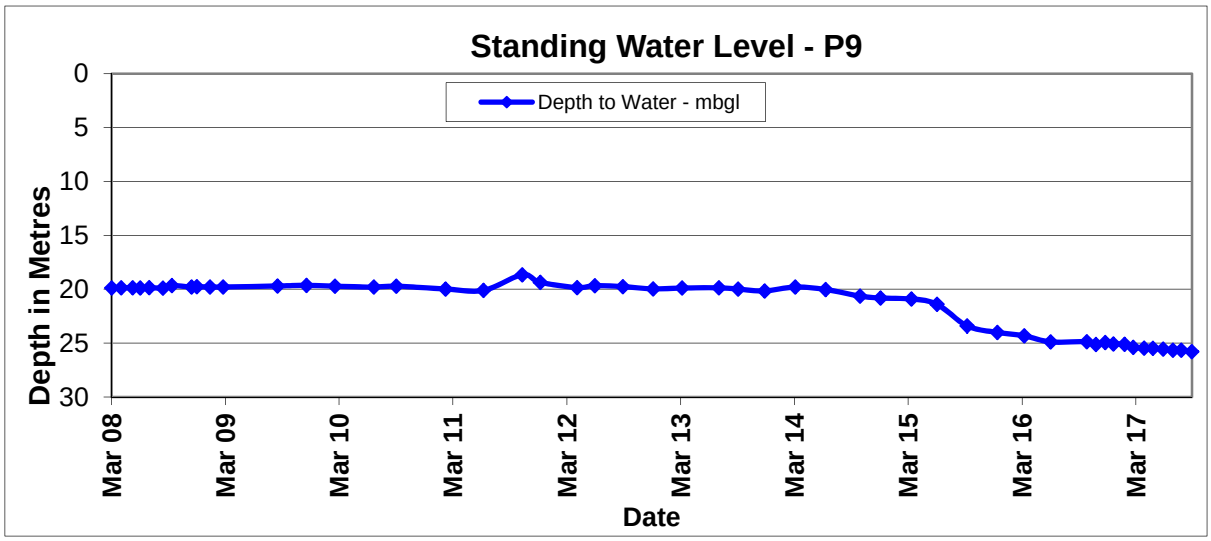


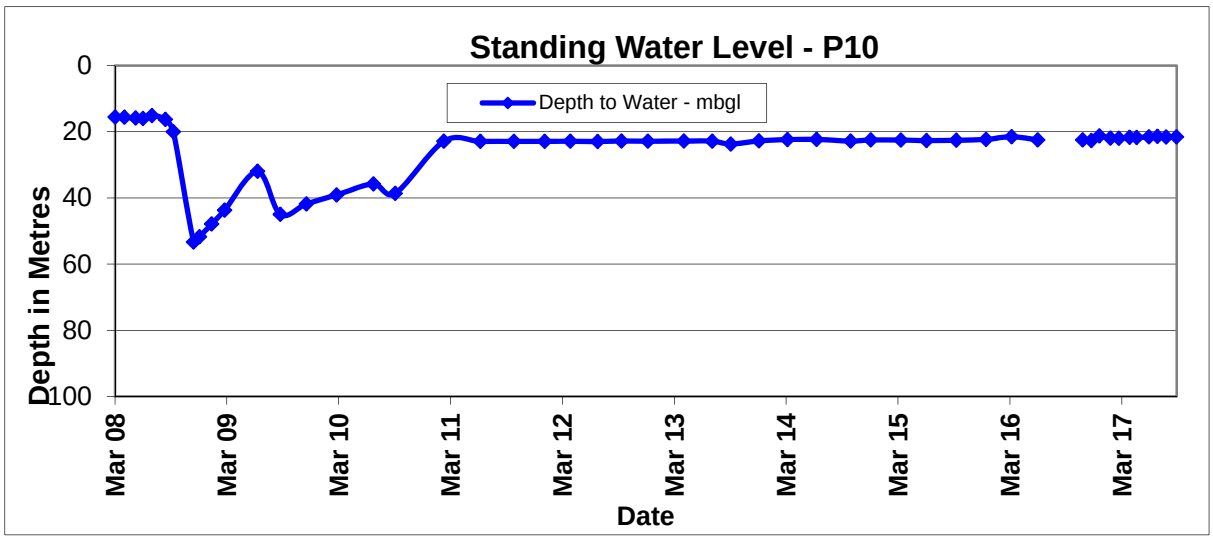

Standing Water Level - P4
Depth to Water - mbgl
Depth in Metres
0
5
10
15
20
25
Nov 07
Nov 08
Nov 09
Nov 10
Nov 11
Nov 12
Nov 13
Nov 14
Nov 15
Nov 16
Date

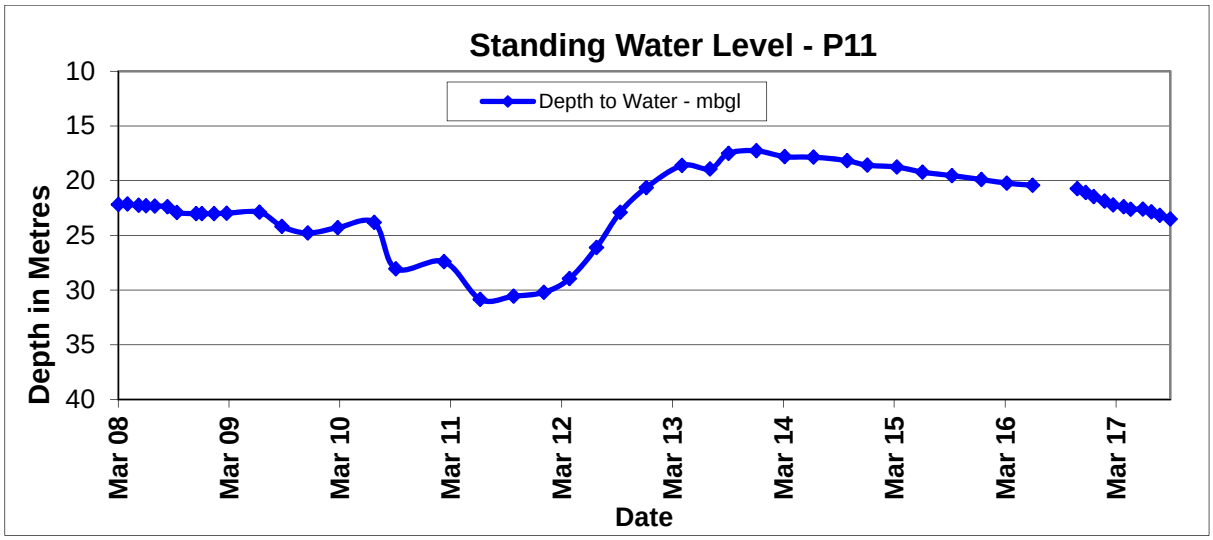

Standing Water Level - P5
Depth to Water - mbgl
Depth in Metres
0
5
10
15
20
25
30
35
Nov 07
Nov 08
Nov 09
Nov 10
Nov 11
Nov 12
Nov 13
Nov 14
Nov 15
Nov 16
Date

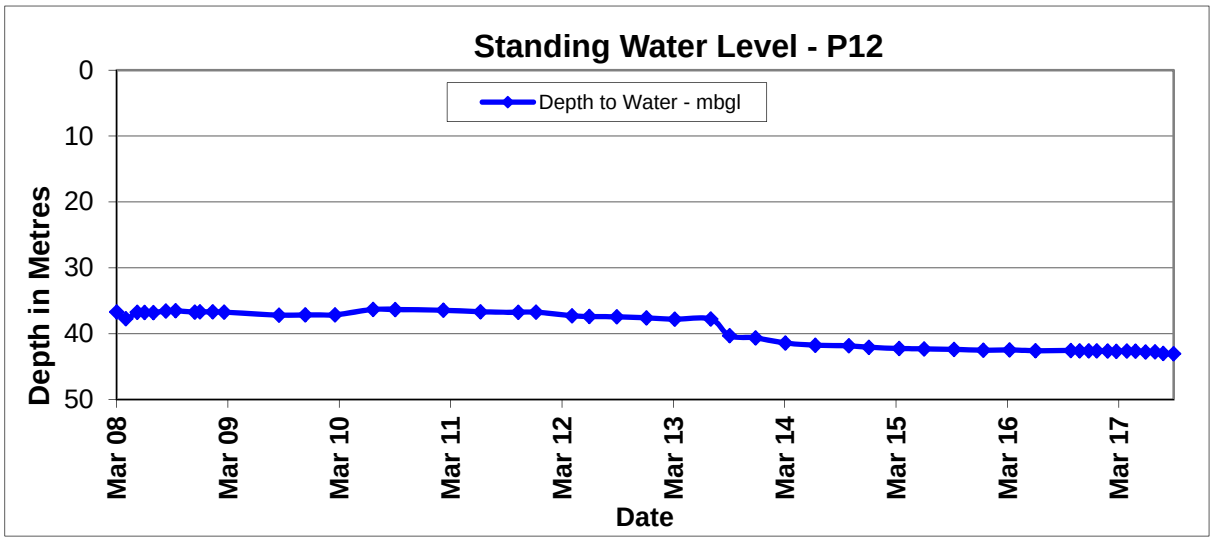

Standing Water Level - P7
Depth to Water - mbgl
Depth in Metres
0
15
30
45
60
75
90
105
120
135
150
Nov 07
Nov 08
Nov 09
Nov 10
Nov 11
Nov 12
Nov 13
Nov 14
Nov 15
Nov 16
Date

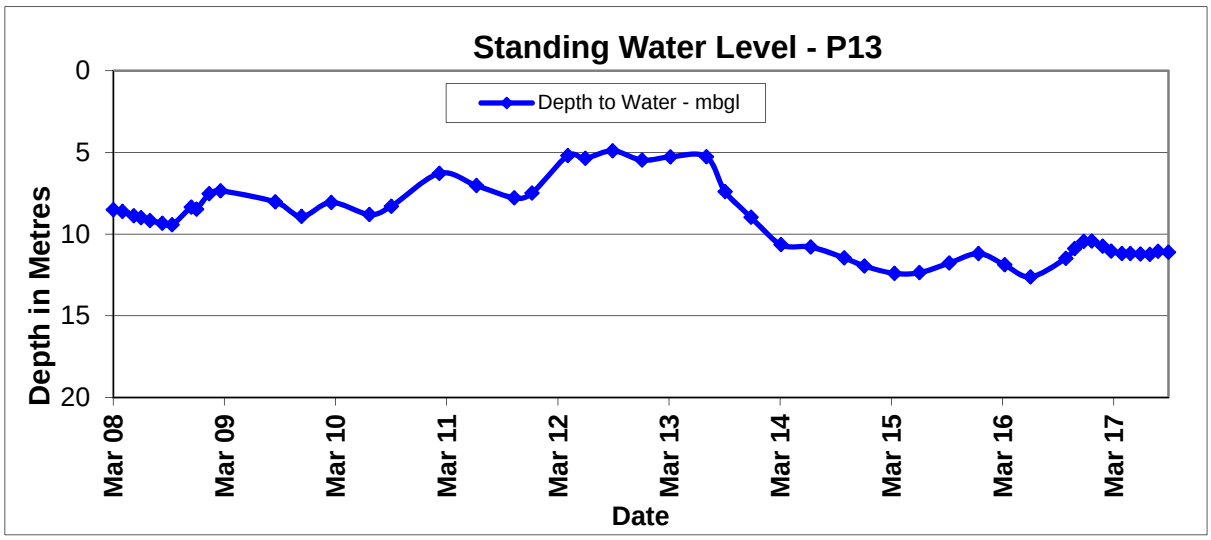

Standing Water Level - P8
Depth to Water - mbgl
Depth in Metres
0
10
20
30
40
50
60
70
Mar 08
Mar 09
Mar 10
Mar 11
Mar 12
Mar 13
Mar 14
Mar 15
Mar 16
Mar 17
Date

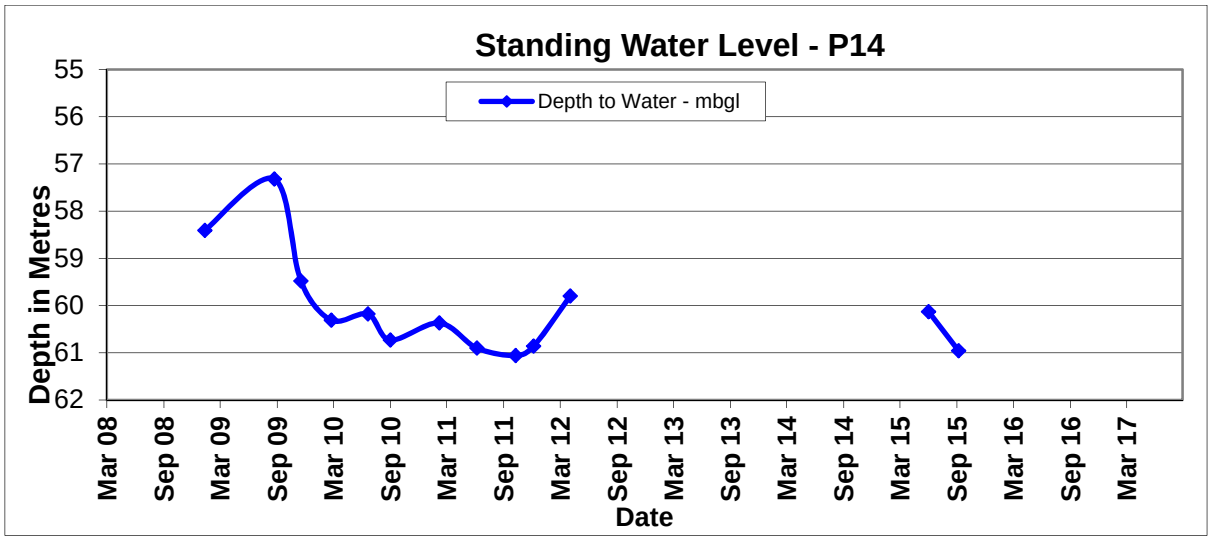

Standing Water Level - P9
Depth to Water - mbgl
Depth in Metres
0
5
10
15
20
25
30
Mar 08
Mar 09
Mar 10
Mar 11
Mar 12
Mar 13
Mar 14
Mar 15
Mar 16
Mar 17
Date

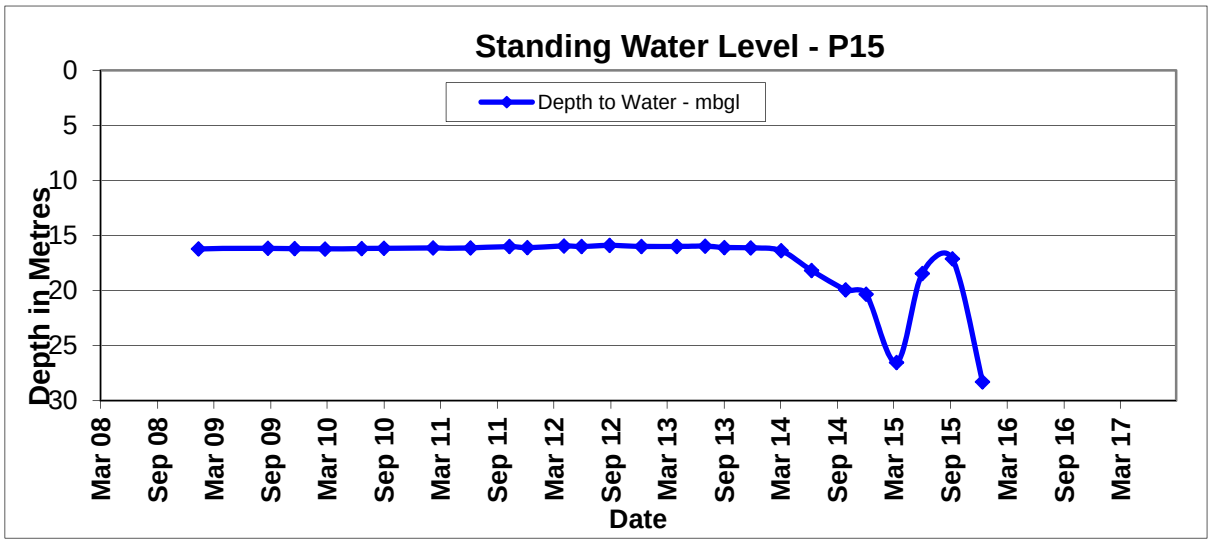

Standing Water Level - P10
Depth to Water - mbgl
Depth in Metres
0
20
40
60
80
100
Mar 08
Mar 09
Mar 10
Mar 11
Mar 12
Mar 13
Mar 14
Mar 15
Mar 16
Mar 17
Date

