

**Narrabri Mine Community Consultative Committee Meeting #60**

**Date:** Wednesday 15 March 2023  
**Time:** 5:00pm  
**Location:** Narrabri Coal Boardroom

**Present:** Russell Stewart (RS)  
James Steiger (JS)  
Peter Webb (PW)  
Mark Foster (MF)  
Geoff Hunter (GH)  
Bruce Danson (BD)  
Cr. Cathy Redding (CR) - Narrabri Shire Council  
Donna Ausling (DA) - Narrabri Shire Council  
David Ellwood (DE) – Whitehaven Coal  
Shane Rily (SR) – Whitehaven Coal  
Darren Swain (DS) – Whitehaven Coal  
Hannah Croft (HC) – Whitehaven Coal  
Rob Crane (RC) – Whitehaven Coal

**Apologies:** Alan Grumley (AG)  
Ian Duffy (ID)  
Gerald Linde (GL) – Whitehaven Coal  
Cr. John Clements - Narrabri Shire Council

**1. DECLARATION OF PECUNIARY INTEREST**

No declarations.

Moved: RS

Seconded MF

**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	Completed - 16 December 2022.

GH asked about Groundwater Monitoring Point P16 – SR said that AGE was still working on the Groundwater Model recalibration which would address the water level drop at P16. SR committed to providing an update on the Groundwater Model re-calibration at the next meeting.

Moved: MF Seconded: GH

### 3. OPERATIONS PROGRESS REPORT AND SAFETY UPDATE

Presented by Shane Rily

- Production figures presented.
- 93 First Aid Treatment injuries and 7 TRI injuries for reporting period (financial year).
- DE explained that there had been an increase in injuries since December 2022. NCO have been working on an action plan to prevent this with a particular focus on hand injuries (being the highest form of injury).

Moved: GH Seconded: MF

#### 5.0 Stage 3 approval.

##### Stage 3

DE – still waiting on management plans, federal approval, no timing updates.

GH asked about make good agreements. DE explained – 2 of the 9 have got back about the proposals which were a cash settlement. DE explained that Cash amount given to land holders is site specific as it is costed on the basis of installing a new water bore. DE explained that some bores located within the predicted impact zone will still be able to be used (no requirement to decommission).

## 6.0 ENVIRONMENTAL MONITORING REPORT

Presented by Shane Rily

- ENVIRONMENTAL 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:
  - 2023 annual average (year to date) for all monitoring locations is below the licence limit of 4 g/m<sup>2</sup>/month (Insoluble Matter).
  - March 2023 results had not yet been analysed by the laboratory. SR committed to including these results in the next CCC.
- 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/m<sup>3</sup>) for the two monitoring locations (Claremont and Turrabaa).
  - GH commented PM<sub>10</sub> was getting higher. SR said likely cause could be the lack of rainfall in recent months.
- QUARTERLY NOISE MONITORING
  - Q4 2022 - no exceedances recorded; and
  - Q1 2023 monitoring had not yet been completed (due end of March).
- SURFACE WATER MONITORING: No discharge
- WATER LICENSING
  - Presented graphs showing NCO water licence allocation usage.
  - Levels below licenced allocations.
- GROUNDWATER MONITORING
  - Presented Hydrographs for groundwater monitoring locations.
  - Groundwater model re-calibration with consulting firm AGE.
- SUBSIDENCE MONITORING
  - Presented monitoring undertaken to date for the current calendar year.
  - All monitoring results fell within modelled predictions.
- REHABILITATION
  - Rehabilitation Targets achieved in 2022.
  - SR explained differences in rehab reporting under the NSW Rehabilitation Reforms which took effect 1 July 2022.
  - CR asked where the rehab was happening. SR pointed to the areas under active rehabilitation using the figure presented and offered to conduct tours for anyone wanting to look at rehabilitation works onsite

No further questions/comments from members.

Moved: GH      Seconded: JS

**7.0 GENERAL BUSINESS**

- RS asked about WH housing program. DS explained that Jeff Andrews (Whitehaven) is the Project Manager for housing in the area. Land has been purchased in Gunnedah and Whitehaven had been working with Narrabri Council to locate flood free land to develop. DA said there is a patch of land opposite cemetery that is in councils future plan for future housing, with Planning NSW. CR asked if there were available land, that can be built up now. DA said there is land in Narrabri West. Several members said Boggabri would be good to build in/develop as well. DS said all options were being considered.
- DS introduced RC as the new Manager Community Relations based out of Gunnedah.
- MF asked about the status of the new Brine Dam construction project – SR said that this was scheduled to be completed in mid-April 2023
- CR asked about new carpark area. DE explained it’s an extended laydown area and a revamped site entrance to separate mine traffic.
- No more business – meeting closed at 17:37 hrs.

**NEXT MEETING**

- 5pm Wednesday 14<sup>th</sup> June 2023 at Narrabri Mine (Boardroom).

<b>MEETING ACTIONS</b>		
<b>Person</b>	<b>Action</b>	<b>Due</b>
SR	<ul style="list-style-type: none"> <li>• Provide an update on the Groundwater Model recalibration.</li> <li>• Provide March 2023 Depositional Dust Monitoring Results</li> <li>• Provide Q1 2023 Noise Monitoring Results</li> </ul>	Next meeting (scheduled 14 <sup>th</sup> June 2023)

**Narrabri Mine Community Consultative Committee Meeting #61**

**Date:** Wednesday 21 June 2023  
**Time:** 5:15pm  
**Location:** Narrabri Coal Boardroom

**Present:** Russell Stewart (RS)  
James Stieger (JS)  
Peter Webb (PW)  
Mark Foster (MF)  
Geoff Hunter (GH)  
Alan Grumley (AG)  
Cr. Cathy Redding (CR) - Narrabri Shire Council  
David Ellwood (DE) – Whitehaven Coal  
Shane Rily (SR) – Whitehaven Coal  
Hannah Croft (HC) – Whitehaven Coal  
Harriet Davies (HD) – Whitehaven Coal  
Jackie Scott (JC) – Whitehaven Coal  
Gerald Linde (GL) – Whitehaven Coal

**Apologies:**

Ian Duffy (ID)  
Bruce Danson (BD)  
Darren Swain (DS) – Whitehaven Coal

Moved: MF      Seconded: JS

**1. DECLARATION OF PECUNIARY INTEREST**

No declarations.

Moved: RS      Seconded MF

**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

PREVIOUS MEETING ACTIONS		
Person	Action	Status
SR	Provide an update on the Groundwater Model recalibration	SR explained that this is still ongoing due to the approval process for the Extraction Plan for LW203-206
SR	Provide June 2023 Depositional Dust Monitoring Results	Results provided in the Environmental Monitoring Report
	Provide Q2 2023 Noise Monitoring Results	

Moved: MF    Seconded: GH

## 3. OPERATIONS PROGRESS REPORT AND SAFETY UPDATE

Presented by Shane Rily

- Production figures presented.
- 139 First Aid Treatment injuries and 15 TRI injuries to date (financial year).
- There was a big discussion on recruitment. CR started the conversation by asking about Narrabri Mine's recruitment process and how it is attracting people to work in the mine
  - GL explained that mine has only filled about half available trade roles stating it has been challenging to employ and retain staff in the last 18 months. Core skills are still hard to attract as contractors are easier to attract
  - General discussion on how Whitehaven can attract school students. CR mentioned that the Narrabri careers expo to be held in July. GL and DE assured the meeting that they were confident Whitehaven Group will have a stand present.
  - GH said that there should be a push from the mines to educate young people to focus on trade and apprentice programmes.

## 4. STAGE 3 UPDATE

- DE: Stage 3 yet to be approved as Federal Approval has not been received from the Federal Minister. Approval is held up in court as a challenge has been made on the reconsideration request. DE/GL noted best case being 6 months.
- GH asked on what ground the reconsideration was on: DE explained that the grounds of the legal challenge is against the EPBC Act as it does not consider greenhouse gas impacts on biodiversity
- JS asked where the exploration lease north of the existing mine were up to. DE explained that no works will commence until land access agreements are established which will then allow for the completion of a Review of Environmental Factors (REF). A REF will then need to be approved before exploration can commence.
- DE: 3 make good agreements have been submitted to the department and the others are still in the process of completion. All management plans bar 2 have been approved.
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## 6.0 ENVIRONMENTAL MONITORING REPORT

Presented by Shane Rily

- ENVIRONMENTAL 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:**
  - 2023 annual average (year to date) for all monitoring locations is below the licence limit
  - June 2023 results had not yet been analysed by the laboratory. SR committed to including these results in the next CCC Report.
- **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 for the two monitoring locations (Claremont and Turrabaa).
- **QUARTERLY NOISE MONITORING**
  - Q1 2023 - no exceedances recorded; and
  - Q2 2023 monitoring had not yet been completed (due end of June).
- **SURFACE WATER MONITORING:** 1 discharge 30<sup>th</sup> March from the new SD7 dam.
- **WATER LICENSING**
  - Presented graphs showing NCO water licence allocation usage.
  - Levels below licenced allocations.
- **GROUNDWATER MONITORING**
  - Presented Hydrographs for groundwater monitoring locations.
  - Groundwater model re-calibration with consulting firm AGE.
  - JS asked if the new Brine Dam was ready to receive brine water. SR explained that the QAQC document has been submitted to NSW EPA as the sites EPL. GL explained that the all infrastructure is ready to pump.
  - Discussion around odour from the Rail Loop Dams. JS said that odour had improved over the past week. SR explained that new aerators had been installed and additional dosing activities had been completed.
- **SUBSIDENCE MONITORING**
  - Presented monitoring undertaken to date for the current calendar year.
  - All monitoring results fell within modelled predictions.
- **REHABILITATION**
  - End of May 2023 8 hectares of rehabilitation has been completed.

No further questions/comments from members.

## 7.0 GENERAL BUSINESS

- GH said that he had been asked the question as to how the mine handled Fatigue management? GH mentioned that the newly installed guards on the Kamlaroi Highway are constantly knocked down. GL explained that the company has a Journey Management Standard and that all employees that travel to and from work must complete a risk assessment to ensure that they are managing their fatigue appropriately prior to leaving work.
- GH referenced how an employee who recently took maternity leave question why this employee was not able to come back to work. GL explained that the reasonings are between the company and employee in question.
- GH asked what effect the Santos Hunter Gas Pipeline would have on Whitehaven’s biodiversity offset areas. DE explained that no biodiversity offsets have been established on the proposed pipeline route corridor. Santos have been in discussions with WHC.
- JS asked about the burns that happened recently and if the mine does any burns onsite. DE explained that the recent back burns had been completed by Forestry as WHC were unable to compete has been done by the forestry. DE no burns onsite. SR, said that the WHC burn did not go ahead as there were too many Bertya Oppens plants which require a strict buffer area.
- SR introduced JS, Manager Community Investments and Partnerships based out of Gunnedah and HD as the sites new Environmental Officer

## 8.0 COMMUNITY

- Presented by JS
- Q1 updates. \$177,000 in the local community. Partnerships.
- Narrabri highlight – partnership with little wings, a service that helps children that are unwell. Helping to bring their services to Narrabri and Gunnedah and joining people who need this service.
- WESTPACK helicopter.
- Narrabri show
- DE mentioned the aboriginal arts end of September and has been booked in this week.
- RS – thanks given for what WHC give to the community of Narrabri.

GL extended an invitation to all CCC Members for a site tour of Narrabri Mine’s surface operations areas prior to the next meeting

No more business – meeting closed at 18:02

MEETING ACTIONS		
Person	Action	Due
SR	Add noise monitoring for the Bow Hills property to the 2023 Annual Review	2023 Annual Review
SR	Send out an invitation to all CCC Members for a tour of the Narrabri Mine	6 July 2023

## NEXT MEETING

13<sup>th</sup> September, 5:15pm in the Narrabri Mine Boardroom

**Narrabri Mine Community Consultative Committee Meeting #60****Environmental Monitoring Report: January - March 2023****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**

- Management Plan review and submission continuing.

## Deposited Dust Monitoring

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

2023 annual average (year to date) for all monitoring locations is below the annual average licence limit of 4 g/m<sup>2</sup>/month (Insoluble Matter).

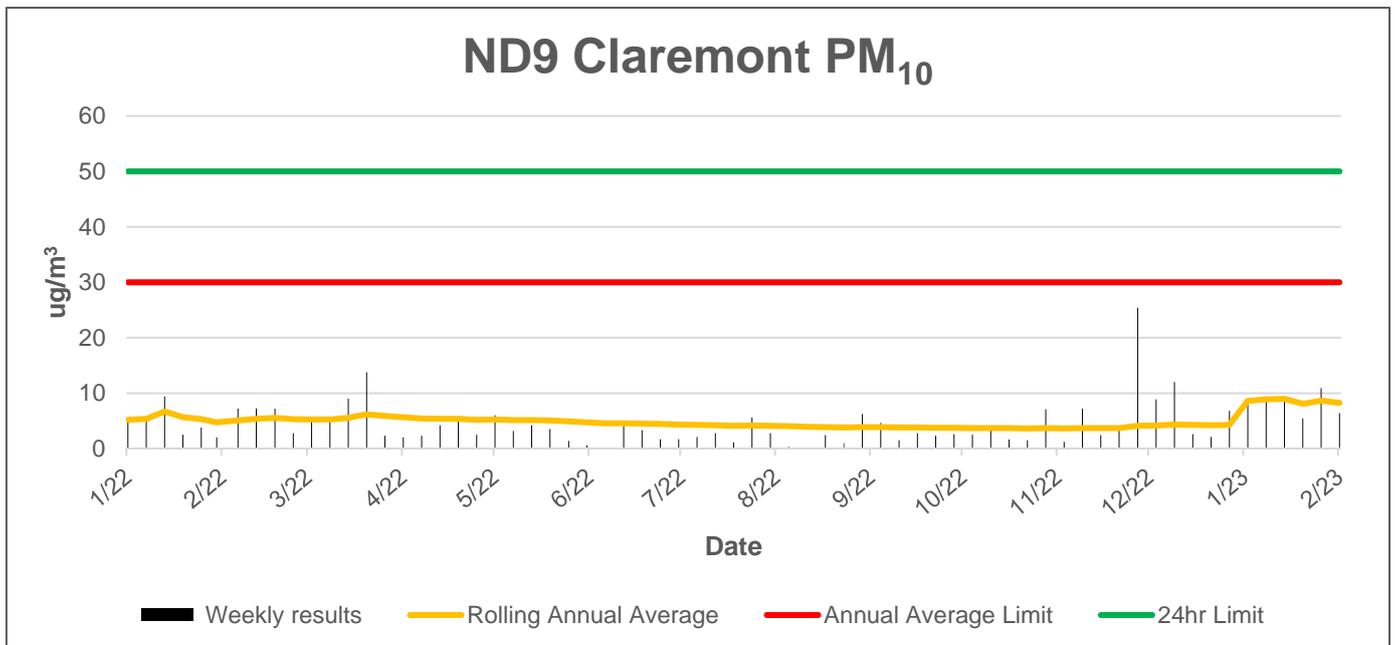
**Table 1: 2023 (CY) Total Insoluble Matter Results**

Total Insoluble Matter results (g/m <sup>2</sup> /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-2023	1.3	0.5	0.3	0.6	3.7	1.6	2.5	2.2	2.1	0.5	0.5	
FEB-2023	1.9	1.3	0.2	1.2	3.0	1.6	1.3	0.6	1.1	2.3	1.8	
MAR-2023*												
Annual Average	1.6	0.9	0.3	0.9	3.4	1.6	1.9	1.4	1.6	1.4	1.2	

\*Due to be collected and sent to ALS Newcastle 09/03/2023

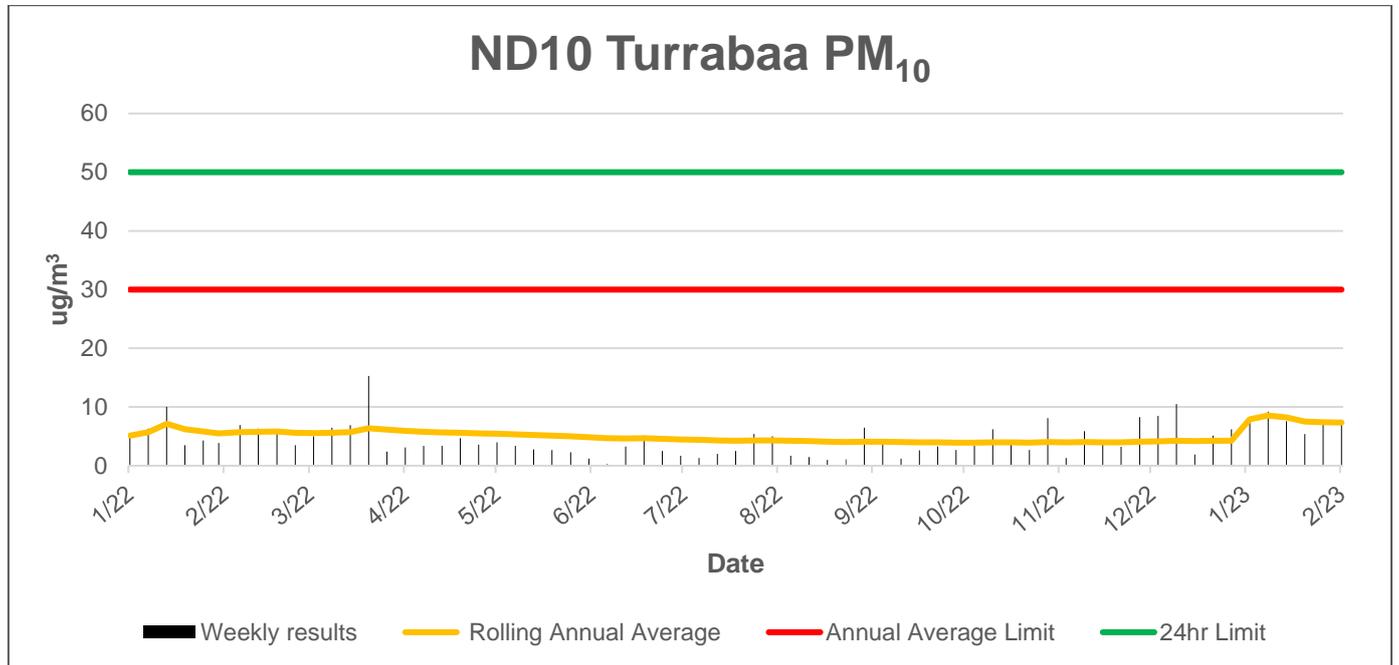
## PM<sub>10</sub> High Volume Air Sampling (HVAS)

Samples are collected over a 24-hour period once every 6 days, with a (24hr) compliance limit of 50 µg/m<sup>3</sup>, and an annual average limit of 30 µg/m<sup>3</sup>.



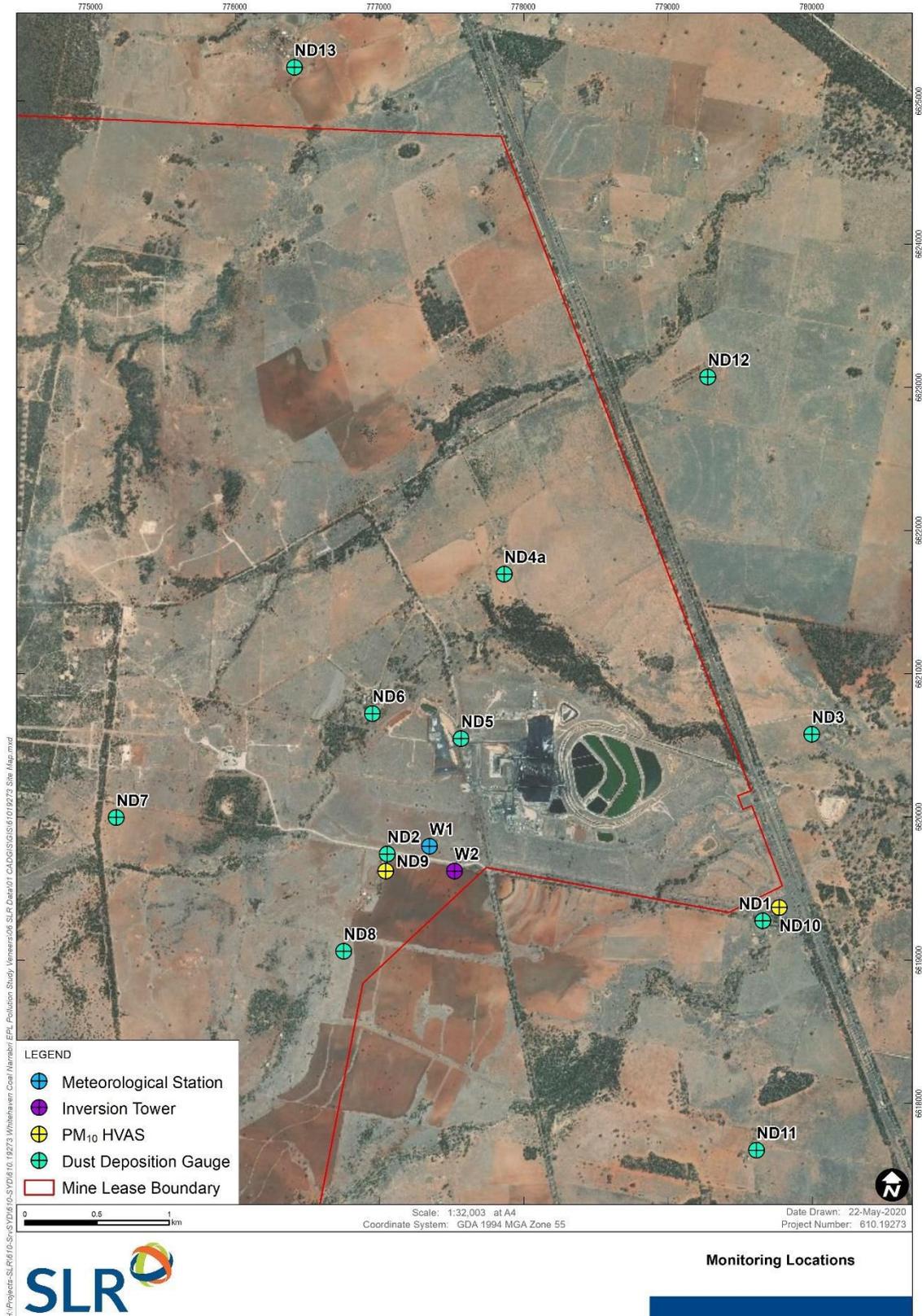
**Figure 1: Claremont PM<sub>10</sub> High Volume Air Sampler results for last 12-month period.**

The Claremont HVAS (*Figure 1*) 2023 rolling annual average is 8.27  $\mu\text{g}/\text{m}^3$ , 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*) 2023 rolling annual average is 7.35  $\mu\text{g}/\text{m}^3$ , 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 4 attended noise monitoring was conducted from the 21<sup>st</sup> – 24<sup>th</sup> of November and results are presented below. Compliance was achieved at all locations.

2023 (CY) Quarter 1 attended noise monitoring is scheduled for March.

**Table 1 Performance Assessment – Operations**

EPL ID	Location	Date	Narrabri Mine Contribution dBA				Noise Criteria <sup>1</sup>	Measurement Periods	Standard Weather <sup>3</sup>			Compliant		
			L <sub>Aeq</sub> 15 min Day	L <sub>Aeq</sub> 15 min Evening	L <sub>Aeq</sub> 15 min Night	LA1 (1 min) Night			Day	Evening	Night			
N5	Oakleigh <sup>2</sup>	21/11/2022 <sup>4</sup>	I/A	28	I/A	I/A	Day, Evening and Night – L <sub>Aeq</sub> (15minute) 35 dBA  Night LA1(1minute) – 45 dBA	Day - 1.5 hrs Evening - 0.5 hrs Night – 1hrs	Y	Y	N	Y		
		22/11/2022 <sup>4</sup>	I/A	28	26	35			Y	Y	N	Y		
		23/11/2022 <sup>4</sup>	I/A	26	<25	25			Y	N	Y	Y		
N6	Newhaven	22/11/2022	N/M	28	33	44		Day, Evening and Night – L <sub>Aeq</sub> (15minute) 35 dBA  Night LA1(1minute) – 45 dBA	Day - 1.5 hrs Evening - 0.5 hrs Night – 1hrs	Y	Y	Y	Y	
		23/11/2022	N/M	31	34	41				Y	N	Y	Y	
		24/11/2022	I/A	31	32	41				Y	N	N	Y	
N8	Haylin View <sup>2</sup>	22/11/2022	N/M	I/A	I/A	I/A			Day, Evening and Night – L <sub>Aeq</sub> (15minute) 35 dBA  Night LA1(1minute) – 45 dBA	Day - 1.5 hrs Evening - 0.5 hrs Night – 1hrs	Y	Y	N	Y
		23/11/2022	N/M	28	N/M	N/M					Y	N	N	Y
		24/11/2022	N/M	30	I/A	I/A					Y	N	Y	Y
N9	High Range <sup>2</sup>	21/11/2022 <sup>4</sup>	28	26	29	39	Day, Evening and Night – L <sub>Aeq</sub> (15minute) 35 dBA  Night LA1(1minute) – 45 dBA			Day - 1.5 hrs Evening - 0.5 hrs Night – 1hrs	Y	Y	N	Y
		22/11/2022 <sup>4</sup>	N.M	25	25	28					Y	Y	Y	Y
		23/11/2022 <sup>4</sup>	29	N/M	26	30					Y	Y	Y	Y
-	Bow Hills <sup>1</sup>	23/11/2022 <sup>4</sup>	I/A	38	33	41		Day 15 min Evening 15 min Night 15 min		Y	N	N	Y	
-	Ardmona	22/11/2022	I/A	34	29	33				Y	N	N	Y	
-	Merriman <sup>2</sup>	22/11/2022	I/A	I/A	N/M	N/M				Y	N	N	Y	
-	Matilda <sup>2</sup>	23/11/2022	I/A	I/A	I/A	I/A			Y	N	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 L<sub>Aeq</sub>(15minute) is in place. This new level of 50 dBA L<sub>Aeq</sub>(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.

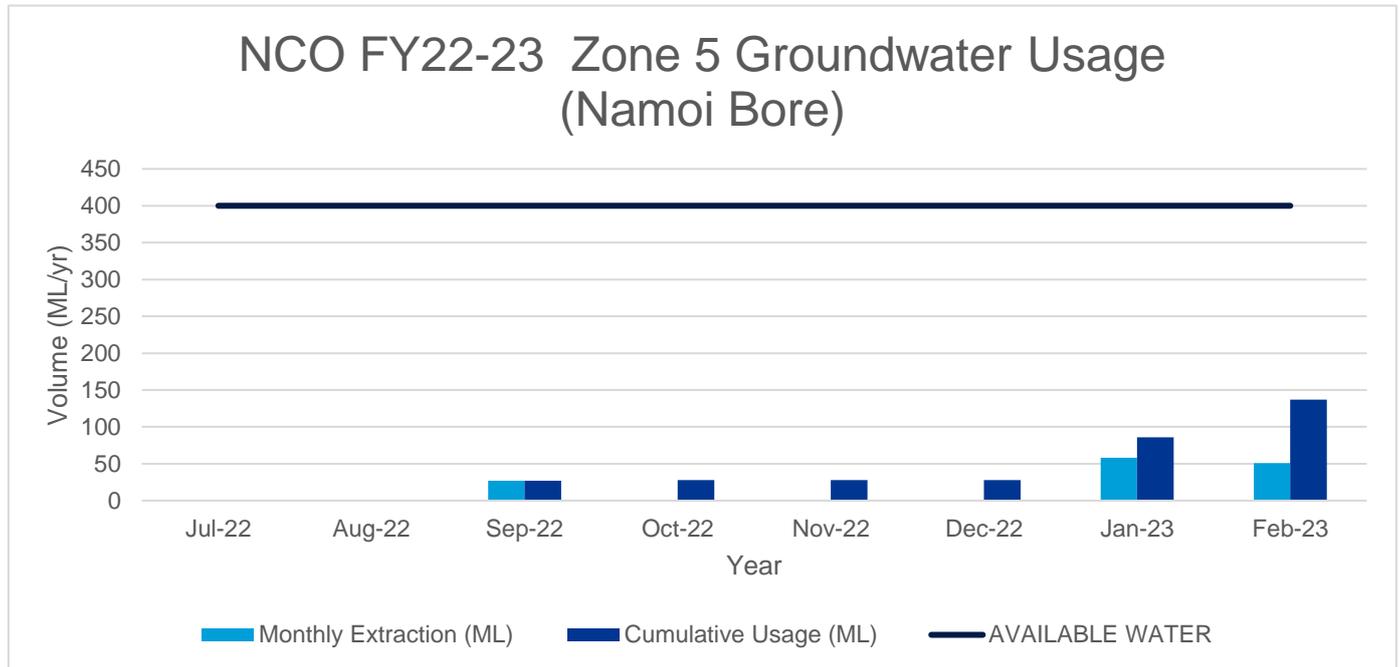
**Narrabri Coal Operations Pty Ltd** ABN 76 107 813 963

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

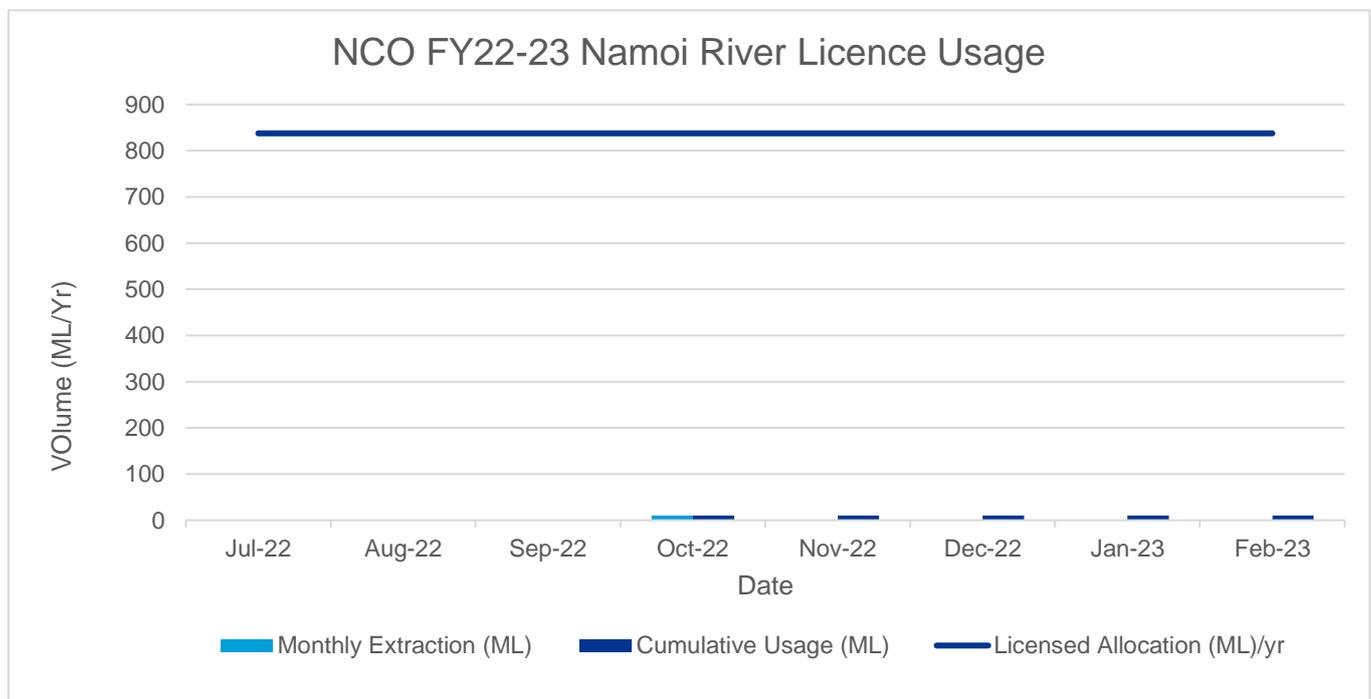
### Surface Water Monitoring

No surface water discharge events occurred during the reporting 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. The Annual Review is due for submission to NSW DPE 31 March 2023.

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 – first draft due March 2023 (rescheduled from 31 January 2023).

## Subsidence Monitoring

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

Longwall Panels (LW)		
	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 9/11/2022) (LW109-109)		

<b>Longwall Panels (LW)</b>		
	Maximum Predicted Extraction Plan	Maximum Measured
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
<b>Line I – Cross Panel Survey Line (measured 10/10/2022)</b>		
Subsidence (m)	2.75	1.53
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

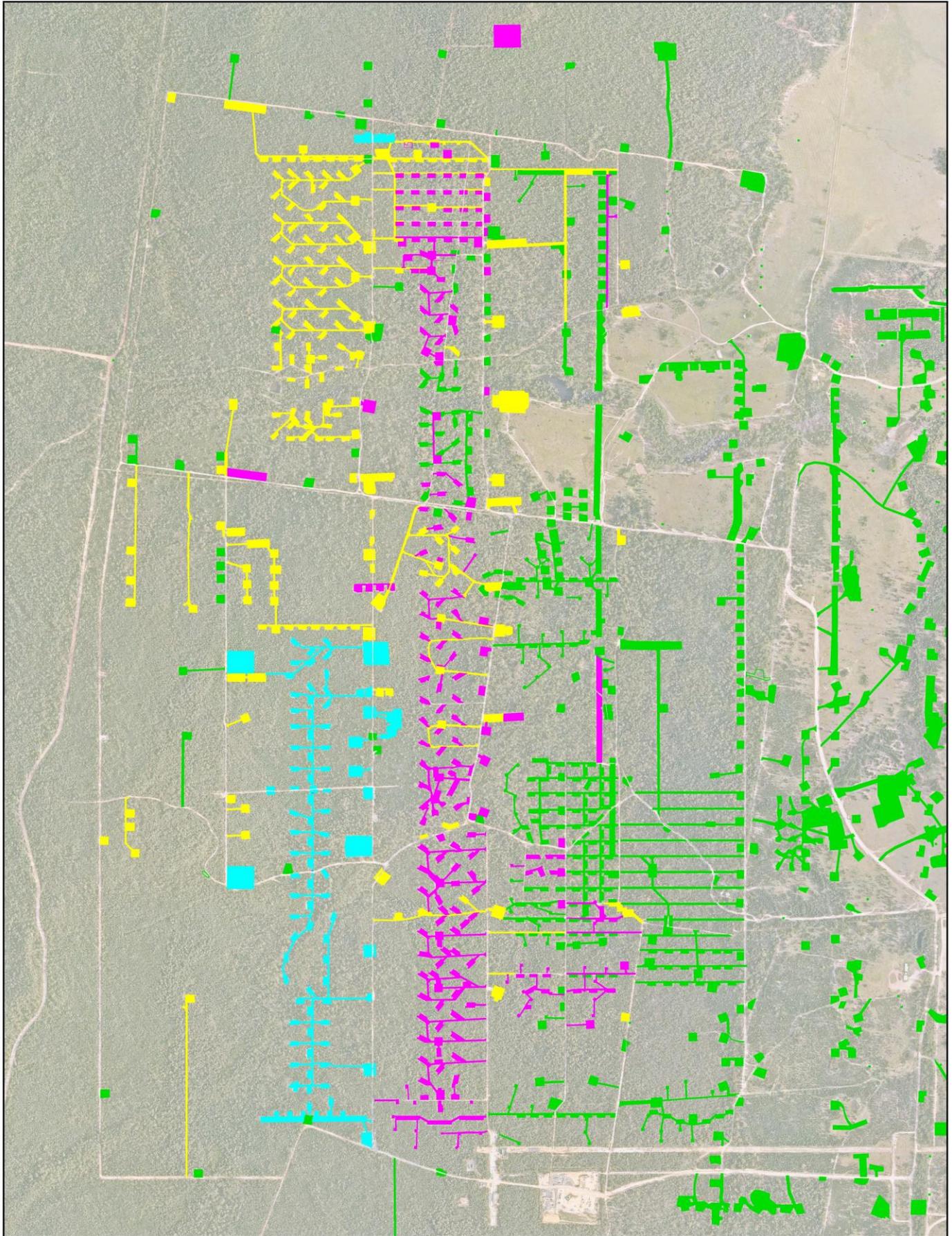
Mining Operations Plan (MOP) has been replaced with the new Rehabilitation Management Plan (RMP) in accordance with the NSW Mining Regulation 2016. The RMP is available on the Narrabri Mine website.

**Table 2:** Narrabri Coal Operations 2022 (CY) Rehabilitation Works as of 31 December 2022

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

**Table 3:** Narrabri Coal Operations 2023 (CY) Rehabilitation Works as of 28/2/2023

Rehabilitation Status	Completed (ha)	Target (ha) end of CY23
Landform establishment	0	13.5
Ecosystem establishment	0	13.5



- Completed Rehab Area Prior 2022
- Area under Rehab 2022 = 27.0ha
- Completed Rehab Area 2022 = 20.0ha
- Rehab Area being Prepared 2023 = 12.0haha

	By	Date:
Drafted:	A.Taylor	28/02/23
Edited:		
Approved:		
Scale:		

