

Narrabri Mine Community Consultative Committee Meeting #56

Date: Wednesday 16 March 2022
Time: 5:00pm
Location: Narrabri Mine

Present: Russell Stewart (RS)
James Stieger (JS)
Ian Duffy (ID)
Peter Webb (PW)
Allan Grumley (AG)
Geoff Hunter (GH)
Donna Ausling (DA) - Narrabri Shire Council
Brent Baker (BB) – Whitehaven Coal
David Ellwood (DE) – Whitehaven Coal
Darren Swain – Whitehaven Coal

Apologies: Gerald Linde
Cr Clements- Narrabri Shire Council
Cr Redding- Narrabri Shire Council

1. DECLARATION OF PECUNIARY INTEREST

No changes to previous.

2. PREVIOUS MINUTES

RS asked if everyone has read previous minutes.

RS asked for previous minutes to be accepted as a true and accurate record.

Moved: JS Seconded: ID

2.1 BUSINESS ARISING FROM PREVIOUS MINUTES

Details on water quality from wet weather discharges at licensed sediment dam discharge points requested in previous meeting by JS. BB will include this detail in future Environmental Monitoring Reports as requested, however there have been no discharges since previous CCC meeting.

BB advised CCC that NCO has prepared a Scope of Work for a review of the flood assessment by suitably qualified experts. JS requested to spend some time with the consultant when they come to site to ensure local knowledge of water movements is considered in the flood models. BB assured JS that the Scope of Work includes time on-site to walk the country with JS and capture the local knowledge.

3. OPERATIONS PROGRESS REPORT AND SAFETY UPDATE

Presented by Brent Baker.

- Mining returned to normal operations.
- Longwall move from LW110A to LW110B scheduled for end of financial year.

- Workforce numbers: no significant change; slight increase in contractor numbers as a result of bord and pillar operational readiness.
- Safety performance average. No major injuries.

4. ENVIRONMENTAL MONITORING REPORT

Presented by Brent Baker.

- INCIDENTS: No reportable incidents to regulatory agencies since previous CCC meeting. Nil for calendar year.
- COMPLAINTS: Nil complaints since previous CCC meeting. No complaints received this (calendar) year.
- DEPOSITIONAL DUST:
 - 2022 annual average (year to date) for all monitoring locations is below the licence limit of 4 g/m²/month (Insoluble Matter); with the exception of ND8 Claremont (the long-term average for ND8 is 1.9 g/m²/month).
- PM10 AIR QUALITY:
 - No exceedances of the 24 hour limit within last 12 month period at Claremont monitoring location. There has been one exceedance of the 24 hour compliance limit of 50 µg/m³ within the last 12 month period at Turrabaa monitoring location. This exceedance was communicated to DPI&E on Friday the 2nd of July 2021. DPI&E acknowledged that this exceedance was not related to mining operations and likely to be caused by adjacent roadwork activities on Kamilaroi Highway upgrade project. DA queried if elevated level at Claremont around same date was related. BB explained was likely related, however not investigated as result did not exceed the 24hour limit and Claremont PM10 results remained below the annual average limit.
 - Rolling 12 month average currently below annual average limit (of 30 µg/m³) for the two monitoring locations (Claremont and Turrabaa).

- QUARTERLY NOISE MONITORING

Quarter 4 2021 attended noise monitoring was completed during November-December, with compliance achieved at all locations during all time periods.

Quarter 1 2022 attended noise monitoring was completed the previous week and results are not yet available.

- SURFACE WATER MONITORING:

No wet weather discharges have occurred from licensed discharge point during January-March 2021.
- WATER LICENSING: Presented graphs showing NCO water licence allocation usage. Usage from water licences has been minimal with recent wet weather and mine has been utilising water captured on-site. Presented updated chart showing mine water inputs and outputs, and actual net water usage for 2021 water (financial) year.
 - Discussions around groundwater inflow to the mine, the water balance model predictions and the forecast need for permeate (treated reverse osmosis water) discharge to the Namoi River and the required approval process the mine is working through.
- GROUNDWATER MONITORING: Groundwater monitoring results are reviewed at the end of each year by a suitably qualified hydrogeologist and reported on in the Annual Review. A summary of the 2021 groundwater review will be provided at next CCC meeting.
 - Hydrographs for groundwater monitoring wells updated. Groundwater level discussion will be presented in 2021 groundwater review at next CCC meeting.
- SUBSIDENCE MONITORING: Line 108 North and Line H were monitored early January; maximum measured subsidence remains within predictions.

GH mentioned that we should add a line item somewhere in minutes for issues such as permeate water discharge approval process and flood study review so that they are not lost.

ACTION: BB to add section to future CCC Environmental Monitoring Reports to keep track of approvals, studies, special projects etc.

No further questions/comments from members.

5. STAGE 3 UPDATE

David Elwood provides update.

- Stage 3 project recommended for approval by Department of Planning, Industry & Environment (DPI&E) earlier this year. Minister decided to refer the Stage 3 project to the Independent Planning Commission (IPC) for final determination. IPC decided to hold two public hearings on the 14th and 18th February. Stage 3 approval is now sitting with IPC for final determination. All relevant information and IPC material is available on the NSW Government website. JS queried nature of submissions. DE provided summary of number and themes of submissions.
- JS queried progress of make good agreements for affected private groundwater bores. DE provided update on process. DE commented that approximately half of the affected landholders expressed interest in financial compensation in lieu of a new bore. GH queried how you will make good. DE explained that groundwater expert look at every affected bore and the expert has undertaken assessments and provided recommendations in a 'bore report' to every affected landholder, which includes a 'decision-tree' on make good options. DE explained the process that the mine must go through to satisfy the approval criteria and demonstrate the new bore meets the criteria; which includes the requirement to complete a 24hr pump-test on the existing bore and then perform a 24hr pump test on the new bore to ensure the new bore performance and water quality is the same or better than the affected bore. DE explained the 'make-good' conditions would require all measures to be completed within two years of commencement of the development. Discussion around other options for affected landholders, eg. financial compensation in-lieu of bore, or dam in lieu of a bore. DE explained that these other options can't be considered until after determination and are dependent on the final Stage 3 consent conditions.
- GH queried proposed southern ventilation complex and that two affected landholders have been consulted with; GH asked who these landholders were as two landholders on the southern boundary did not have agreements. DE explained to GH that the two landholders GH was talking about were not identified as being impacted in the Stage 3 noise assessment. DE explained that the southern vent shaft has been engineered and designed to be quieter than current vent fan site and direct any potential noise towards the North. DE assured GH that regardless of the Stage 3 noise model outcomes he would make further contact with the two landholders on the southern boundary to discuss Stage 3 environmental impact assessment outcomes.

No further questions/comments from members.

6. GENERAL BUSINESS

- DE mentioned the application for an Exploration Licence in the area northwest of the existing Mine Lease that was discussed with CCC members in previous meetings. The application was made in February. DE explained detail of the advertisement that Narrabri Mine are now required to publish in newspapers. General discussion round the coal resource in this area and possible mining options/timelines. DE explained exploration drillholes in the application area are very widely spaced (>10km) with limited available information of the Hoskinssons coal seam and this is the reason the mine is applying for the Exploration Licence in order to be able to drill coal exploration holes and obtain information on the coal resource. General discussion around landholdings in the application area. DE explained that even if approved there would be further requirement for Narrabri Mine to undertake environmental assessments and obtain additional approvals and landholder access agreements before any exploration drilling program could commence. DE advised that advertisements to be published in newspapers are in Government prescribed layouts and are to let community know that application is being made and to provide contact details for community to phone for further information.
- RS advised CCC that member Charlie Melbourne has not attended three meetings in a row.
ACTION: RS to send letter to CM to query if he wishes to remain a CCC member.
- GH queried Narrabri Mine purchase of Oakleigh property and why the property wasn't advertised for leasing as per Whitehaven property strategy discussed in previous CCC meeting. BB advised that Oakleigh settled prior to the new strategy being implemented.
- Darren Swain (WHC) advised that the Whitehaven Coal Community Investment Committee has been set up with community, council and indigenous representatives from three shires. The fund has \$200,000 allocated annually to dispense across applicants. Applications can be made via the Whitehaven Coal website. Successful applicants are selected by the committee and based on merit. Last quarter there was almost \$53,000 provided to 14 successful applicants. \$100,000 funding provided in last six months. This doesn't include additional contributions that Whitehaven Coal make within the community such as scholarships etc.

- Donna Ausling (NSC) announces new councillor appointments to the Narrabri Mine CC following last council meeting. Councillor Redding is returning as delegate, with Councillor Clements as the alternate delegate. Senior staff from Council will assist with attending CCC meetings. DA requested that Environmental Monitoring Report be sent out prior to next meeting to allow time to review.

ACTION: BB to issue Environmental Monitoring Report 1 week prior to future meetings.

No further General Business.

NEXT MEETING

- 5pm Wednesday the 15 June at Narrabri Mine.

Narrabri Mine Community Consultative Committee Meeting #56

Environmental Monitoring Report: January - March 2022

Reportable Incidents

Nil since previous CCC meeting.

Complaints

Nil since previous CCC meeting.

Nil complaints received in previous 12 months.

Deposited Dust Monitoring

Deposited Dust samples remain in the field for a period of 30 days (+/- 2 days).

Total Insoluble Matter results (g/m ² /month)												
Month	ND1 Turrabaa	ND2 Claremont	ND3 Bow Hills	ND4a New Matoppo	ND5 Claremont	ND6 Willarah	ND7 Claremont	ND8 Claremont	ND11 Oakleigh	ND12 Merriman	ND13 Darjeelang	
Jan-22	0.9	0.4	0.5	2.8	0.7	3.8	0.6	3	2	0.5	0.6	
Feb-22	0.4	0.3	0.7	1.3	1.2	3.8	0.5	7.3	0.9	0.4	4	
Annual Average	0.7	0.4	0.6	2.1	1.0	3.8	0.6	5.2	1.5	0.5	2.3	

2022 annual average (year to date) for all monitoring locations is below the licence limit of 4 g/m²/month (Insoluble Matter); with the exception of ND8 Claremont (the long-term average for ND8 is 1.9 g/m²/month).

PM₁₀ High Volume Air Sampling (HVAS)

Samples are collected over a 24 hour period once every week, with a (24hr) compliance limit of 50 µg/m³, and an annual average limit of 30 µg/m³.

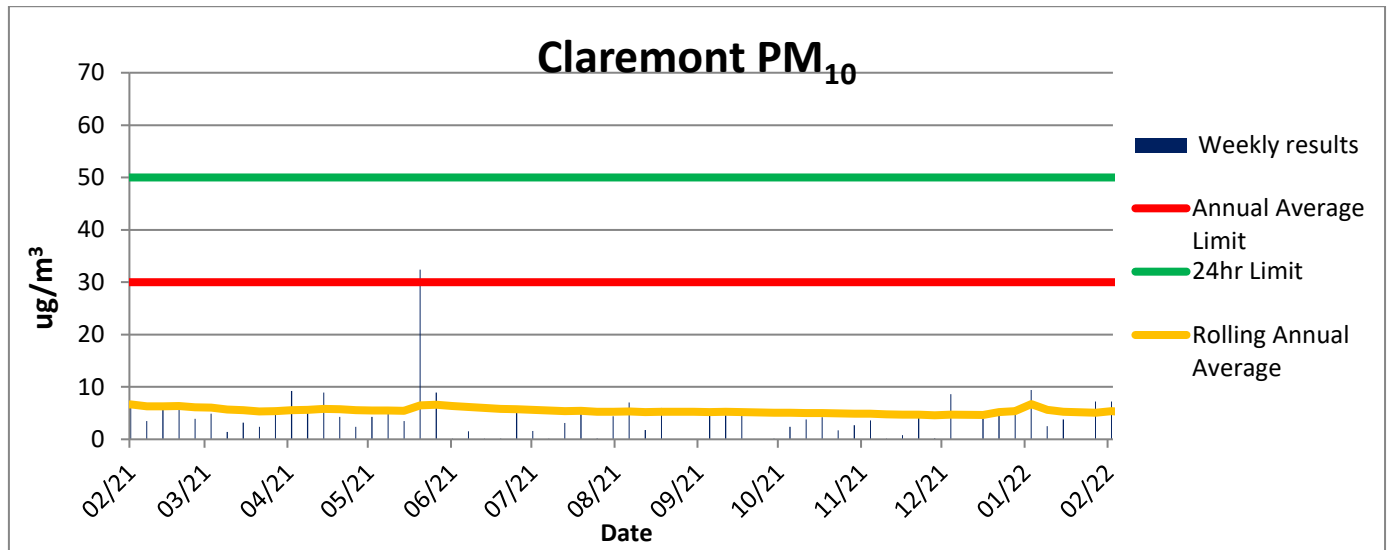


Figure 1: Claremont PM₁₀ High Volume Air Sampler results for last 12 month period.

The Claremont HVAS is returning a rolling annual average of 5.35 µg/m³, which is below the annual average limit of 30 µg/m³. There have been no exceedances of the 24 hour compliance limit of 50 µg/m³ within the last 12 month period.

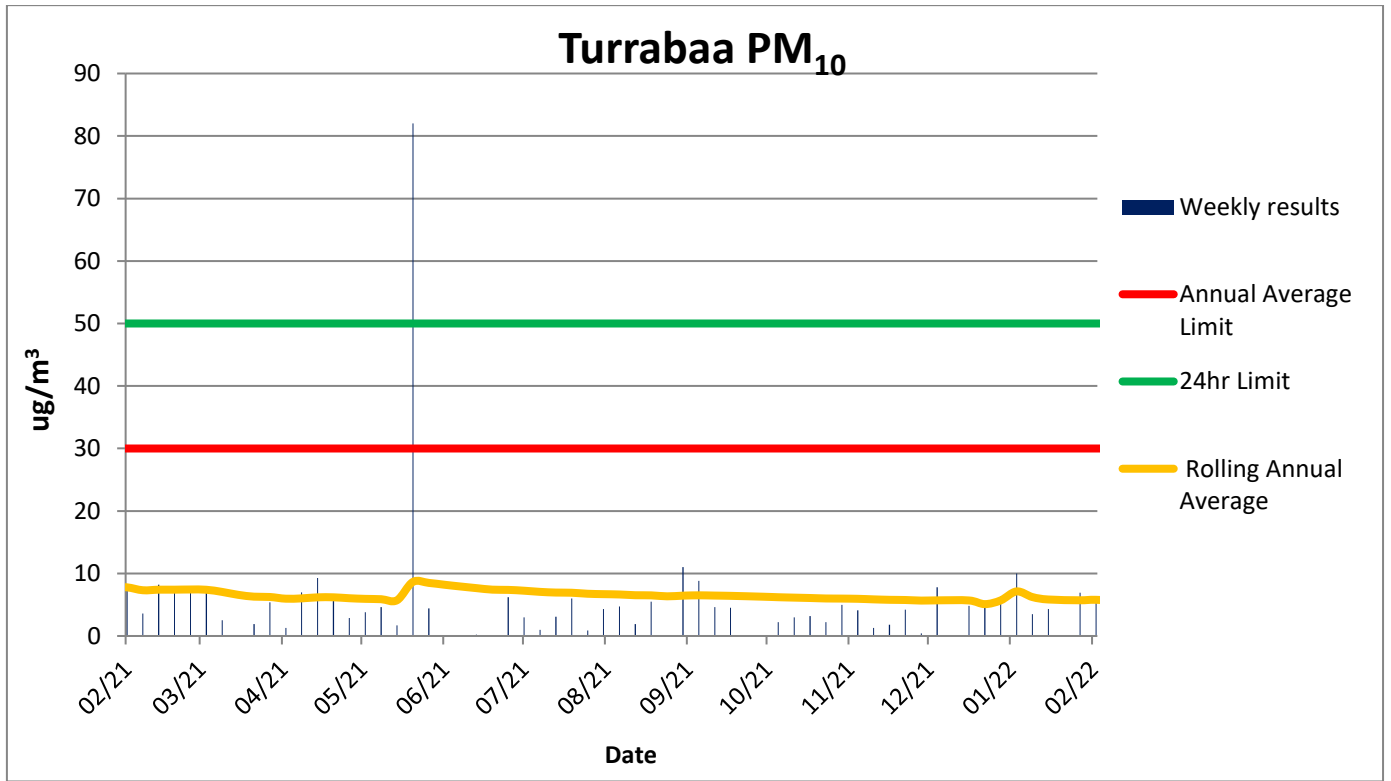


Figure 2: Turrabaa PM₁₀ High Volume Air Sampler results for last 12 month period.

The Turrabaa HVAS is returning a rolling annual average of 5.79 $\mu\text{g}/\text{m}^3$, which is below the annual average limit of 30 $\mu\text{g}/\text{m}^3$. There has been one exceedance of the 24 hour compliance limit of 50 $\mu\text{g}/\text{m}^3$ within the last 12 month period (82 $\mu\text{g}/\text{m}^3$ on 02/06/2021); this exceedance was communicated to DPI&E who acknowledged that the dust result was not related to mining operations and likely to be caused by roadwork activities on the Kamilaroi Highway.

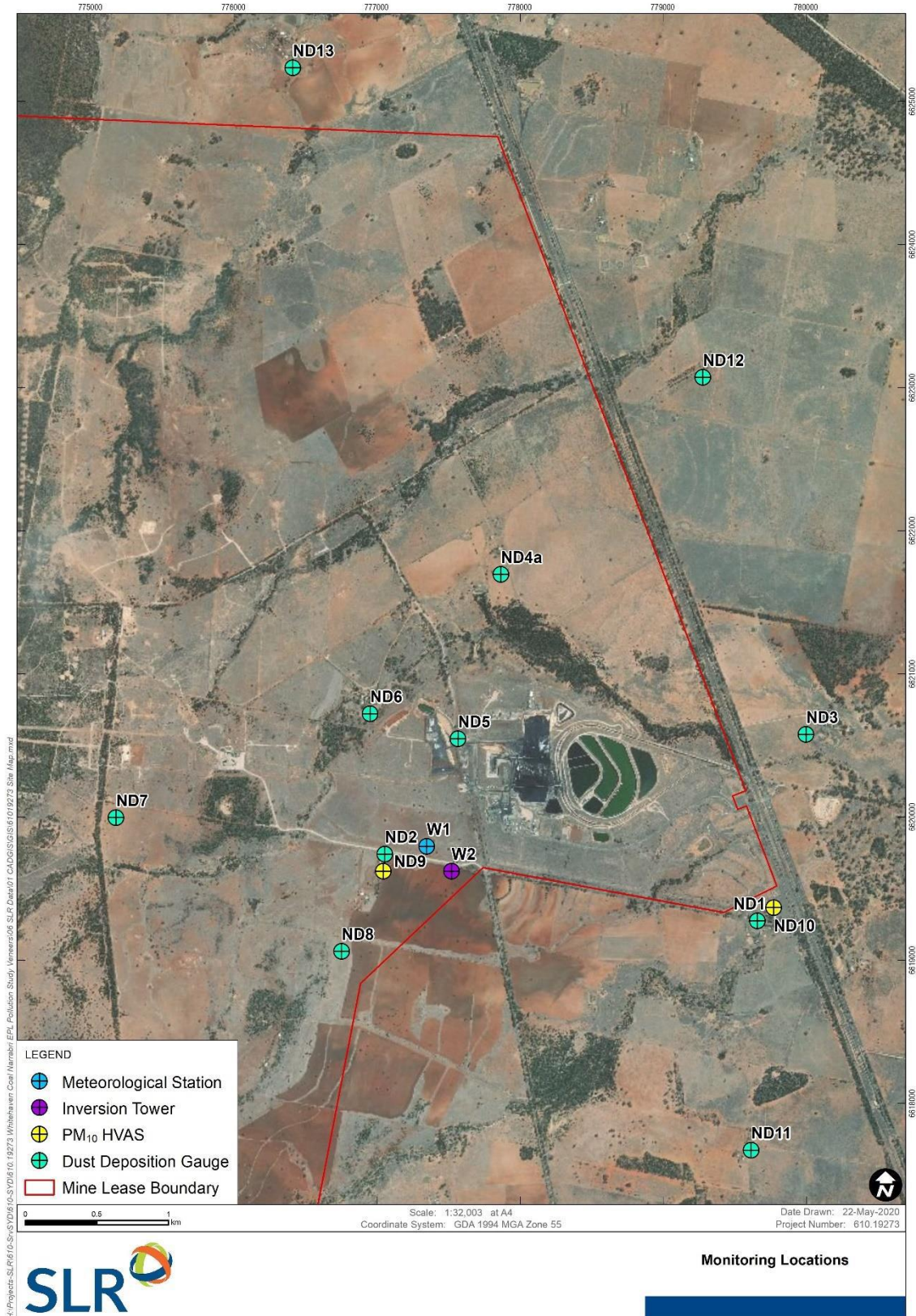


Figure 3: Air Quality Monitoring locations

Noise Monitoring

2021 Quarter 4 attended noise monitoring results are presented in below table. Compliance was achieved at all locations during all time periods.

2022 Quarter 1 attended noise monitoring was conducted from the 8 – 11th of March with results to be reported at the next CCC meeting.

Table 1 Performance Assessment – Operations

EPL ID	Location	Date	Narrabri Mine Contribution dBA				Noise Criteria ¹	Measurement Periods	Standard Weather ³			Compliant
			LAeq 15 min Day	LAeq 15 min Evening	LAeq 15 min Night	LA1 (1 min) Night			Day	Evening	Night	
N5	Oakleigh ²	14/12/2021	I/A	I/A	I/A	I/A	Day, Evening and Night – LAeq(15minute) 35 dBA Night LA1(1minute) – 45 dBA	Day - 1.5 hrs Evening - 0.5 hrs Night – 1hrs	Y	N	Y	Y
		15/12/2021	I/A	I/A	I/A	I/A			Y	Y	Y	Y
		16/12/2021	33	I/A	25	28			Y	Y	N	Y
N6	Newhaven	14/12/2021	I/A	I/A	I/A	I/A			Y	N	Y	Y
		15/12/2021	I/A	I/A	I/A	I/A			Y	Y	N	Y
		16/12/2021	I/A	I/A	I/A	I/A			Y	Y	N	Y
N8	Haylin View ⁵	14/12/2021	I/A	I/A	I/A	I/A			Y	N	N	Y
		15/12/2021	I/A	I/A	I/A	I/A			Y	Y	Y	Y
		16/12/2021	I/A	I/A	23	25			Y	N	N	Y
N9	High Range ²	14/12/2021	N/M	<25	I/A	I/A	Y	N	N	Y		
		15/12/2021	I/A	I/A	I/A	I/A	Y	Y	N	Y		
		16/12/2021	I/A	I/A	I/A	I/A	Y	Y	N	Y		
-	Bow Hills ¹	22/11/2021 ⁴	I/A	I/A	I/A	I/A	Day 15 min Evening 15 min Night 15 min	N	N	N	Y	
-	Ardmona	22/11/2021 ⁴	I/A	I/A	I/A	I/A		N	N	N	Y	
-	Merriman ²	22/11/2021 ⁴	I/A	I/A	I/A	I/A		N	N	N	Y	
-	Matilda ²	15/12/2021	I/A	I/A	I/A	I/A		Y	Y	N	Y	

I/A = Inaudible, N/M = Not Measurable

Note 1: A private agreement between NCOPL and the residents of N1 Bow Hills of 50 dBA LAeq(15minute) is in place. This new level of 50 dBA LAeq(15minute) replaces the levels identified in Conditions 1-3, Schedule 4 of PA 08_0144 Mod 2 and the identical limits contained in condition L3 of Environment Protection Licence No 12789

Note 2: Property is owned by Narrabri Coal Operations

Note 3: Noise levels presented are the highest measured noise level under standard weather conditions over the monitoring period.

Note 4: Evening and Night monitoring conducted on this date, Day monitoring conducted during the following day period on 23/11/2021.

Surface Water Monitoring

No wet weather discharges have occurred from licensed discharge points during January-March 2021.

NSW Water- Licenced Usage

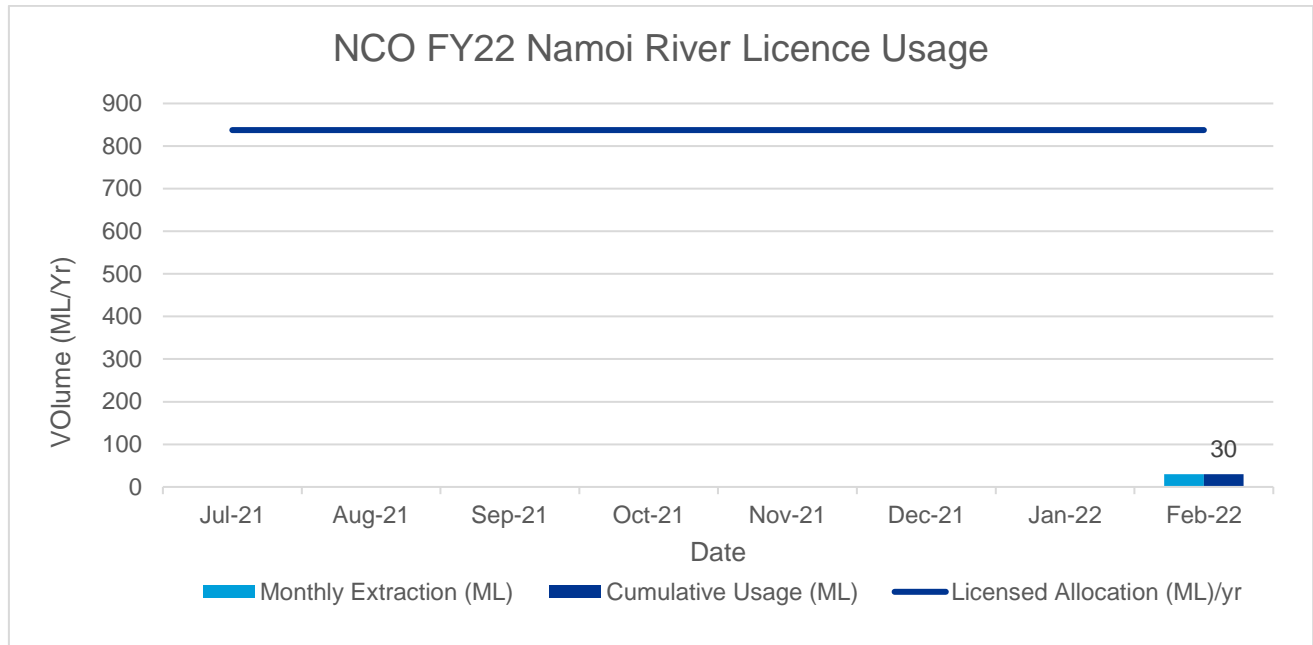


Figure 4: Zone 5 licensed groundwater usage from the Namoi Bore for the current Financial (Water) Year.

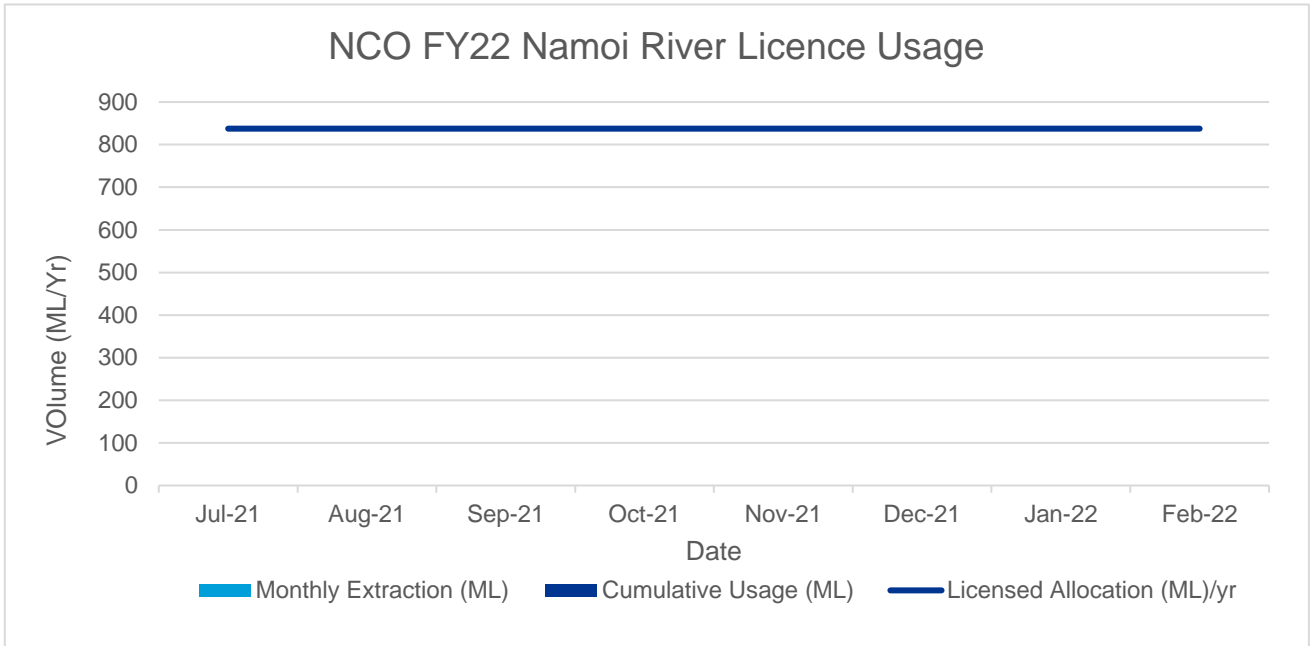


Figure 5: Namoi River licensed water allocation usage for the current Financial (Water)

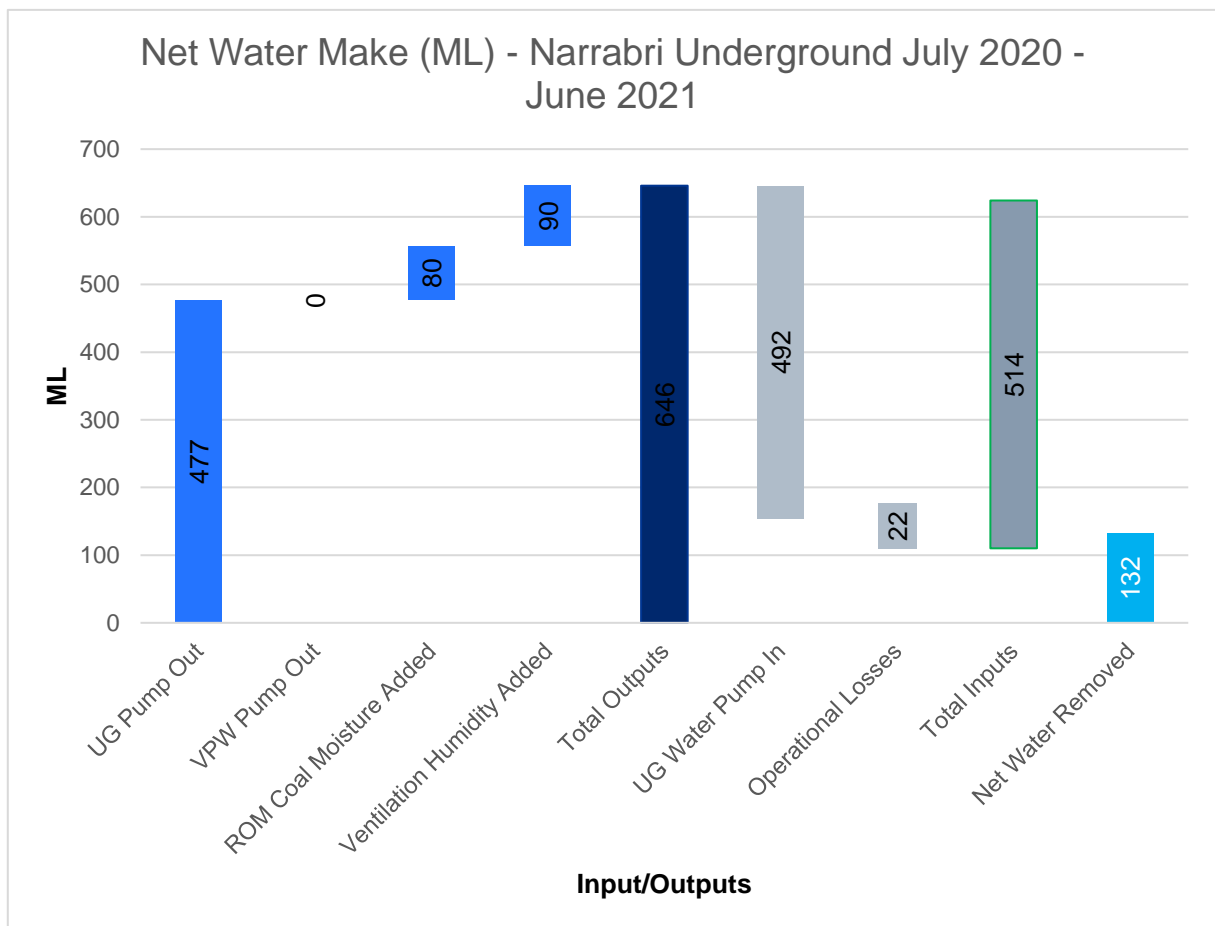


Figure 6: 'Waterfall chart' showing detail for Net groundwater removal from the mine for 2021 water year

Groundwater Monitoring

Groundwater monitoring results are reviewed at the end of each year by a suitably qualified hydrogeologist and reported on in the Annual Review due for submission 31 March.

Subsidence Monitoring

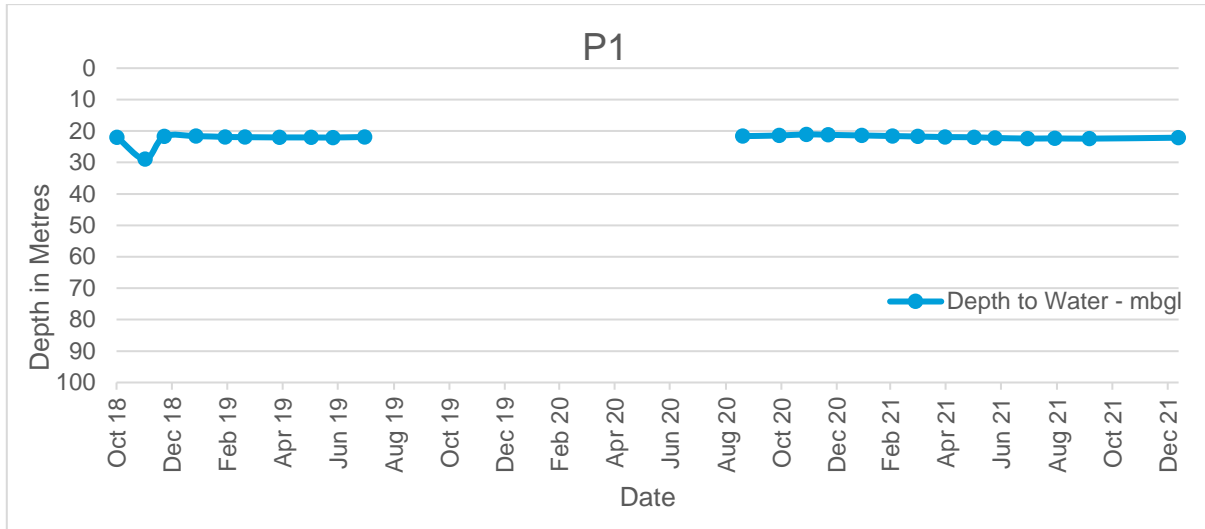
- Line 108 north and Line H were monitored on 07/01/2022.
- LIDAR data is captured annually, and reviewed against subsidence predictions by a suitably qualified expert.

Longwall Panels (LW) 109		
	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 – Monitoring has ceased		
Line 103 – Centre of LW103 – Southern – Monitoring has ceased		
Line 104 – Centre of LW104 – Northern – Monitoring has ceased		
Line 104 – Centre of LW104 – Southern – Monitoring has ceased		
Line 105 – Centre of LW105 – Northern – Monitoring has ceased		
Line 105 – Centre of LW105 – Southern – Monitoring has ceased		
Line 106 – Centre of LW106 – Northern – Being closed out		
Line 107 – Centre of LW107 – Northern – Monitoring has ceased		
Line 108 (measured 07/01/2022)		
Subsidence (m)	2.75	2.71
Tilt (mm/m)	38	36.3
Tensile Strain (mm/m)	10	16.2
Compressive Strain (mm/m)	13	38.9
Line 108 – Southern		
Line A – Cross Panel Survey Line – Being closed out		
Line B – Pine Creek Tributary 1 – Monitoring has ceased		
Line D – Pine Creek – Monitoring has ceased		
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 (measured 06/01/2022)		
Subsidence (m)	2.75	2.75
Tilt (mm/m)	53	31.70
Tensile Strain (mm/m)	13 – 20^	16.60
Compressive Strain (mm/m)	16 – 24^	9.60

Hydrographs for Groundwater Monitoring Wells



Figure 7: Location of groundwater monitoring wells



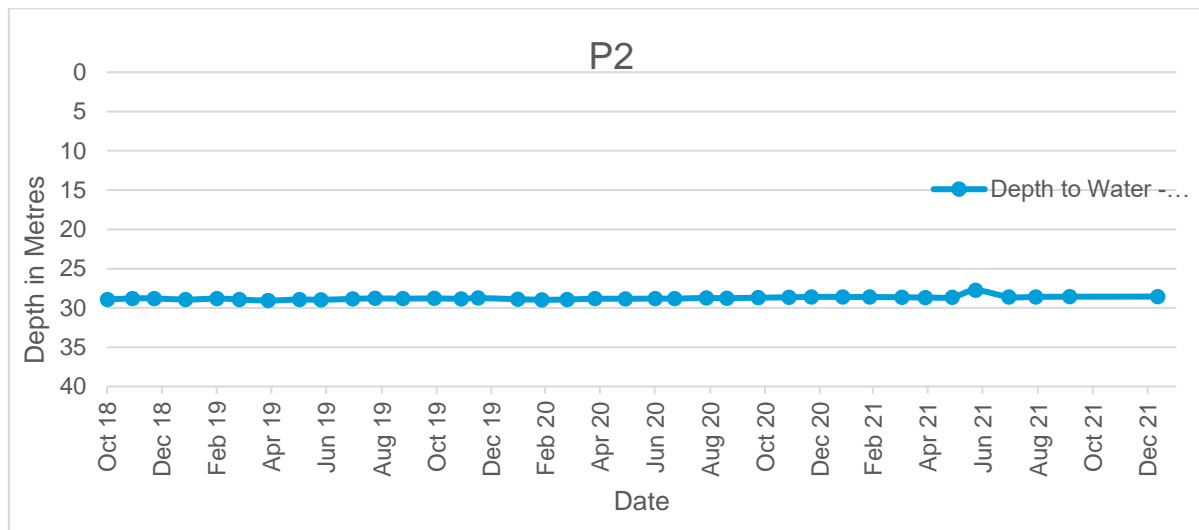
NCO Monitoring bore ID: P1

Location: Longsight

Geological unit: Garrawilla Volcanics

Bore depth: 50m

Explanation: Gap in data is due to land access issues.

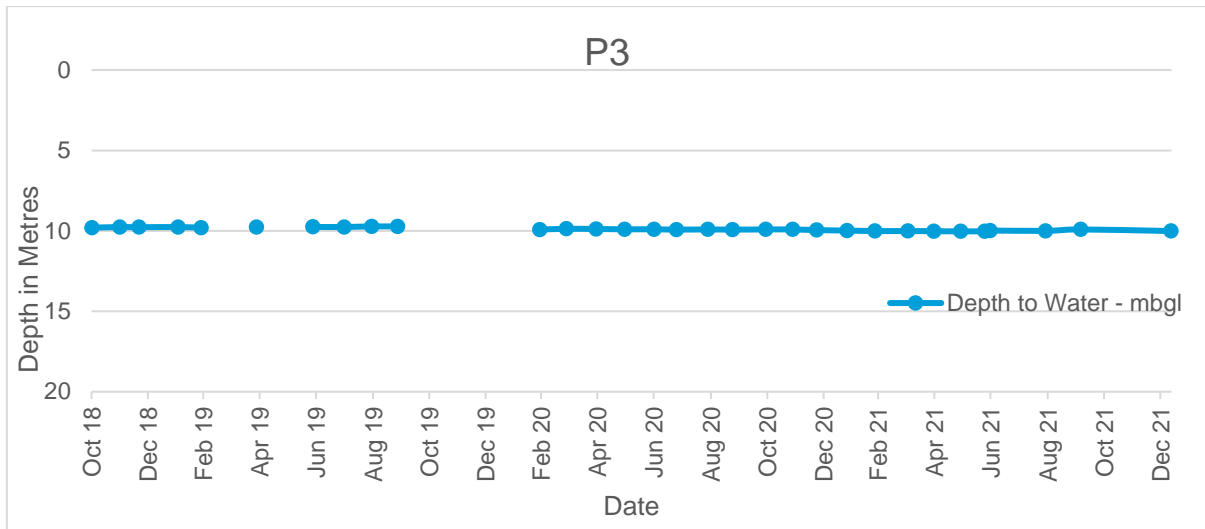


NCO Monitoring bore ID: P2

Location: Matilda

Geological unit: Napperby Formation

Bore depth: 50m



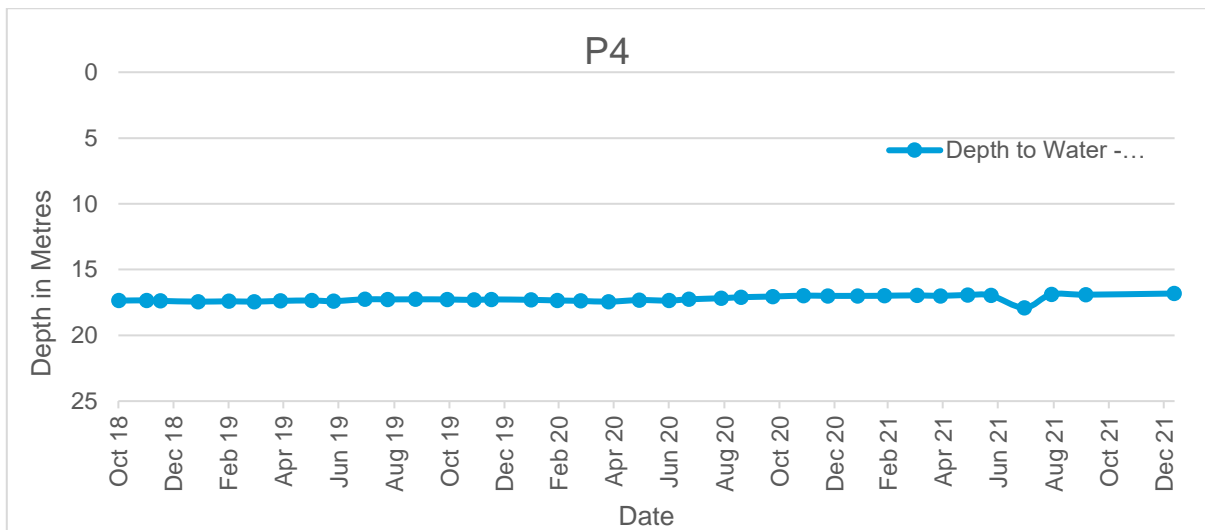
NCO Monitoring bore ID: P3

Location: Bow Hills

Geological unit: Pamboola Formation

Bore depth: 45m

Explanation: Gap in data is due to land access issues.