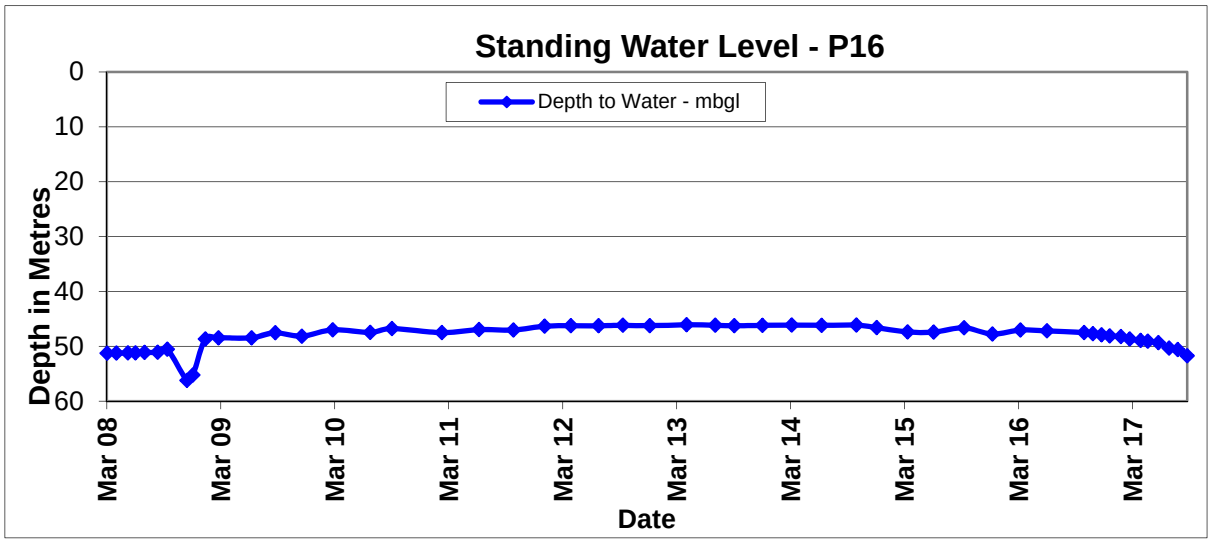

Standing Water Level - P11
Depth to Water - mbgl
Depth in Metres
10
15
20
25
30
35
40
Mar 08
Mar 09
Mar 10
Mar 11
Mar 12
Mar 13
Mar 14
Mar 15
Mar 16
Mar 17
Date

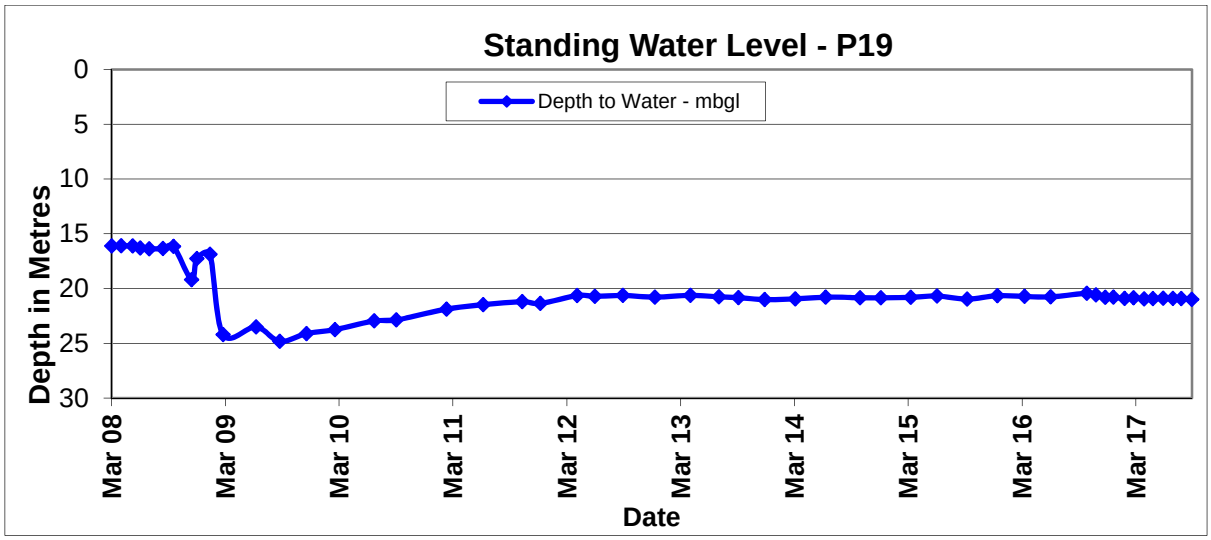

Standing Water Level - P12
Depth to Water - mbgl
Depth in Metres
0
10
20
30
40
50
Mar 08
Mar 09
Mar 10
Mar 11
Mar 12
Mar 13
Mar 14
Mar 15
Mar 16
Mar 17
Date

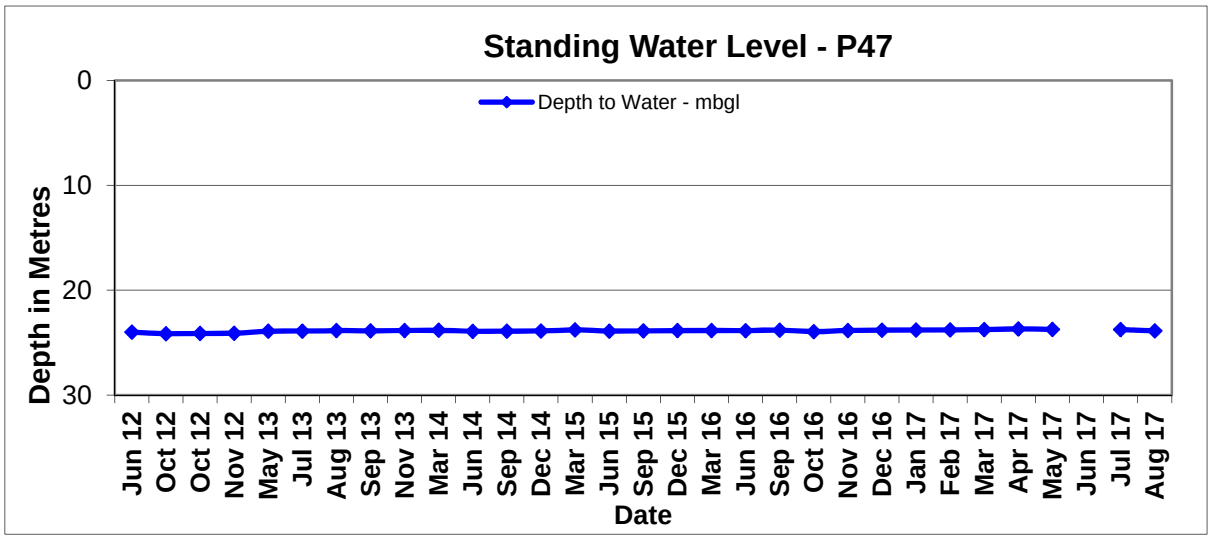

Standing Water Level - P13
Depth to Water - mbgl
Depth in Metres
0
5
10
15
20
Mar 08
Mar 09
Mar 10
Mar 11
Mar 12
Mar 13
Mar 14
Mar 15
Mar 16
Mar 17
Date

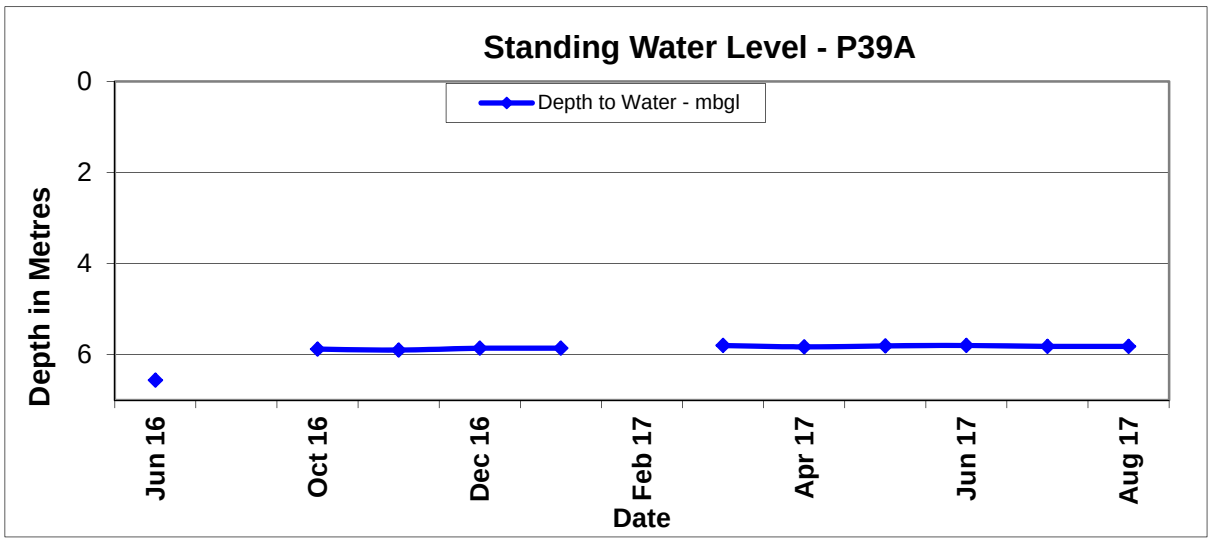

Standing Water Level - P14
Depth to Water - mbgl
Depth in Metres
55
56
57
58
59
60
61
62
Mar 08
Sep 08
Mar 09
Sep 09
Mar 10
Sep 10
Mar 11
Sep 11
Mar 12
Sep 12
Mar 13
Sep 13
Mar 14
Sep 14
Mar 15
Sep 15
Mar 16
Sep 16
Mar 17
Date

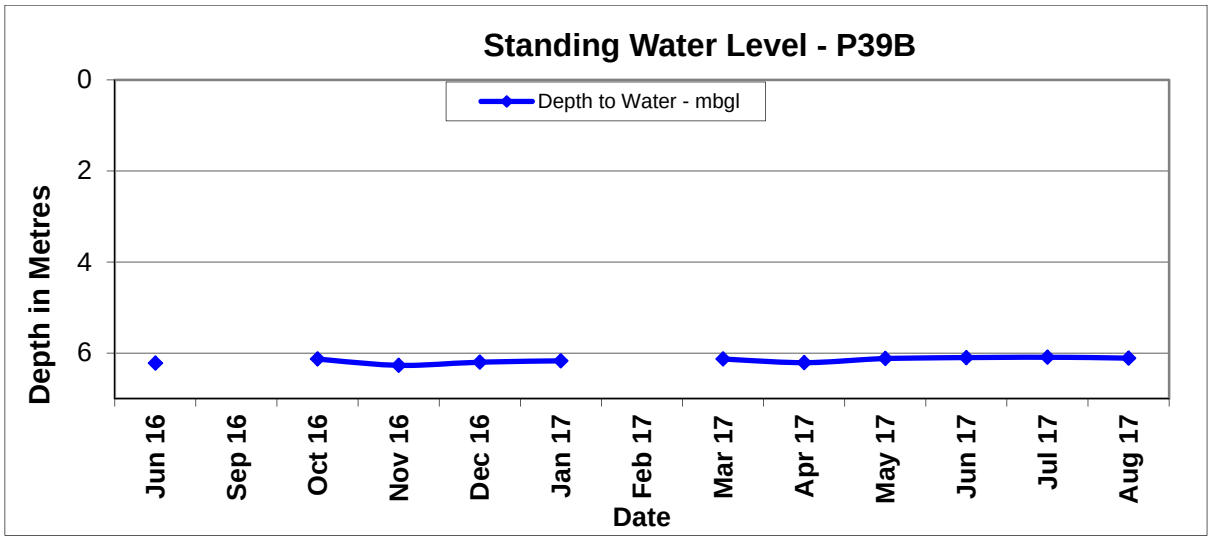

Standing Water Level - P15
Depth to Water - mbgl
Depth in Metres
0
5
10
15
20
25
30
Mar 08
Sep 08
Mar 09
Sep 09
Mar 10
Sep 10
Mar 11
Sep 11
Mar 12
Sep 12
Mar 13
Sep 13
Mar 14
Sep 14
Mar 15
Sep 15
Mar 16
Sep 16
Mar 17
Date

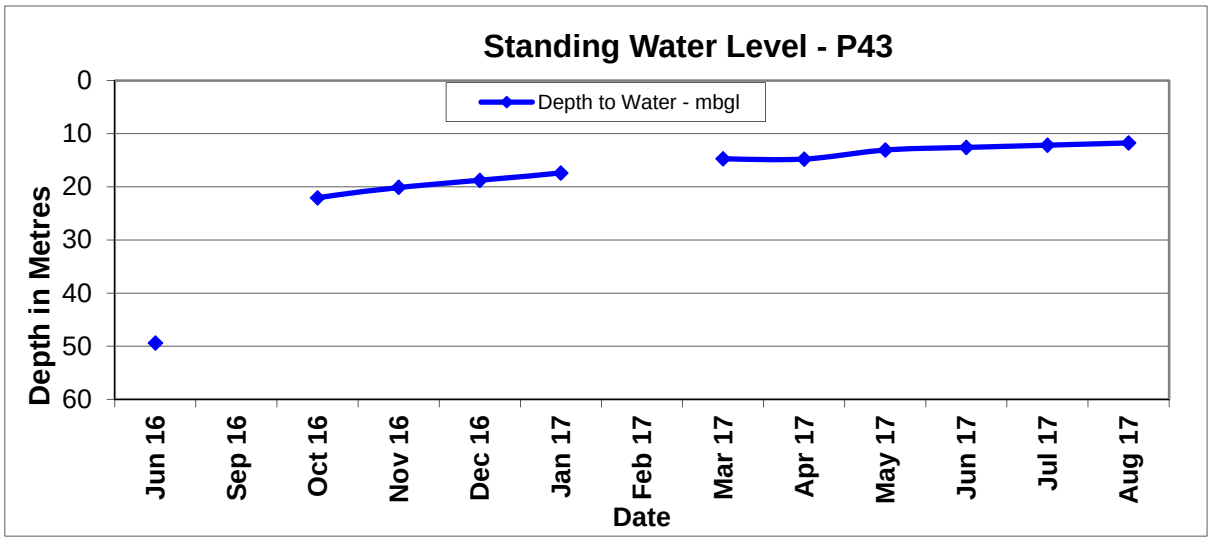

Standing Water Level - P16
Depth to Water - mbgl
Depth in Metres
0
10
20
30
40
50
60
Mar 08
Mar 09
Mar 10
Mar 11
Mar 12
Mar 13
Mar 14
Mar 15
Mar 16
Mar 17
Date