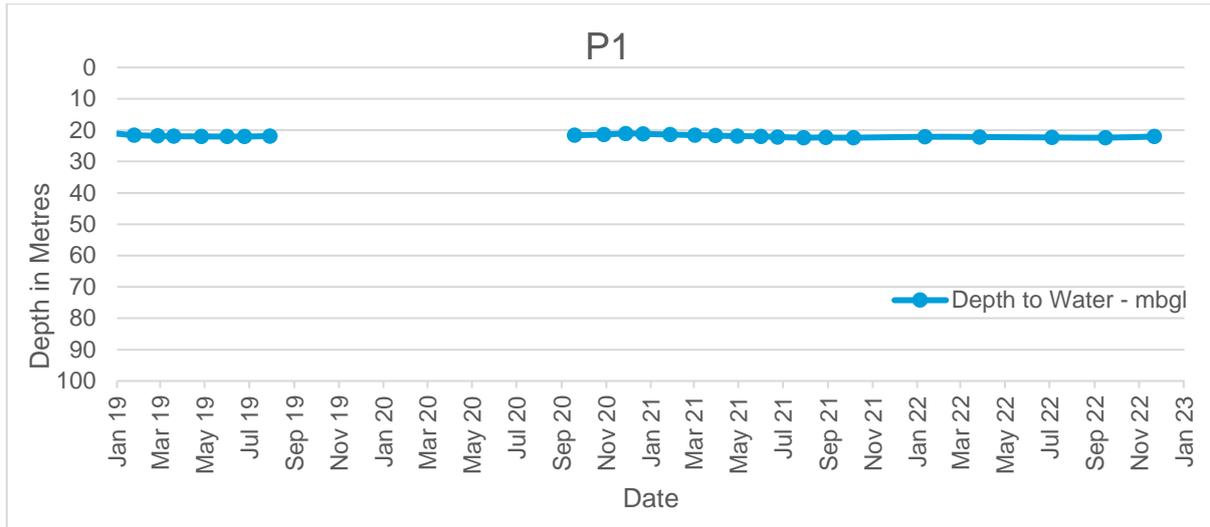
**Rehabbed Areas  
2022**

Plan No: Rehabbed Areas Jan2022\_Dec2022

## Hydrographs for Groundwater Monitoring Wells



**Figure 7:** Location of groundwater monitoring wells



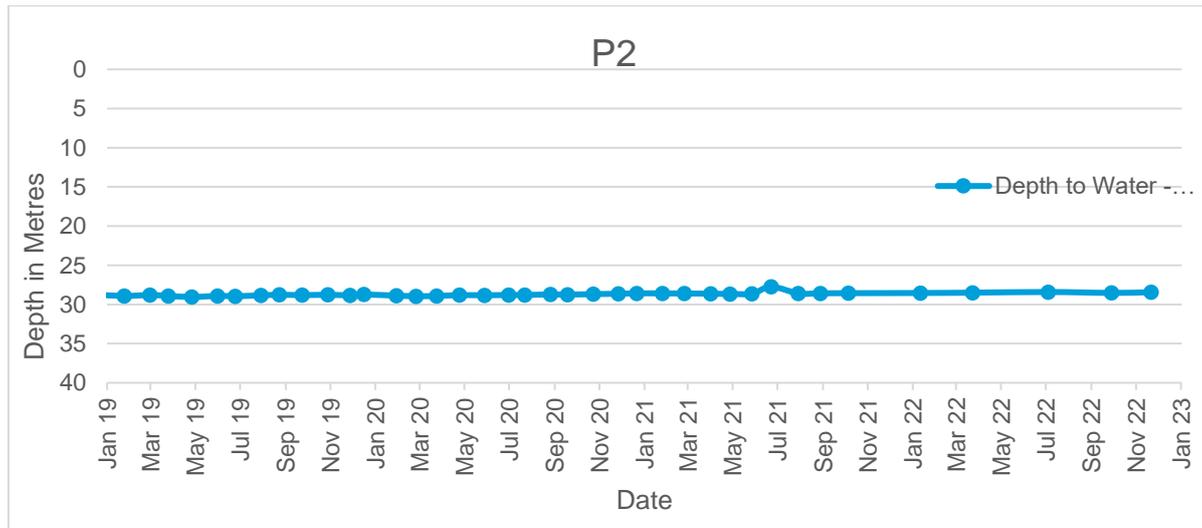
**NCO Monitoring bore ID:** P1

**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.

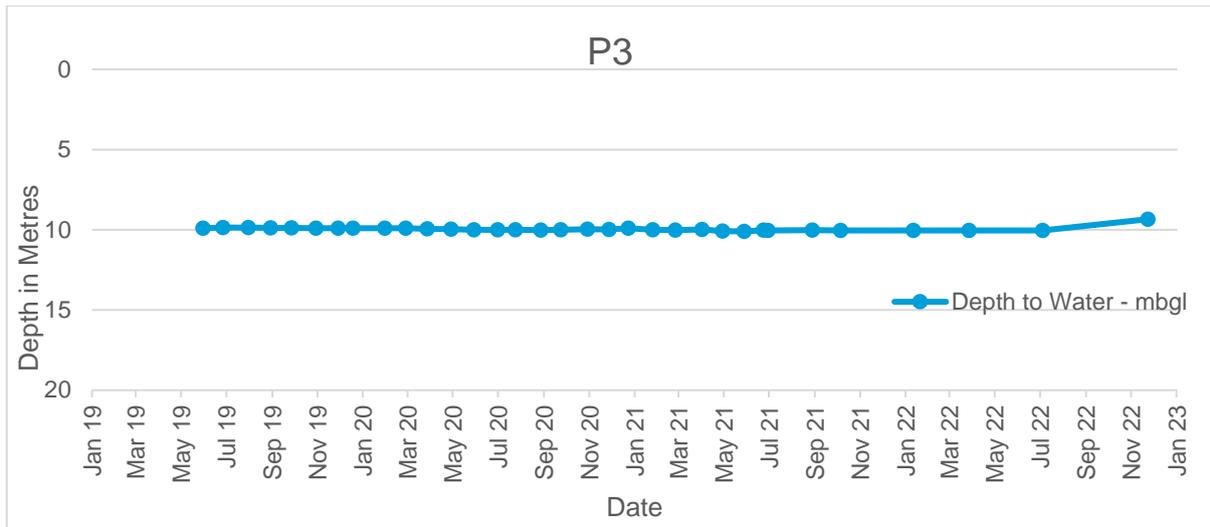


**NCO Monitoring bore ID:** P2

**Location:** Matilda

**Geological unit:** Napperby Formation

**Bore depth:** 50m



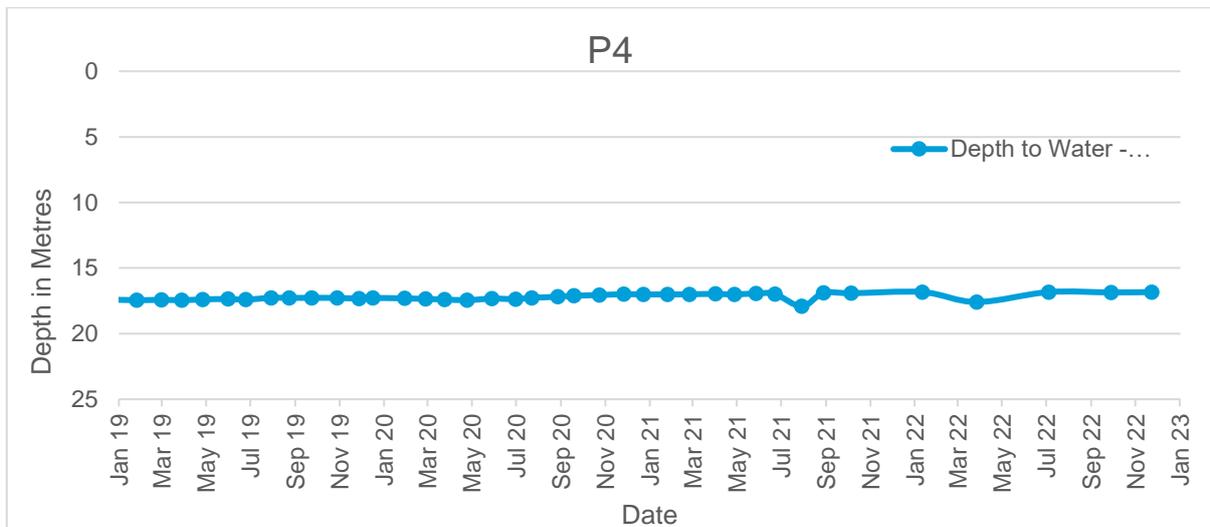
**NCO Monitoring bore ID:** P3

**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.

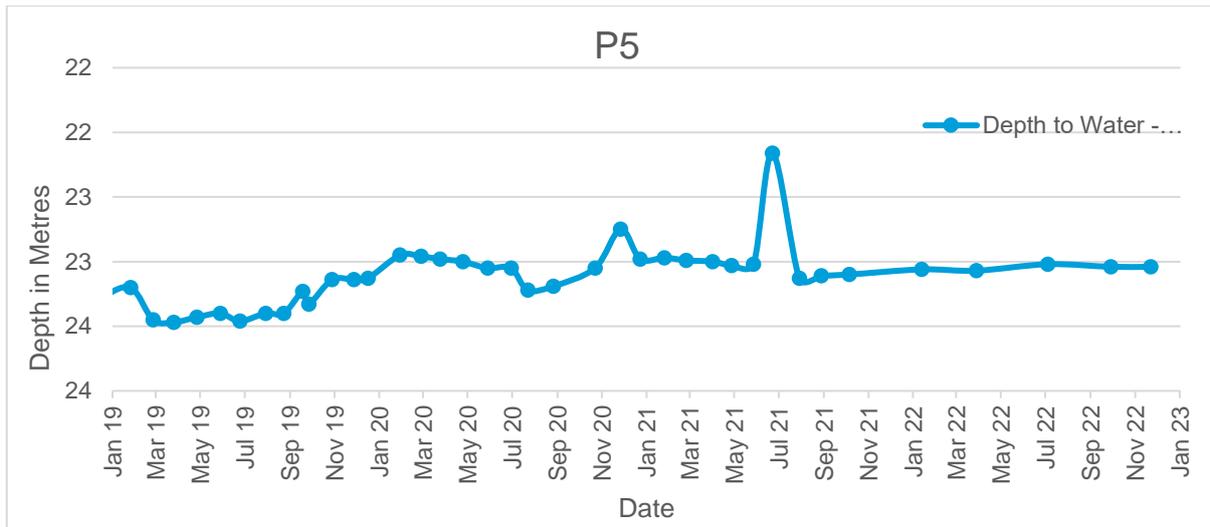


**NCO Monitoring bore ID:** P4

**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*

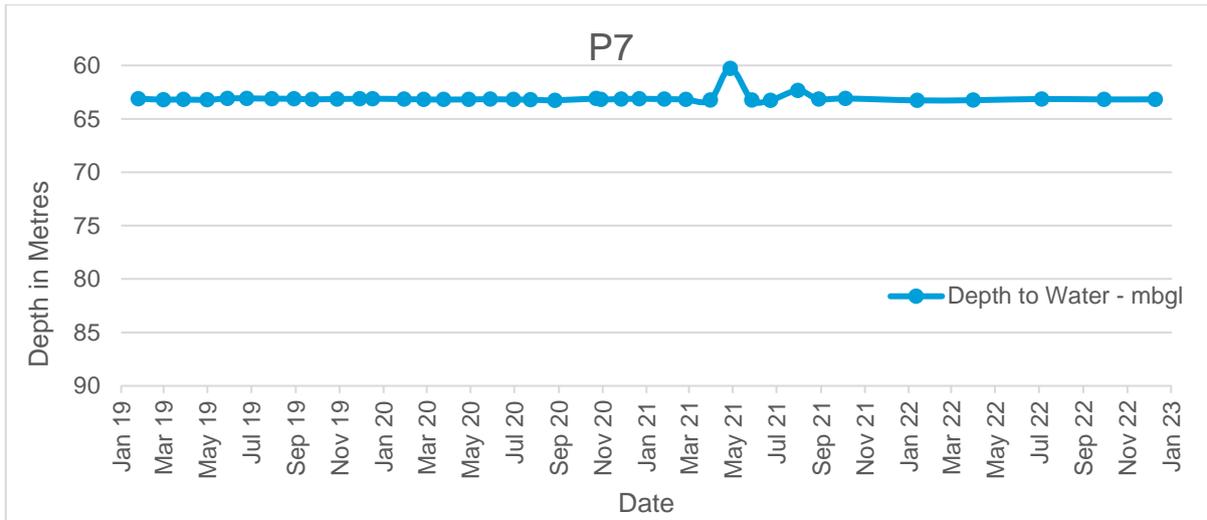
**NCO Monitoring bore ID:** P6

**Location:** shown on Figure 10

**Geological unit:** Pilliga sandstone

**Bore depth:** 90m

**Explanation:** Dry since 2012

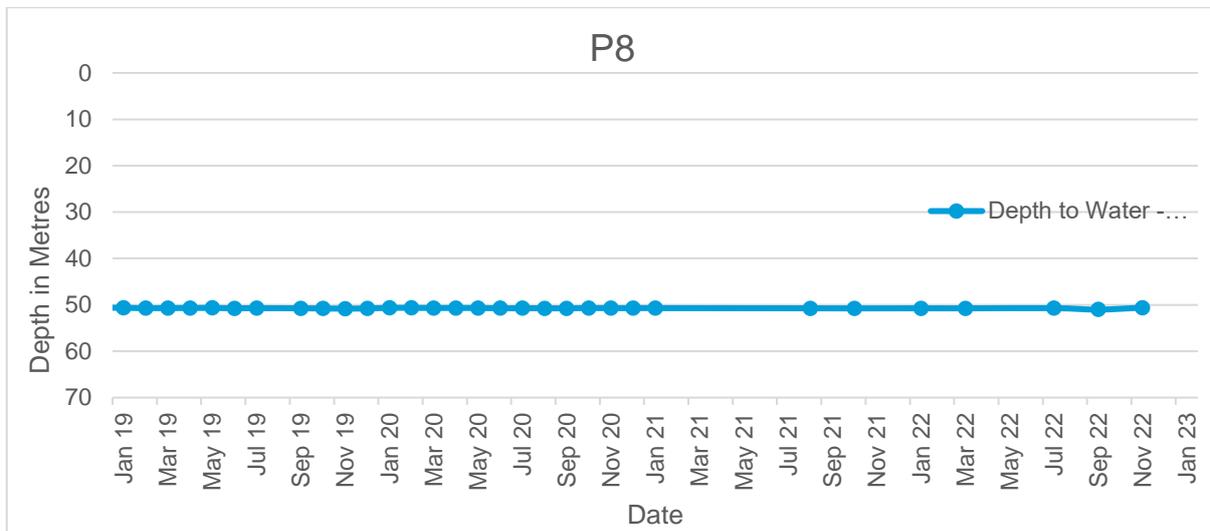


**NCO Monitoring bore ID: P7**

**Location:** State forest

**Geological unit:** Pilliga sandstone

**Bore depth:** 90m

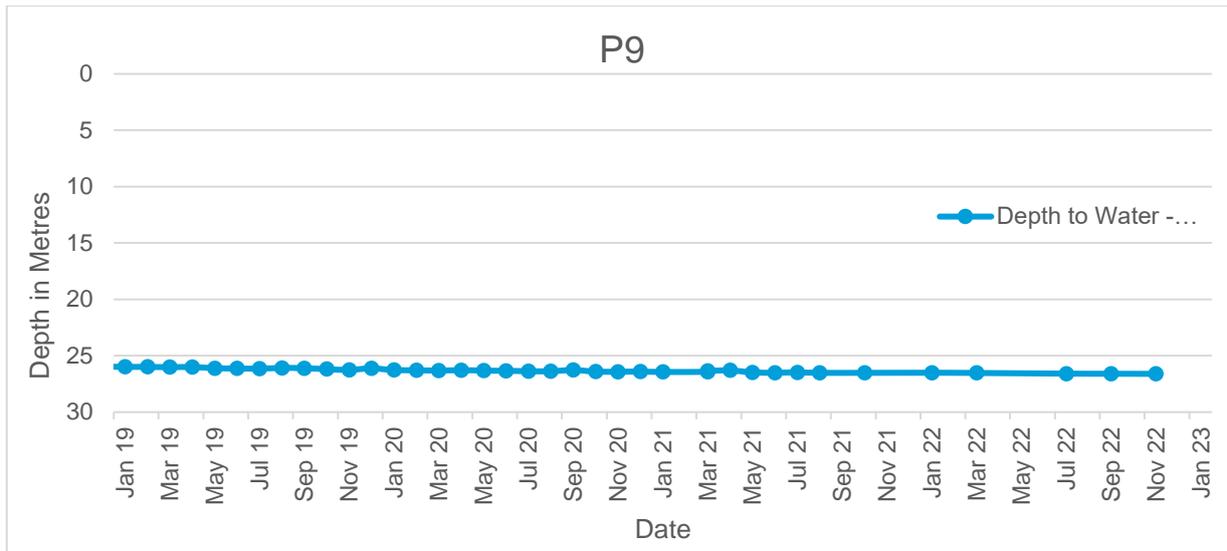


**NCO Monitoring bore ID: P8**

**Location:** Kurrajong

**Geological unit:** Purlawaugh Formation

**Bore depth:** 65m

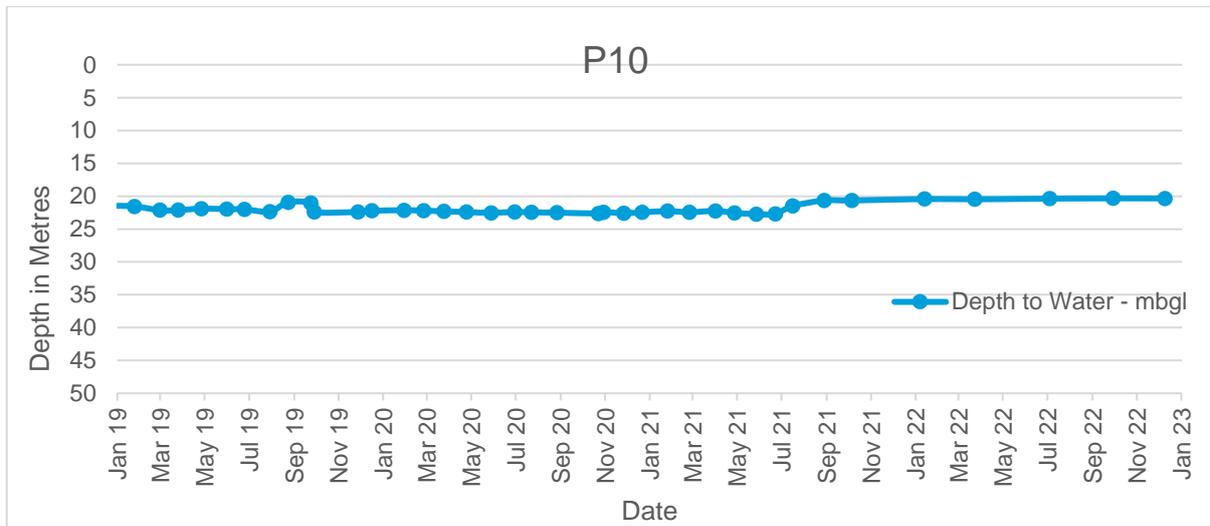


**NCO Monitoring bore ID: P9**

**Location:** NCO – Figure 10

**Geological unit:** Purlawaugh Formation

**Bore depth:** 30m

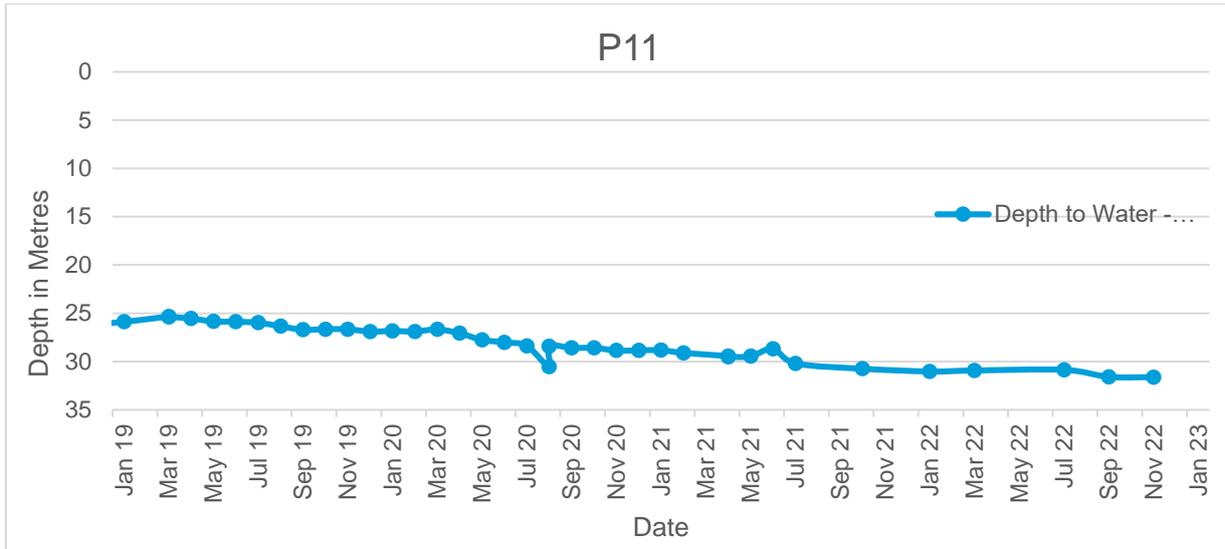


**NCO Monitoring bore ID: P10**

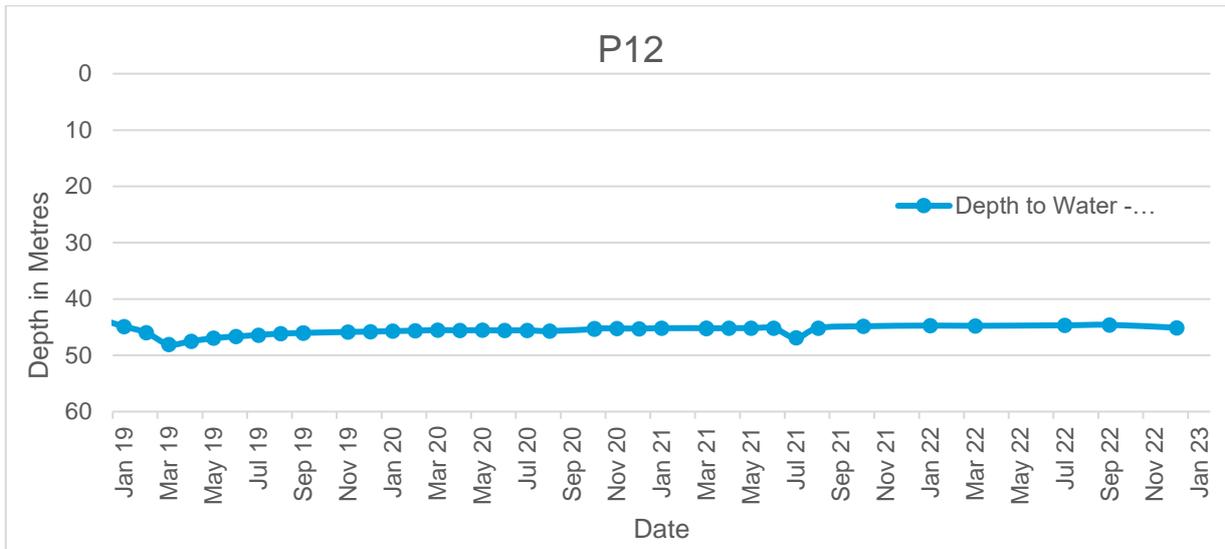
**Location:** NCO – see figure 10

**Geological unit:** Napperby Formation

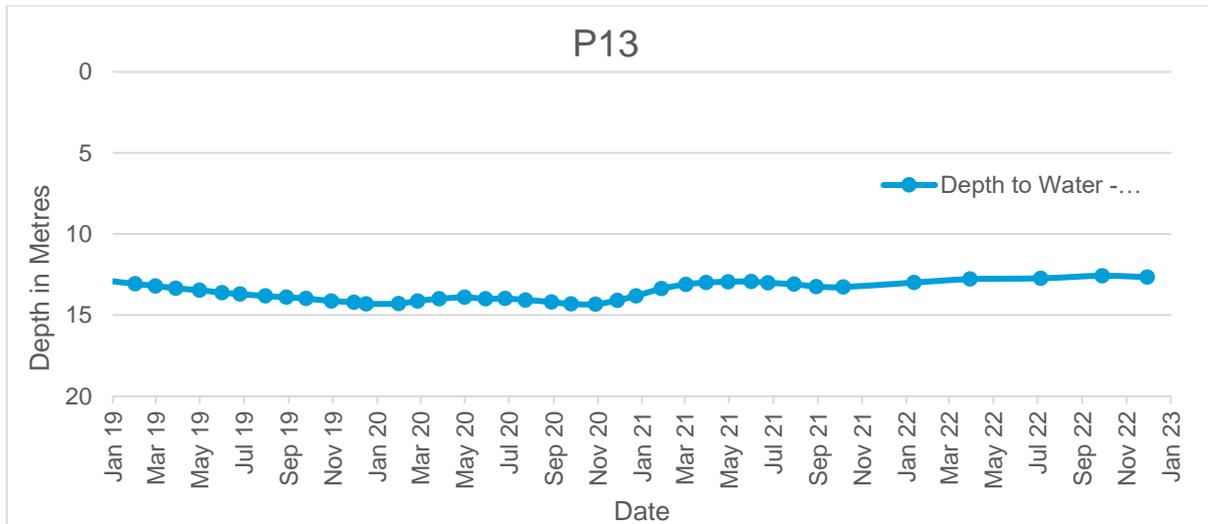
**Bore depth:** 130m



**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**

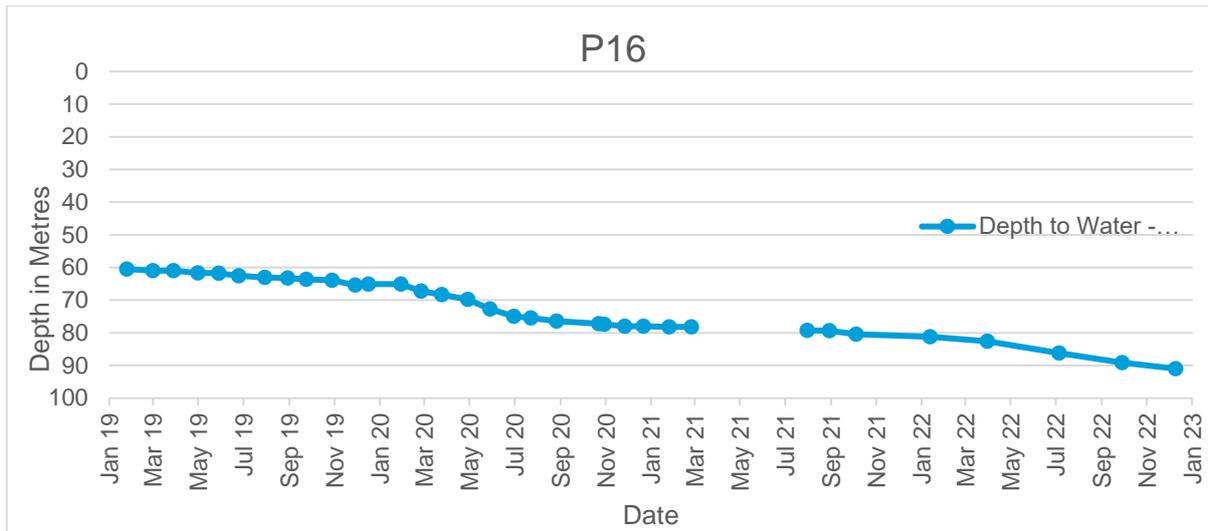
**NCO Monitoring bore ID:** P15

**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*

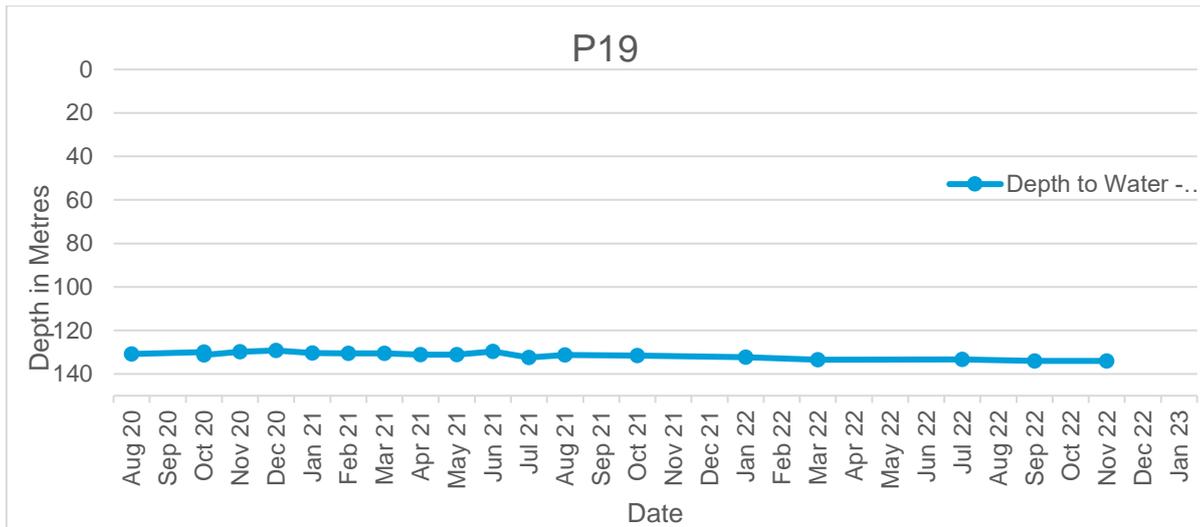
**NCO Monitoring bore ID:** P18

**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*

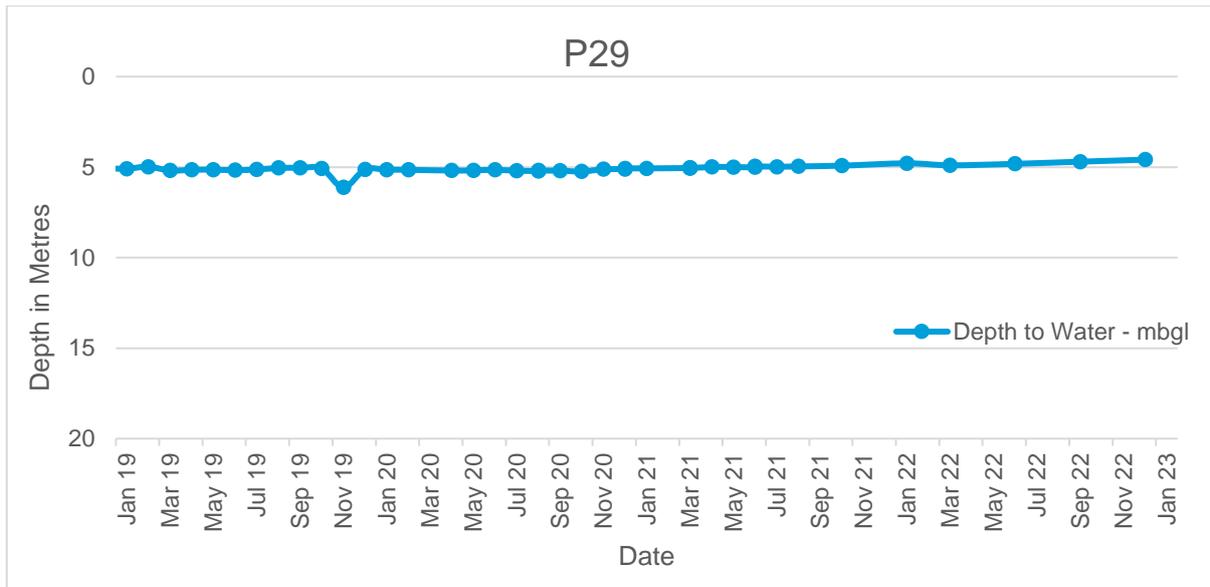
**NCO Monitoring bore ID:** P28

**Location:** See figure10

**Geological unit:** Napperby Formation (above sill)

**Bore depth:** 25m

**Explanation:** Dry since 2012

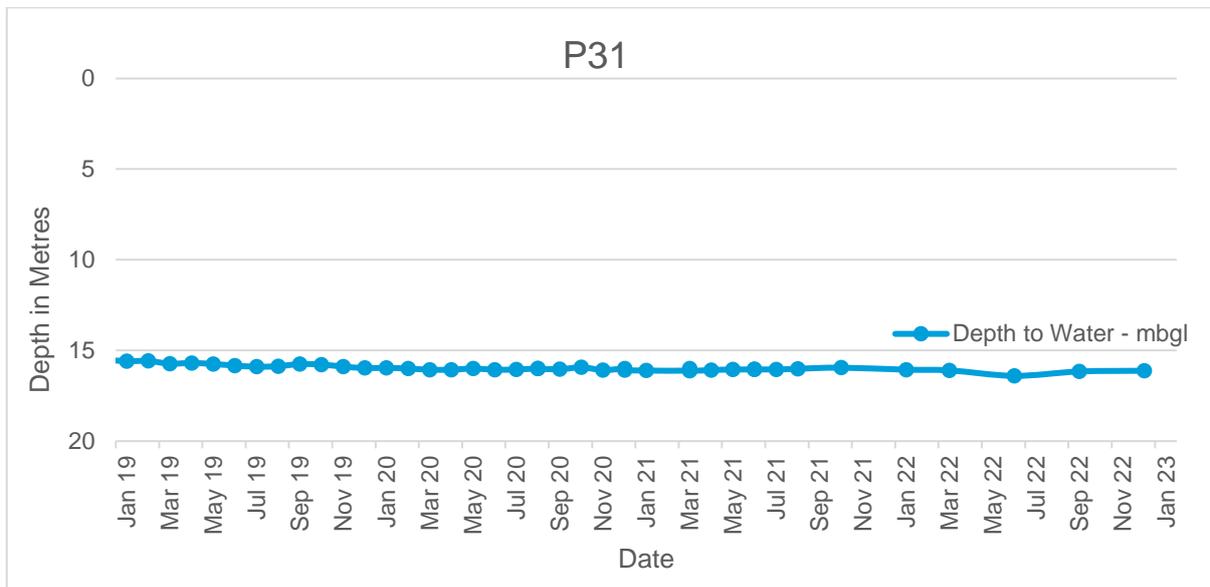


**NCO Monitoring bore ID:** P29

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

**Geological unit:** Napperby Formation (above sill).

**Bore depth:** 25m

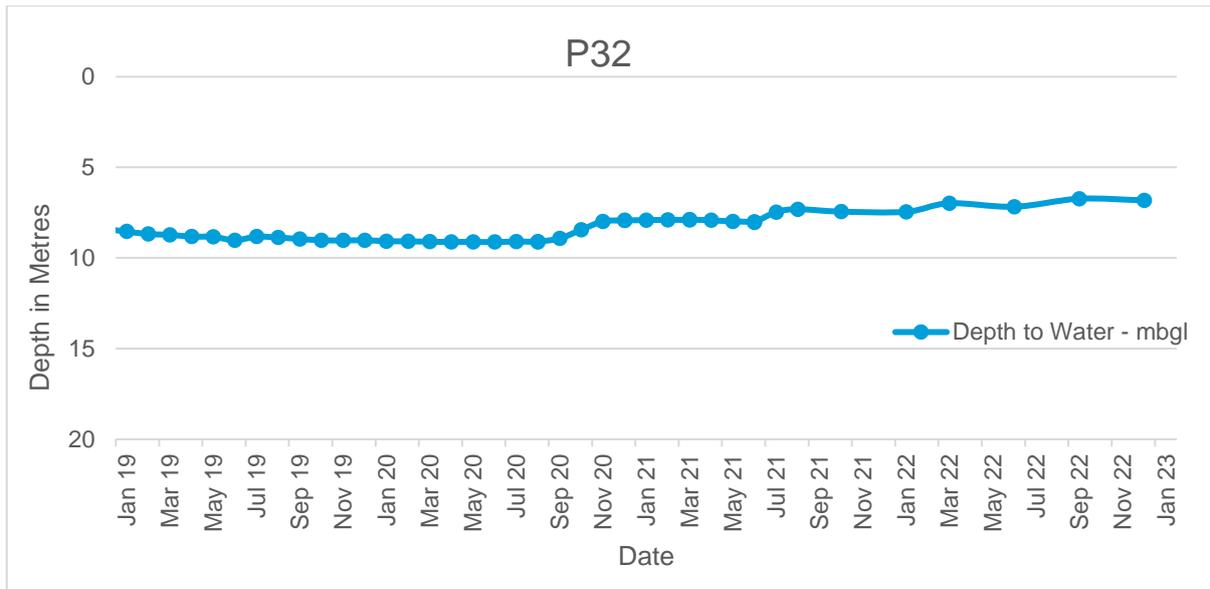


**NCO Monitoring bore ID:** P31

**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

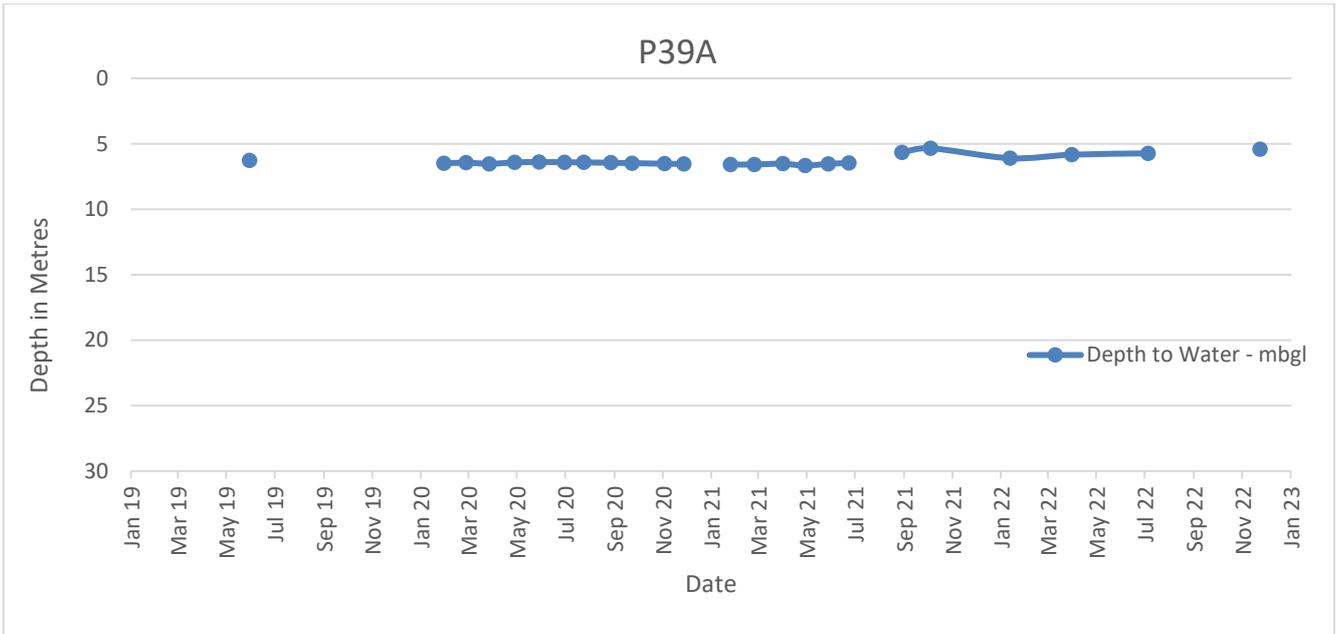
**NCO Monitoring bore ID: P24**

**Location:** See figure 6

**Geological unit:** Napperby Formation (above sill)

**Bore depth:** 15m

**Explanation:** Dry since 2012



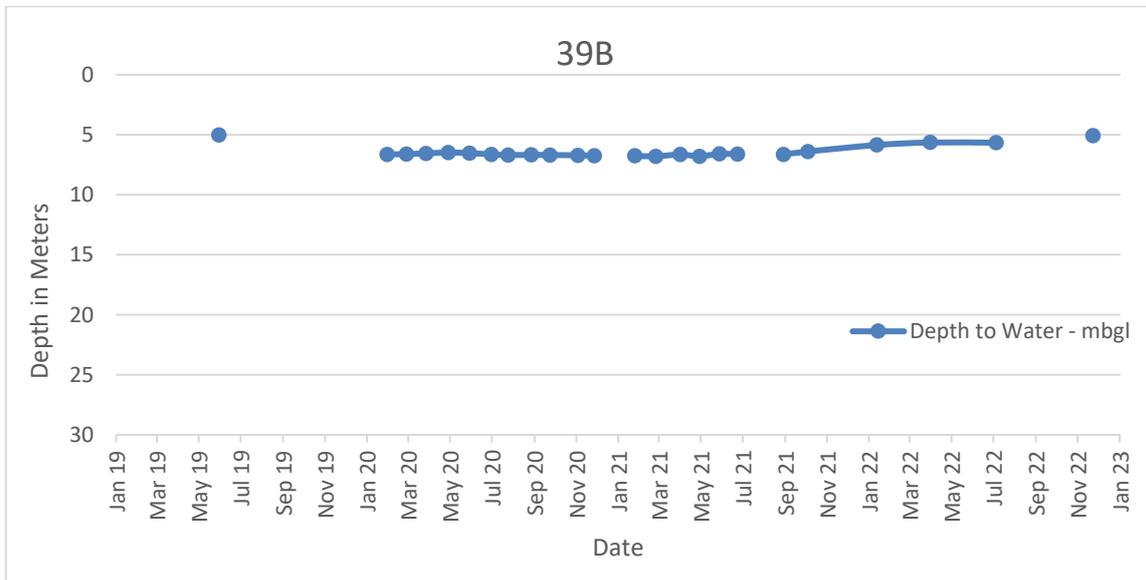
**NCO Monitoring bore ID:** P39A

**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, and wet weather.



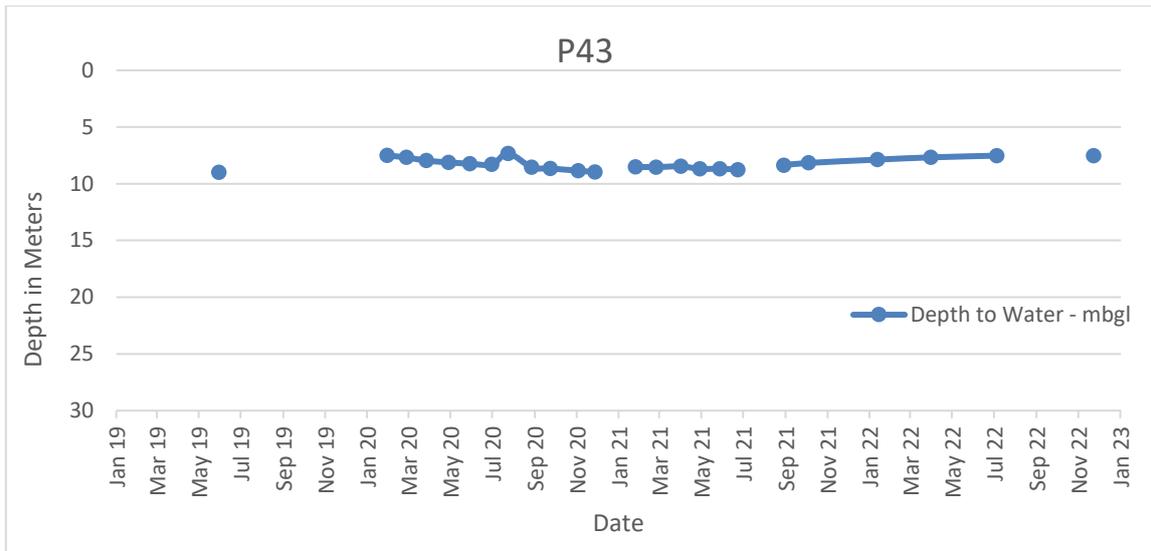
**NCO Monitoring bore ID:** P39B

**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, and wet weather



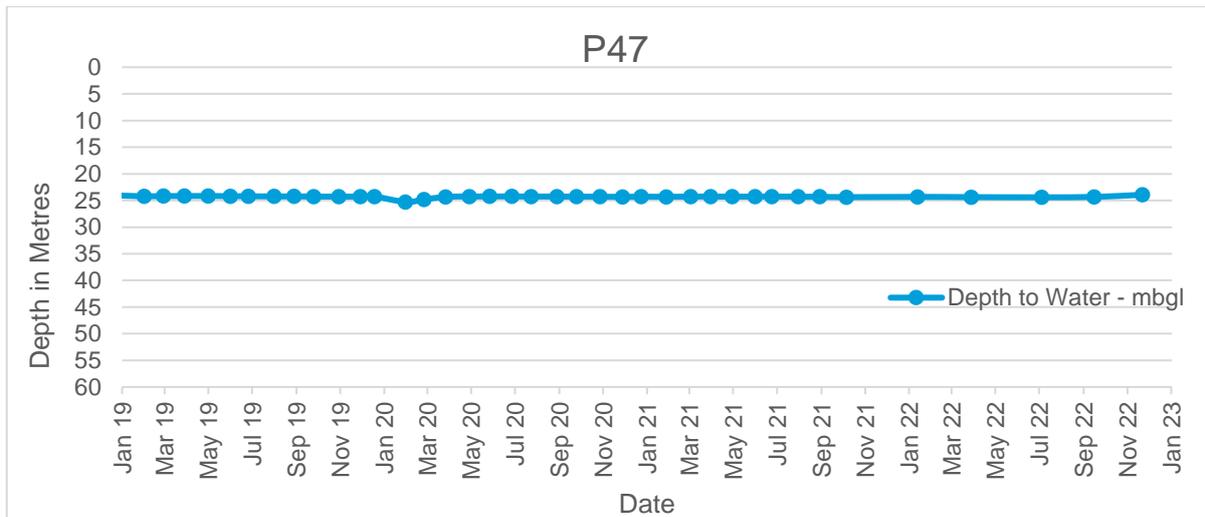
**NCO Monitoring bore ID:** P43

**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 and wet weather

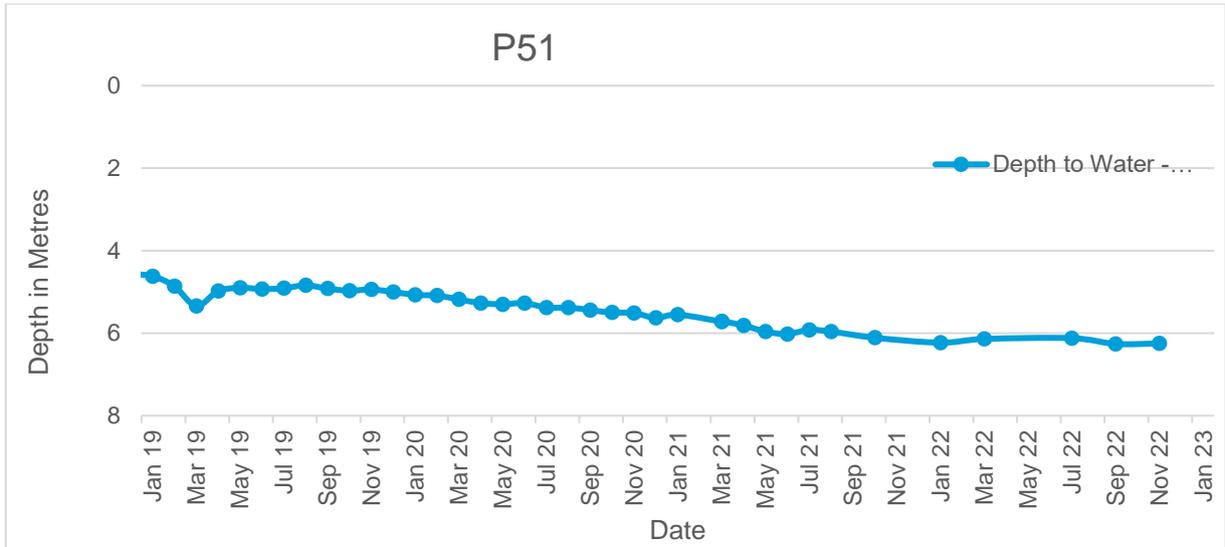


**NCO Monitoring bore ID:** P47

**Location:** NCO – see figure 10

**Geological unit:** Garrawilla Volcanics

**Bore Depth (m):** 31m

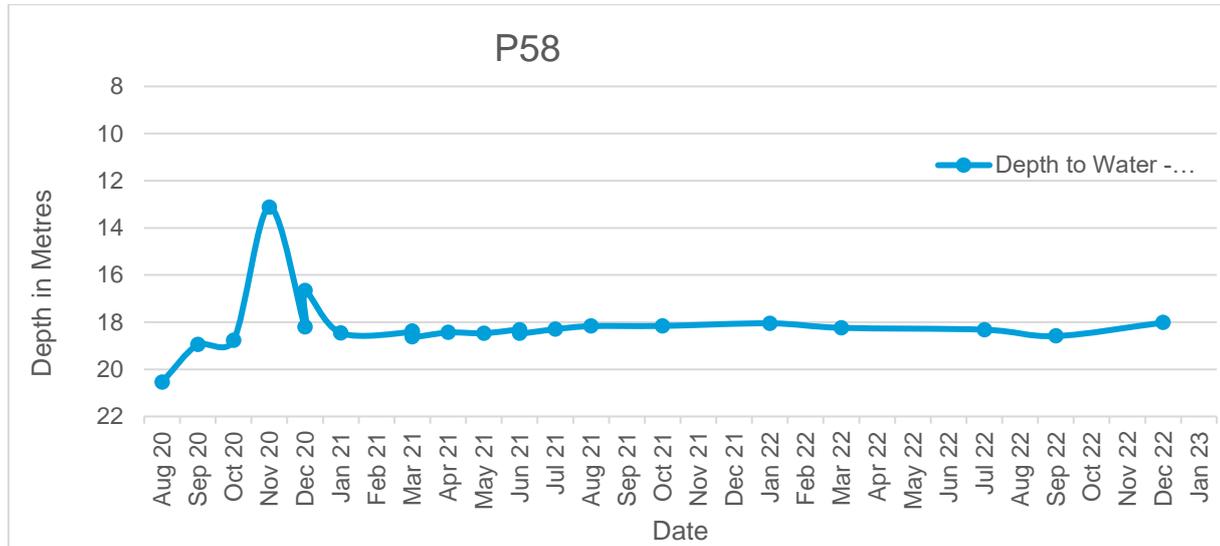


**NCO Monitoring bore ID:** P51

**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 #61****Environmental Monitoring Report: April - June 2023****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**

- To be presented by David Ellwood

## Deposited Dust Monitoring

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

2023 annual average (year to date) for all monitoring locations is below the annual average licence limit of 4 g/m<sup>2</sup>/month (Insoluble Matter).

