Annual Review
Sunnyside Coal Mine

Name of operation	Sunnyside Coal Mine
Name of operator	Whitehaven Coal Mining Pty Ltd
Development consent/project approval number	PA 06_0308
Name of holder of development consent/project approval	Namoi Mining Pty Ltd
Mining lease number	ML 1624
Name of holder of mining lease	Namoi Mining Pty Ltd
Water licence number	WAL 29537
Name of holder of water licence	Namoi Mining Pty Ltd
RMP start date	2 August 2022, reported on calendar year
Annual review start date	1st January 2023
Annual review end date	31st December 2023

I, Andrew Raal, certify that this audit report is a true and accurate record of the compliance status of Sunnyside Coal Mine for the period January 1st 2023 until December 31th 2023, and that I am authorised to make this statement on behalf of Namoi Mining Pty Ltd.

Note. a) The Annual Review is an 'environmental audit' for the purposes of section 122B (2) of the Environmental Planning and Assessment Act 1979. Section 122E provides that a person must not include false or misleading information (or provide information for inclusion in) an audit report produced to the Minister in connection with an environmental audit if the person knows that the information is false or misleading in a material respect. The maximum penalty is, in the case of a corporation, $1 million and for an individual, $250,000.

b) The Crimes Act 1900 contains other offences relating to false and misleading information: section 192G (Intention to defraud by false or misleading statement—maximum penalty 5 years imprisonment); sections 307A, 307B and 307C (False or misleading applications/information/documents—maximum penalty 2 years imprisonment or $22,000, or both).

Name of authorised reporting officer	Andrew Raal
Title of authorised reporting officer	Superintendent - Closed Mines
Signature of authorised reporting officer	
Date	21 March 2024

Contents

TABLES

FIGURES

1 STATEMENT OF COMPLIANCE

The compliance status of the Sunnyside Coal Mine as at 31st December 2023 is summarised in **Table 1a**. non-compliances that occurred during the reporting period are listed in **Table 1b**.

Table 1a Statement of Compliance

Were all conditions of the relevant approval(s) complied with?	
PA 06_0308 Consolidated	Yes
EPL 12957	Yes
ML 1624	Yes
WAL 29537	Yes

Table 1b Non-compliances

Relevant Approval	Schedule (Condition) Number	Condition Description (summary)	Compliance status	Comment	Where Addressed in Annual Review
No Non-compliances in reporting period					

Table 1c Compliance status key for Table 1B

Risk Level	Colour code	Description
High	Non-compliant	Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence
Medium	Non-compliant	Non-compliance with: • Potential for serious environmental consequences, but is unlikely to occur: or • Potential for moderate environmental consequences, but is likely to occur
Low	Non-compliant	Non-compliance with: • Potential for moderate environmental consequences, but is unlikely to occur; or • Potential for low environmental consequence, but is likely to occur
Administrative non-compliance	Non-compliant	Only to be applied where the non-compliance does not result in any risk of environmental harm (e.g., submitting a report to government later than required under approval conditions)

2 INTRODUCTION

This is the Fourteenth Annual Review (AR), formerly Annual Environmental Management Report, produced for the Sunnyside Coal Mine (SCM), and it has been prepared in accordance with Conditions 4 and 5 of Mining Lease (ML 1624) (Mining Act 1992) and Condition 5 (Schedule 5) of PA 06_0308 (consolidated). The AR follows the format required by the NSW Government Annual Review Guideline (October 2015).

Covering the period from 1st January 2023 to 31st December 2023 (the reporting period), where relevant the AR provides information on historical aspects of the operation and longer-term trends in environmental monitoring results.

The Sunnyside Coal Mine is located within the Gunnedah Shire, approximately 15 km west of Gunnedah. The mine is owned by Namoi Mining Pty Ltd (NMPL) and operated by Whitehaven Coal Mining Pty Ltd. Both companies are wholly owned subsidiaries of Whitehaven Coal Limited (WCL).