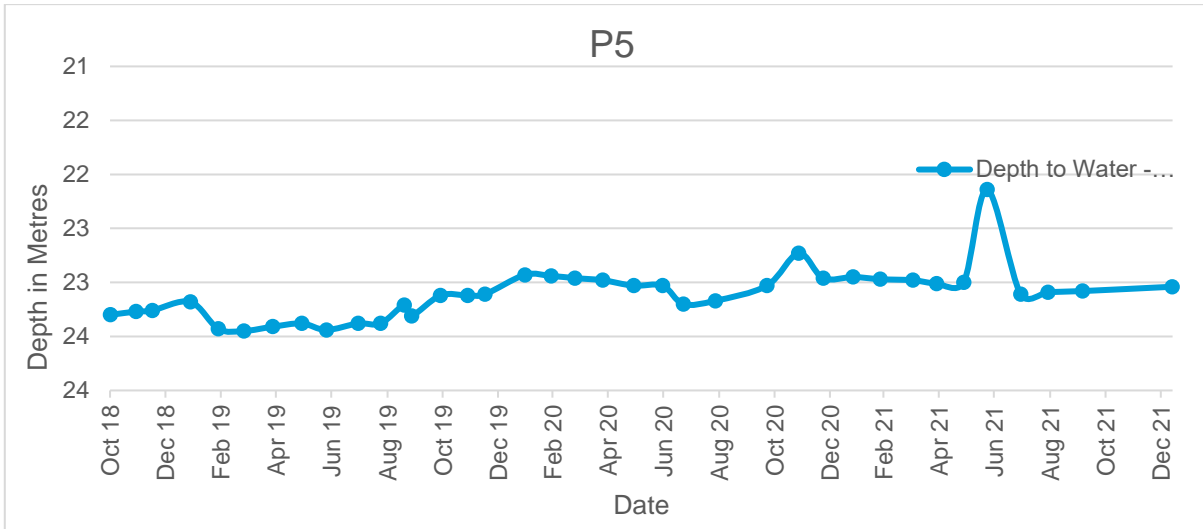


NCO Monitoring bore ID: P4

Location: North of Newhaven on Kamilaroi highway

Geological unit: Napperby Formation

Bore depth: 30m



NCO Monitoring bore ID: P5

Location: Unknown - shown on Figure 10

Geological unit: Pamboola Formation

Bore depth: 30m

No Graph

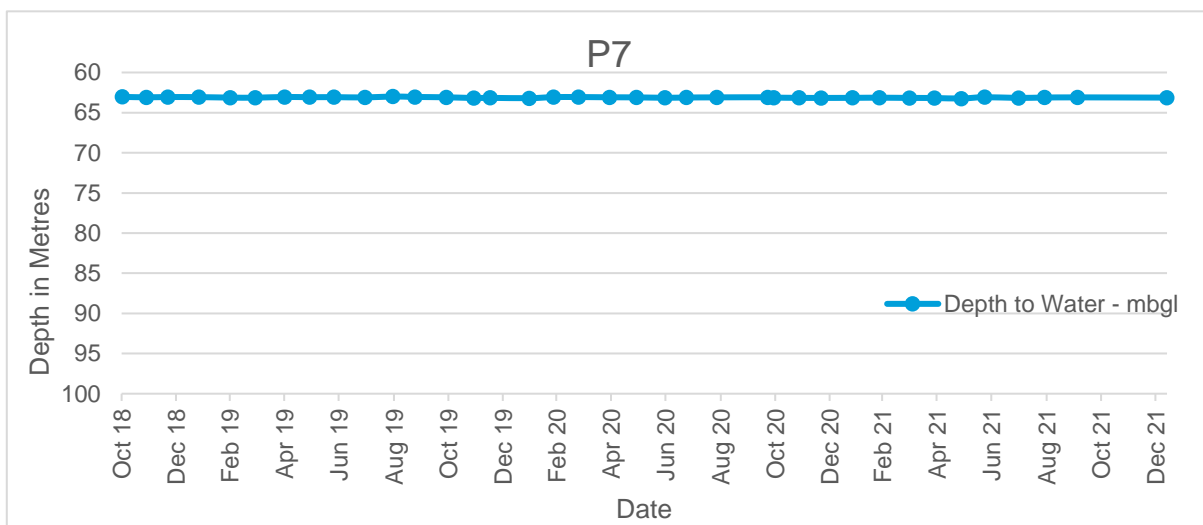
NCO Monitoring bore ID: P6

Location: shown on Figure 10

Geological unit: Pilliga sandstone

Bore depth: 90m

Explanation: Dry since 2012

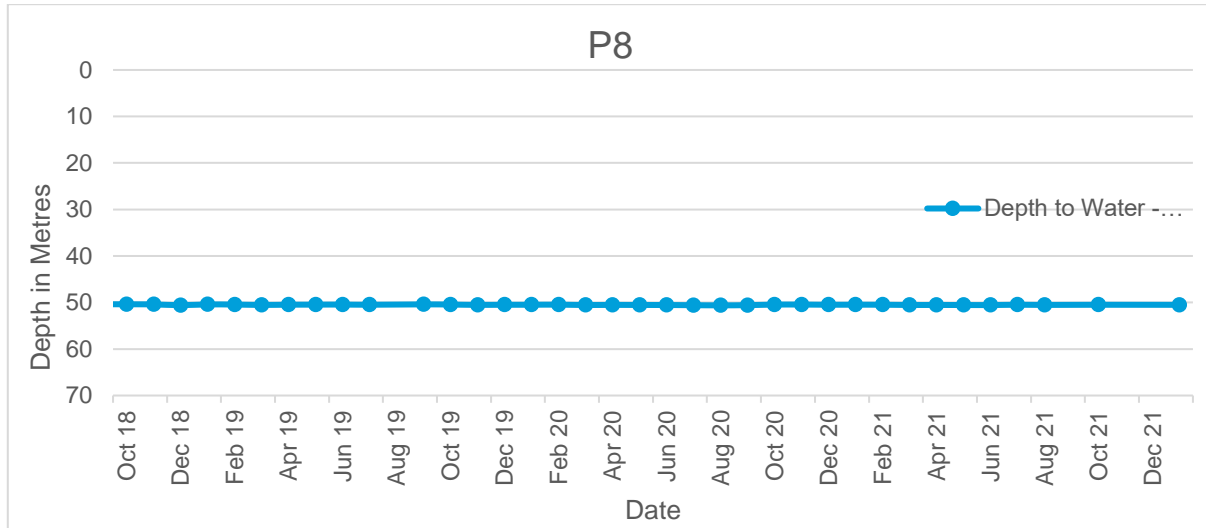


NCO Monitoring bore ID: P7

Location: State forest

Geological unit: Pilliga sandstone

Bore depth: 90m

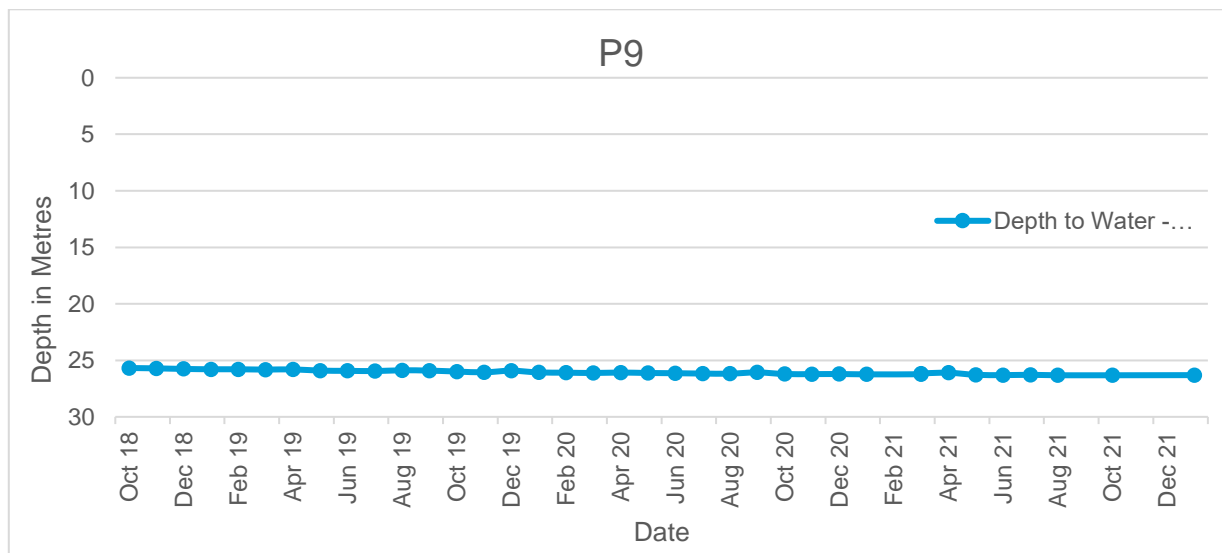


NCO Monitoring bore ID: P8

Location: Kurrajong

Geological unit: Purlawaugh Formation

Bore depth: 65m

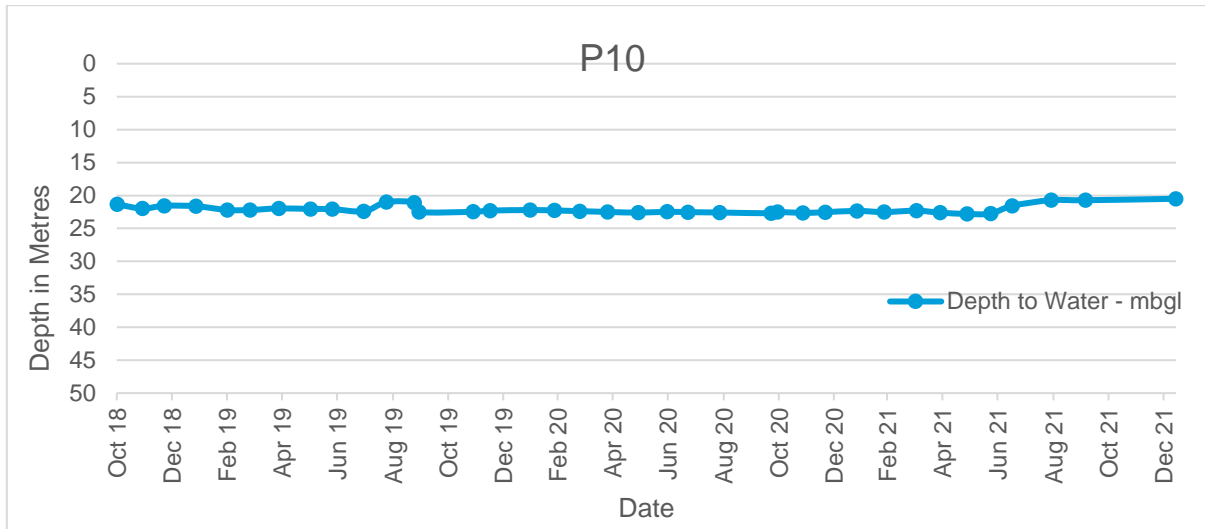


NCO Monitoring bore ID: P9

Location: NCO – Figure 10

Geological unit: Purlawaugh Formation

Bore depth: 30m

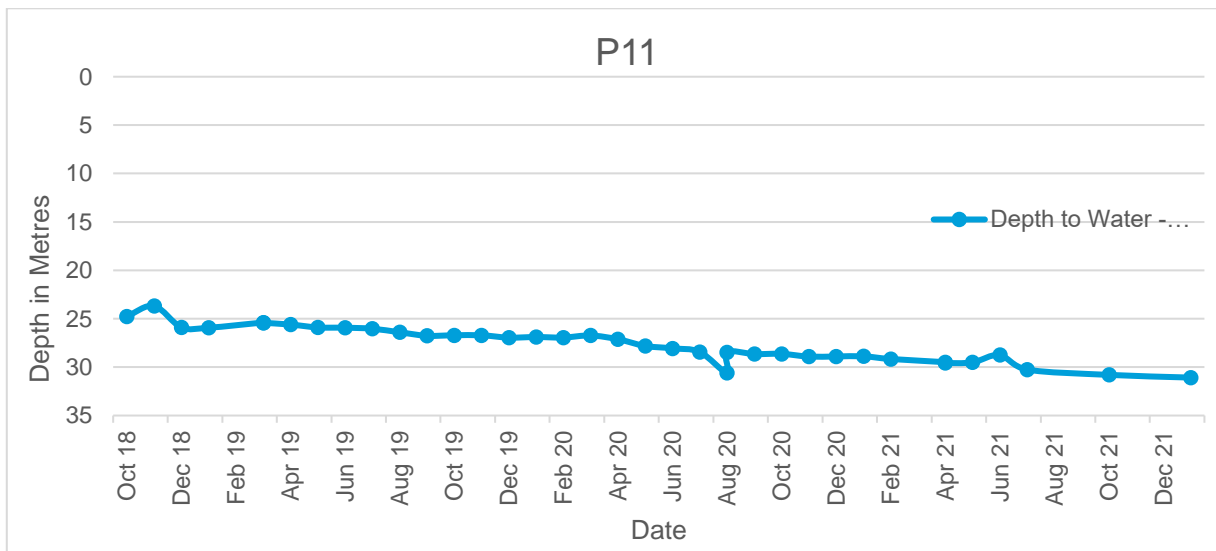


NCO Monitoring bore ID: P10

Location: NCO – see figure 10

Geological unit: Napperby Formation

Bore depth: 130m

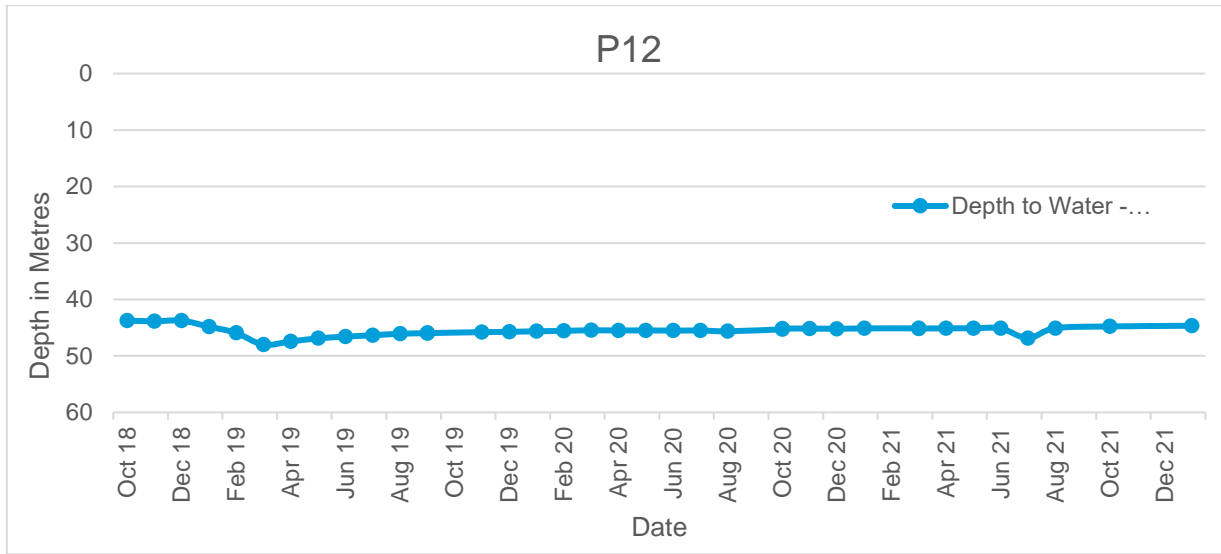


NCO Monitoring bore ID: P11

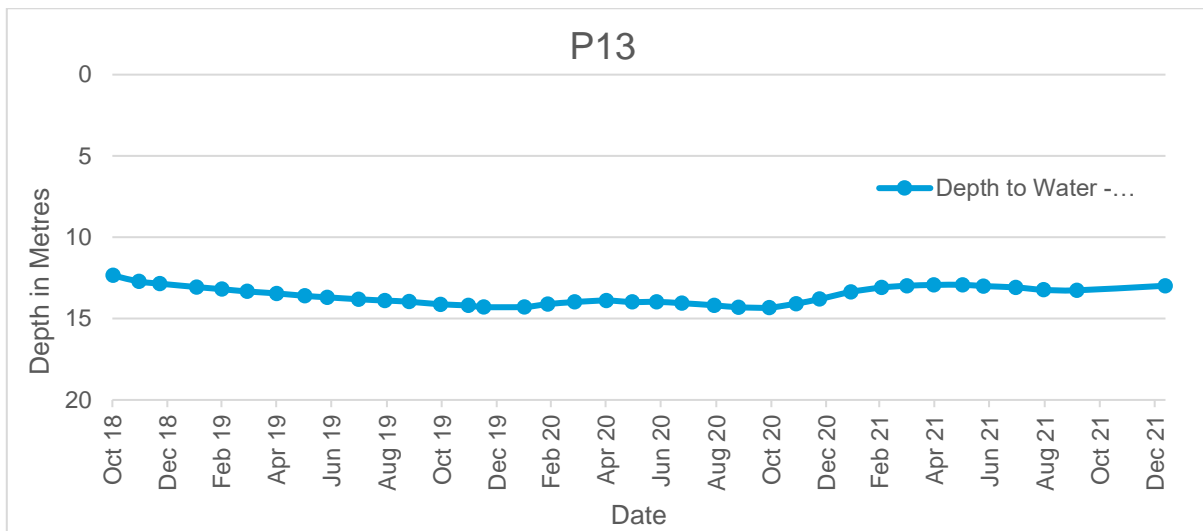
Location: NCO – see figure 10

Geological unit: Napperby Formation

Bore depth: 50m



NCO Monitoring bore ID: P12
Location: NCO – see figure 10
Geological unit: Napperby Formation
Bore depth: 90m



NCO Monitoring bore ID: P13
Location: NCO – see figure 10
Geological unit: Garrawilla Volcanics/Napperby
Bore depth: 30m

No Graph

NCO Monitoring bore ID: P14

Location: See Figure 10

Geological unit: Napperby Formation (no sill)

Bore depth: 78m

Explanation: Dry

No Graph

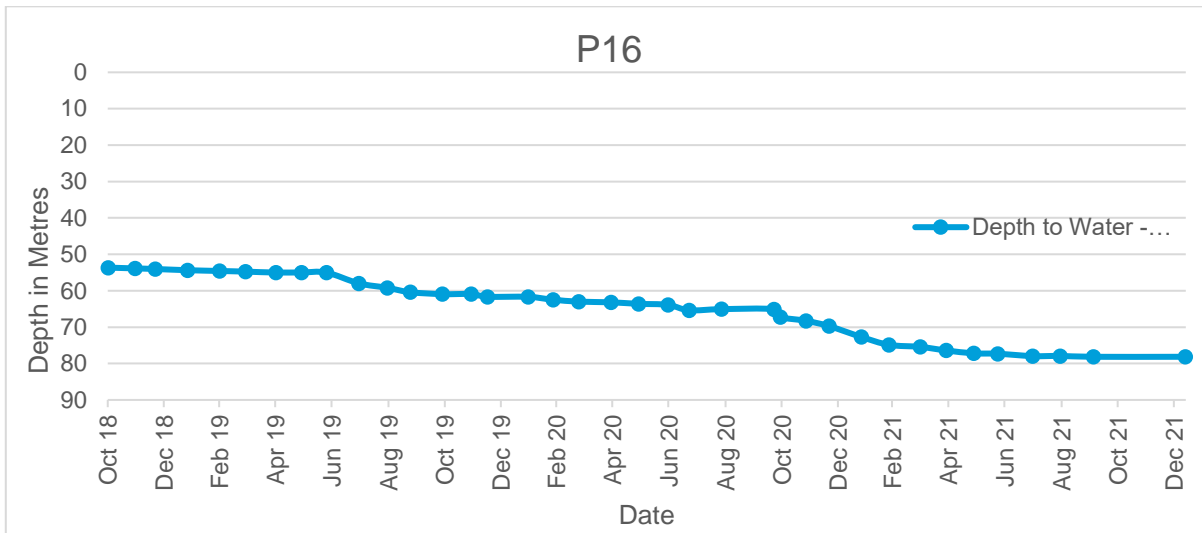
NCO Monitoring bore ID: P15

Location: See Figure 10

Geological unit: Garrawilla Volcanics

Bore depth: 30m

Explanation: Dry



NCO Monitoring bore ID: P16

Location: State forest (Western Boundary) – see figure 10

Geological unit: Garrawilla Volcanics

Bore depth: 146m

No Graph

NCO Monitoring bore ID: P17

Location: See figure 10

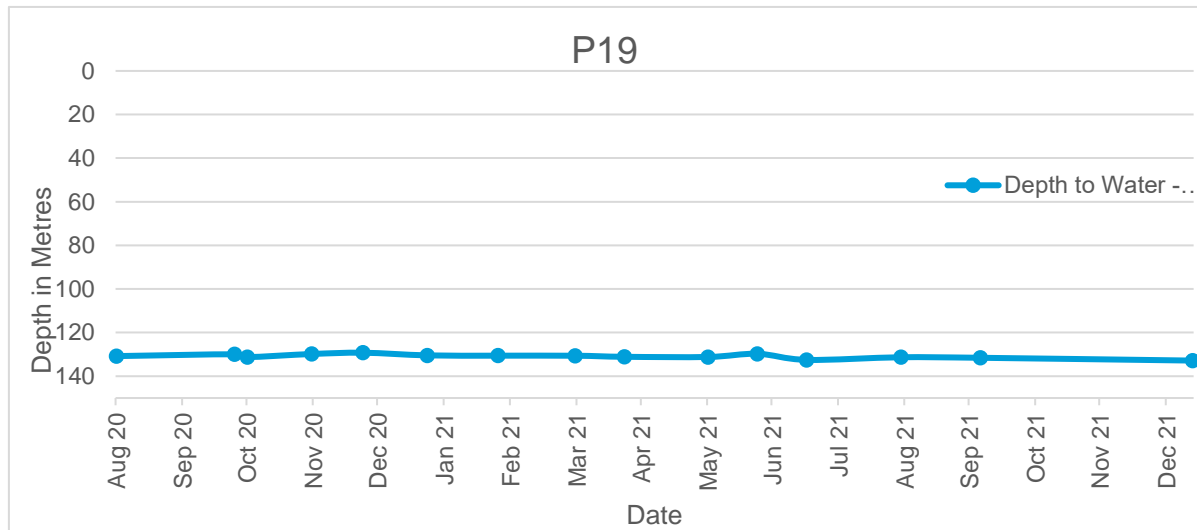
Geological unit: Purlawaugh Formation

Bore depth: 56m

Explanation: Dry since 2009

No Graph

NCO Monitoring bore ID: P18
Location: See figure 10
Geological unit: Hoskissons seam
Bore depth: 146m
Explanation: Dry since 2011



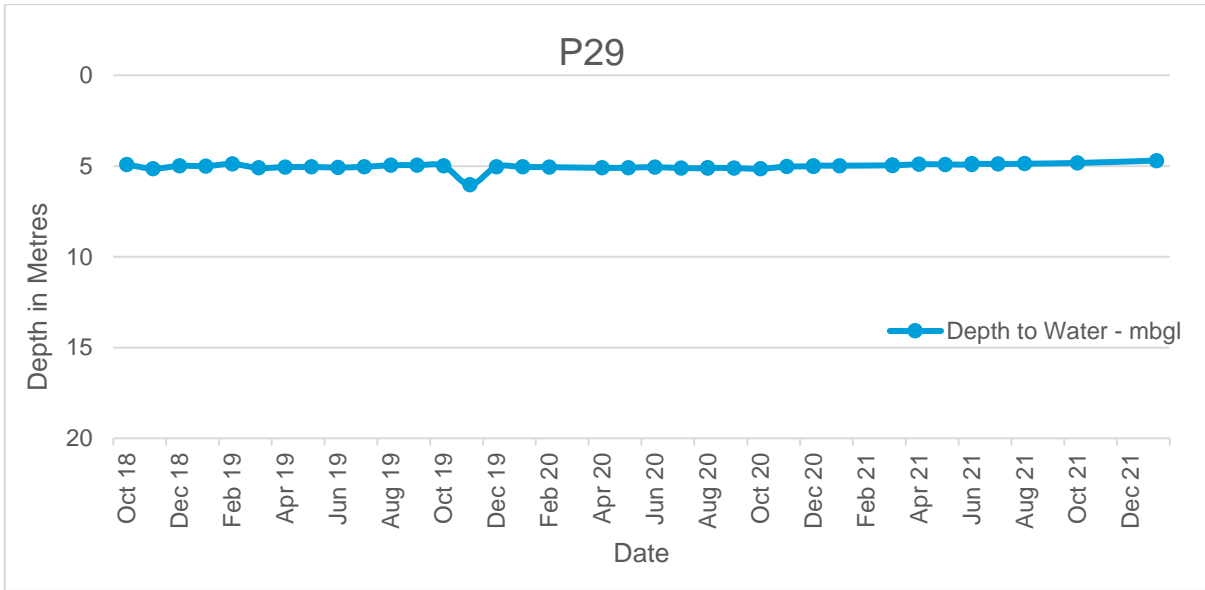
NCO Monitoring bore ID: P19
Location: NCO
Geological unit: Pamboola
Bore depth: 187m
Explanation: Wrong bore previously monitored, true location monitored since August 2020

No Graph

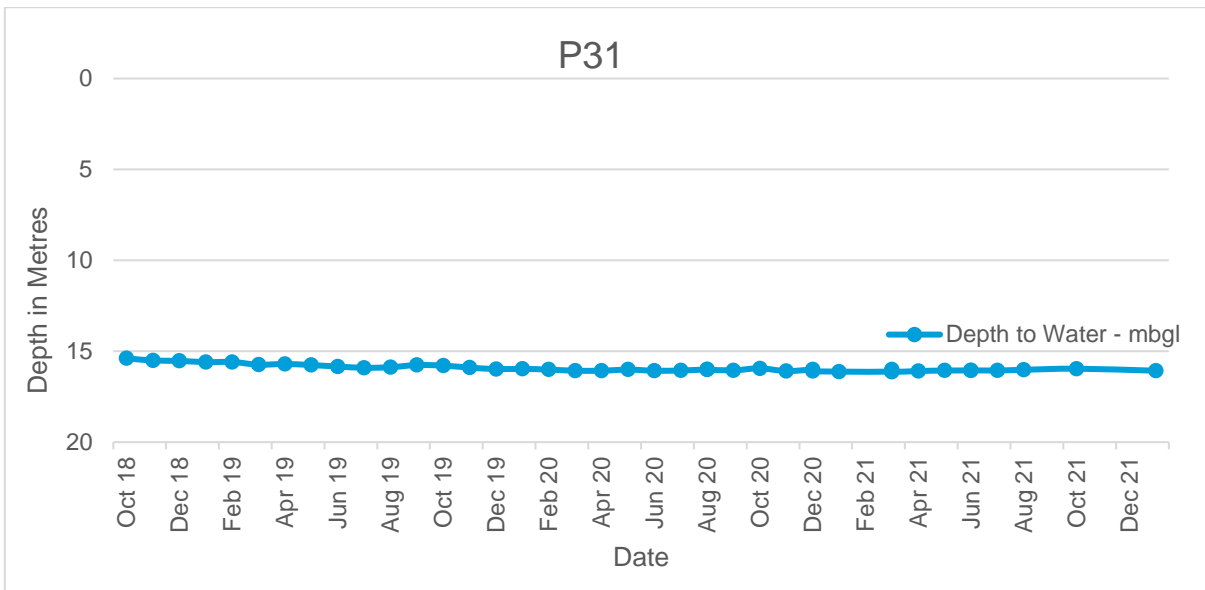
NCO Monitoring bore ID: P20
Explanation: Cemented up – no longer monitoring

No Graph

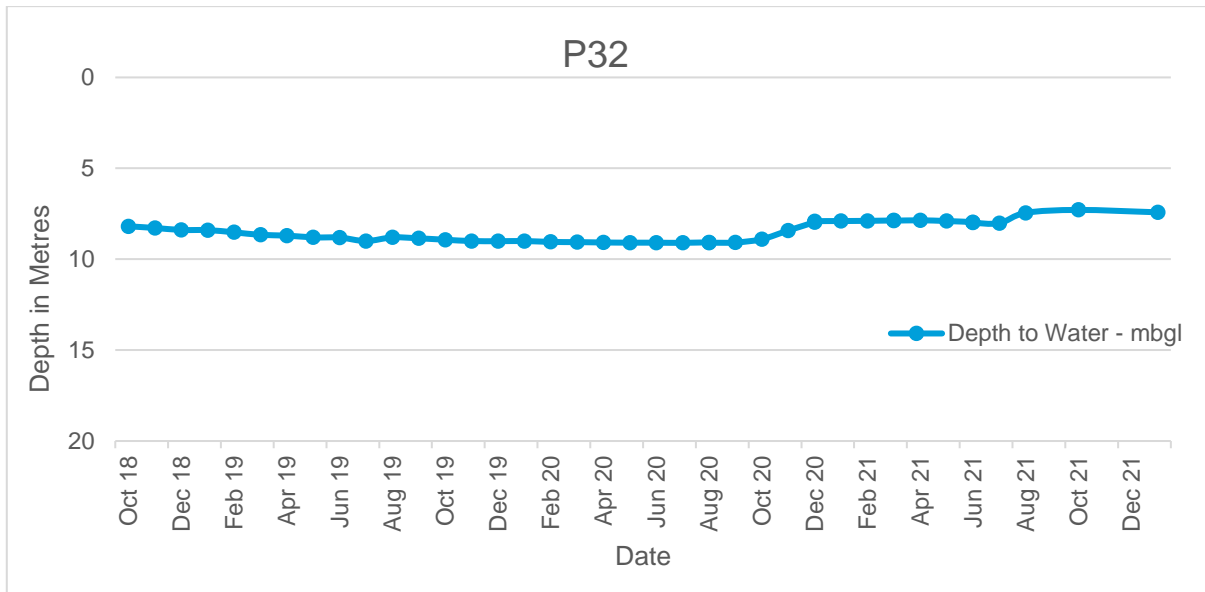
NCO Monitoring bore ID: P28
Location: See figure10
Geological unit: Napperby Formation (above sill)
Bore depth: 25m
Explanation: Dry since 2012



NCO Monitoring bore ID: P29
Location: NCO (Near site dams) – see figure 10
Geological unit: Napperby Formation (above sill).
Bore depth: 25m



NCO Monitoring bore ID: P31
Location: NCO (Near site dams) – see figure 10
Geological unit: Napperby formation (above sill)
Bore depth: 15m



NCO Monitoring bore ID: P32

Location: NCO (Near site dams) – see figure 10

Geological unit: Napperby Formation (above sill)

Bore depth: 15m

NCO Monitoring bore ID: P33

Location: See figure 6

Geological unit: Napperby Formation (above sill)

Bore depth: 15m

Explanation: Dry since 2012

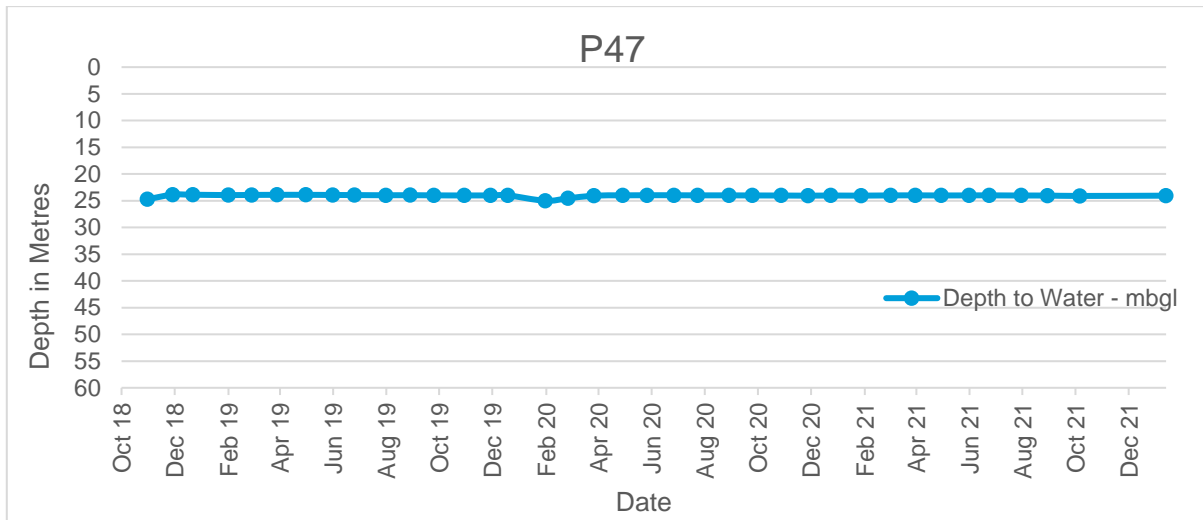
NCO Monitoring bore ID: P24

Location: See figure 6

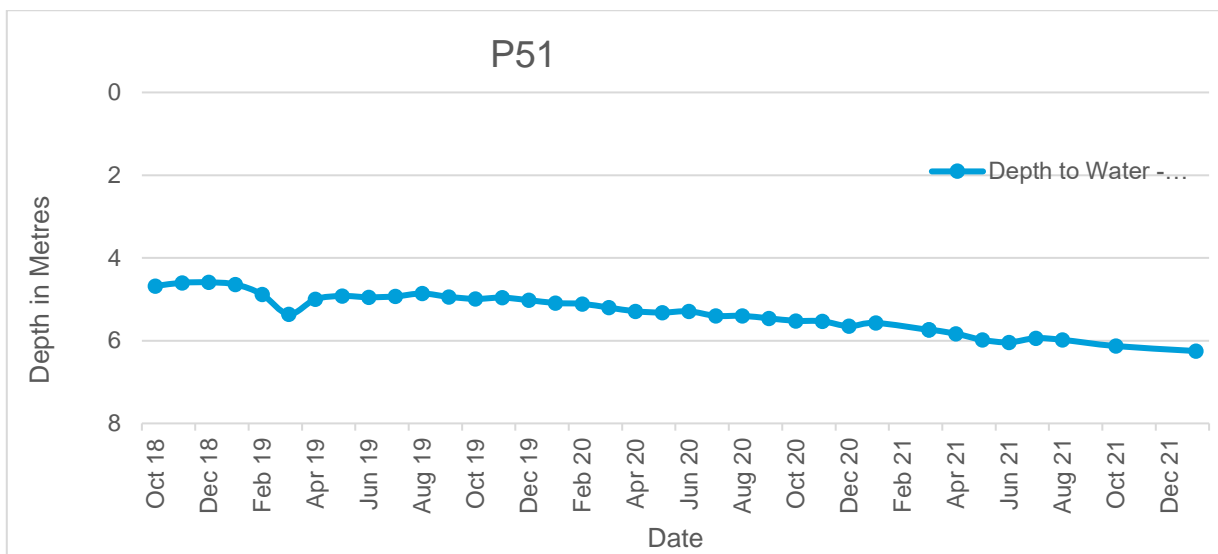
Geological unit: Napperby Formation (above sill)

Bore depth: 15m

Explanation: Dry since 2012



NCO Monitoring bore ID: P47
Location: NCO – see figure 10
Geological unit: Garrawilla Volcanics
Bore Depth (m): 31m



NCO Monitoring bore ID: P51
Location: NCO
Geological unit: Garrawilla Volcanics
Bore Depth (m): 17m

Narrabri Mine Community Consultative Committee Meeting #57

Date: Wednesday 22 June 2022
Time: 5:00pm
Location: Narrabri Mine

Present: Russell Stewart (RS)
James Stieger (JS)
Peter Webb (PW)
Allan Grumley (AG)
Geoff Hunter (GH)
Bruce Danson (BD) in lieu Charlie Melbourne
Mark Foster (MF)
Paul Sio (PS) - Narrabri Shire Council
Gerald Linde (GL) – Whitehaven Coal
Brent Baker (BB) – Whitehaven Coal
David Ellwood (DE) – Whitehaven Coal
Shane Rily (SR) – Whitehaven Coal
Darren Swain – Whitehaven Coal

Apologies: Ian Duffy
Donna Ausling – Narrabri Shire Council
Cr Clements – Narrabri Shire Council
Cr Redding – Narrabri Shire Council

1. DECLARATION OF PECUNIARY INTEREST

No changes to previous.

2. PREVIOUS MINUTES

RS asked if everyone has read previous minutes.

GH wanted to confirm with DE what the term 'two years of commencement' meant in relation to the make good agreements that form part of Stage 3.

DE explained that commencement would not occur until EPBC approval and DPE approval of management plans is handed down by state government to enable commencement of the Stage 3 project and its requirements.

BB acknowledged the changes requested in the previous minutes by GH and DA.

RS asked for previous minutes to be accepted as a true and accurate record.

Moved: GH Seconded: JS

2.1 BUSINESS ARISING FROM PREVIOUS MINUTES

GH queried the distribution of meeting minutes for review. BB acknowledged the changes requested in the previous minutes by GH and DA and ensured that future draft minutes will be distributed in 2 weeks following the meeting with final version being sent out in next 2 weeks.

3. OPERATIONS PROGRESS REPORT AND SAFETY UPDATE

Presented by Gerald Linde

- FY22 to 31 May, coal produced 4.7Mt, coal railed 4.2Mt
- Production down on previous years due to two longwall moves
- Longwall move from LW110A to LW110B commenced at the start of June 2022.
- Production scheduled to resume approx. 17 July 2022
- Cut and Flit – contractor not fully manned which is impacting negatively on production
- Workforce numbers: no significant change; experiencing shortage in labour
- Safety performance average. 2 reportable injuries since previous CCC meeting.

GH queried reading that Narrabri Mine expected to produce 11Mt. GL explained that this is the volume that Narrabri Mine is approved to mine and expect to mine up to 10Mt in a few years by purchasing an additional longwall unit, operating them at different times to reduce down time during longwall moves.

4. ENVIRONMENTAL MONITORING REPORT

Presented by Shane Rily

BB introduced SR as the new Environmental Superintendent as BB has taken on a new role as Manager HSE.

- INCIDENTS: No reportable incidents to regulatory agencies since previous CCC meeting. Nil for previous 12 months.
- COMPLAINTS: Nil complaints since previous CCC meeting. No complaints received this (calendar) year and previous 12 months.
- APPROVALS/SPECIAL PROJECTS (added as per request from March 2022 meeting).
 - 2021 Annual Review accepted by the NSW Department of Planning and Environment and published on WHC website
 - Stage 3 Environmental Management Plans
 - Noise Management Plan submitted to NSW EPA for consultation
 - Air Quality Management Plan submitted to NSW EPA for consultation
 - Aboriginal Consultation Management Plan submitted to RAPs for consultation.
 - Traffic Management Plan submitted to Transport for NSW, NSC and CCC
- DEPOSITIONAL DUST:
 - 2022 annual average (year to date) for all monitoring locations is below the licence limit of 4 g/m²/month (Insoluble Matter).
- PM10 AIR QUALITY:
 - No exceedances of the 24 hour limit within last 12 month period at Claremont monitoring location. There has been one exceedance of the 24 hour compliance limit of 50 µg/m³ within the last 12 month period at Turrabaa monitoring location. This exceedance was communicated to DPI&E on Friday the 2nd of July 2021. DPI&E acknowledged that this exceedance was not related to mining operations and likely to be caused by adjacent roadwork activities on Kamilaroi Highway upgrade project.
 - Rolling 12 month average currently below annual average limit (of 30 µg/m³) for the two monitoring locations (Claremont and Turrabaa).
- QUARTERLY NOISE MONITORING

Quarter 1 2022 attended noise monitoring was completed from the 8-11th March, with compliance achieved at all locations during all time periods.

Quarter 2 2022 attended noise monitoring was not yet completed for the quarter. Results will be presented in the next meeting.
- SURFACE WATER MONITORING:

No wet weather discharges have occurred from licensed discharge point during March – May 2022.

- **WATER LICENSING:** Presented graphs showing NCO water licence allocation usage. Chart showing mine water inputs and outputs was not presented as this was being finalised to capture the 2021/22 Financial Year's data.
- **GROUNDWATER MONITORING:** Groundwater monitoring results are reviewed at the end of each year by a suitably qualified hydrogeologist and reported on in the Annual Review (submitted 31 March 2022). A summary of the 2021 Groundwater Review was presented in the meeting:
 - Discussion around P11 & P16 VPW's
 - Discussion around groundwater chemistry of the rail loop dams
- **SUBSIDENCE MONITORING:** No subsidence monitoring was scheduled prior to the meeting (previous monitoring 07/02/2022). Monitoring is scheduled for July 2022.

AG asked about the use of fans on the rail loop dams. GL explained these were being used for both evaporation and aeration of brine ponds. Explained that a hired Brine Squeeze had been installed to improve efficiencies of brine water treatment. Explained that the fans will be used until the new Brine Dam north of the current rail loop dams is constructed.

GH asked about the P16 water levels. BB explained that another recalibration of the water model has commenced to investigate these results to see why these results sit outside the model predictions. BB will present outcomes of the recalibration to the CCC when works are completed.

BB explained that the change in chemistry of the monitoring bore around the Rail Loop Dams were determined to be a change in monitoring methodology.

5. STAGE 3 UPDATE

David Ellwood provided update.

- NSW DPE has conditionally approved Stage 3 project with approximately 150 conditions attached to this approval. The approval requires Environmental Management Plans to be developed in consultation with applicable government and non-government bodies. These Management Plans are required to be submitted and approved by DPE prior to project being allowed to commence.
- Federal determination under the EPBC Act expected in approximately 2 months. NCO providing additional information in response to the regulators' request.
- DE listed the Stage 3 management plans that have been sent out for consultation as per the Environmental Report.
- JS queried why the TMP does not address the upgrade to the section of the Kamilaroi Highway that intersects the mine entrance. DE & GL explained that this will need to be a separate process to be addressed with Traffic for NSW following NSW DPE approval of the TMP. DE committed to presenting the plan for the upgrade to JS during its development.
- Mining Lease Application with the inclusion of the new boundaries has been submitted and is being assessed by MEG. The review process is expected to be a few months.

GH asked if the make good agreements are progressing. DE explained that local consultant has been hired to progress the make good agreements. DE also explained that three (3) options have been put forward to NSW DPE to accept as part of the make good agreements. These include alternate water supply (new or redrilled bore ensuring that the supply is that same or similar to the original bore), water works (new dams / contour banks) or monetary compensation at the same cost of a new bore.