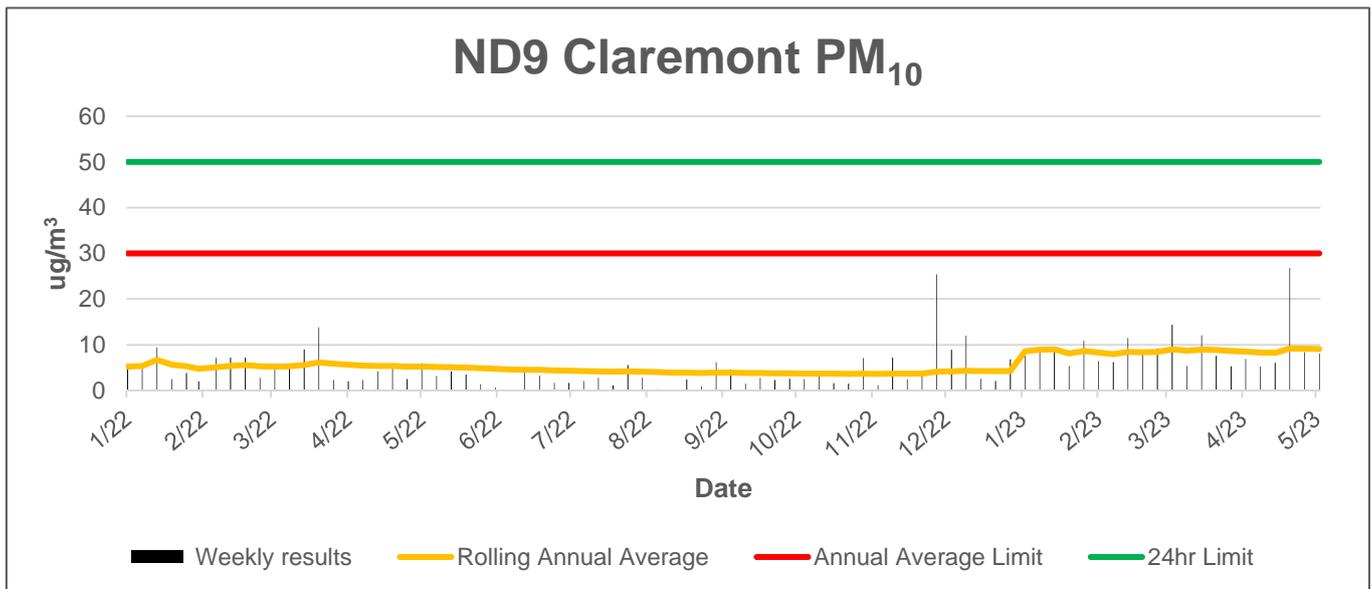
**Table 1: 2023 (CY) Total Insoluble Matter Results**

Total Insoluble Matter results (g/m <sup>2</sup> /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 Darjeeling	
<b>MARCH-2023</b>	0.6	0.3	0.3	0.4	1.4	1.2	0.8	0.3	2.1	0.4	1.6	
<b>APRIL-2023</b>	0.5	8.6	0.7	5.4	4.2	4	1.4	0.3	1	0.4	2.5	
<b>MAY-2023</b>	0.4	0.6	0.6	1.2	2.8	1.8	1.2	0.5	1.8	0.4	0.2	
<b>*JUNE-2023*</b>												
<b>Annual Average</b>	<b>0.9</b>	<b>2.3</b>	<b>0.4</b>	<b>1.8</b>	<b>3.0</b>	<b>2.0</b>	<b>1.4</b>	<b>0.8</b>	<b>1.6</b>	<b>0.8</b>	<b>1.3</b>	

\*Due to be collected and sent to ALS Newcastle 13/06/2023

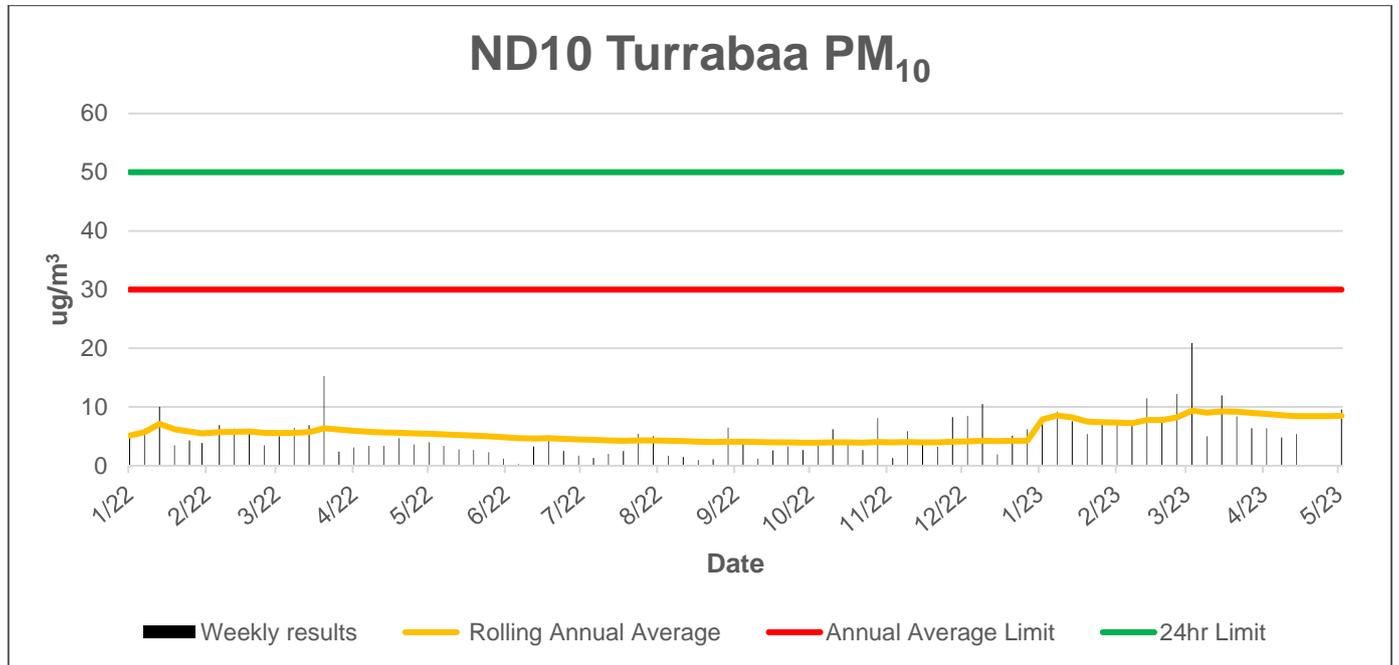
## PM<sub>10</sub> High Volume Air Sampling (HVAS)

Samples are collected over a 24-hour period once every 6 days, with a (24hr) compliance limit of 50 µg/m<sup>3</sup>, and an annual average limit of 30 µg/m<sup>3</sup>.



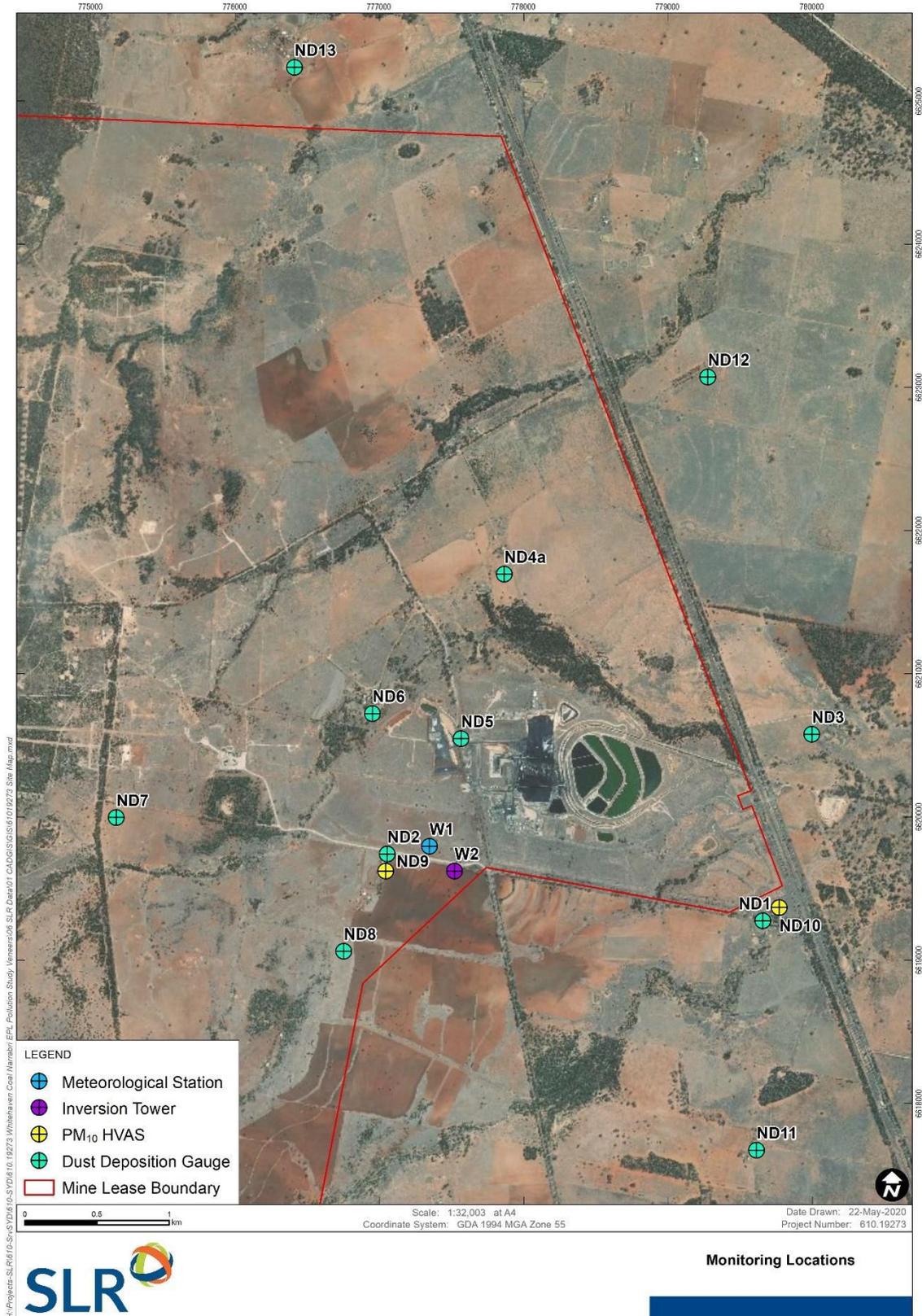
**Figure 1: Claremont PM<sub>10</sub> High Volume Air Sampler results for last 12-month period.**

The Claremont HVAS (*Figure 1*) 2023 rolling annual average is 9.09  $\mu\text{g}/\text{m}^3$ , 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*) 2023 rolling annual average is 8.48  $\mu\text{g}/\text{m}^3$ , 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

2023 (CY) Quarter 1 attended noise monitoring was conducted from the 27/03/2023 to 30/03/2023 and results are presented below. Compliance was achieved at all locations. 2023 (CY) Quarter 2 attended noise monitoring is scheduled for June.

**Table 1 Performance Assessment – Operations**

EPL ID	Location	Date	Narrabri Mine Contribution dBA				Noise Criteria <sup>1</sup>	Measurement Periods	Standard Weather			Compliant	
			LAeq 15 min Day	LAeq 15 min Evening	LAeq 15 min Night	LA1 (1 min) Night			Day	Evening	Night		
N5	Oakleigh <sup>2</sup>	27/3/2023 <sup>3</sup>	32 <sup>4</sup>	26	28	34	Day, Evening and Night – LAeq(15minute) 35 dBA  Night LA1(1minute) – 45 dBA	Day - 1.5 hrs	Y	Y	Y	Y	
		28/3/2023 <sup>3</sup>	N/M	I/A	I/A	I/A			Evening - 0.5 hrs	Y	Y	Y	Y
		29/3/2023 <sup>3</sup>	I/A	35	33	39				Y	Y	Y	Y
N6	Newhaven	27/3/2023	I/A	I/A	27	30		Night		Night – 1hrs	Y	Y	Y
		28/3/2023	I/A	25	N/M	N/M			Y		Y	Y	Y
		29/3/2023	N/M	30	33	40			Y		Y	Y	Y
N8	Haylin View <sup>2</sup>	28/3/2023	39 <sup>4</sup>	32	27	30		Night	Night – 1hrs	Y	N	Y	Y
		29/3/2023	33	32	33	38				N	Y	Y	Y
		30/3/2023	I/A	I/A	I/A	I/A				N	N	N	Y
N9	High Range <sup>2</sup>	28/3/2023	I/A	32	I/A	I/A	Night	Night – 1hrs	Y	Y	Y	Y	
		29/3/2023	I/A	34	29	34			Y	Y	Y	Y	
		30/3/2023	26	25	I/A	I/A			Y	N	Y	Y	
-	Bow Hills <sup>1</sup>	27/3/2023 <sup>3</sup>	I/A	I/A	I/A	I/A	Day 15 min Evening 15 min Night 15 min	N	Y	Y	Y		
-	Ardmona	30/3/2023	27	N/M	25	29		Y	N	N	Y		
-	Merriman <sup>2</sup>	30/3/2023	30	29	33	41		Y	N	N	Y		
-	Matilda <sup>2</sup>	27/3/2023	25	25	I/A	I/A		Y	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. 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: Evening and Night monitoring conducted on this date, Day monitoring conducted during the following day period.

Note 4: Noise levels dominated by a-typical construction activities occurring onsite.

**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

One controlled discharge event occurred during the reporting period, immediately after receiving more than 38.4mm of rainfall within a 5-day period.

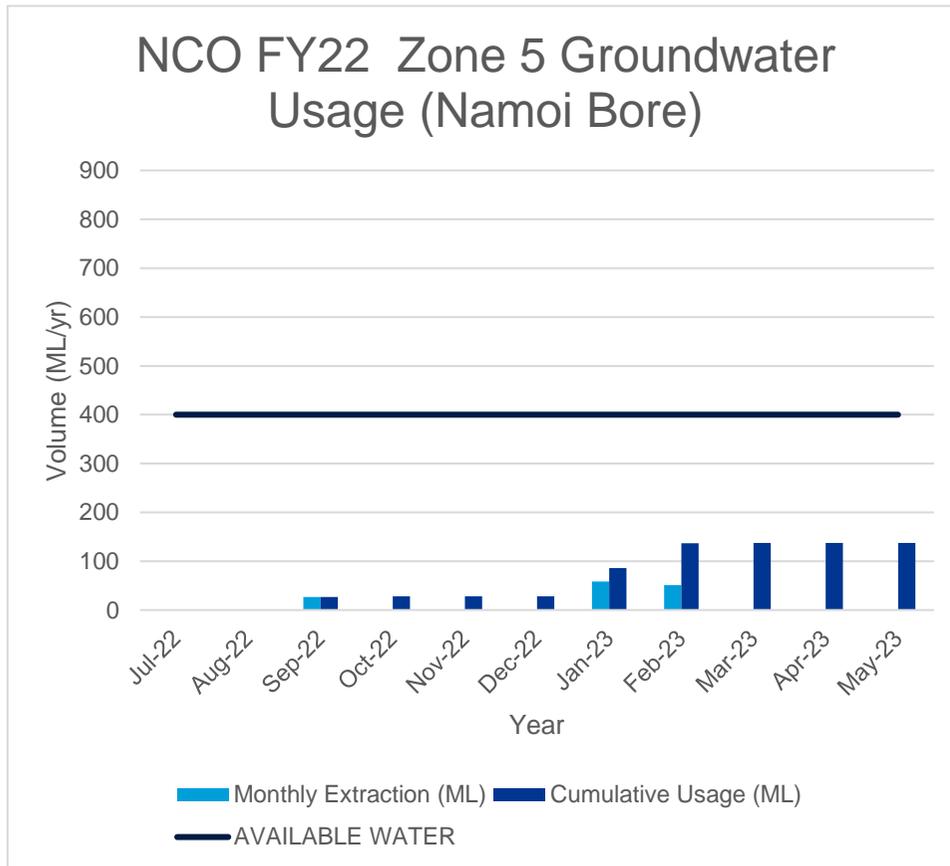
All samples have been analysed by a NATA accredited laboratory (ALS Sydney).

Location	Discharge Start Date	Discharge End Date	pH	Oil & Grease (mg/L)	TSS (mg/L)
<b>EPA Limit</b>			<b>6.5 - 8.5</b>	<b>10</b>	<b>50<sup>1</sup></b>
SD7	30/03/2023	02/04/2023	8.25	<5	3350

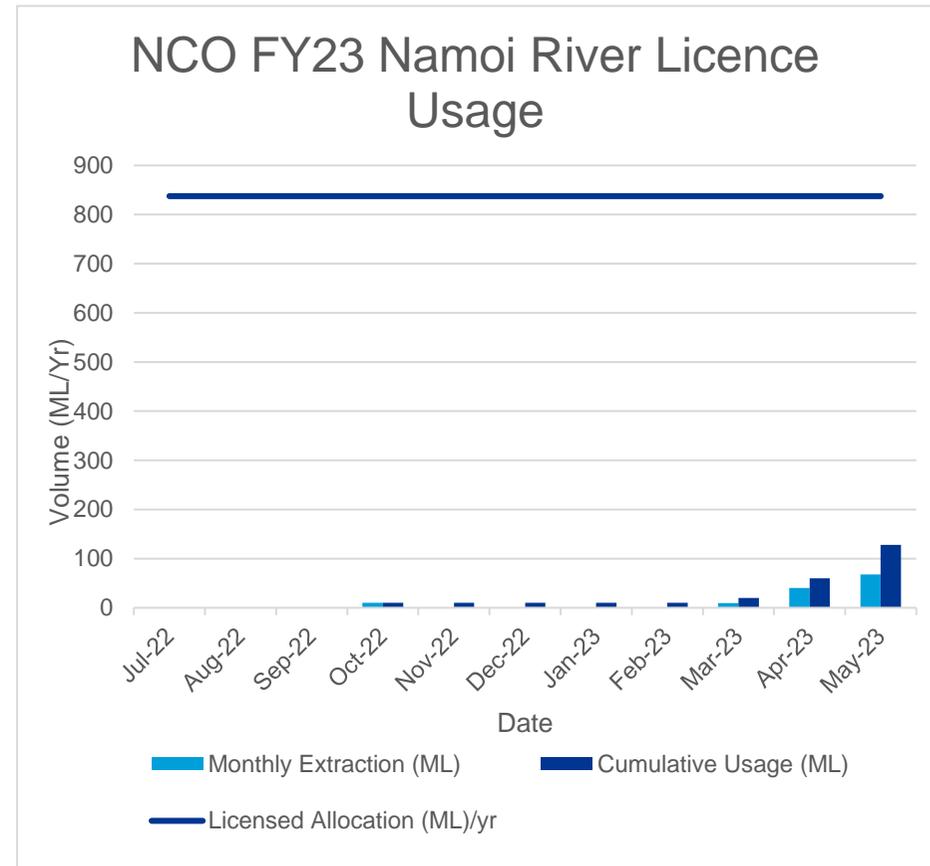
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<sup>1</sup> Condition L2.5(a) of EPL12789 allows for the Total Suspended Solids (TSS) limit to be exceeded from licenced discharge points (LDPs) if a discharge occurs solely as a result of rainfall measured at the premises that exceeds 38.4 mm over 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 (137ML).



**Figure 5:** Namoi River licensed water allocation usage for the current Financial (Water) (128ML).

## Groundwater Monitoring

Groundwater monitoring results are reviewed at the end of each year by a suitably qualified hydrogeologist and reported in the Annual Review. The Annual Review is due for submission to NSW DPE 31 March 2024.

NCO have commissioned AGE to undertake a fill re-calibration of the Groundwater Model:

- delayed due to discussions with NSW DPE Water in relation to the Extraction Plan 203 – 206 (Appendix
- groundwater re-calibration following the above (as this will impact the NCO groundwater model).

## Subsidence Monitoring

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

Longwall Panels (LW)		
	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 9/11/2022) (LW109-109)		
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 10/10/2022)		
Subsidence (m)	2.75	1.53
Tilt (mm/m)	53	0
Tensile Strain (mm/m)	13 – 20^	0
Compressive Strain (mm/m)	16 – 24^	0

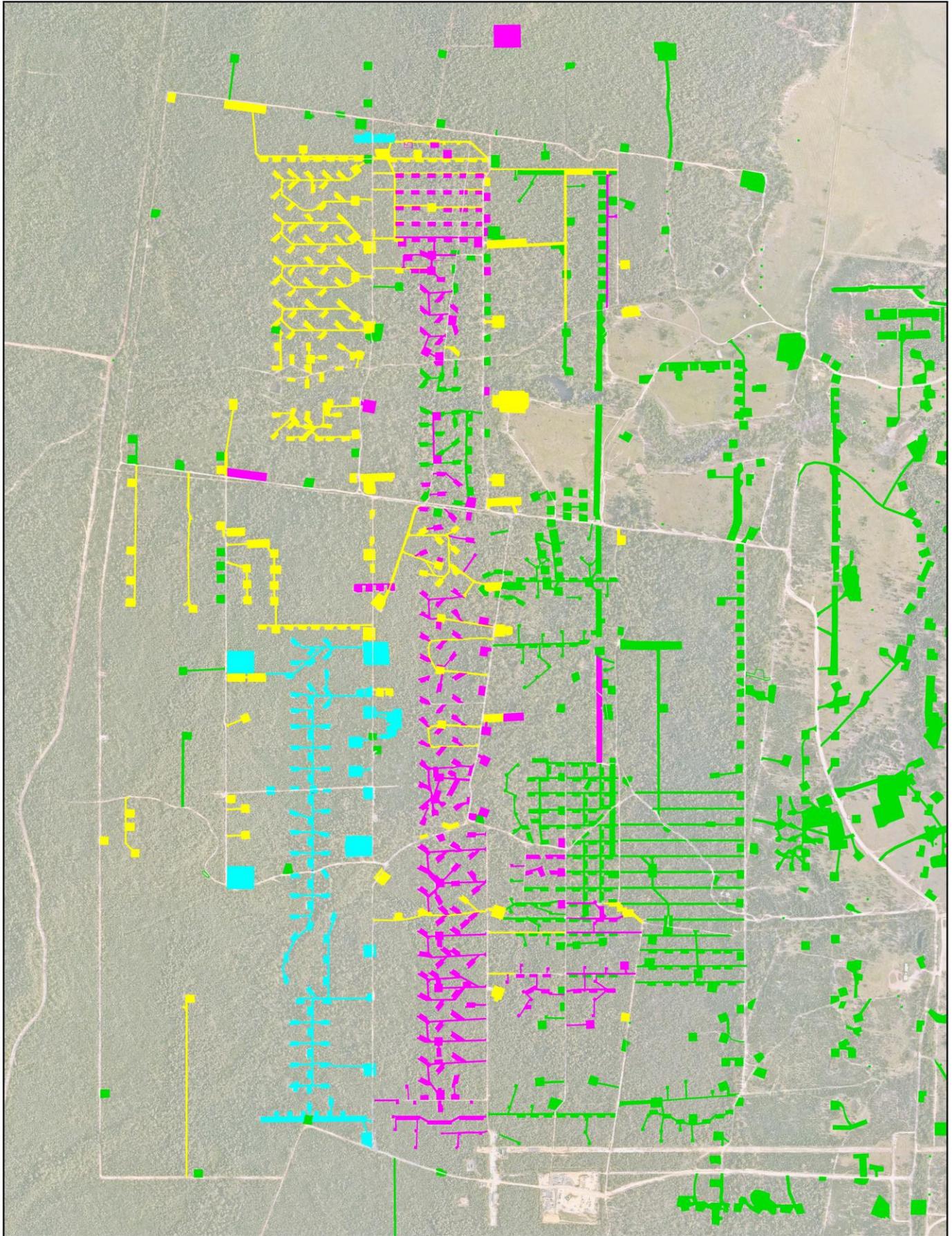
## Rehabilitation

**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 2023 (CY) Rehabilitation Works as of 31/05/2023

Rehabilitation Status	Completed (ha)	Target (ha) end of CY23
Landform establishment	8	12.33
Ecosystem establishment	8	12.33



- Completed Rehab Area Prior 2022
- Area under Rehab 2022 = 27.0ha
- Completed Rehab Area 2022 = 20.0ha
- Rehab Area being Prepared 2023 = 12.0haha

	By	Date:
Drafted:	A.Taylor	28/02/23
Edited:		
Approved:		
Scale:		