Mining and coal transporting operations at SCM ceased in May 2013, with recommencement of mining activities on 12th September 2017. Mining operations for coal ceased in August 2019, with coal crushing and transporting activities ceasing on the 27th of October 2019. Site activities are currently limited to aftercare, maintenance, water management and rehabilitation.

2.1 Mine Contacts

The management personnel responsible for operational and environmental performance at the SCM and their relevant contact details are as follows:

- Mr Daryl Robinson, Manager - Environment and Mine Rehabilitation Gunnedah Open Cut Operations - retains responsibility for activities at the site. Contact: (02) 6740 7000.
- Mr Andrew Raal, Superintendent Closed Mines – oversees day to day environmental and rehabilitation performance across the site. Contact: (02) 6740 7009.

0 50 100 200
Meters

N

WHITEHAVEN COAL

Datum: MGA Zone 56 **Author:** A.Raal **Image:** June 2022,

Date: March 2023 **Size/Scale:** 1:7,000 (A3)

Figure 1: Regional Locality and Project layout

ML1624 / EPL Boundary
Conservation area (Koala Corridor)
Final Depression High Wall
Water Storage
Koala Fence
Highwall Drain Design

MCR127: ~Spatial\ARCGIS\Sunnyside\Sunnyside.gdb

3 APPROVALS

3.1 Tenements, Licences, and Approvals

Table 3.1 identifies the approvals in place for SCM at the end of the reporting period, the issuing / responsible Authority, dates of issue, expiry date and relevant comments.

Table 3.1 Tenements, Licences and Approvals

Issuing / Responsible Authority	Type of Lease, Licence, Approval	Date of Issue	Expiry	Comments
Department of Planning, Industry and Environment (DPIE)	Project Approval (PA) 06_0308	24th September 2008	Mining operations expire 5th November 2020, other conditions remain	PA modified December 2019 to update Annual Review period.
Environment Protection Authority (EPA)	Environment Protection Licence No. 12957	19th September 2017	N/A	Sunnyside EPA licence 12987 was surrendered on the 13 June 2023.
NSW Resource Regulator (RR)	ML 1624	5th November 2008	5th November 2029	
NSW Resource Regulator (RR)	Rehabilitation Management Plan	2nd July 2022	N/A	Reviewed and reported against annually
Department of Primary Industry - Water	WAL 29537 (90WA822534) 90BL253767 90BL253768 90BL253769 90BL254686 90BL254687 90BL254688 90BL254689 90BL254690	27th April 2009 9th Feb 2007 9th Feb 2007 9th Feb 2007 26th Mar 2008 26th Mar 2008 26th Mar 2008 26th Mar 2008 26th Mar 2008	17th January 2025 Perpetuity Perpetuity Perpetuity Perpetuity Perpetuity Perpetuity Perpetuity Perpetuity	Licence to be transferred Test Test Test Monitoring Monitoring Monitoring Monitoring Monitoring

4 OPERATIONS SUMMARY

4.1 Mining Operations

Mining operations during the reporting period included aftercare and maintenance of rehabilitation activities. **Table 4.1** presents the production summary at the end of the reporting period.

Table 4.1 Production Summary

Material	Approved Limit	Previous Reporting Period (actual)	This Reporting Period (actual)	Next Reporting Period (forecast)
Waste Rock/Overburden	4.9 M m^3	0	0	0
ROM Coal/Ore	1 Mtpa [2]	0	0	0
Reject material	n/a	0	0	0
Saleable Product	n/a	0	0	0

[3] Environmental Assessment

[2] PA 06_0308 Consolidated

4.2 Other Operations

4.2.1 Hours of Operations

Rehabilitation activities were undertaken during the reporting period within permitted operating times, i.e. 7:00am to 10:00pm Monday to Friday and 7:00am to 6:00pm on Saturdays, and not on public holidays.

4.2.2 Infrastructure Management

All fixed infrastructure has been dismantled and removed including all bitumen from internal roads. All remaining infrastructure including demountable building, heavy vehicle tyres, generator and three water tanks were removed in previous reporting period (2022). Remaining infrastructure includes the Koala fence and two above ground poly water tanks used for weed spraying.