BD expressed concern that all the make good agreement options had not been made aware to all affected landholders. DE agreed, explaining that these options were not available until NSW DPE accept the options that had been put forward. DE stated that he is still open to exploring further options if they are presented by the landholder.

JS questions the possibility of using shuttle buses as part of the Stage 3 TMP instead of upgrading the section of the Kamilaroi Highway that intersects the mine's entrance. GL explained the difficulties of using shuttle buses for Narrabri Mine.

GH asked whether the commencement of Stage 3 would be scheduled for around December 2022. DE explained that a commencement date would be dependent on the approvals required for commencement but agreed that it could possibly be around December 2022.

No further questions/comments from members.

6. GENERAL BUSINESS

- DE mentioned the application for an Exploration Licence in the area northwest of the existing Mine Lease that was discussed with CCC members in previous meetings. NSW Govt has put out a market interest test which covers a larger area called Gorman North. No interest was received apart from Narrabri Mine, therefore the NSW Govt has continued processing Narrabri's Mines two applications.
- BB introduced DS as General Manager Community Engagement.
- DS noted Jacki Scott – Manager Community Investment and Partnerships who has recently joined the Community Engagement Team.
- MF queried if clean-skin program is still in operation and its success, GL said yes it is in operation and that 3 intakes had occurred this calendar year, also stating that the program is good source of personnel for workforce.

No further General Business.

NEXT MEETING

- 5pm Wednesday the 21 September at Narrabri Mine.

Meeting closed at 18:11 hours.

Narrabri Mine Community Consultative Committee Meeting #57

Environmental Monitoring Report: March - May 2022

Reportable Incidents

Nil since previous CCC meeting.

Complaints

Nil since previous CCC meeting. Nil complaints received in previous 12 months.

Approvals/Special Projects

(added as per request from March 2022 meeting)

- 2021 Annual Review report accepted by Department of Planning and Environment (available for review on Whitehaven Coal website)
- Stage 3 Environmental Management Plans continue to be developed in consultation with various stakeholders:
 - Noise Management Plan- submitted to EPA for consultation
 - Air Quality Management Plan- submitted to EPA for consultation
 - Aboriginal Cultural Heritage Management Plan- submitted to Registered Aboriginal Parties for consultation
 - Traffic Management Plan- submitted to Transport for NSW, Narrabri Shire Council, and CCC
- Department of Regional NSW advertised for a market interest test for the entire Gorman North exploration area. No interest was received. The Department are continuing to assess the submitted Narrabri Coal Exploration Licence applications.
- Department of Regional NSW are continuing to assess Narrabri Coal application for Mining Lease (MLA612) for the eastern section of Stage 3 project area.

Deposited Dust Monitoring

Deposited Dust samples remain in the field for a period of 30 days (+/- 2 days).

2022 annual average (year to date) for all monitoring locations is below the licence limit of 4 g/m²/month (Insoluble Matter).

Total Insoluble Matter results (g/m ² /month)												
Month	ND1 Turrabaa	ND2 Claremont	ND3 Bow Hills	ND4a New Matoppo	ND5 Claremont	ND6 Willarah	ND7 Claremont	ND8 Claremont	ND11 Oakleigh	ND12 Merriman	ND13 Darjeelang	
Mar-22	0.8	0.7	0.2	3	3.2	*	0.6	3.5	2.7	0.2	0.7	
Apr-22	0.3	0.6	0.1	1	1.9	0.6	0.6	0.6	1	0.3	1	
May-22	0.3	1.2	0.6	0.5	1.6	0.6	0.6	1	1.4	0.5	1.4	
Annual Average	0.5	0.6	0.4	1.7	1.7	2.2	0.6	3.1	1.6	0.4	1.5	

* ND6 sample for March was lost because sample container was broken.

PM₁₀ High Volume Air Sampling (HVAS)

Samples are collected over a 24 hour period once every week, with a (24hr) compliance limit of 50 µg/m³, and an annual average limit of 30 µg/m³.

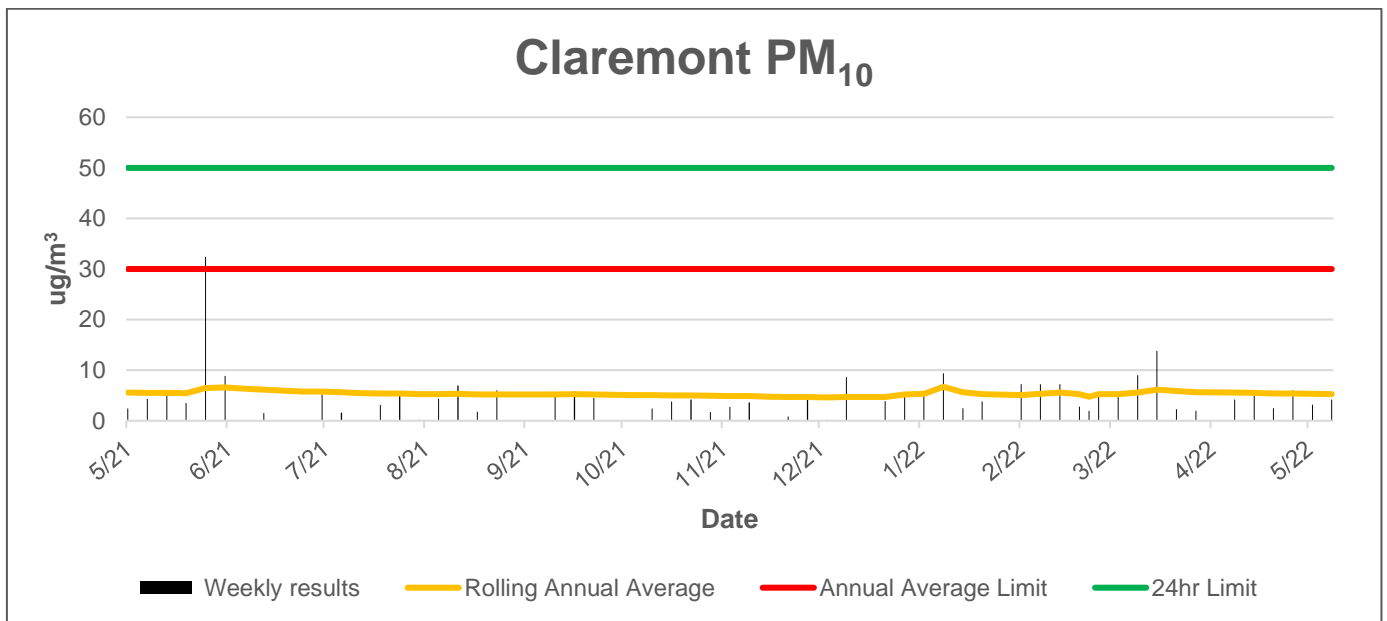


Figure 1: Claremont PM₁₀ High Volume Air Sampler results for last 12 month period.

The Claremont HVAS is returning a rolling annual average of 5.25 µg/m³, which is below the annual average limit of 30 µg/m³. There have been no exceedances of the 24 hour compliance limit of 50 µg/m³ within the last 12 month period.

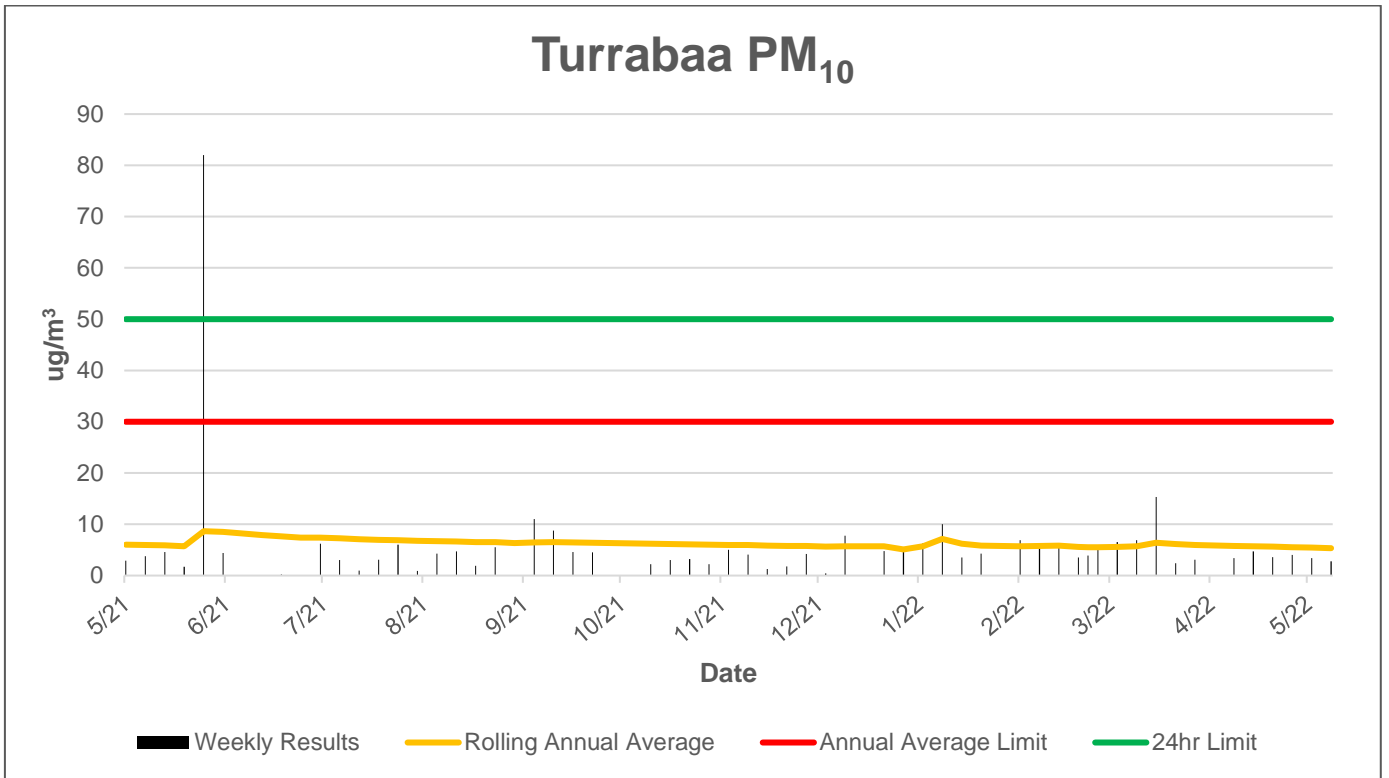


Figure 2: Turrabaa PM₁₀ High Volume Air Sampler results for last 12 month period.

The Turrabaa HVAS is returning a rolling annual average of 5.32 µg/m³, which is below the annual average limit of 30 µg/m³. There has been one exceedance of the 24 hour compliance limit of 50 µg/m³ within the last 12 month period (82 µg/m³ on 02/06/2021); this exceedance was communicated to DPI&E who acknowledged that the dust result was not related to mining operations and likely to be caused by roadwork activities on the Kamilaroi Highway.

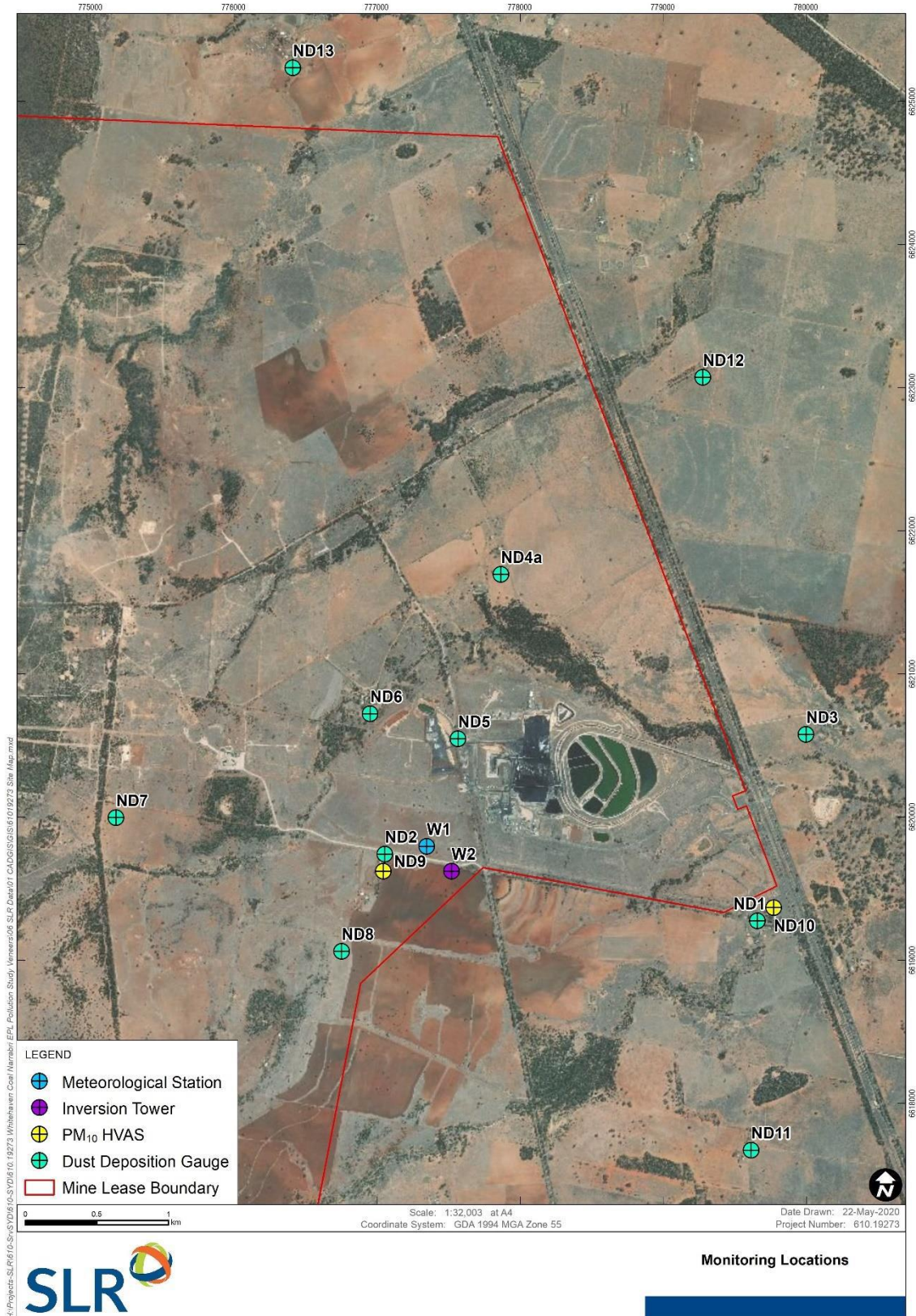


Figure 3: Air Quality Monitoring locations

2022 Quarter 1 attended noise monitoring was conducted from the 8 – 11th of March, and results are presented below. Compliance was achieved at all locations.

Table 1 Performance Assessment – Operations

EPL ID	Location	Date	Narrabri Mine Contribution dBA				Noise Criteria ¹	Measurement Periods	Standard Weather ³			Compliant		
			LAeq 15 min Day	LAeq 15 min Evening	LAeq 15 min Night	LA1 (1 min) Night			Day	Evening	Night			
N5	Oakleigh ²	08/03/2022	26	I/A	N/M	N/M	Day, Evening and Night – LAeq(15minute) 35 dBA Night LA1(1minute) – 45 dBA	Day - 1.5 hrs Evening - 0.5 hrs Night – 1hrs	Y	Y	Y	Y		
		09/03/2022	I/A	I/A	I/A	I/A			Y	N	N	Y		
		10/03/2022	I/A	I/A	I/A	I/A			N	N	N	Y		
N6	Newhaven	08/03/2022	I/A	31	30	35		Day, Evening and Night – LAeq(15minute) 35 dBA Night LA1(1minute) – 45 dBA	Day - 1.5 hrs Evening - 0.5 hrs Night – 1hrs	Y	Y	N	Y	
		09/03/2022	I/A	30	31	35				N	N	N	Y	
		10/03/2022	I/A	31	27	31				N	N	Y	Y	
N8	Haylin View ²	08/03/2022	28	I/A	39 ⁵	42			Day, Evening and Night – LAeq(15minute) 35 dBA Night LA1(1minute) – 45 dBA	Day - 1.5 hrs Evening - 0.5 hrs Night – 1hrs	Y	Y	Y	Y ⁶
		09/03/2022	I/A	I/A	I/A	I/A					Y	N	N	Y
		10/03/2022	I/A	I/A	I/A	I/A					N	N	Y	Y
N9	High Range ²	08/03/2022	25	30	23	26	Day, Evening and Night – LAeq(15minute) 35 dBA Night LA1(1minute) – 45 dBA			Day - 1.5 hrs Evening - 0.5 hrs Night – 1hrs	Y	Y	N	Y
		09/03/2022	I/A	23	25	30					N	N	N	Y
		10/03/2022	N/M	24	27	30					N	N	Y	Y
-	Bow Hills ¹	07/03/2022 ⁴	33	30	31	34		Day 15 min Evening 15 min Night 15 min		N	Y	Y	Y	
-	Ardmona	07/03/2022 ⁴	28	I/A	<25	26				N	Y	Y	Y	
-	Merriman ²	07/03/2022 ⁴	I/A	30	N/M	N/M				N	Y	Y	Y	
-	Matilda ²	07/03/2022 ⁴	I/A	I/A	I/A	I/A			N	Y	Y	Y		

I/A = Inaudible, N/M = Not Measurable

Note 1: A private agreement between NCOPL and the residents of N1 Bow Hills of 50 dBA LAeq(15minute) is in place. This new level of 50 dBA LAeq(15minute) replaces the levels identified in Conditions 1-3, Schedule 4 of PA 08_0144 Mod 2 and the identical limits contained in condition L3 of Environment Protection Licence No 12789

Note 2: Property is owned by Narrabri Coal Operations

Note 3: Noise levels presented are the highest measured noise level under standard weather conditions over the monitoring period.

Note 4: Evening and Night monitoring conducted on this date, Day monitoring conducted during the following day period on 8/3/2022.

Note 5: Includes a +2dB correction for low frequency noise in accordance with the NPfI.

Note 6: The Noise Criteria for EPL Monitoring Location N8 (Haylin View) does not apply as the property is owned by Narrabri Coal and is therefore not a privately owned residence.

Surface Water Monitoring

No wet weather discharges have occurred from licensed discharge points during March-May 2022.

NSW Water- Licenced Usage

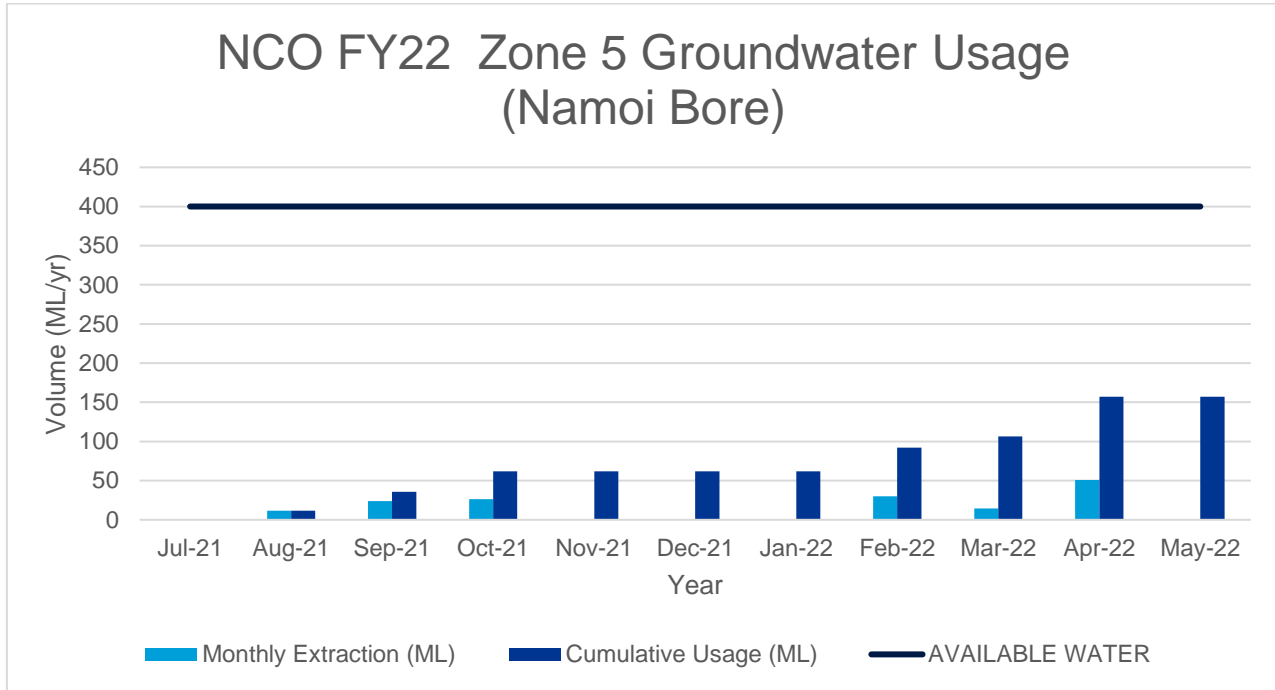


Figure 4: Zone 5 licensed groundwater usage from the Namoi Bore for the current Financial (Water) Year.

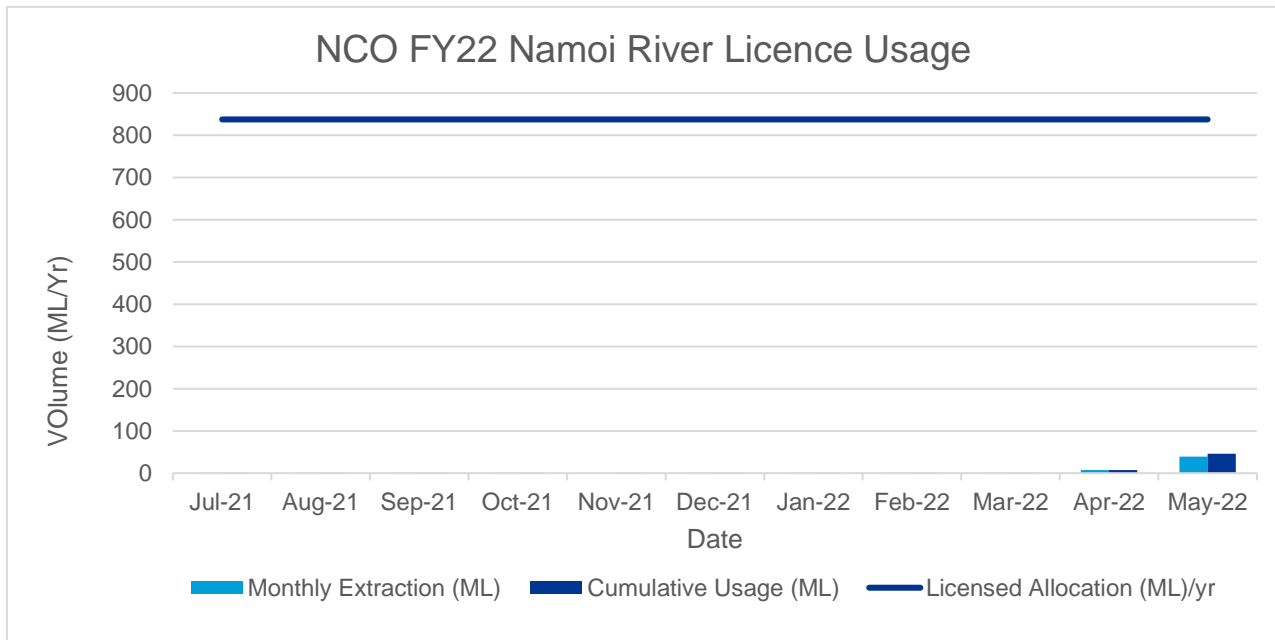


Figure 5: Namoi River licensed water allocation usage for the current Financial (Water)

Groundwater Monitoring

Groundwater monitoring results are reviewed at the end of each year by a suitably qualified hydrogeologist and reported on in the Annual Review (submitted 31 March 2022). Summary provided below:

Groundwater Levels

- Standpipe Piezometers
 - Standpipe piezometers showing a clear drawdown in response to mining activities in this reporting period (2021) is limited to P16 screened at a total depth of 146m in the Garrawilla Volcanics and P11 within the Purlawaugh Formation.
 - P11 is located at the southern edge of LW206 where pressures have been declining at a rate just under 2 m per year since 2013. Water levels at P11 remain 14m above maximum predicted drawdown level. The groundwater level in P16 has been gradually declining since longwall 106 and has exceeded the maximum predicted drawdown level during the reporting period. The underlying Napperby Formation drawdown in the same area is in excess of 100m. P16 is the only location where the Garrawilla volcanics has exceeded the drawdown criteria. It is likely that the model either does not have geometry of the Garrawilla in this area represented well or the connectivity of the Garrawilla and the Napperby in this area requires a review.
 - Standpipe piezometers showing drawdown in relation to mining activities are within the mining lease in the Garrawilla volcanics (P16 screened at 146m depth) and Purlawaugh Formation (P11).

- Vibrating Wire Piezometers
 - The VWP network has continued to evolve in recent years with older single instrument piezometers surrounding the box cut area and targeted multi-level VWP (P57) being decommissioned as predicted impacts pass with progressive mine development. Additional VWP's have been installed in southern areas providing a greater sub-regional context to groundwater pressures at depth.
 - All trends provided by the VWP network are consistent with predictions of impacts associated with mining activities.

Groundwater Quality

Electrical Conductivity (EC) is the primary analyte used for this review period to assess trends and potential unforeseen impacts on the groundwater environment

During 2021, the most significant event is an increase in salinity in a number of deeper standpipe piezometers (>40m) where the increase has been dramatic. Following an earlier recommendation to review sample collection methods, it appears that more appropriate purging during sampling is responsible for these changes. Data from these locations will be followed closely, however it appears the baseline conditions were not well understood, and these elevated levels are normal.

A detailed review of the Rail Loop Dam complex and related groundwater monitoring network was conducted in 2020 and indicated no evidence of a connection with the stored water in the Rail Loop dams. There have been no significant changes in water level or quality noted during the reporting period. Quarterly monitoring and review of results are provided to EPA as required by conditions of EPL12789.

Subsidence Monitoring

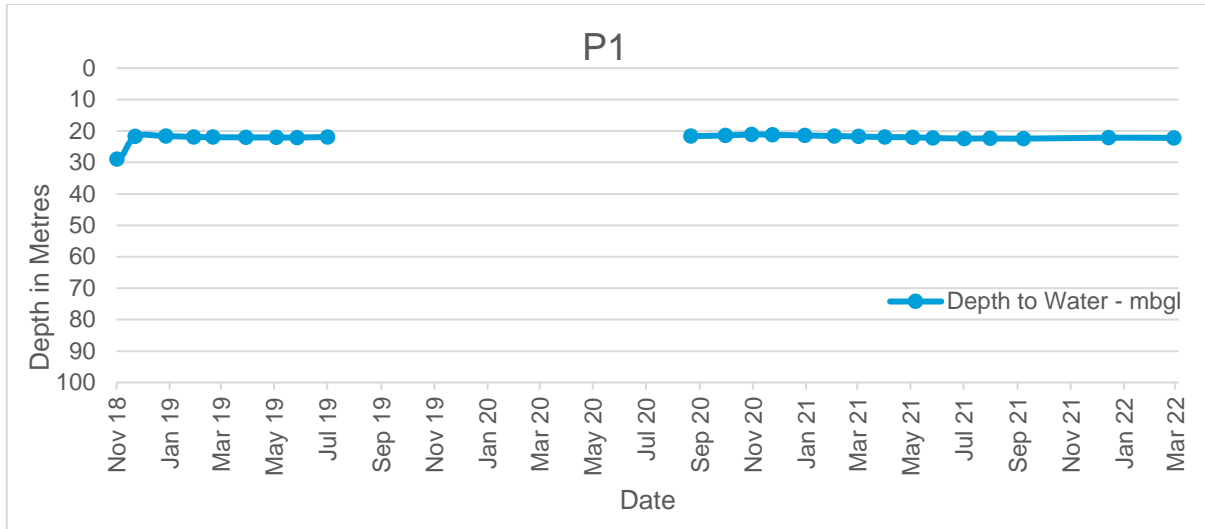
- Line 108 north and Line H were monitored on 07/01/2022 and scheduled for monitoring during July 2022.
- LIDAR data is captured annually, and reviewed against subsidence predictions by a suitably qualified expert.

Longwall Panels (LW) 109		
	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 – Monitoring has ceased		
Line 103 – Centre of LW103 – Southern – Monitoring has ceased		
Line 104 – Centre of LW104 – Northern – Monitoring has ceased		
Line 104 – Centre of LW104 – Southern – Monitoring has ceased		
Line 105 – Centre of LW105 – Northern – Monitoring has ceased		
Line 105 – Centre of LW105 – Southern – Monitoring has ceased		
Line 106 – Centre of LW106 – Northern – Being closed out		
Line 107 – Centre of LW107 – Northern – Monitoring has ceased		
Line 108 (measured 07/01/2022)		
Subsidence (m)	2.75	2.71
Tilt (mm/m)	38	36.3
Tensile Strain (mm/m)	10	16.2
Compressive Strain (mm/m)	13	38.9
Line 108 – Southern		
Line A – Cross Panel Survey Line – Being closed out		
Line B – Pine Creek Tributary 1 – Monitoring has ceased		
Line D – Pine Creek – Monitoring has ceased		
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 (measured 06/01/2022)		
Subsidence (m)	2.75	2.75
Tilt (mm/m)	53	31.70
Tensile Strain (mm/m)	13 – 20^	16.60
Compressive Strain (mm/m)	16 – 24^	9.60

Hydrographs for Groundwater Monitoring Wells



Figure 7: Location of groundwater monitoring wells



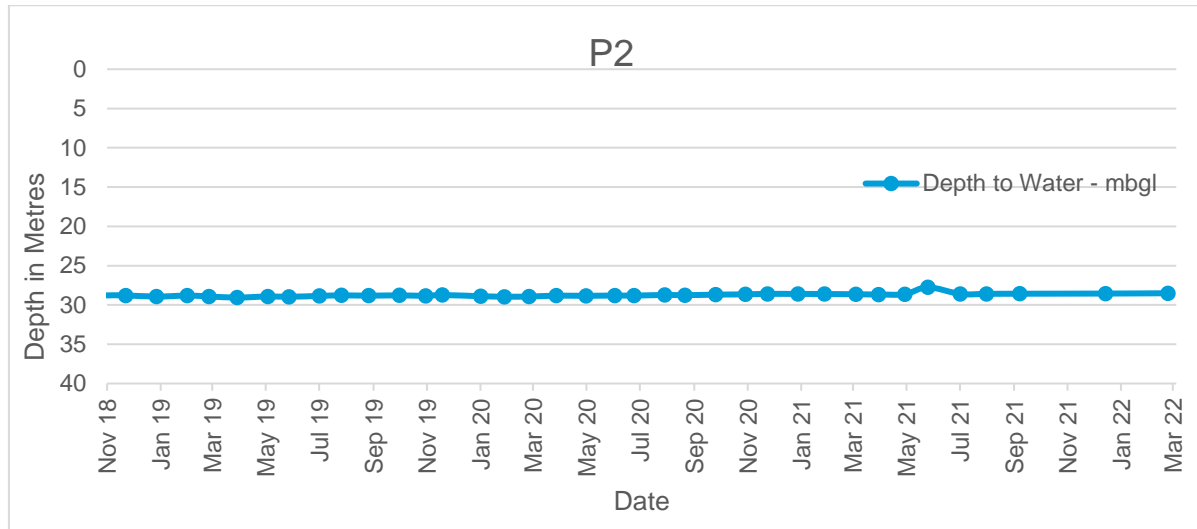
NCO Monitoring bore ID: P1

Location: Longsight

Geological unit: Garrawilla Volcanics

Bore depth: 50m

Explanation: Gap in data is due to land access issues – locks were changed and cattle in paddock.

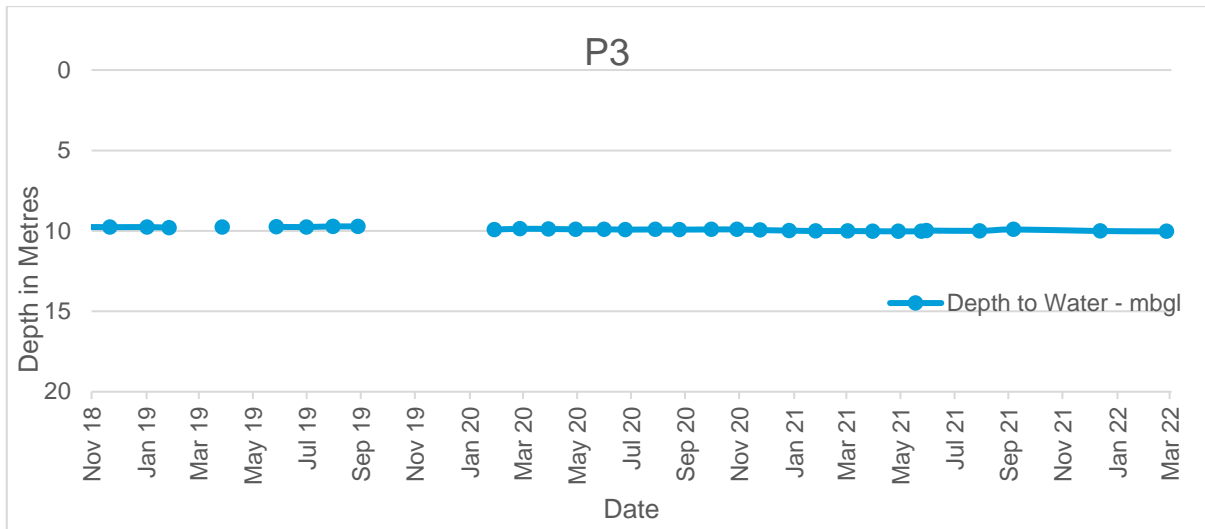


NCO Monitoring bore ID: P2

Location: Matilda

Geological unit: Napperby Formation

Bore depth: 50m



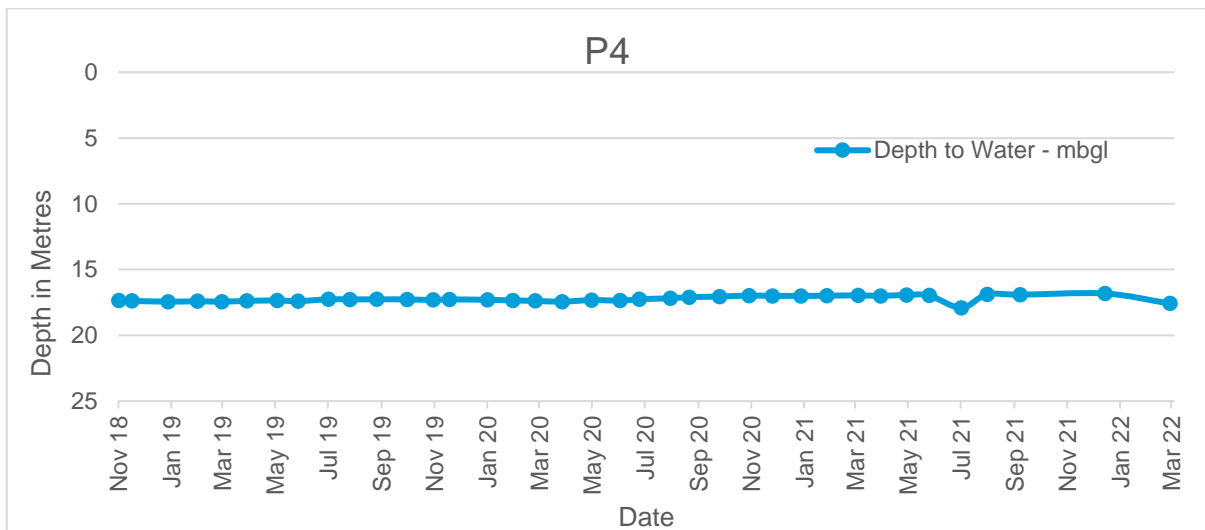
NCO Monitoring bore ID: P3

Location: Bow Hills

Geological unit: Pamboola Formation

Bore depth: 45m

Explanation: Gap in data is due to land access issues – cattle were being hand fed in paddock with the bore.