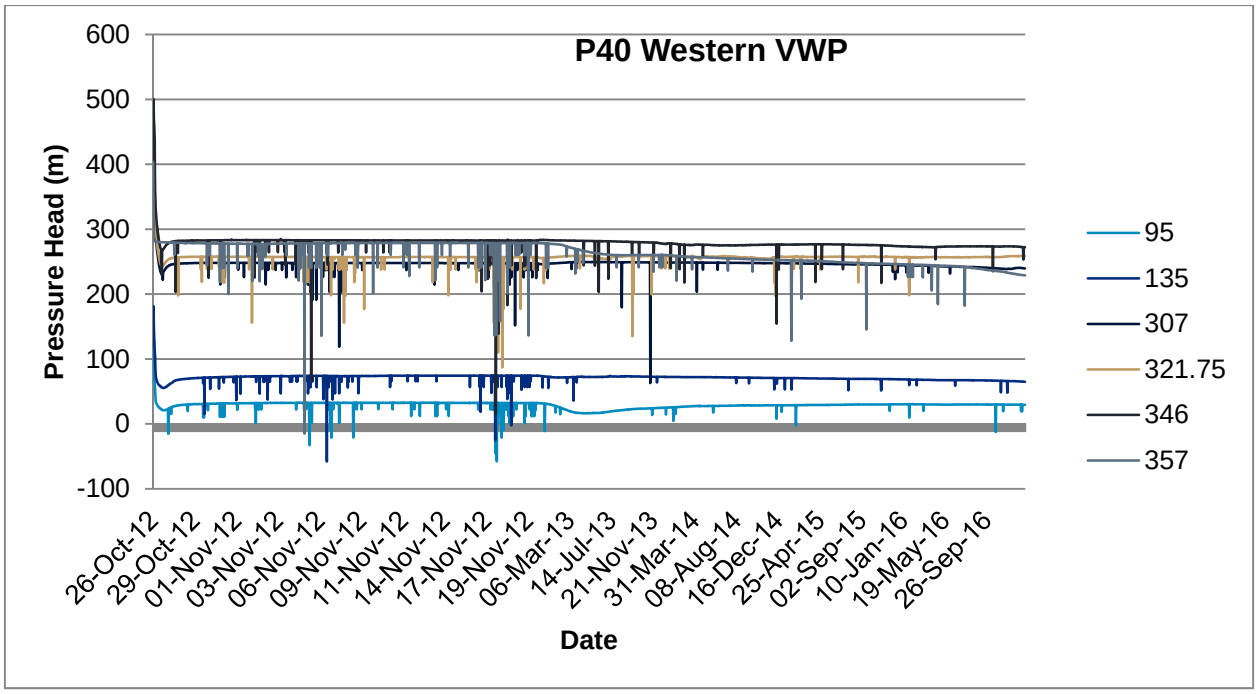

Standing Water Level - P19
Depth to Water - mbgl
Depth in Metres
0
5
10
15
20
25
30
Mar 08
Mar 09
Mar 10
Mar 11
Mar 12
Mar 13
Mar 14
Mar 15
Mar 16
Mar 17
Date

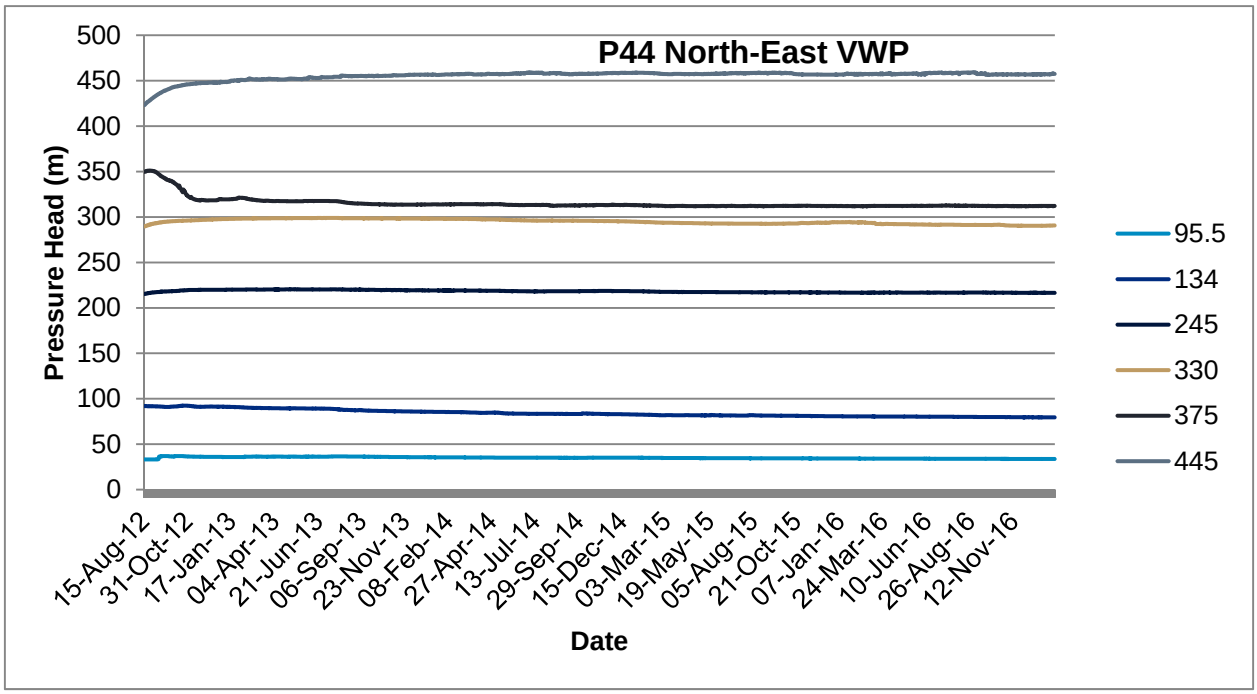

Standing Water Level - P47
Depth to Water - mbgl
Depth in Metres
0
10
20
30
Jun 12
Oct 12
Oct 12
Nov 12
May 13
Jul 13
Aug 13
Sep 13
Nov 13
Mar 14
Jun 14
Sep 14
Dec 14
Mar 15
Jun 15
Sep 15
Dec 15
Mar 16
Jun 16
Sep 16
Oct 16
Nov 16
Dec 16
Jan 17
Feb 17
Mar 17
Apr 17
May 17
Jun 17
Jul 17
Aug 17
Date


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
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
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
Date


P40 Western VWP
Pressure Head (m)
600
500
400
300
200
100
0
-100
26-Oct-12
29-Oct-12
01-Nov-12
03-Nov-12
06-Nov-12
09-Nov-12
11-Nov-12
14-Nov-12
17-Nov-12
19-Nov-12
06-Mar-13
14-Jul-13
21-Nov-13
31-Mar-14
08-Aug-14
16-Dec-14
25-Apr-15
02-Sep-15
10-Jan-16
19-May-16
26-Sep-16
Date
95
135
307
321.75
346
357


P44 North-East VWP
Pressure Head (m)
500
450
400
350
300
250
200
150
100
50
0
15-Aug-12
31-Oct-12
17-Jan-13
04-Apr-13
21-Jun-13
06-Sep-13
23-Nov-13
08-Feb-14
27-Apr-14
13-Jul-14
29-Sep-14
15-Dec-14
03-Mar-15
19-May-15
05-Aug-15
21-Oct-15
07-Jan-16
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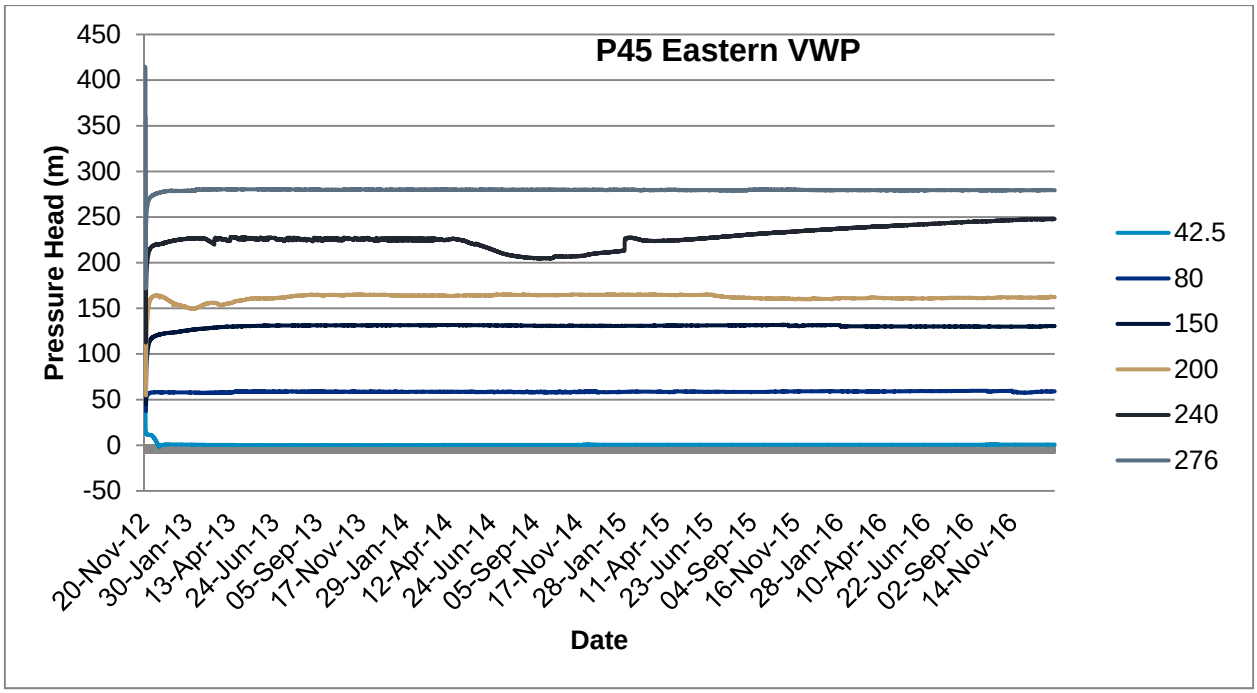
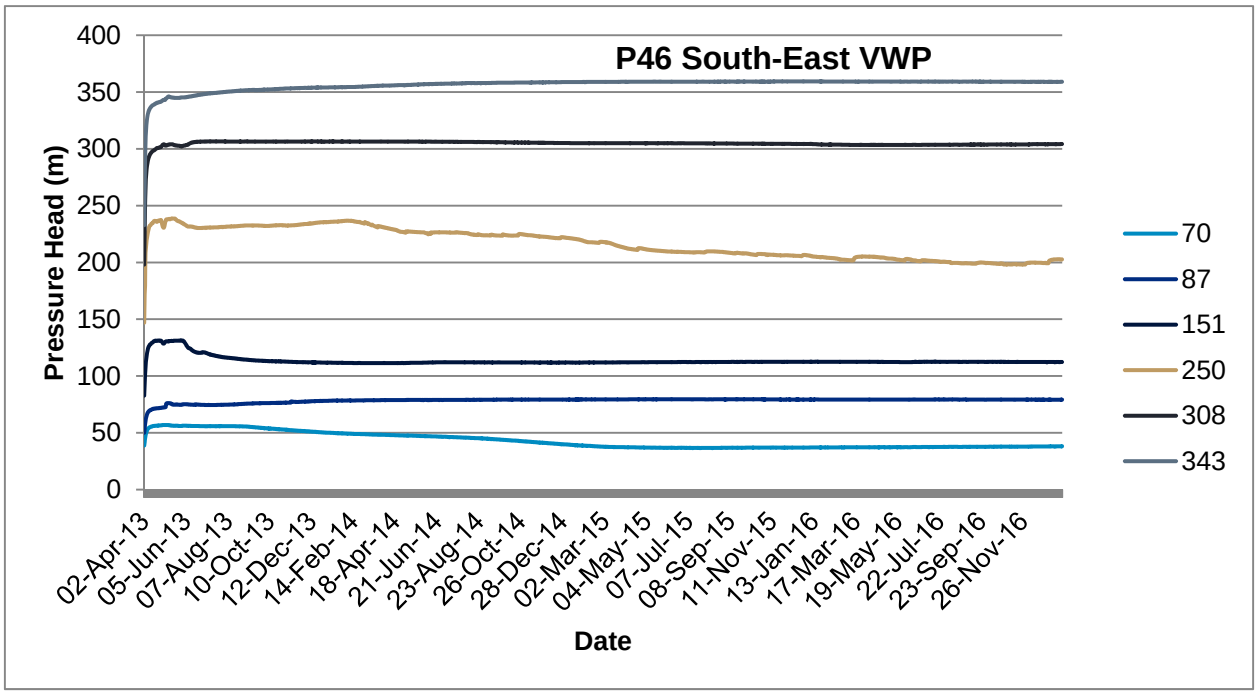
10-Jun-16
26-Aug-16
12-Nov-16
Date
95.5
134
245
330
375
445





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 2017 period. For the same period, the surrounding creeks were sampled on two occasions: 12th and 29th June 2017.

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^	30.5
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
Tilt (mm/m)	57	25.1
Tensile Strain (mm/m)	18 – 27^	6.5

Longwall Panels (LW) 103 to LW107		
	Maximum Predicted Extraction Plan	Maximum Measured
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	2.647*
Tilt (mm/m)	53	28.0*
Tensile Strain (mm/m)	20	9.4*
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	2.655*
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 2.647 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 9.4 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.

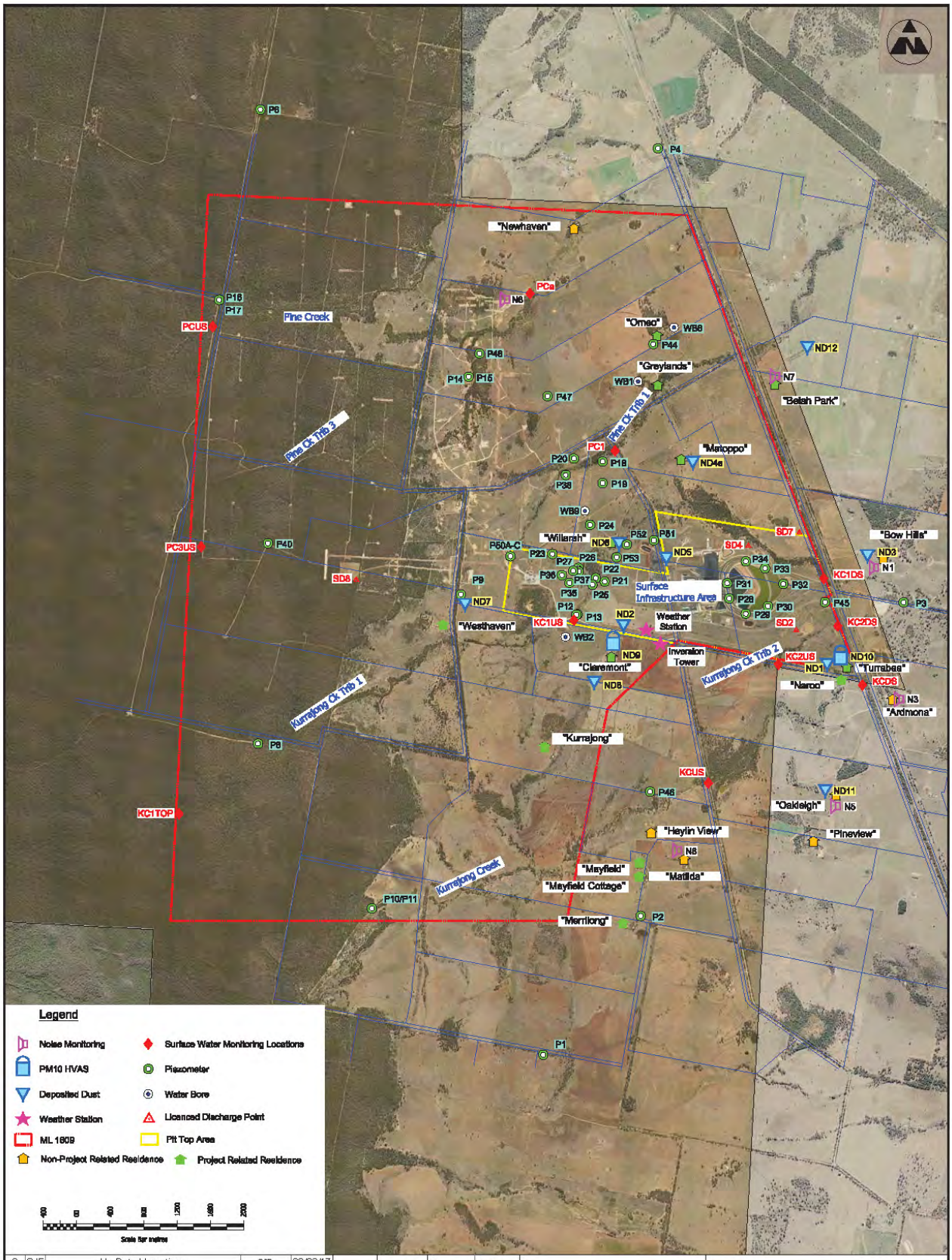
The centreline subsidence results for LW101 to LW107 indicate that the Garrawilla Volcanics and Basalt Sill have not reduced subsidence through spanning behaviour and that the maximum subsidence is also considered closer to 63% of the average mining height of 4.3m.