4.2.3 Exploration Drilling

There was no exploration drilling undertaken during the reporting period.

4.3 Next Reporting Period

Site is in aftercare and maintenance. The site gate has been locked and the site is only accessed for inspection and ongoing maintenance. Highwall drain works were completed in 2023. Dams not a part of final landform/land use will be removed in 2024 to ensure site is in compliance with harvestable rights post closure.

5 ENVIRONMENTAL PERFORMANCE

The following sub-sections document the implementation and effectiveness of the various control strategies adopted at SCM, together with monitoring data for the reporting period. Existing monitoring sites are given in Figure 2. Life of mine monitoring data is included as Appendices in this AR, where relevant, to allow for discussion on longer-term trends.

5.1 Air Quality

5.1.1 Criteria

Air quality criteria applicable to SCM are specified in PA 06_0308 (consolidated) Schedule 3, Tables 7, 8 & 9, which are summarised below.

Air Quality Type	Criteria
Acceptable Mean Annual Increase in Deposited Dust	2 g/m^2/month
Mean Annual Dust Deposition (all sources)	4 g/m^2/month
Mean Annual Total Suspended Particulate (TSP) Matter (all sources) Concentration	90 $\mu g/m^3$
Mean Annual PM_{10} Particulate Level	30 $\mu g/m^3$
24hr Mean PM_{10} Particulate Level	50 $\mu g/m^3$

Monitoring ceased in August 2023 following the surrender of EPA licence 12987 on 13 June 2023 and approval of updated Air Quality Management Plan on 10 August 2023. Data reported is for the period 1 January 2023 – 10 August 2023.