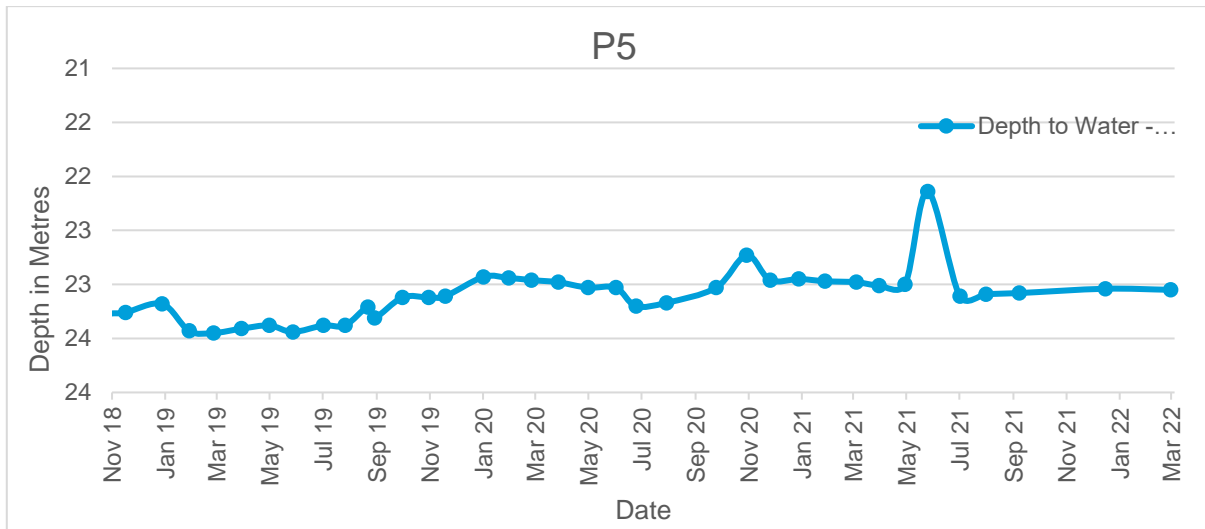


NCO Monitoring bore ID: P4

Location: North of Newhaven on Kamilaroi highway

Geological unit: Napperby Formation

Bore depth: 30m



NCO Monitoring bore ID: P5

Location: Unknown - shown on Figure 10

Geological unit: Pamboola Formation

Bore depth: 30m

No Graph

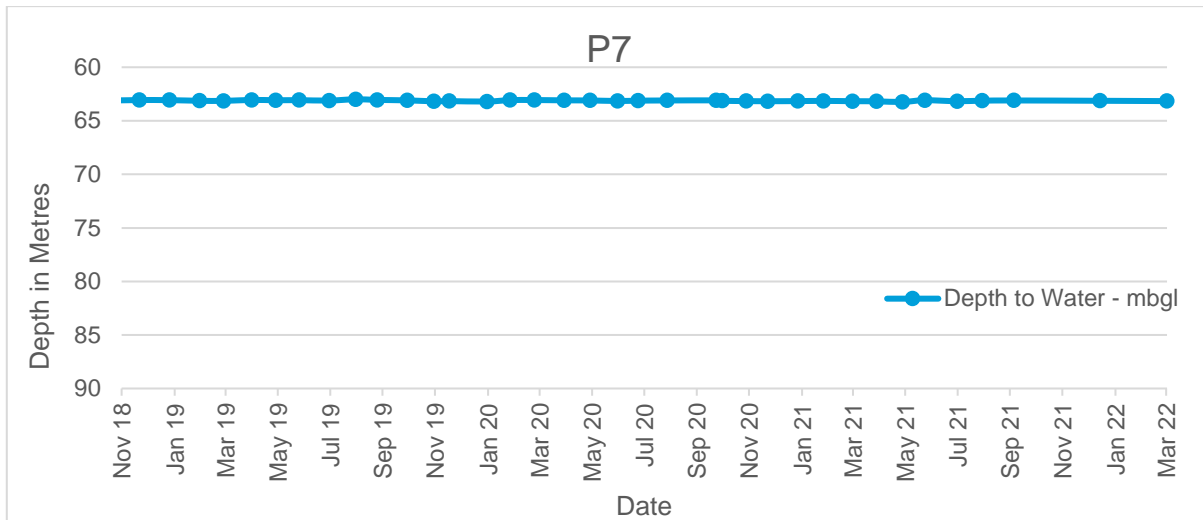
NCO Monitoring bore ID: P6

Location: shown on Figure 10

Geological unit: Pilliga sandstone

Bore depth: 90m

Explanation: Dry since 2012

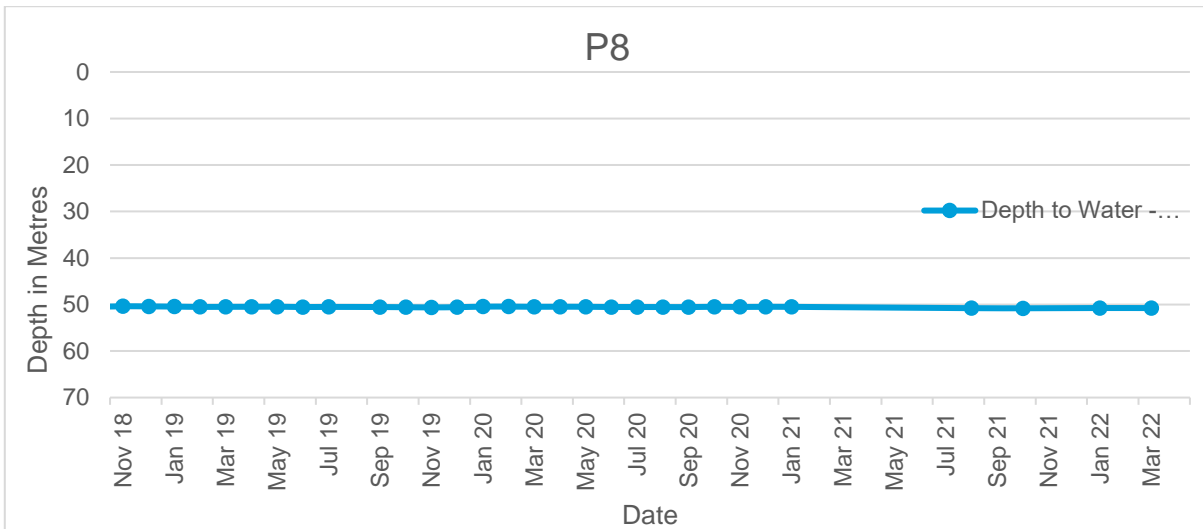


NCO Monitoring bore ID: P7

Location: State forest

Geological unit: Pilliga sandstone

Bore depth: 90m

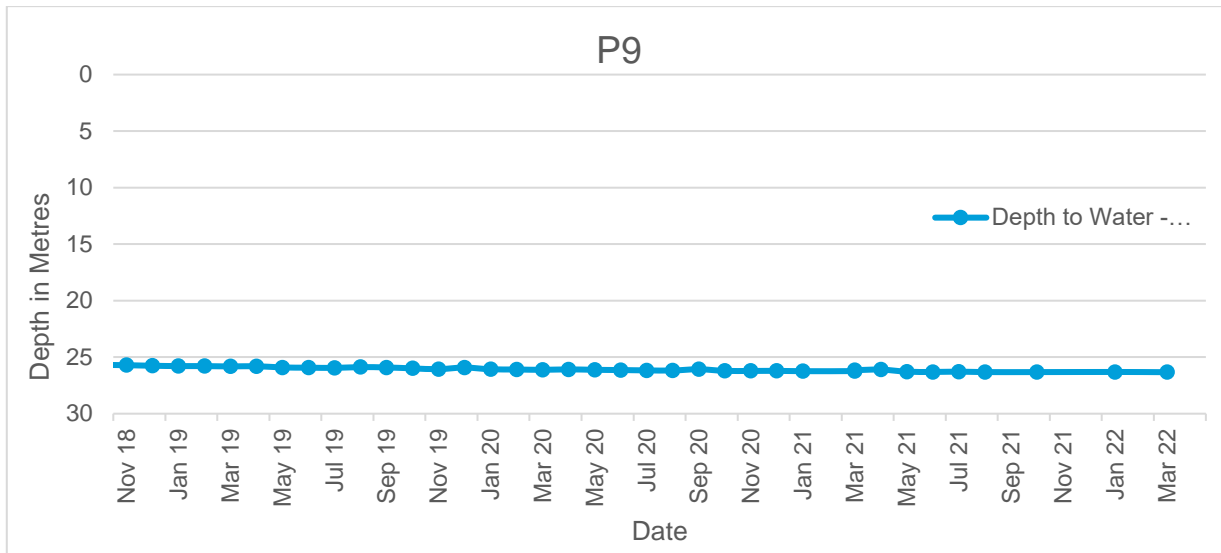


NCO Monitoring bore ID: P8

Location: Kurrajong

Geological unit: Purlawaugh Formation

Bore depth: 65m

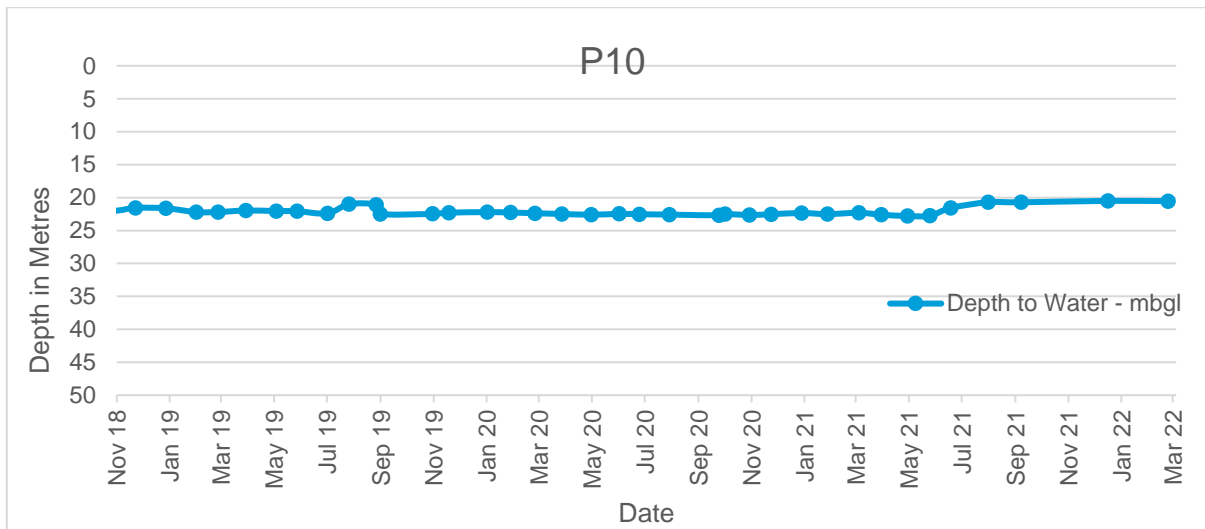


NCO Monitoring bore ID: P9

Location: NCO – Figure 10

Geological unit: Purlawaugh Formation

Bore depth: 30m

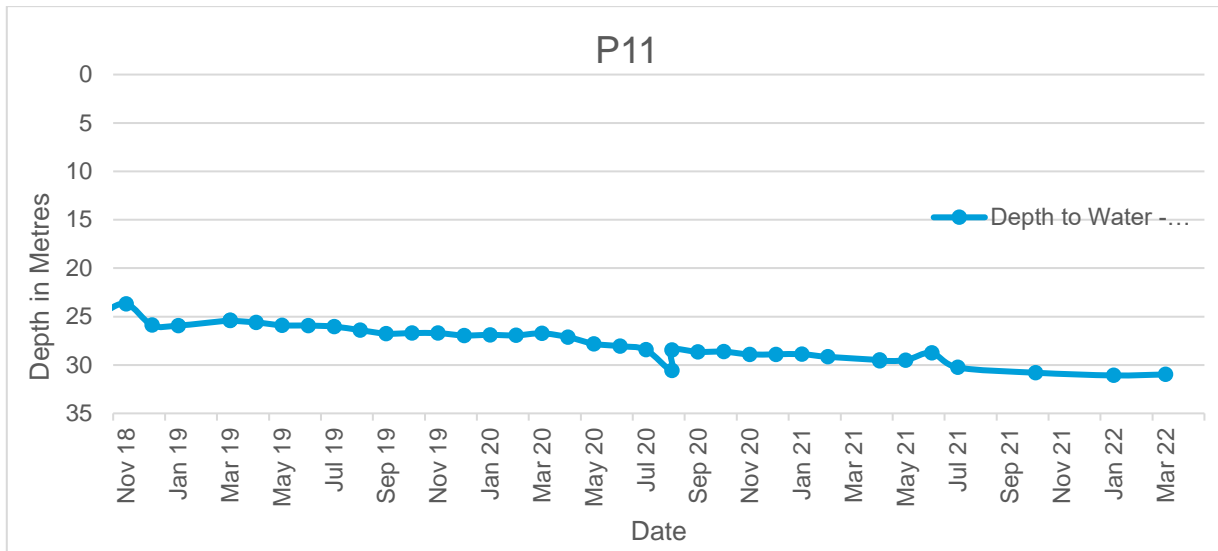


NCO Monitoring bore ID: P10

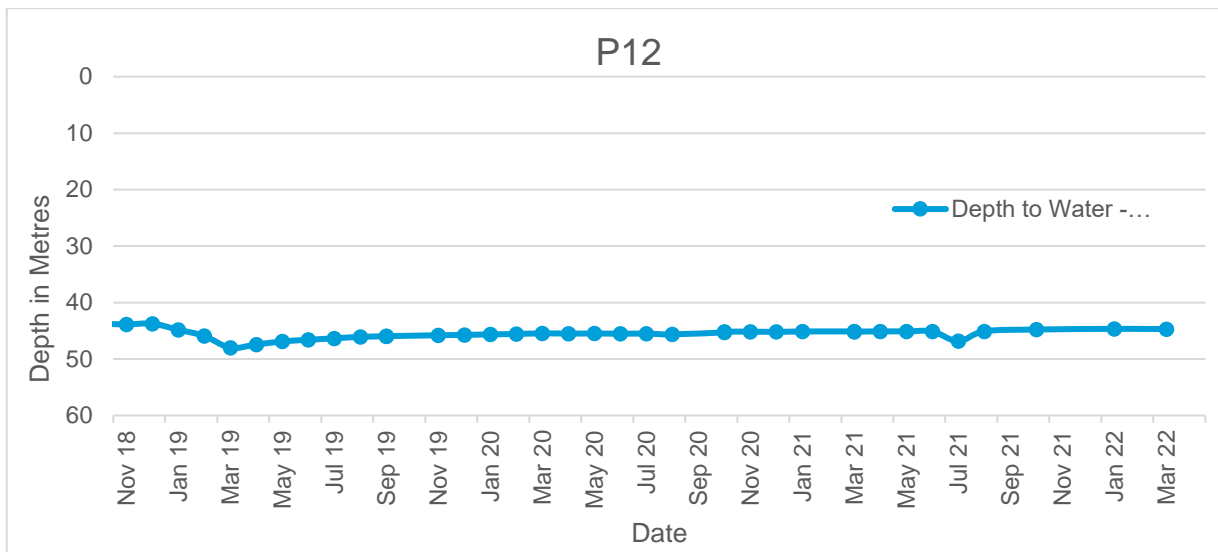
Location: NCO – see figure 10

Geological unit: Napperby Formation

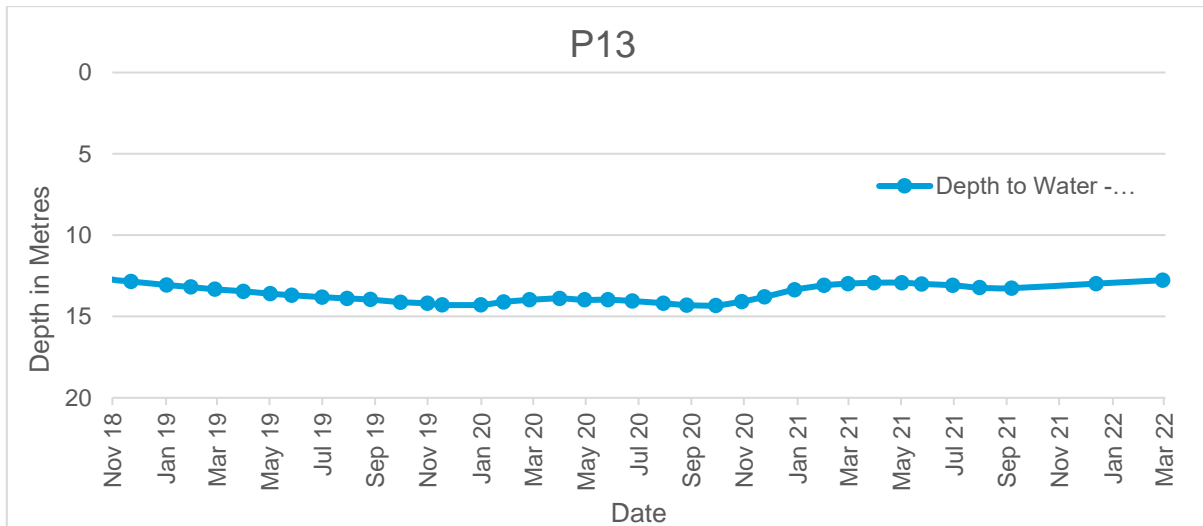
Bore depth: 130m



NCO Monitoring bore ID: P11
Location: NCO – see figure 10
Geological unit: Napperby Formation
Bore depth: 50m



NCO Monitoring bore ID: P12
Location: NCO – see figure 10
Geological unit: Napperby Formation
Bore depth: 90m



NCO Monitoring bore ID: P13

Location: NCO – see figure 10

Geological unit: Garrawilla Volcanics/Napperby

Bore depth: 30m

No Graph

NCO Monitoring bore ID: P14

Location: See Figure 10

Geological unit: Napperby Formation (no sill)

Bore depth: 78m

Explanation: Dry

No Graph

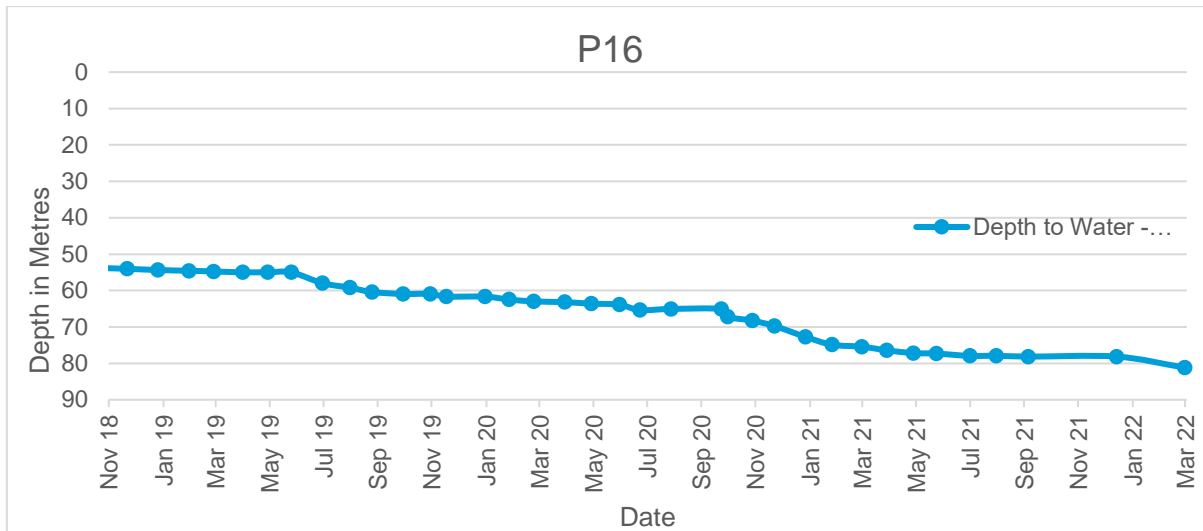
NCO Monitoring bore ID: P15

Location: See Figure 10

Geological unit: Garrawilla Volcanics

Bore depth: 30m

Explanation: Dry



NCO Monitoring bore ID: P16

Location: State forest (Western Boundary) – see figure 10

Geological unit: Garrawilla Volcanics

Bore depth: 146m

No Graph

NCO Monitoring bore ID: P17

Location: See figure 10

Geological unit: Purlawaugh Formation

Bore depth: 56m

Explanation: Dry since 2009

No Graph

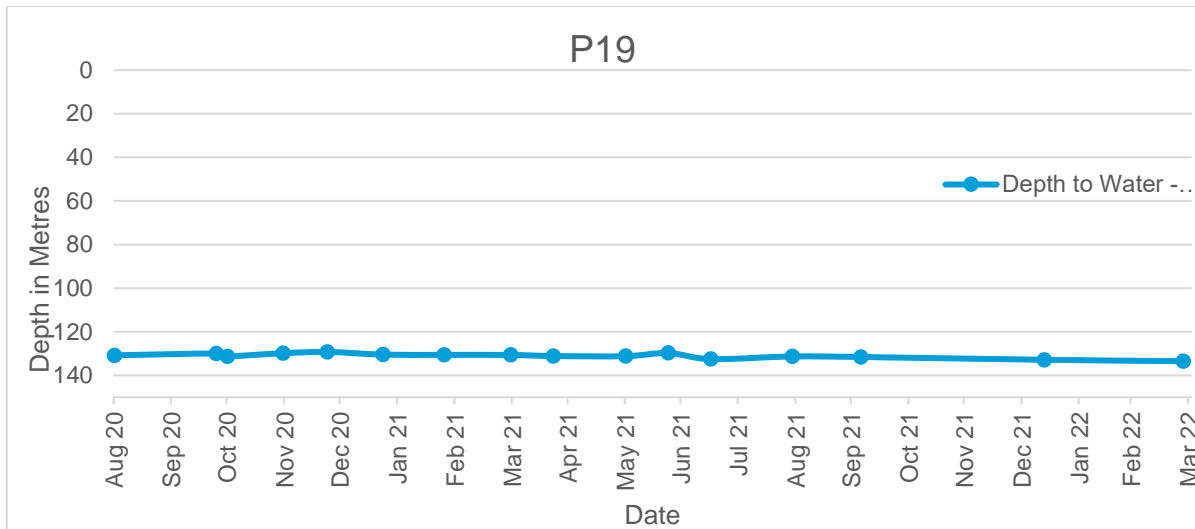
NCO Monitoring bore ID: P18

Location: See figure 10

Geological unit: Hoskissons seam

Bore depth: 146m

Explanation: Dry since 2011



NCO Monitoring bore ID: P19

Location: NCO

Geological unit: Pamboola

Bore depth: 187m

Explanation: Wrong bore previously monitored, true location monitored since August 2020

No Graph

NCO Monitoring bore ID: P20

Explanation: Cemented up – no longer monitoring

No Graph

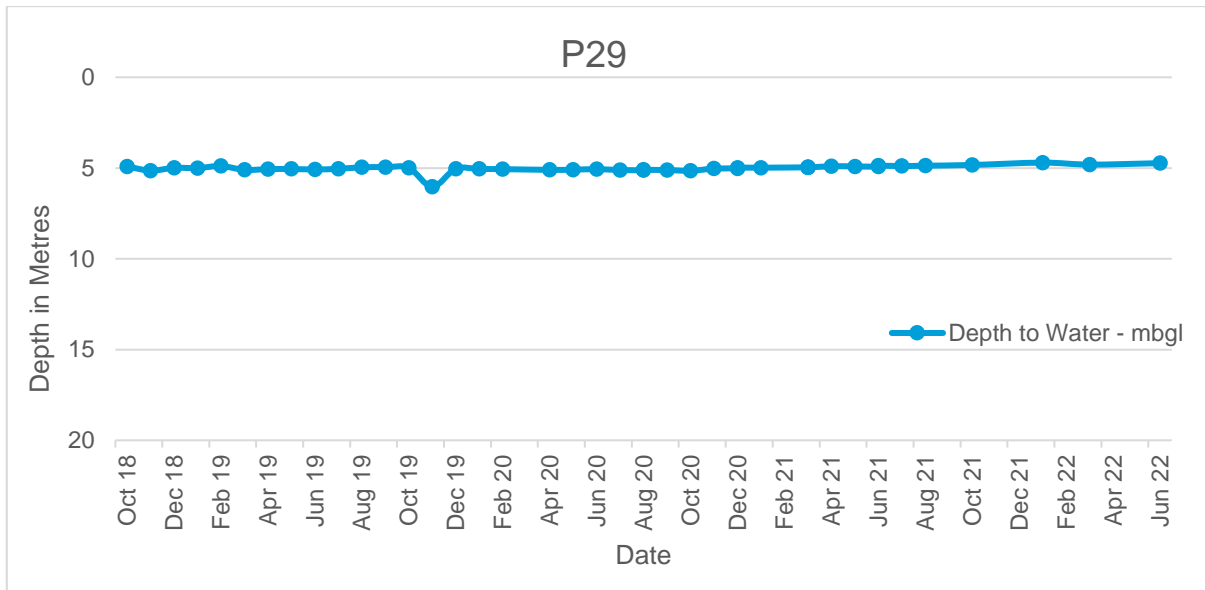
NCO Monitoring bore ID: P28

Location: See figure10

Geological unit: Napperby Formation (above sill)

Bore depth: 25m

Explanation: Dry since 2012

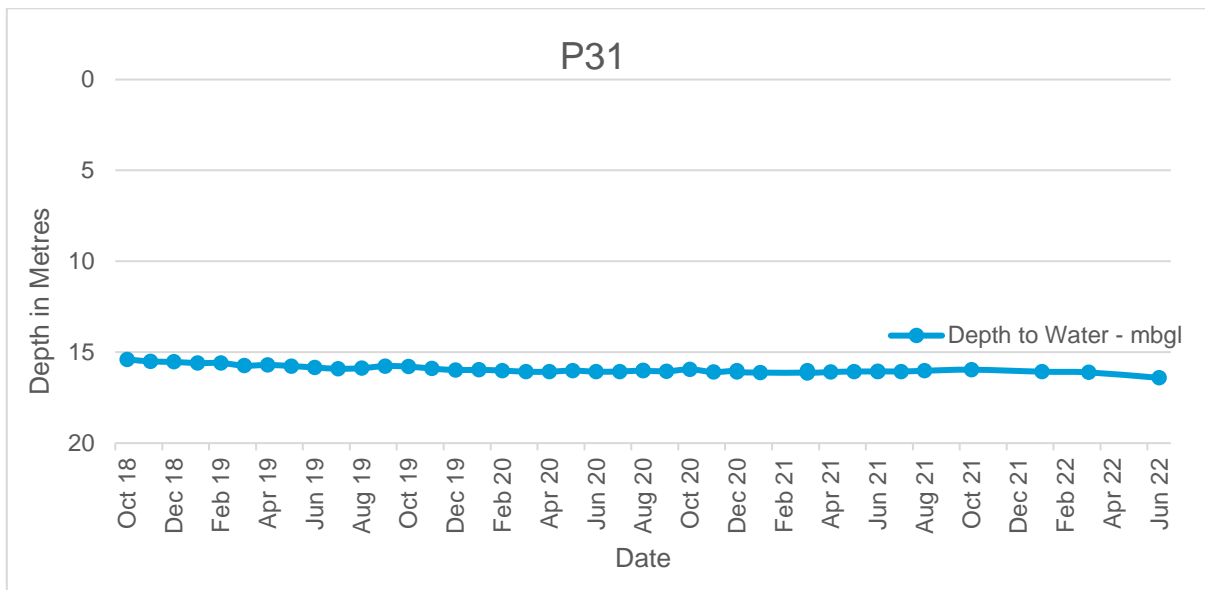


NCO Monitoring bore ID: P29

Location: NCO (Near site dams) – see figure 10

Geological unit: Napperby Formation (above sill).

Bore depth: 25m

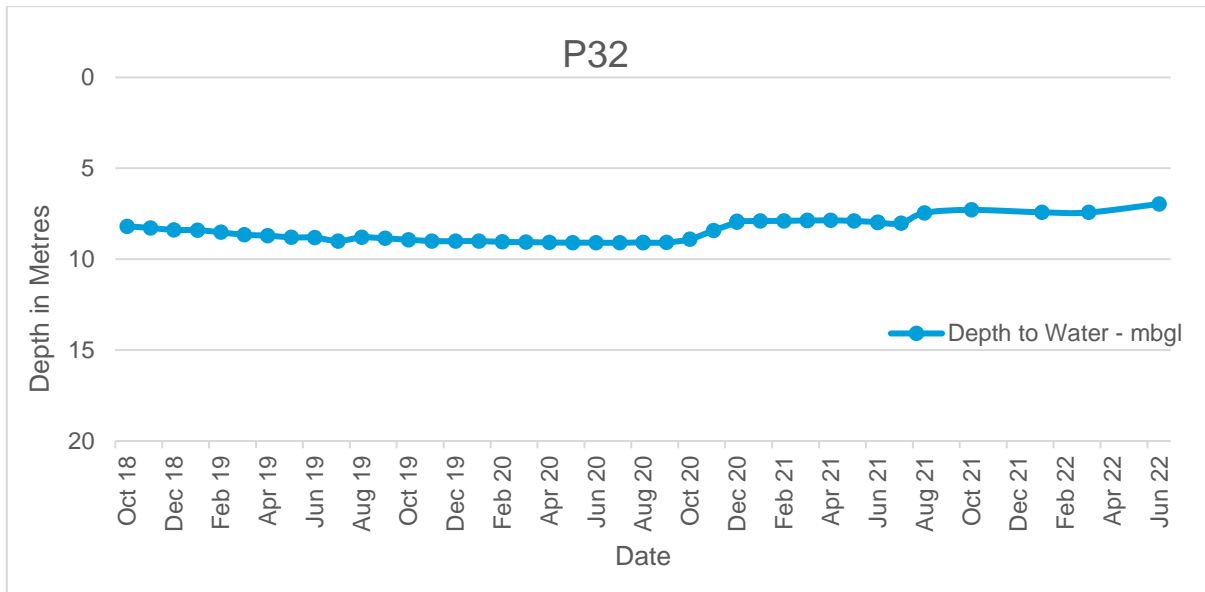


NCO Monitoring bore ID: P31

Location: NCO (Near site dams) – see figure 10

Geological unit: Napperby formation (above sill)

Bore depth: 15m



NCO Monitoring bore ID: P32

Location: NCO (Near site dams) – see figure 10

Geological unit: Napperby Formation (above sill)

Bore depth: 15m

NCO Monitoring bore ID: P33

Location: See figure 6

Geological unit: Napperby Formation (above sill)

Bore depth: 15m

Explanation: Dry since 2012

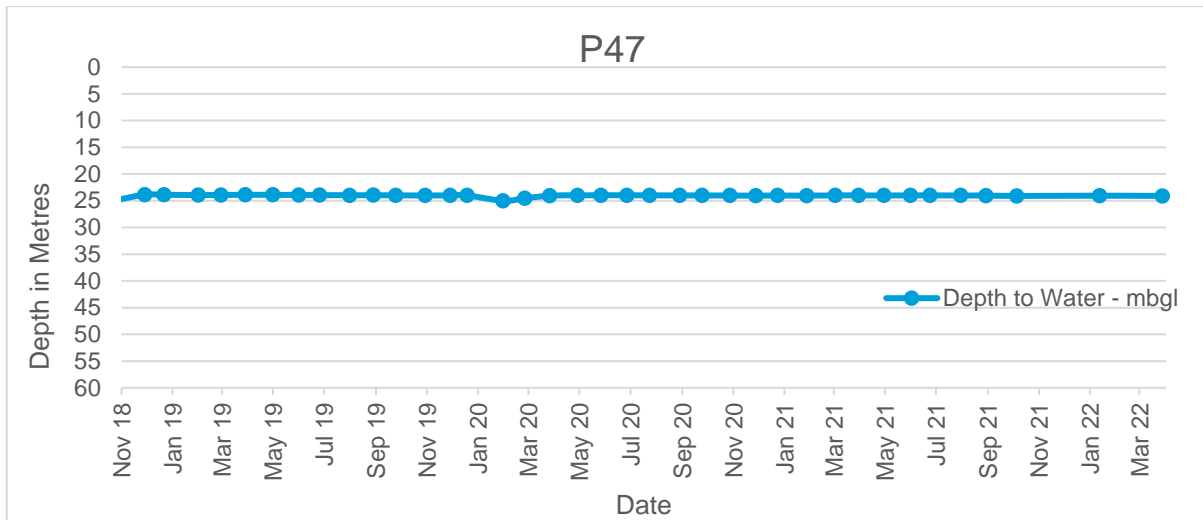
NCO Monitoring bore ID: P24

Location: See figure 6

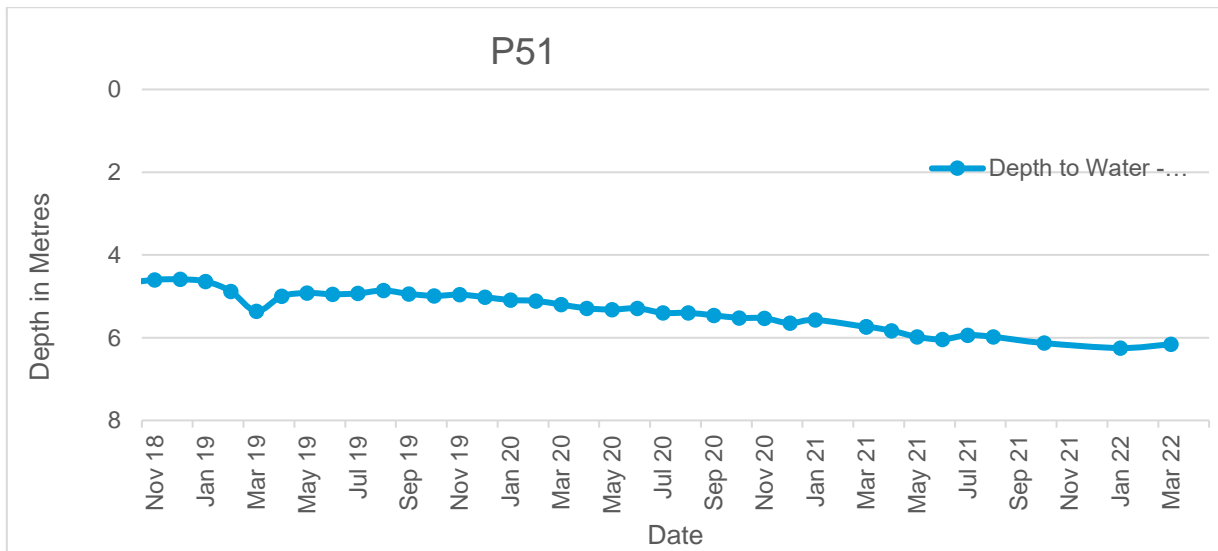
Geological unit: Napperby Formation (above sill)

Bore depth: 15m

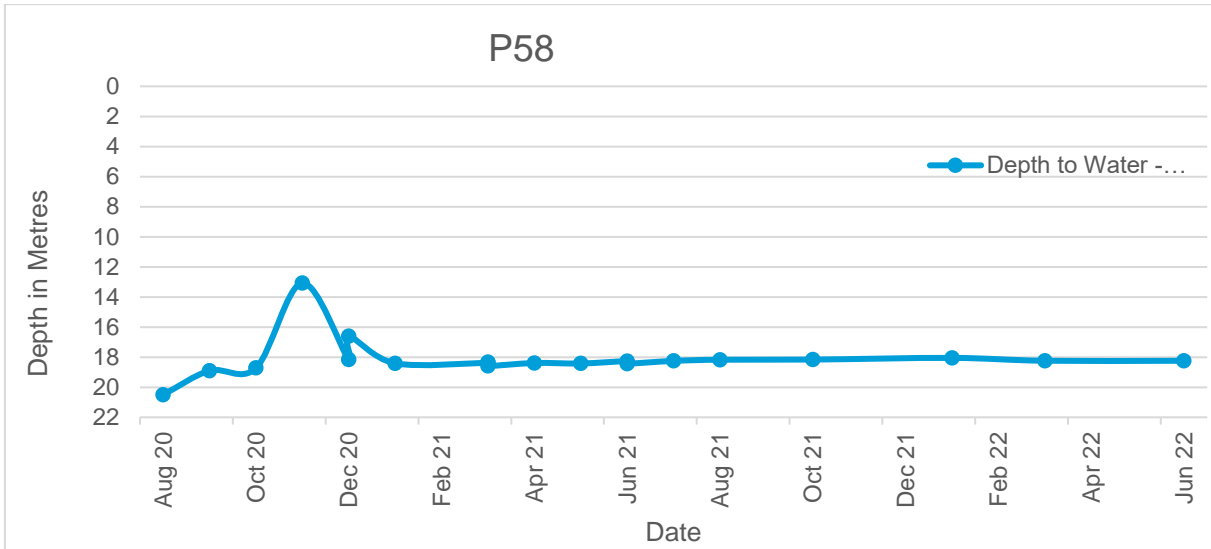
Explanation: Dry since 2012



NCO Monitoring bore ID: P47
Location: NCO – see figure 10
Geological unit: Garrawilla Volcanics
Bore Depth (m): 31m



NCO Monitoring bore ID: P51
Location: NCO
Geological unit: Garrawilla Volcanics
Bore Depth (m): 17m



NCO Monitoring bore ID: P58

Location: NCO

Geological unit: Napperby Formation

Bore Depth (m): 40m

Narrabri Mine Community Consultative Committee Meeting #58

Date: Wednesday 21 September 2022
Time: 5:00pm
Location: Narrabri Mine

Present: Russell Stewart (RS)
James Steiger (JS)
Peter Webb (PW)
Mark Foster (MF)
Ian Duffy (ID)
Landon Braden (LB) - Narrabri Shire Council
Brent Baker (BB) – Whitehaven Coal
David Ellwood (DE) – Whitehaven Coal
Shane Rily (SR) – Whitehaven Coal
Darren Swain (DS) – Whitehaven Coal

Apologies: Geoff Hunter (GH)
Gerald Linde (GL) – Whitehaven Coal

1. DECLARATION OF PECUNIARY INTEREST

No changes to previous.

2. PREVIOUS MINUTES

RS asked if everyone has read previous minutes.

RS asked for previous minutes to be accepted as a true and accurate record.

Moved: PW Seconded: RS

2.1 BUSINESS ARISING FROM PREVIOUS MINUTES

No business arising.

3. OPERATIONS PROGRESS REPORT AND SAFETY UPDATE

Presented by Brent Baker

- Whitehaven safety conference SAFEHAVEN day – explained the purpose of this company event was to review safety performance over last year and communicate safety goals for the year ahead.
- Production ahead of budget.
- Safety performance- 3 reportable injuries FY to date have all been hand and finger related. Discussion around improvement to PPE gloves in response to this trend.

4. ENVIRONMENTAL MONITORING REPORT

Presented by Shane Rily

- **INCIDENTS:** Reported P16 groundwater level drawdown trigger level exceedance to Department of Planning & Environment.
- **COMPLAINTS:** Nil complaints since previous CCC meeting. No complaints received this (calendar) year and previous 12 months.

- **DEPOSITIONAL DUST:**
 - 2022 annual average (year to date) for all monitoring locations is below the licence limit of 4 g/m²/month (Insoluble Matter).
- **PM10 AIR QUALITY:**
 - No exceedances of the 24-hour limit within last 12-month period at both Turrabaa and Claremont monitoring
 - Rolling 12-month average currently below annual average limit (of 30 µg/m³) for the two monitoring locations (Claremont and Turrabaa).
- **QUARTERLY NOISE MONITORING**
 - Quarter 2 2022 attended noise monitoring was conducted from 20th – 23rd June. Compliance was achieved at all locations.
 - Quarter 3 2022 attended noise monitoring was completed in September 2022 however results had not been received at the time of the meeting.
- **SURFACE WATER MONITORING:**
 - Two wet weather discharge events occurred during the reporting period. Discharge water test results have been confirmed that discharges have been within the EPL discharge water quality limits. All samples have been analysed by a NATA accredited laboratory (ALS Sydney).
 - One wet weather discharge event had occurred for the next reporting period and was presented in the meeting.
 - RS asked if the discharge events were planned and if this was due to predicted rainfall. SR confirmed that these events were all controlled discharges and were either due to predicted rainfall or due to receiving significant rainfall onsite.
 - BB explained that the water discharged from site is stormwater.
 - BB mentioned that the discharge volumes were included following request from previous CCC meeting.
- **WATER LICENSING**
 - Presented graphs showing NCO water licence allocation usage.
- **GROUNDWATER MONITORING**
 - Presented Hydrographs for groundwater monitoring locations.
 - JS requested that the groundwater monitoring points located on his property be included in the next meetings Environmental Report, as these have not been included recently. BB noted that the annual review did not highlight any issues with these locations.
 - A summary of the hydrogeological review of P16 groundwater level change was presented in the meeting. BB explained that drawdown was always expected however the level has exceeded the expected depth at this

point in time. The predicted drawdown exceedance was localised to P16. The groundwater model is being updated as a result of this event. BB also mentioned that the occurrence has been reported to the NSW Department of Planning and Environment.

- **SUBSIDENCE**
 - **MONITORING:** Line 108 north was monitored 29/06/2022. Line H is scheduled for monitoring during September 2022. SR noted that Line I has been included in the monitoring program due to a step around on LW110.
- **REHABILITATION**
 - SR explained that this section was entered to address commitment within the newly required Rehabilitation Management Plan under the NSW Mining Regulation 2016.
 - SR presented the rehabilitation works that had been completed onsite for 2022CY with target and actual rehabilitation areas presented in a table and a map highlighting rehabilitation areas. BB noted that annual targets had almost been met only halfway through the calendar year, great result.
- **APPROVALS/SPECIAL PROJECTS (presented following the remainder of the Environmental Report)**
 - Environmental Management Plans are currently under review. DE mentioned that the company is hopeful that the management plans will be all approved by November this year.
 - DE explained that Whitehaven Coal Limited has been notified that a client of the Environmental Defenders Office (EDO), has commenced judicial review proceedings in the NSW Land and Environment Court in respect of the State Significant Development Consent which was granted for the Narrabri Stage 3 Extension Project by the NSW Independent Planning Commission (IPC) on 1 April 2022. This issue is scheduled to be in court February 2023 with no additional details known at this stage.
 - DE mentioned that NCO has received approval for Mining Lease application (MLA) 612. DE explained that there are two MLAs to cover the proposed Stage 3 project area, with the approved MLA covering freehold land. DE noted that NCO is hopeful of applying for the second MLA (613) which covers forestry area by the end of the CY.
 - DE explained that Exploration Leases: (ELA) 6442 (now EL9456) and 6443 (now EL9455) were granted by the Deputy Premier 07 September 2022. DE explained that these areas are located within the government authority area known as Gorman North.
 - DE also explained that the EL applications were made through a process known as Operational Allocation Process. Allows NCO to apply for an area of up to 33% of its existing licenced areas. A market interest test was conducted by the Government for the entirety of the Gorman North authority area to determine if any other operators have an interest in the authority area. No other interest was received.
 - DE noted that it is unlikely that any works will be conducted within the ELs this CY as secondary approvals are required by the regulator.
 - DE presented these areas using the NSW Government website MinView.
 - DE asked the committee whether expressions of interest for new CCC members should be raised in response to the newly approved ELs. JS agreed citing that these areas do cover a new area which may be of particular interest for residents within close proximity. MF seconded.

- BB and RS nominated themselves to arrange for advertising in the local newspaper. JS recommended that a letter drop should be considered. DE agreed and nominated himself to arrange for this.
- DE explained the make good agreements options that have been drafted and presented to the regulator. These options include; drilling a new bore or case settlement to the value of a new bore. DE mentioned that Rodney Dunlop will be having a face to face with the relevant landholders to present these options towards the end of the year.

No further questions/comments from members.

5. GENERAL BUSINESS

- DS mentioned that the applications for Donations and Sponsorship from WHC will be open in October 2022 (and will be advertised in the local newspaper). DS also explained that there is a link to the Donations and Sponsorships applications page at the bottom of the company website with over \$50k of sponsorship offered quarterly.
- DS discussed sponsorship of local events including
 - The Narrabri Chamber of Commerce Business Awards held in September 2022.
 - The upcoming Narrabri Christmas Carnival to be held 16 December 2022.
- No further General Business, meeting closed at 17:40 hours.

NEXT MEETING

- 5pm Wednesday the 7th December at Baan Baa Hotel, followed by Christmas Party.

MEETING ACTIONS	
Person	Action
SR	Include the hydrographs for groundwater monitoring locations located on JS's property in the next meetings Environmental Report
RS & BB	Arrange for advertising for Expressions of Interest for Community Consultative Committee within the local Narrabri newspaper
DE	Arrange for a letter drop of residents located inside and within close proximity to the newly approved exploration lease areas, seeking Expressions of Interest for representatives for CCC.

Narrabri Mine Community Consultative Committee Meeting #58**Environmental Monitoring Report: June - August 2022****Reportable Incidents**

Nil since previous CCC meeting.

Complaints

Nil since previous CCC meeting. Nil complaints received in previous 12 months.

Approvals/Special Projects**STAGE 3**

- Environmental Management Plans are currently under review.
- Whitehaven Coal Limited has been notified that a client of the Environmental Defenders Office (EDO), has commenced judicial review proceedings in the NSW Land and Environment Court in respect of the State Significant Development Consent which was granted for the Narrabri Stage 3 Extension Project by the NSW Independent Planning Commission (IPC) on 1 April 2022.
- NCO have received draft conditions of consent for the Mining Lease application (MLA) 612 and are awaiting final determination by the Department of Regional NSW.

EXPLORATION LEASE APPLICATIONS

- (ELA) 6442 (now EL9456) and 6443 (now EL9455) were granted by the Deputy Premier 07 September 2022.

Deposited Dust Monitoring

Deposited Dust collection bottles remain in the field for a period of 30 days (+/- 2 days).

2022 annual average (year to date) for all monitoring locations is below the licence limit of 4 g/m²/month (Insoluble Matter).

Table 1: 2022 (CY) Total Insoluble Matter Results

Total Insoluble Matter results (g/m ² /month)												
Month	ND1 Turrabaa	ND2 Claremont	ND3 Bow Hills	ND4a New Matoppo	ND5 Claremont	ND6 Willarah	ND7 Claremont	ND8 Claremont	ND11 Oakleigh	ND12 Merriman	ND13 Darjeelang	
Jun-22	0.1	1.1	0.3	0.4	1.5	0.3	0.5	0.7	0.4	0.3	0.8	
Jul-22	0.2	0.7	0.1	0.3	1.2	0.2	1	0.3	0.8	0.2	0.3	
Aug-22	1.3	1	0.3	0.4	1.6	0.2	0.7	0.1	0.7	0.2	0.8	
Annual Average	0.5	0.8	0.4	1.2	1.6	1.4	0.6	2.1	1.2	0.3	1.2	

PM₁₀ High Volume Air Sampling (HVAS)

Samples are collected over a 24-hour period once every 6 days, with a (24hr) compliance limit of 50 µg/m³, and an annual average limit of 30 µg/m³.

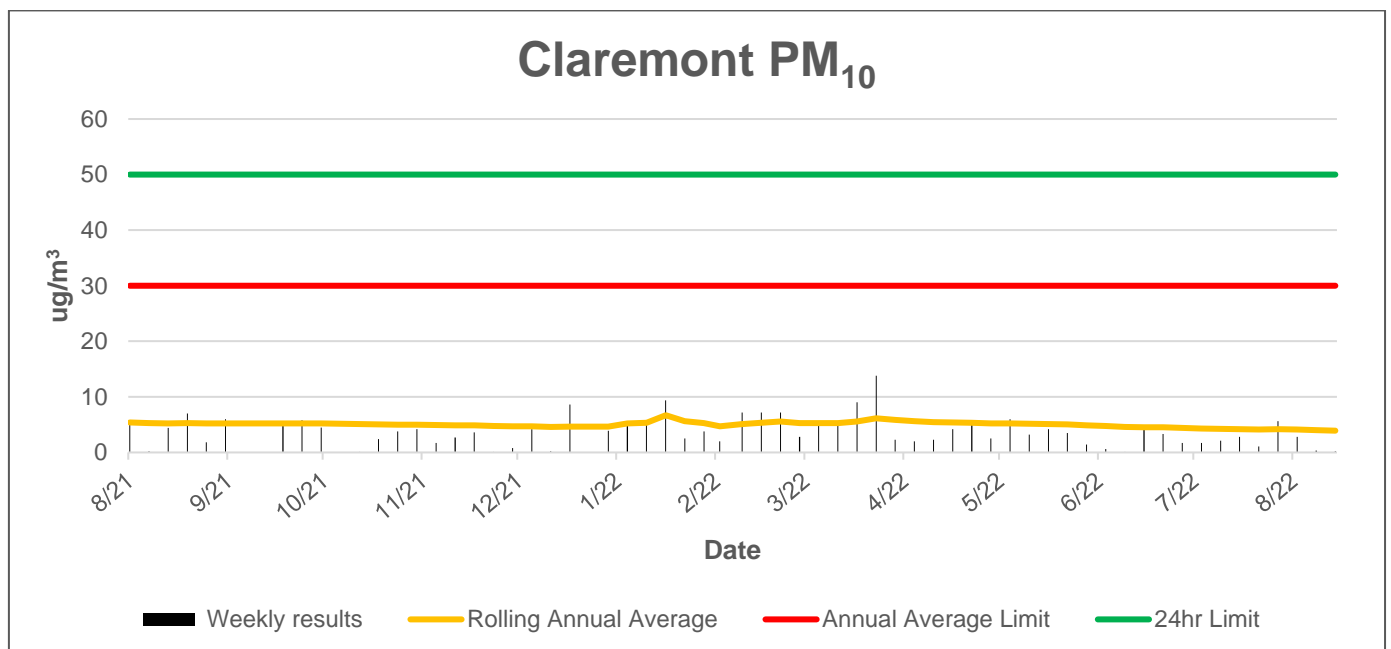


Figure 1: Claremont PM₁₀ High Volume Air Sampler results for last 12-month period.