Complaints

One formal complaint was received during the period June to August 2017. The complaint was in relation to flashing lights on vehicles leaving the mine not being turned off. The relevant parties were notified at the time.

Environmental Incident(s)

No environmental incidents occurred during the June to August 2017 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: 39

Date: Wednesday 6th December 2017

Time: 5:10pm Meeting

Location: Railway Hotel, Baan Baa

Present: Rodney Dunlop (RD) – Interim Independent Chair
Peter Webb (PW)
James Stieger (JS)
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
Steve Farrar (SF) – Narrabri Mine Environmental Superintendent

1. APOLOGIES

Russell Stewart and Mark Foster.

2. DECLARATION OF PECUNIARY OR OTHER INTERESTS

None.

3. PREVIOUS MINUTES

Moved: GH Seconded: JS

3.1 BUSINESS ARISING FROM PREVIOUS MINUTES

A copy of the Annual Review was given to JS as requested.

GH asked about exploration rehabilitation and DE explained the process about removing the casing 1m below ground level to allow ploughing. GH asked about water management and SF explained the difference between the operational sumps and the exploration sumps which are above ground steel sumps. SF explained where the waste goes from exploration which is disposed of offsite if outside of the mining lease. RD asked about the difference in sumps between exploration and operation and SF explained the exploration approval requires above ground sumps and DE explained that the rigs onsite are larger and require bigger sumps. GH asked about the earth sumps and why we do it different between the two and SF explained the process for using the sumps and how the material is removed once the hole is completed and the material removed to dig the sump is placed back.

DE gave an update on the exploration activities. DE said there are now 2 drill rigs back in the forest after dropping down the amount of rigs to one and then none. GH asked why the slowdown and DE explained they were required to do some work for the mine and operations come first. DE explained that we were on target to complete the holes for the year and should finish March/April next year. GH asked about the access agreements and DE explained what agreements are in place and SF explained the status of the agreements. SB explained potential acquisition of a certain farm in the southern area but it hasn't progressed too far at this stage. GH said previously we were talking about 10 years and SB explained the approvals timeframe and then construction timeframe past that and we would be starting the first longwall panel in around 2024. RD asked about the environmental impact assessment and DE said we are preparing one at the moment. JS asked about an overland conveyor and SB explained that was one of the options been looked at but the current plan is all underground. SF explained the status at this stage. GH asked about water and would we require river water or have enough onsite and SF explained that at some point in time we should be in water surplus. GH asked about the RO plant and SB explained the recent upgrade of the existing plant. GH asked if the water was going back to the river and SB explained thast is wasn't and that we use it and draw water from the bore/river to top up the mine needs. SF explained the future upgrades required. RD asked about the brine and SF explained the status of the brine. GH asked about the solids and SF explained that it isn't solid and you would have to do something to make it a solid. SF explained that at the end of the mine we pump it back underground as a liquid and we are required to look at other ways to use it. SF and DE explained the Santos

requirements and how they are different to the way we manage brine but we will see what they end up doing. RD asked about the quality which SF explained.

4. GENERAL BUSINESS

4.1 OPERATIONS PROGRESS REPORT

The operations update was provided as follows:

Mine Progress Report (to 30 November 2017)

Coal produced (t):	November 2017	387,990
	FY-to-date	3,336,883
Coal Railed (t):	November 2017	745,234
	FY-to-date	3,444,817
Average workforce numbers (October 2017):		
	NCO	Waged – 135
		Salary – 119
		Total – 254
	Contractors	Total – 181
Safety Update (FY to November 2017):		
	Lost Time Injury (LTI)	1
	Days LTI Free:	127
	Total Recordable Injuries:	8
	Planned Task Observations:	4,532
	Take 5 Assessments:	59,557
	Work Hours (Nov-17):	118,581

SB went through the operations report. SB stated that it is pretty steady at the moment but the mine was behind budget due to roof falls and unlikely to recover to the original budgeted production. SB explained that the mine is in a recruitment phase at the moment looking for about another 30 people. SB explained that the mine was slightly ahead of our safety targets but still looking to improve. SB said the next longwall should commence in May/June which is slightly behind schedule. RD asked about the production numbers and SB explained it was ~1Mt behind budget. RD asked about the target and SB explained the target was 8.2Mt and we would now be lucky to get 7.2Mt and the reduction relates to roof falls and depth of cover. GH asked about subsidence and SB explained the subsidence relates to extraction height and DE explained we are supercritical at the moment so we will still get maximum subsidence just the trough is not as aggressive as it was in the shallower panels. GH asked about the rock fall and what you do and SB said you typically leave it there and try and work around it. GH asked about the manual labour and turn over and SB explained that turnover has actually decreased. GH asked about the 25 people we were putting on and if they were local and SB stated the plan is to have them all local, e.g. within 100km of the mine. GH asked about the supply and SB explained that we do well locally except for trades as they are harder to get. SB/DE explained the geographic range of applicants. RD stated that mining jobs for high school leavers is good as it wasn't an option when he was at high school and SB said we have started a few apprentices as well.

4.2 ENVIRONMENTAL OVERVIEW

SF went through the environmental report.

SF explained the noise exceedance as it was within 2 dB of the criteria. GH asked what we have to do about the exceedance and SF explained the exceedance will be reported as a non-compliance although it was within the 2dB threshold and we have replaced the noise sources near the location. SF explained the changes in P13. P15 which is in the mining area was affected by development then longwall mining and is now blocked. GH asked what we do about P15 and SF explained nothing as we have installed life-of-mine monitoring wells that measure multiple levels. JS asked about monitoring subsidence and when we stop and SF explained how we monitor and we require approval from the Government to remove the monitoring lines, which for the first couple of panels took around 2 years of monitoring to show the levels had stabilised. DE stated he wanted to get the area rehabilitated so it can be leased out. GH asked about the ponding in LW101 and what we want to do with it and SF explained the plan was to improve the area as a semi-permanent wetland area but there is a subsidence line that goes through it and we will have to remove that at some point. SF also explained that the water is tested monthly. GH asked if the trees are regenerating and SF said they were in the understorey but there is also no stock to knock it around. SF also

explained the OEH response which was to install banks either side of the creek as their concern is the riparian vegetation downstream so the mine now monitors this vegetation as well. SF explained a complaint in relation to rubbish and JS said the rubbish out the front is washed onto his place. SF said there are bins there and RC stated if you put bins there people will put anything in them. JS also stated that people park in front of his place sometimes and leave rubbish behind and park in front of the quarry entrance. SB said we should be cleaning out the front of the mine regularly and RD asked if it was a no smoking site which SB confirmed. JS said he thinks it is people changing vehicles for different shifts and also throwing rubbish in the rail corridor. RC asked where the truck stop was and JS explained in front of his place along the highway. RC said he thinks it's probably RTA's responsibility which JS agreed and JS said he doesn't think it is just the mine's rubbish but it should be cleaned up. RD said the CCC sent a letter to Council and RC said he would raise it with Council. RC said Queensland has bins along the highway and look after them. JS said if the bins are been collected in Boggabri it wouldn't be hard to empty a bin at the truck stop along the way. JS said the rubbish has got a lot worse with the changes to the tip and has other places where he has noticed the rubbish getting worse. PW said there tyres along the back road from Turrawan that still had the name of the owner on them. SB said a couple of years ago the mine cleaned up along the front.

RD and SB summarised the meeting to date for RC who arrived late.

RC said the EPA were going to put a dust monitor at the airport. RC mentioned the Boggabri community weren't getting one but they were looking into it as they are close to the mines. SF asked about the location and RC said there were a few reasons but it is a good location on the right side of town. GH asked who were responsible for putting it there and RC said it was between Council and the EPA. GH asked why Council requested one at Narrabri and RC explained they hadn't it was a location nominated by the EPA but Council would seek one for Boggabri. JS said he attended the initial meetings and at those meeting they requested a monitor for Narrabri as well as Gunnedah, Boggabri and Wee Waa as a baseline before everything started. JS said it was the EPA's responsibility and they should pay for it as they get royalties and just do it now but that was 5 or 6 years ago. RC said it was the EPA's decision to put one there but Council would see when one could be put it at Boggabri.

5. NEW BUSINESS

GH asked about potential purchases outside of this area for biodiversity offset areas and SB said there maybe some for the approvals process but DE explained no as we have only just started the process for the Stage 3 work. RC asked how much land Whitehaven own in the area and SB said he wasn't sure. RC said he thought it was 53,000ha for the Maules Creek and Tarrawonga offset properties but SB said he wasn't sure. JS asked how much land does Narrabri Coal own and SF explained the ML size but explained it wasn't all owned but we own some around that as well, approx. 6,000ha, plus the property at Maules Creek. SF also explained that the Maules Creek and Tarrawonga offset properties consist of a lot of land from Willeroi to Mt Lindsay. DE said there would be additional offsets required and RD explained that usually the requirements are far less for an underground mine as the footprint is much less. SF explained that it used to work with ratios of disturbed land to offset areas. GH asked if subsidence counts and SF explained that the subsided areas form part of our offset area once the disturbed areas are rehabilitated and DE explained it was more the infrastructure areas for drilling.

RC asked if there was anything to take back to Council and RD said rubbish out the front and SB said the upcoming approvals process for the Stage 3 at some point but not sure when that might be. DE explained the gateway certificate will be submitted around February and RD asked if that was before the next meeting which DE confirmed. GH asked what you do if you don't have access and DE explained the timing for the application and process. JS said if he had coal but wouldn't allow access because of the mining lease the mine and him could enter mediation and go to the director-general for determination because it's a state resource. SB said there is some legal process. RC said you can go underground and you won't know they're there. SB explained there are mines on the south coast that own very little land they mine under. GH said it would be good to articulate that if it is ten years but then purchase sooner. DE explained that the mine goes through a process with the landholders but we need to prove the resource first. DE also explained that some people we will negotiate with sooner because that's want they want to allow access. SB said it is our preference to own the land. GH said there is still a fair bit of time and DE said if we could get the approval sooner we would talk to landholders sooner and SF said when we submit the EIS it is a good indication that we would want to buy the land even if it is 5-10 years down the track.

6. NEXT MEETING

Wednesday 7th March 2018 at 5:00pm at the Narrabri Mine Site Office.

7. CLOSURE OF MEETING

Meeting closed at 6:10pm.

Narrabri Mine Community Consultative Committee Meeting #39

Environmental Monitoring Report: September – November 2017

Noise Monitoring

Attended noise monitoring was undertaken between Tuesday 5th to Friday 8th September 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	5/09/2017	NA	<25	NA	NA	Day/Evening/Night LAeq,15minute: 35 dB Night LA1,1minute: 45 dB	Yes
N5 Oakleigh	6/09/2017	NA	NA	NA	NA		Yes
N5 Oakleigh	7/09/2017	NA	<30	24	27		Yes
N6 Newhaven	5/09/2017	NA	35	NA	NA	Day/Evening/Night LAeq,15minute: 35 dB Night LA1,1minute: 45 dB	Yes
N6 Newhaven	6/09/2017	NA	NA	NA	NA		Yes
N6 Newhaven	7/09/2017	30	33	**36**	45		No

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	06/09/2017 15:30	4.2	B	-1.8	35	No	NM	NA
N1 Bow Hills	06/09/2017 21:39	2.6	F	3.0	35	No	NM	NA
N1 Bow Hills	06/09/2017 22:00	2.3	F	3.0	35	No	37	NA
N3 Ardmona	07/09/2017 15:43	3.9	B	-1.8	35	No	<30	NA
N3 Ardmona	07/09/2017 20:50	3.1	F	1.8	35	No	36	NA
N3 Ardmona	07/09/2017 23:17	1.9	G	4.4	35	No	27	NA
N7 Merriman	05/09/2017 17:16	4.6	D	-0.6	35	No	NM	NA
N7 Merriman	05/09/2017 21:24	2.2	G	4.0	35	No	32	NA
N7 Merriman	05/09/2017 22:00	1.5	G	5.8	35	No	34	NA
N8 Matilda	06/09/2017 15:05	4.3	A	-2.2	35	No	IA	NA
N8 Matilda	06/09/2017 21:42	2.6	F	3.0	35	No	IA	NA
N8 Matilda	06/09/2017 22:00	2.3	F	3.0	35	No	IA	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 September 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 with the exception of the following:

- 36dB(A) at the "Newhaven" residence (EPL ID N6).

  Please note the result above was within 2dB of the criteria and as such are not considered to be non-compliances in accordance with the Industrial Noise Policy.

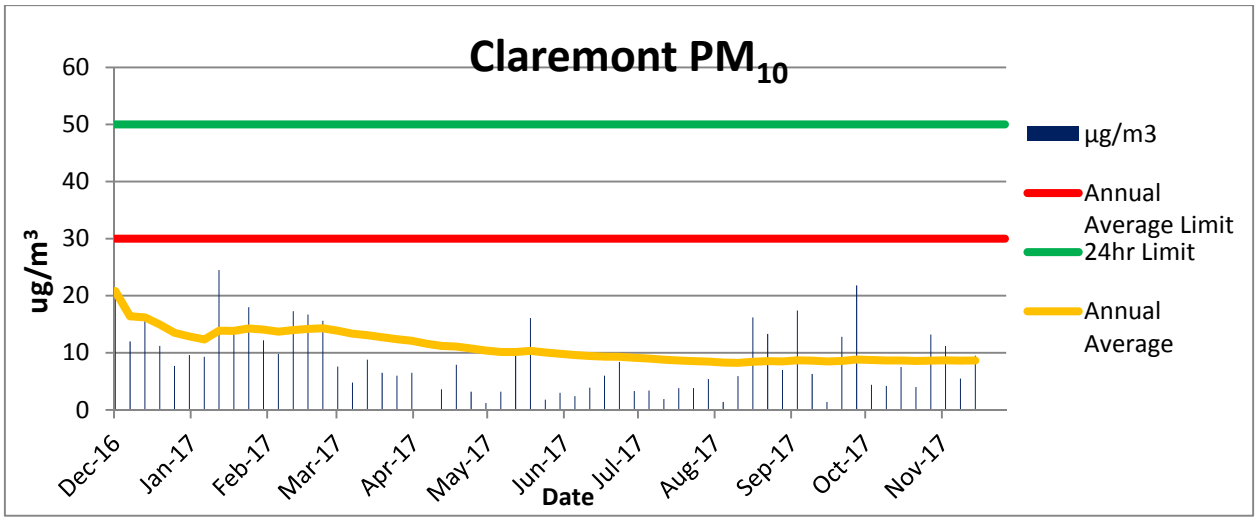
Deposited Dust Monitoring

Month	ND1 Turrabaa	ND2 Claremont	ND3 Bow Hills	ND4a New Matoppo	ND5 Claremont	ND6 Willarah	ND7 Claremont	ND8 Claremont	ND11 Oakleigh	ND12 Merriman
Dec-16	2.8	2.0	3.8	2.3	4.7	2.2	1.8	3.0	1.3	1.8
Jan-17	4.1	0.4	0.7	1.6	1.5	1.0	1.2	1.6	0.8	0.3
Feb-17	6.8	0.5	0.6	3.7	2.1	3.2	0.9	3.9		0.6
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
Annual Average	**3.4**	**1.7**	**1.5**	**1.7**	**2.6**	**1.6**	**1.5**	**2.2**	**1.1**	**1.3**

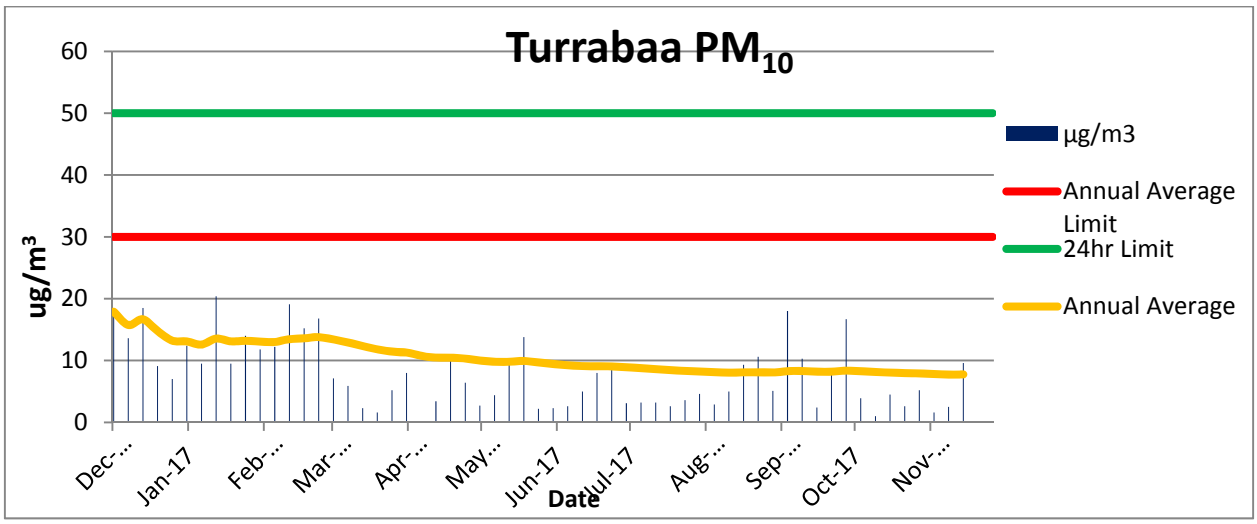
All deposited dust levels are within the compliance limit of 4 g/m^2/mth.