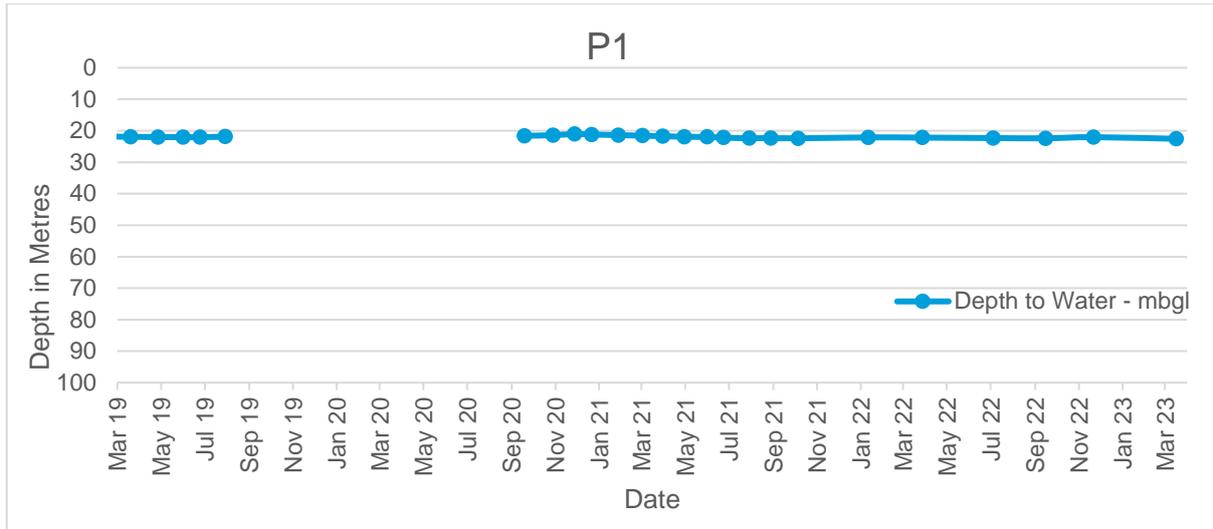
**Rehabbed Areas  
2022**

Plan No: Rehabbed Areas Jan2022\_Dec2022

## Hydrographs for Groundwater Monitoring Wells



**Figure 7:** Location of groundwater monitoring wells



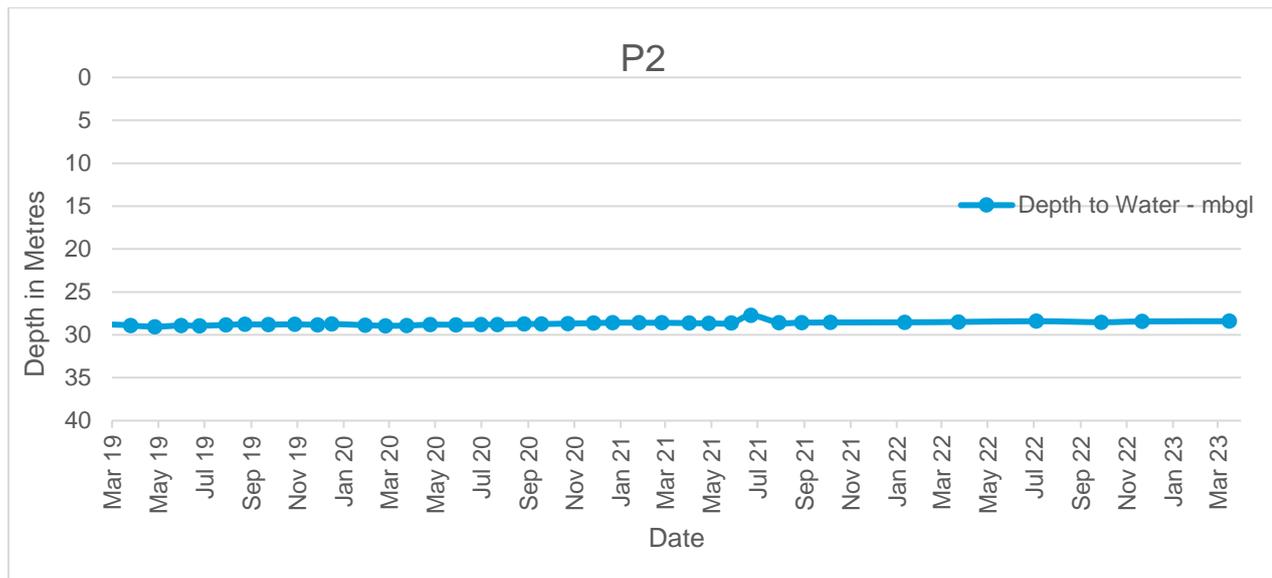
**NCO Monitoring bore ID:** P1

**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.

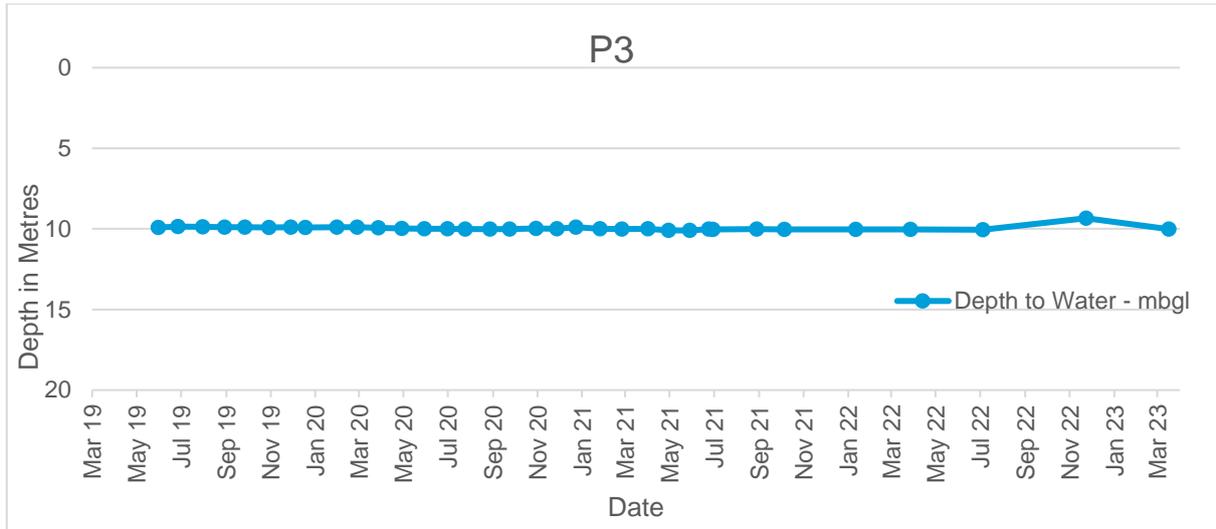


**NCO Monitoring bore ID:** P2

**Location:** Matilda

**Geological unit:** Napperby Formation

**Bore depth:** 50m



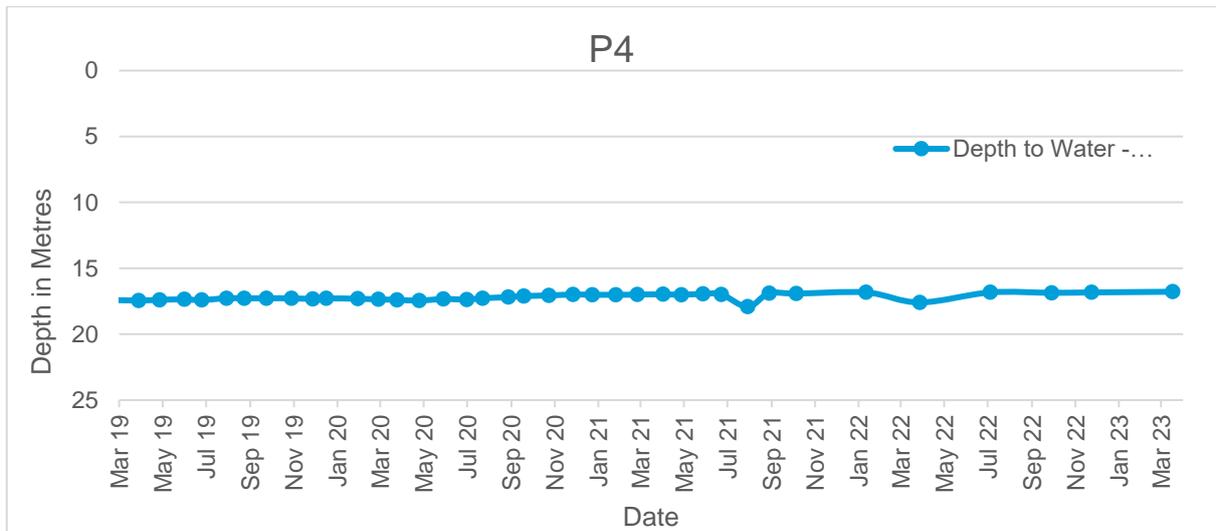
**NCO Monitoring bore ID: P3**

**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.

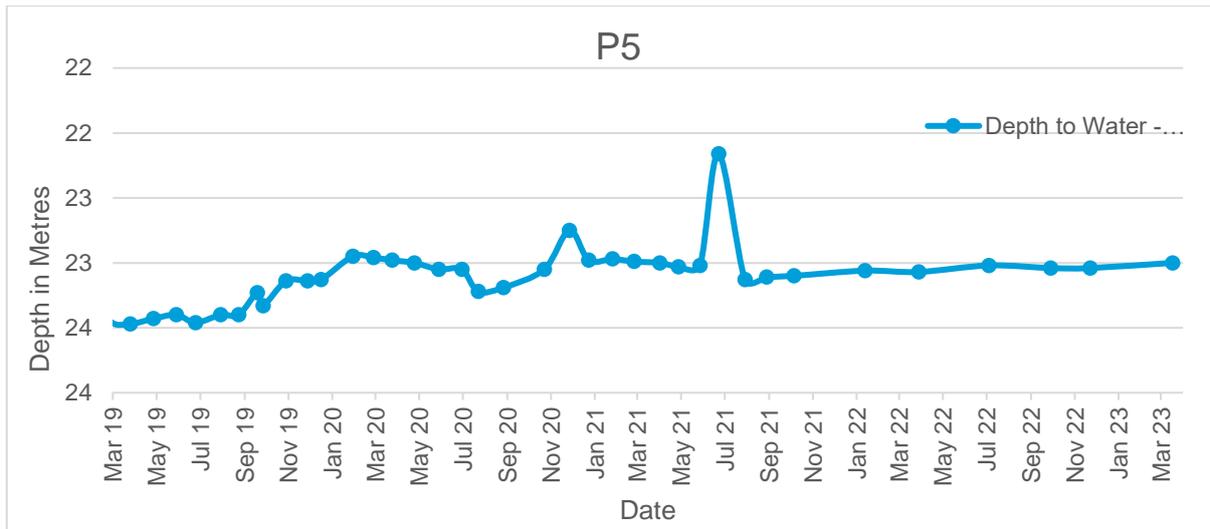


**NCO Monitoring bore ID: P4**

**Location:** North of Newhaven on Kamilaroi highway

**Geological unit:** Napperby Formation

**Bore depth:** 30m



**NCO Monitoring bore ID:** P5

**Location:** On Turrawan Road - shown on Figure 10

**Geological unit:** Pamboola Formation

**Bore depth:** 30m

*No Graph*

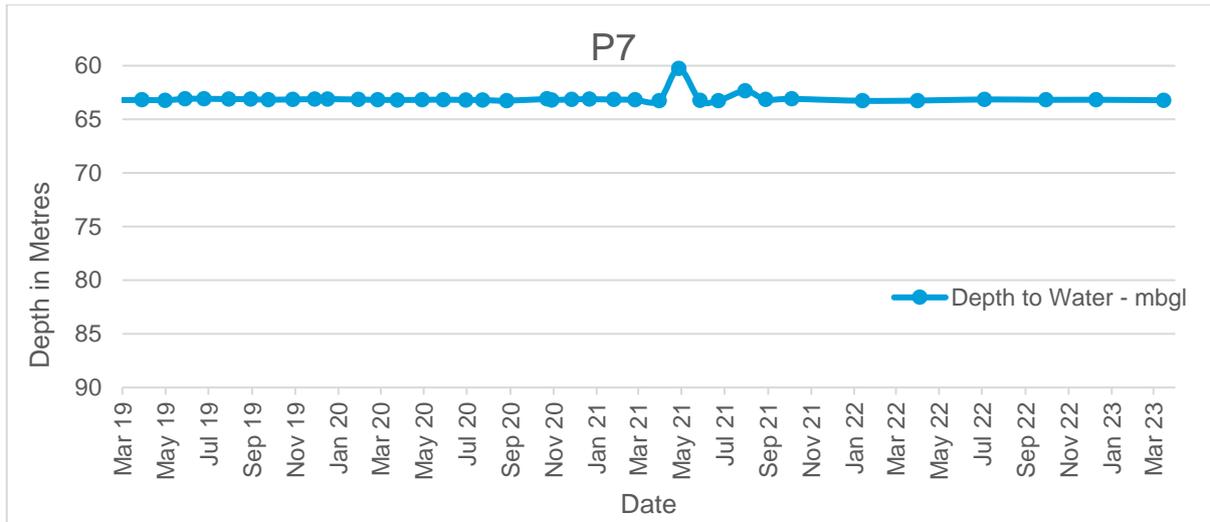
**NCO Monitoring bore ID:** P6

**Location:** shown on Figure 10

**Geological unit:** Pilliga sandstone

**Bore depth:** 90m

**Explanation:** Dry since 2012

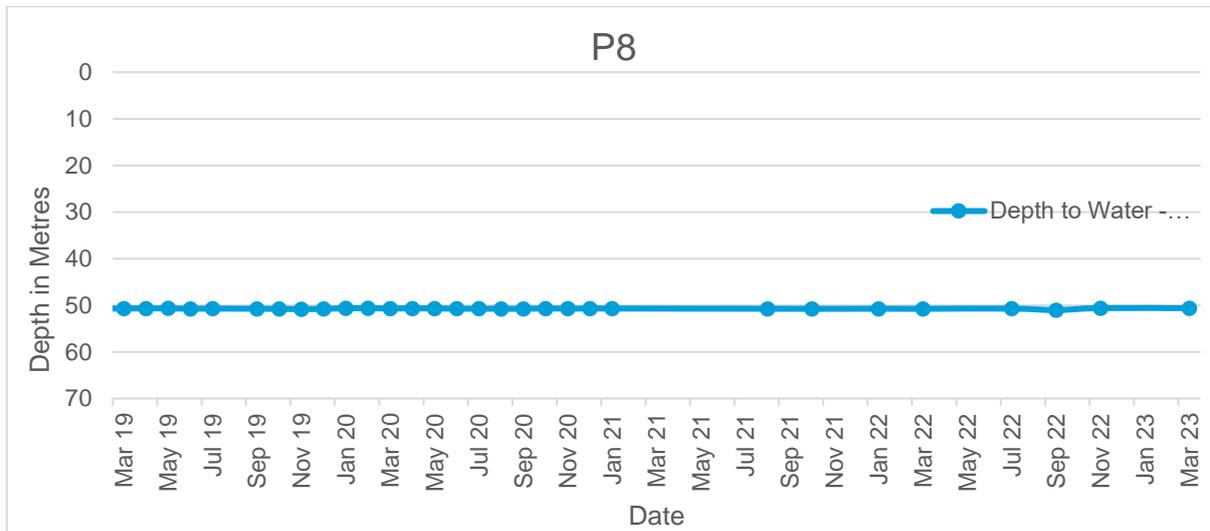


**NCO Monitoring bore ID: P7**

**Location:** State forest

**Geological unit:** Pilliga sandstone

**Bore depth:** 90m

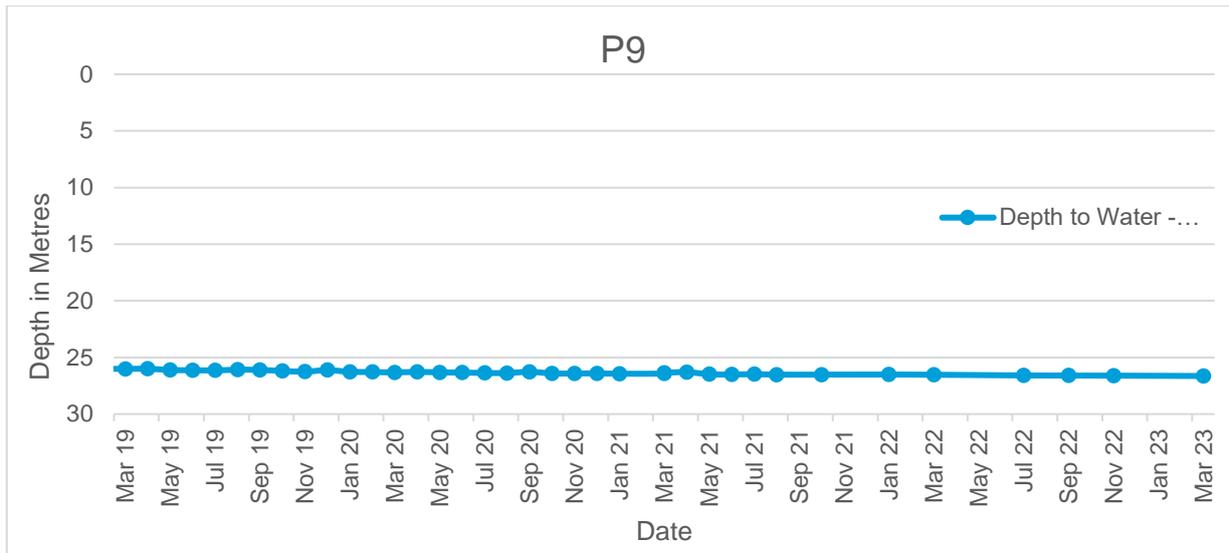


**NCO Monitoring bore ID: P8**

**Location:** Kurrajong

**Geological unit:** Purlawaugh Formation

**Bore depth:** 65m

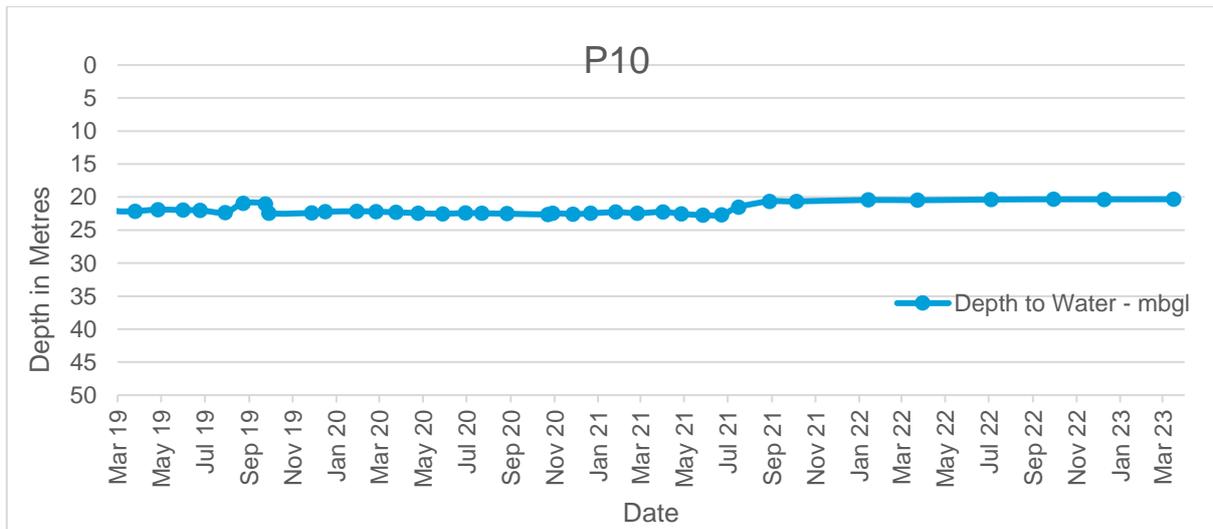


**NCO Monitoring bore ID: P9**

**Location:** NCO – Figure 10

**Geological unit:** Purlawaugh Formation

**Bore depth:** 30m

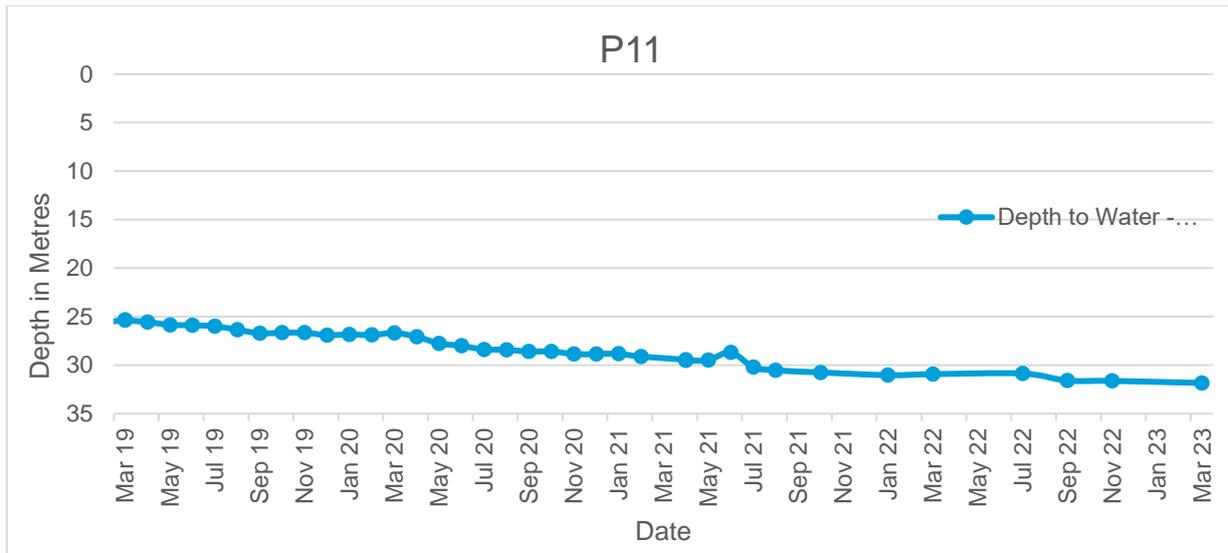


**NCO Monitoring bore ID: P10**

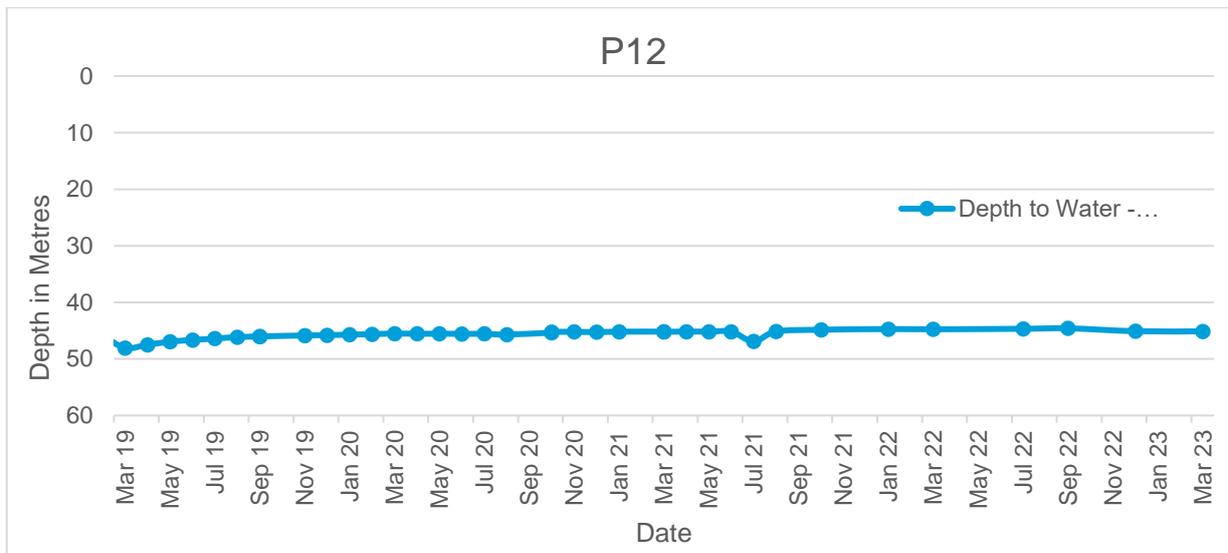
**Location:** NCO – see figure 10

**Geological unit:** Napperby Formation

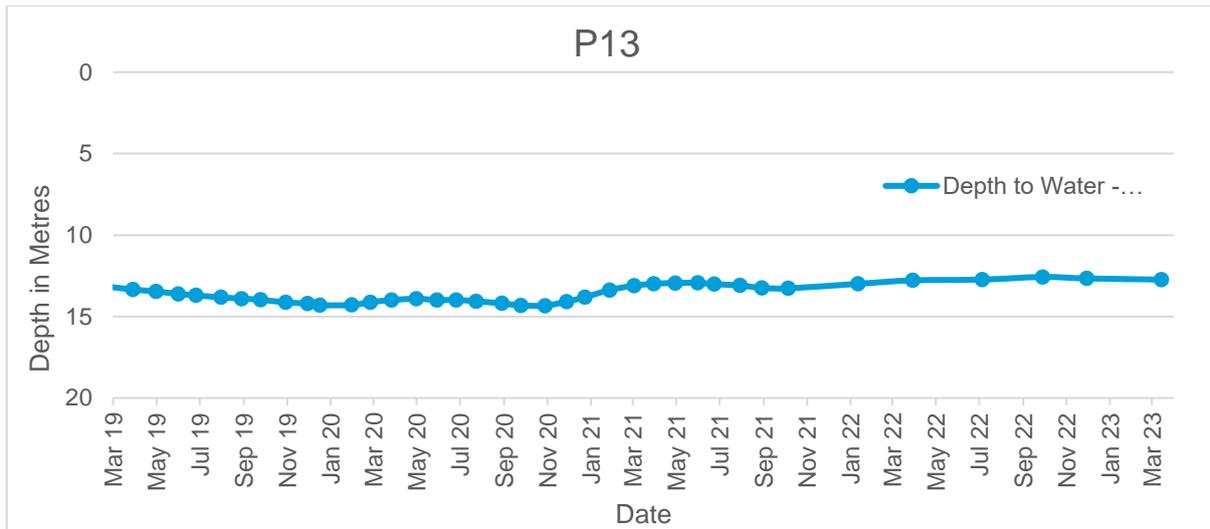
**Bore depth:** 130m



**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**

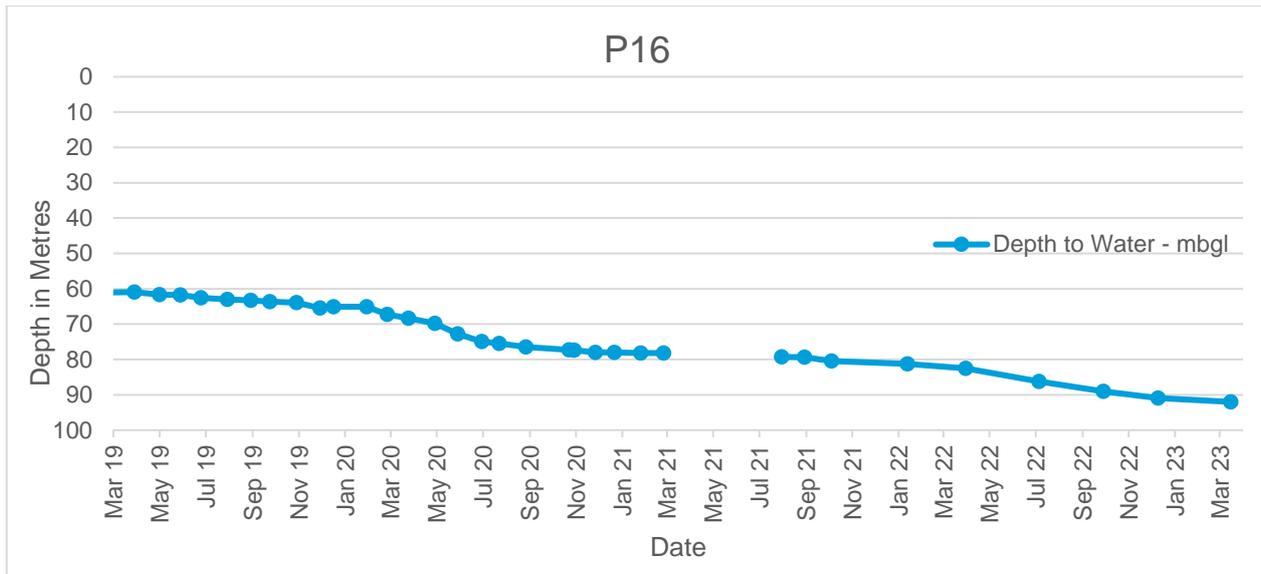
**NCO Monitoring bore ID:** P15

**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**

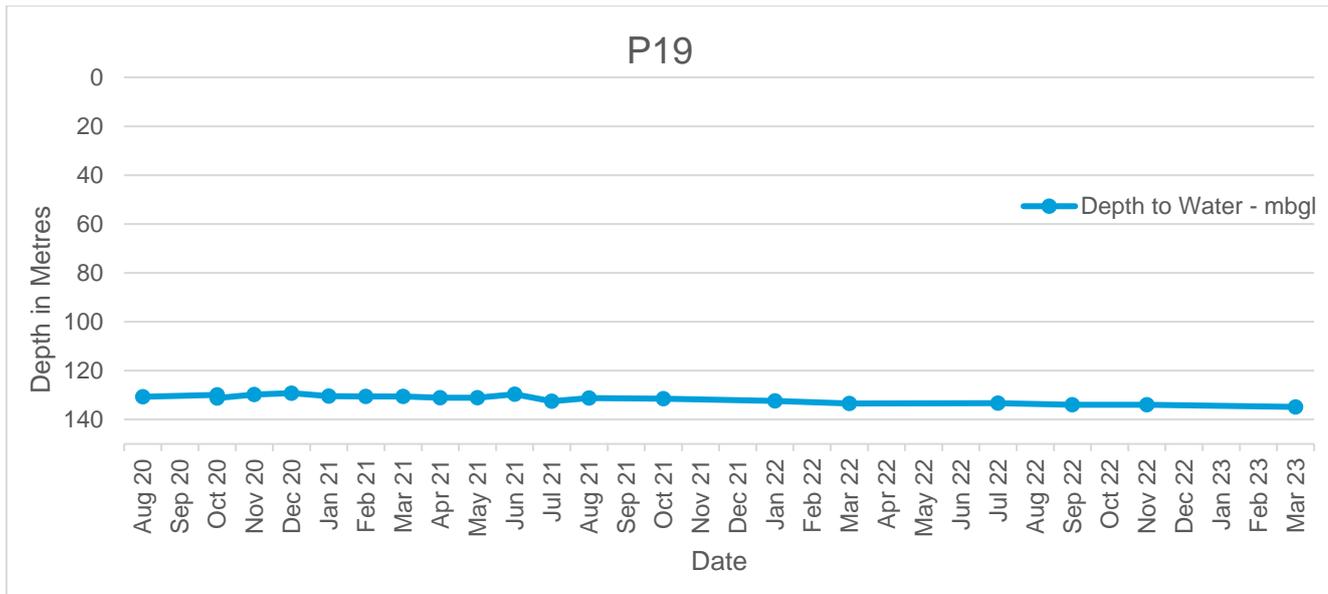
**NCO Monitoring bore ID:** P18

**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**

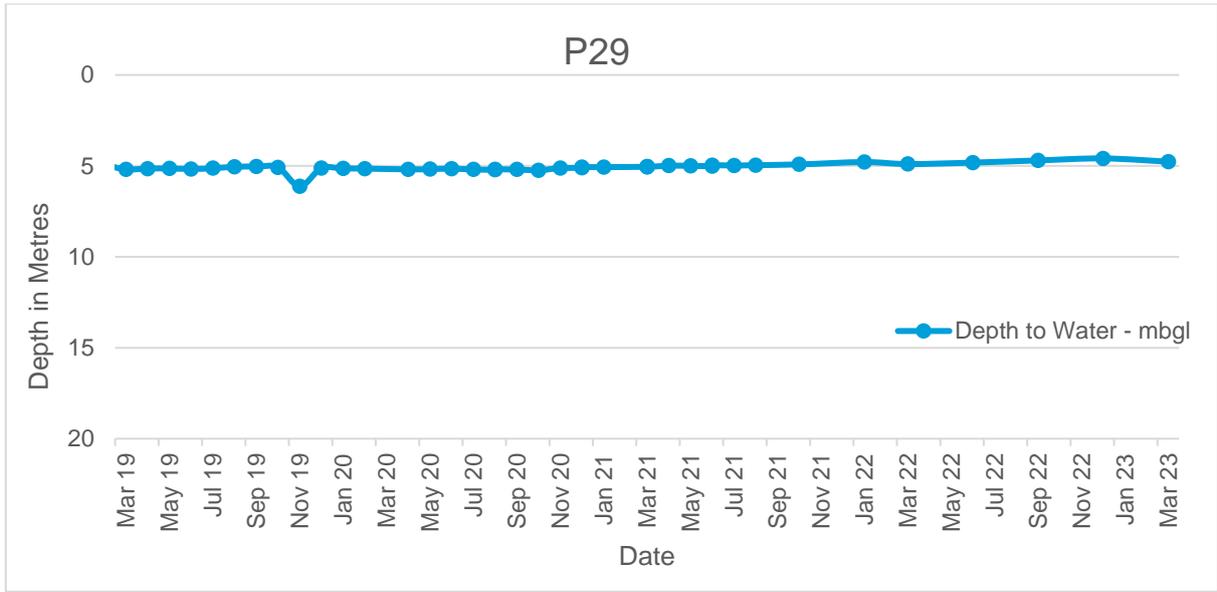
**NCO Monitoring bore ID:** P28

**Location:** See figure10

**Geological unit:** Napperby Formation (above sill)

**Bore depth:** 25m

**Explanation:** Dry since 2012

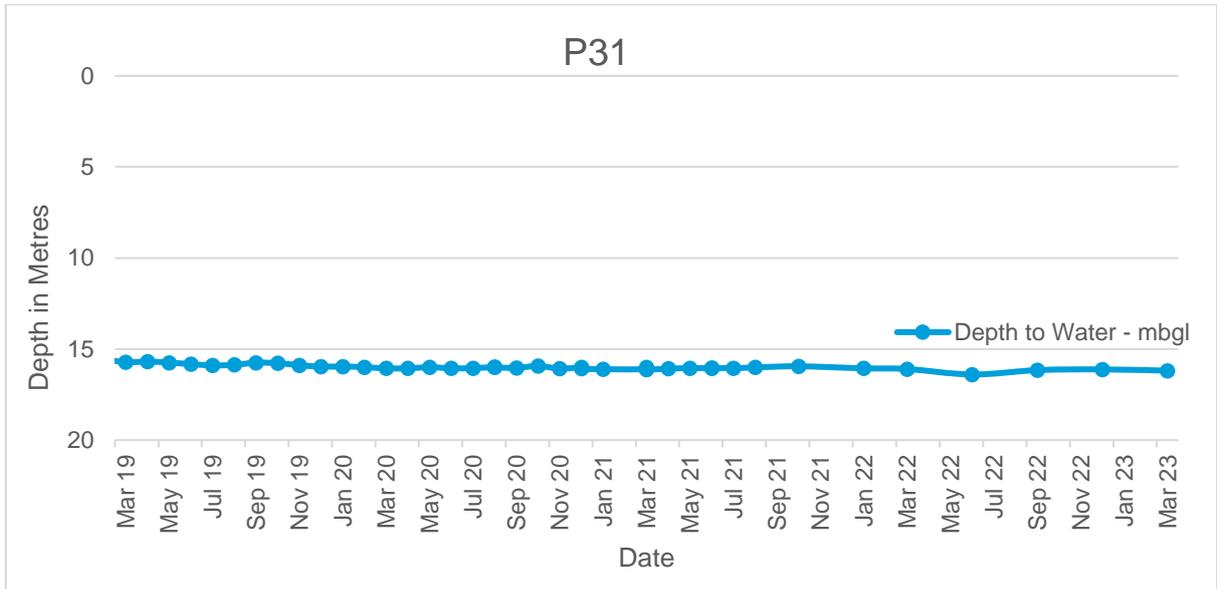


**NCO Monitoring bore ID:** P29

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

**Geological unit:** Napperby Formation (above sill).

**Bore depth:** 25m

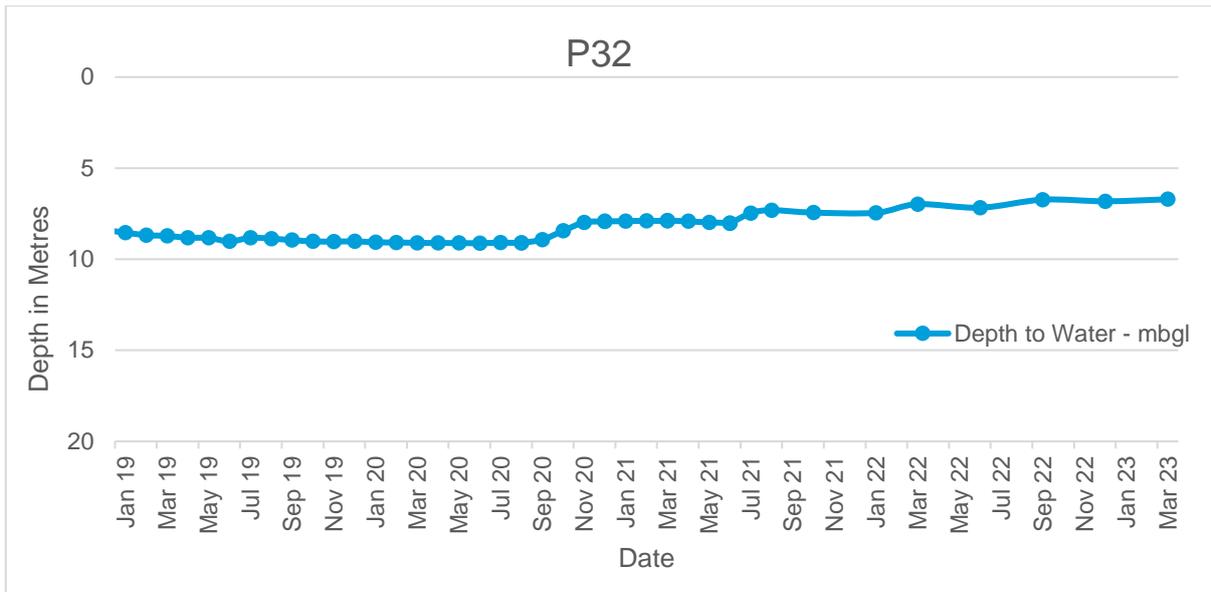


**NCO Monitoring bore ID:** P31

**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

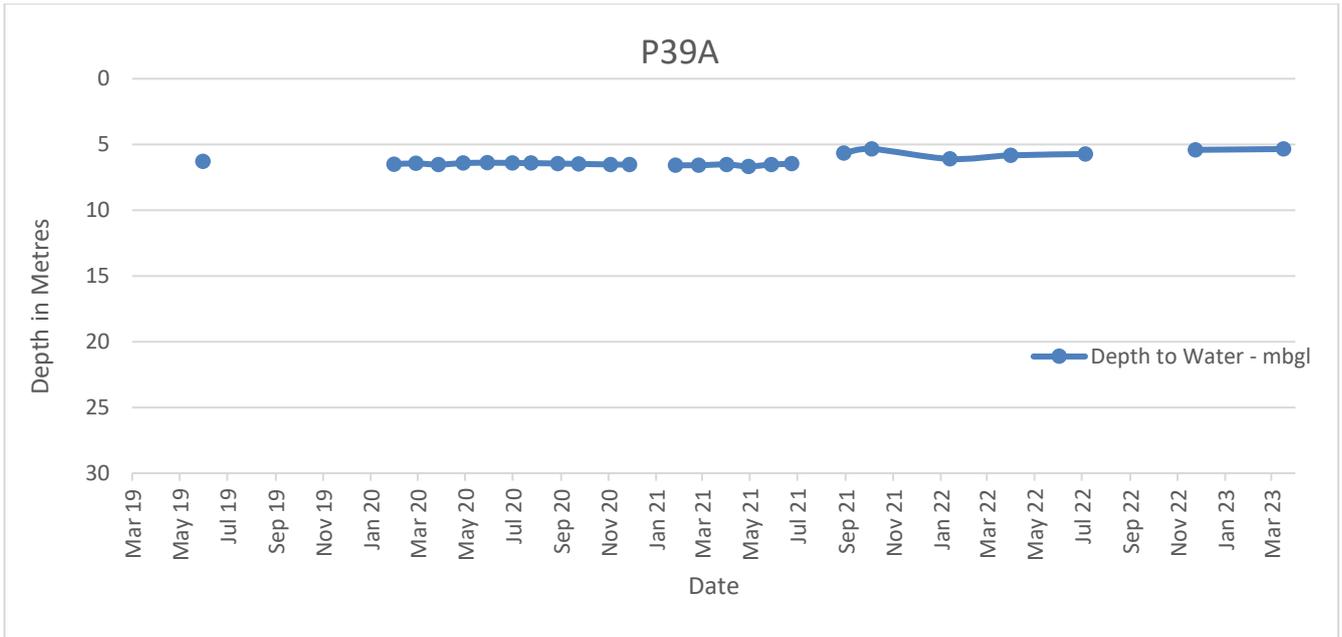
**NCO Monitoring bore ID: P24**

**Location:** See figure 6

**Geological unit:** Napperby Formation (above sill)

**Bore depth:** 15m

**Explanation:** Dry since 2012



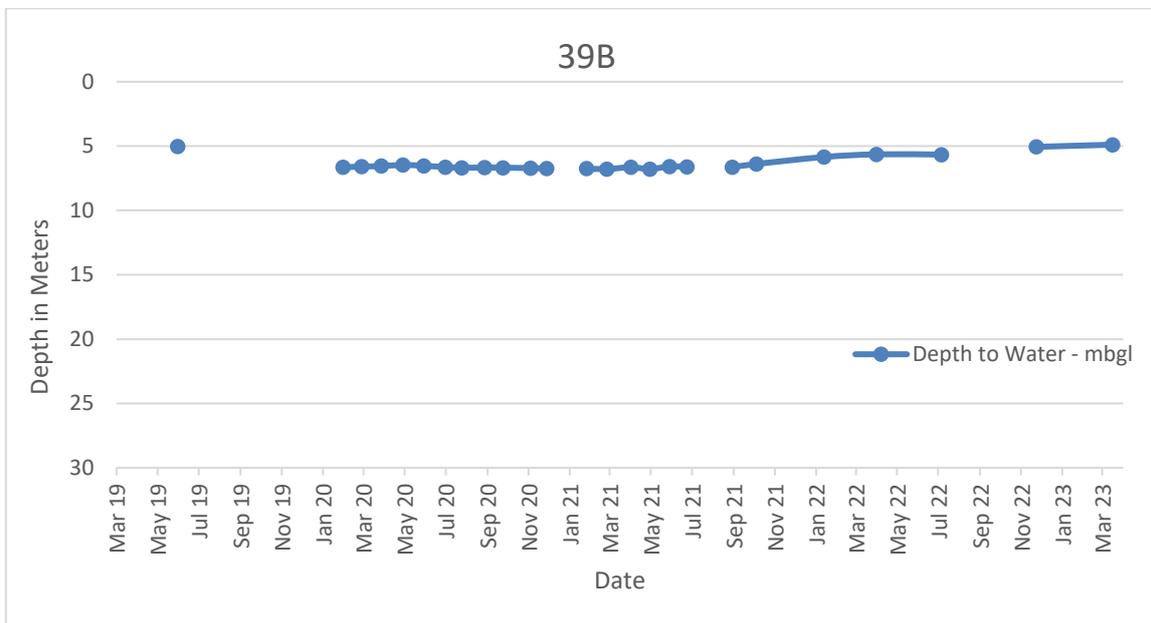
**NCO Monitoring bore ID:** P39A

**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, and wet weather.



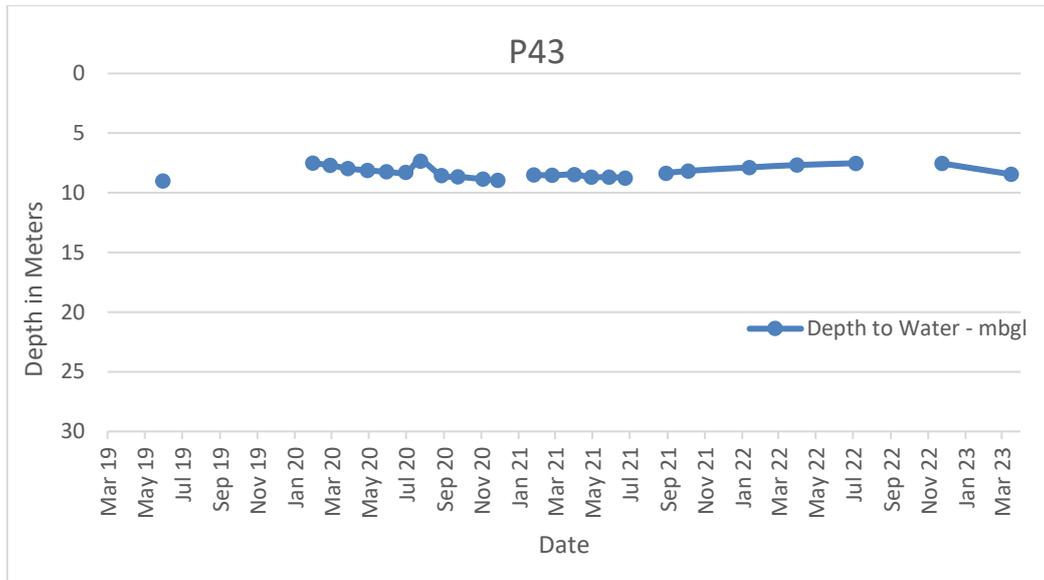
**NCO Monitoring bore ID:** P39B

**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, and wet weather



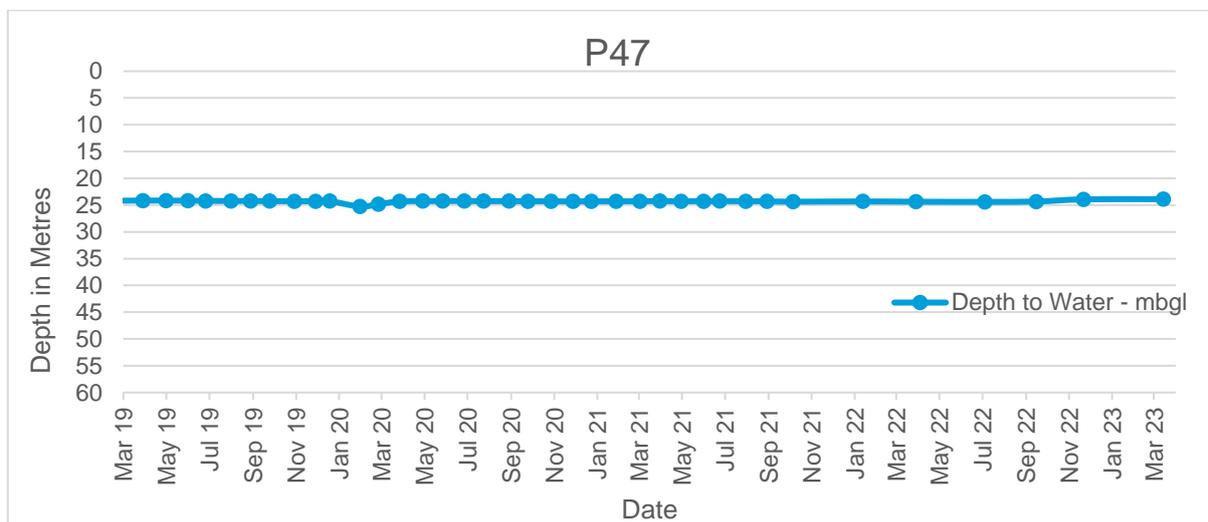
**NCO Monitoring bore ID:** P43

**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 and wet weather

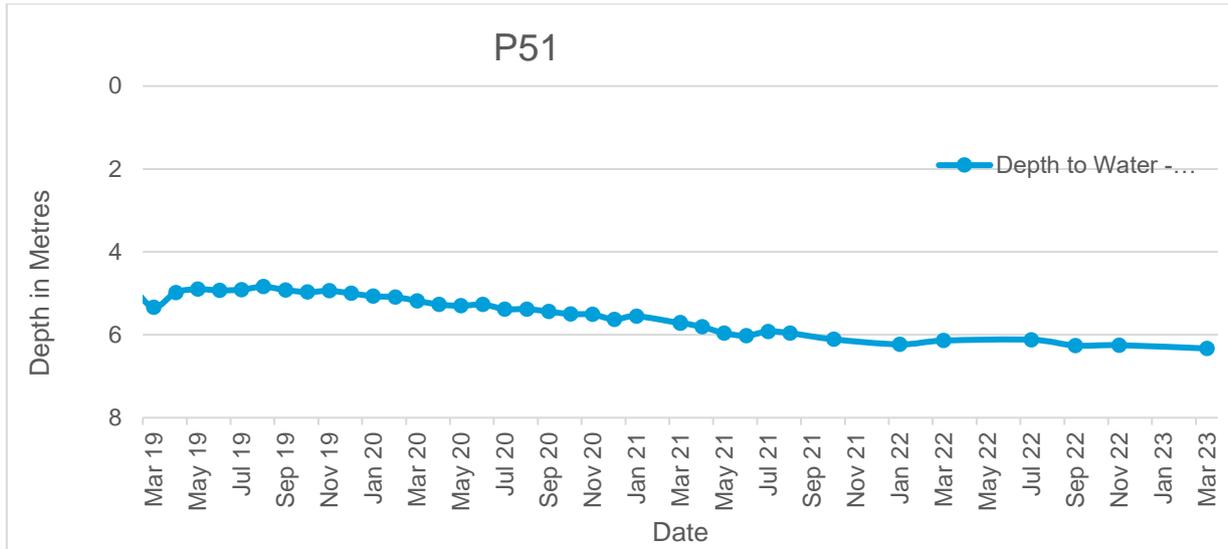


**NCO Monitoring bore ID:** P47

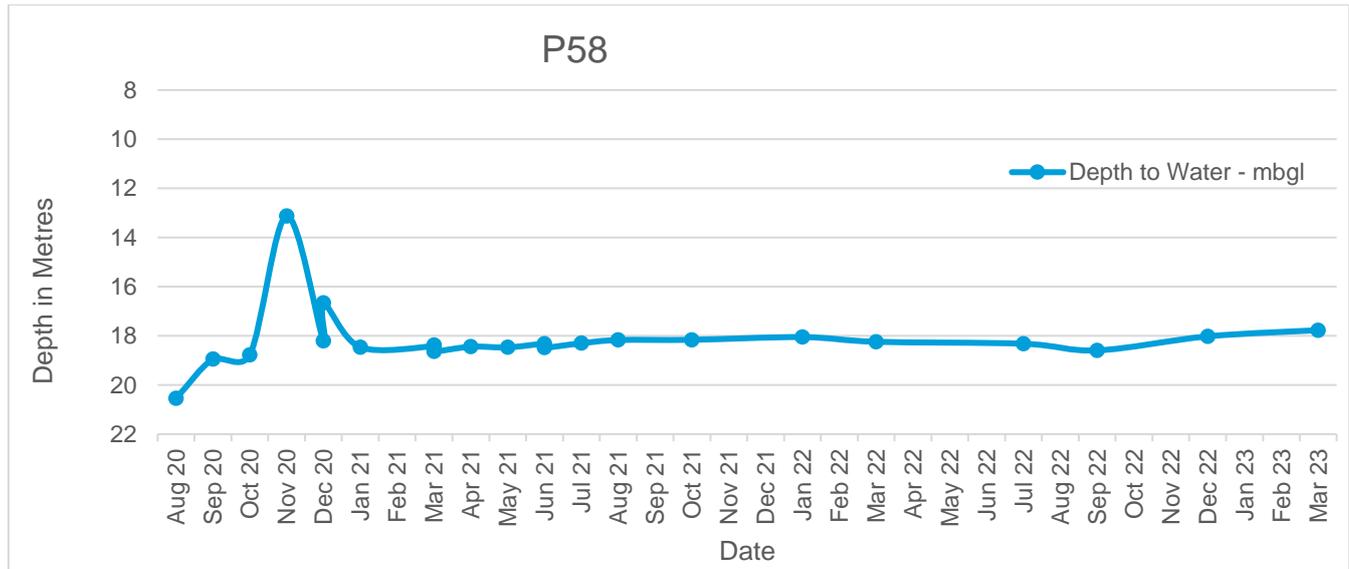
**Location:** NCO – see figure 10

**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 #62**

**Date:** Wednesday 13<sup>th</sup> September 2023

**Time:** 5:15pm

**Location:** Narrabri Coal Boardroom

**Present:** Russell Stewart (RS)  
James Stieger (JS)  
Peter Webb (PW)  
Mark Foster (MF)  
Bruce Danson (BD)  
David Ellwood (DE) – Whitehaven Coal  
Shane Rily (SR) – Whitehaven Coal  
Harriet Davies (HD) – Whitehaven Coal  
Tony Rymer (TR) – Whitehaven Coal  
Darren Swain (DS) – Whitehaven Coal  
Jabin De Keizer (JDK) Whitehaven Coal

**Apologies:**

Alan Grumley (AG)  
Michelle Henry (MH) – Narrabri Shire Council  
Donna Ausling (DA) - Narrabri Shire Council  
Gerald Linde (GL) – Whitehaven Coal

Moved: RS      Seconded: MF

**1. DECLARATION OF PECUNIARY INTEREST**

No declarations.

Moved: RS      Seconded MF

**2. PREVIOUS MINUTES**

RS asked if everyone had read previous minutes.

RS asked for previous minutes to be accepted as a true and accurate record. Everyone present at the meeting agreed that the minutes were true and accurate however, JS requested that more information could be included in the environmental report from now on and advised that this was raised several years ago. There was a general agreement that this should and will be the case.

Moved: RS      Seconded: MF

## 2.1 BUSINESS ARISING FROM PREVIOUS MINUTES

PREVIOUS MEETING ACTIONS		
Person	Action	Status
SR	Add noise monitoring for the Bow Hills property to the 2023 Annual Review	2023 Annual Review
SR	Send out an invitation to all CCC Members for a tour of the Narrabri Mine	6 July 2023

Moved: RS      Seconded: MF

## 3. OPERATIONS PROGRESS REPORT AND SAFETY UPDATE

Presented by DE

- DE presented the production figures to date. DE explained why production is less than expected at this point in the year, one explanation for lower-than-expected production figures corresponds to the longwall (LW) move during 2023 and the subsequent challenges that the LW has faced due to poor roof conditions and some roof falls on the longwall face. Having said this, the challenges that the mine faced in terms of the LW have now been resolved and production is efficient once more.
- DE stated that there has been a slight increase in contractors onsite this quarter and one reason for this is the additional drilling that is taking place on the surface.
- JS asked about the cut and flit (CF) panels, asking for more information in respect to the difference in production between the LW and the CF panels and the method of mining. In response to the question, DE explained that the CF panels are mined in blocks whereas the LW mines a sheer face of 400m wide. Due to this difference, the LW produces more coal than the CF panels. DE explained that Narrabri Coal Operations (NCO) purchased another continuous miner from Qld which is located in the CF panels. This continuous miner has helped to increase the production and productivity in the CF panels.
- JS asked how many miners were currently in operation at the mine, DE responded that five units are currently operating underground including the cut and flit miner.
- 1 restricted work case due to an injury at work this quarter.

## 4. STAGE 3 UPDATE

Presented by DE

- DE explained the progress of the stage 3 project. Stage 3 has not commenced as Federal Approval has not been received from the Federal Minister. Approval is held up in court as a challenge has been made on the reconsideration request. DE explained that the court case is still ongoing and the 5-day hearing starts next week (September 2023). The case has been expedited therefore could have the decision pre-Christmas however, the likelihood is to expect the decision by January/ February 2024.
- Following the court case update, DE spoke about the 'make good agreements'. DE explained that NCO have purchased the Nindethana property; a water bore is located on this property. Certain parts of the Nindethana property is being assessed for biodiversity offset areas.
- DE explained that 6 of the 9 'make good agreements' have been approved and a 7<sup>th</sup> verbal agreement has been made between the landowner and NCO.
- DE noted that initial survey work has commenced in exploration lease (EL) 9455 and 9456, located north-west of mining lease (ML) 1609. Following completion of the survey work, a review of environmental factors (REF) will be drafted and presented to the NSW Resources Regulator to commence the approvals process. DE emphasised that work in this area is in the very early stages of exploration and investigation.
- DE explained work to install more water monitoring bores is underway. Two of these monitoring bore sites will be located west of the mine in the state forest and one southwest. This work is to expand the current mine groundwater monitoring network.

## 6.0 ENVIRONMENTAL MONITORING REPORT

Presented by SR. All CCC members receive a hard copy of the environmental monitoring report.

- ENVIRONMENTAL 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:
  - 2023 annual average (year to date) for all monitoring locations are below the licence limit.
  - Analysis of September 2023 results have not been finalised by the laboratory. SR committed to including these results in the next CCC Report.
- 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 for the two monitoring locations (Claremont and Turrabaa).
  - SR mentioned that there have been 2 x missed sample dates due to the PM10 machine malfunctioning. Consequently, the PM10 machine has been replaced and the missed samples run again as per Australian Standards. The results from the re-run are sitting with the laboratory.
- QUARTERLY NOISE MONITORING
  - Q1 2023 - no exceedances recorded; and
  - Q2 2023 no exceedances recorded; and
  - Q3 2023 monitoring had not yet been completed (due end of September) – EPA needs to receive this within 30 days
- SURFACE WATER MONITORING: No discharge events since the previous CCC meeting.
- WATER LICENSING
  - Presented graphs showing NCO water licence allocation usage.
  - Levels below licenced allocations.
- GROUNDWATER MONITORING
  - Presented Hydrographs for groundwater monitoring locations.
  - Concern was raised by BD regarding a leak in the ground water pipe. The pipe is located near Pine Creek, set back from the highway and within 20 feet of the creek line. DE ensured that the NCO will investigate the leak in the following days.
- SUBSIDENCE MONITORING
  - Presented monitoring undertaken to date for the current calendar year.

- All monitoring results fell within modelled predictions.
- REHABILITATION
  - As of 30.08.2023 10.3 hectares of rehabilitation has been completed. – the areas in the northern panels are being rehabbed

No further questions/comments from members.