The Claremont HVAS (*Figure 1*) rolling annual average is 3.92 $\mu\text{g}/\text{m}^3$, which is below the annual average limit of 30 $\mu\text{g}/\text{m}^3$. There have been no exceedances of the 24-hour compliance limit of 50 $\mu\text{g}/\text{m}^3$ within the last 12-month period.

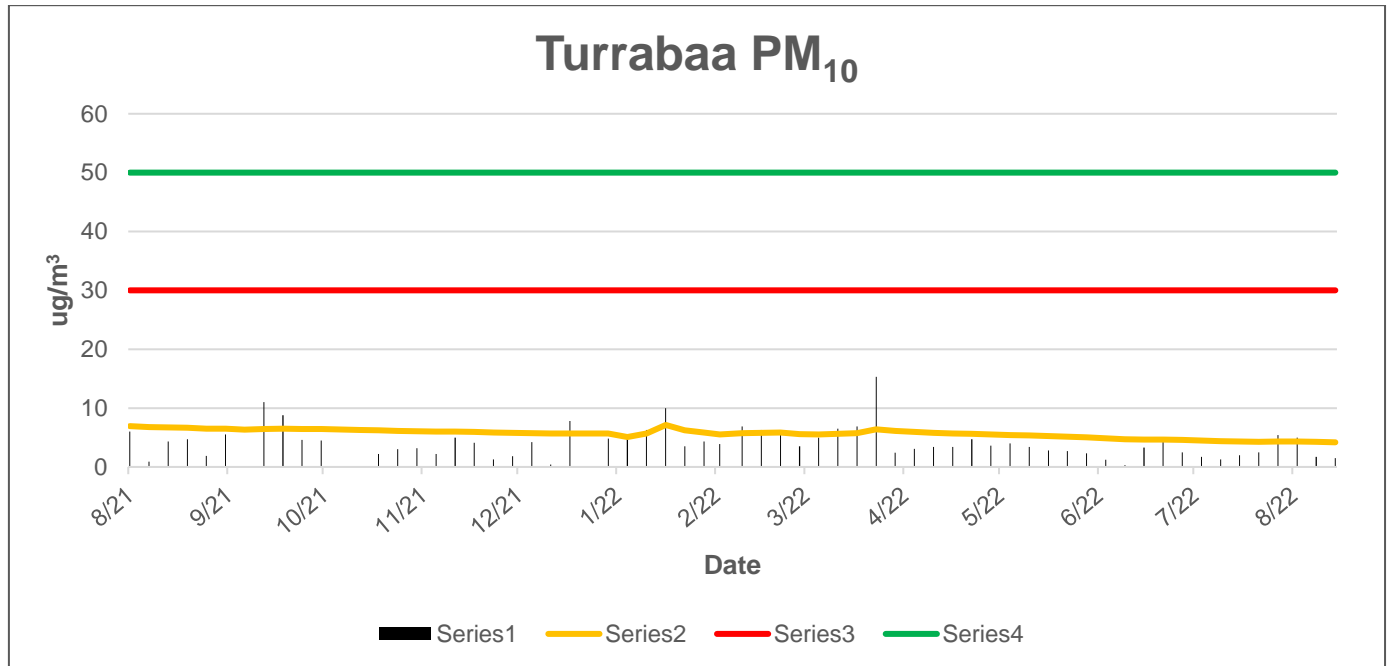


Figure 2: Turrabaa PM10 High Volume Air Sampler results for last 12-month period.

The Turrabaa HVAS (*Figure 2*) rolling annual average is 4.18 $\mu\text{g}/\text{m}^3$, which is below the annual average limit of 30 $\mu\text{g}/\text{m}^3$. There have been no exceedances of the 24-hour compliance limit of 50 $\mu\text{g}/\text{m}^3$ within the last 12-month period.

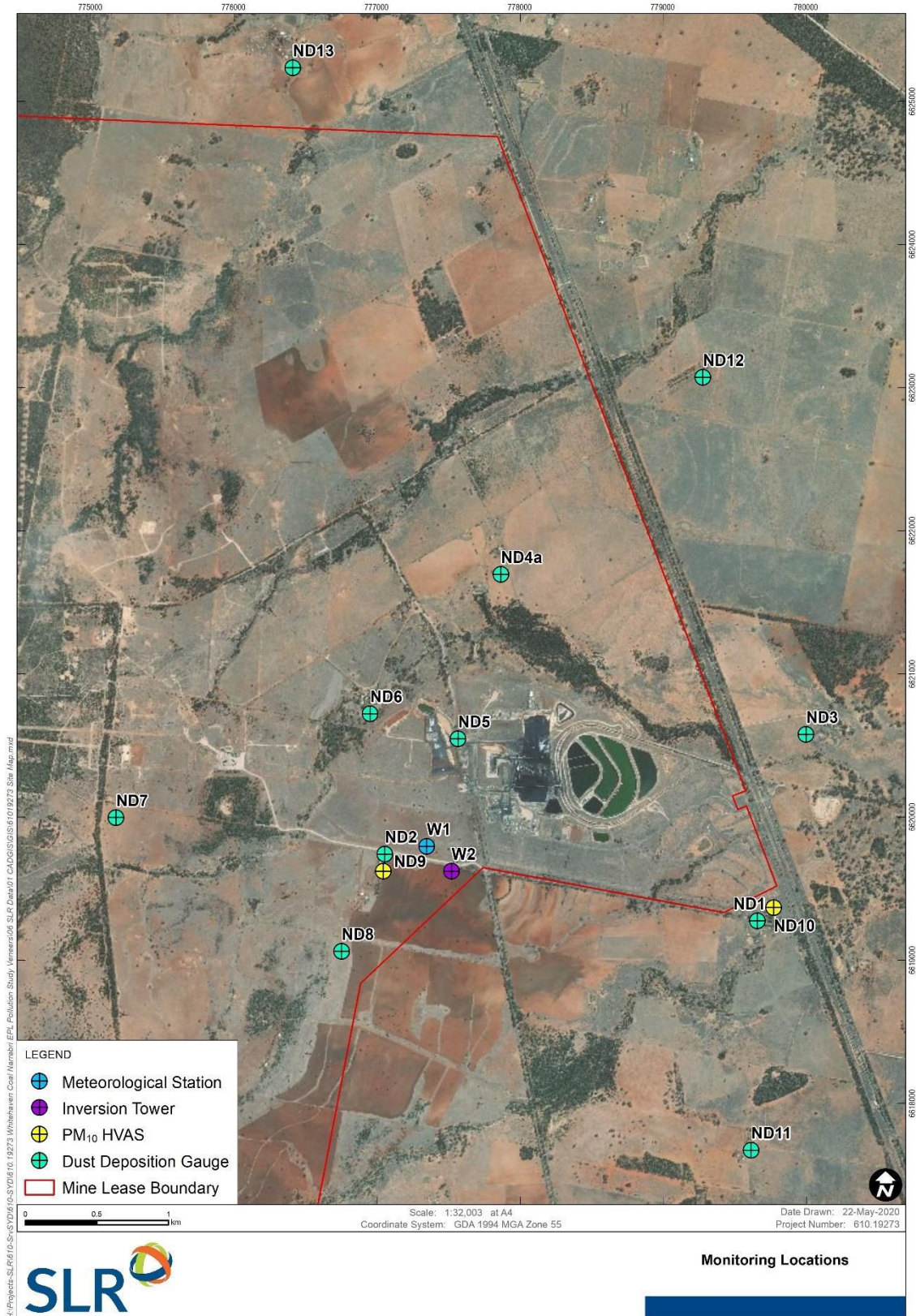


Figure 3: Air Quality Monitoring locations

Noise Monitoring

2022 (CY) Quarter 2 attended noise monitoring was conducted from the 20th – 23rd of June, and results are presented below. Compliance was achieved at all locations.

2022 (CY) Quarter 3 attended noise monitoring is scheduled for September 2022.

Table 1 Performance Assessment – Operations

EPL ID	Location	Date	Narrabri Mine Contribution dBA				Noise Criteria ¹	Measurement Periods	Standard Weather ³			Compliant		
			LAeq 15 min Day	LAeq 15 min Evening	LAeq 15 min Night	LA1 (1 min) Night			Day	Evening	Night			
N5	Oakleigh ²	21/06/2022	38	32	27	35	Day, Evening and Night – LAeq(15minute) 35 dBA Night LA1(1minute) – 45 dBA	Day - 1.5 hrs Evening - 0.5 hrs Night – 1hrs	Y	Y	Y	Y ⁵		
		22/06/2022	I/A	I/A	I/A	I/A			Y	Y	Y	Y		
		23/06/2022	I/A	I/A	I/A	I/A			Y	Y	Y	Y		
N6	Newhaven	21/06/2022	I/A	I/A	32	39		Day, Evening and Night – LAeq(15minute) 35 dBA Night LA1(1minute) – 45 dBA	Day - 1.5 hrs Evening - 0.5 hrs Night – 1hrs	Y	Y	N	Y	
		22/06/2022	N/M	30	28	41				Y	Y	N	Y	
		23/06/2022	N/M	28	29	35				Y	Y	Y	Y	
N8	Haylin View ²	21/06/2022	34	30	29	36			Day, Evening and Night – LAeq(15minute) 35 dBA Night LA1(1minute) – 45 dBA	Day - 1.5 hrs Evening - 0.5 hrs Night – 1hrs	N	Y	Y	Y
		22/06/2022	N/M	I/A	22	24					N	Y	Y	Y
		23/06/2022	22	27	27	35					Y	N	N	Y
N9	High Range ²	21/06/2022	I/A	I/A	30	35				Day, Evening and Night – LAeq(15minute) 35 dBA Night LA1(1minute) – 45 dBA	Day - 1.5 hrs Evening - 0.5 hrs Night – 1hrs	Y	Y	N
		22/06/2022	29	23	24	28	Y					Y	Y	Y
		23/06/2022	32	I/A	21	25	Y					N	Y	Y
-	Bow Hills ¹	20/06/2022 ⁴	40	I/A	27	36	Day 15 min Evening 15 min Night 15 min				N	Y	N	Y
-	Ardmona	20/06/2022	I/A	I/A	I/A	I/A		Y			Y	N	Y	
-	Merriman ²	20/06/2022	30	I/A	N/M	N/M		Y			Y	N	Y	
-	Matilda ²	20/06/2022	I/A	I/A	I/A	I/A		Y			Y	N	Y	

I/A = Inaudible, N/M = Not Measurable

Note 1: A private agreement between NCOPL and the residents of N1 Bow Hills of 50 dBA LAeq(15minute) is in place. This new level of 50 dBA LAeq(15minute) replaces the levels identified in Conditions 1-3, Schedule 4 of PA 08_0144 Mod 2 and the identical limits contained in condition L3 of Environment Protection Licence No 12789

Note 2: Property is owned by Narrabri Coal Operations

Note 3: Noise levels presented are the highest measured noise level under standard weather conditions over the monitoring period.

Note 4: Evening and Night monitoring conducted on this date, Day monitoring conducted during the following day period on 21/06/2022.

Note 5: The Noise Criteria for EPL Monitoring Location N5 (Oakleigh) does not apply as the property is owned by Narrabri Coal and is therefore not a privately owned residence.

Surface Water Monitoring

Two compliant discharge events have occurred during the reporting period.

Discharge water test results have been confirmed that discharges have been within the EPL discharge water quality limits. All samples have been analysed by a NATA accredited laboratory (ALS Sydney).

Event 1

Occurred: 25/08/2022 to 26/08/2022

EPL Point 13 (SD2)

Discharge Volume: 11.05ML

	Date	pH	TSS	Oil & Grease
EPL Limit		6.5-8.5	50 mg/L	10 mg/L
SD2	25/08/2022	7.88	<5	<5

Event 2

Occurred: 30/08/2022 to 02/09/2022

EPL Point(s) 13 (SD2) and 11 (SD4)

Discharge Volume: SD2 = 10.59ML, SD4 = 6.50ML

Total = 17.09ML

	Date	pH	TSS	Oil & Grease
EPL Limit		6.5-8.5	50 mg/L	10 mg/L
SD2	30/08/2022	8.04	<5	<5
SD4	30/08/2022	8.28	19	<5

Event 3

Occurred: 05/09/2022 to 06/09/2022

EPL Point 11 (SD4)

Discharge Volume (ML): 2.99ML

	Date	pH	TSS	Oil & Grease
EPL Limit		6.5-8.5	50 mg/L	10 mg/L
SD4	5/09/2022	8.44	27	<5

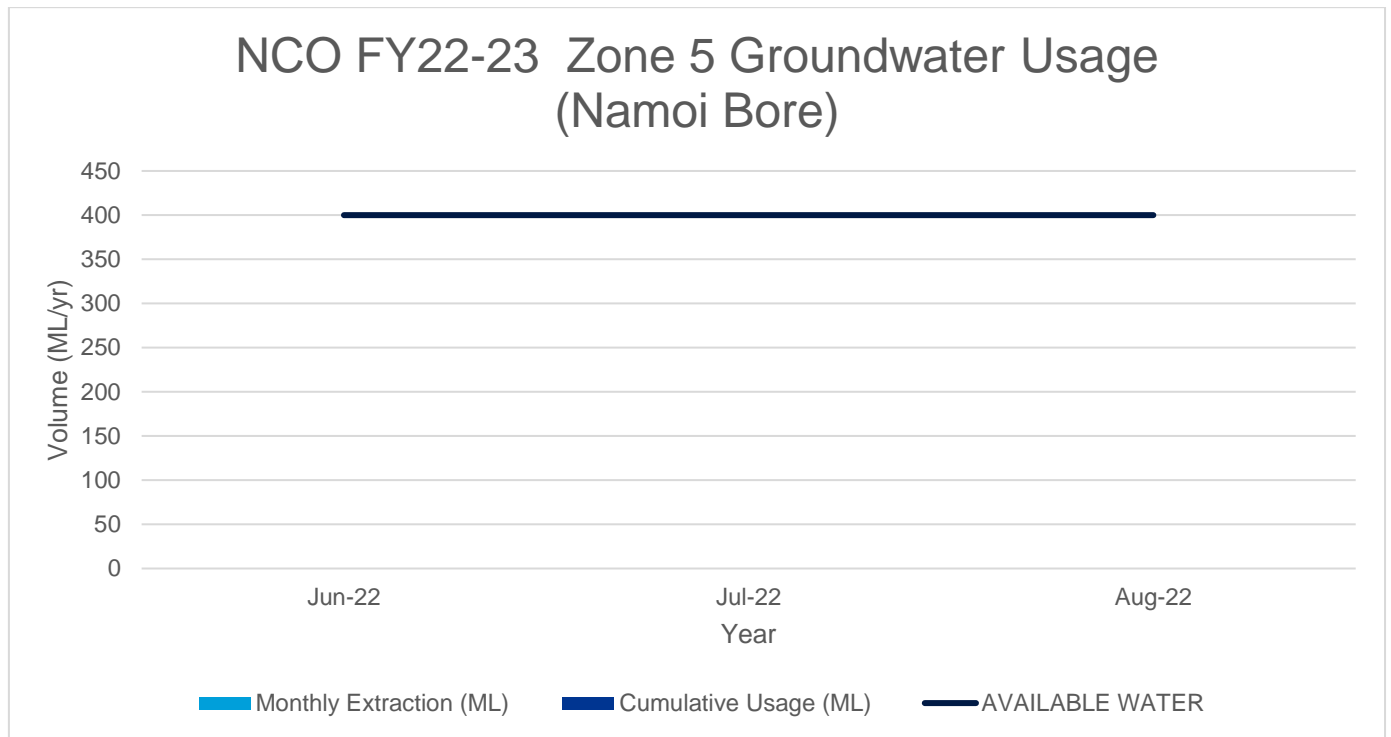
NSW Water- Licenced Usage


Figure 4: Zone 5 licensed groundwater usage from the Namoi Bore for the current Financial (Water) Year.

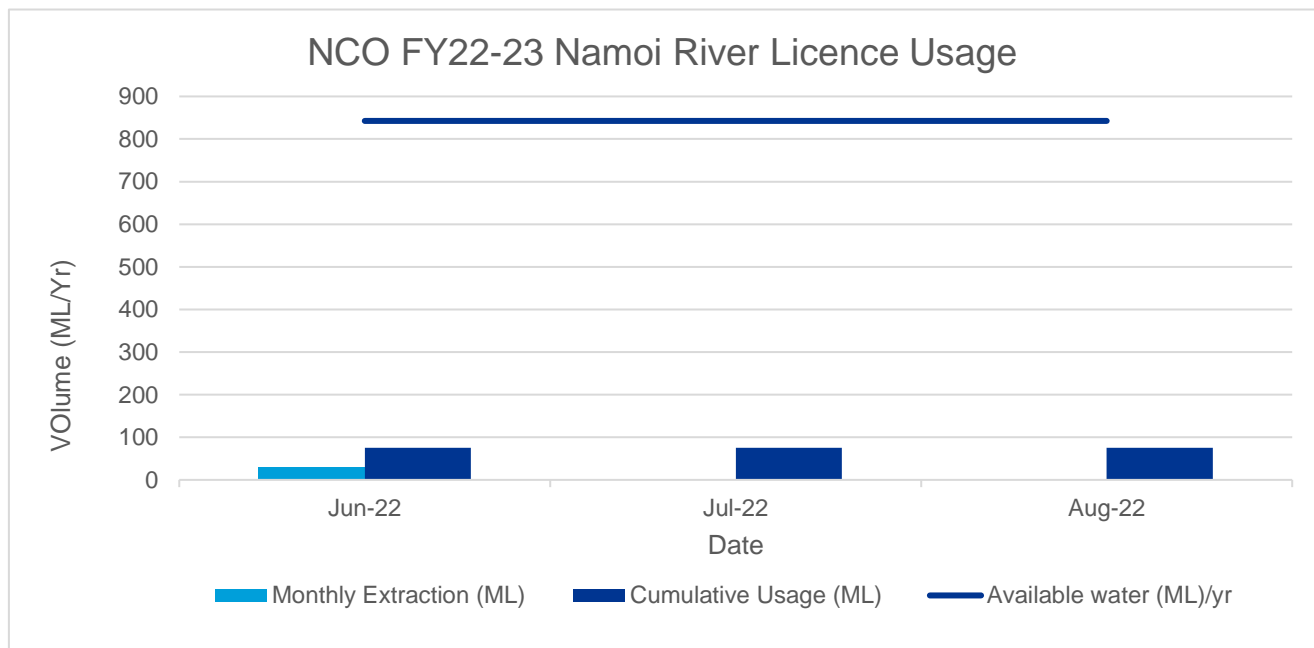


Figure 5: Namoi River licensed water allocation usage for the current Financial (Water)

Groundwater Monitoring

Groundwater monitoring results are reviewed at the end of each year by a suitably qualified hydrogeologist and reported in the Annual Review.

Groundwater monitoring undertaken at Narrabri Mine on 05 July 2022 recorded a standing water level measurement of 217mAHD at groundwater monitoring bore P16. Monitoring bore P16 is screened in the Garrawilla Volcanics and is located less than 1km west of current mining in LW110. Validation of groundwater monitoring field data by consulting hydrogeologist confirmed the measured groundwater drawdown in P16 as 35.2m, which exceeds the groundwater drawdown trigger level of 33.35m outlined in the Narrabri Mine Water Management Plan, and therefore classifies as an Incident under the Project Approval 08_0144 definition (exceeds a performance measure).

In accordance with the Water Management Plan TARP NCO engaged a consulting hydrogeologist (AGE) to review the field data to validate that the drawdown trigger level had been exceeded, and to conduct an investigation and report on any identified changes / likely causes and provide recommendations for contingency responses (if any).

AGE reviewed the groundwater monitoring data, focusing on the recorded groundwater level in P16, and provided commentary and analysis of other monitoring locations in the same formation as P16 (Garrawilla Volcanics) and other nearby bores in different geological formations like the Pilliga Sandstone and Purlawaugh Formation. AGE conducted a review of potential groundwater level change contributors, including: climatic influence (i.e. rainfall), mining impacts, and external groundwater use.

The investigation summary for the potential contributor to P16 groundwater level change is outlined below:

- this is the only groundwater level monitoring point where groundwater drawdown trigger thresholds have been exceeded to date, suggesting a likely localised occurrence (Figure 2);
- as this is an isolated occurrence, no impact, as a result of the drawdown observed at the P16 location, is currently observed at any identified landholder bores identified during the Stage 2 groundwater assessment, additionally no external pumping occurs close to P16;
- Climate influence was assessed as having a likely low to moderate expected contribution (generally less than 3.2m);
- Based on analysis of the available data, the observed drawdown is considered most likely to be related to the mining of the nearby longwall panels. A stepped pattern is evident in the groundwater level for P16, whereby a series of steps can be observed which broadly coincide with the start of mining in each of the nearby longwall panels (Figure 3). It should also be noted that monitoring of water make within the mine has measured no significant increase in inflows to the mine workings and current inflows are significantly below those predicted by the GW model; and
- whilst impacts were expected at this location actual drawdown has exceeded the trigger level of 33.35m (218.85m AHD) suggesting that the Project Groundwater Model may be under-predicting impacts at this location.

No immediate mitigation is required due to the isolated nature of the current occurrence at P16.

As this is an isolated occurrence, no impact, as a result of the drawdown observed at the P16 location, is currently observed at any identified landholder bores identified during the Stage 2 groundwater assessment.

NCO had already commissioned AGE (on 10 June 2022) to undertake a full re-calibration of the Groundwater Model, which will draw on updated groundwater level data sets for the entire site monitoring network. Once a satisfactory calibration has been achieved, the predicted simulations will then be rerun to generate revised predictions of drawdown and other impacts. Revised drawdown trigger levels will be incorporated into the site groundwater monitoring program.

NCO will continue to monitor groundwater at P16 and other bores in the monitoring network in accordance with the Water Management Plan.

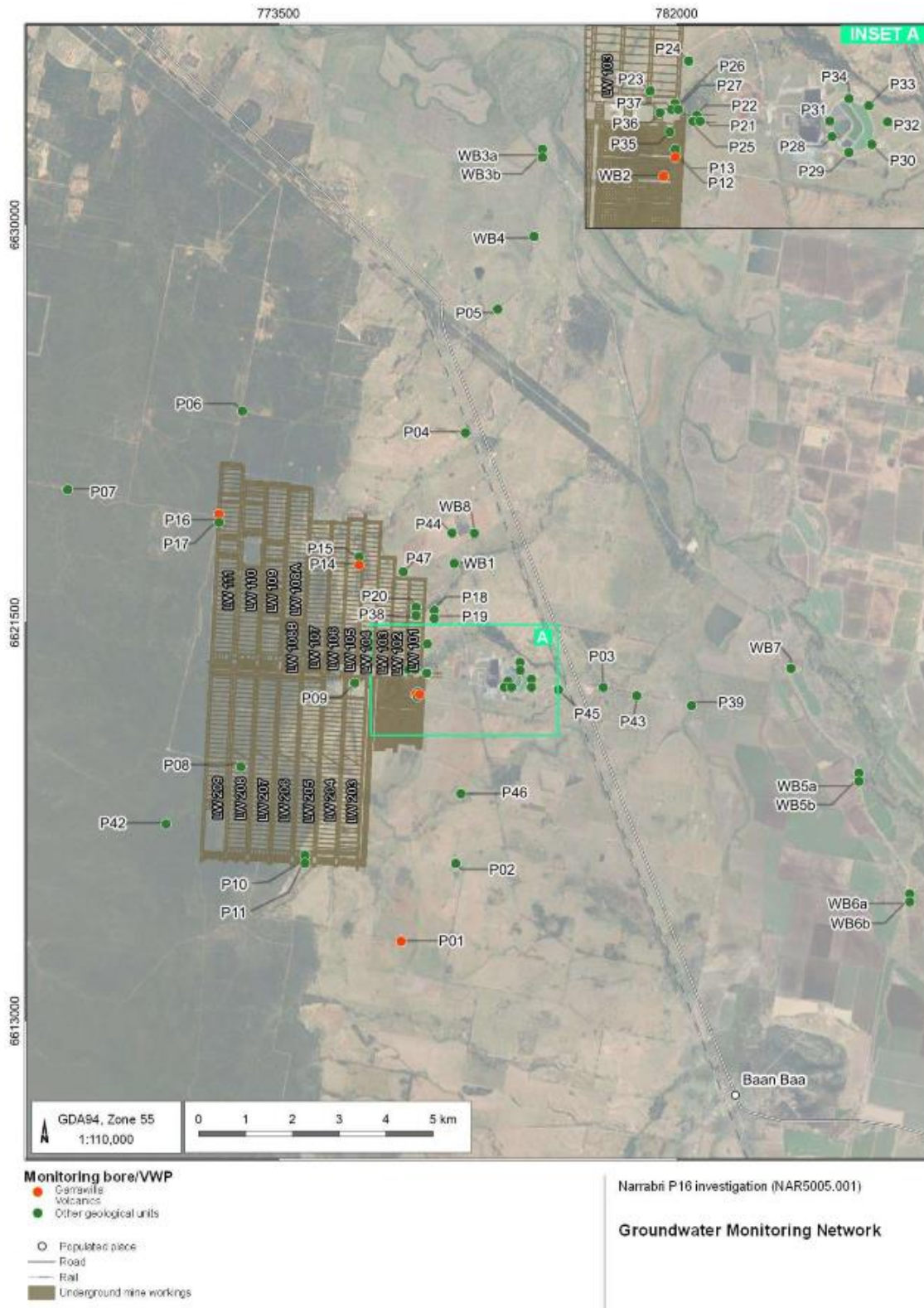


Figure 4 Narrabri Mine groundwater monitoring locations showing P16 location on the western edge of LW111

Subsidence Monitoring

- Line 108 north was monitored 29/06/2022. Line H is scheduled for monitoring during September 2022.
- LIDAR data is captured annually, and reviewed against subsidence predictions by a suitably qualified expert.

Longwall Panels (LW) 109		
	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 – Monitoring has ceased		
Line 103 – Centre of LW103 – Southern – Monitoring has ceased		
Line 104 – Centre of LW104 – Northern – Monitoring has ceased		
Line 104 – Centre of LW104 – Southern – Monitoring has ceased		
Line 105 – Centre of LW105 – Northern – Monitoring has ceased		
Line 105 – Centre of LW105 – Southern – Monitoring has ceased		
Line 106 – Centre of LW106 – Northern – Being closed out		
Line 107 – Centre of LW107 – Northern – Monitoring has ceased		
Line 108 (measured 29/06/2022)		
Subsidence (m)	2.75	2.71
Tilt (mm/m)	38	36.3
Tensile Strain (mm/m)	10	16.2
Compressive Strain (mm/m)	13	38.9
Line 108 – Southern		
Line A – Cross Panel Survey Line – Being closed out		
Line B – Pine Creek Tributary 1 – Monitoring has ceased		
Line D – Pine Creek – Monitoring has ceased		
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 (measured 06/01/2022) (LW108-109)		
Subsidence (m)	2.75	2.75
Tilt (mm/m)	53	31.70
Tensile Strain (mm/m)	13 – 20^	16.60
Compressive Strain (mm/m)	16 – 24^	9.60
Line I – Cross Panel Survey Line (measured 31/08/2022)		
Subsidence (m)	2.75	0
Tilt (mm/m)	53	0
Tensile Strain (mm/m)	13 – 20^	0
Compressive Strain (mm/m)	16 – 24^	0

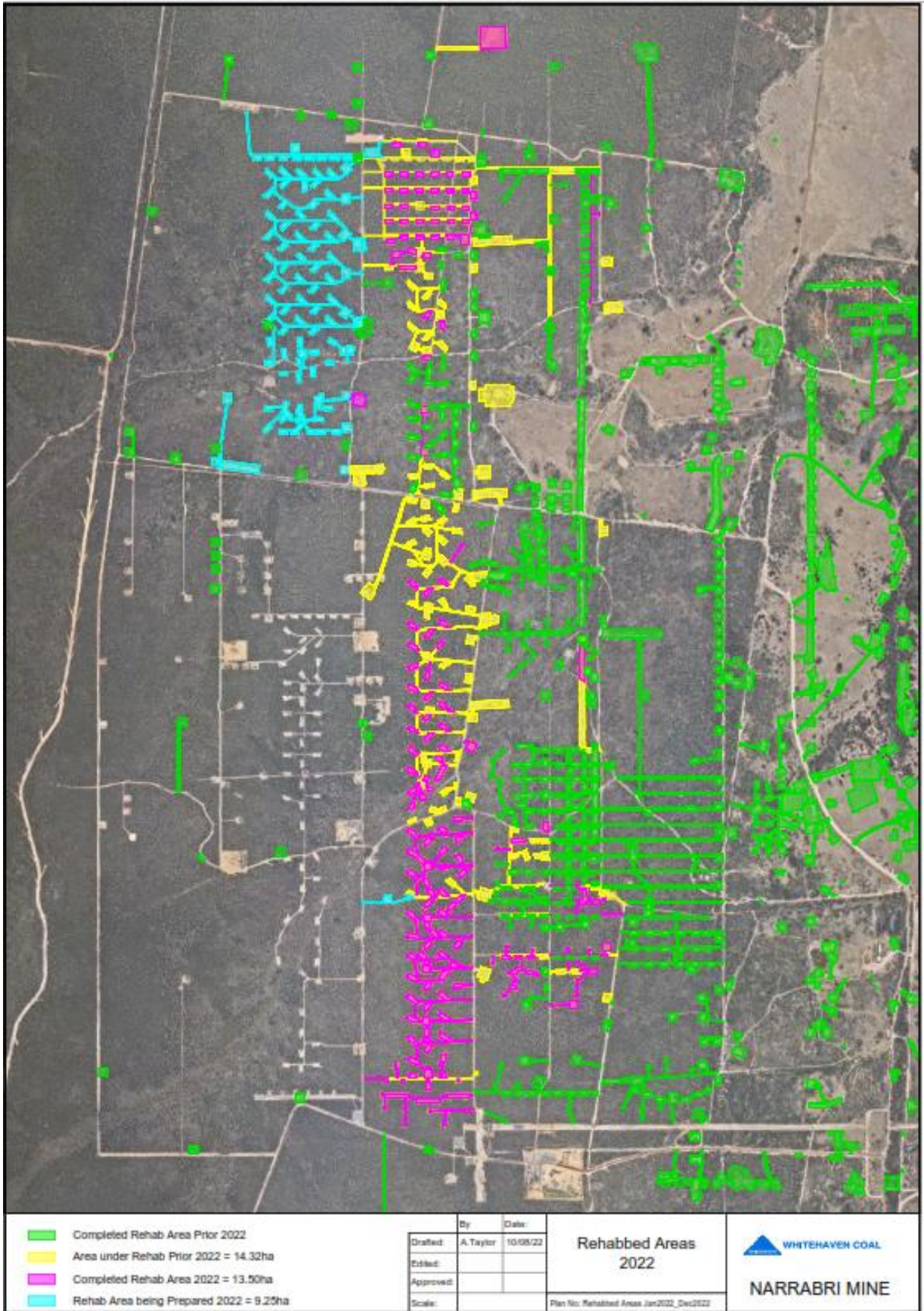
Rehabilitation

Note: Section entered to address commitment within the newly required Rehabilitation Management Plan under the NSW Mining Regulation 2016

Mining Operations Plan (MOP) has been replaced with the new Rehabilitation Management Plan (RMP) in accordance with the NSW Mining Regulation 2016. The RMP is available on the Narrabri Mine website.

Table 2: Narrabri Coal Operations 2022 (CY) Rehabilitation Works as of 31st July 2022

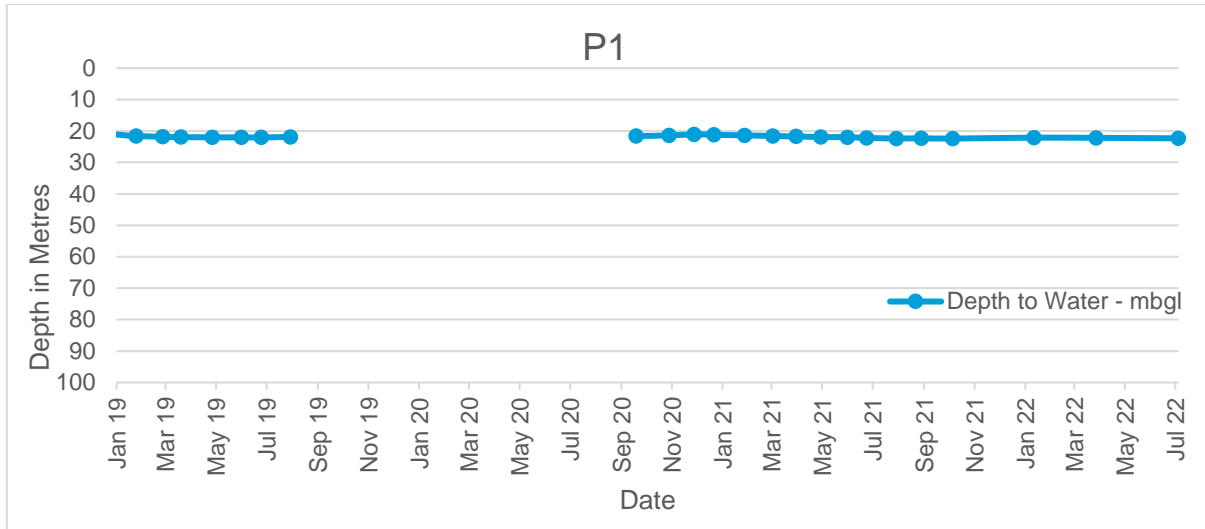
Rehabilitation Status	Completed (ha)	Target (ha) end of CY22
Landform establishment	9.25	9.25
Ecosystem establishment	13.5	15.4



Hydrographs for Groundwater Monitoring Wells



Figure 7: Location of groundwater monitoring wells



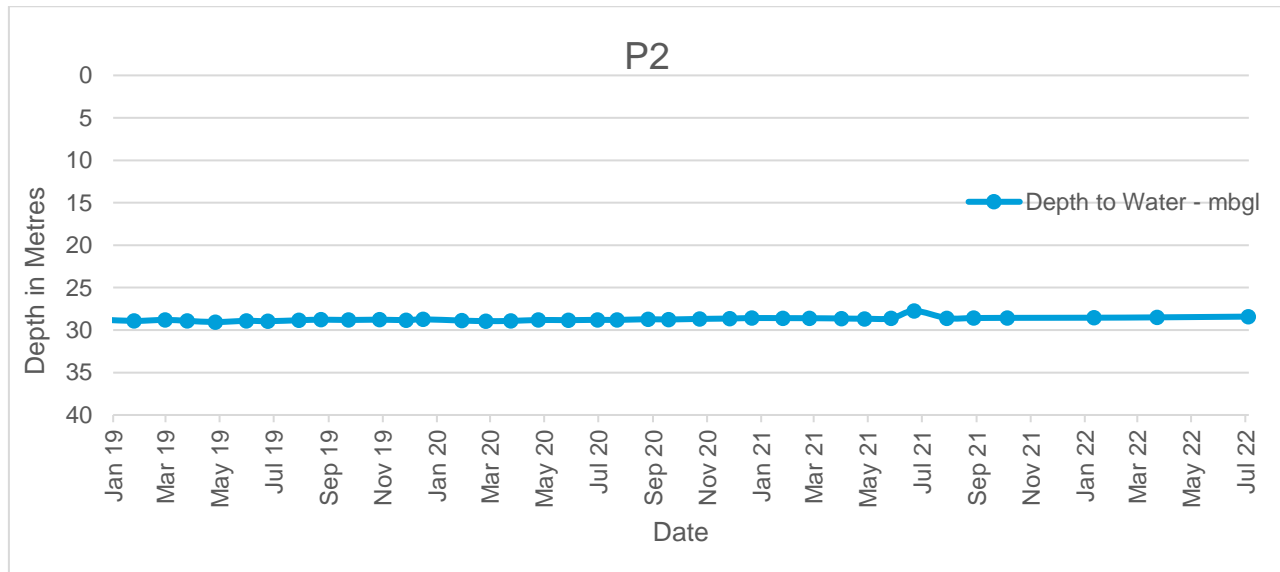
NCO Monitoring bore ID: P1

Location: Longsight

Geological unit: Garrawilla Volcanics

Bore depth: 50m

Explanation: Gap in data is due to land access issues – locks were changed and cattle in paddock.

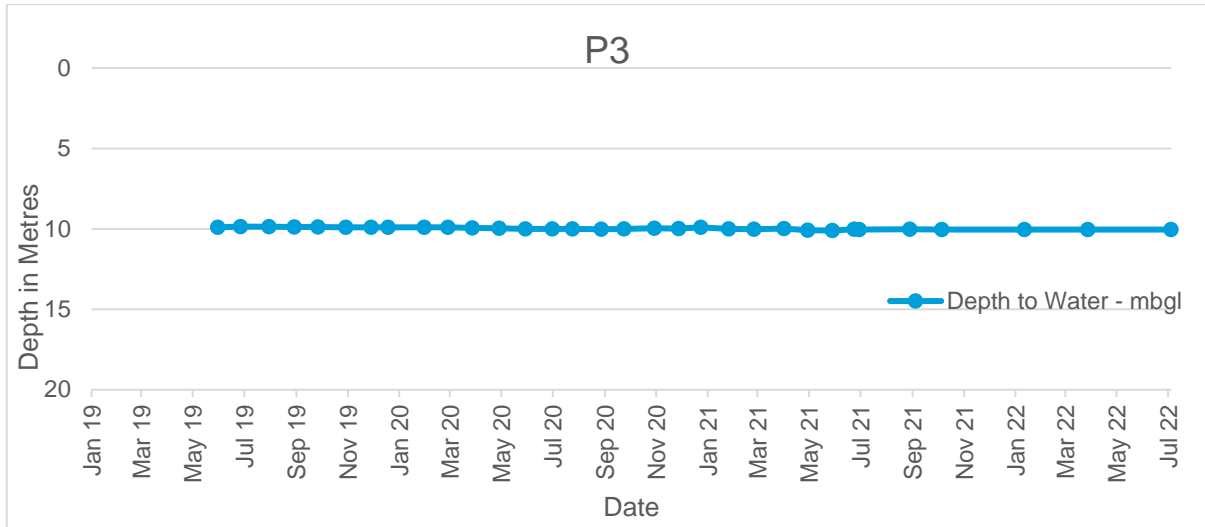


NCO Monitoring bore ID: P2

Location: Matilda

Geological unit: Napperby Formation

Bore depth: 50m



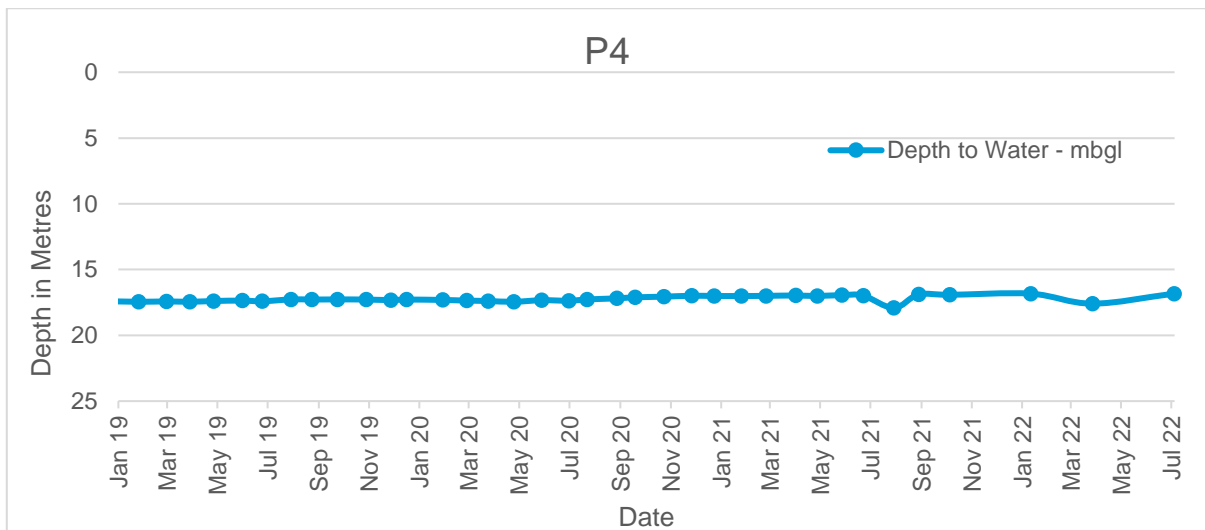
NCO Monitoring bore ID: P3

Location: Bow Hills

Geological unit: Pamboola Formation

Bore depth: 45m

Explanation: Gap in data is due to land access issues – cattle were being hand fed in paddock with the bore.