High Volume Air Sampling (PM10)

PM10 measurements taken to 14 November 2017 for the "Claremont" High Volume Air Sampler (HVAS) are returning a running annual average of 8.65 µg/m^3, which is well below the annual average limit of 30 µg/m^3.



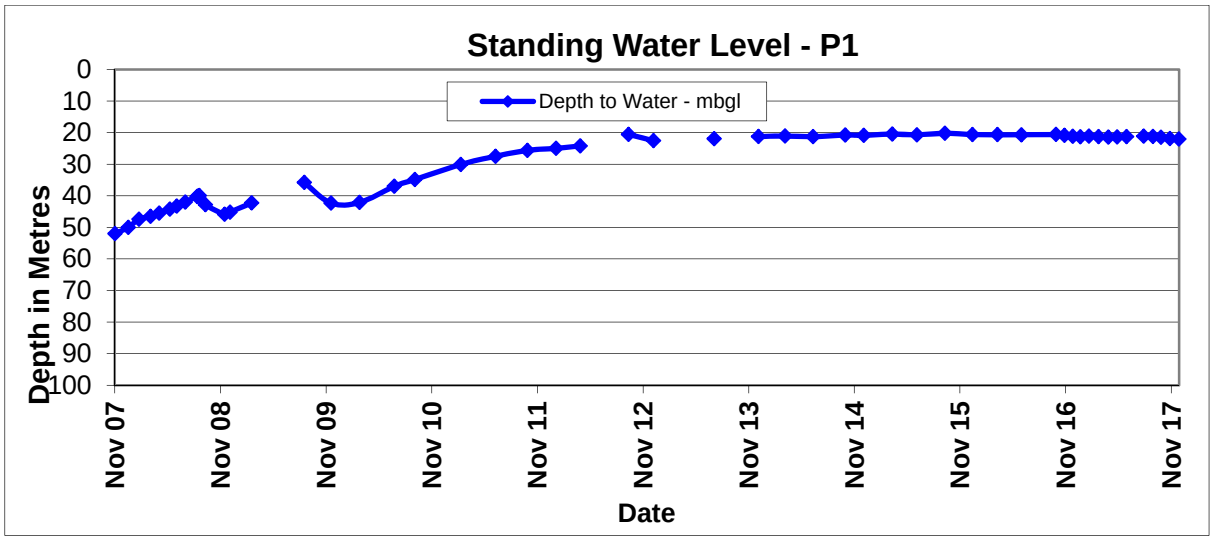
PM10 measurements taken to 14 November 2017 for the "Turrabaa" High Volume Air Sampler are returning a running annual average of 7.76 µg/m^3, which is also well below the annual average limit of 30 µg/m^3.



PM10 levels have remained compliant since the last meeting.