## 7.0 SOLAR PANEL PRESENTATION

- DE introduced TR to the CCC members. TR is based in Brisbane and is part of the project delivery team. WHC is exploring solar in order to power a portion (approx. 1/3) of the mine, the solar farm will be 'behind the meter' and will not have the capacity to store any of the power generated and will not be selling any of the power generated, it will all be used onsite for mine purposes. There has been a feasibility study developed and the Scope report is the first part of the project approvals (beginning of stage 3).
- A Factsheet was presented to all who attended outlining the Whitehaven Solar Farm Project. All CCC members will receive the PowerPoint presentation that was presented in the meeting so please refer to the PowerPoint for information directly relating to the proposed solar farm.
- JS/MF are very frustrated with the lack of engagement with the current lessee for the proposed solar farm location. JS specifically emphasised that he would like this concern recorded as part of the minutes. JS voiced the frustration regarding the lack of communication and the unfairness that comes with this lack of communication. JS highlighted that WHC have known of this project for a long time and that they way WHC conducted themselves in notifying lease and surrounding landowners of this project was flawed. JS requests courtesy from WHC for future project(s) and the progression of this project. TR apologised for this.
- JS is concerned that the solar farm will cause run off water from of the bare land, into the creek and this will directly impact his farmland downstream of the farm.
- MF acknowledged that he is a lessee of mine owned land however, he would like to encourage WHC to give lessee holders more timely indications as to what the future of the land that they lease holds. MF emphasised the challenge to successfully farm an area of land (adequate fertiliser, ground maintenance etc) to best practice if you are unsure how long you will have access to the said land.
- RS asked how many hectares this solar farm will cover. TR unsure of the exact figure but this is data that he will report back on.
- JS asked why it is this block in particular that has been chosen for the solar farm and not an area on the mine site that could have less of an impact on lease holders and neighbouring land owners. TR and DE explained that its the proximity of the block to the mine site where the power is destined for and that it is off the mining lease.
- JS/RS asked the question if there will be the opportunity to run livestock in the same area of the solar farm. TR, this is something that has been considered. All members of the meeting emphasised the importance of stock to the area and making the area dual purpose, i.e solar panels farming and arable farming/stock farming. Several CCC attendees emphasised the importance of WHC investing in a solar panel farm that graziers can utilise.
- BD stressed the importance of establishing pasture on the ground prior to the panels being erected to reduce the water run off and to leave enough space for farm vehicles to have access to the area.
- TR highlighted that the solar farm will have a lifespan of 50 years which exceeds the current mine life therefore, a decision on how to utilise power generated post mine is yet to be determined. TR mentioned areas such a waste management, potential congestion from increased traffic, glint and glare are all areas of interest that the project team are aware of and are considering.
- RS asked about when a specific solar panel farm meeting can happen. TR assured that it can be happen as soon as possible as the next step of the process can now begin.
- Outcome of the solar panels project presentation: TR assured that feedback from the CCC meeting will be taken on board and considered. Emphasis was placed on the fact that the solar farm proposal is still in the very early stages of feasibility assessments.
- CCC members commented that the proposed land of the solar farm is sloped rather than flat (incorrect in presentation).

**GENERAL BUSINESS**

- Introduced Jabin de Keizer to the meeting. Jabin is the Community Relations Manager based in the Gunnedah office.
- No other general business

8.0 **COMMUNITY**

No more business – meeting closed at 18:06

<b>MEETING ACTIONS</b>		
<b>Person</b>	<b>Action</b>	<b>Due</b>
SR	Add noise monitoring for the Bow Hills property to the 2023 Annual Review	2023 Annual Review
SR	More detail to be included within the Environmental Monitoring Report.	CCC Meeting #63 (6 Dec 2023)
SR	Report back on the reported leak in the Namoi water pipe	n/a – confirmed repair 18 September 2023
TR	Report on the area that the proposed Solar Farm will cover.	n/a – Approx 117 ha

**NEXT MEETING**

6<sup>th</sup> December, 5:15pm at the Railway Hotel Baan Baa (Christmas Party).

**Narrabri Mine Community Consultative Committee Meeting #62****Environmental Monitoring Report: July - September 2023**

Report Date: 30 Aug 2023

**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**

- To be presented by David Ellwood

## Deposited Dust Monitoring

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

2023 annual average (year to date) for all monitoring locations is below the annual average licence limit of 4 g/m<sup>2</sup>/month (Insoluble Matter).

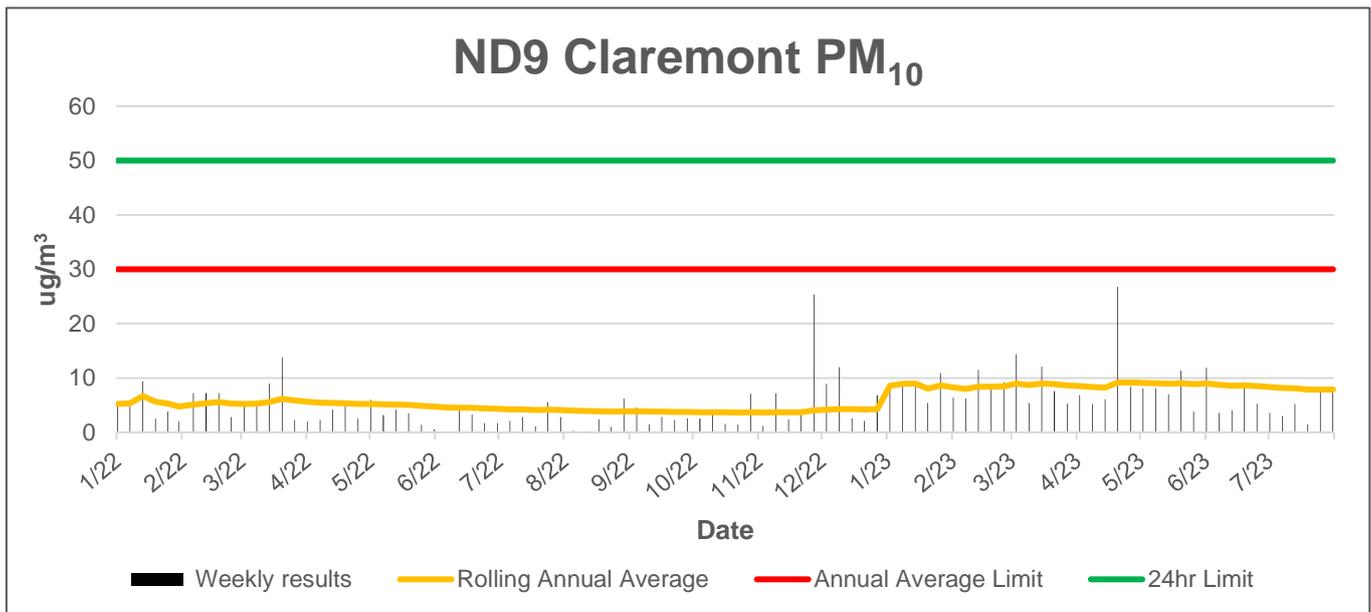
**Table 1: 2023 (CY) Total Insoluble Matter Results**

Total Insoluble Matter results (g/m <sup>2</sup> /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 Darjeeling	
<b>JUNE-2023</b>	1	0.3	0.4	0.7	1.3	1	0.7	0.3	1.1	0.5	0.6	
<b>JULY 2023</b>	0.4	1	1.2	0.4	4.3	0.4	0.5	0.1	0.6	0.2	1.1	
<b>AUGUST 2023</b>	0.2	1	0.8	1.2	1.4	0.2	0.4	0.4	0.5	0.1	0.2	
<b>SEPTEMBER 2023*</b>												
<b>Annual Average</b>	<b>0.8</b>	<b>1.7</b>	<b>0.6</b>	<b>1.4</b>	<b>2.8</b>	<b>1.5</b>	<b>1.1</b>	<b>0.6</b>	<b>1.3</b>	<b>0.6</b>	<b>1.1</b>	

\*Due to be collected and sent to ALS Newcastle 12 Sept 2023

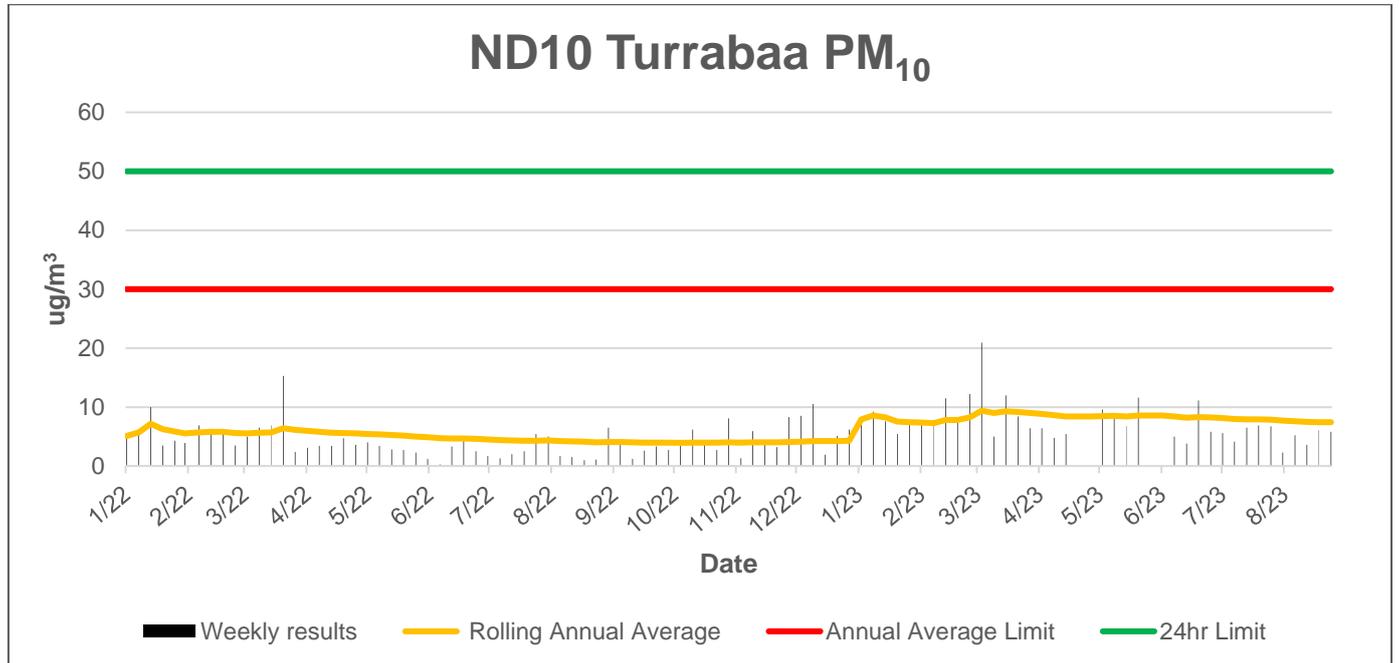
## PM<sub>10</sub> High Volume Air Sampling (HVAS)

Samples are collected over a 24-hour period once every 6 days, with a (24hr) compliance limit of 50 µg/m<sup>3</sup>, and an annual average limit of 30 µg/m<sup>3</sup>.



**Figure 1: Claremont PM<sub>10</sub> High Volume Air Sampler results for last 12-month period.**

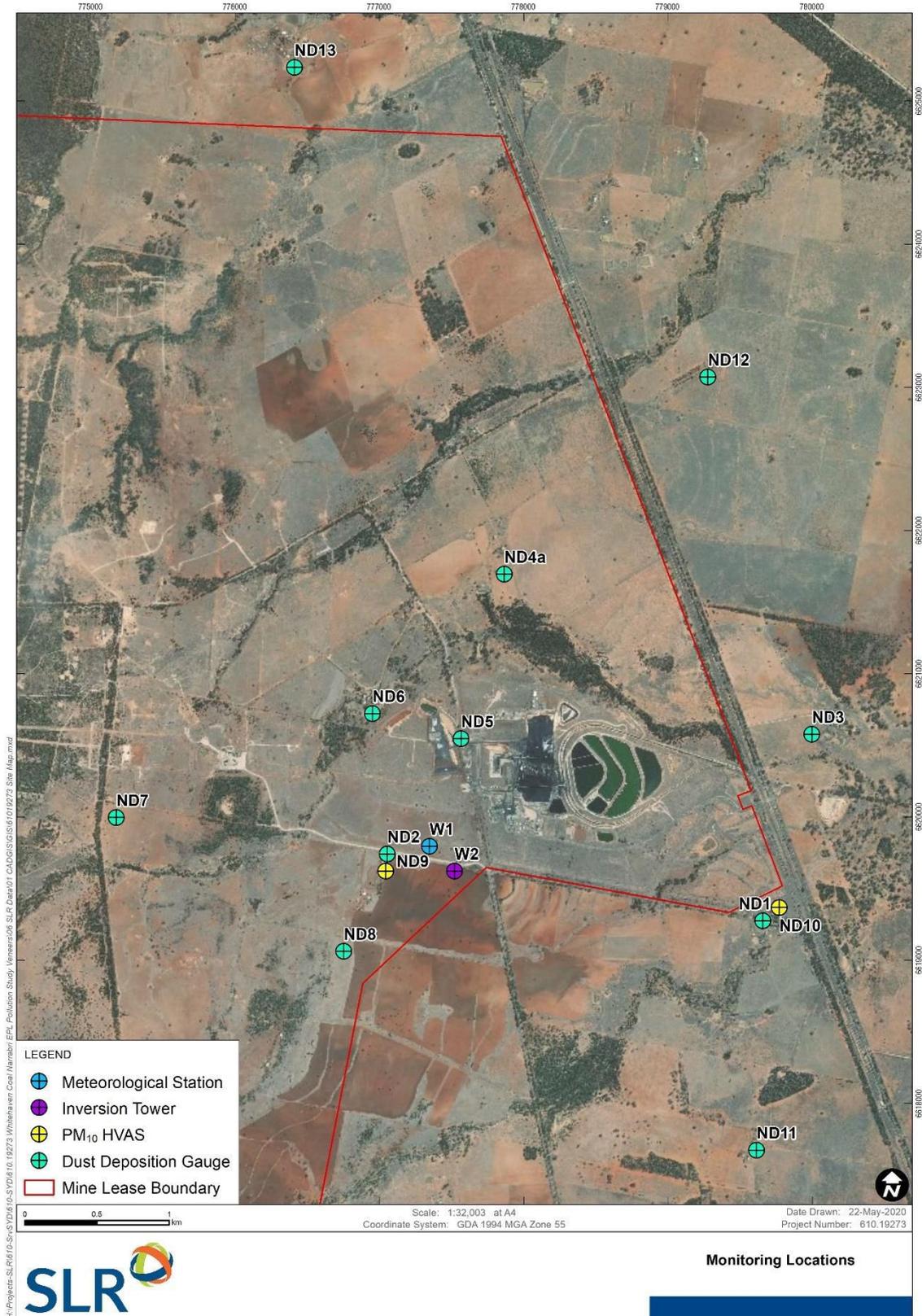
The Claremont HVAS (*Figure 1*) 2023 rolling annual average is 7.89  $\mu\text{g}/\text{m}^3$ , which is below the annual average limit of 30  $\mu\text{g}/\text{m}^3$ . There have been no exceedances of the 24-hour compliance limit of 50  $\mu\text{g}/\text{m}^3$  within the last 12-month period.



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

The Turrabaa HVAS (*Figure 2*) 2023 rolling annual average is 7.41  $\mu\text{g}/\text{m}^3$ , 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.

Machine issues 29 May and 4 June (no sample). A new machine has been purchased and installed, catch up samples have been taken in accordance with AS/NZS 3580.9.6.2015.



**Figure 3: Air Quality Monitoring locations**

## Noise Monitoring

2023 (CY) Quarter 2 attended noise monitoring was conducted from the 19 to 21 June 2023 and results are presented below. Compliance was achieved at all locations. 2023 (CY) Quarter 3 attended noise monitoring is scheduled from Monday 4 to 8 September 2023.

**Table 1 Performance Assessment – Operations**

EPL ID	Location	Date	Narrabri Mine Contribution dBA				Noise Criteria <sup>1</sup>	Measurement Periods	Standard Weather			Compliant
			LAeq 15 min Day	LAeq 15 min Evening	LAeq 15 min Night	LA1 (1 min) Night			Day	Evening	Night	
N5	Oakleigh <sup>2</sup>	19/06/2023 <sup>3</sup>	I/A	27	30	38	Day, Evening and Night – LAeq(15minute) 35 dBA  Night LA1(1minute) – 45 dBA	Day - 1.5 hrs Evening - 0.5 hrs Night – 1hrs	N	N	N	Y
		20/06/2023 <sup>3</sup>	34	I/A	I/A	I/A			Y	Y	Y	Y
		21/06/2023 <sup>3</sup>	34	N/M	25	27			Y	Y	N	Y
N6	Newhaven	19/06/2023 <sup>3</sup>	N/M	28	32	38		N	N	N	Y	
		20/06/2023 <sup>3</sup>	28	25	25	31		N	Y	Y	Y	
		21/06/2023 <sup>3</sup>	N/M	I/A	<25	25		Y	Y	Y	Y	
N8	Haylin View <sup>2</sup>	19/06/2023 <sup>3</sup>	I/A	N/M	25	28		Y	N	N	Y	
		20/06/2023 <sup>3</sup>	I/A	I/A	I/A	I/A		Y	Y	Y	Y	
		21/06/2023 <sup>3</sup>	34	I/A	I/A	I/A		Y	Y	Y	Y	
N9	High Range <sup>2</sup>	19/06/2023 <sup>3</sup>	25	25	31	34	Y	N	N	Y		
		20/06/2023 <sup>3</sup>	I/A	I/A	I/A	I/A	Y	Y	Y	Y		
		21/06/2023 <sup>3</sup>	I/A	I/A	I/A	I/A	Y	Y	Y	Y		
-	Bow Hills <sup>1</sup>	19/06/2023 <sup>3</sup>	I/A	34	32	35	Day 15 min Evening 15 min Night 15 min	Y	N	N	Y	
-	Ardmona	21/06/2023	N/M	I/A	N/M	N/M		Y	Y	Y	Y	
-	Merriman <sup>2</sup>	20/06/2023	I/A	30	I/A	I/A		Y	N	N	Y	
-	Matilda <sup>2</sup>	20/06/2023	I/A	N/M	<25	28		N	N	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. 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: Evening and Night monitoring conducted on this date, Day monitoring conducted during the following day period.

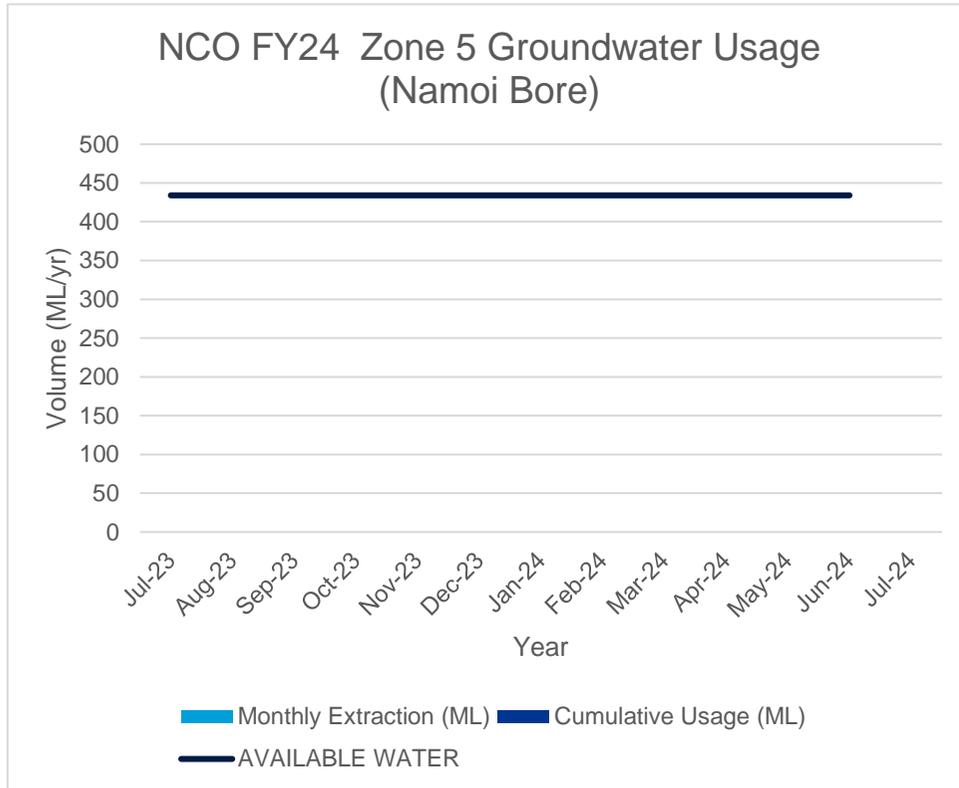
**Narrabri Coal Operations Pty Ltd** ABN 76 107 813 963

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

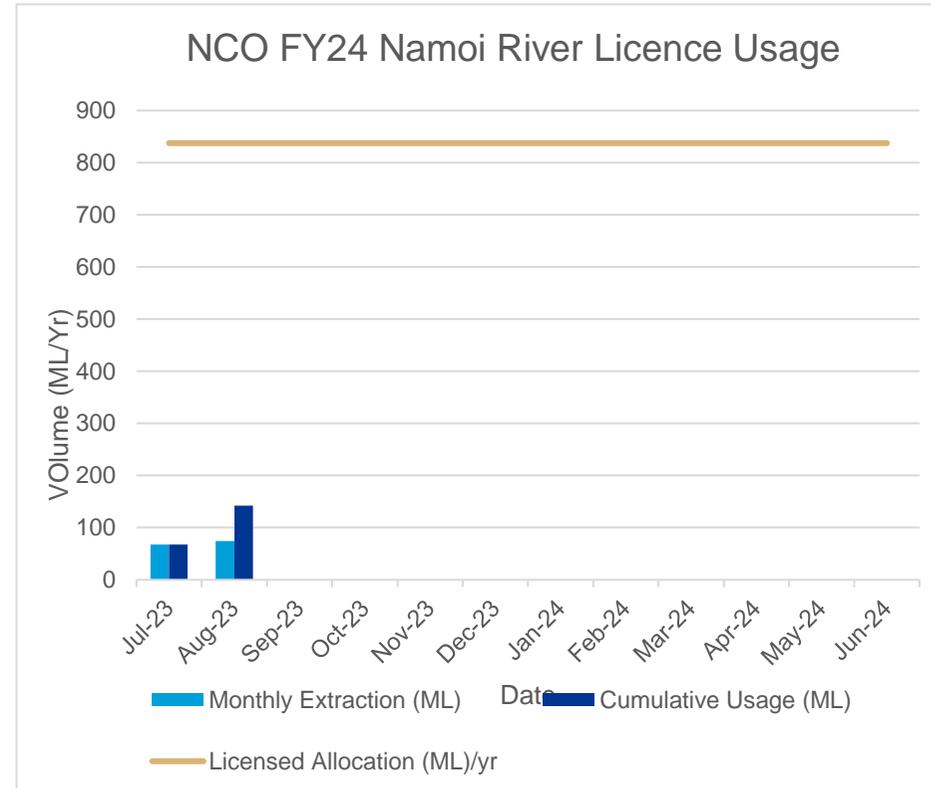
### Surface Water Monitoring

No controlled discharge events occurred during the reporting period.

### NSW Water- Licenced Usage (as of 29 Aug 2023)



**Figure 4:** Zone 5 licensed groundwater usage from the Namoi Bore for FY24 is 0ML (Water Year).



**Figure 5:** Namoi River licensed water allocation usage for the current Financial (Water) (128ML)

## Groundwater Monitoring

Groundwater monitoring results are reviewed at the end of each year by a suitably qualified hydrogeologist and reported in the Annual Review. The Annual Review is due for submission to NSW DPE 31 March 2024.

NCO have commissioned AGE to undertake a fill re-calibration of the Groundwater Model:

- delayed due to discussions with NSW DPE Water in relation to the Extraction Plan 203 – 206;
- groundwater re-calibration following the above (as this will impact the NCO groundwater model).

## Subsidence Monitoring

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

Longwall Panels (LW)		
	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 9/11/2022) (LW109-109)		
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 10/10/2022)		
Subsidence (m)	2.75	1.53
Tilt (mm/m)	53	0
Tensile Strain (mm/m)	13 – 20^	0
Compressive Strain (mm/m)	16 – 24^	0

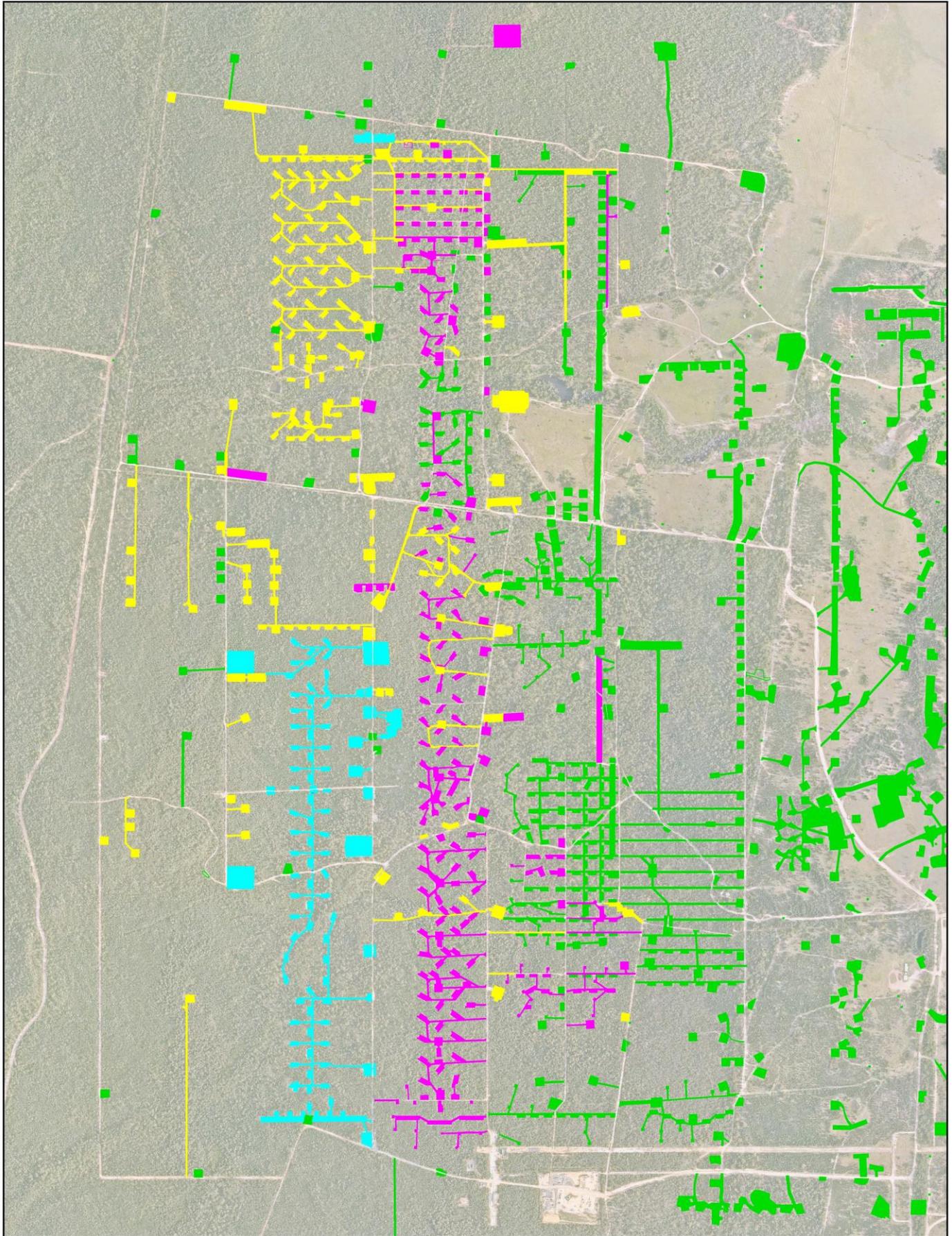
## Rehabilitation

**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 2023 (CY) Rehabilitation Works as of 30/08/2023

Rehabilitation Status	Completed (ha)	Target (ha) end of CY23
Landform establishment	8	12.33
Ecosystem establishment	8	12.33



- Completed Rehab Area Prior 2022
- Area under Rehab 2022 = 27.0ha
- Completed Rehab Area 2022 = 20.0ha
- Rehab Area being Prepared 2023 = 12.0haha

	By	Date:
Drafted:	A.Taylor	28/02/23
Edited:		
Approved:		
Scale:		