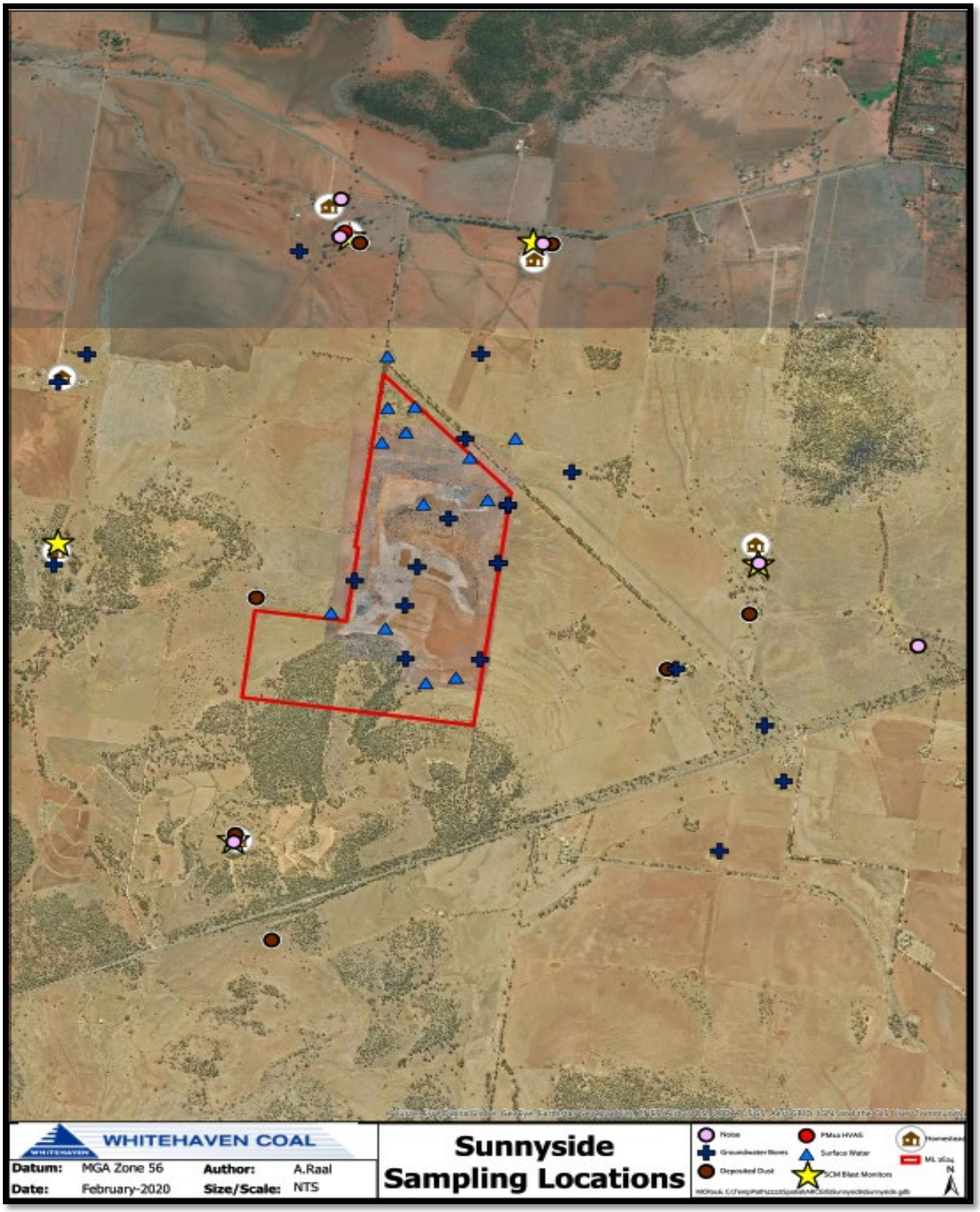

Figure 2 Monitoring Sites

5.1.2 Environmental Management Measures

Sunnyside rehabilitation has been completed for all disturbed areas, and has good vegetation cover. No permanent mobile equipment on site. Monitoring of Deposited Dust was undertaken on a monthly basis, whilst PM10 levels were monitored every 6 days.

5.1.3 Dust Monitoring

Deposited Dust

Annual mean limit for deposited dust was below the set criteria at all monitoring locations excluding SD1 where samplers noted the area around the monitor had been heavily grazed. **Table 5.1.3a** below presents a summary of the depositional dust monitoring data.

Table 5.1.3a Deposited Dust Monitoring Data Summary

Site (Figure 2)	EPL ID no.	Property Name	Approval Criteria Annual mean (g/m^2/month)	Annual Mean Total Insoluble Solids (g/m^2/month)
SD1	1	Ferndale	4	7
SD3	2	Plainview	4	0.7
SD4		Lilydale	4	2.3
SD5	4	Ivanhoe	4	1
SD6	5	Illili	4	0.8
SD7	6	Innisvale	4	1
SD8		Woodlawn	4	0.6