Groundwater Monitoring

Groundwater monitoring was completed in November 2017. Monitoring results are included below.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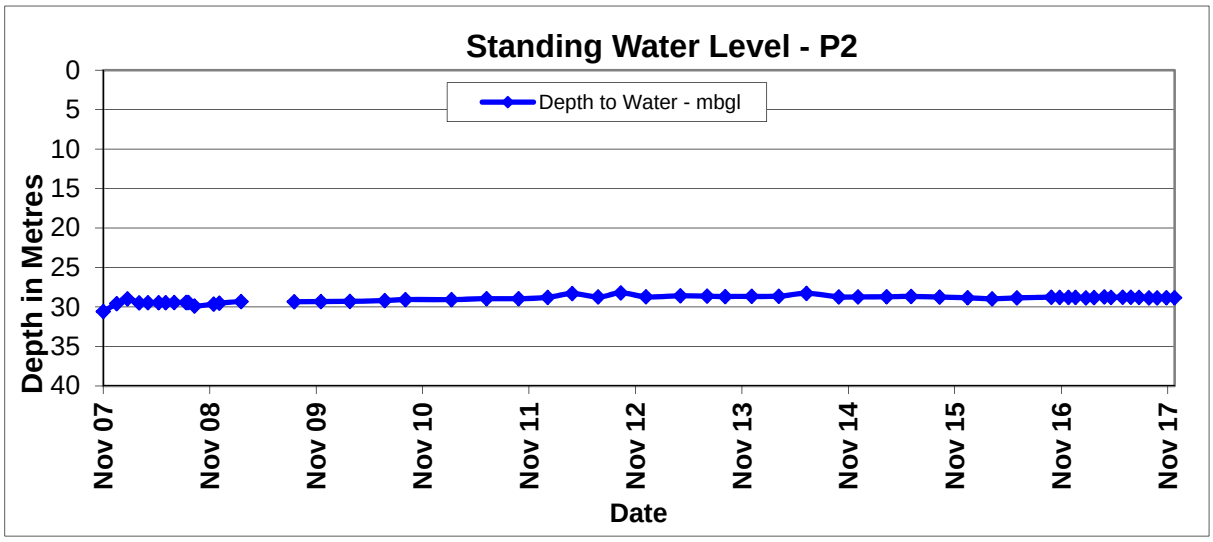
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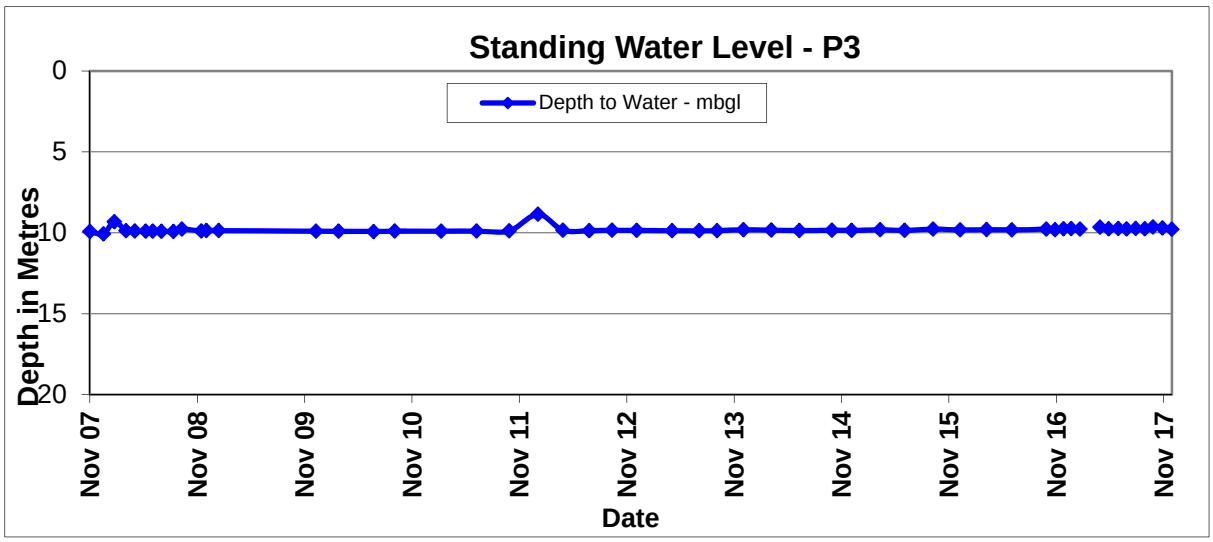
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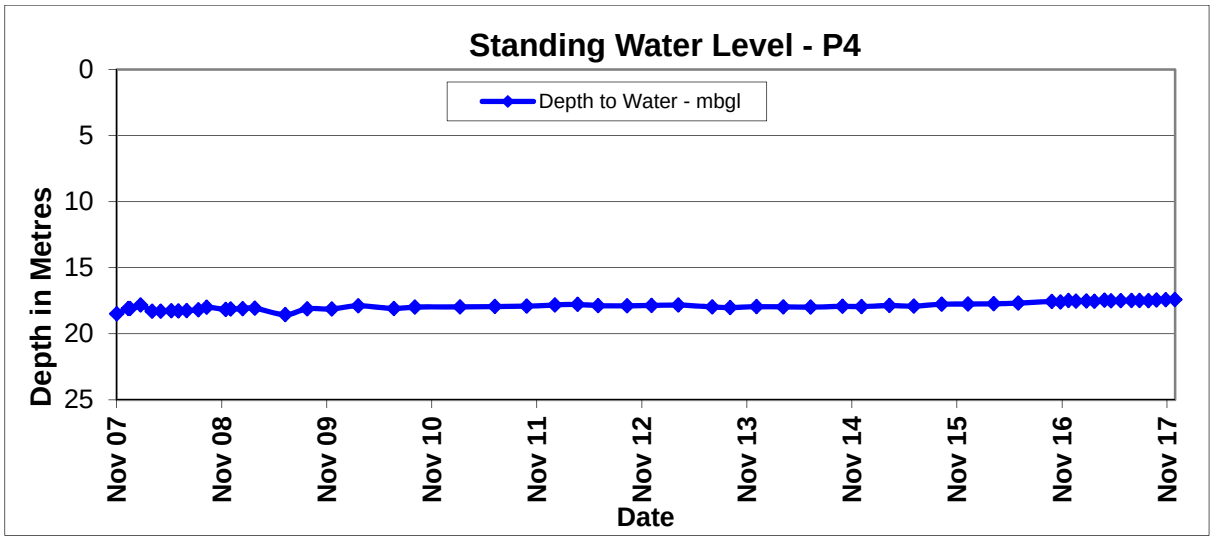
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Depth to Water - mbgl
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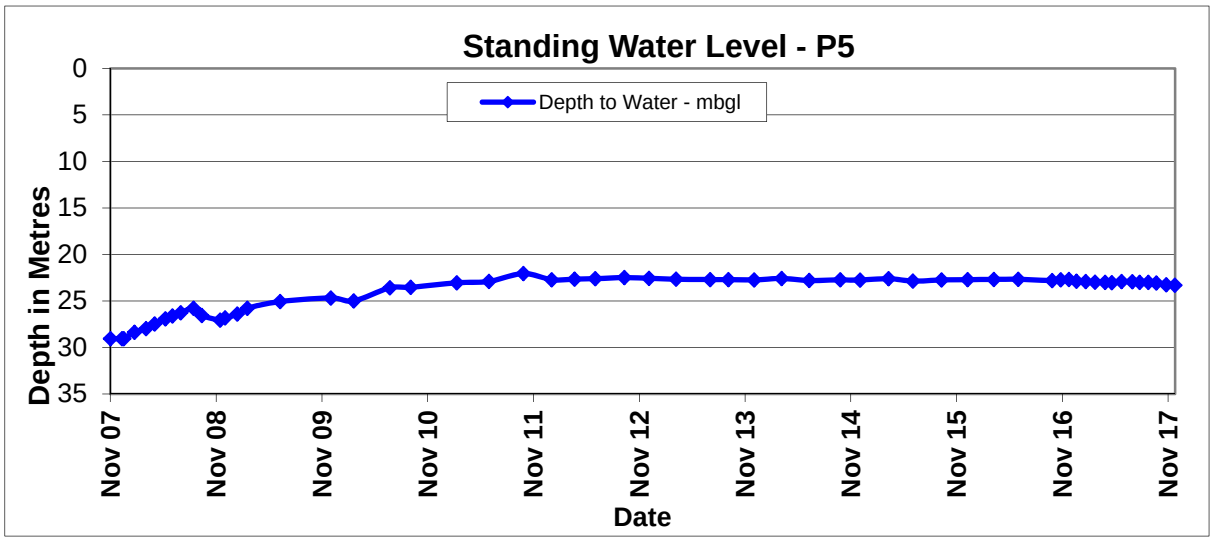
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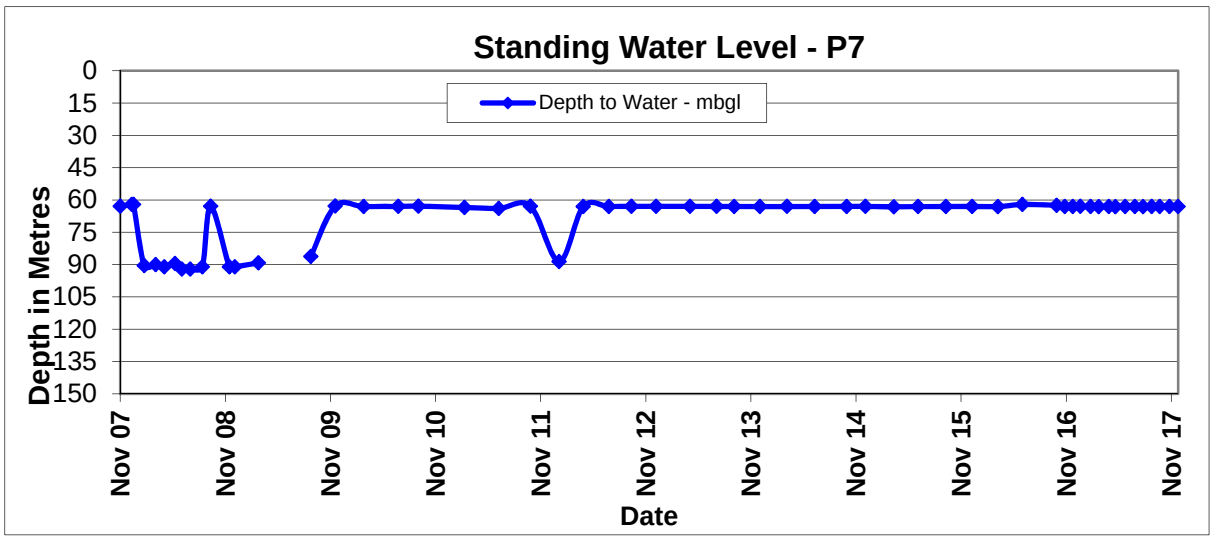
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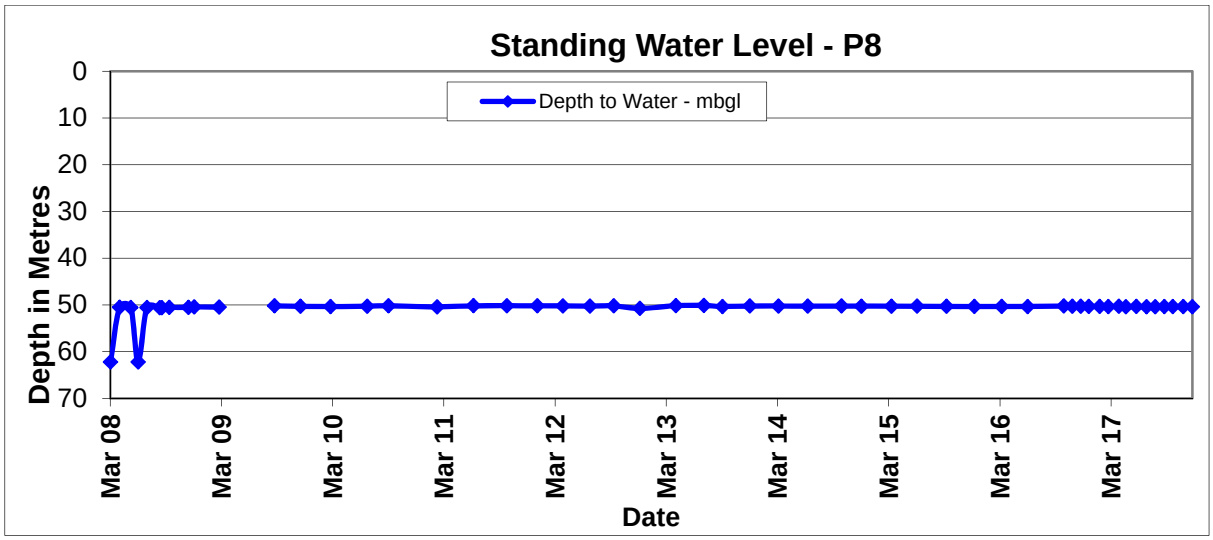
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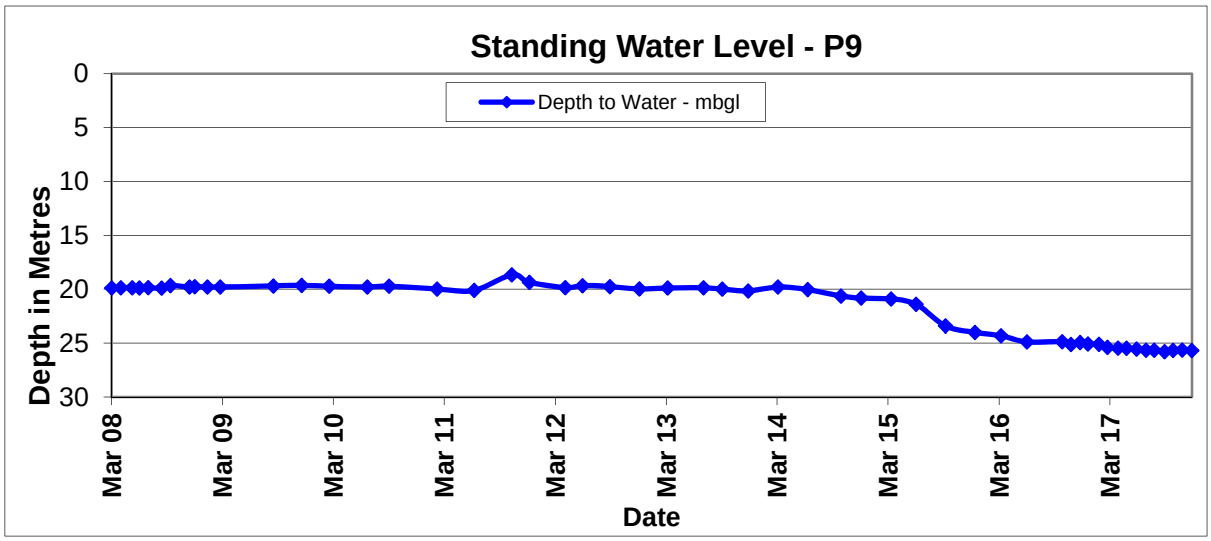
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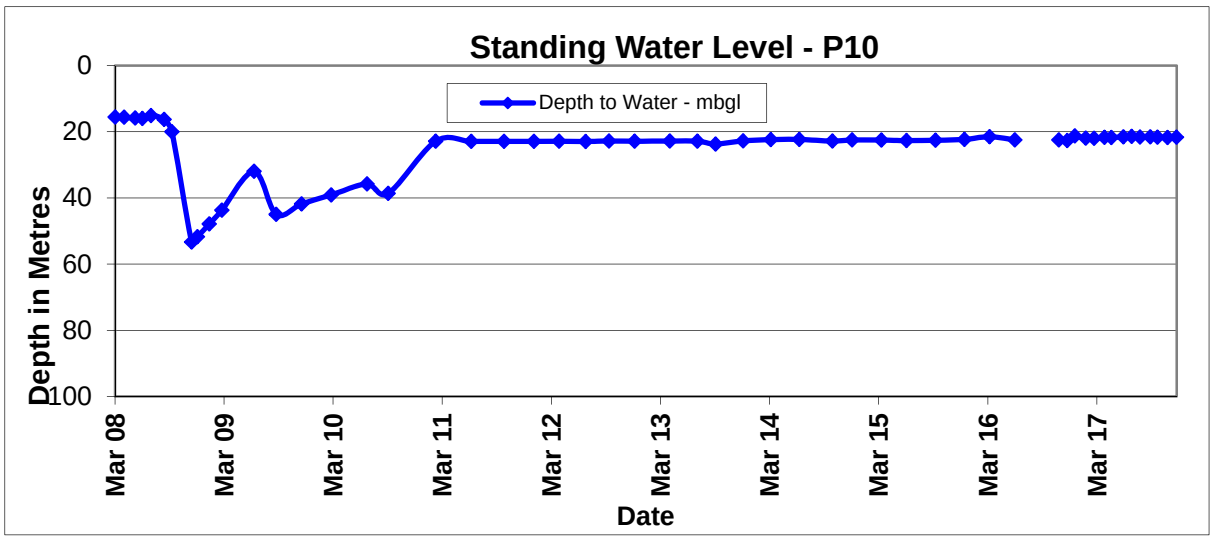
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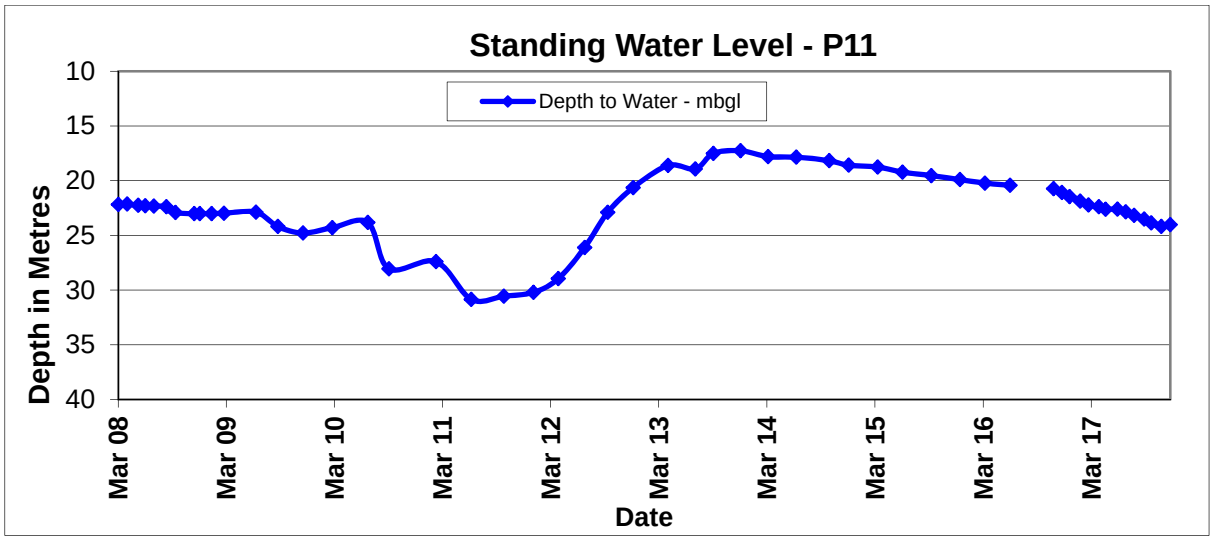
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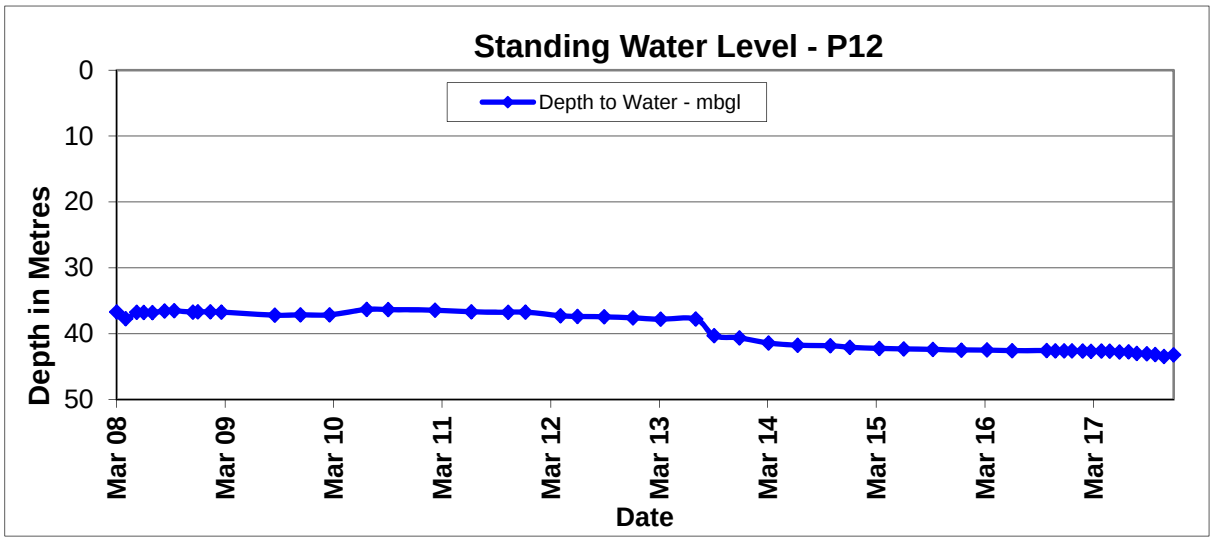
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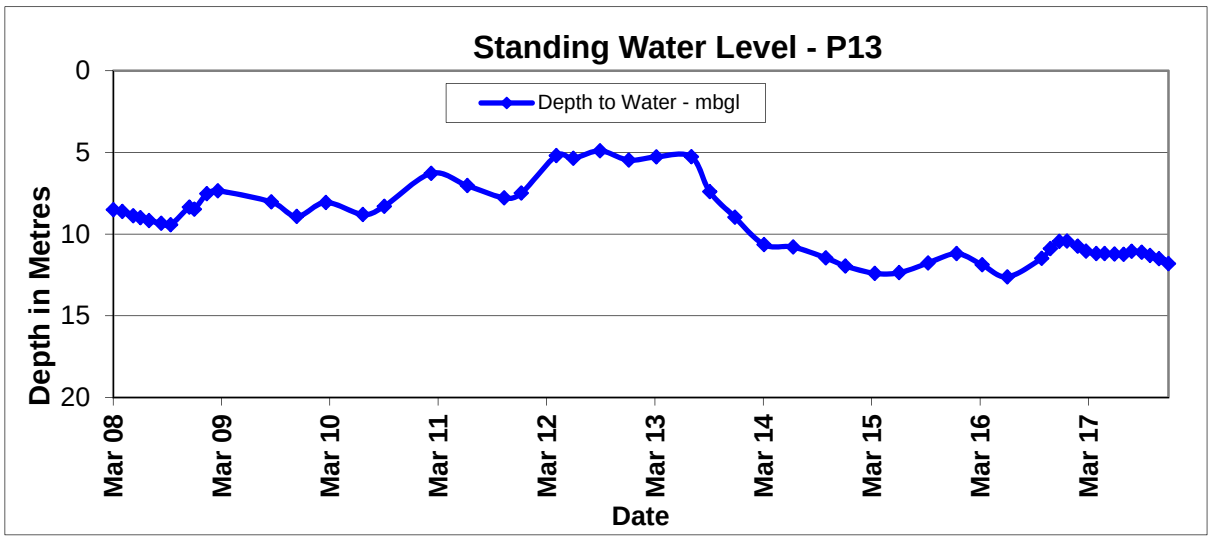
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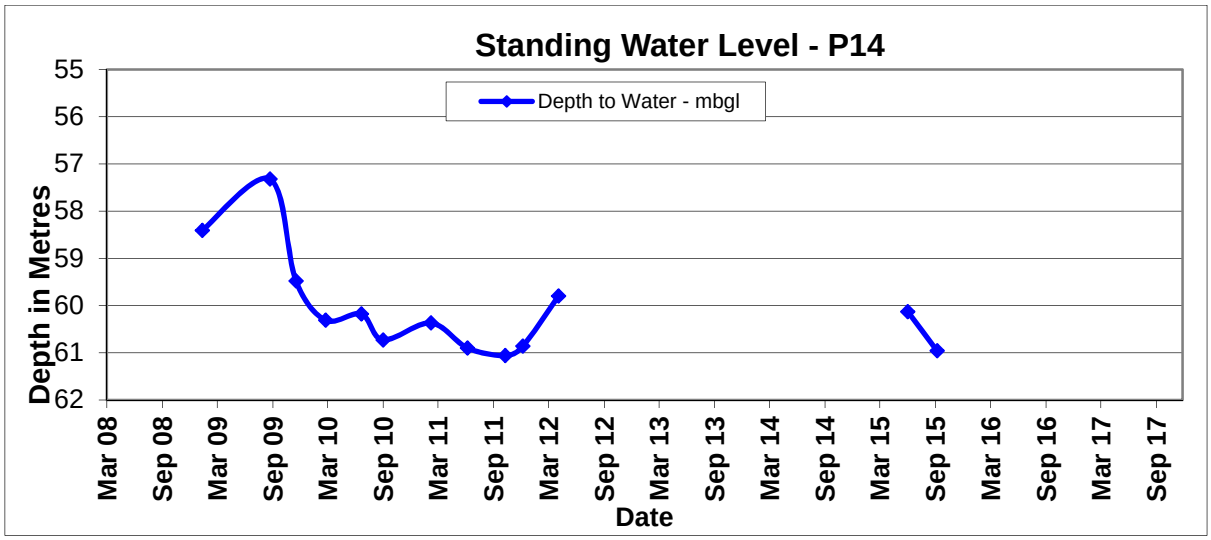
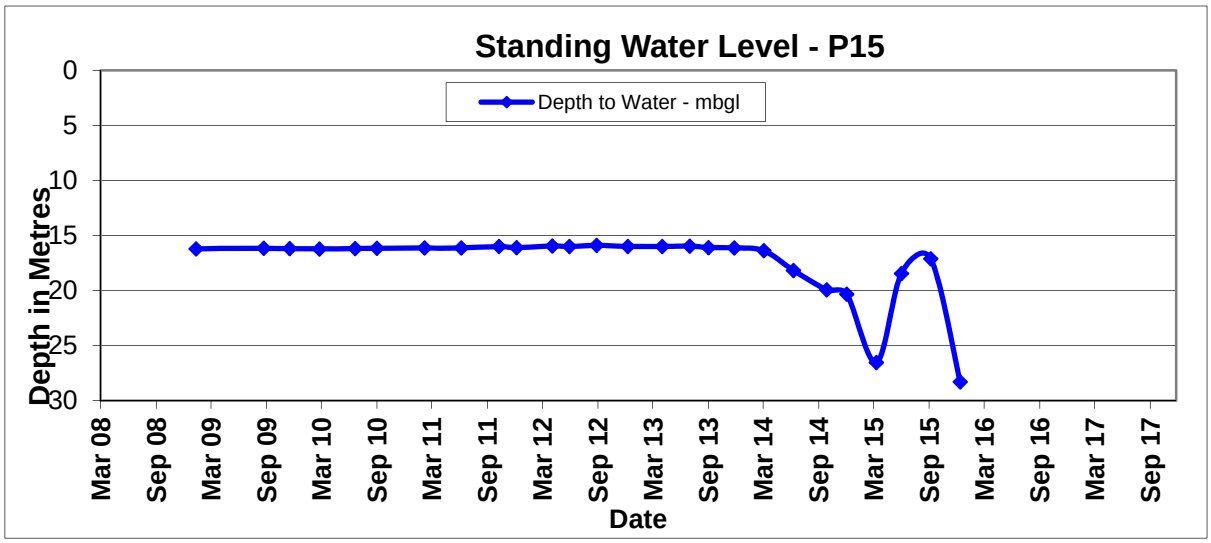
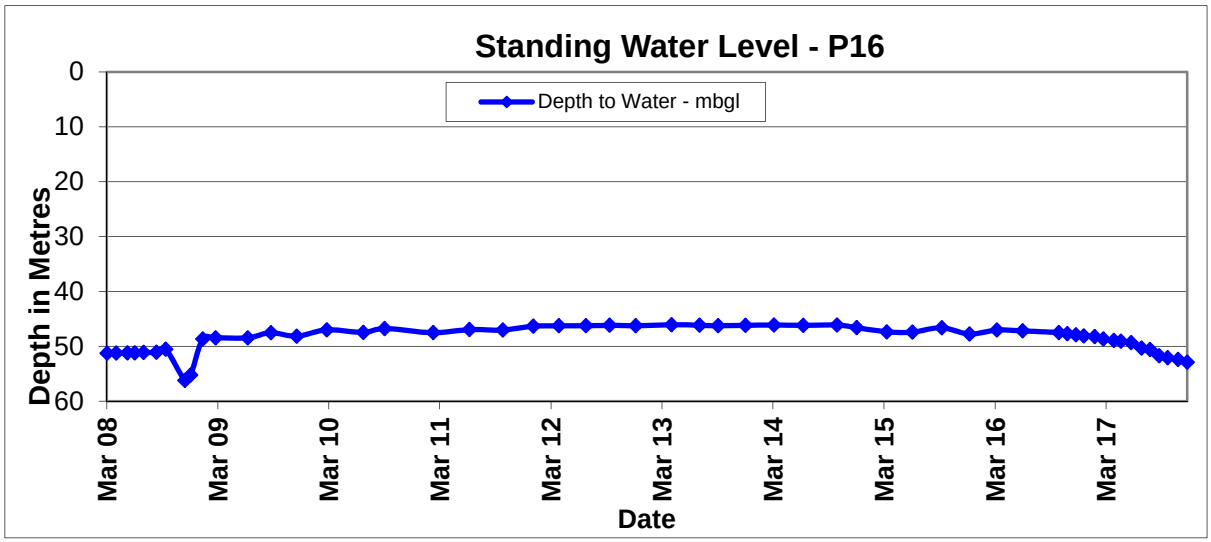
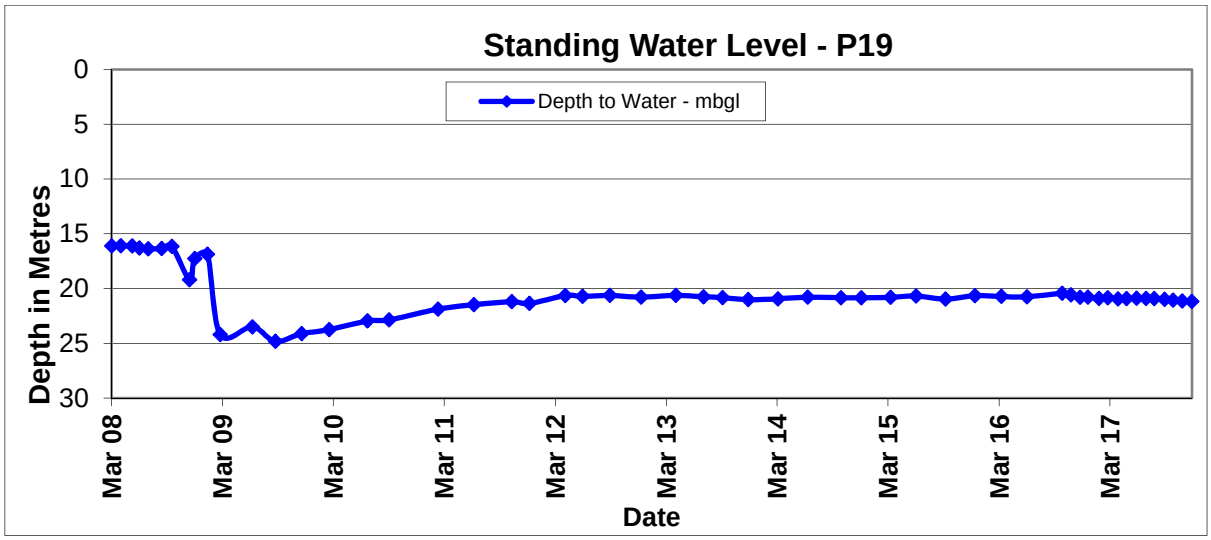
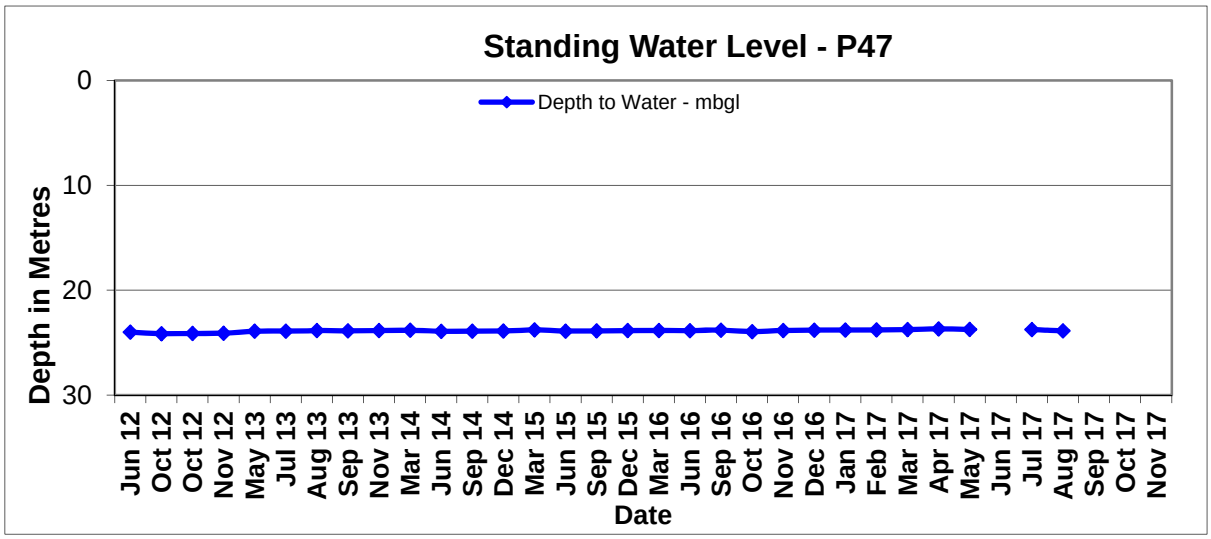
Mar 11
Mar 12
Mar 13
Mar 14
Mar 15
Mar 16
Mar 17
Date