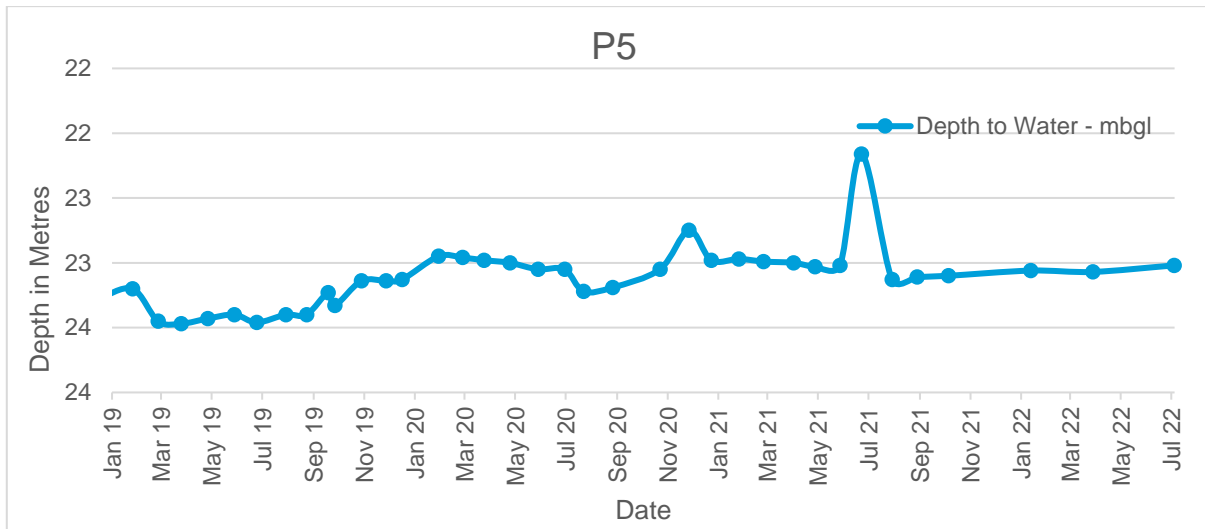


NCO Monitoring bore ID: P4

Location: North of Newhaven on Kamilaroi highway

Geological unit: Napperby Formation

Bore depth: 30m



NCO Monitoring bore ID: P5

Location: Unknown - shown on Figure 10

Geological unit: Pamboola Formation

Bore depth: 30m

No Graph

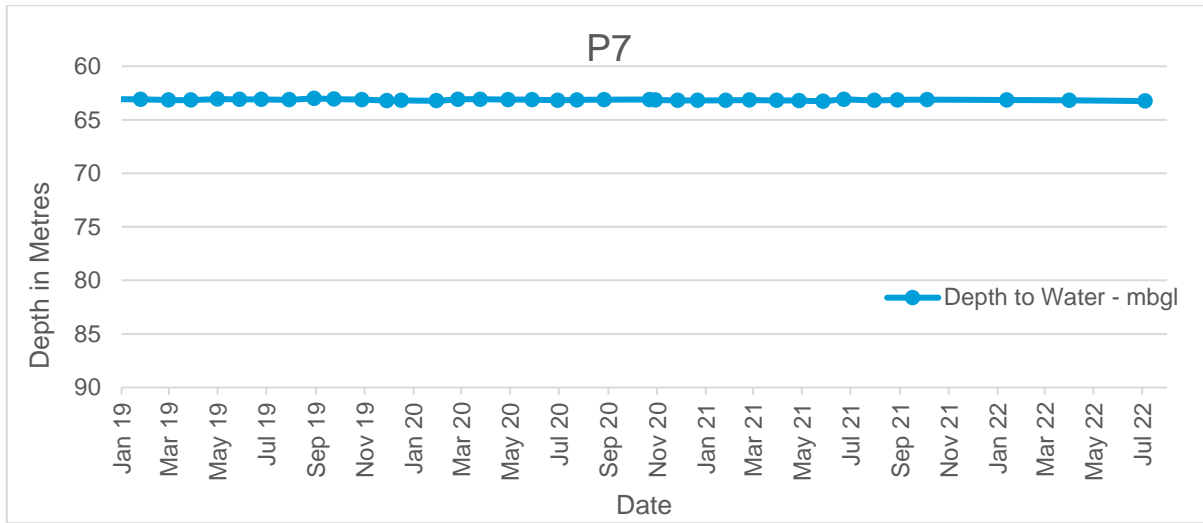
NCO Monitoring bore ID: P6

Location: shown on Figure 10

Geological unit: Pilliga sandstone

Bore depth: 90m

Explanation: Dry since 2012

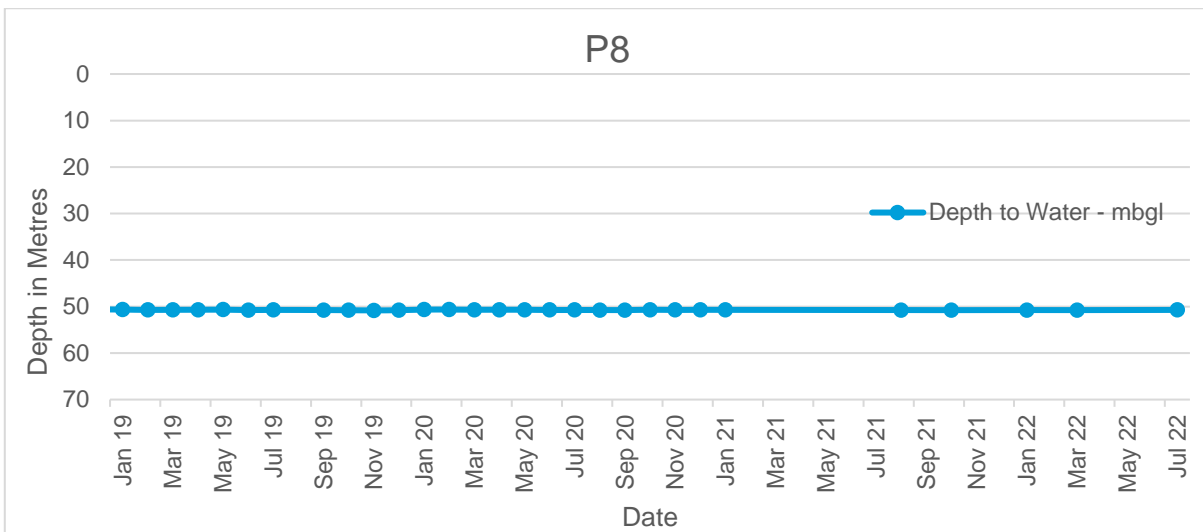


NCO Monitoring bore ID: P7

Location: State forest

Geological unit: Pilliga sandstone

Bore depth: 90m

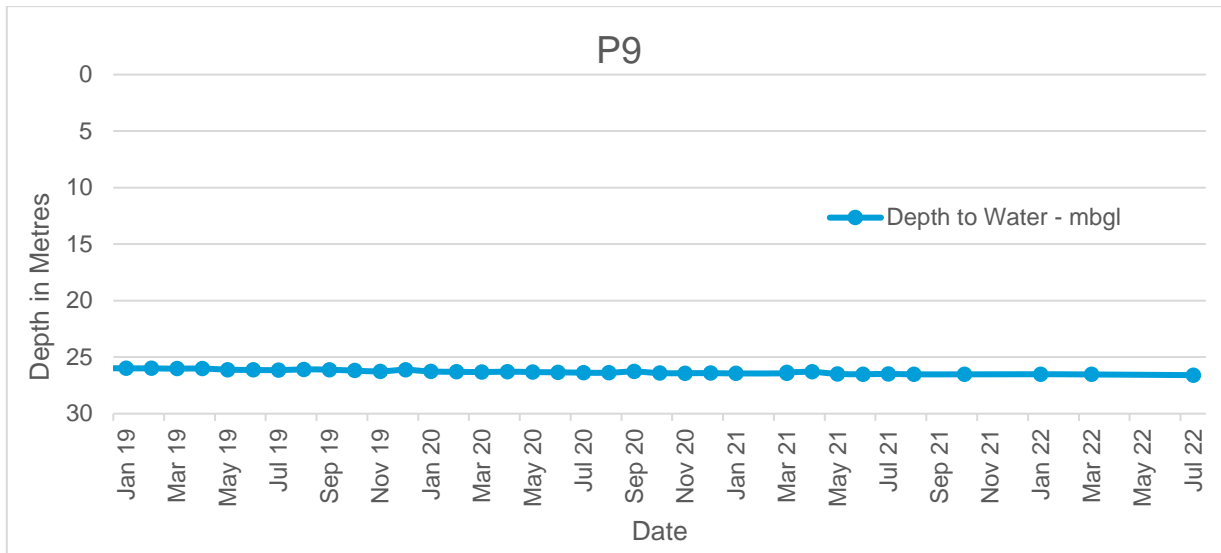


NCO Monitoring bore ID: P8

Location: Kurrajong

Geological unit: Purlawaugh Formation

Bore depth: 65m

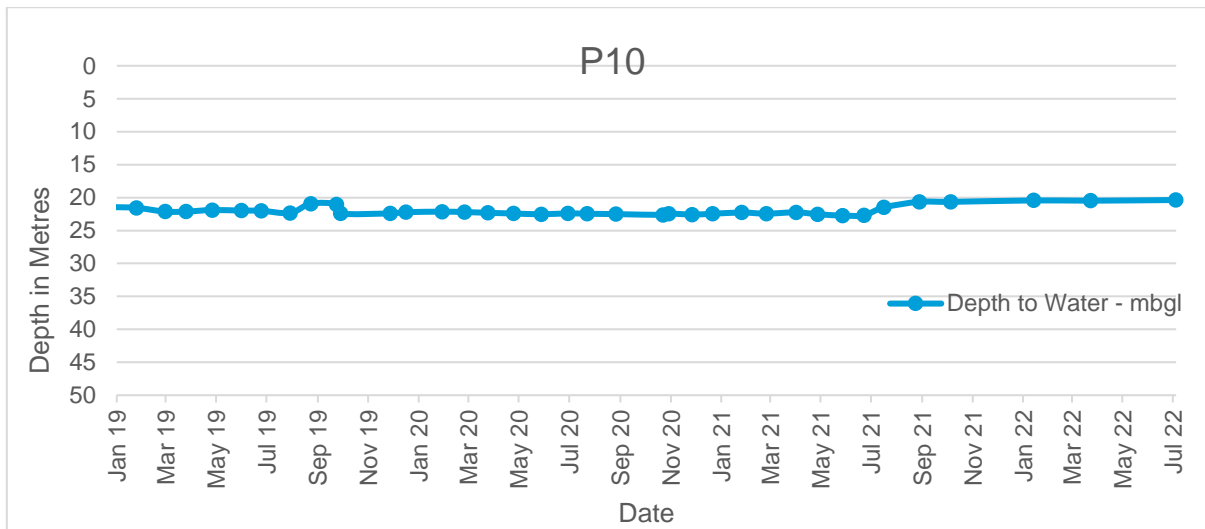


NCO Monitoring bore ID: P9

Location: NCO – Figure 10

Geological unit: Purlawaugh Formation

Bore depth: 30m

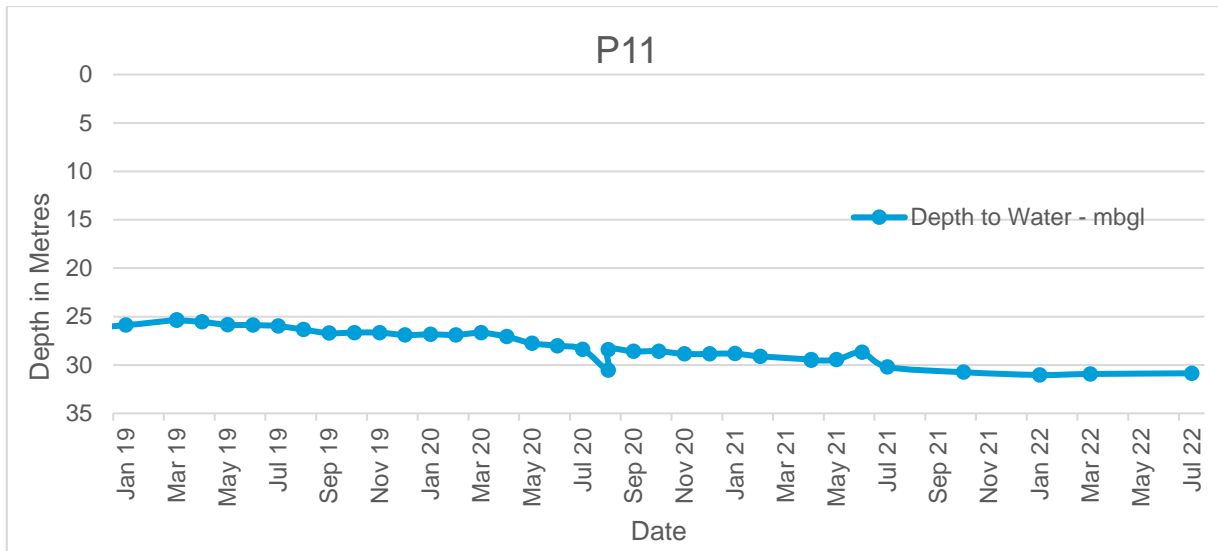


NCO Monitoring bore ID: P10

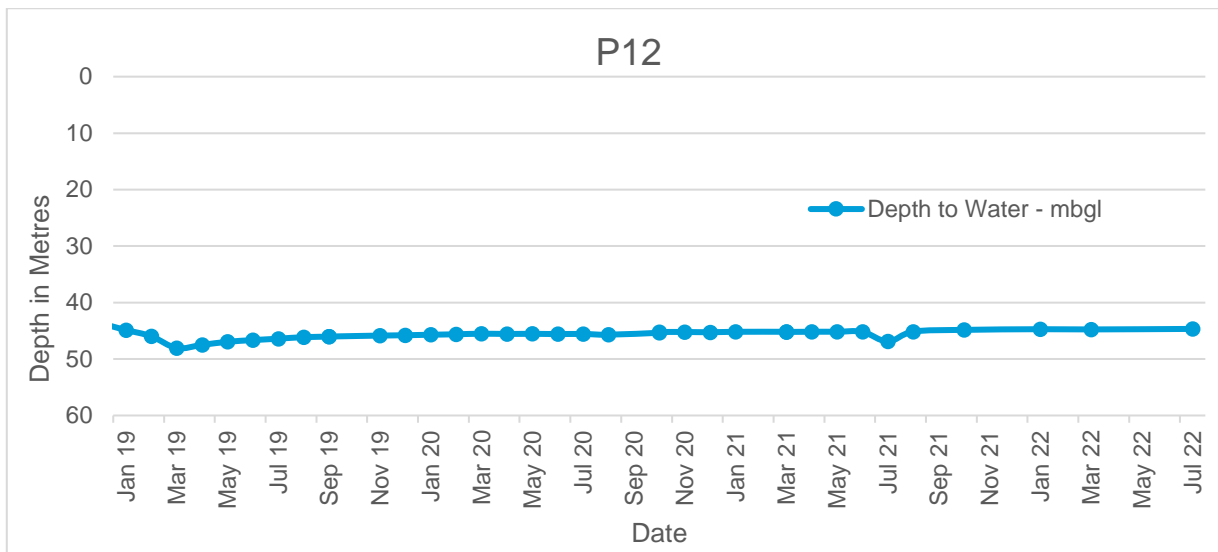
Location: NCO – see figure 10

Geological unit: Napperby Formation

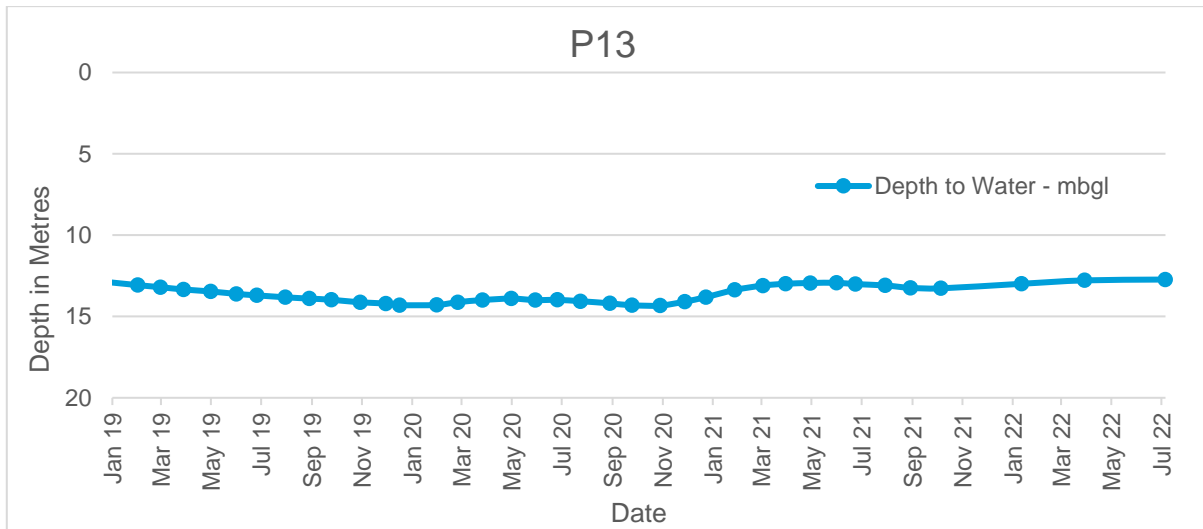
Bore depth: 130m



NCO Monitoring bore ID: P11
Location: NCO – see figure 10
Geological unit: Napperby Formation
Bore depth: 50m



NCO Monitoring bore ID: P12
Location: NCO – see figure 10
Geological unit: Napperby Formation
Bore depth: 90m



NCO Monitoring bore ID: P13

Location: NCO – see figure 10

Geological unit: Garrawilla Volcanics/Napperby

Bore depth: 30m

No Graph

NCO Monitoring bore ID: P14

Location: See Figure 10

Geological unit: Napperby Formation (no sill)

Bore depth: 78m

Explanation: Dry

No Graph

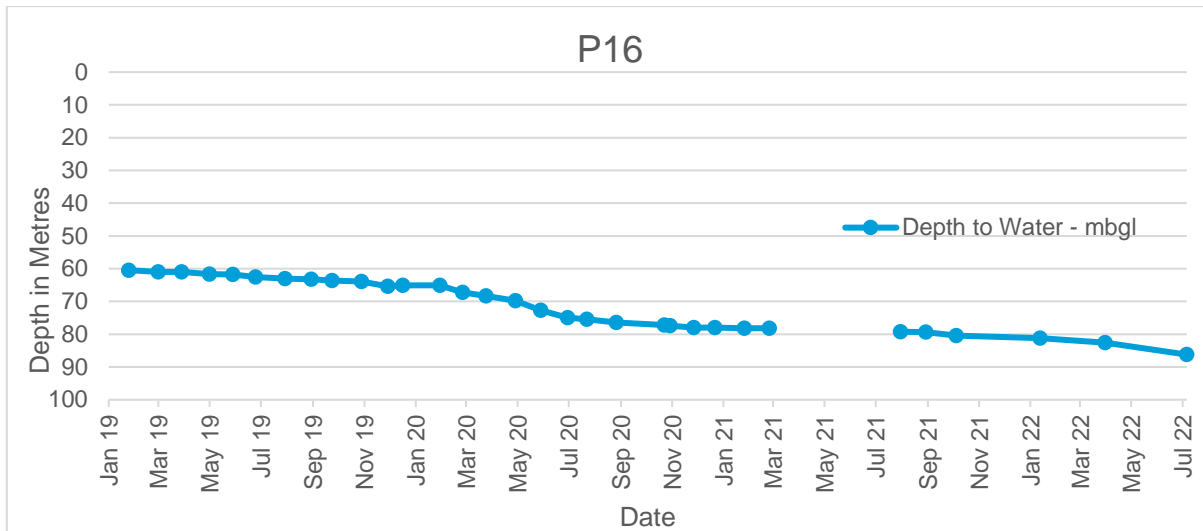
NCO Monitoring bore ID: P15

Location: See Figure 10

Geological unit: Garrawilla Volcanics

Bore depth: 30m

Explanation: Dry



NCO Monitoring bore ID: P16

Location: State forest (Western Boundary) – see figure 10

Geological unit: Garrawilla Volcanics

Bore depth: 146m

No Graph

NCO Monitoring bore ID: P17

Location: See figure 10

Geological unit: Purlawaugh Formation

Bore depth: 56m

Explanation: Dry since 2009

No Graph

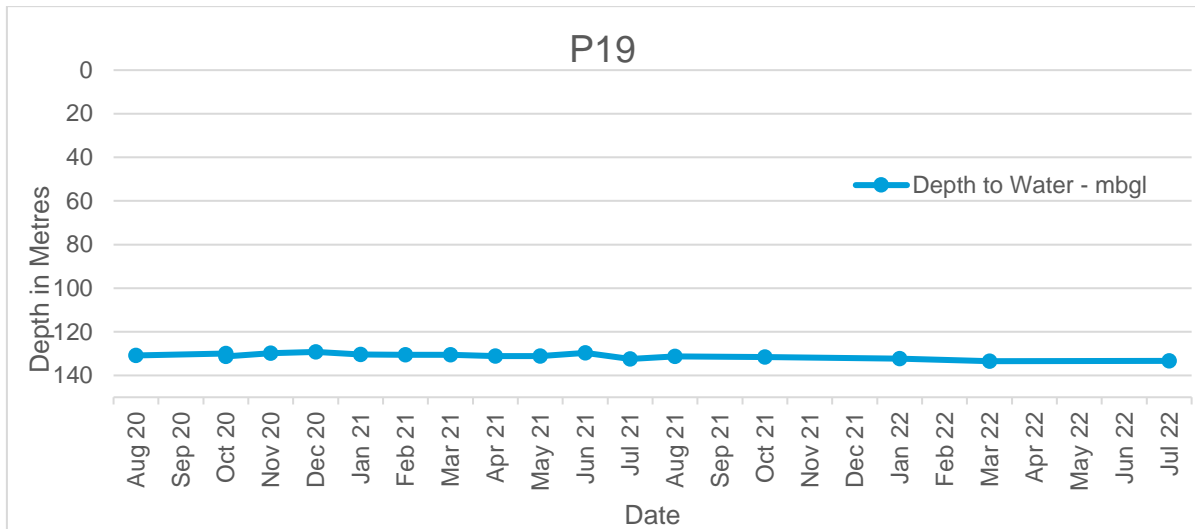
NCO Monitoring bore ID: P18

Location: See figure 10

Geological unit: Hoskissons seam

Bore depth: 146m

Explanation: Dry since 2011



NCO Monitoring bore ID: P19

Location: NCO

Geological unit: Pamboola

Bore depth: 187m

Explanation: Wrong bore previously monitored; true location monitored since August 2020

No Graph

NCO Monitoring bore ID: P20

Explanation: Cemented up – no longer monitoring

No Graph

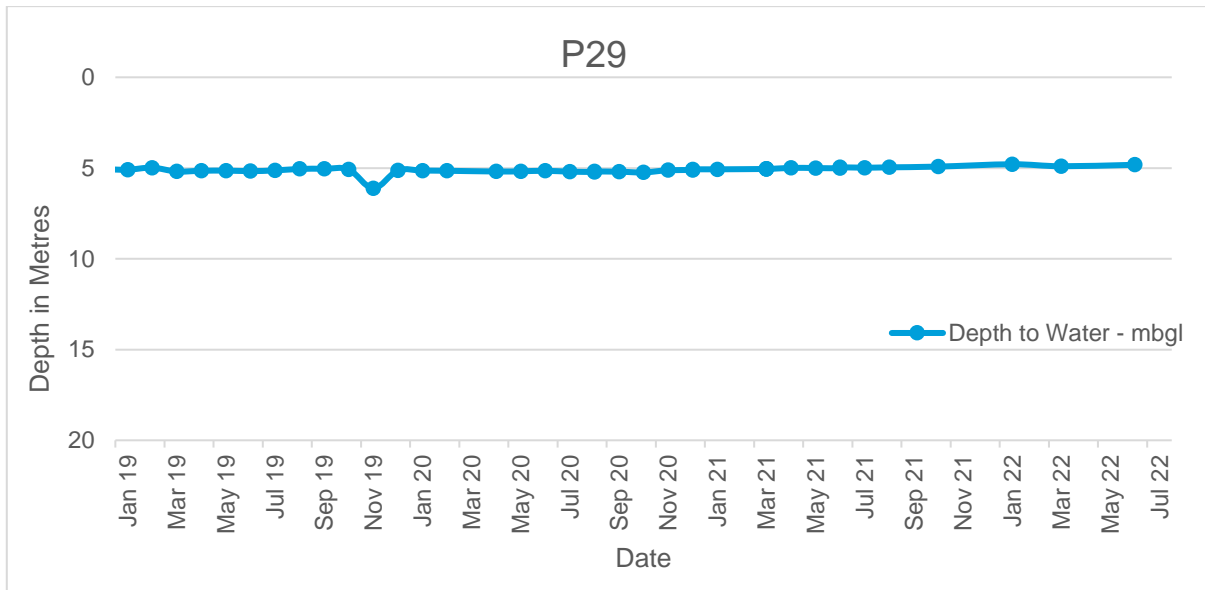
NCO Monitoring bore ID: P28

Location: See figure10

Geological unit: Napperby Formation (above sill)

Bore depth: 25m

Explanation: Dry since 2012

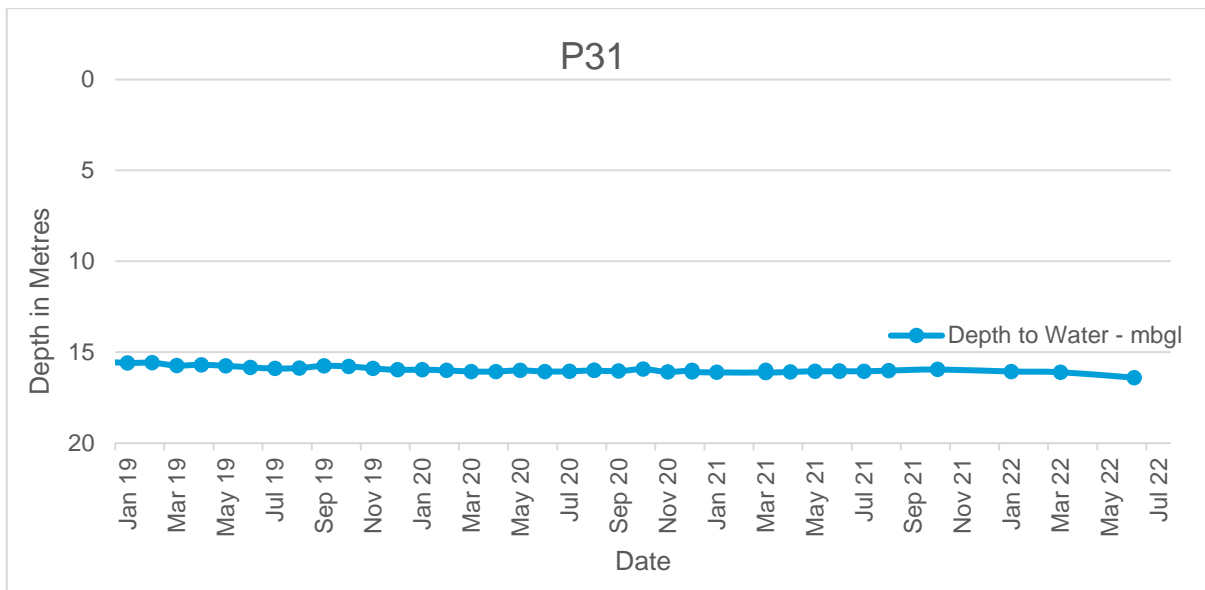


NCO Monitoring bore ID: P29

Location: NCO (Near site dams) – see figure 10

Geological unit: Napperby Formation (above sill).

Bore depth: 25m

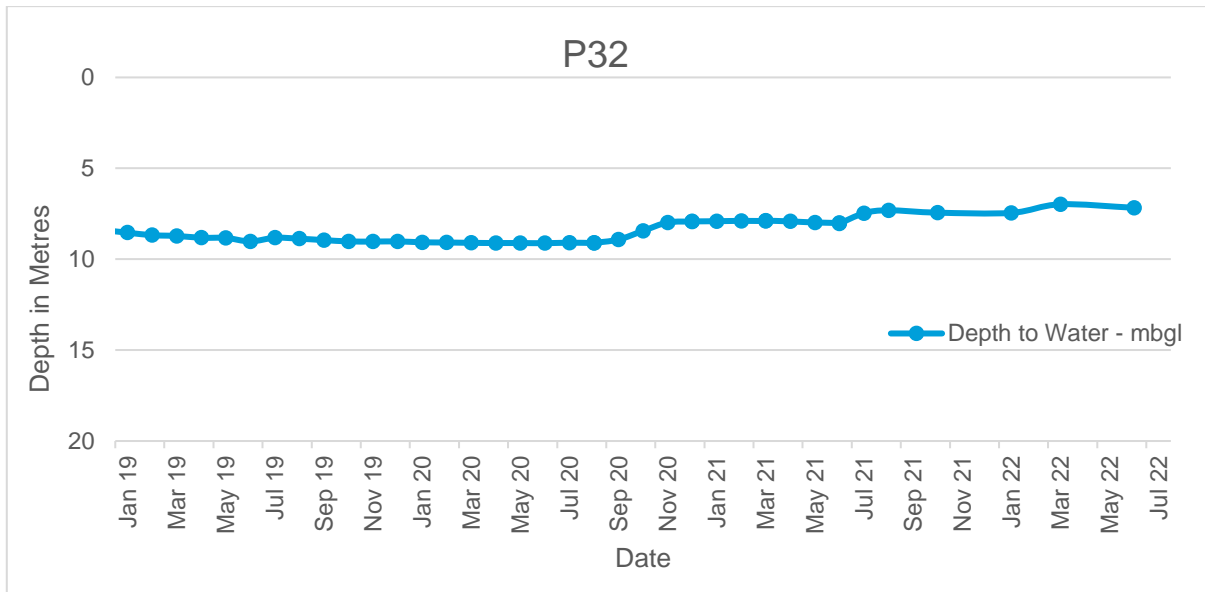


NCO Monitoring bore ID: P31

Location: NCO (Near site dams) – see figure 10

Geological unit: Napperby formation (above sill)

Bore depth: 15m



NCO Monitoring bore ID: P32

Location: NCO (Near site dams) – see figure 10

Geological unit: Napperby Formation (above sill)

Bore depth: 15m

NCO Monitoring bore ID: P33

Location: See figure 6

Geological unit: Napperby Formation (above sill)

Bore depth: 15m

Explanation: Dry since 2012

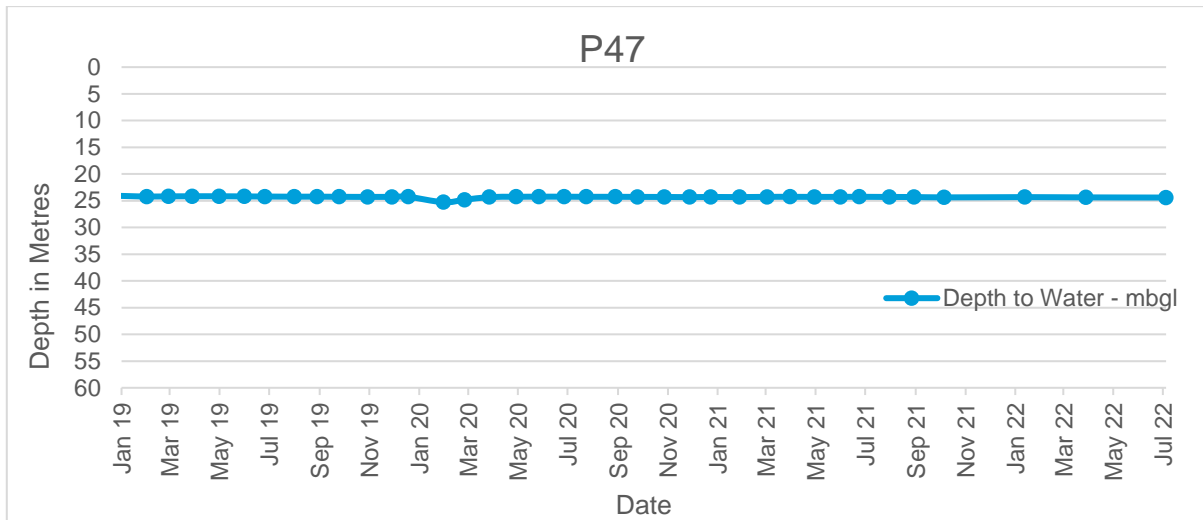
NCO Monitoring bore ID: P24

Location: See figure 6

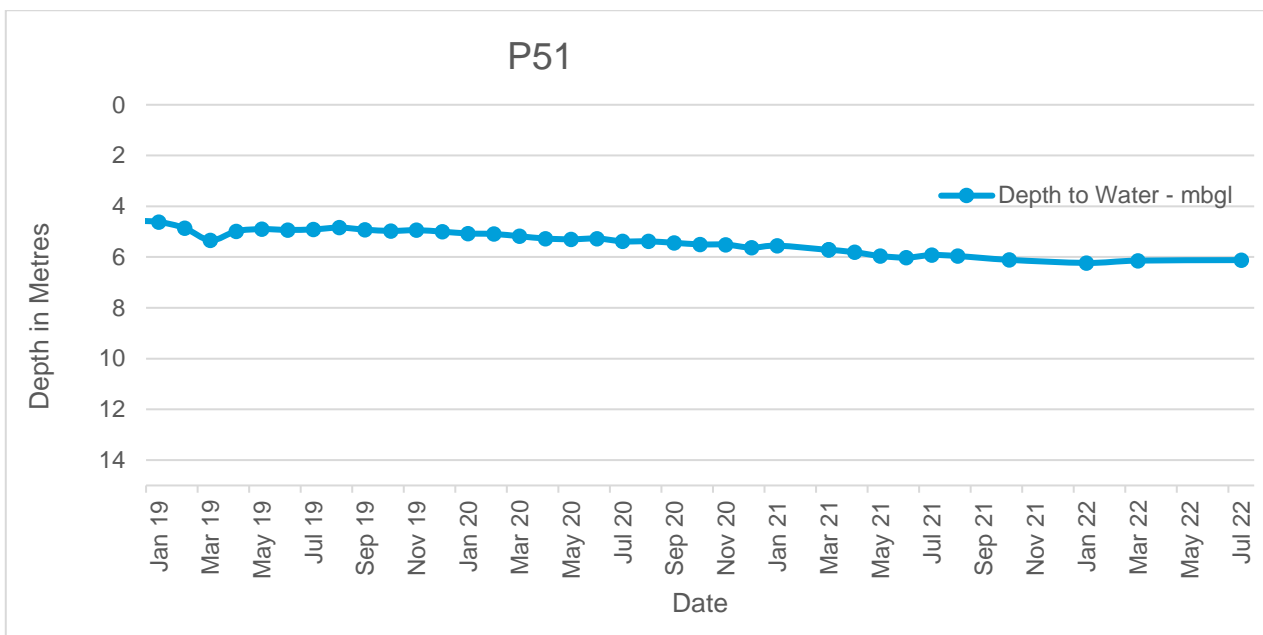
Geological unit: Napperby Formation (above sill)

Bore depth: 15m

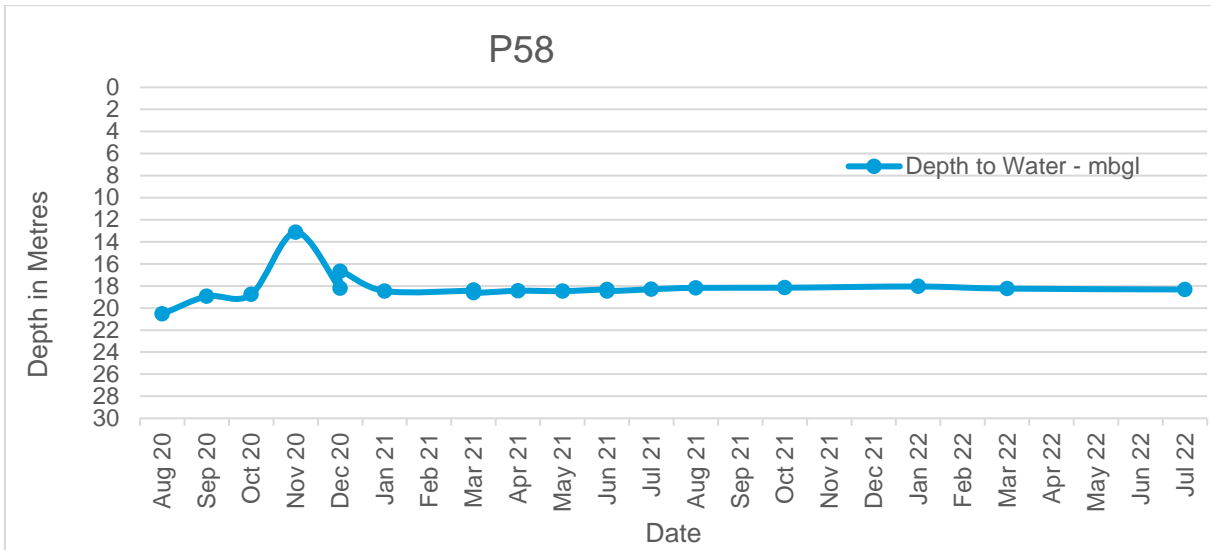
Explanation: Dry since 2012



NCO Monitoring bore ID: P47
Location: NCO – see figure 10
Geological unit: Garrawilla Volcanics
Bore Depth (m): 31m



NCO Monitoring bore ID: P51
Location: NCO
Geological unit: Garrawilla Volcanics
Bore Depth (m): 17m



NCO Monitoring bore ID: P58

Location: NCO

Geological unit: Napperby Formation

Bore Depth (m): 40m

Narrabri Mine Community Consultative Committee Meeting #59

Date: Wednesday 7 December 2022
Time: 5:00pm
Location: Railway Hotel, Baan Baa

Present: Russell Stewart (RS)

James Steiger (JS)
Peter Webb (PW)
Mark Foster (MF)
Geoff Hunter (GH)
Landon Brady (LB) - Narrabri Shire Council
Brent Baker (BB) – Whitehaven Coal
David Ellwood (DE) – Whitehaven Coal
Shane Rily (SR) – Whitehaven Coal
Darren Swain (DS) – Whitehaven Coal
Gerald Linde (GL) – Whitehaven Coal
Hannah Croft (HC) – Whitehaven Coal

Apologies:

Alan Grumley (AG)
Ian Duffy (ID)
Cathy Redding (Narrabri Shire Council)
John Clements (Narrabri Shire Council)

1. DECLARATION OF PECUNIARY INTEREST

No declarations.

2. PREVIOUS MINUTES

RS asked if everyone has read previous minutes.
RS asked for previous minutes to be accepted as a true and accurate record.
Moved: MF Seconded: JS

2.1 BUSINESS ARISING FROM PREVIOUS MINUTES

Reviewed actions:

MEETING ACTIONS		Status
Person	Action	
SR	Include the hydrographs for groundwater monitoring locations located on JS's property in the next meetings Environmental Report	Completed.
RS & BB	Arrange for advertising for Expressions of Interest for Community Consultative Committee within the local Narrabri newspaper	Completed – advertisement was included in 'The Courier', Tuesday 8 November 2022.
DE	Arrange for a letter drop of residents located inside and within close proximity to the newly approved exploration lease areas, seeking Expressions of Interest for representatives for CCC	Scheduled for w/e 16 December 2022.

Moved: MF Seconded: JS

3. OPERATIONS PROGRESS REPORT AND SAFETY UPDATE

Presented by Brent Baker

- Coal Produced FY22 YTD: 3,139,228 (t), Coal Railed FY22 YTD: 2,635,105 (t)
- 43 First Aid injuries, 3 Medical treatment injuries and 3 lost time injuries.
- BB – provided more details as to the nature of each medical treatment injury.
- LW move expected around February/March 2023 following completion of LW110B.

Moved: GH Seconded: MF

5.0 Stage 3 approval.

Stage 3

DE explained the delay for the assessment of Stage 3 under the EPBC Act by Federal Govt. DE explained that there has been correspondence as to how long this process may take.

GH asked question about why the assessment under the EPBC Act was being delayed. - reconsideration request on GHG.

GH asked for the status of the make good agreements. DE said that offers under the make good agreements have been made. Currently no one has accepted an offer.

North EL

DE explained that Whitehaven's EL Applications were approved in Sept 2022 however secondary approvals are required prior to any works commencing.

BB explained that the longwall (LW) 203-206 Extraction Plan (EP) and subsequent management plans were originally planned to be drafted under the Stage 3 project. However due to the EPBC assessment delay, these plans have been redrafted to address requirements under the Stage 2 project approval. These plans are nearly ready for submission to the NSW Resources Regulator with only two outstanding comments from regulatory authorities following consultation. The EP is expected to be submitted for assessment this month.

6.0 ENVIRONMENTAL MONITORING REPORT

Presented by Shane Rily

GH asked about the progress of the P16 trigger exceedance that was reported in the previous meeting. BB explained that an initial review to confirm the exceedance had been completed by consulting company AGE. Following this confirmation, AGE were commissioned to recalibrate the Groundwater Model for the mine. SR committed to providing an update of the groundwater calibration at the next scheduled meeting.

BB explained that this event was reported to the Department of Planning and Environment (DPE) as an incident as the project approvals considers exceedances of performance criteria as an incident. BB explained that DPE accepted the recalibration as a corrective action however recorded the reporting process as a non-compliance as the event was not reported within 7 days from the monitoring event. BB also explained that field record sheets now contain direction for follow ups for exceedances of triggers – which have also been added to field monitoring forms.

GH queried the discharge events that had occurred as per the report. SR explained that controlled discharges had taken place in accordance with the mine's Environmental Protection License (EPL) 12789. GH asked if the water got into Tullamullen creek. JS said he had been cut off. SR acknowledged and explained that landholder notifications for downstream landholders had been added to the internal procedure for licenced discharges.

JS brought up that water discharged was very red, and noted the high TSS (SD7) and that this has affected his property. BB explained that brine dam area is contained, discharge only occurs in a controlled manner (pumped). BB explained controls that had been put in place – use of flocculant and additional settling areas. JS said the mine should have had these controls in initially. JS said his dam is still red, it would normally be clear now. BB apologised. BB explained that the higher TSS measurements of the discharge water were recorded when rainfall >38.4mm over 5 consecutive days and that the EPL allows for the exceedance of TSS. JS made comment that 38.4mm rain is not a lot of rain. GL said all the region has flood water, which isn't contributing a lot of sediment in the large scale. JS noted that the mine had done well all things considering.

- INCIDENTS:
 - No reportable incidents to regulatory agencies since previous CCC meeting.
- COMPLAINTS:
 - Nil complaints since previous CCC meeting. No complaints received this (calendar) year and previous 12 months.
- DEPOSITIONAL DUST:
 - 2022 annual average (year to date) for all monitoring locations is below the licence limit of 4 g/m²/month (Insoluble Matter).
 - High result at ND11 – visual assessment of the sample conducted by the laboratory noted <5% coal
- PM10 AIR QUALITY:
 - No exceedances of the 24-hour limit within last 12-month period at both Turrabaa and Claremont monitoring
 - Rolling 12-month average currently below annual average limit (of 30 µg/m³) for the two monitoring locations (Claremont and Turrabaa).
- QUARTERLY NOISE MONITORING
 - No exceedances
 - November 2022 monitoring had been completed however a report had not been received from SLR.
- SURFACE WATER MONITORING: discussion and review of the results took place at the beginning of the meeting.
- WATER LICENSING

- Presented graphs showing NCO water licence allocation usage.
- Very little usage
- **GROUNDWATER MONITORING**
 - Presented Hydrographs for groundwater monitoring locations.
- **SUBSIDENCE**
 - Presented monitoring undertaken to date for the current calendar year.
 - A Report will be completed as part of the annual review which is due 30 March 2023.
- **REHABILITATION**
 - Aerial fly over to confirm.
 - JS asked about the colours – is green all finished? SR explained that rehabilitation civil works are completed in these areas however monitoring and minor vegetation management such as weed control is still conducted. SR explained Rehab process and the importance of site preparation to achieve good rehabilitation. DE mentioned photos on website showing some of Narrabri Mine’s rehabilitation.