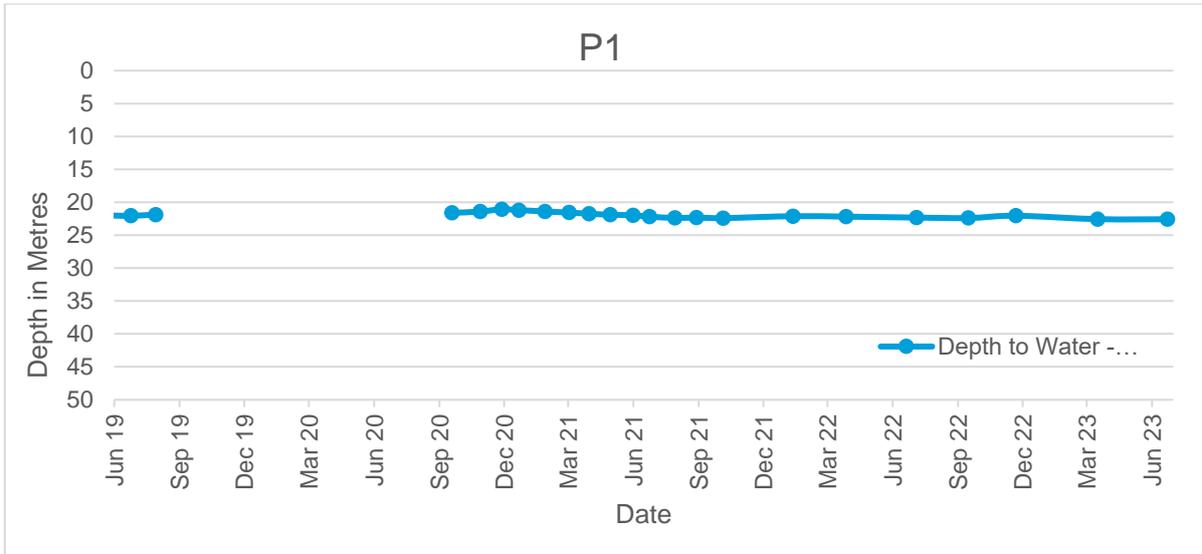
**Rehabbed Areas  
2022**

Plan No: Rehabbed Areas Jan2022\_Dec2022

## Hydrographs for Groundwater Monitoring Wells



**Figure 7:** Location of groundwater monitoring wells



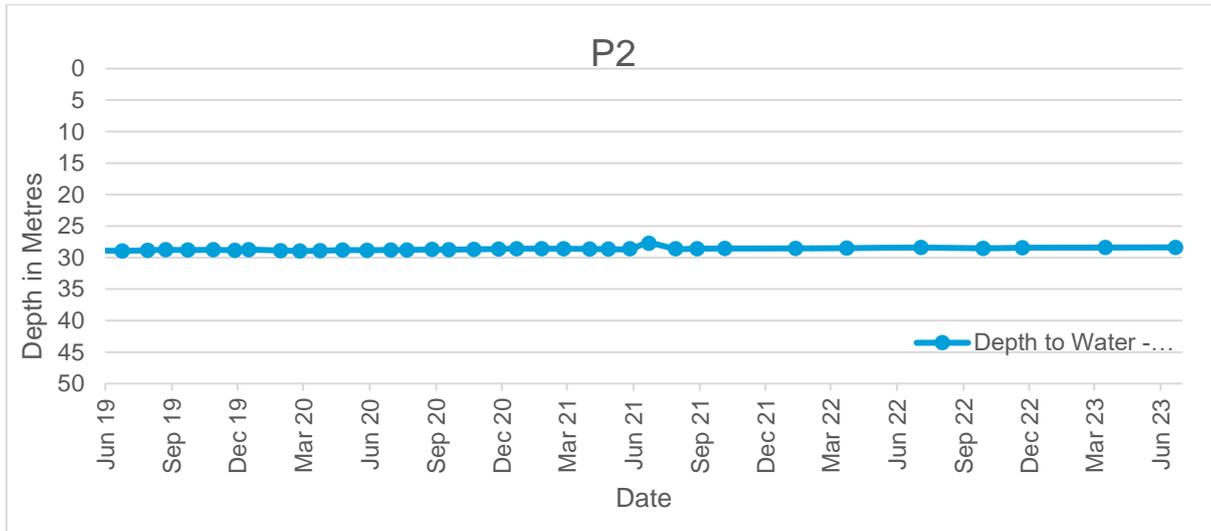
**NCO Monitoring bore ID:** P1

**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.

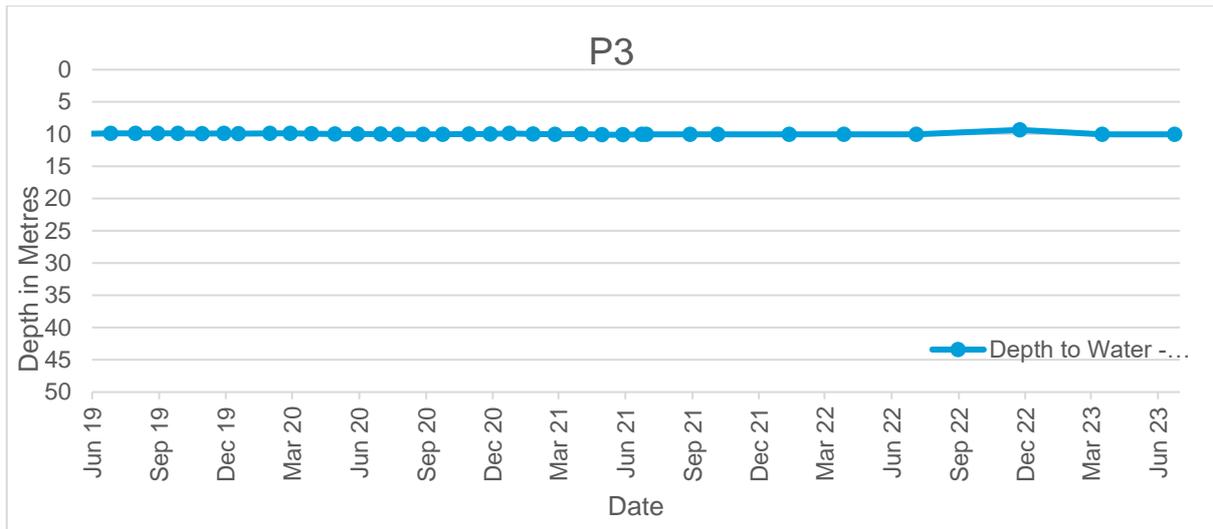


**NCO Monitoring bore ID:** P2

**Location:** Matilda

**Geological unit:** Napperby Formation

**Bore depth:** 50m

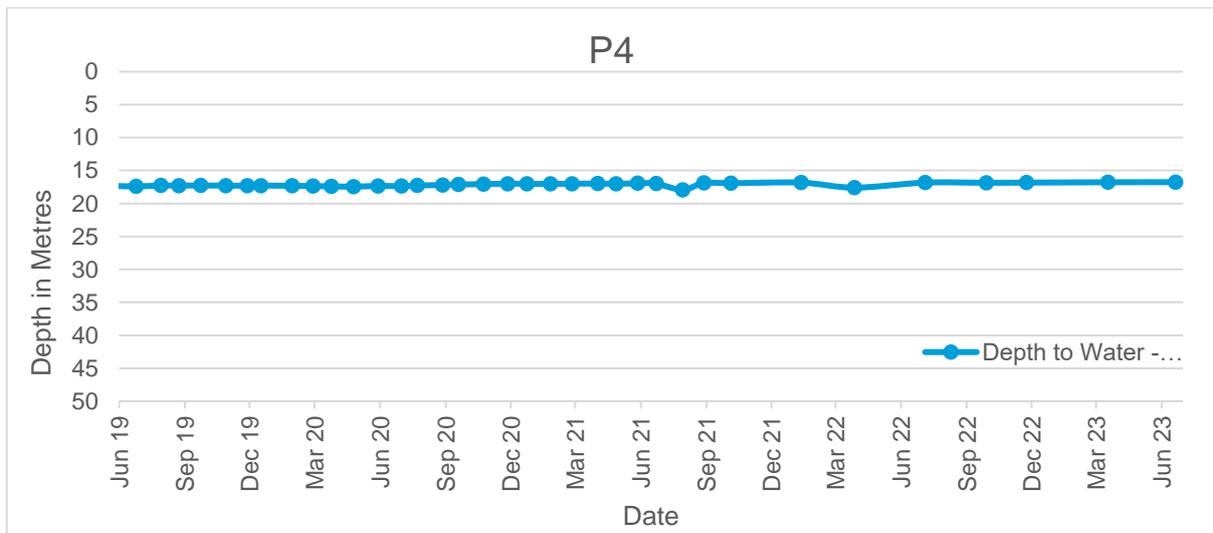


**NCO Monitoring bore ID: P3**

**Location:** Bow Hills

**Geological unit:** Pamboola Formation

**Bore depth:** 45m

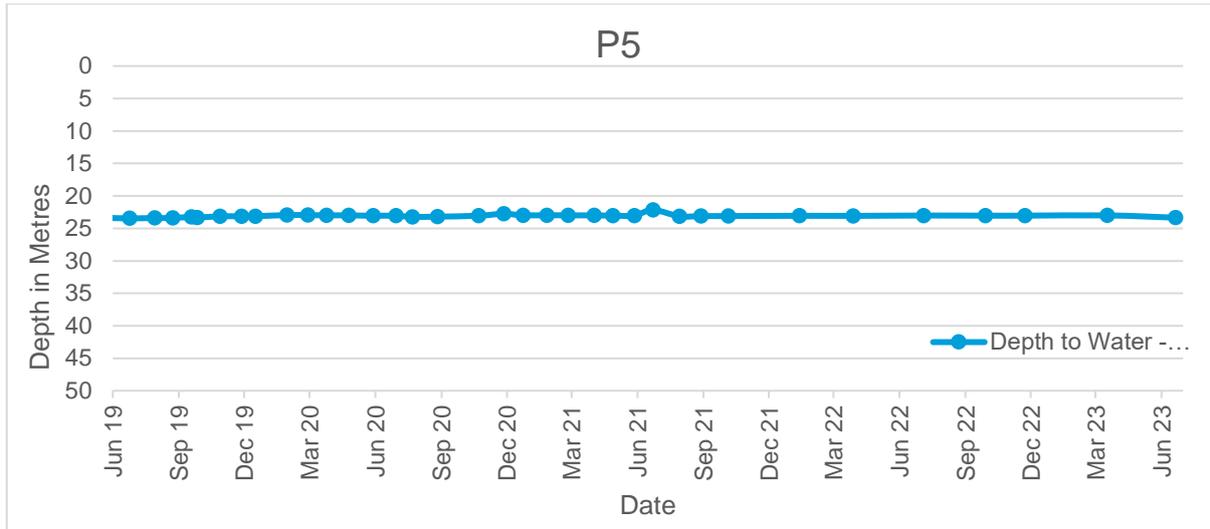


**NCO Monitoring bore ID: P4**

**Location:** North of Newhaven on Kamilaroi highway

**Geological unit:** Napperby Formation

**Bore depth:** 30m

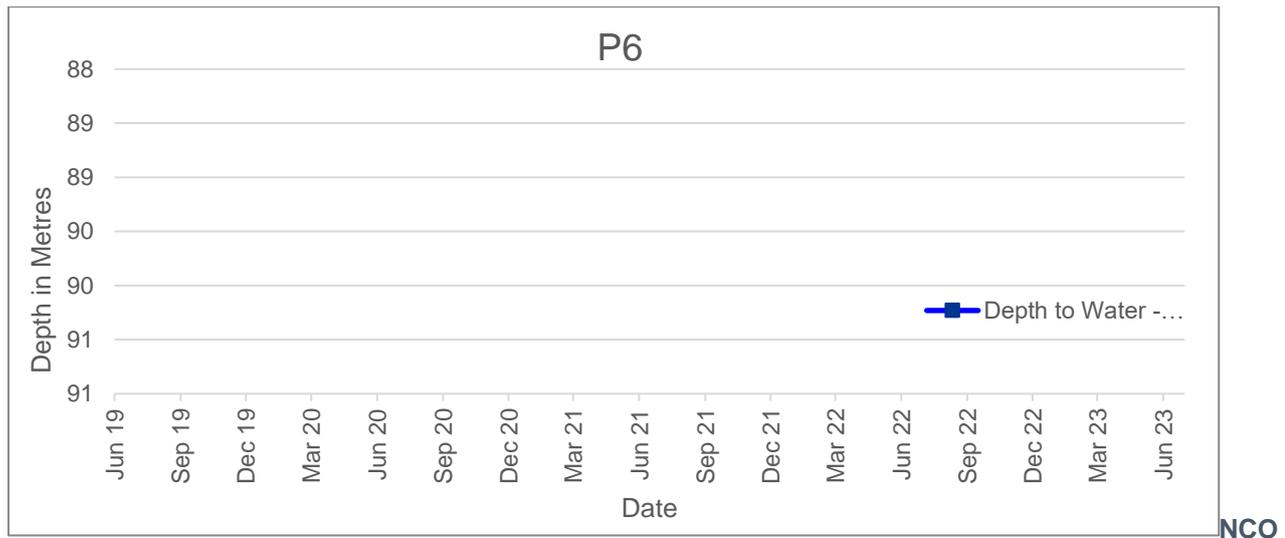


**NCO Monitoring bore ID: P5**

**Location:** On Turrawan Road - shown on Figure 10

**Geological unit:** Pamboola Formation

**Bore depth:** 30m



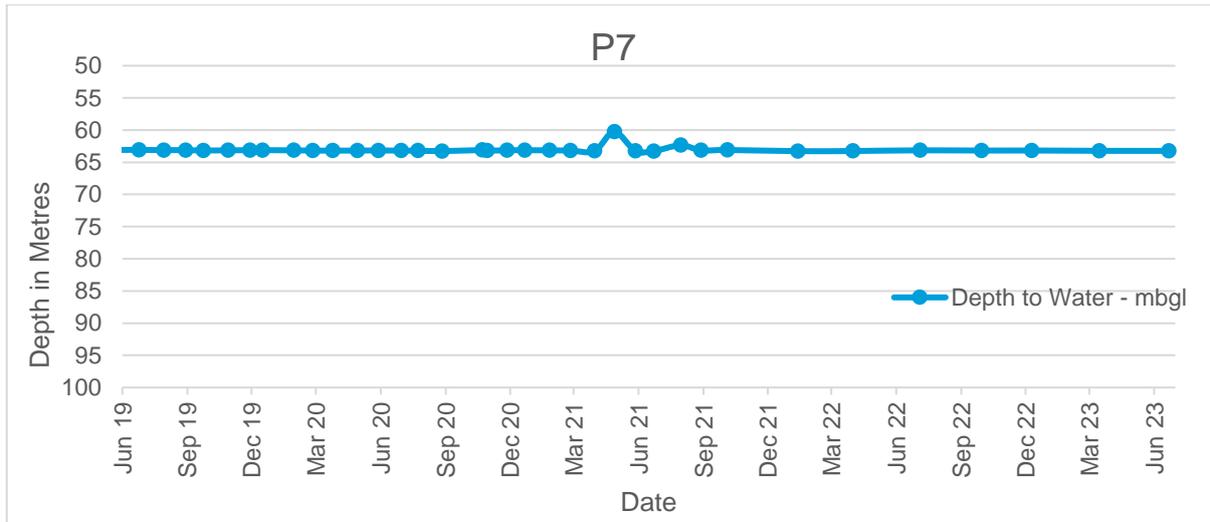
**Monitoring bore ID: P6**

**Location:** shown on Figure 10

**Geological unit:** Pilliga sandstone

**Bore depth:** 90m

**Explanation:** Dry since 2012

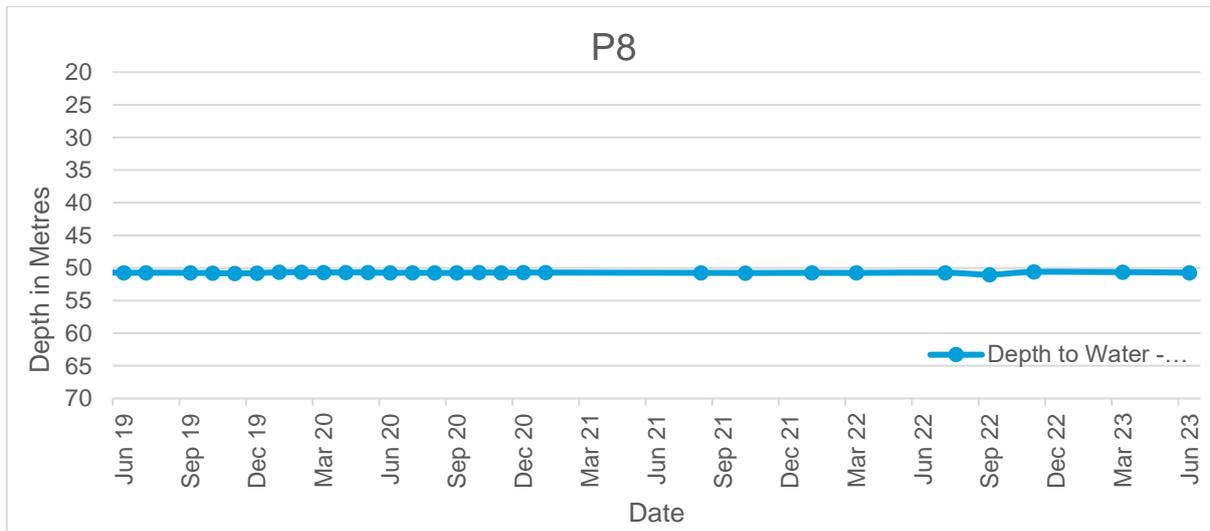


**NCO Monitoring bore ID: P7**

**Location:** State forest

**Geological unit:** Pilliga sandstone

**Bore depth:** 90m

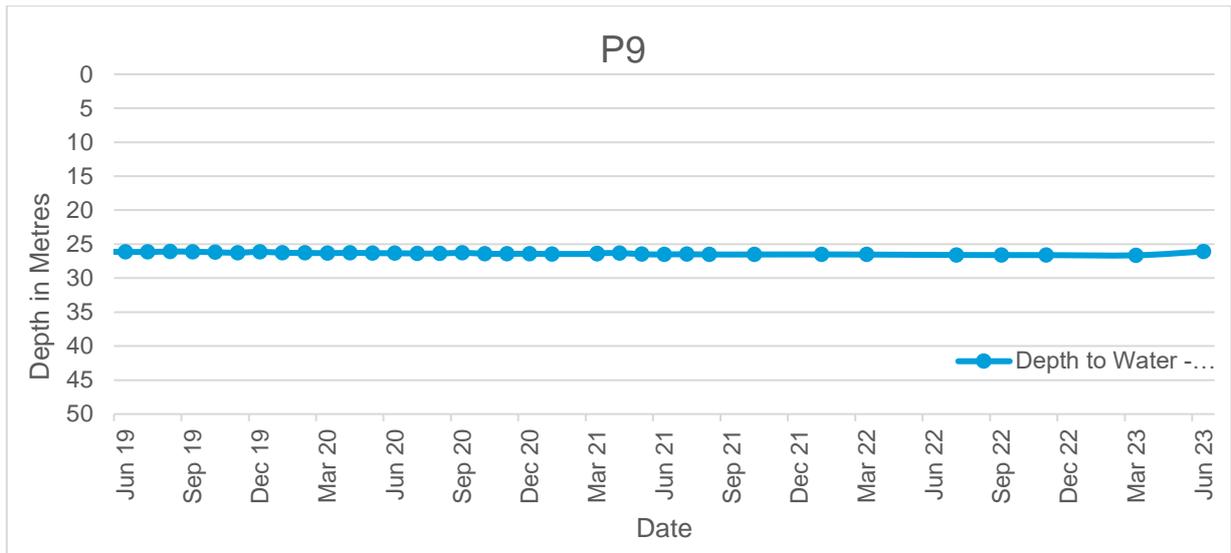


**NCO Monitoring bore ID: P8**

**Location:** Kurrajong

**Geological unit:** Purlawaugh Formation

**Bore depth:** 65m

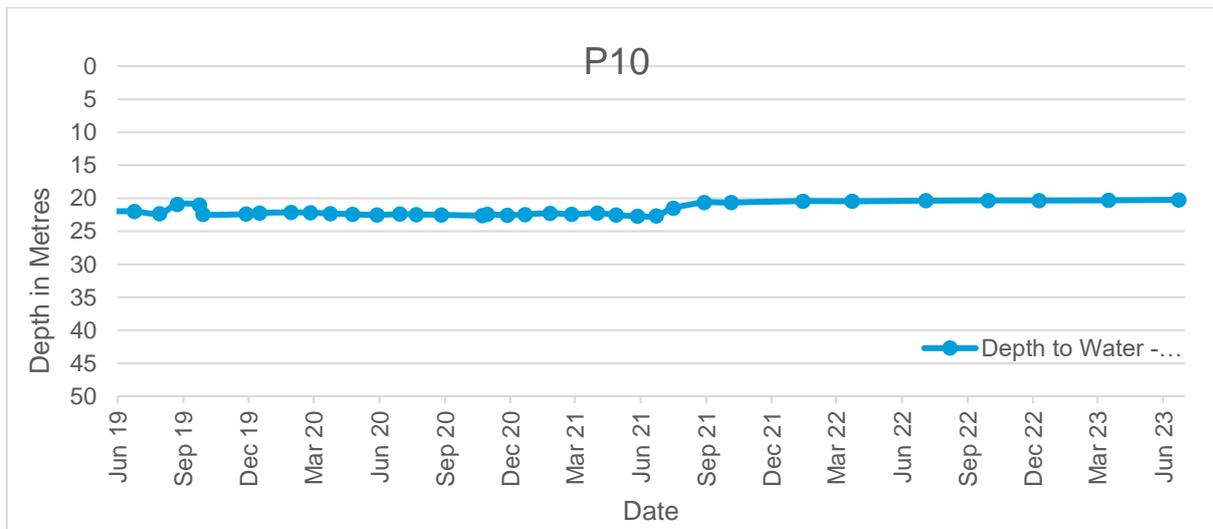


**NCO Monitoring bore ID:** P9

**Location:** NCO – Figure 10

**Geological unit:** Purlawaugh Formation

**Bore depth:** 30m

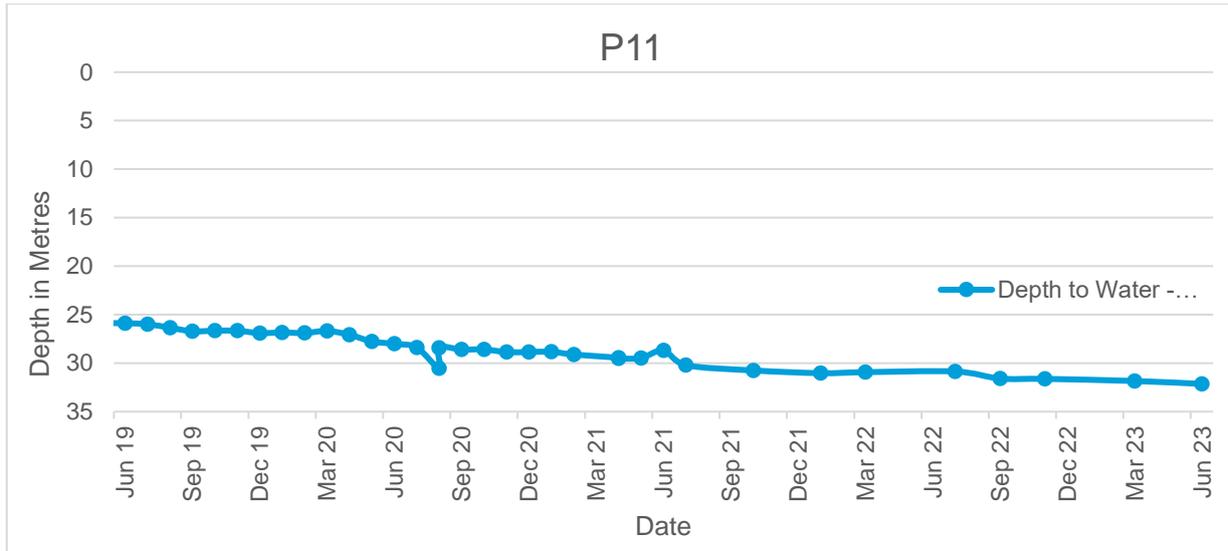


**NCO Monitoring bore ID:** P10

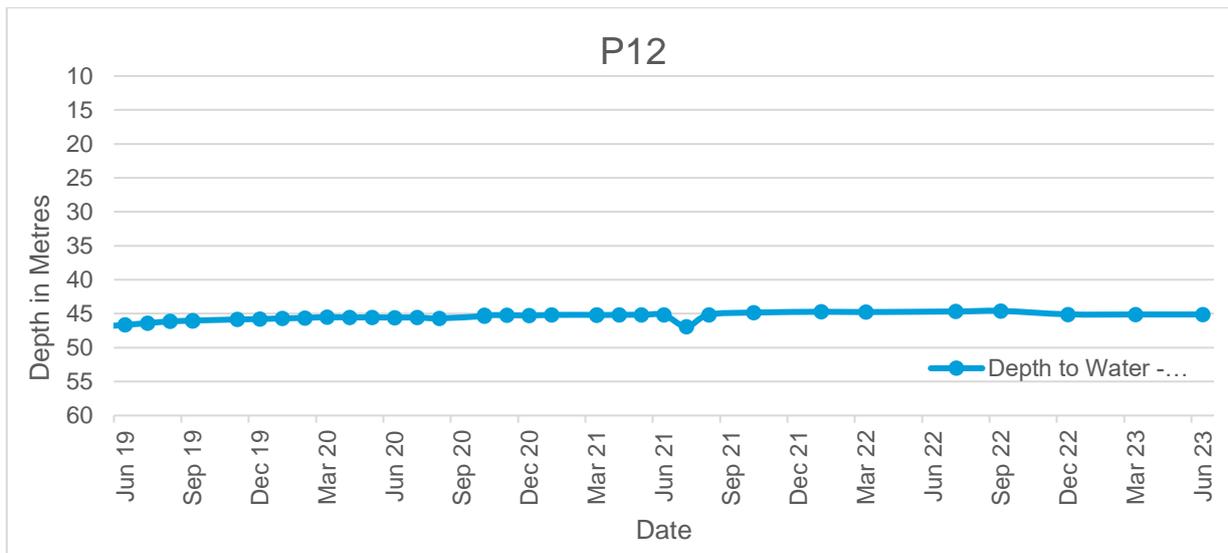
**Location:** NCO – see figure 10

**Geological unit:** Napperby Formation

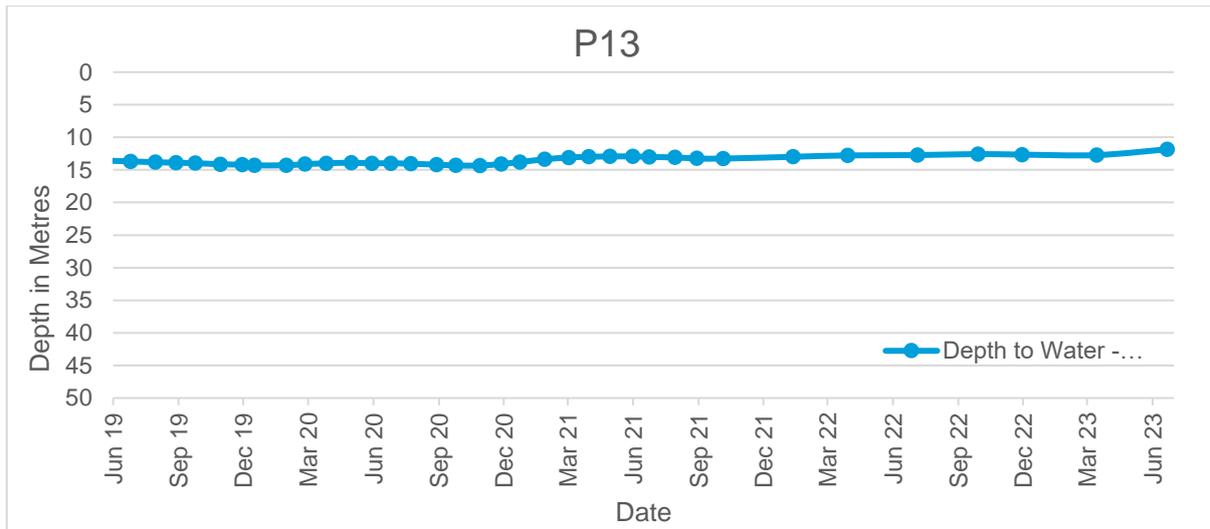
**Bore depth:** 130m



**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**

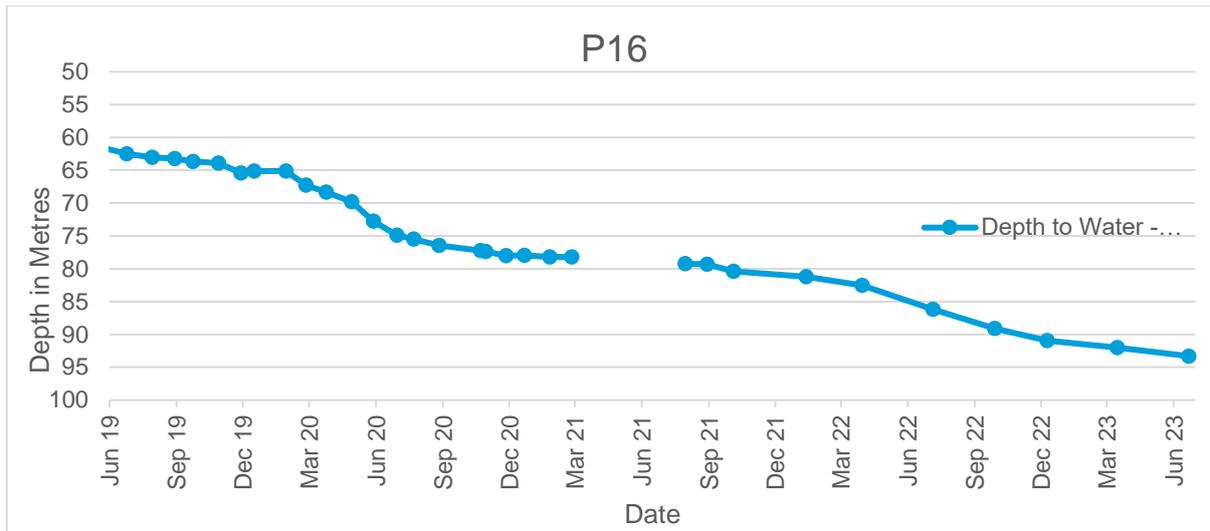
**NCO Monitoring bore ID:** P15

**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*

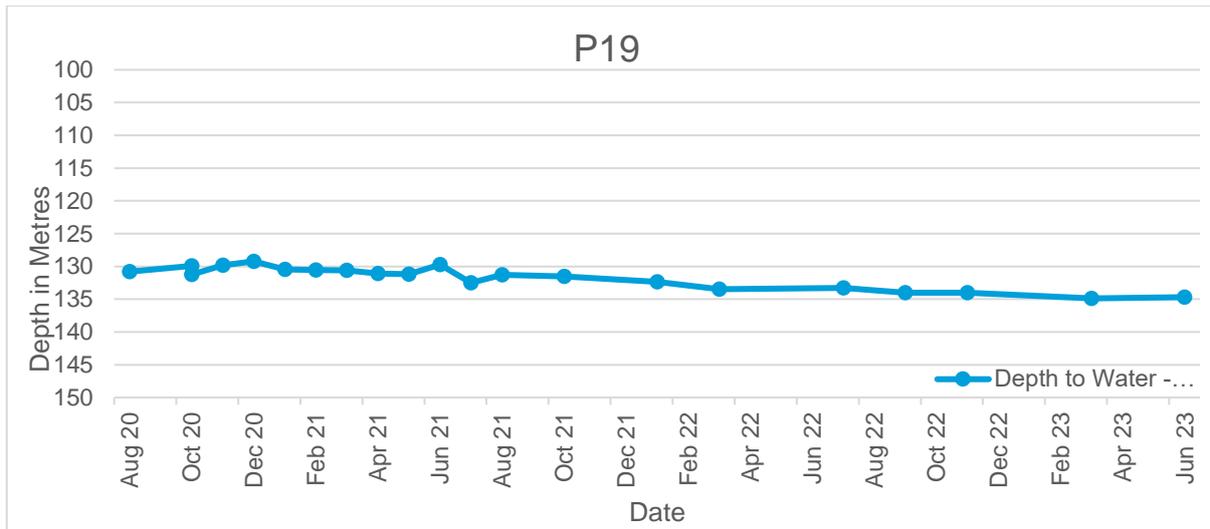
**NCO Monitoring bore ID:** P18

**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*

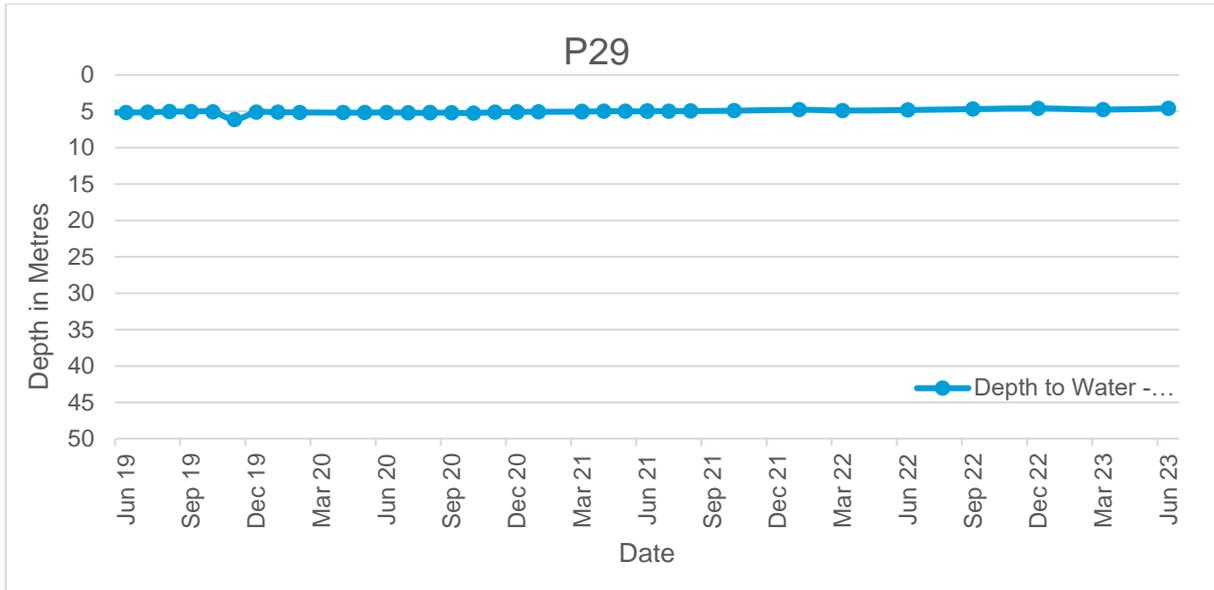
**NCO Monitoring bore ID:** P28

**Location:** See figure10

**Geological unit:** Napperby Formation (above sill)

**Bore depth:** 25m

**Explanation:** Dry since 2012

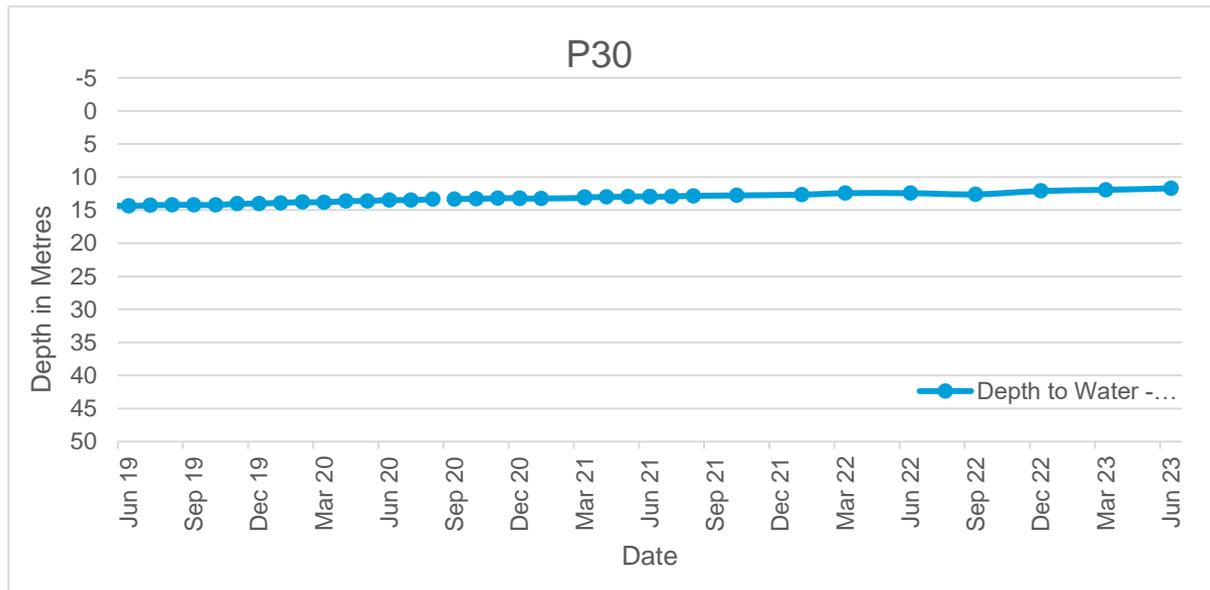


**NCO Monitoring bore ID:** P29

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

**Geological unit:** Napperby Formation (above sill).

**Bore depth:** 25m

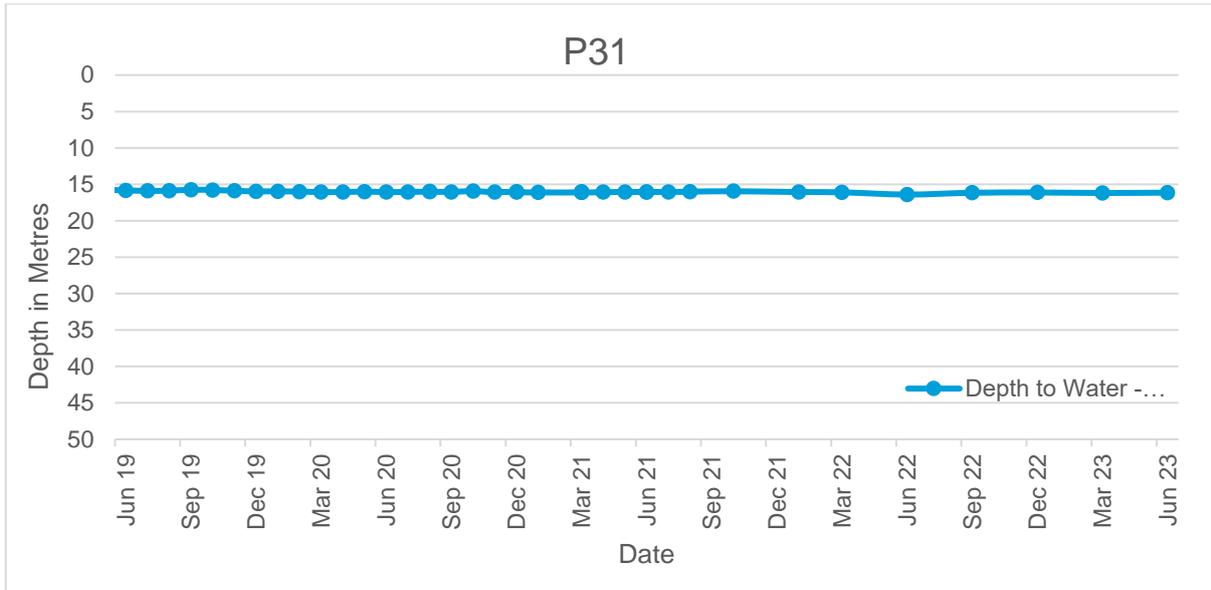


**NCO Monitoring bore ID:** P30

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

**Geological unit:** Napperby Formation (above sill)

**Bore depth:** 15m

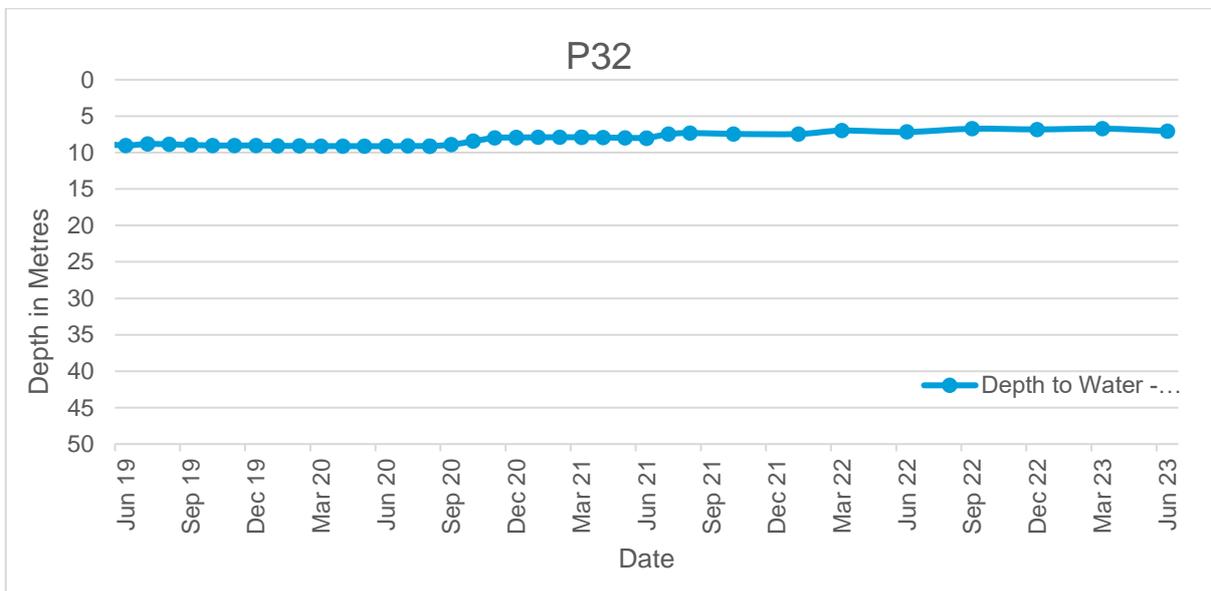


**NCO Monitoring bore ID:** P31

**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

**No Graph**

**NCO Monitoring bore ID:** P33

**Location:** See figure 6

**Geological unit:** Napperby Formation (above sill)

**Bore depth:** 15m

**Explanation:** Dry since 2012

**No Graph**

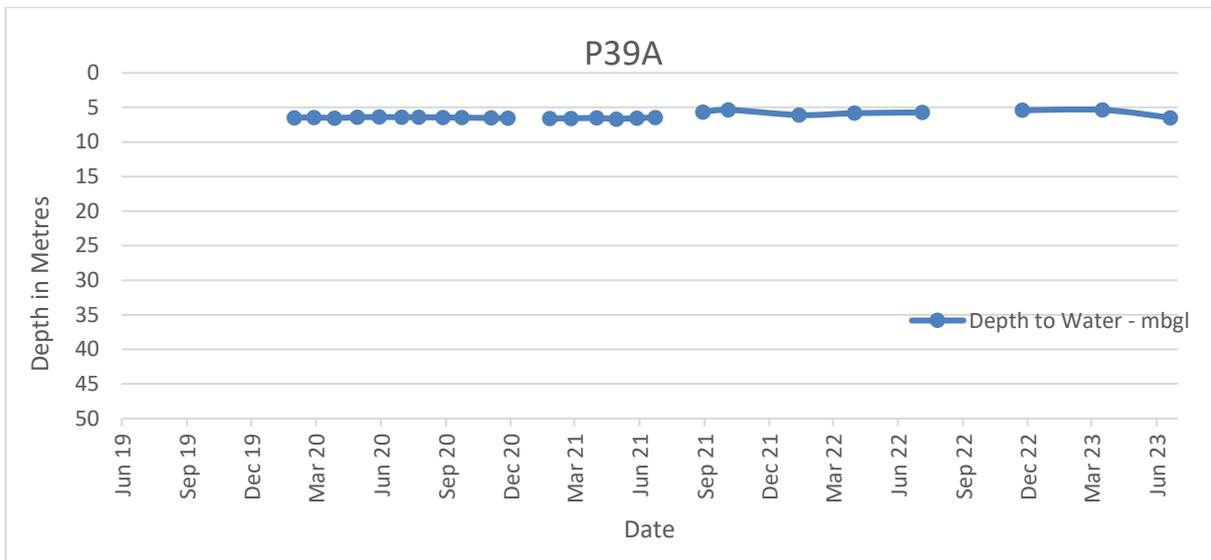
**NCO Monitoring bore ID:** P24

**Location:** See figure 6

**Geological unit:** Napperby Formation (above sill)

**Bore depth:** 15m

**Explanation:** Dry since 2012



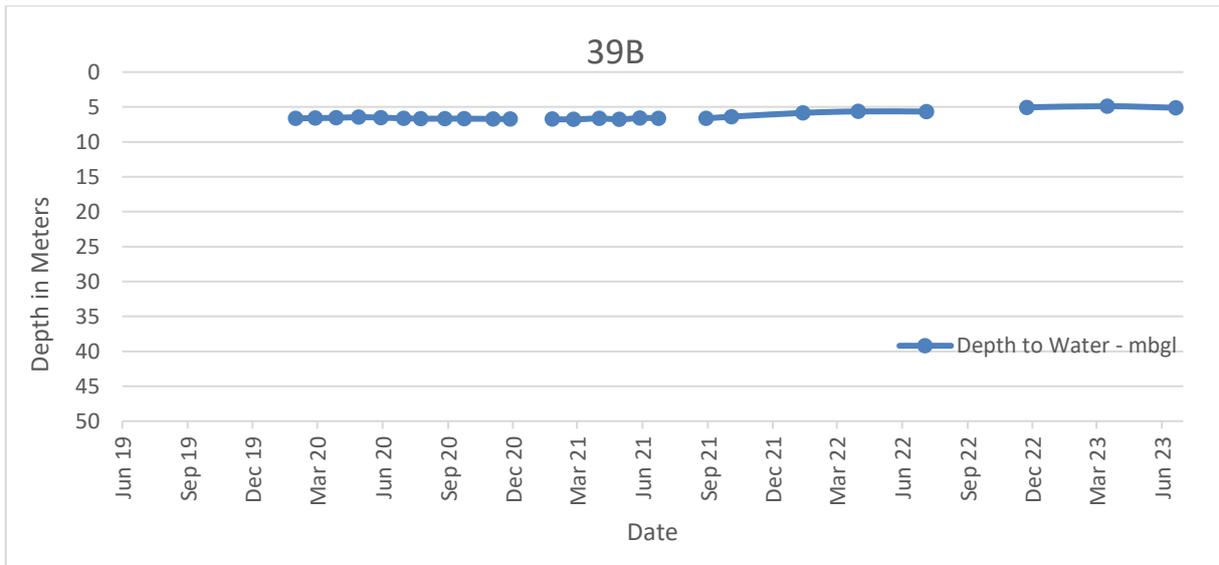
**NCO Monitoring bore ID:** P39A

**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, and wet weather.



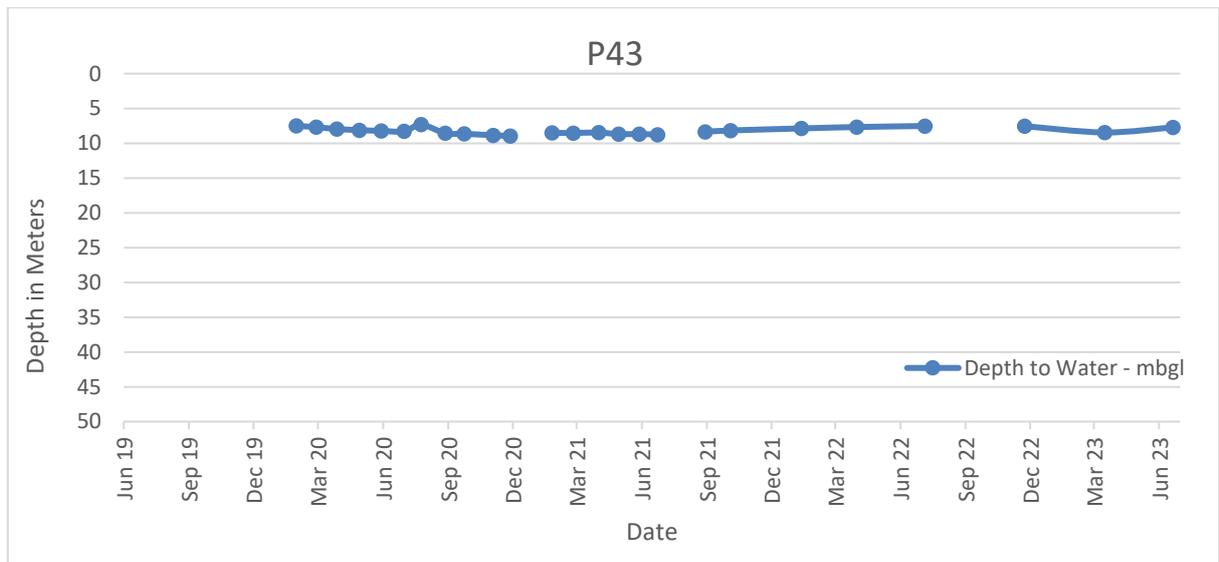
**NCO Monitoring bore ID:** P39B

**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, and wet weather



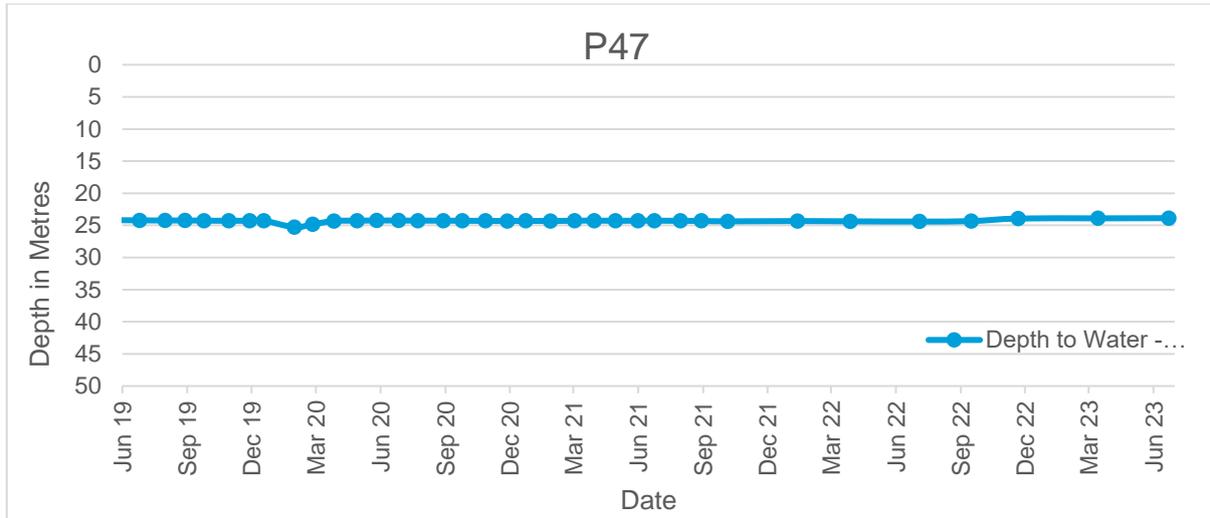
**NCO Monitoring bore ID:** P43

**Location:** Bow Hills

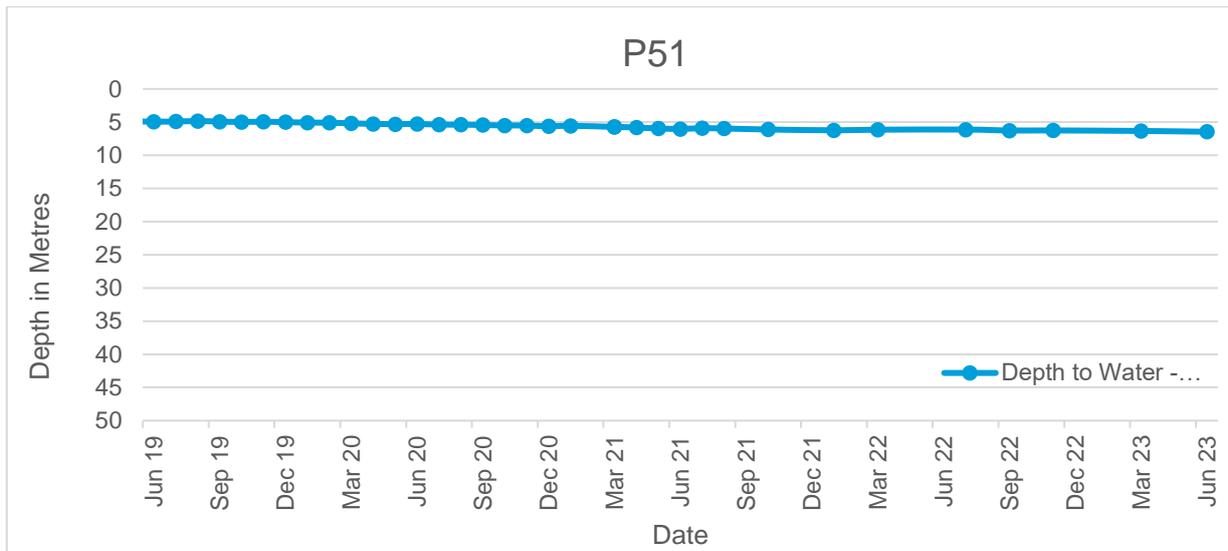
**Geological unit:** Watermark formation

**Bore Depth (m):** 65m

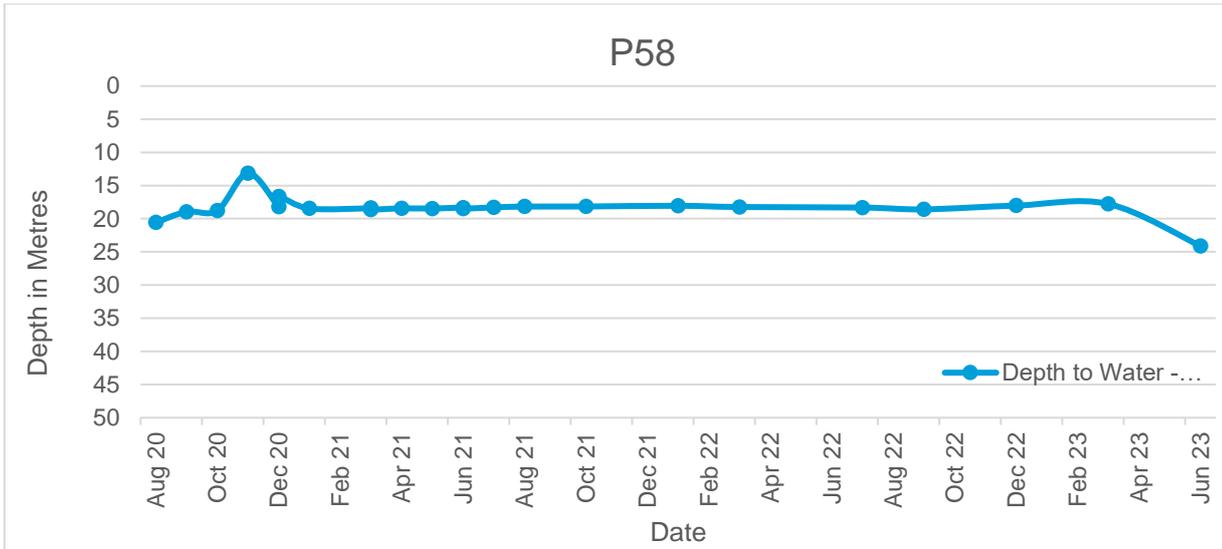
**Explanation:** Gap in data is due to land access issues – cattle were being hand fed in paddock with the bore and wet weather



**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 #63**

**Date:** Wednesday 7<sup>th</sup> December 2023

**Time:** 5:15pm

**Location:** Railway Hotel, Baan Baa

**Meeting Commenced at 5:08pm**

**Present:** Russell Stewart (RS)  
Ian Duffy (ID)  
James Stieger (JS)  
Peter Webb (PW)  
Mark Foster (MF)  
Bruce Danson (BD)  
Geoff Hunter (GH)  
Alan Grumley (AG)  
Landon Brady (LB)- Narrabri Shire Council  
Cathy Redding (CR)- Narrabri Shire Council  
David Ellwood (DE) – Whitehaven Coal  
Harriet Davies (HD) – Whitehaven Coal  
Brent Baker (BB) – Whitehaven Coal  
Darren Swain (DS) – Whitehaven Coal  
Jabin De Keizer (JDK) Whitehaven Coal

**Apologies:**

Gerald Linde (GL) – Whitehaven Coal

**Moved: RS Seconded: MF**

**1. DECLARATION OF PECUNIARY INTEREST**

No declarations.

**Moved: RS Seconded MF**

## 2. PREVIOUS MINUTES

RS asked if everyone had read previous minutes.

RS asked for previous minutes to be accepted as a true and accurate record. Everyone present at the meeting agreed that the minutes were true and accurate.