Standing Water Level - P14
Depth to Water - mbgl
Depth in Metres
55
56
57
58
59
60
61
62
Mar 08
Sep 08
Mar 09
Sep 09
Mar 10
Sep 10
Mar 11
Sep 11
Mar 12
Sep 12
Mar 13
Sep 13
Mar 14
Sep 14
Mar 15
Sep 15
Mar 16
Sep 16
Mar 17
Sep 17
Date


Standing Water Level - P15
Depth to Water - mbgl
Depth in Metres
0
5
10
15
20
25
30
Mar 08
Sep 08
Mar 09
Sep 09
Mar 10
Sep 10
Mar 11
Sep 11
Mar 12
Sep 12
Mar 13
Sep 13
Mar 14
Sep 14
Mar 15
Sep 15
Mar 16
Sep 16
Mar 17
Sep 17
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
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
Date


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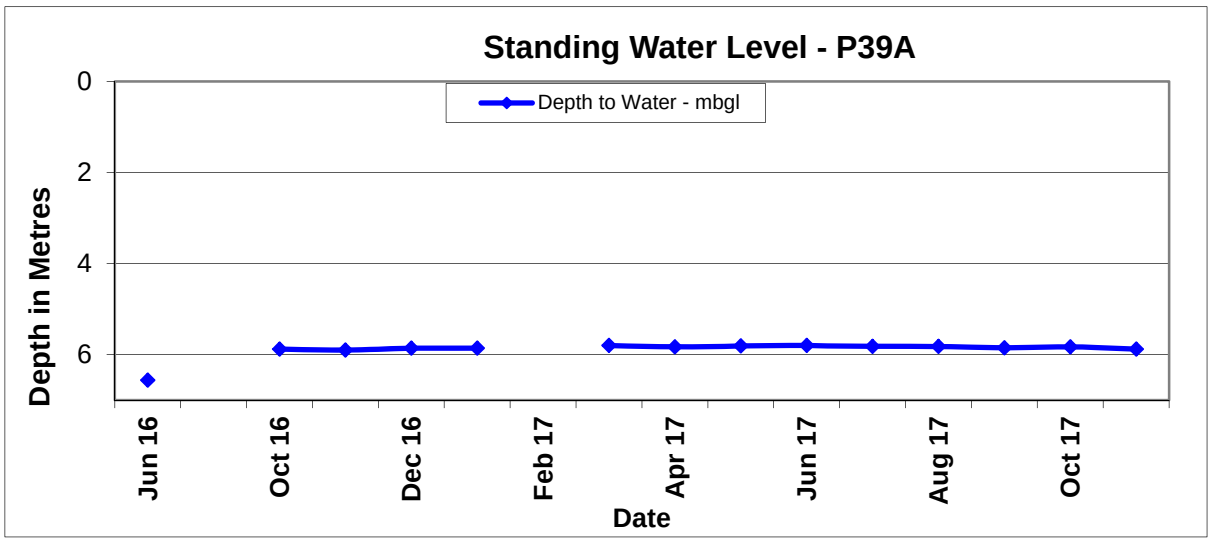
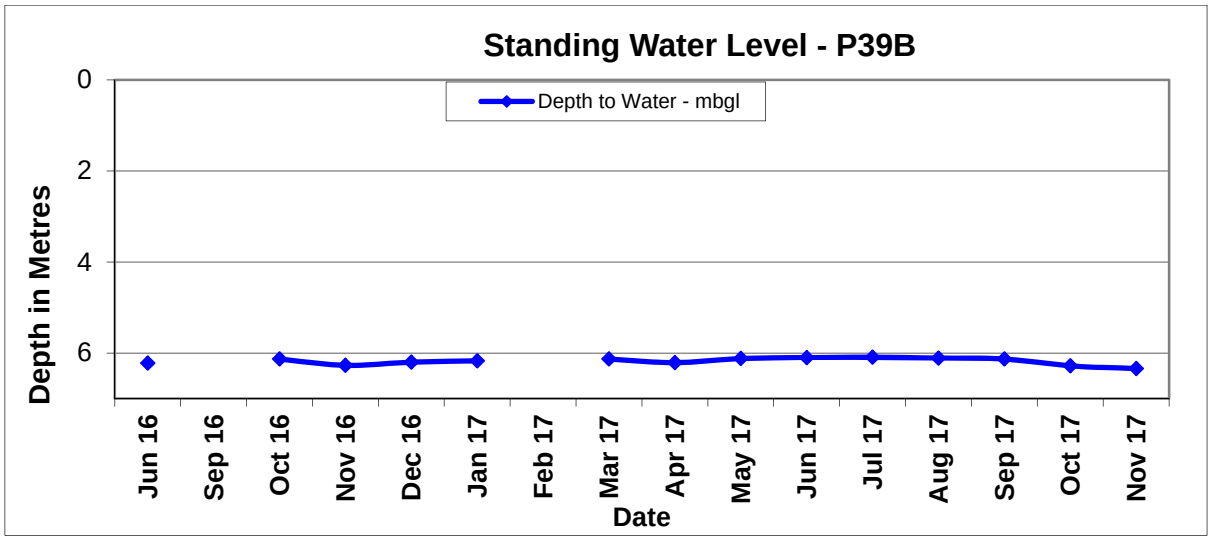
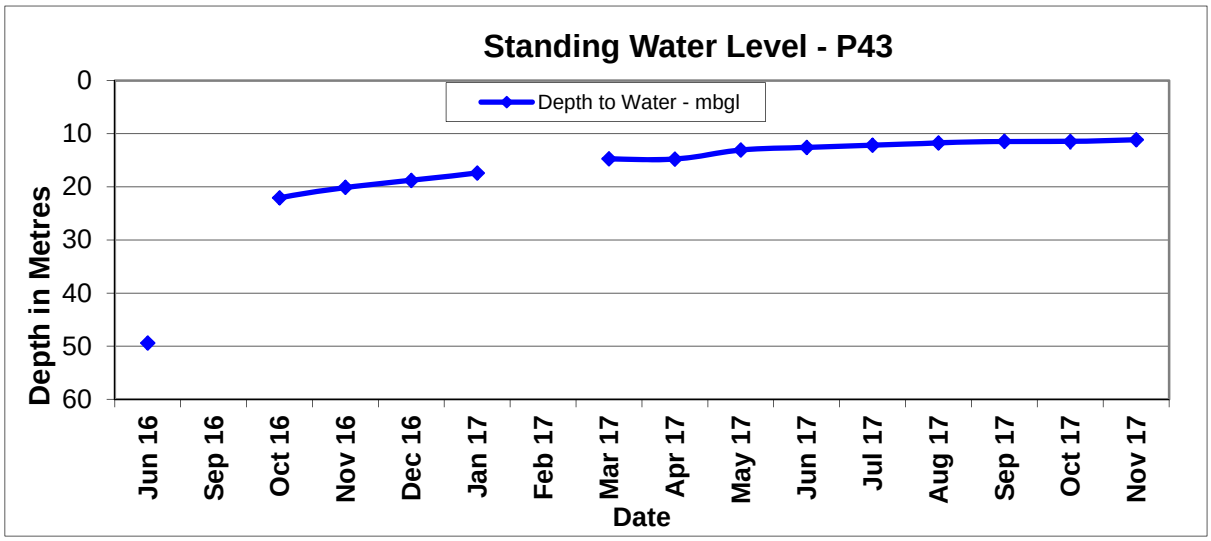
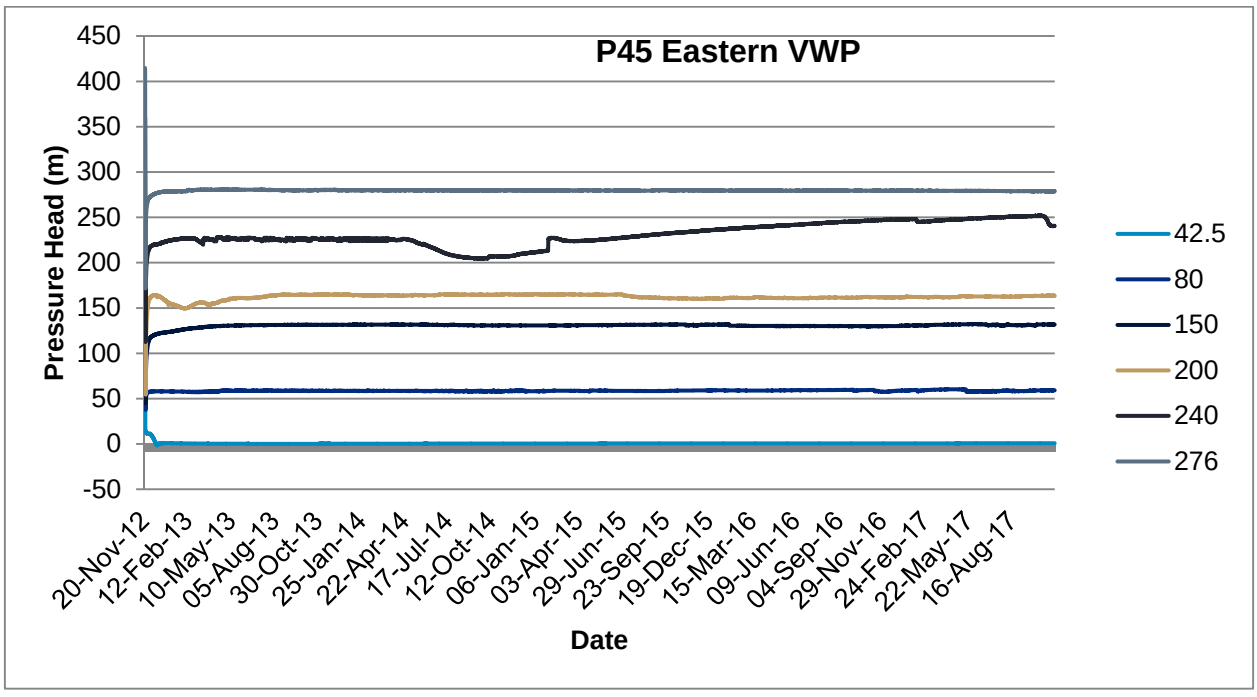
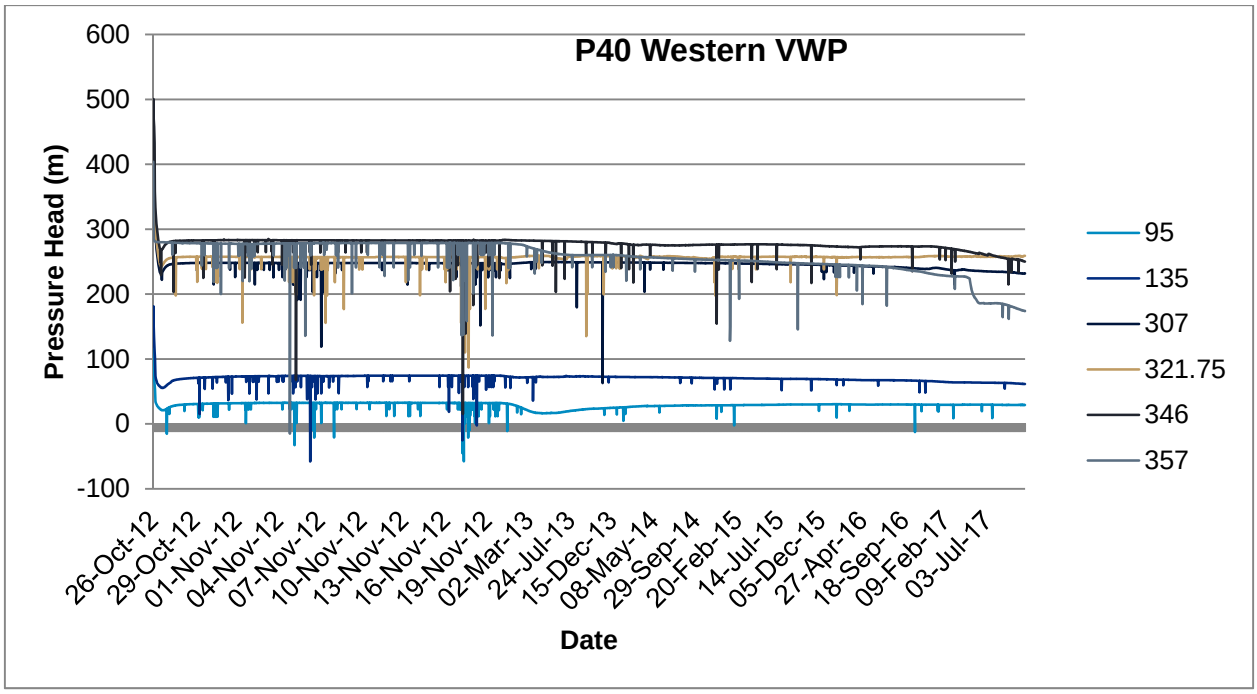
May 17
Jun 17
Jul 17
Aug 17
Sep 17
Oct 17
Nov 17
Date