No further questions/comments from members.

Moved: GH Seconded: JS

7.0 GENERAL BUSINESS

- BB advised he has resigned from Whitehaven Coal and that this was his final meeting.
- DS presented Whitehaven community presentation (summary of sustainability report). The presentation outlined the money that had been spent in the community. RS mentioned Christmas carnival which is to take place Friday 16 December in Narrabri wouldn’t happen without the sponsorship that is provided by Whitehaven.
- No more business – meeting closed at 17:54 hrs.

NEXT MEETING

- 5pm Wednesday 15th March 2023 at Narrabri Mine (Boardroom).

MEETING ACTIONS	
Person	Action
DE	Arrange for a letter drop of residents located inside and within close proximity to the newly approved exploration lease areas, seeking Expressions of Interest for representatives for CCC
SR	Provide an update on the Groundwater Model recalibration.

Narrabri Mine Community Consultative Committee Meeting #59**Environmental Monitoring Report: September - December 2022****Reportable Incidents**

Nil since previous CCC meeting.

Complaints

Nil since previous CCC meeting. Nil complaints received in previous 12 months.

Approvals/Special ProjectsSTAGE 3

- Management Plan review and submission continuing.
- NCO have received consent for the Mining Lease application (MLA) 612 (now ML1839) from the Department of Regional NSW.

EXPLORATION LEASE APPLICATIONS

- (ELA) 6442 (now EL9456) and 6443 (now EL9455) were granted by the Deputy Premier 07 September 2022.

Deposited Dust Monitoring

Deposited Dust collection bottles remain in the field for a period of 30 days (+/- 2 days).

2022 annual average (year to date) for all monitoring locations is below the annual average licence limit of 4 g/m²/month (Insoluble Matter).

Table 1: 2022 (CY) Total Insoluble Matter Results

Total Insoluble Matter results (g/m ² /month)												
Month	ND1 Turrabaa	ND2 Claremont	ND3 Bow Hills	ND4a New Matoppo	ND5 Claremont	ND6 Willarah	ND7 Claremont	ND8 Claremont	ND11 Oakleigh	ND12 Merriman	ND13 Darjeelang	
Sept-22	1	1.3	0.4	0.7	1.9	1.5	0.4	0.3	0.5	0.3	0.2	
Oct-22	0.5	0.3	0.2	0.4	2.1	1	0.8	0.6	1.3	0.4	0.5	
Nov-22	1.9	2.2	0.2	1.1	1.9	1.2	1.8	0.2	5.9*	0.5	2.5	
Annual Average	0.7	0.9	0.3	1.1	1.7	1.3	0.7	1.6	1.6	0.3	1.2	

*Visual analysis for this sample found 70% of sample was dirt/sand and <5% was coal. At time of collection, the samplers noted the adjacent field was being farmed.

PM₁₀ High Volume Air Sampling (HVAS)

Samples are collected over a 24-hour period once every 6 days, with a (24hr) compliance limit of 50 µg/m³, and an annual average limit of 30 µg/m³.

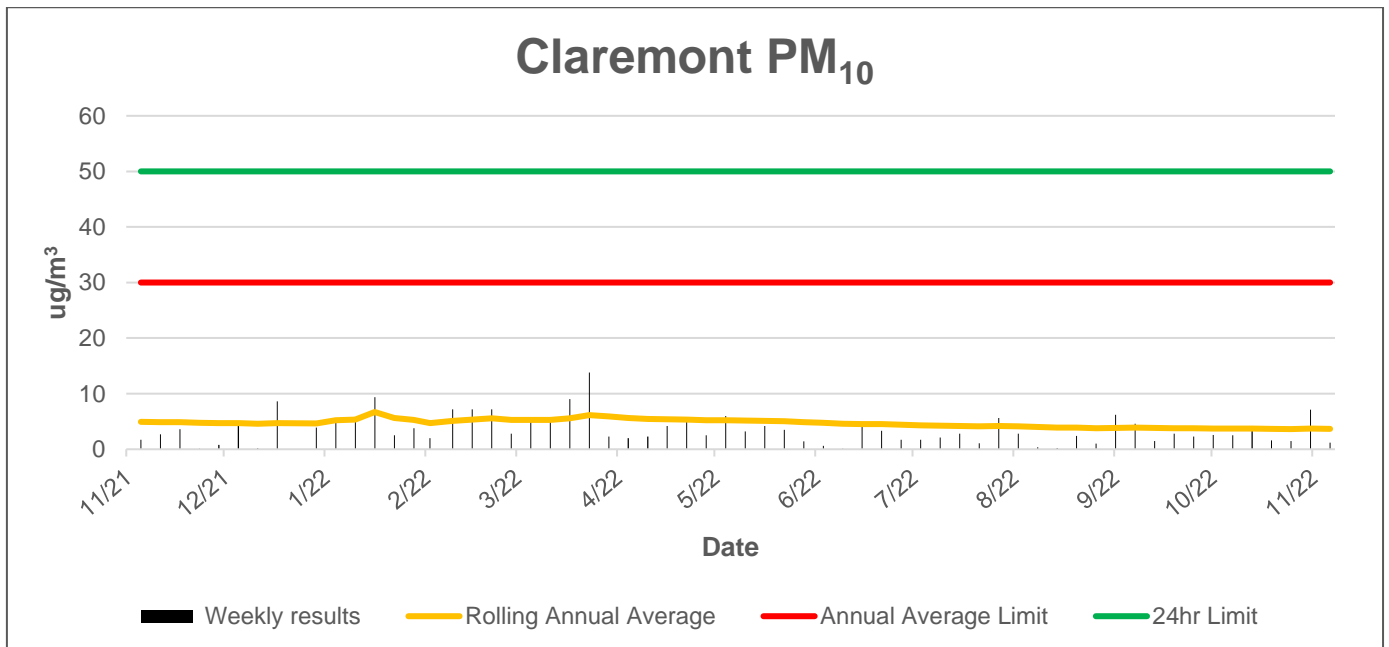


Figure 1: Claremont PM₁₀ High Volume Air Sampler results for last 12-month period.

The Claremont HVAS (*Figure 1*) rolling annual average is 3.65 $\mu\text{g}/\text{m}^3$, which is below the annual average limit of 30 $\mu\text{g}/\text{m}^3$. There have been no exceedances of the 24-hour compliance limit of 50 $\mu\text{g}/\text{m}^3$ within the last 12-month period.

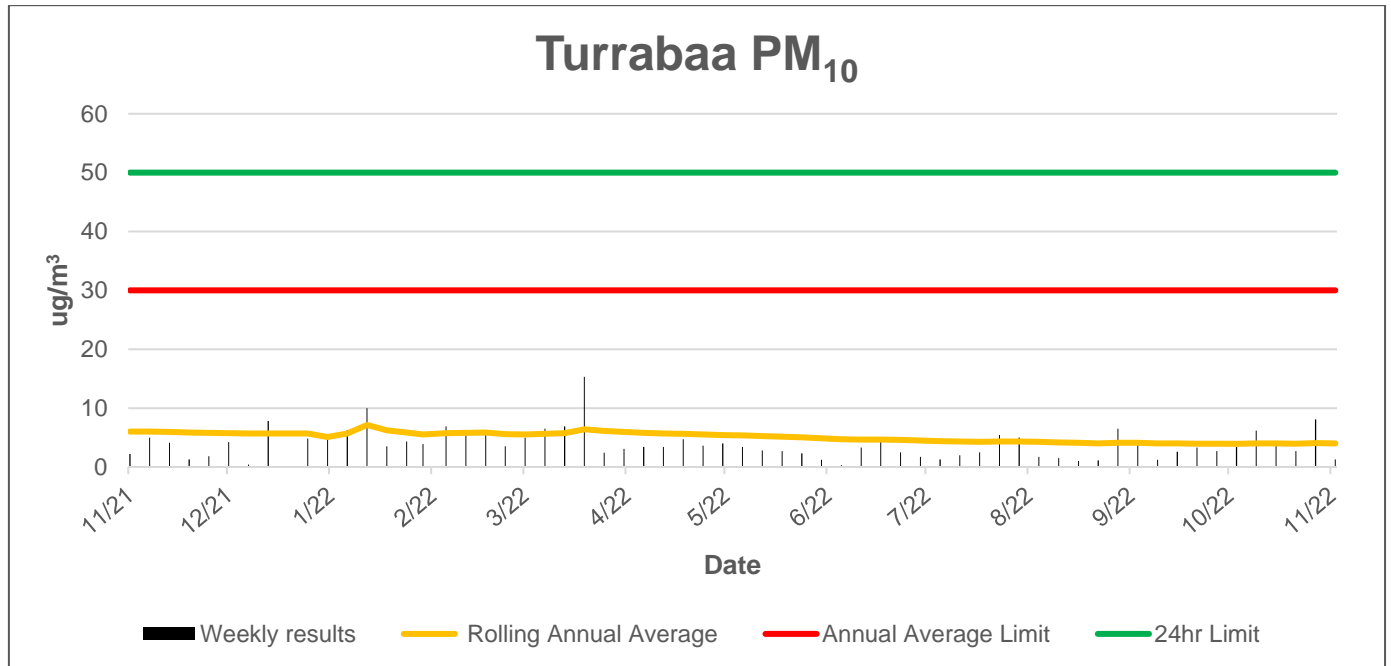


Figure 2: Turrabaa PM10 High Volume Air Sampler results for last 12-month period.

The Turrabaa HVAS (*Figure 2*) rolling annual average is 3.98 $\mu\text{g}/\text{m}^3$, which is below the annual average limit of 30 $\mu\text{g}/\text{m}^3$. There have been no exceedances of the 24-hour compliance limit of 50 $\mu\text{g}/\text{m}^3$ within the last 12-month period.

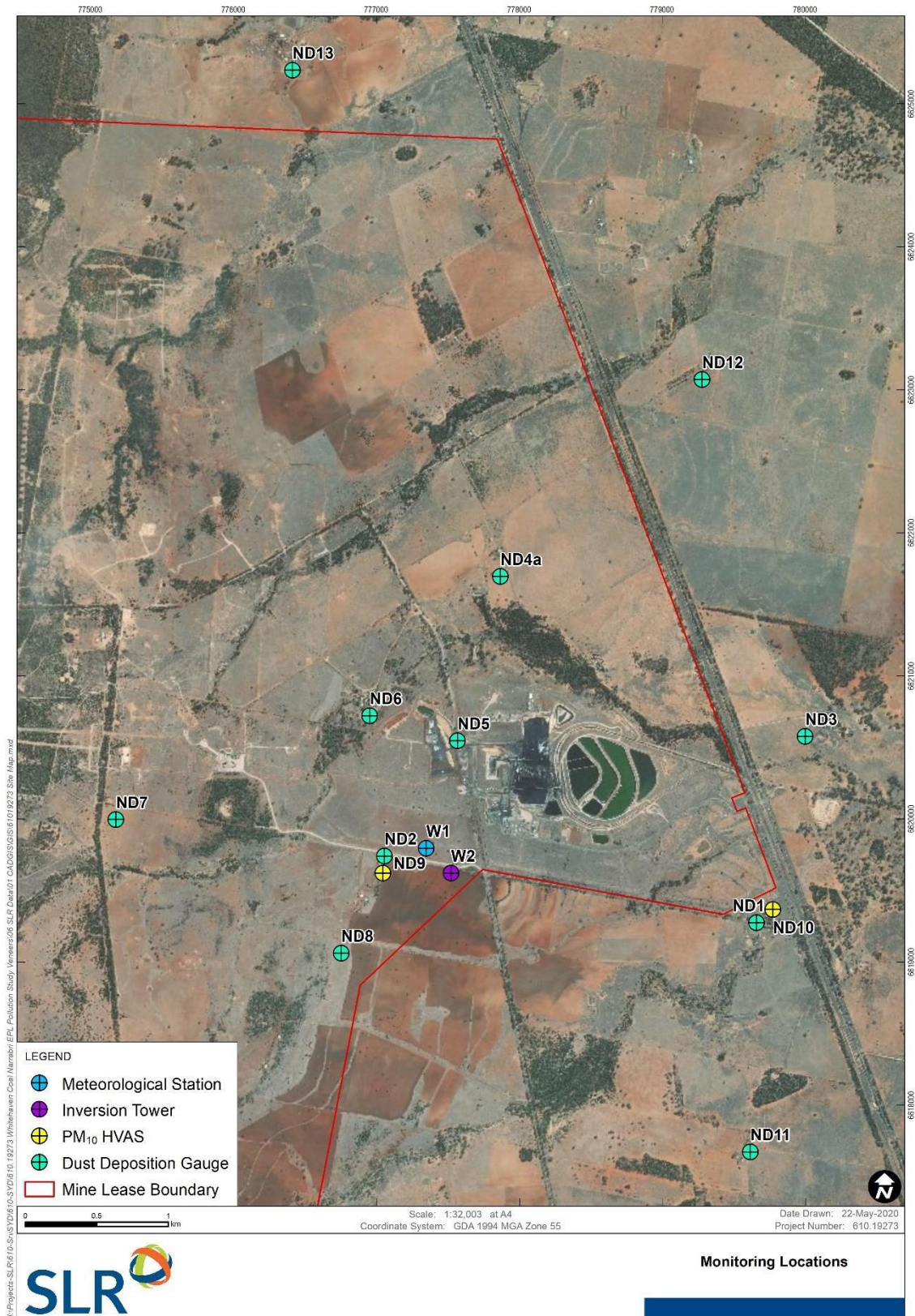


Figure 3: Air Quality Monitoring locations

Noise Monitoring



2022 (CY) Quarter 3 attended noise monitoring was conducted from the 12th – 14th of September, and results are presented below. Compliance was achieved at all locations.

2022 (CY) Quarter 4 attended noise monitoring was undertaken in November 2022.

Table 1 Performance Assessment – Operations

EPL ID	Location	Date	Narrabri Mine Contribution dBA				Noise Criteria ¹	Measurement Periods	Standard Weather ³			Compliant	
			LAeq 15 min Day	LAeq 15 min Evening	LAeq 15 min Night	LA1 (1 min) Night			Day	Evening	Night		
N5	Oakleigh ²	12/09/2022 ⁴	N/M	25	I/A	I/A	Day, Evening and Night – LAeq(15minute) 35 dBA Night LA1(1minute) – 45 dBA	Day - 1.5 hrs	Y	N	Y	Y	
		13/09/2022 ⁴	I/A	27	N/M	N/M			Evening - 0.5 hrs	Y	N	Y	Y
		14/09/2022 ⁴	37	34	32	40				Y	Y	Y	Y
N6	Newhaven	12/09/2022 ⁴	<25	32	N/M	N/M		Night – 1hrs		Y	N	N	Y
		13/09/2022 ⁴	I/A	I/A	N/M	N/M			Y	Y	N	Y	
		14/09/2022 ⁴	I/A	I/A	N/M	N/M			Y	Y	Y	Y	
N8	Haylin View ²	12/09/2022 ⁴	N/M	I/A	I/A	I/A		Night LA1(1minute) – 45 dBA	Day 15 min	Y	N	Y	Y
		13/09/2022 ⁴	28	37	I/A	I/A				Y	Y	Y	Y
		14/09/2022 ⁴	37	N/M	35	40				Y	N	Y	Y
N9	High Range ²	12/09/2022 ⁴	M/M	28	28	33	Night LA1(1minute) – 45 dBA		Evening 15 min	Y	N	N	Y
		13/09/2022 ⁴	I/A	I/A	25	27				Y	Y	N	Y
		14/09/2022 ⁴	I/A	I/A	I/A	I/A				Y	Y	Y	Y
-	Bow Hills ¹	13/09/2022	35	35	36	42			Night 15 min	Y	Y	N	Y
-	Ardmona	14/09/2022	I/A	30	33	37				N	Y	Y	Y
-	Merriman ²	14/09/2022	I/A	I/A	I/A	I/A				Y	Y	Y	Y
-	Matilda ²	13/09/2022	N/M	I/A	I/A	I/A		Y		N	Y	Y	

I/A = Inaudible, N/M = Not Measurable

Note 1: A private agreement between NCOPL and the residents of N1 Bow Hills of 50 dBA LAeq(15minute) is in place. This new level of 50 dBA LAeq(15minute) replaces the levels identified in Conditions 1-3, Schedule 4 of PA 08_0144 Mod 2 and the identical limits contained in condition L3 of Environment Protection Licence No 12789

Note 2: Property is owned by Narrabri Coal Operations. Noise limits contained in Conditions 1-3, Schedule 4 of PA 08_0144 Mod 2 and the identical limits contained in condition L3 of Environment Protection Licence No 12789 are not applicable.

Note 3: Noise levels presented are the highest measured noise level under standard weather conditions over the monitoring period.

Note 4: Evening and Night monitoring conducted on this date, Day monitoring conducted during the following day period.

Narrabri Coal Operations Pty Ltd ABN 76 107 813 963

10 Kurrajong Road, Baan Baa NSW 2390 | P 02 6794 4755 | F 02 6794 4753
Locked Bag 1002, Narrabri NSW 2390

Surface Water Monitoring

Six (6) controlled discharge events occurred during the reporting period.

All discharges occurred immediately after site receiving more than 38.4mm of rainfall within a 5-day period.

All samples have been analysed by a NATA accredited laboratory (ALS Sydney).

Location	Discharge Start Date	Discharge End Date	pH	Oil & Grease (mg/L)	TSS (mg/L)
EPA Limit			6.5 - 8.5	10	50¹
SD2	16/09/2022	25/09/2022	7.75	<5	18
SD4	16/09/2022	25/09/2022	8.36	<5	225
SD7	16/09/2022	16/09/2022	7.93	<5	1730
SD7	22/09/2022	27/09/2022	8.31	<5	1040
SD7	9/10/2022	12/10/2022	8.5	<5	953
SD2	21/10/2022	23/10/2022	8.25	<5	128
SD4	21/10/2022	25/10/2022	7.92	<5	53
SD7	21/10/2022	22/10/2022	8.43	<5	4480
SD2	1/11/2022	2/11/2022	7.43	<5	176
SD4	1/11/2022	3/11/2022	8.07	<5	122
SD7	1/11/2022	3/11/2022	8.2	<5	3700
SD2	14/11/2022	15/11/2022	8.23	<5	64
SD4	14/11/2022	15/11/2022	8.32	<5	421
SD7	14/11/2022	16/11/2022	7.51	<5	595

¹ Condition L2.5(a) of EPL12789 allows for the Total Suspended Solids (TSS) limit to be exceeded from licenced discharge points (LDPs) if a discharge occurs solely as a result of rainfall measured at the premises that exceeds 38.4 mm over any consecutive 5-day period.

NSW Water- Licenced Usage

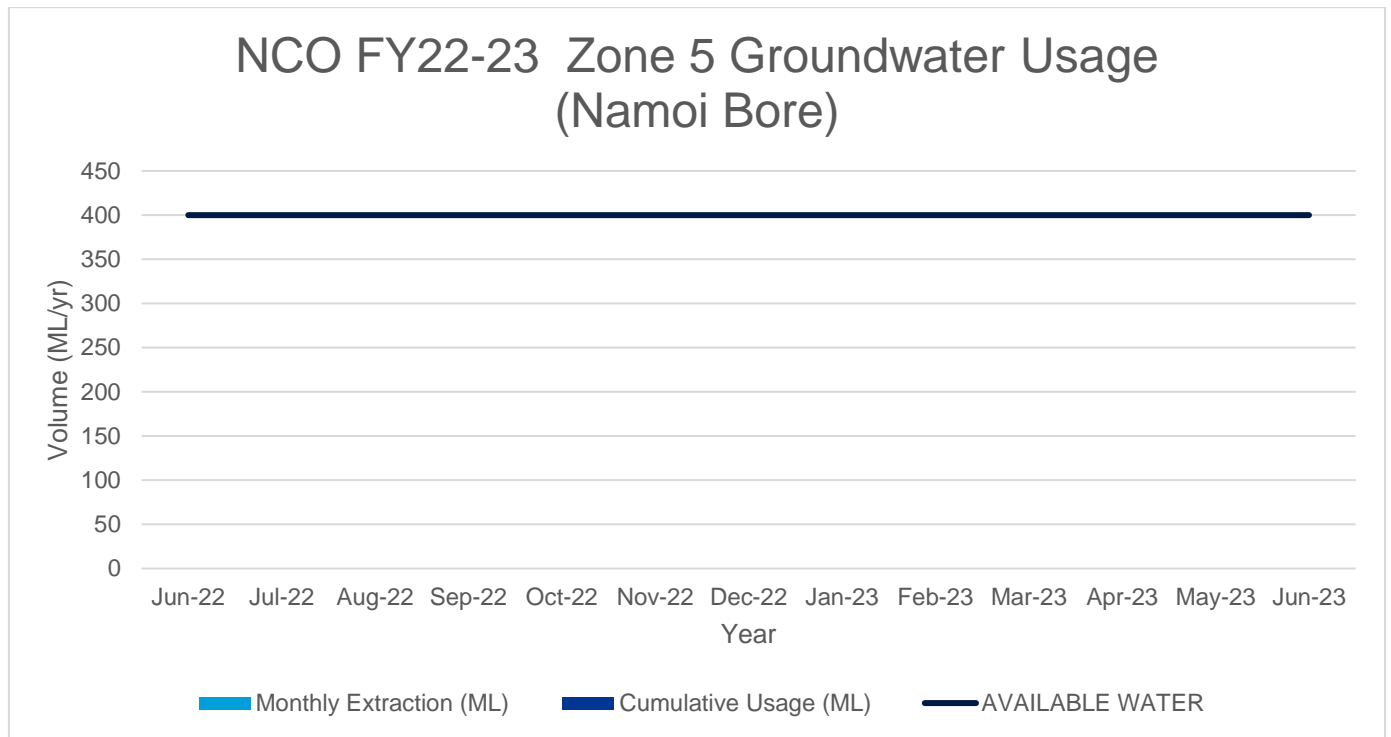


Figure 4: Zone 5 licensed groundwater usage from the Namoi Bore for the current Financial (Water) Year.

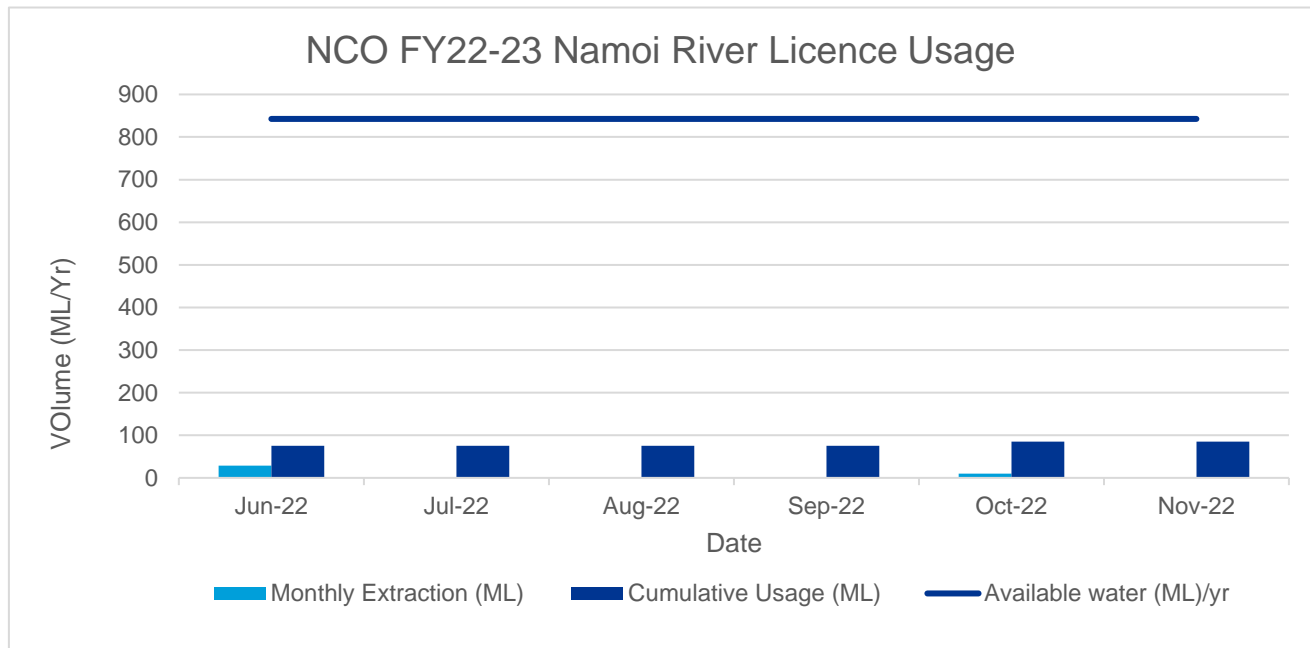


Figure 5: Namoi River licensed water allocation usage for the current Financial (Water)

Groundwater Monitoring

Groundwater monitoring results are reviewed at the end of each year by a suitably qualified hydrogeologist and reported in the Annual Review.

NCO reported the P16 exceedance of predicted drawdown to the Department of Planning and Environment via Major Projects Portal.

NCO have commissioned AGE to undertake a full re-calibration of the Groundwater Model.

Subsidence Monitoring

- LIDAR data is captured annually, and reviewed against subsidence predictions by a suitably qualified expert.

Longwall Panels (LW) 109		
	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 – Monitoring has ceased		
Line 103 – Centre of LW103 – Southern – Monitoring has ceased		
Line 104 – Centre of LW104 – Northern – Monitoring has ceased		
Line 104 – Centre of LW104 – Southern – Monitoring has ceased		
Line 105 – Centre of LW105 – Northern – Monitoring has ceased		
Line 105 – Centre of LW105 – Southern – Monitoring has ceased		
Line 106 – Centre of LW106 – Northern – Being closed out		
Line 107 – Centre of LW107 – Northern – Monitoring has ceased		
Line 108 (measured 29/06/2022)		
Subsidence (m)	2.75	2.71
Tilt (mm/m)	38	36.3
Tensile Strain (mm/m)	10	16.2
Compressive Strain (mm/m)	13	38.9
Line 108 – Southern		
Line A – Cross Panel Survey Line – Being closed out		
Line B – Pine Creek Tributary 1 – Monitoring has ceased		
Line D – Pine Creek – Monitoring has ceased		
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 (measured 06/01/2022) (LW108-109)		
Subsidence (m)	2.75	2.75
Tilt (mm/m)	53	31.70

Longwall Panels (LW) 109		
	Maximum Predicted Extraction Plan	Maximum Measured
Tensile Strain (mm/m)	13 – 20^	16.60
Compressive Strain (mm/m)	16 – 24^	9.60
Line I – Cross Panel Survey Line (measured 31/08/2022)		
Subsidence (m)	2.75	0
Tilt (mm/m)	53	0
Tensile Strain (mm/m)	13 – 20^	0
Compressive Strain (mm/m)	16 – 24^	0

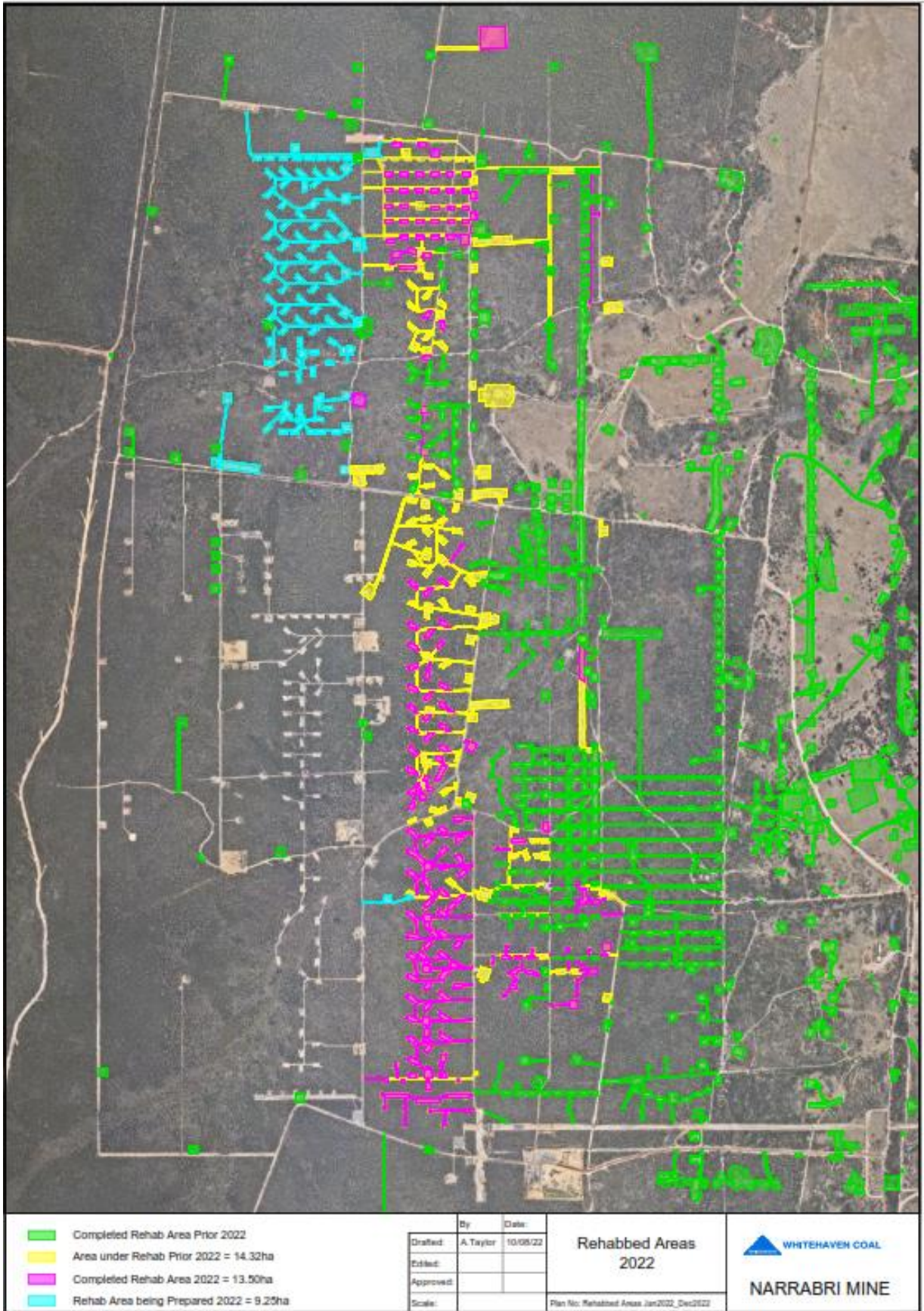
Rehabilitation

Note: Section entered to address commitment within the newly required Rehabilitation Management Plan (RMP) under the NSW Mining Regulation 2016

Mining Operations Plan (MOP) has been replaced with the new Rehabilitation Management Plan (RMP) in accordance with the NSW Mining Regulation 2016. The RMP is available on the Narrabri Mine website.

Table 2: Narrabri Coal Operations 2022 (CY) Rehabilitation Works as of 30 November 2022

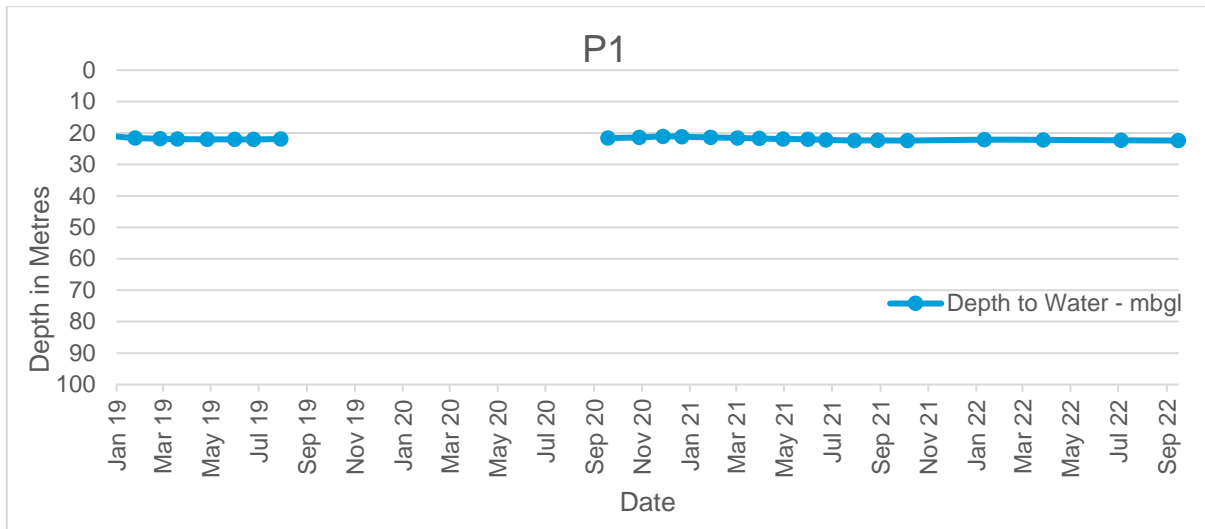
Rehabilitation Status	Completed (ha)	Target (ha) end of CY22
Landform establishment	9.25	9.25
Ecosystem establishment	13.5	15.4



Hydrographs for Groundwater Monitoring Wells



Figure 7: Location of groundwater monitoring wells



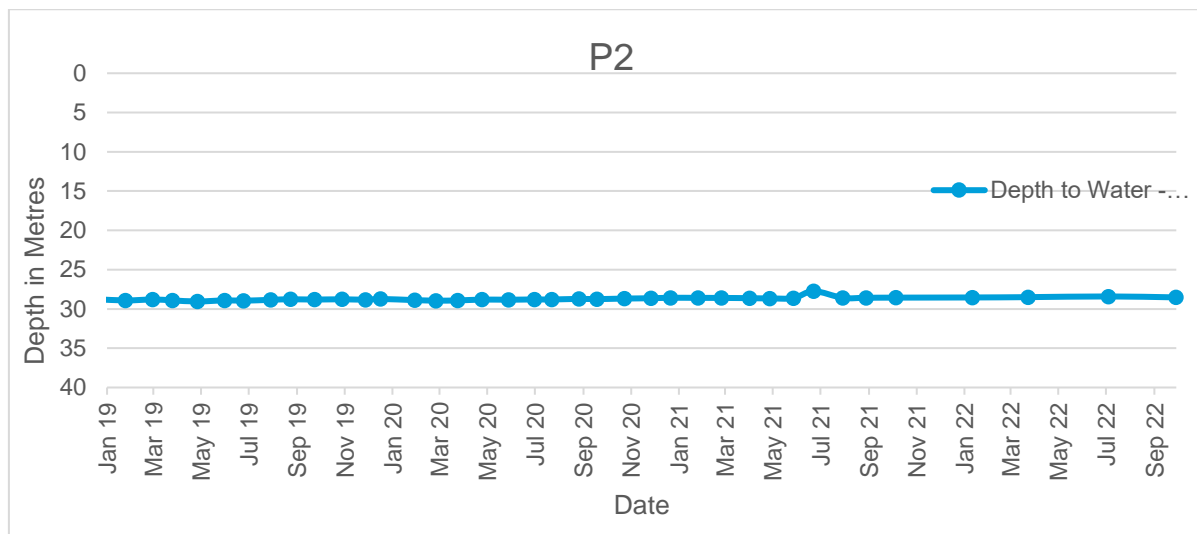
NCO Monitoring bore ID: P1

Location: Longsight

Geological unit: Garrawilla Volcanics

Bore depth: 50m

Explanation: Gap in data is due to land access issues – locks were changed and cattle in paddock.

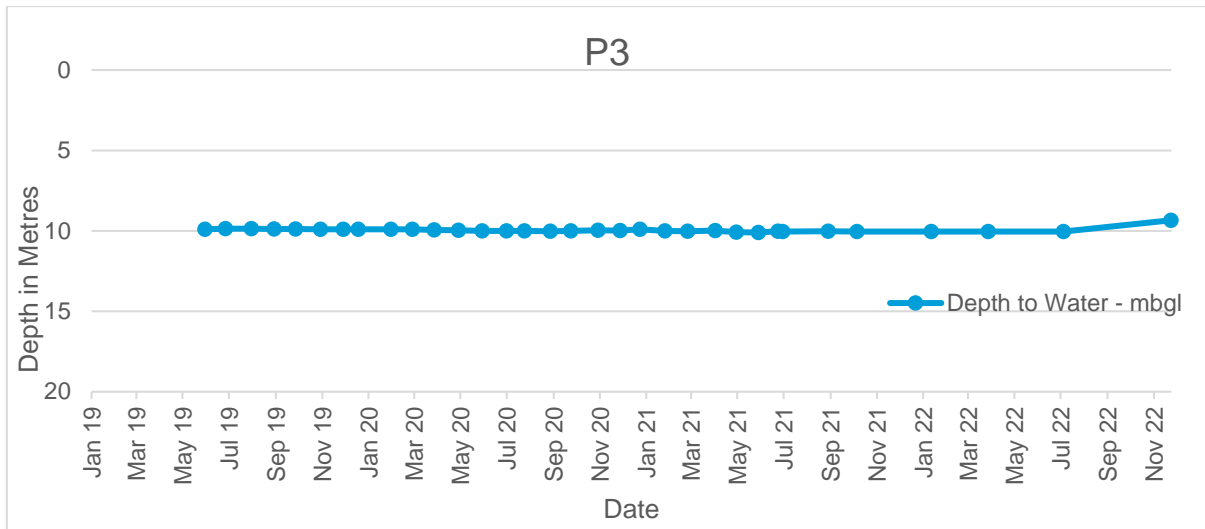


NCO Monitoring bore ID: P2

Location: Matilda

Geological unit: Napperby Formation

Bore depth: 50m



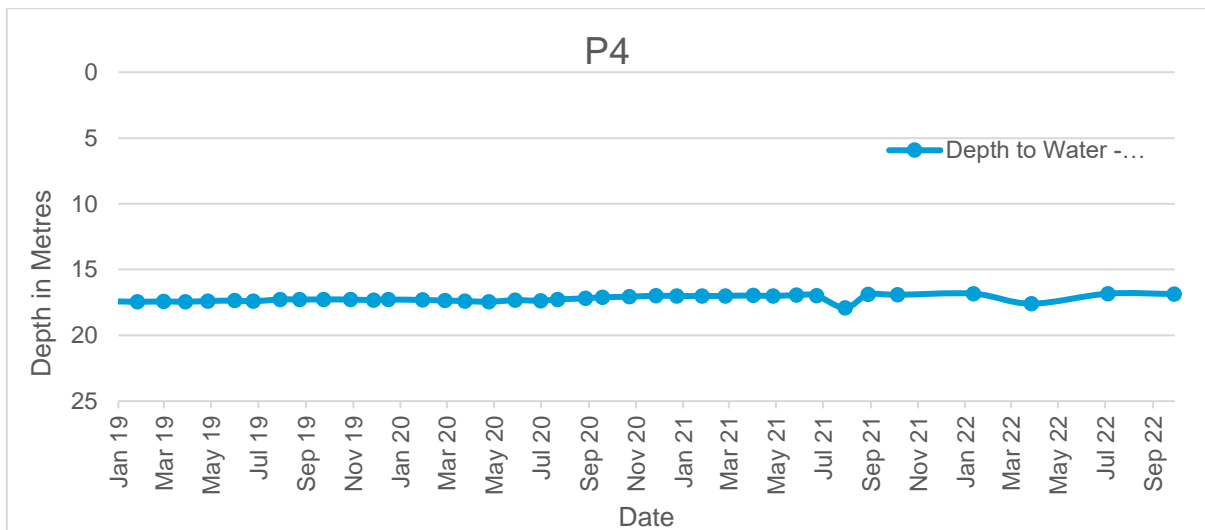
NCO Monitoring bore ID: P3

Location: Bow Hills

Geological unit: Pamboola Formation

Bore depth: 45m

Explanation: Gap in data is due to land access issues – cattle were being hand fed in paddock with the bore.