Moved: PW Seconded: MF

### 2.1 BUSINESS ARISING FROM PREVIOUS MINUTES

MEETING ACTIONS		
Person	Action	Due
SR	Add noise monitoring for the Bow Hills property to the 2023 Annual Review	2023 Annual Review submission (due 31 March 2024)
SR	More detail to be included within the Environmental Monitoring Report.	CCC Meeting #63 (6 Dec 2023)
SR	Report back on the reported leak in the Namoi water pipe	Confirmed repair 18 September 2023
TR	Report on the area that the proposed Solar Farm will cover	Approx 117Hha

- GH raised a question in regards to the location of the new ground water (GW) bores that Whitehaven (WHC) have recently installed on mining exploration lease and landholder property.
- The landholder at Willila, (confirmed by GH following CCC meeting) contacted GH to raise concerns about 2 new bores that the landholder installed on their property. The landholder would like to know what they can do in regards to baseline data.
- A second landholder, Mark Lane, (confirmed by GH following CCC meeting) had previously been contacted by WHC about a potential bore on his property. Mark Lane has not been updated on the progress of said bore. DE commented that the location of the WHC GW bores did move throughout the drilling program in order to target certain geological formations.
- **Action:** DE suggested landholders to contact Narrabri Coal Operations (NCO) directly with the locations of their bores.
- GH raised several questions regarding the Whitehaven Solar Farm. The general progress of the project, the size of the farm and why it does not feed into the grid. DE explained that the solar farm is based on peak usage and then scaled to not exceed. The capacity is not available to feed to the grid. In terms of the project process, the scoping report for the solar farm has been submitted to the department for assessment; EIS process will need to be followed. WHC are yet to engage an operating company for the next stage of development.

Moved: RS Seconded: MF

### 3. OPERATIONS PROGRESS REPORT AND SAFETY UPDATE

Presented by DE

- DE presented the production figures to date. Production is reduced due to challenges the LW has faced with unfavourable geological conditions; poor roof conditions and some roof falls on the longwall face.
- 60 first aid (scratches, bumps etc) 4 medical treatments, 2 restricted work due to an injury at work this quarter and 1 lost time injury.
- GH asked how WHC are positioned for labour hire. DE noted that it continues to be a challenge, particularly with trades and deputies however, WHC are always recruiting and have increased the number of apprentice programs available, including electricians and fitters. DE to get number of new apprentice spaces.

### 4. STAGE 3 UPDATE

Presented by DE

- DE updated on the progress of the stage 3 project. The court case was finalised in September however, a second appeal from the Environmental Justice Australia (EJA) was lodged. The new court case has been set for February 2024. Following the court case, the project goes back to the Minister for approval and signature. The likelihood is to expect the decision by November 2024.
- GH requested update on progress in regards to the make good agreements. DE explained that 6 of the 9 'make good agreements' have been approved and a 7<sup>th</sup> verbal agreement has been made between the landowner and NCO.

### 5. ENVIRONMENTAL MONITORING REPORT

Presented by BB. All CCC members receive a hard copy of the environmental monitoring report. BB introduced himself to the committee.

- ENVIRONMENTAL INCIDENTS:
  - No reportable incidents to regulatory agencies since previous CCC meeting.
- COMPLAINTS:
  - Explained the complaints dating back to Jan/ Feb 2023 and one in September.
- DEPOSITIONAL DUST:
  - 2023 annual average (year to date) for all monitoring locations are below the licence limit.
  - Analysis of November 2023 results have not been finalised by the laboratory.
- 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 for the two monitoring locations (Claremont and Turrabaa).
- QUARTERLY NOISE MONITORING
  - Q1 2023 - no exceedances recorded, compliance achieved at all locations; and
  - Q2 2023 no exceedances recorded, compliance achieved at all locations; and
  - Q3 2023 no exceedances recorded, compliance achieved at all locations; and
  - Q4 2023 monitoring was completed in November, WHC have not yet received the report (due end of December 2023) – EPA needs to receive this within 30 days.
- SURFACE WATER MONITORING: No discharge events since the previous CCC meeting.
- WATER LICENSING
  - Presented graphs showing NCO water licence allocation usage.
  - Levels below licenced allocations.
- GROUNDWATER MONITORING –
  - The new GW bores are to be included in the sampling in December.
  - Presented Hydrographs for groundwater monitoring locations.
  - AGE and recalibration of the GW model and review
  - GH asked about GW bore P16 and the exceedance recorded in 2022. DE spoke about the groundwater model recalibration report which will include review of P16 water level drawdown triggers. The report is due this month and will be submitted to the DPE.
  - **Action:** include new GW monitoring bore graphs in the next environmental report.
- SUBSIDENCE MONITORING
  - LIDAR data will be collected in December and reviewed by a suitably qualified professional. An annual review of monitoring results is undertaken against subsidence predictions.
  - Subsidence monitoring line results reported are within modelled predictions.
- REHABILITATION
  - 16.86 hectares of rehabilitation has been completed for 2023 which exceeds the target required in the Rehabilitation Management Plan.

- BB gave a brief description of the rehab process and explained that the Northern Panels are near completion. Further monitoring is conducted which allows WHC to track the process of rehab and provide data to the regulator.
- GH raised the question as to what happens to mine land following rehab. DE said timbered areas will be used as biodiversity offset, following additional approvals processes. BB explained pasture rehabilitation approved final land use was light grazing.
- JS asked about subsidence risk in rehabilitated areas. DE explained that surveyors cease measuring subsidence when a period of nil movement over several years is confirmed. Rehabilitation monitoring continues and identifies any localised subsidence cracks.

No further questions/comments from members.

## 6. GENERAL BUSINESS

- DE: WHC have met with landholders for initial survey work to commence in exploration lease (EL) 9455 and 9456, located north-west of mining lease (ML) 1609. Currently preparing Review of Environmental Factors reports (REFs) which will be presented to the NSW Resources Regulator to commence the approvals process.
- DE: The leak in the pipeline that was discussed in Q3 meeting #63 has been repaired (September 18<sup>th</sup> 2023).
- JS raised the question of WHC engaging the Wee Waa schools for site tours. DS stated that no engagement has happened with Wee Waa Schools recently however will look into it in the new year. WHC have worked with Boggabri Public School to provide students with access to laptops for their study.
- GH enquired about the progress of land management and the structure around the property management plans. Comments made about feral animal control and inadequate fences were raised. DS to follow up on this space.

No other general business

## 7. COMMUNITY

- DS spoke about the community engagement from WHC. Little Wings launched in Narrabri to support and provide children aged 0-18 with greater access to medical support. WHC partnered with Narrabri Shire Council to established the Cyril Knox Art Prize Exhibition, the WHC will attend Narrabri Street Fair in December. WHC are working with local High Schools organise a site visit.

No more business

MEETING ACTIONS		
Person	Action	Due
BB	Add noise monitoring for the Bow Hills property to the 2023 Annual Review	2023 Annual Review
DE	Obtain number of new apprentice spaces.	CCC Meeting #64
HD	Include new GW monitoring bores and graphs in the next CCC meeting	CCC Meeting #64
DS	Investigate land management on properties, feral animals, fencing	CCC Meeting #64

#### NEXT MEETING

20<sup>th</sup> March 2024, 5:15pm in the Boardroom, NCO

## **Narrabri Mine Community Consultative Committee Meeting #63**

### **Environmental Monitoring Report: October - December 2023**

Report Date 5 December 2023

#### **Reportable Incidents**

Nil since previous CCC meeting.

#### **Complaints**

Three (3) complaints. Two of these complaints back date to January and February 2023.

#### **Approvals/Special Projects**

STAGE 3

- To be presented by David Ellwood

## Deposited Dust Monitoring

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

2023 annual average (year to date) for all monitoring locations is below the annual average licence limit of 4 g/m<sup>2</sup>/month (Insoluble Matter).

**Table 1: 2023 (CY) Total Insoluble Matter Result**

Total Insoluble Matter results (g/m <sup>2</sup> /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 Darjeeling	
SEPTEMBER 2023*	0.5	2.4	0.5	0.6	4.9	0.8	5.1	0.3	NA	0.2	0.5	
OCTOBER 2023	0.9	0.7	0.8	0.6	2.4	0.6	1.6	0.5	0.8	0.6	0.5	
NOVEMBER 2023**												
DECEMBER 2023***												
Annual Average	0.8	1.7	0.6	1.2	2.9	1.3	1.6	0.6	1.2	0.6	1.0	

\*Missing ND11 sample for September; bottle broken in transit

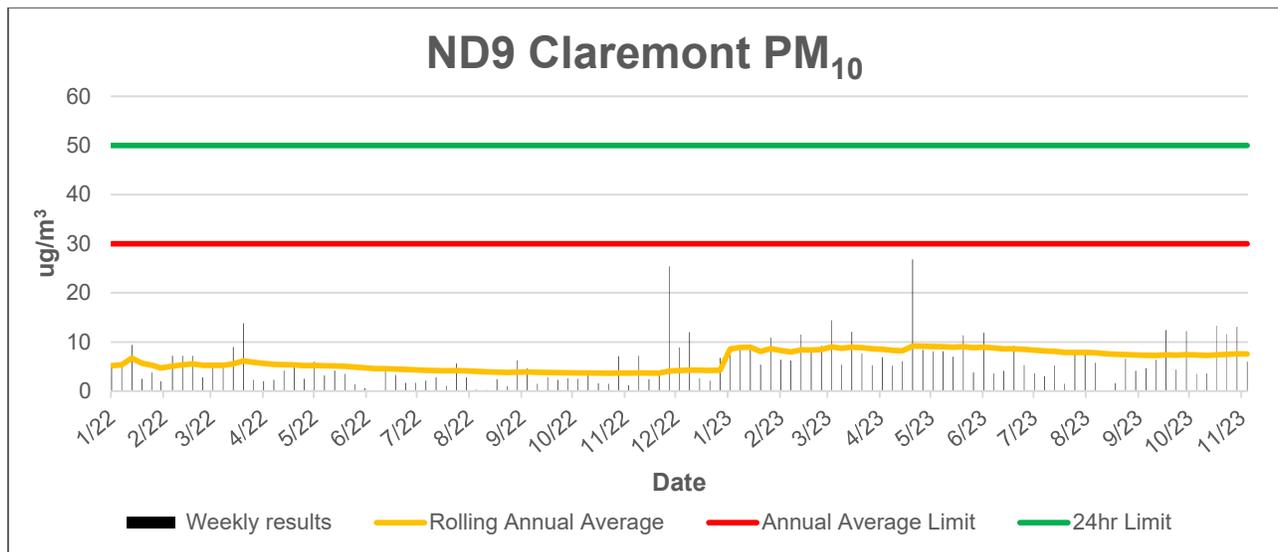
\*\*Waiting on lab results

\*\*\*Due to be collected and sent to ALS Newcastle 10th December 2023

## PM<sub>10</sub> High Volume Air Sampling (HVAS)

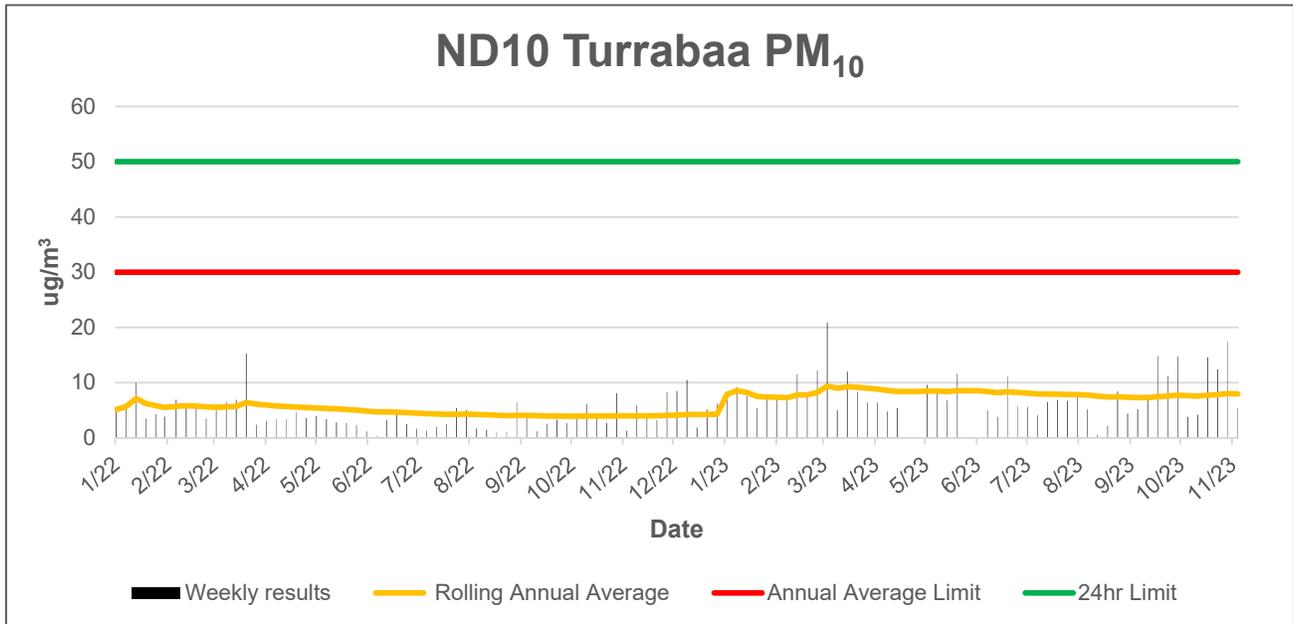
Samples are collected over a 24-hour period once every 6 days, with a (24hr) compliance limit of 50 µg/m<sup>3</sup>, and an annual average limit of 30 µg/m<sup>3</sup>.

**Figure 1: Claremont PM<sub>10</sub> High Volume Air Sampler results for last 12-month period.**

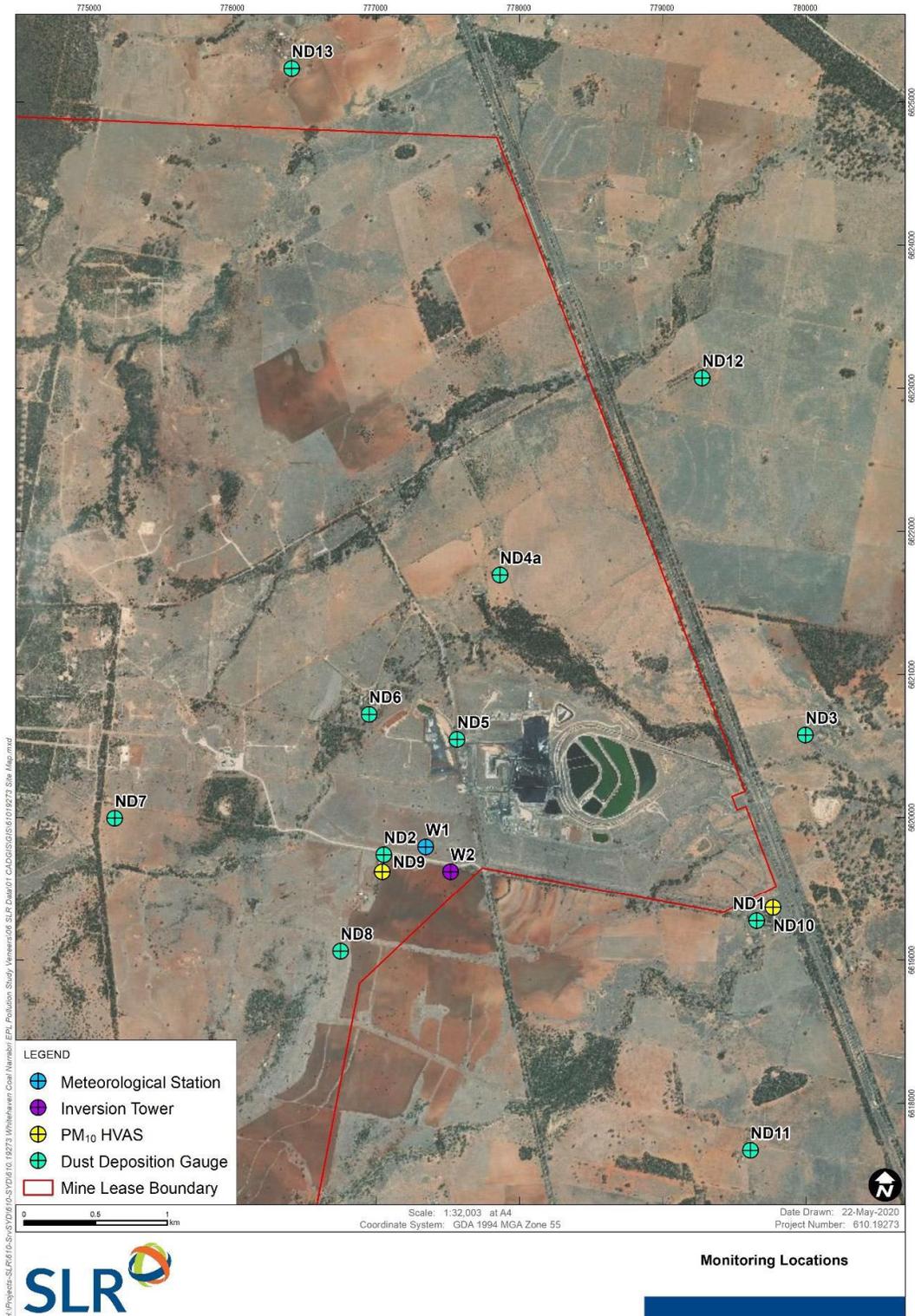


The Claremont HVAS (*Figure 1*) 2023 rolling annual average is 7.54  $\mu\text{g}/\text{m}^3$ , which is below the annual average limit of 30  $\mu\text{g}/\text{m}^3$ . There have been no exceedances of the 24-hour compliance limit of 50  $\mu\text{g}/\text{m}^3$  within the last 12-month period.

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



The Turrabaa HVAS (*Figure 2*) 2023 rolling annual average is 8.10  $\mu\text{g}/\text{m}^3$ , 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



2023 (CY) Quarter 3 attended noise monitoring was conducted from the 11 to 13 September 2023 and results are presented below. Compliance was achieved at all locations. 2023 (CY) Quarter 4 attended noise monitoring was conducted 13<sup>th</sup> November to 17<sup>th</sup> November, results are yet to be issued.

**Table 1 Performance Assessment – Operations**

EPL ID	Location	Date	Narrabri Mine Contribution dBA				Noise Criteria <sup>1</sup>	Measurement Periods	Standard Weather			Compliant
			L <sub>Aeq</sub> 15 min Day	L <sub>Aeq</sub> 15 min Evening	L <sub>Aeq</sub> 15 min Night	LA1 (1 min) Night			Day	Evening	Night	
N5	Oakleigh <sup>2</sup>	11/09/2023 <sup>3</sup>	I/A	31	I/A	I/A	Day, Evening and Night – L <sub>Aeq</sub> (15minute) 35 dBA  Night LA1(1minute) – 45 dBA	Day - 1.5 hrs Evening - 0.5 hrs Night – 1hrs	Y	Y	Y	Y
		12/09/2023 <sup>3</sup>	38	28	35	45			Y	Y <sup>4</sup>	Y <sup>4</sup>	Y <sup>5</sup>
		13/09/2023 <sup>3</sup>	I/A	I/A	30	37			Y	N	N	Y
N6	Newhaven	11/09/2023 <sup>3</sup>	28	<25	27	30		Y	N	Y	Y	
		12/09/2023 <sup>3</sup>	N/M	I/A	27	32		Y	Y <sup>4</sup>	Y <sup>4</sup>	Y	
		13/09/2023 <sup>3</sup>	29	I/A	26	32		Y	N	N	Y	
N8	Haylin View <sup>2</sup>	11/09/2023 <sup>3</sup>	23	29	<25	25		Y	Y	Y	Y	
		12/09/2023 <sup>3</sup>	27	26	35	49		Y	Y <sup>4</sup>	Y <sup>4</sup>	Y <sup>5</sup>	
		13/09/2023 <sup>3</sup>	I/A	26	N/M	N/M		N	N	N	Y	
N9	High Range <sup>2</sup>	11/09/2023 <sup>3</sup>	24	I/A	22	23		Y	N	Y	Y	
		12/09/2023 <sup>3</sup>	31	I/A	30	33	Y	Y <sup>4</sup>	Y <sup>4</sup>	Y		
		13/09/2023 <sup>3</sup>	I/A	I/A	22	27	Y	N	N	Y		
-	Bow Hills <sup>1</sup>	11/09/2023 <sup>3</sup>	I/A	I/A	<25	25	Day 15 min Evening 15 min Night 15 min	Y	Y	Y	Y	
-	Ardmona	11/09/2023	N/M	I/A	I/A	I/A		Y	Y	Y	Y	
-	Merriman <sup>2</sup>	13/09/2023	I/A	30	32	34		Y	N	N	Y	
-	Matilda <sup>2</sup>	12/09/2023	N/M	28	30	44		Y	Y <sup>4</sup>	Y <sup>4</sup>	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 L<sub>Aeq</sub>(15minute) is in place. This new level of 50 dBA L<sub>Aeq</sub>(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: Evening and Night monitoring conducted on this date, Day monitoring conducted during the following day period.

Note 4: Due to technical issues at inversion monitoring location W2, weather information at this location was not recorded during this time. Field observations were indicative of noise enhancing conditions likely to be present during this period.

Note 5: The Noise Criteria for EPL Monitoring Locations N5 (Oakleigh) and N8 (Haylin View) does not apply as these properties are owned by Narrabri Coal and are therefore not privately owned residences.

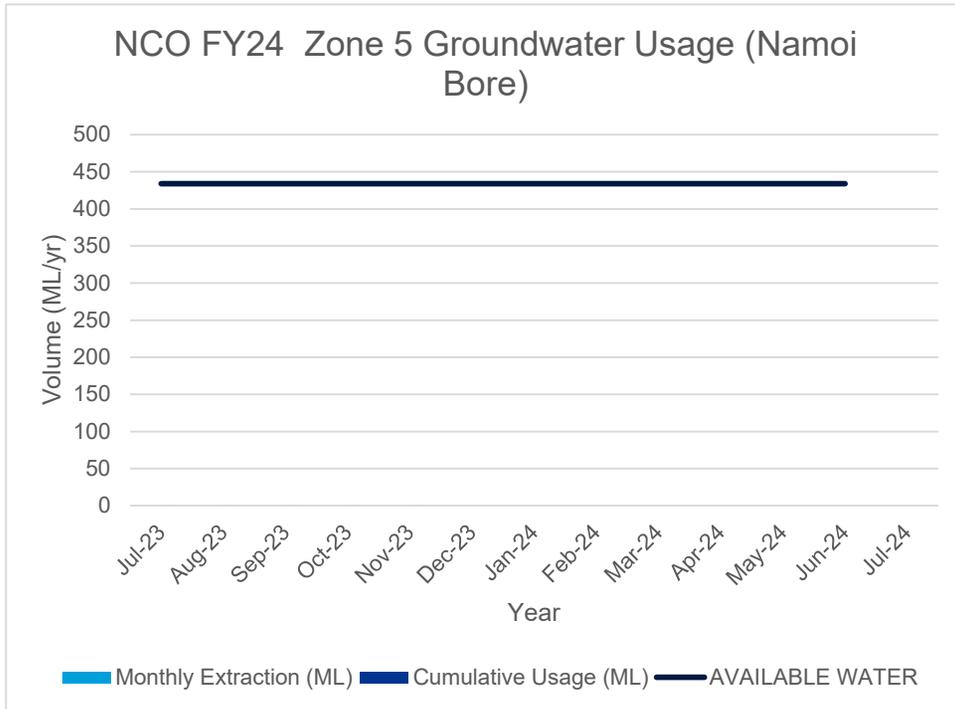
**Narrabri Coal Operations Pty Ltd** ABN 76 107 813 963

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

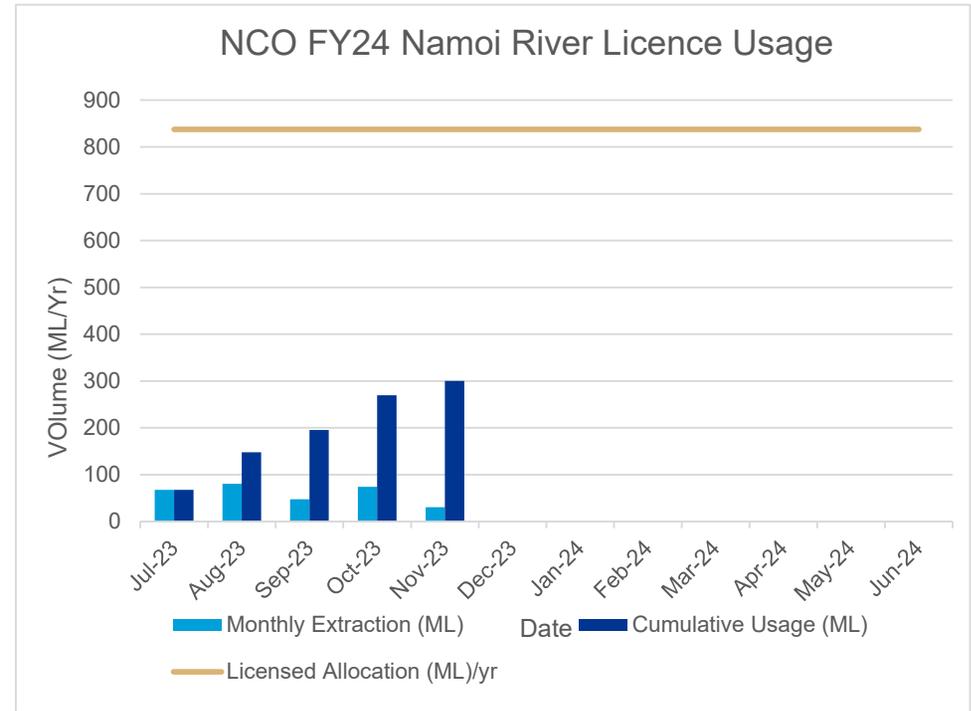
### Surface Water Monitoring

No controlled discharge events occurred during the reporting period.

### NSW Water- Licenced Usage (as of 30 November 2023)



**Figure 4:** Zone 5 licensed groundwater usage from the Namoi Bore for FY24 is 0ML (Water Year).



**Figure 5:** Namoi River licensed water allocation usage for the current Financial (Water) (128ML)

## Groundwater Monitoring

Groundwater monitoring results are reviewed at the end of each year by a suitably qualified hydrogeologist and reported in the Annual Review. The Annual Review is due for submission to NSW DPE 31 March 2024.

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

- delayed due to discussions with NSW DPE Water in relation to the Extraction Plan 203 – 206;
- groundwater re-calibration following the above (as this will impact the NCO groundwater model).

## Subsidence Monitoring

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

Longwall Panels (LW)		
	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 (monitoring has ceased)		
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 27/04/2023) (LW203)		
Subsidence (m)	2.75	2.66
Tilt (mm/m)	53	
Tensile Strain (mm/m)	13 – 20^	
Compressive Strain (mm/m)	16 – 24^	
Line I – Cross Panel Survey Line (measured 06/06/2023) (LW203)		
Subsidence (m)	2.75	2.43
Tilt (mm/m)	53	0
Tensile Strain (mm/m)	13 – 20^	0
Compressive Strain (mm/m)	16 – 24^	0
Line J – Cross Panel Survey Line (measured 16/05/2023) (LW203)		

Longwall Panels (LW)		
	Maximum Predicted Extraction Plan	Maximum Measured
Subsidence (m)	2.75	0
Tilt (mm/m)	53	0
Tensile Strain (mm/m)	13 – 20 <sup>^</sup>	0
Compressive Strain (mm/m)	16 – 24 <sup>^</sup>	0

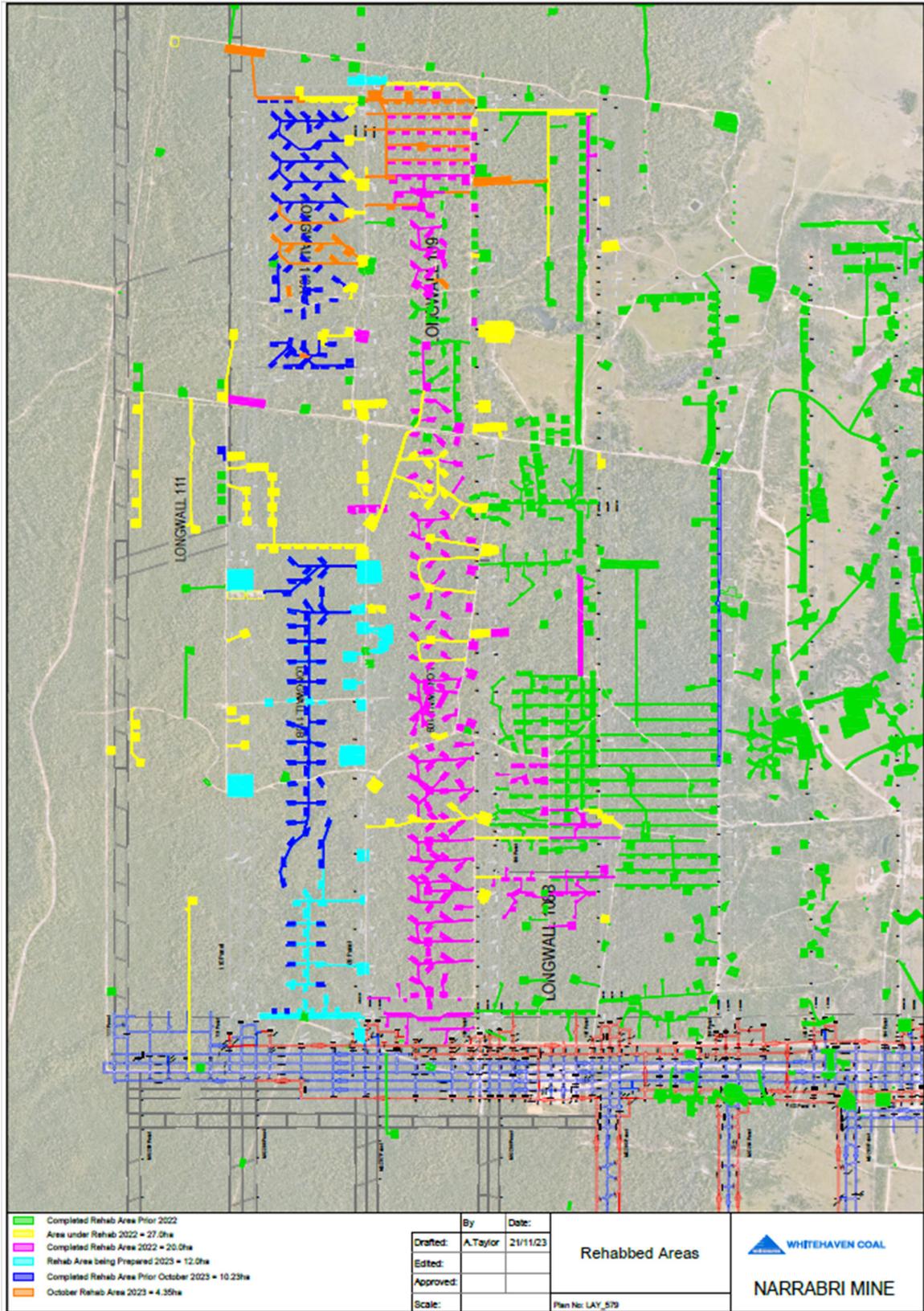
## Rehabilitation

**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 2023 (CY) Rehabilitation Works as of 24/11/2023

Rehabilitation Status	Completed (ha)	Target (ha) end of CY23
Landform establishment	14.58	12.33
Ecosystem establishment	14.58	12.33



Hydrographs for Groundwater Monitoring Wells

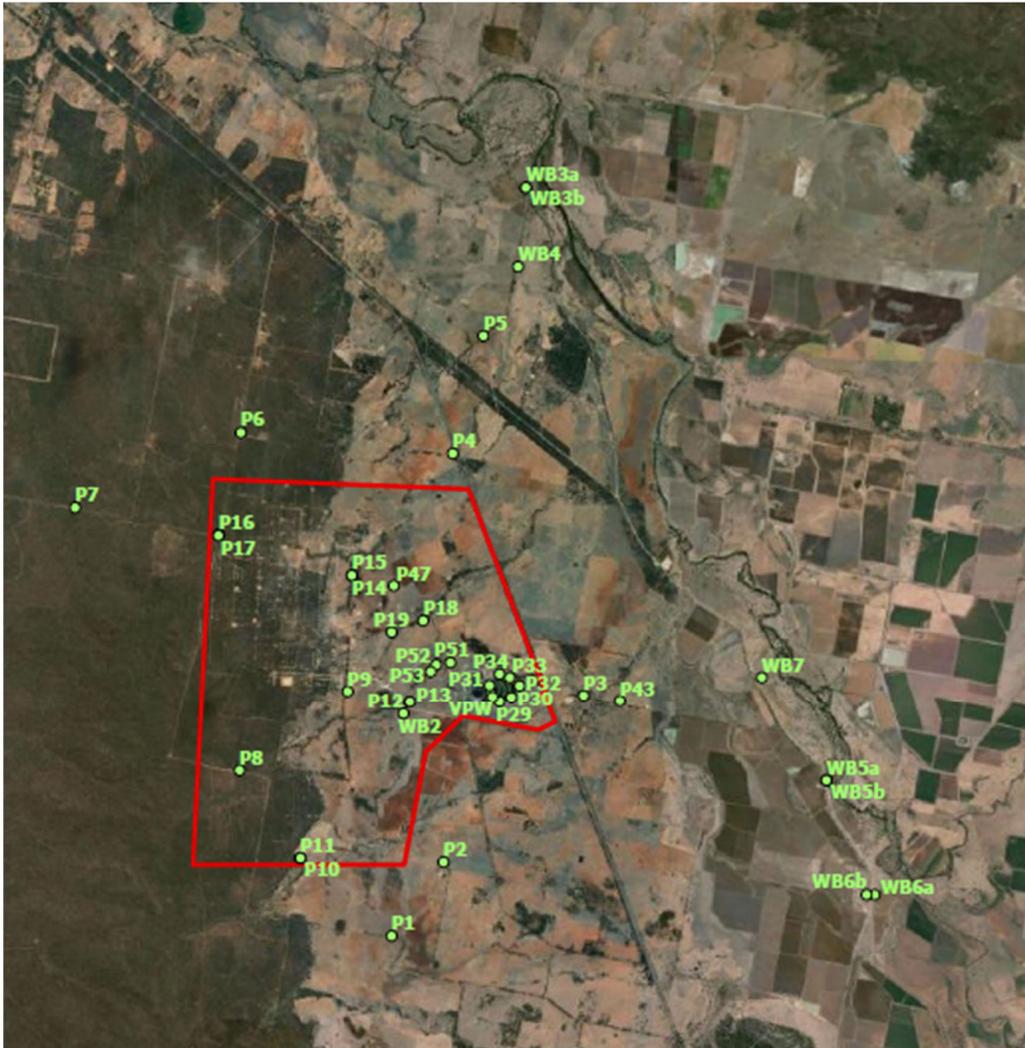
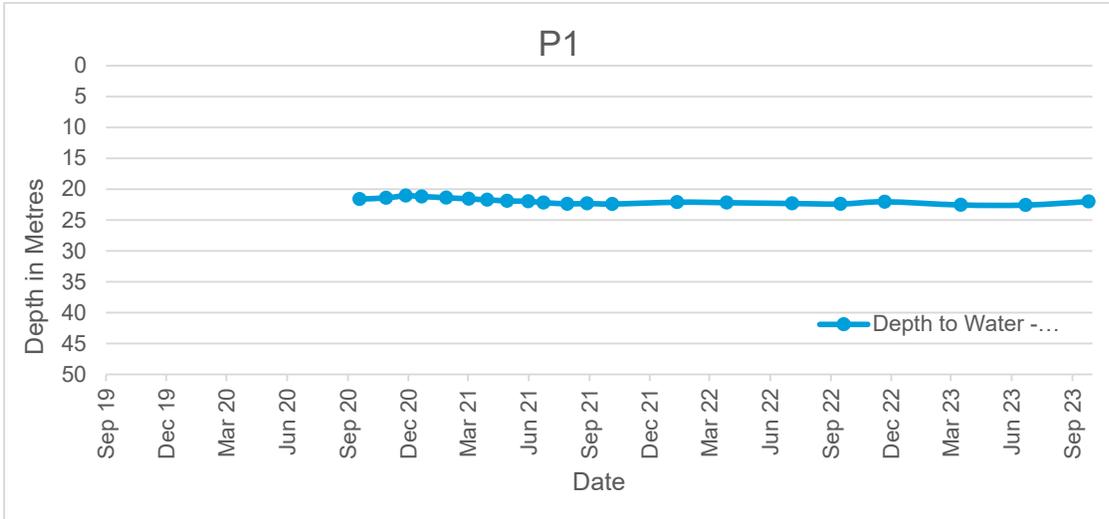