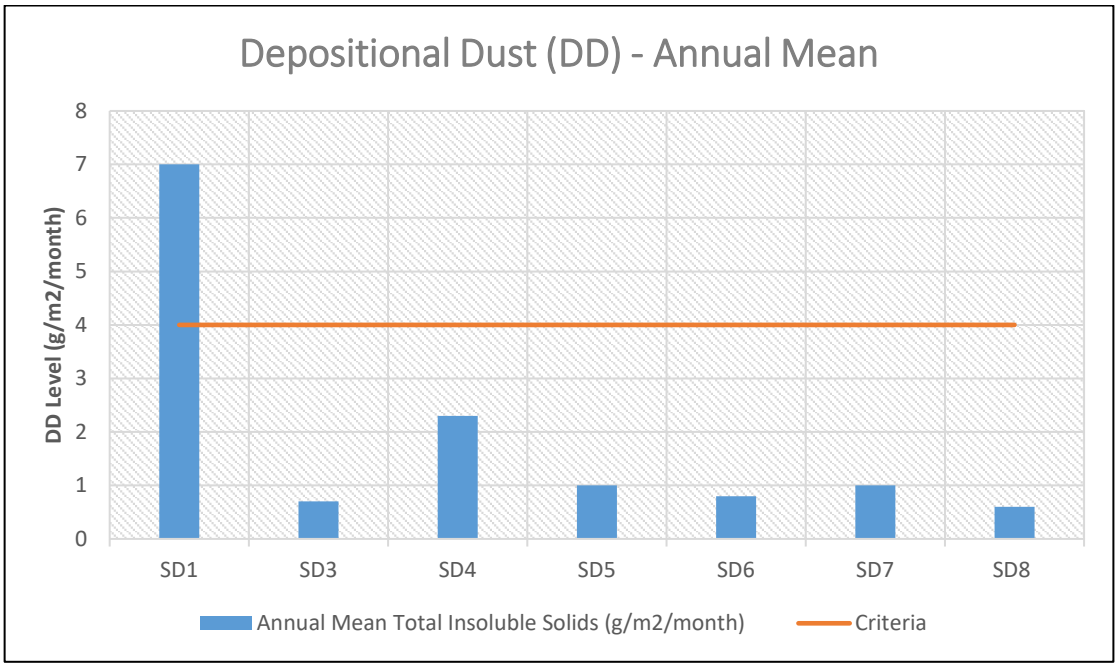

Figure 3 Annual Mean Depositional Dust

HVAS/PM10 Dust

SCM has one High Volume Air Sampler (HVAS - PM_{10}) located at the property Illili (EPL ID 7), to the north-west of the mine site which takes a sample every 6 days for a 24h period. The annual mean value for 2023 was 5.58 µg/m³ within the EA annual prediction of 22.1 µg/m³. Data reported is for the period 1 January 2023 – 10 August 2023. Thirty-eight samples were taken with 0 events that were over the 24hr, 50 µg/m³ guideline limit (Table 5.1.3b).

Table 5.1.3b PM10 Monitoring Summary

PM10 Summary		
Sites	Illili - full data set	Illili - excluding extraordinary events
No. of readings	38	38
No. days above criteria	0	0
Maximum (µg/m³)	22	22
Minimum (µg/m³)	0.4	0.4
Mean (µg/m³)	5.58	5.58
Comment	Last sample taken 15 August 2023 following the surrender of EPA licence 12987 on 13 June 2023 and approval of updated Air Quality Management Plan on 10 August 2023.	

The 12-month (PM10) samples and rolling average (PM10) for 2023 are illustrated below (**Figure 4** and **Figure 5**).