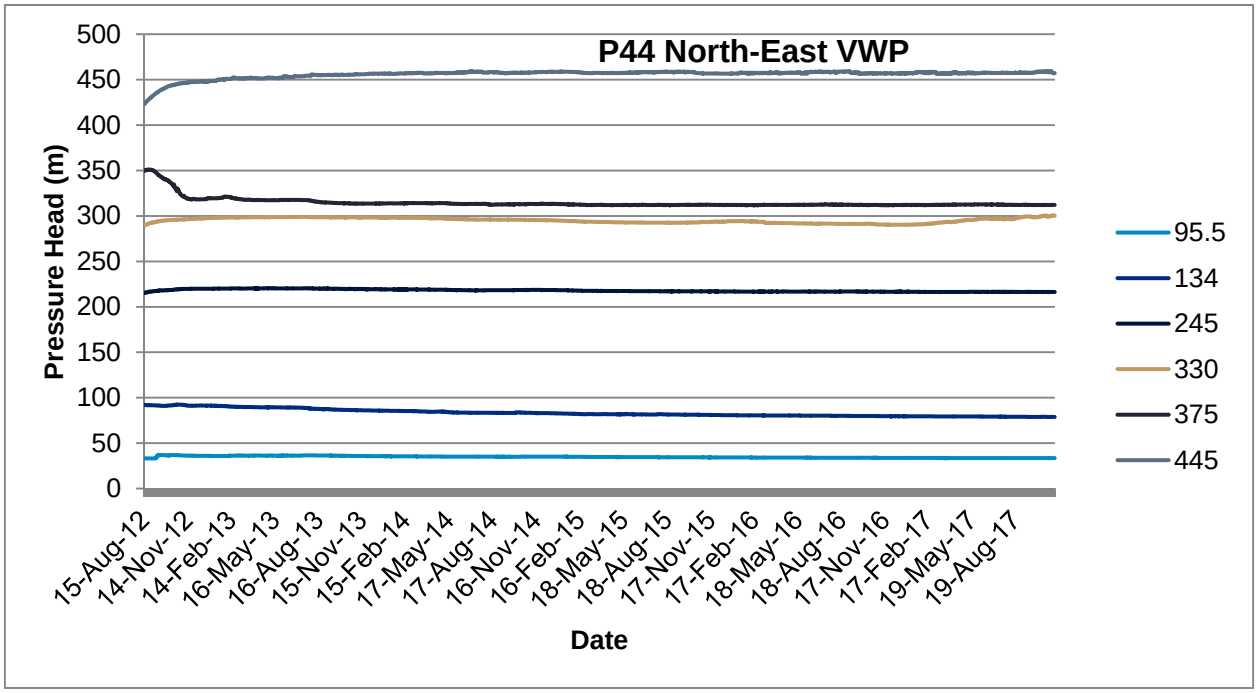

Standing Water Level - P39A
Depth to Water - mbgl
Depth in Metres
0
2
4
6
Jun 16
Oct 16
Dec 16
Feb 17
Apr 17
Jun 17
Aug 17
Oct 17
Date


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
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
Date


P45 Eastern VWP
Pressure Head (m)
450
400
350
300
250
200
150
100
50
0
-50
20-Nov-12
12-Feb-13
10-May-13
05-Aug-13
30-Oct-13
25-Jan-14
22-Apr-14
17-Jul-14
12-Oct-14
06-Jan-15
03-Apr-15
29-Jun-15
23-Sep-15
19-Dec-15
15-Mar-16
09-Jun-16
04-Sep-16
29-Nov-16
24-Feb-17
22-May-17
16-Aug-17
Date
42.5
80
150
200
240
276


P40 Western VWP
Pressure Head (m)
600
500
400
300
200
100
0
-100
26-Oct-12
29-Oct-12
01-Nov-12
04-Nov-12
07-Nov-12
10-Nov-12
13-Nov-12
16-Nov-12
19-Nov-12
02-Mar-13
24-Jul-13
15-Dec-13
08-May-14
29-Sep-14
20-Feb-15
14-Jul-15
05-Dec-15
27-Apr-16
18-Sep-16
09-Feb-17
03-Jul-17
Date
95
135
307
321.75
346
357


P44 North-East VWP
Pressure Head (m)
500
450
400
350
300
250
200
150
100
50
0
15-Aug-12
14-Nov-12
14-Feb-13
16-May-13
16-Aug-13
15-Nov-13
15-Feb-14
17-May-14
17-Aug-14
16-Nov-14
16-Feb-15
18-May-15
18-Aug-15
17-Nov-15
17-Feb-16
18-May-16
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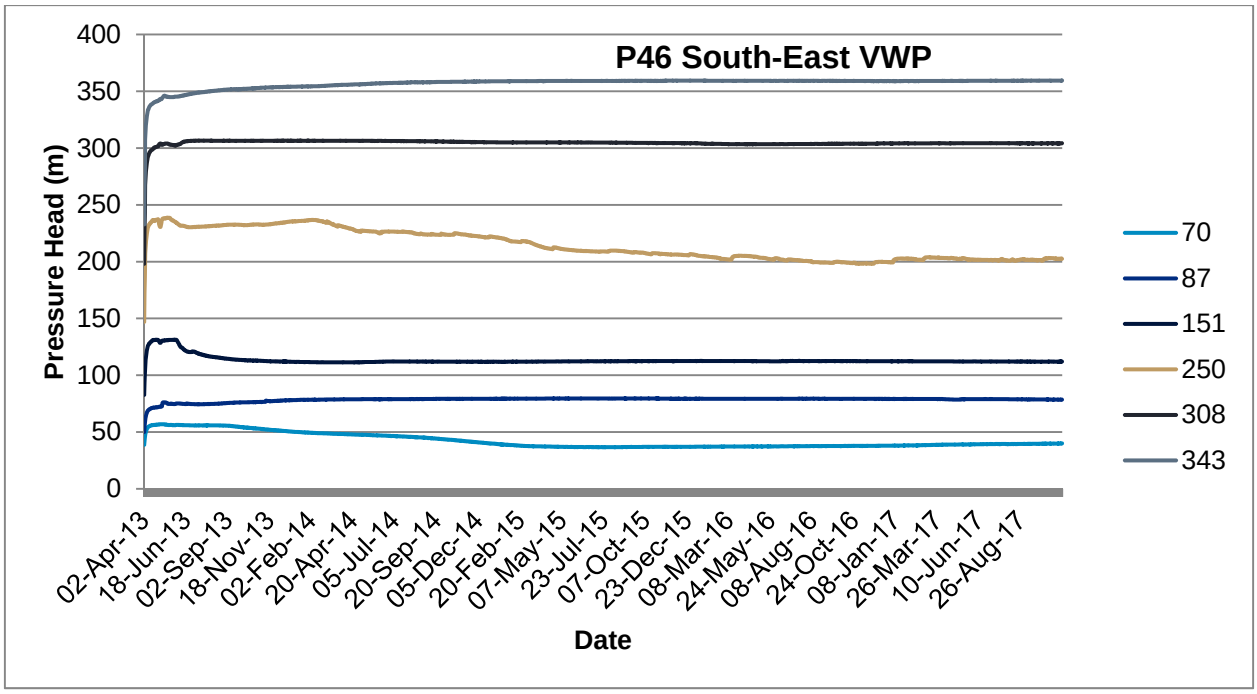
19-May-17
19-Aug-17
Date
95.5
134
245
330
375
445



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 September to November 2017 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^	30.5
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 LW107		
	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	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
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*

Longwall Panels (LW) 103 to LW107		
	Maximum Predicted Extraction Plan	Maximum Measured
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.

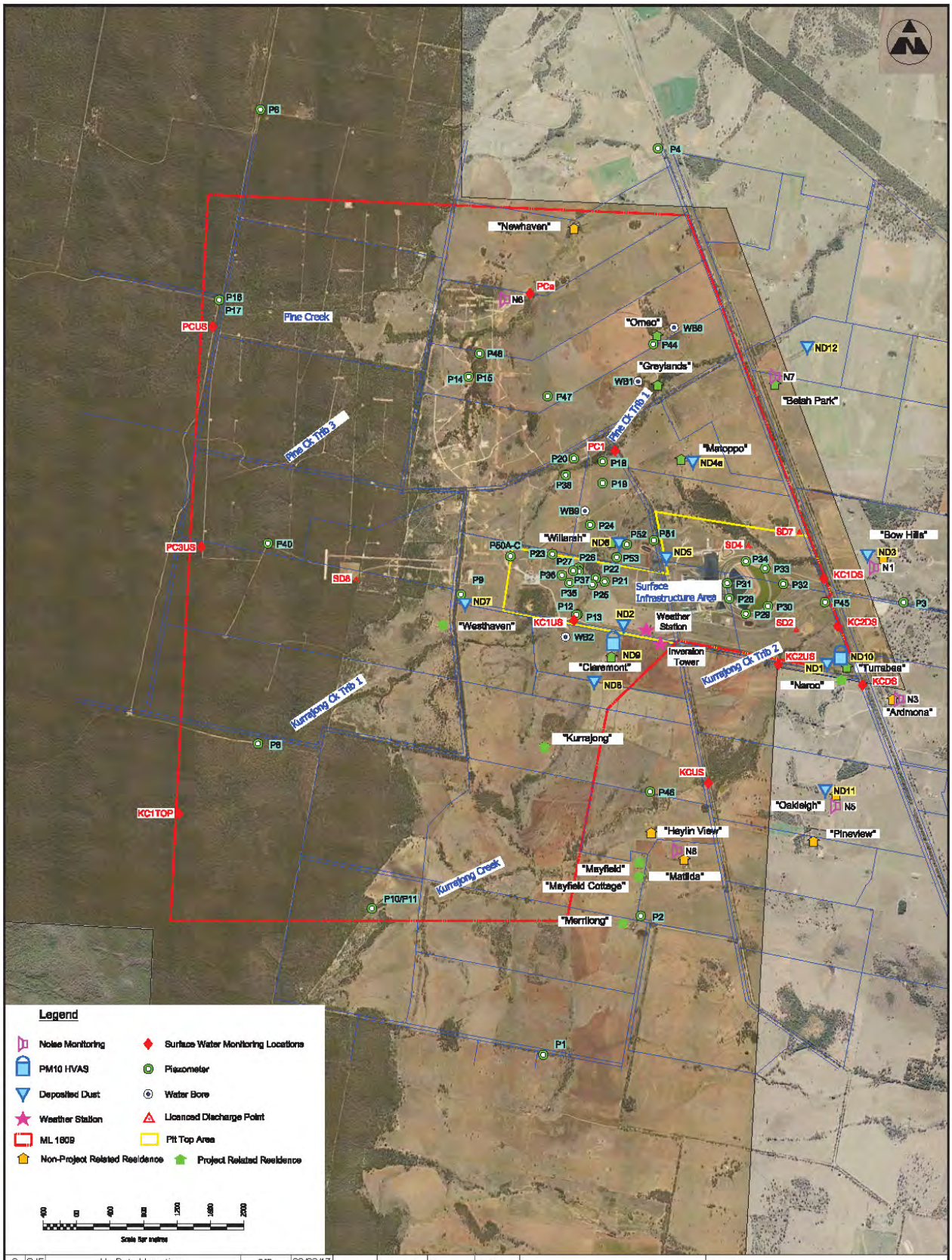
The centreline subsidence results for LW101 to LW107 indicate that the Garrawilla Volcanics and Basalt Sill have not reduced subsidence through spanning behaviour and that the maximum subsidence is also considered closer to 63% of the average mining height of 4.3m.

Complaints

Two formal complaints were received during the period September to November 2017. The complaints were in relation to dust, noise, rubbish and lights and were from the same complainant. The relevant parties were notified at the time. Additional trees have also been provided to plant as a visual screen.

Environmental Incident(s)

No environmental incidents occurred during the September to November 2017 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