Figure 7: Location of groundwater monitoring wells



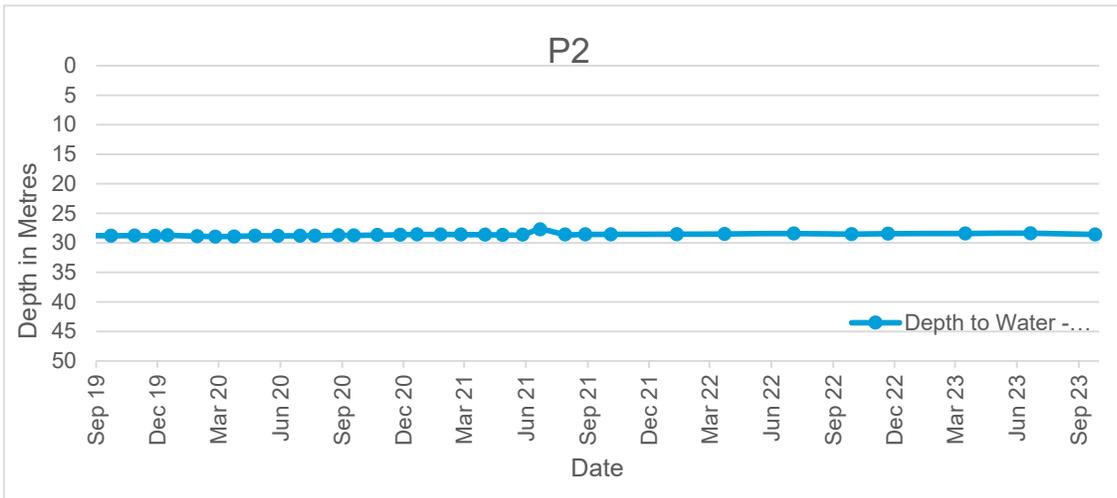
**NCO Monitoring bore ID:** P1

**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.

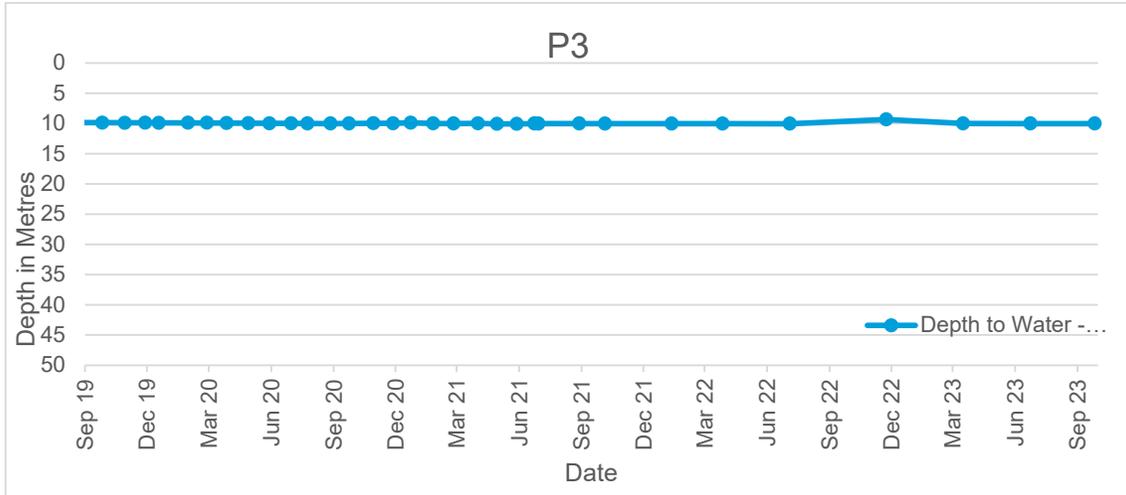


**NCO Monitoring bore ID:** P2

**Location:** Matilda

**Geological unit:** Napperby Formation

**Bore depth:** 50m

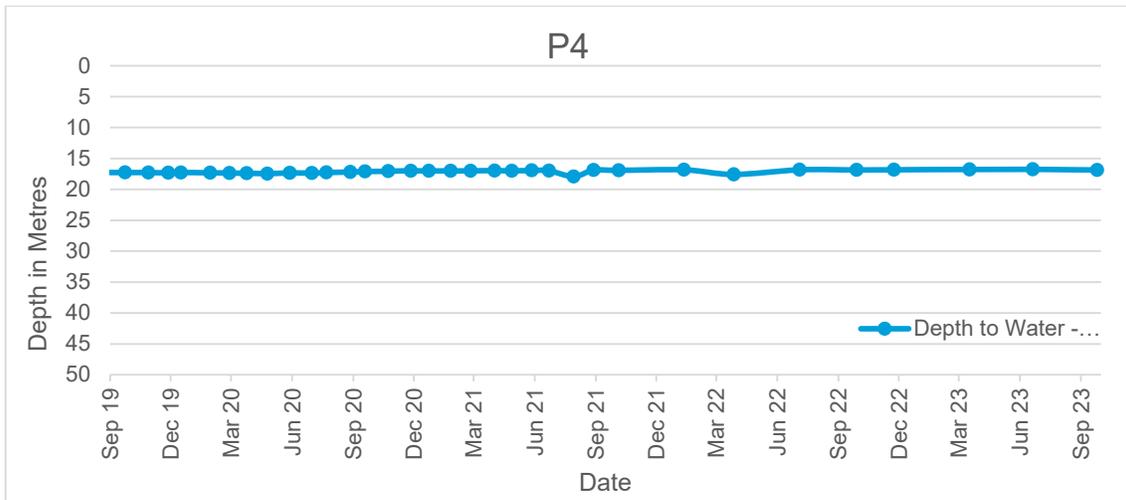


**NCO Monitoring bore ID: P3**

**Location:** Bow Hills

**Geological unit:** Pamboola Formation

**Bore depth:** 45m

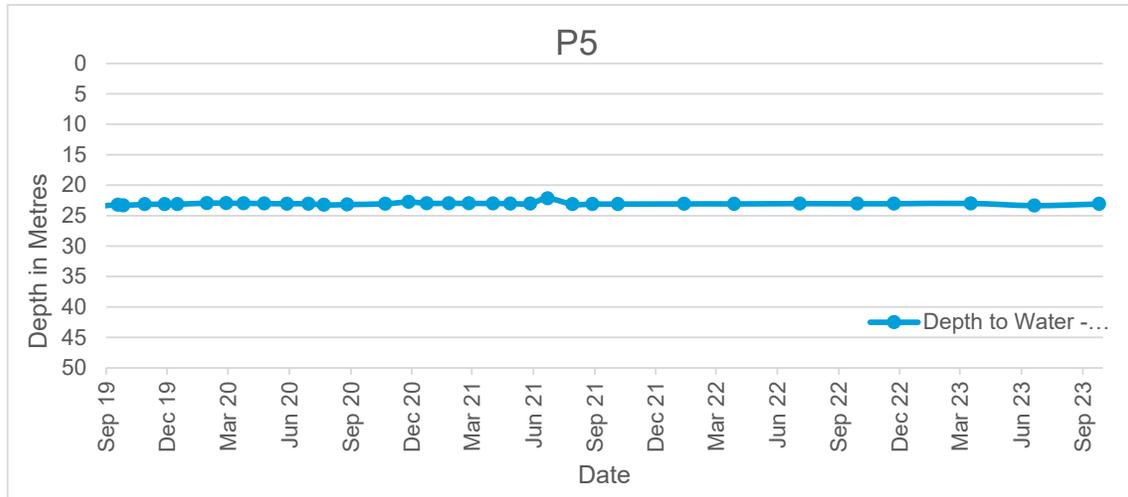


**NCO Monitoring bore ID: P4**

**Location:** North of Newhaven on Kamilaroi highway

**Geological unit:** Napperby Formation

**Bore depth:** 30m

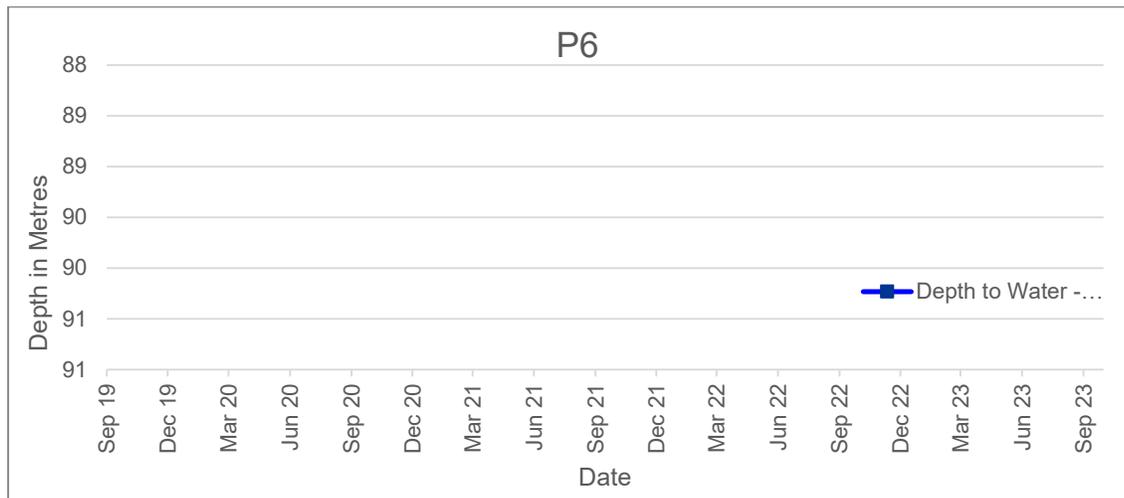


**NCO Monitoring bore ID:** P5

**Location:** On Turrawan Road - shown on Figure 10

**Geological unit:** Pamboola Formation

**Bore depth:** 30m



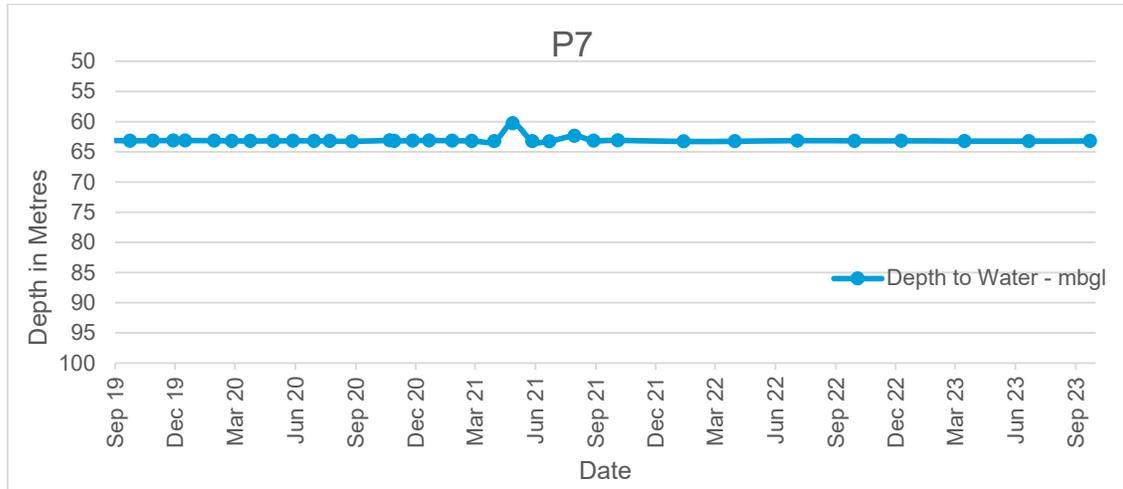
**NCO Monitoring bore ID:** P6

**Location:** shown on Figure 10

**Geological unit:** Pilliga sandstone

**Bore depth:** 90m

**Explanation:** Dry since 2012

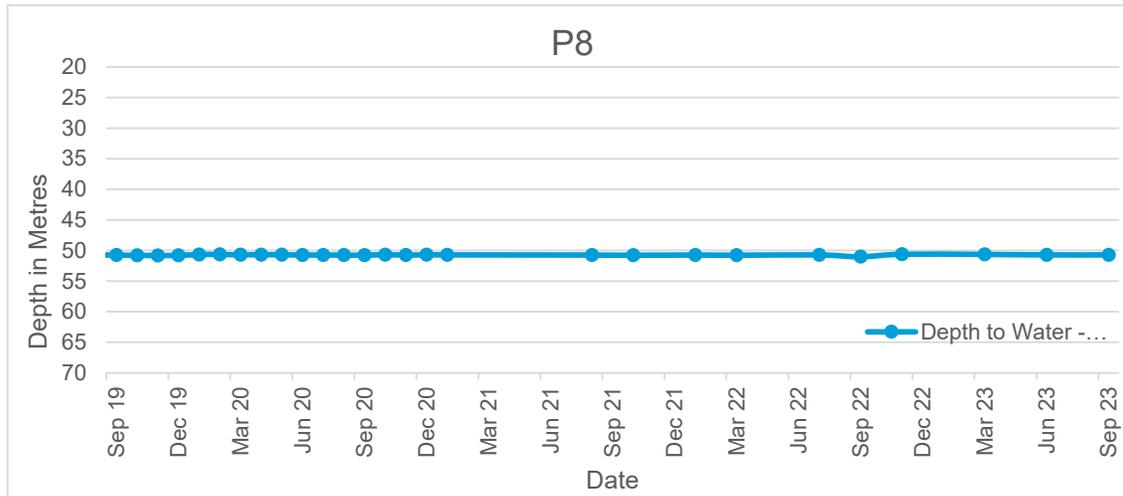


**NCO Monitoring bore ID: P7**

**Location:** State forest

**Geological unit:** Pilliga sandstone

**Bore depth:** 90m

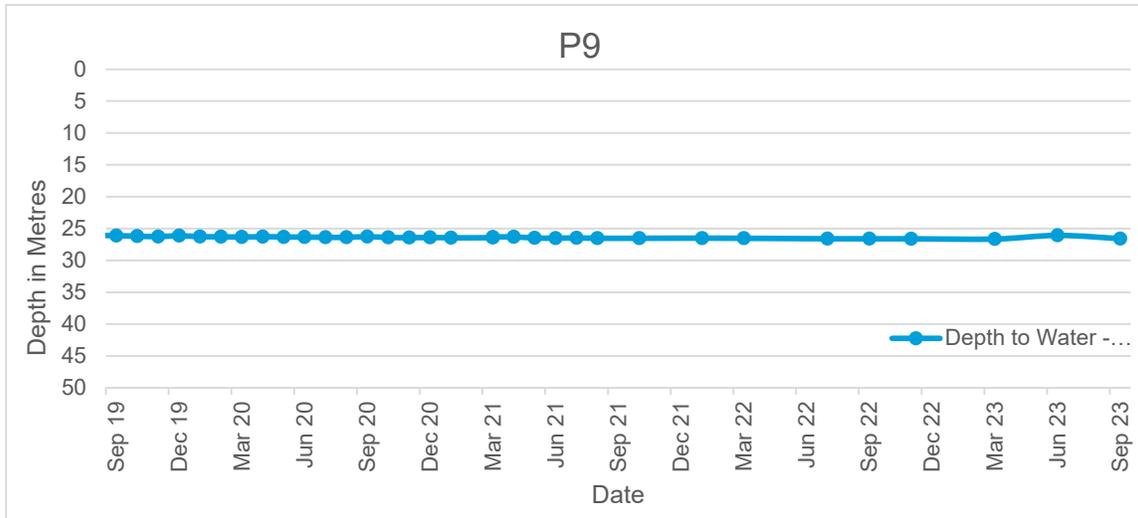


**NCO Monitoring bore ID: P8**

**Location:** Kurrajong

**Geological unit:** Purlawaugh Formation

**Bore depth:** 65m

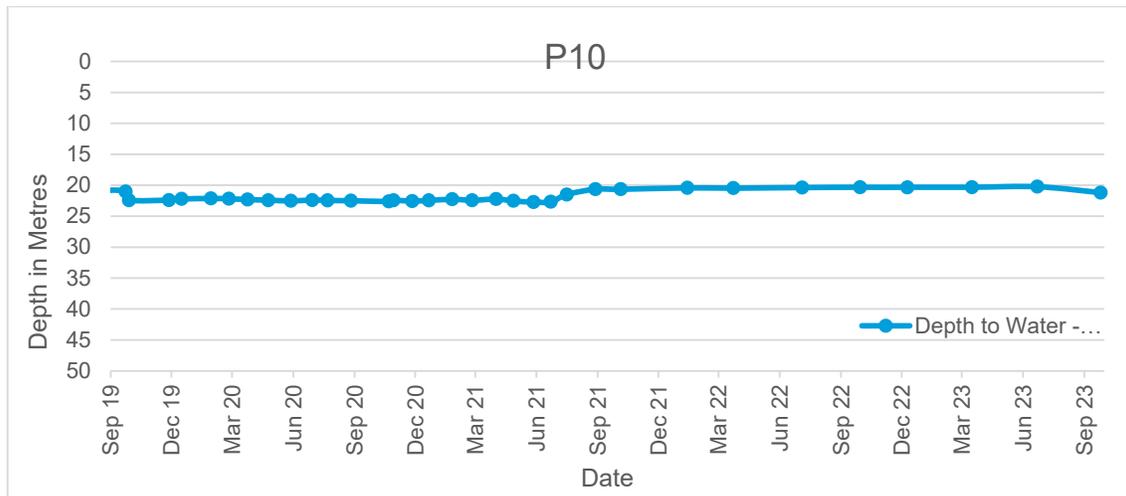


**NCO Monitoring bore ID:** P9

**Location:** NCO – Figure 10

**Geological unit:** Purlawaugh Formation

**Bore depth:** 30m

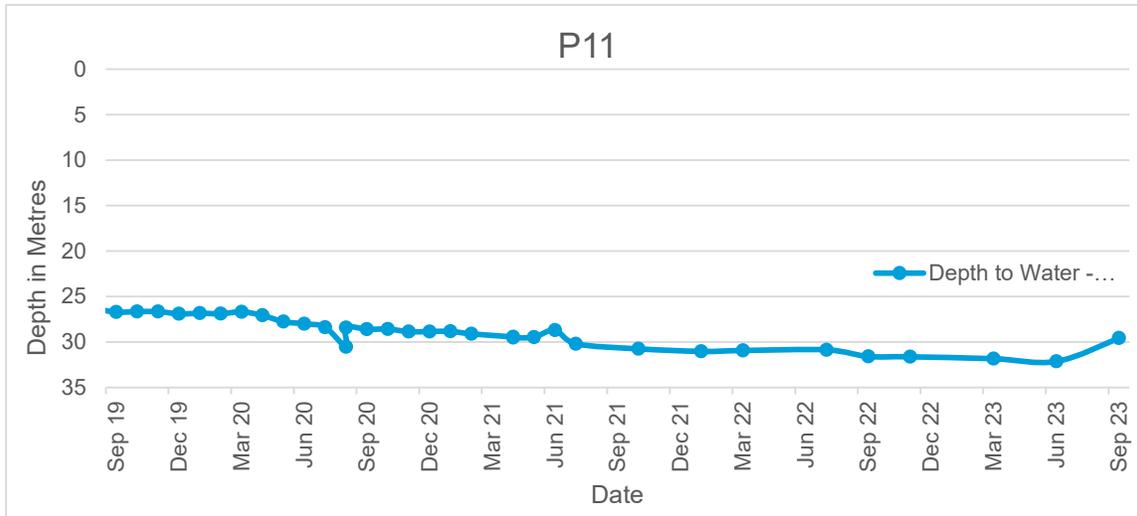


**NCO Monitoring bore ID:** P10

**Location:** NCO – see figure 10

**Geological unit:** Napperby Formation

**Bore depth:** 130m

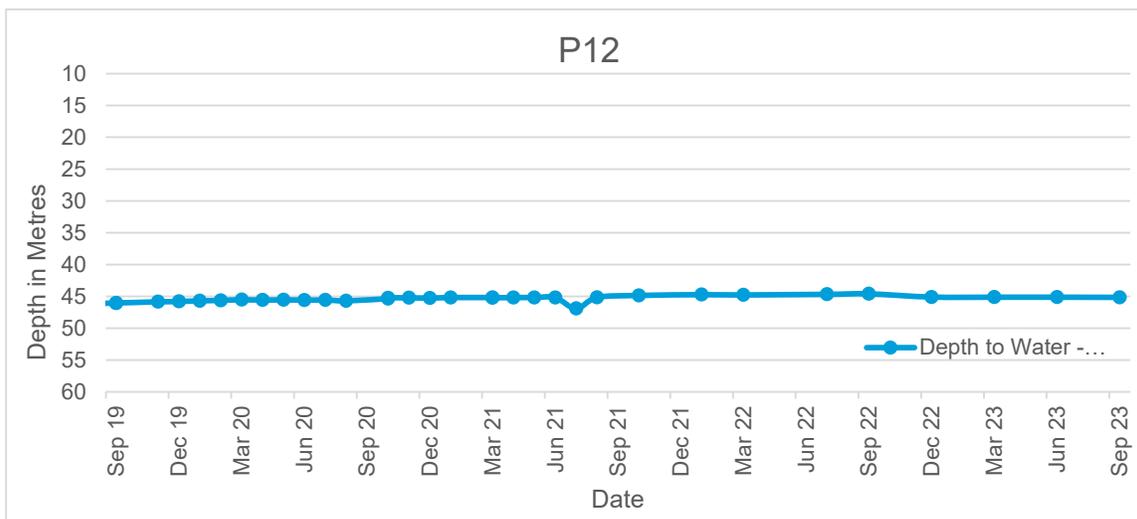


**NCO Monitoring bore ID:** P11

**Location:** NCO – see figure 10

**Geological unit:** Napperby Formation

**Bore depth:** 50m

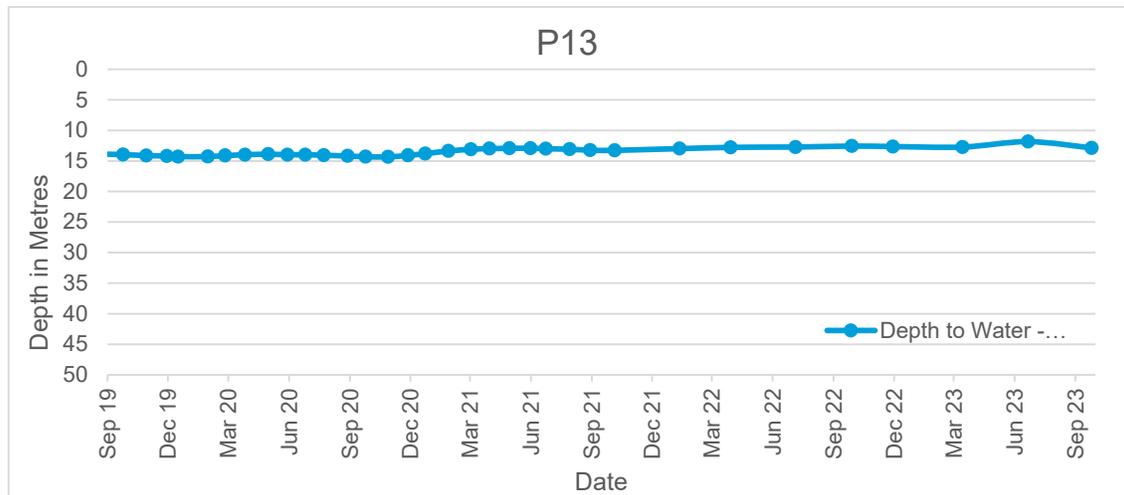


**NCO Monitoring bore ID:** P12

**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*

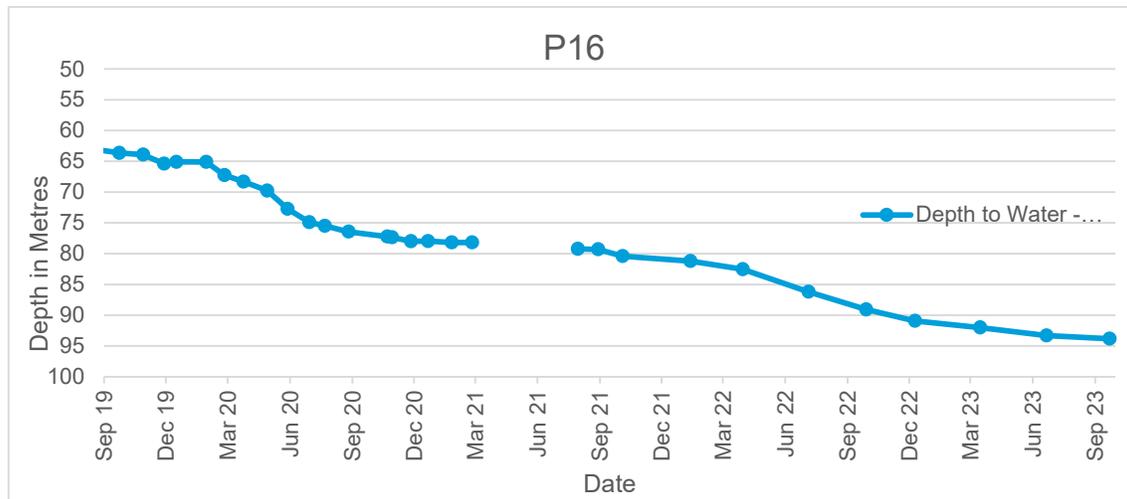
**NCO Monitoring bore ID:** P15

**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*

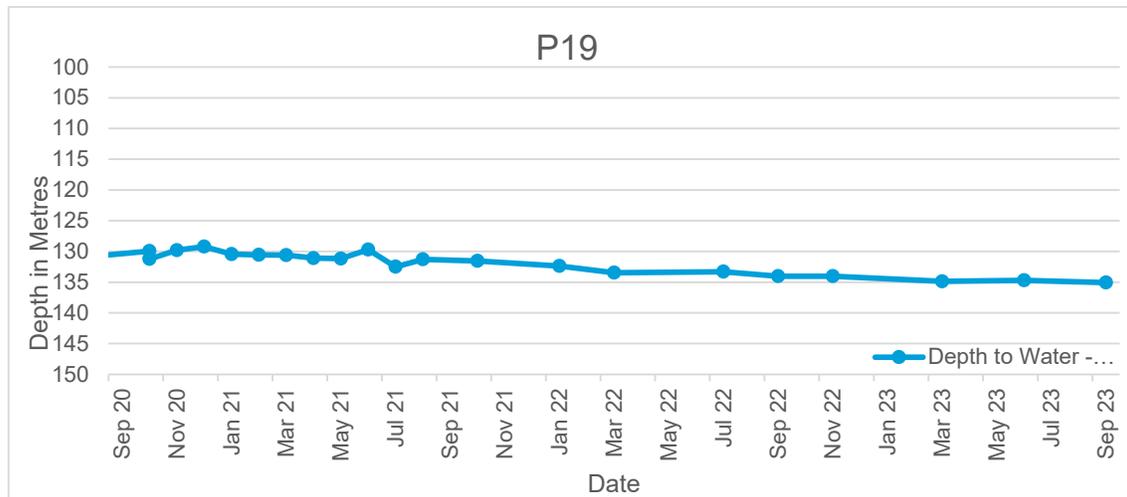
**NCO Monitoring bore ID:** P18

**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*

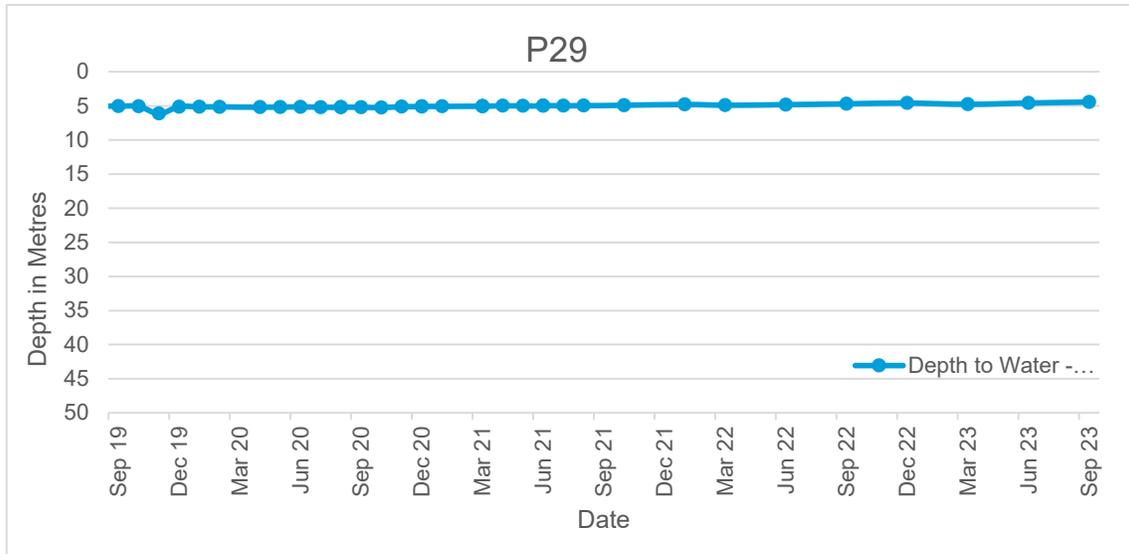
**NCO Monitoring bore ID:** P28

**Location:** See figure10

**Geological unit:** Napperby Formation (above sill)

**Bore depth:** 25m

**Explanation:** Dry since 2012

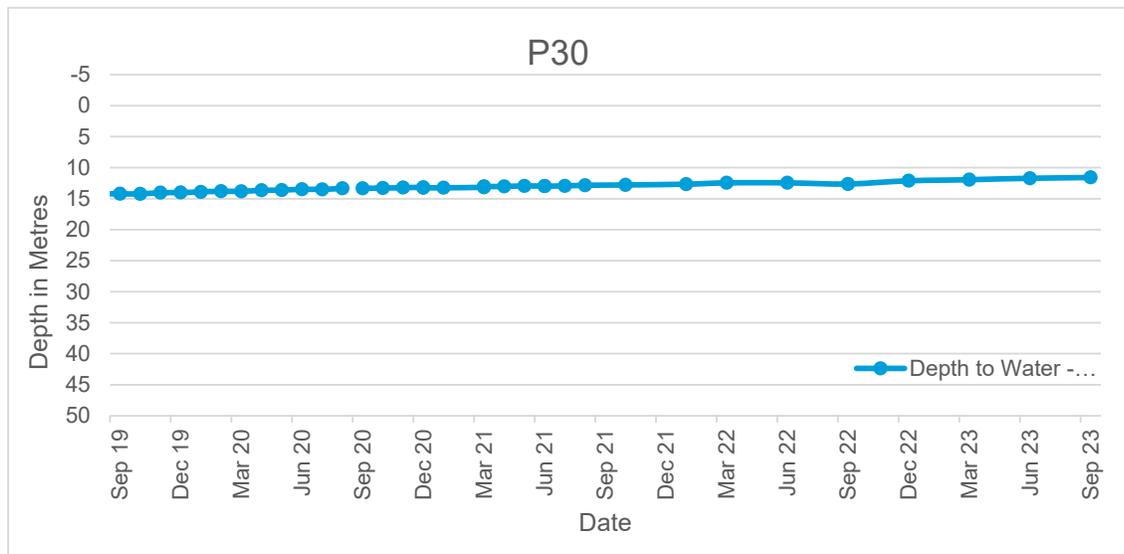


**NCO Monitoring bore ID: P29**

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

**Geological unit:** Napperby Formation (above sill).

**Bore depth:** 25m

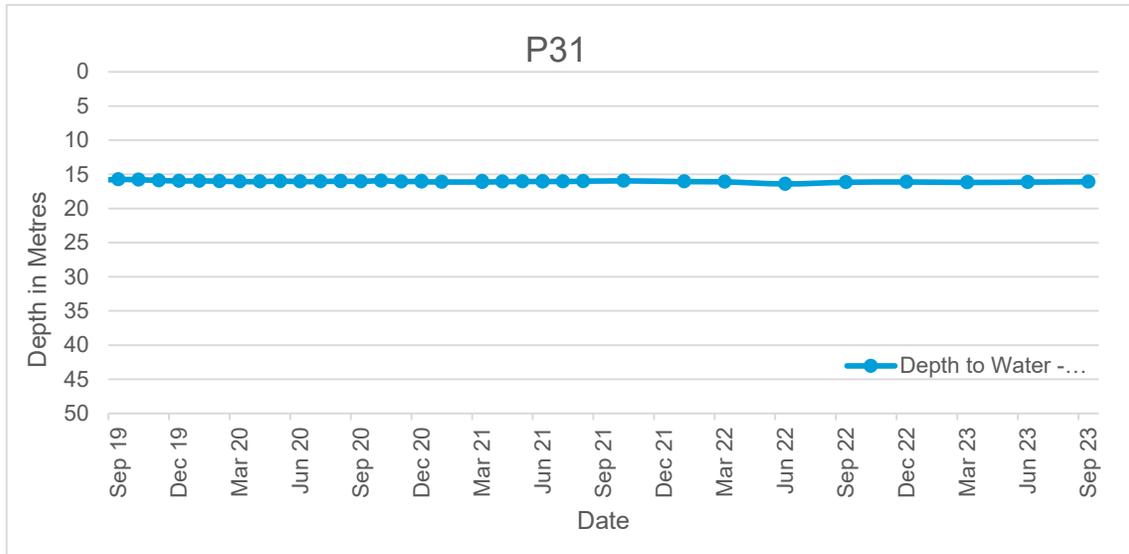


**NCO Monitoring bore ID: P30**

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

**Geological unit:** Napperby Formation (above sill)

**Bore depth:** 15m

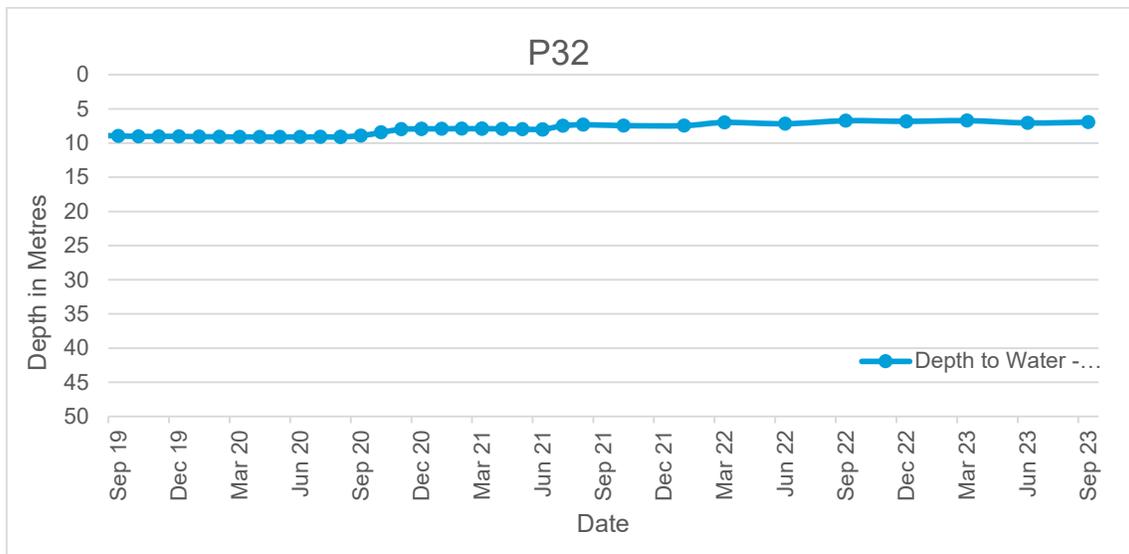


**NCO Monitoring bore ID:** P31

**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

**No Graph**

**NCO Monitoring bore ID:** P33

**Location:** See figure 6

**Geological unit:** Napperby Formation (above sill)

**Bore depth:** 15m

**Explanation:** Dry since 2012

**No Graph**

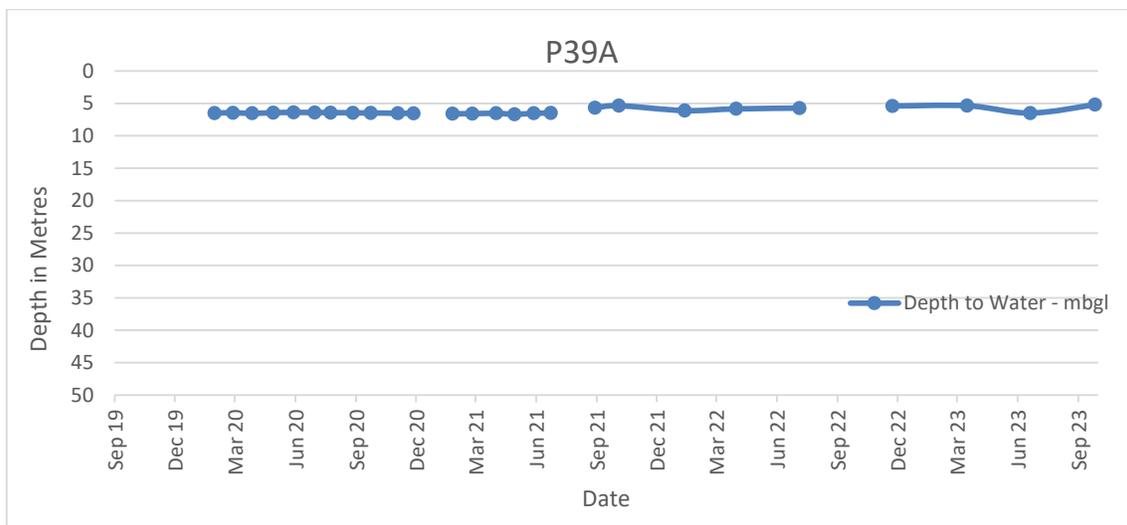
**NCO Monitoring bore ID:** P24

**Location:** See figure 6

**Geological unit:** Napperby Formation (above sill)

**Bore depth:** 15m

**Explanation:** Dry since 2012



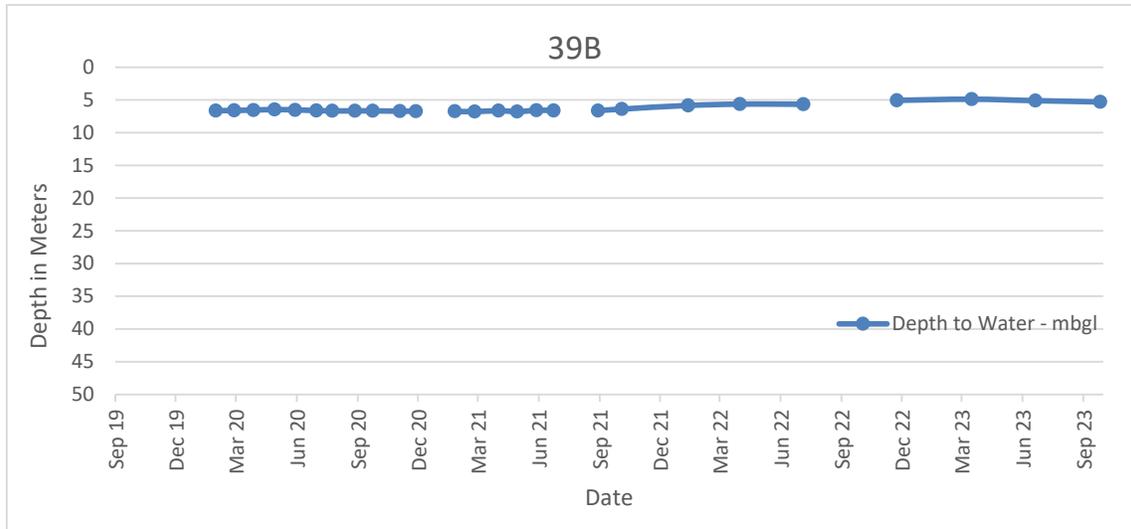
**NCO Monitoring bore ID:** P39A

**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, and wet weather.



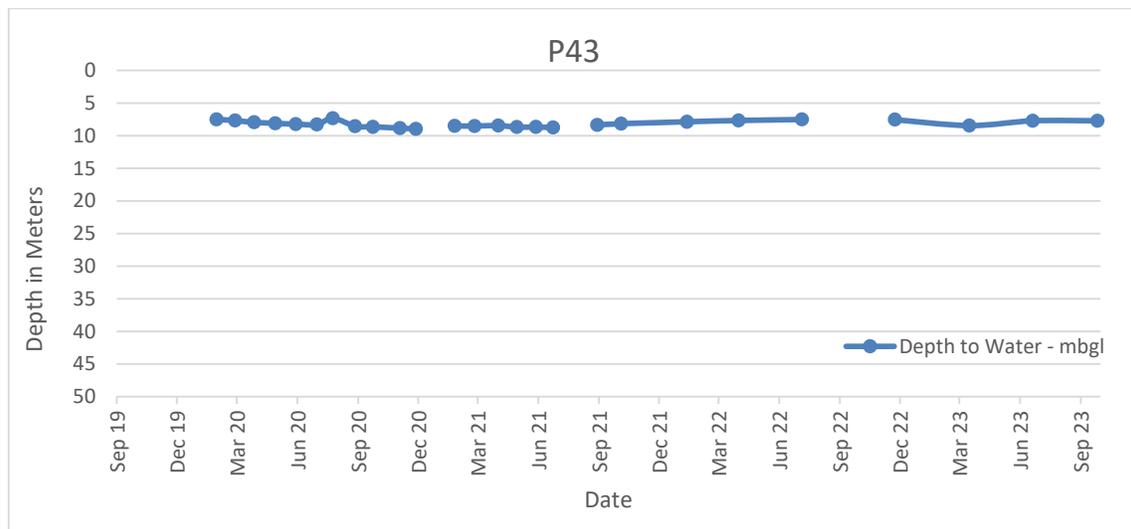
**NCO Monitoring bore ID: P39B**

**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, and wet weather



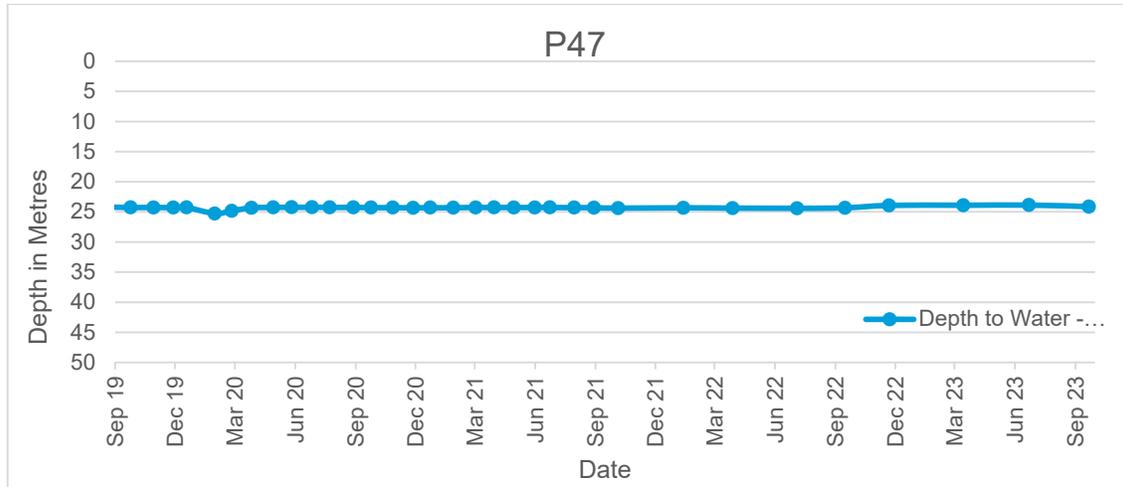
**NCO Monitoring bore ID: P43**

**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 and wet weather

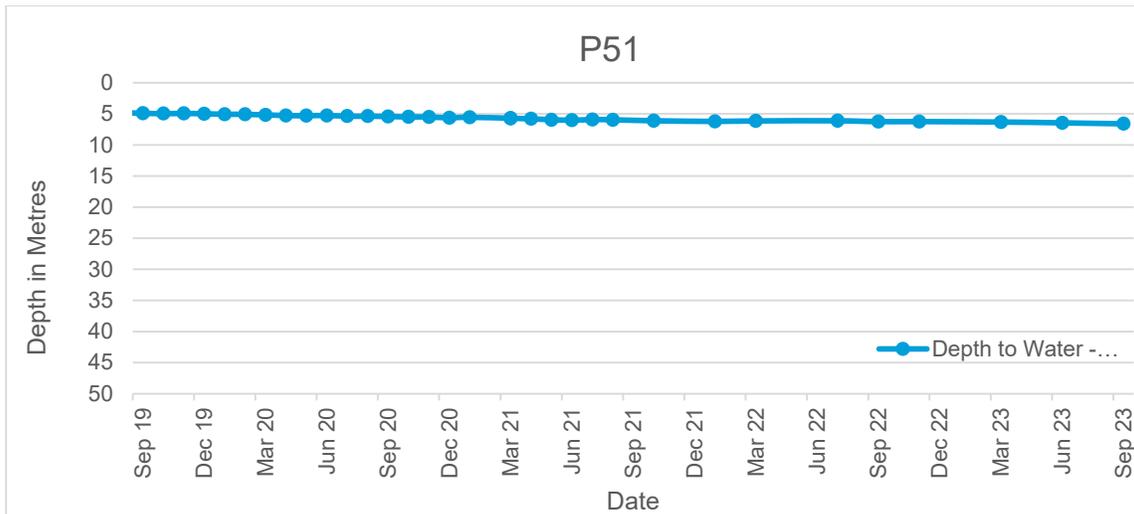


**NCO Monitoring bore ID:** P47

**Location:** NCO – see figure 10

**Geological unit:** Garrawilla Volcanics

**Bore Depth (m):** 31m

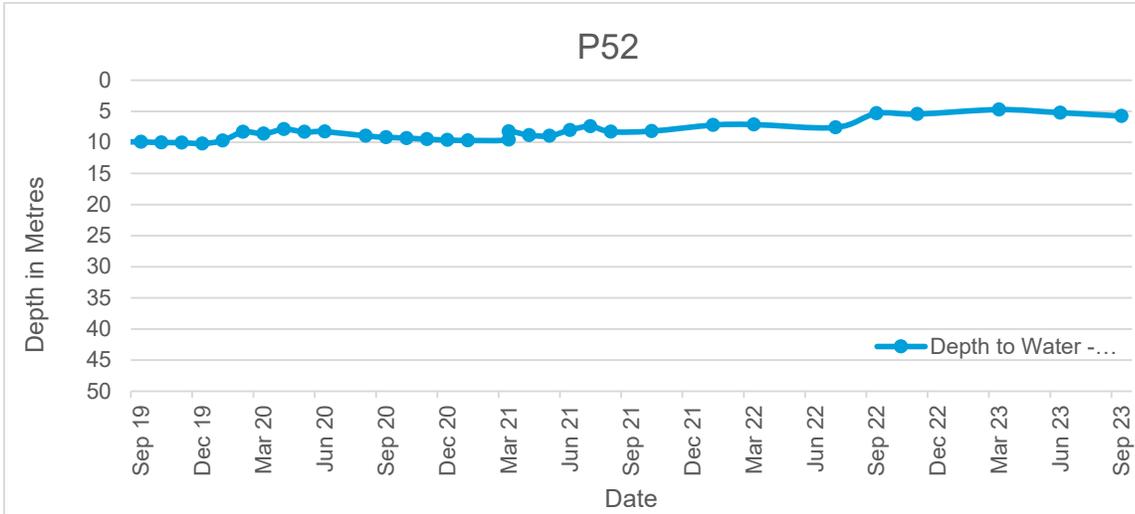


**NCO Monitoring bore ID:** P51

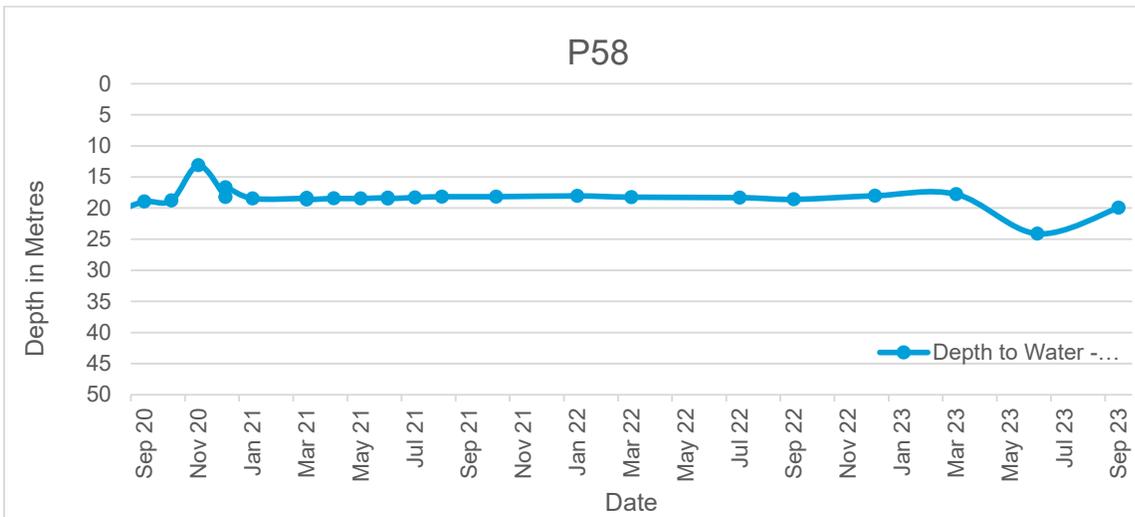
**Location:** NCO

**Geological unit:** Garrawilla Volcanics

**Bore Depth (m):** 17m



**NCO Monitoring bore ID:** P58  
**Location:** NCO  
**Geological unit:** Napperby Formation  
**Bore Depth (m):** 24m



**NCO Monitoring bore ID:** P58  
**Location:** NCO  
**Geological unit:** Napperby Formation  
**Bore Depth (m):** 40m