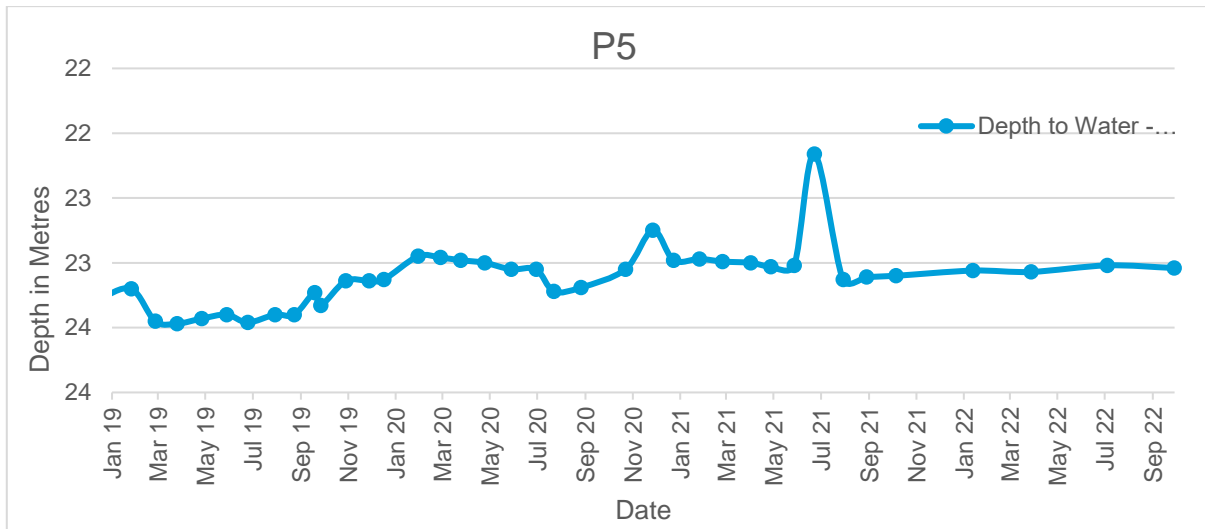


NCO Monitoring bore ID: P4

Location: North of Newhaven on Kamilaroi highway

Geological unit: Napperby Formation

Bore depth: 30m



NCO Monitoring bore ID: P5

Location: Unknown - shown on Figure 10

Geological unit: Pamboola Formation

Bore depth: 30m

No Graph

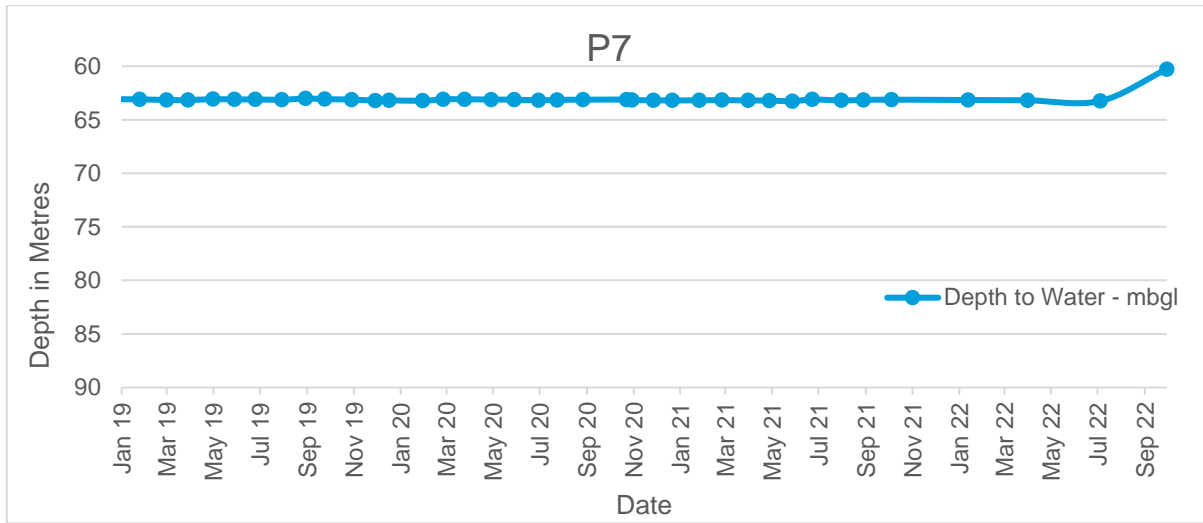
NCO Monitoring bore ID: P6

Location: shown on Figure 10

Geological unit: Pilliga sandstone

Bore depth: 90m

Explanation: Dry since 2012

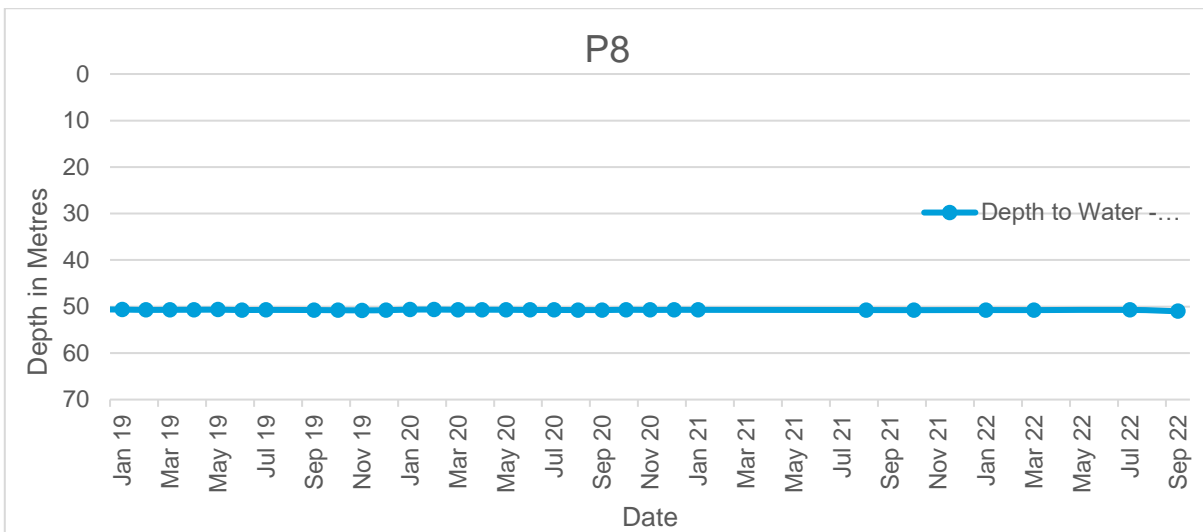


NCO Monitoring bore ID: P7

Location: State forest

Geological unit: Pilliga sandstone

Bore depth: 90m

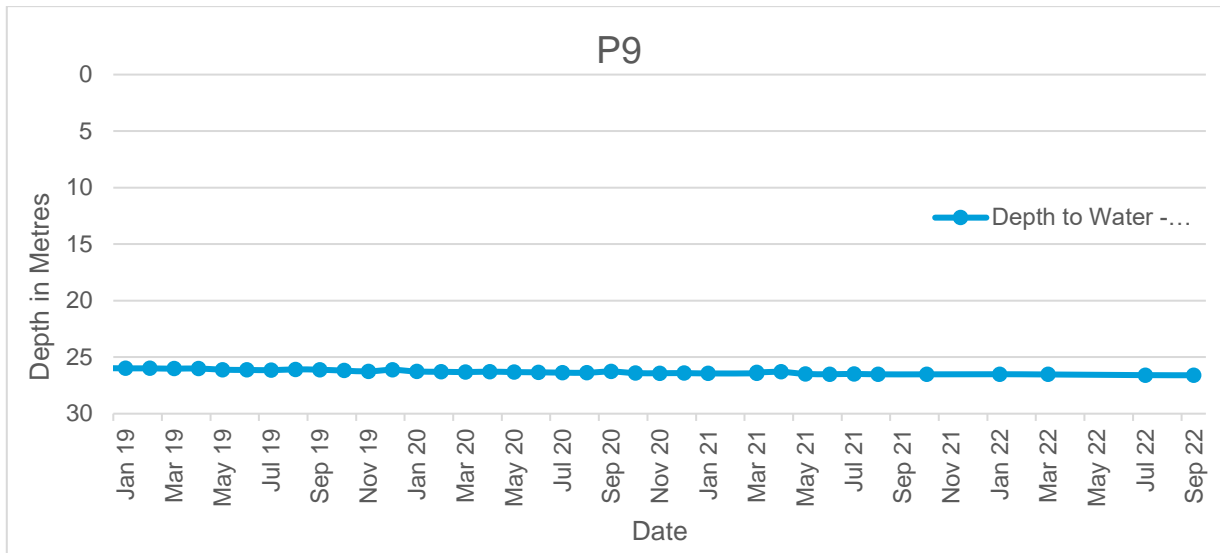


NCO Monitoring bore ID: P8

Location: Kurrajong

Geological unit: Purlawaugh Formation

Bore depth: 65m

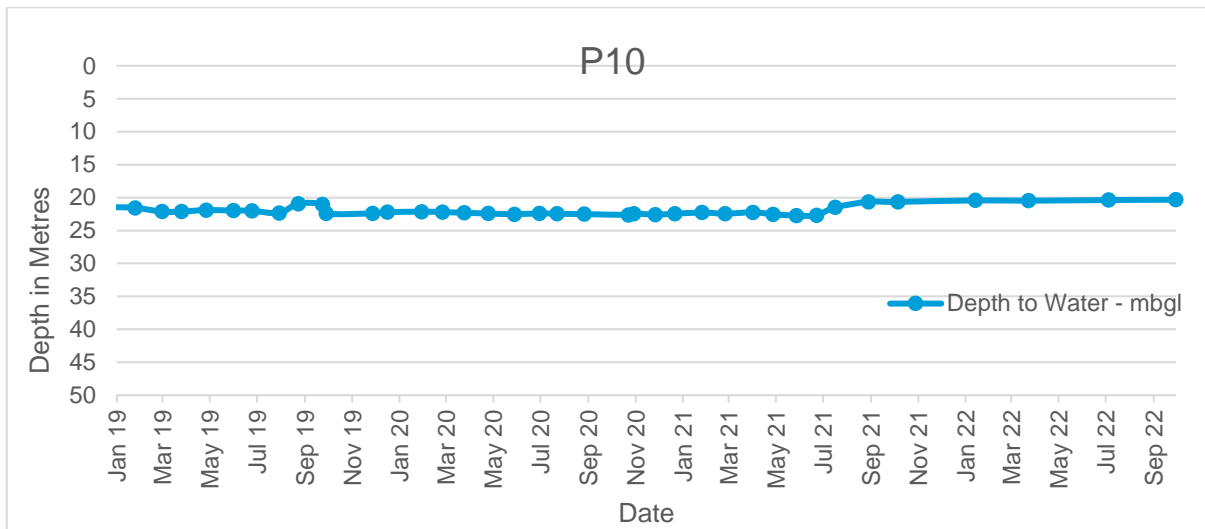


NCO Monitoring bore ID: P9

Location: NCO – Figure 10

Geological unit: Purlawaugh Formation

Bore depth: 30m

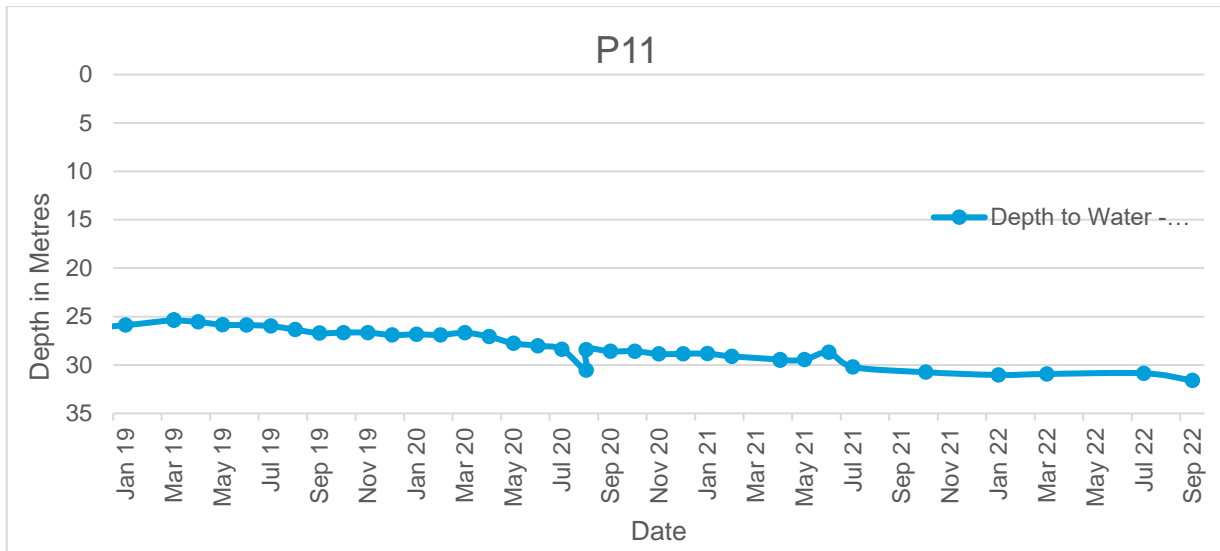


NCO Monitoring bore ID: P10

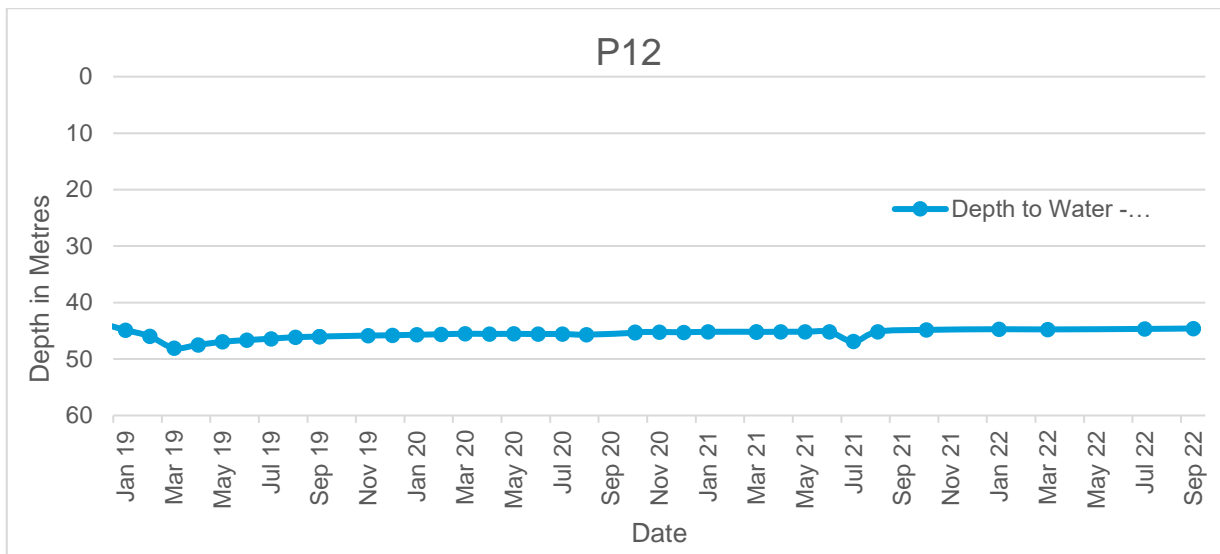
Location: NCO – see figure 10

Geological unit: Napperby Formation

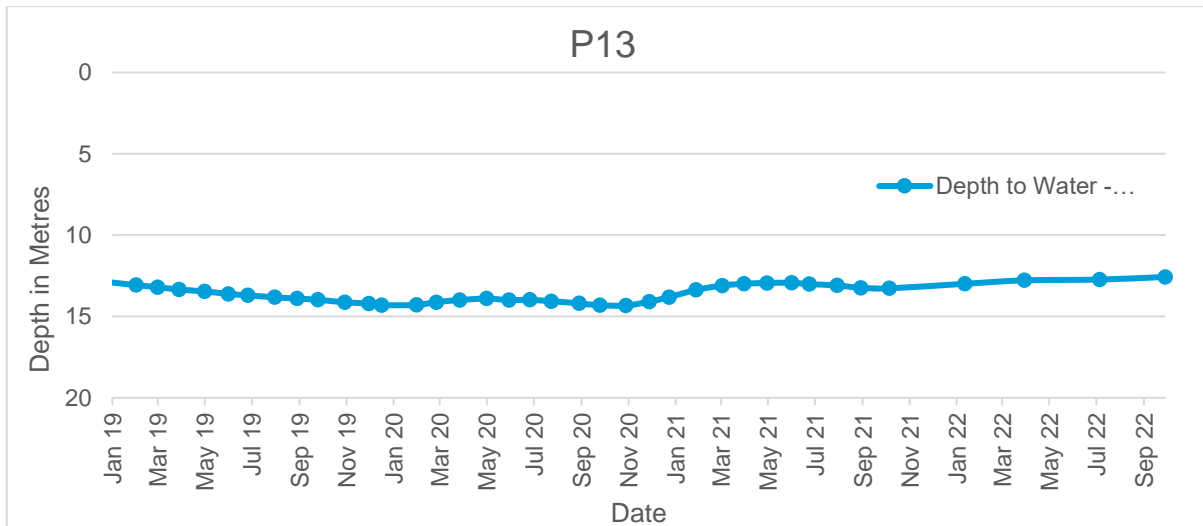
Bore depth: 130m



NCO Monitoring bore ID: P11
Location: NCO – see figure 10
Geological unit: Napperby Formation
Bore depth: 50m



NCO Monitoring bore ID: P12
Location: NCO – see figure 10
Geological unit: Napperby Formation
Bore depth: 90m



NCO Monitoring bore ID: P13

Location: NCO – see figure 10

Geological unit: Garrawilla Volcanics/Napperby

Bore depth: 30m

No Graph

NCO Monitoring bore ID: P14

Location: See Figure 10

Geological unit: Napperby Formation (no sill)

Bore depth: 78m

Explanation: Dry

No Graph

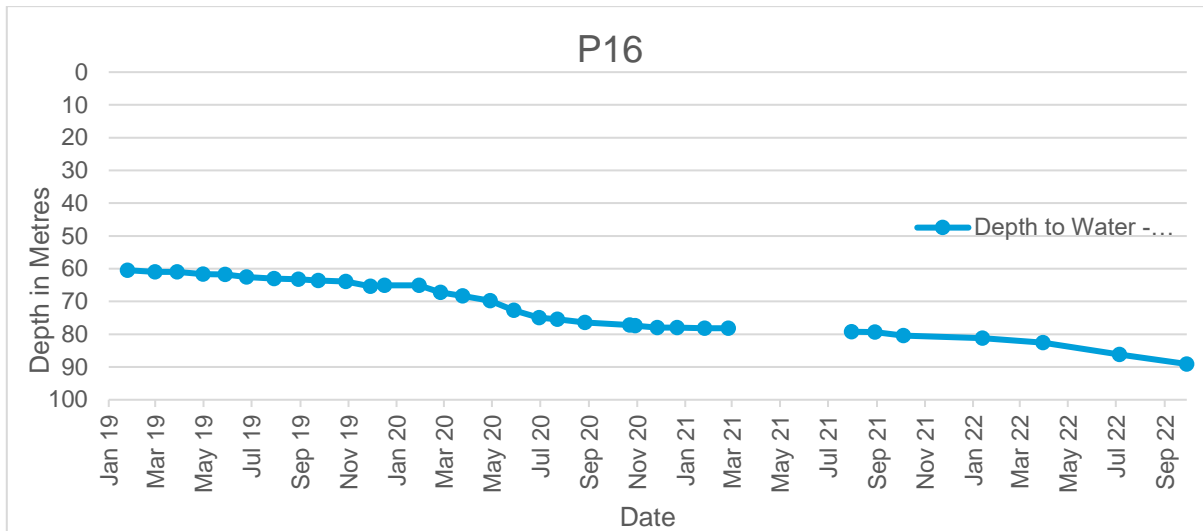
NCO Monitoring bore ID: P15

Location: See Figure 10

Geological unit: Garrawilla Volcanics

Bore depth: 30m

Explanation: Dry



NCO Monitoring bore ID: P16

Location: State forest (Western Boundary) – see figure 10

Geological unit: Garrawilla Volcanics

Bore depth: 146m

No Graph

NCO Monitoring bore ID: P17

Location: See figure 10

Geological unit: Purlawaugh Formation

Bore depth: 56m

Explanation: Dry since 2009

No Graph

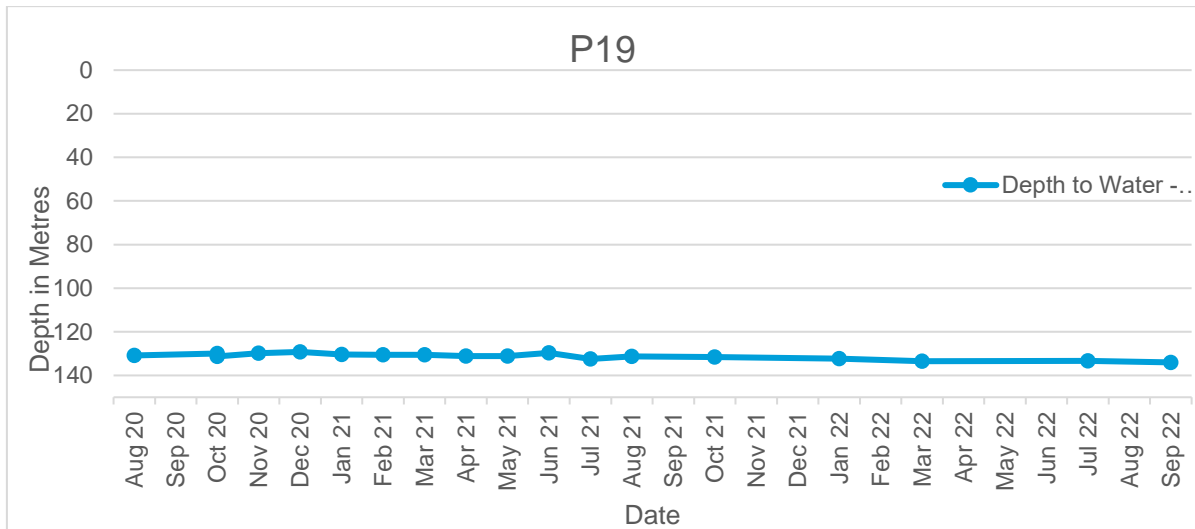
NCO Monitoring bore ID: P18

Location: See figure 10

Geological unit: Hoskissons seam

Bore depth: 146m

Explanation: Dry since 2011



NCO Monitoring bore ID: P19

Location: NCO

Geological unit: Pamboola

Bore depth: 187m

Explanation: Wrong bore previously monitored; true location monitored since August 2020

No Graph

NCO Monitoring bore ID: P20

Explanation: Cemented up – no longer monitoring

No Graph

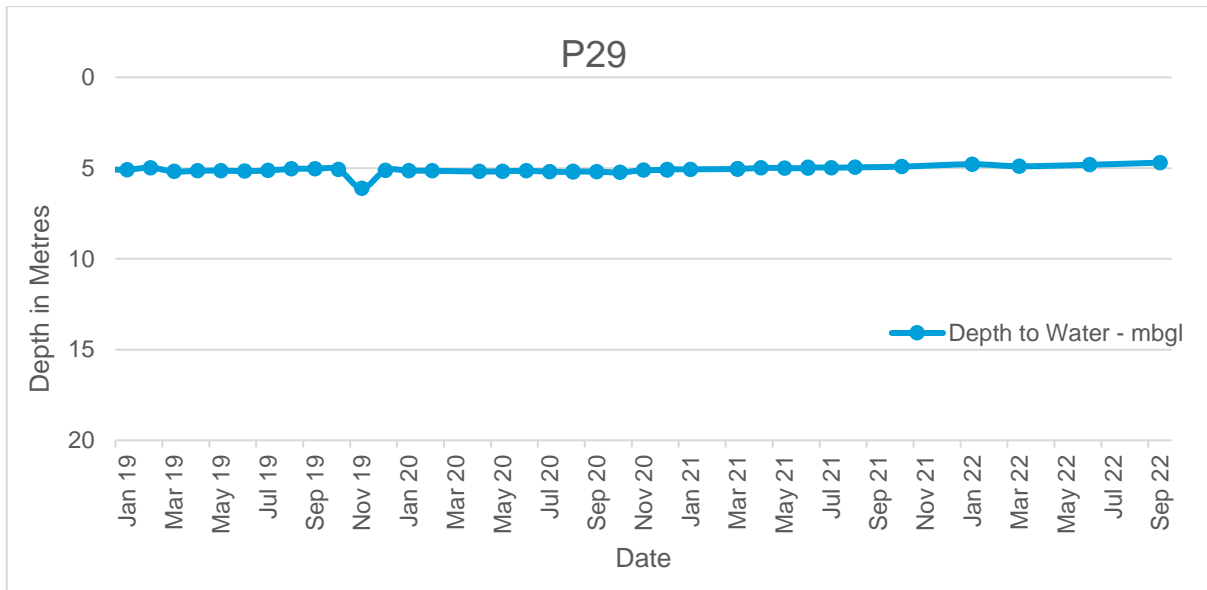
NCO Monitoring bore ID: P28

Location: See figure10

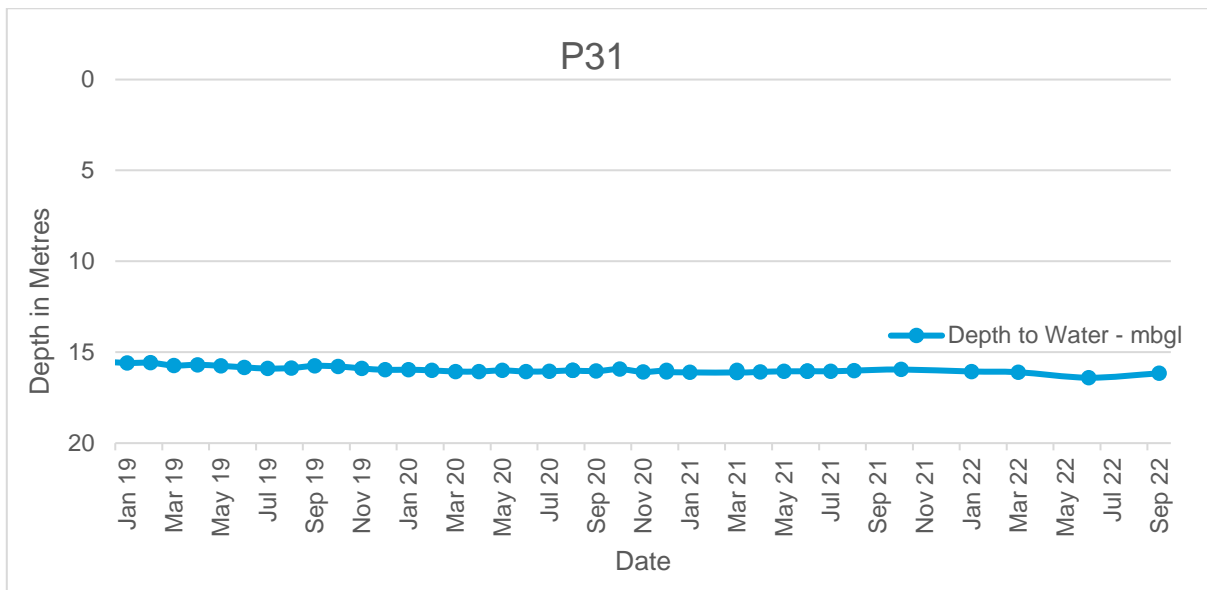
Geological unit: Napperby Formation (above sill)

Bore depth: 25m

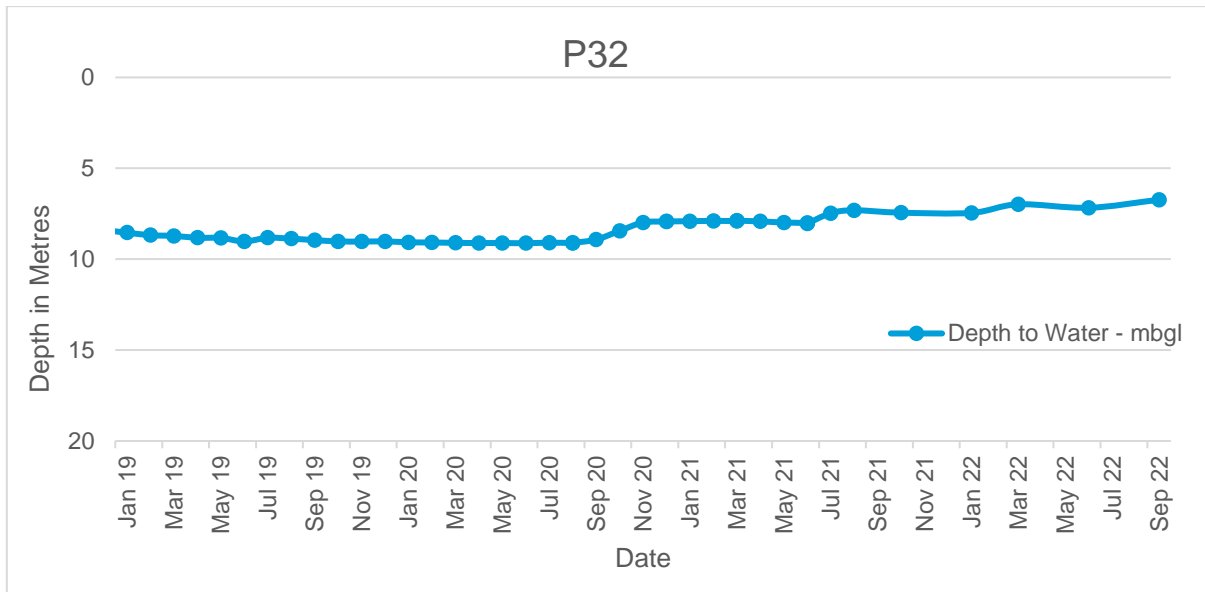
Explanation: Dry since 2012



NCO Monitoring bore ID: P29
Location: NCO (Near site dams) – see figure 10
Geological unit: Napperby Formation (above sill).
Bore depth: 25m



NCO Monitoring bore ID: P31
Location: NCO (Near site dams) – see figure 10
Geological unit: Napperby formation (above sill)
Bore depth: 15m



NCO Monitoring bore ID: P32

Location: NCO (Near site dams) – see figure 10

Geological unit: Napperby Formation (above sill)

Bore depth: 15m

NCO Monitoring bore ID: P33

Location: See figure 6

Geological unit: Napperby Formation (above sill)

Bore depth: 15m

Explanation: Dry since 2012

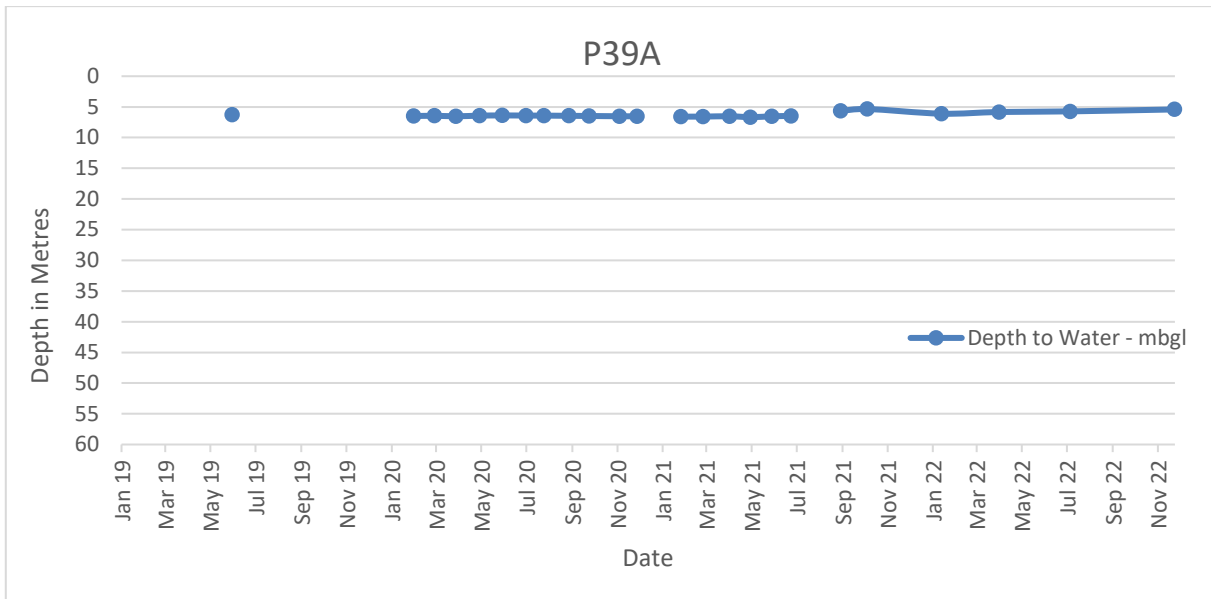
NCO Monitoring bore ID: P24

Location: See figure 6

Geological unit: Napperby Formation (above sill)

Bore depth: 15m

Explanation: Dry since 2012



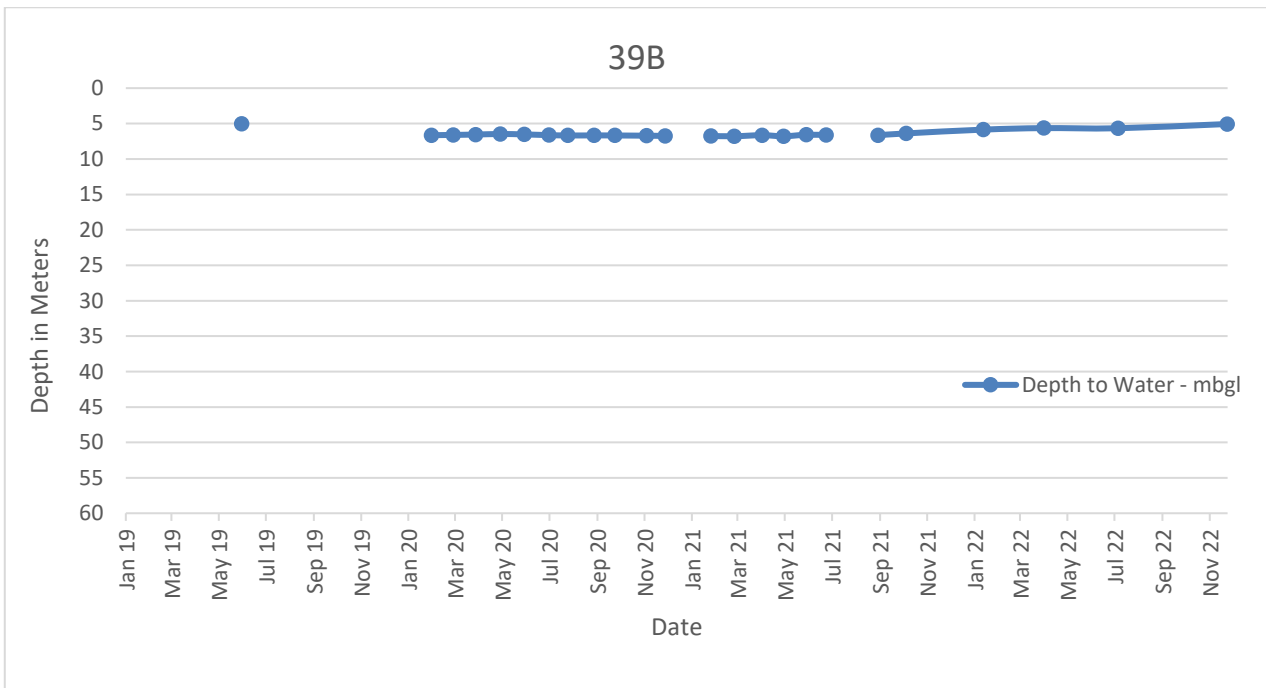
NCO Monitoring bore ID: P39A

Location: Bow Hills

Geological unit: Watermark formation

Bore Depth (m): 80m

Explanation: Gap in data is due to land access issues – cattle were being hand fed in paddock with the bore.



NCO Monitoring bore ID: P39B

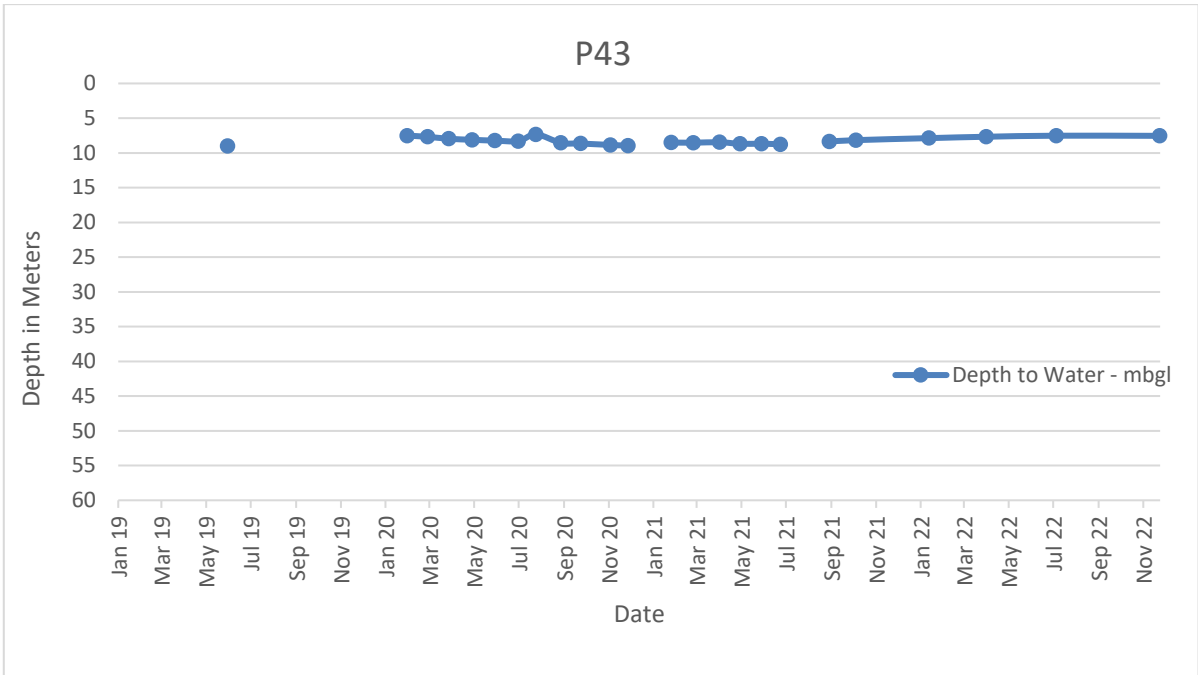
Location: Bow Hills

Geological unit: Tullamullen Alluvium

Bore Depth (m): 32m

Explanation: Gap in data is due to land access issues – cattle were being hand fed in paddock with the bore.

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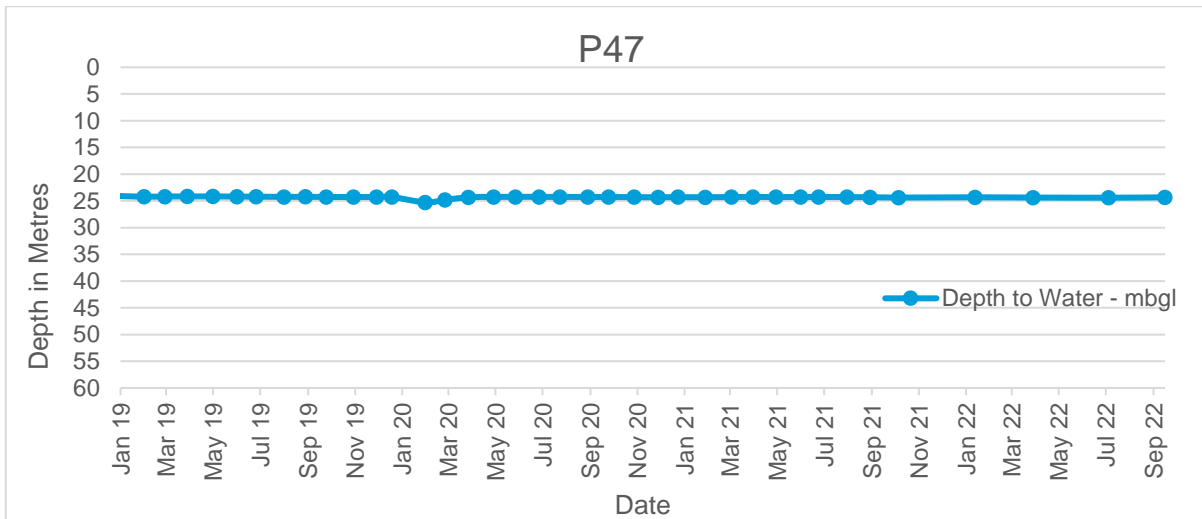
NCO Monitoring bore ID: P43

Location: Bow Hills

Geological unit: Watermark formation

Bore Depth (m): 65m

Explanation: Gap in data is due to land access issues – cattle were being hand fed in paddock with the bore.

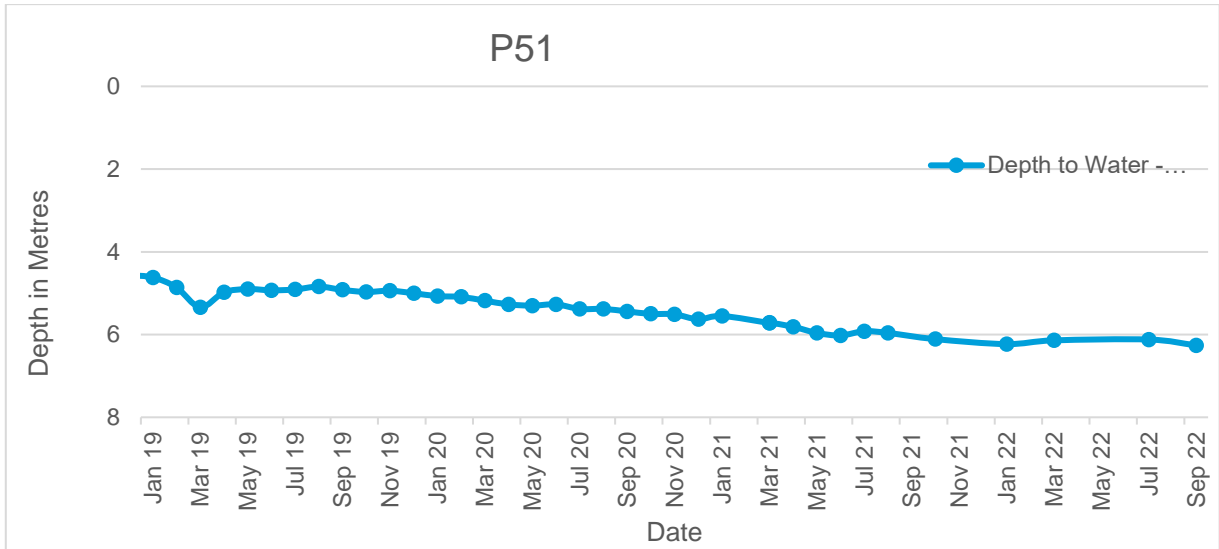


NCO Monitoring bore ID: P47

Location: NCO – see figure 10

Geological unit: Garrawilla Volcanics

Bore Depth (m): 31m

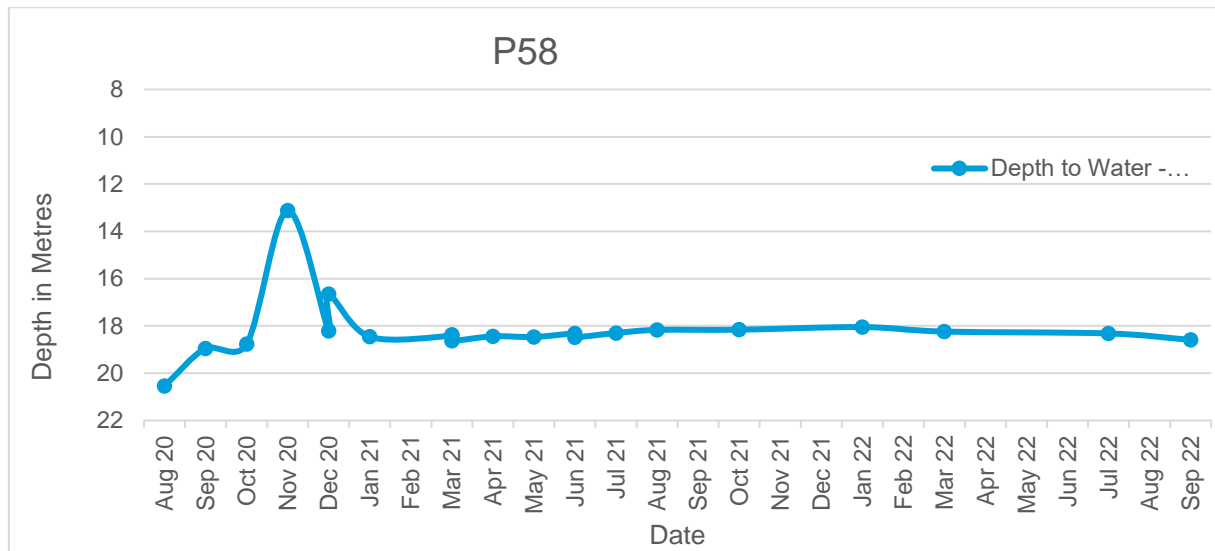


NCO Monitoring bore ID: P51

Location: NCO

Geological unit: Garrawilla Volcanics

Bore Depth (m): 17m



NCO Monitoring bore ID: P58

Location: NCO

Geological unit: Napperby Formation

Bore Depth (m): 40m