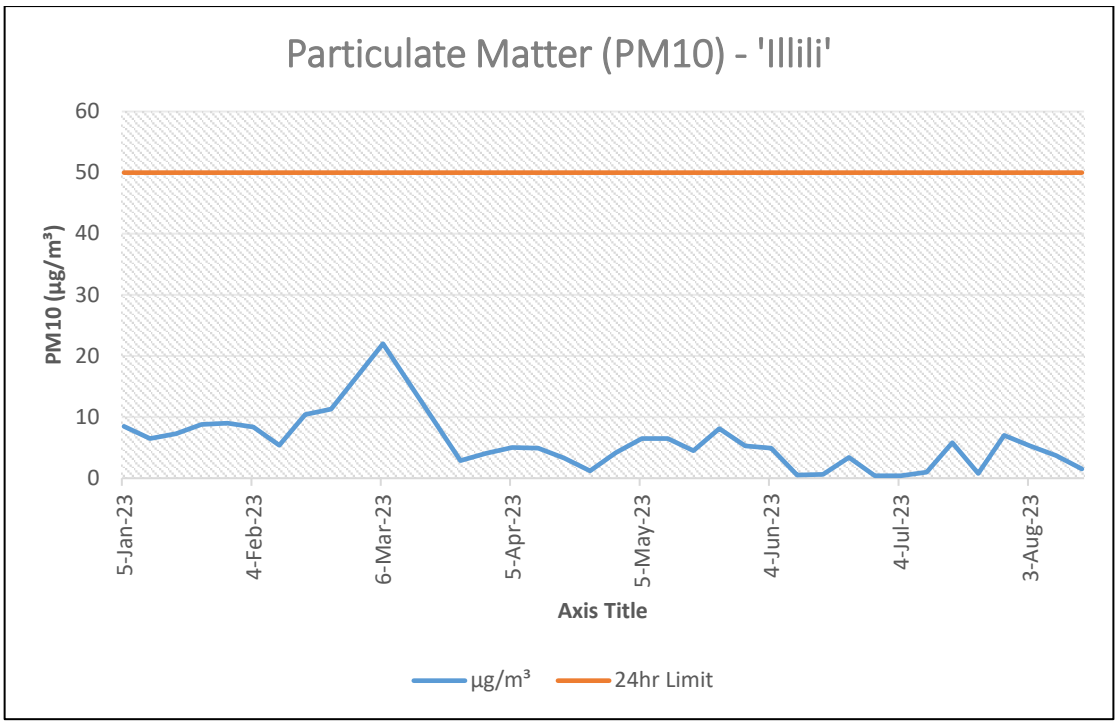

Figure 4. 'Illili' Particulate Matter (PM10)

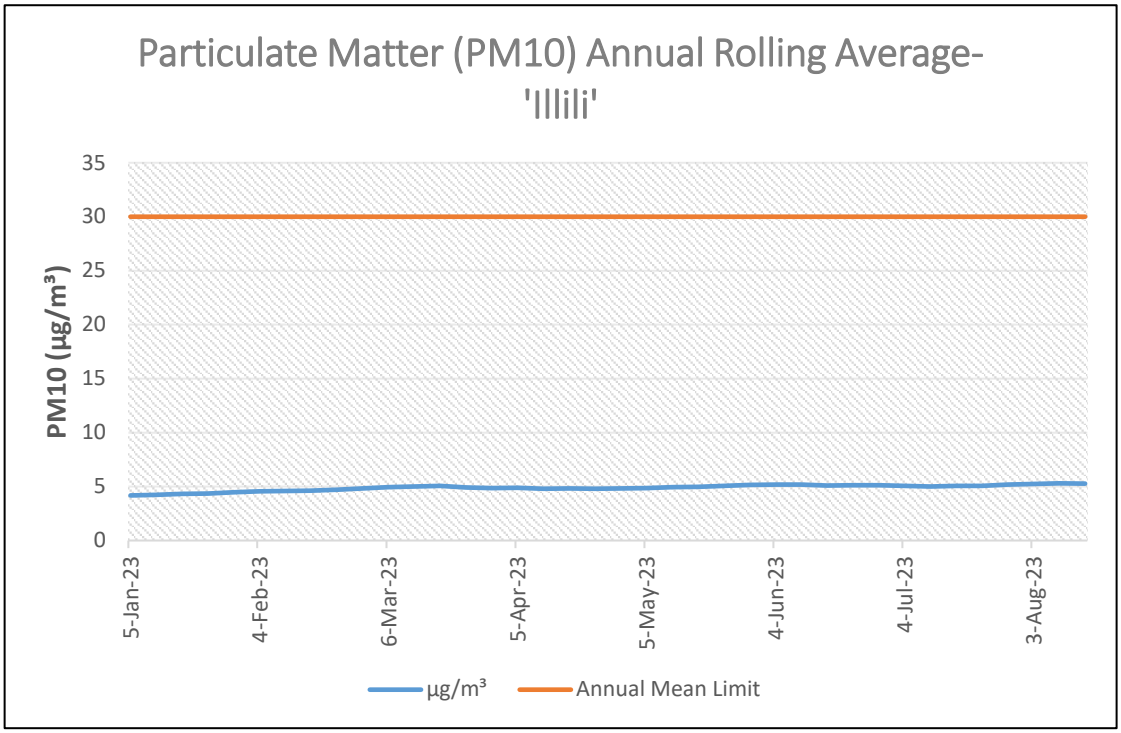

Figure 5. 'Illili' Particulate Matter (PM10) Annual Rolling Average

5.1.4 Key Environmental Performance/Management Issues

No key environmental performance/management issues were identified during the reporting period.

5.1.5 Proposed Improvements to Environmental Management

No improvements are proposed within the next reporting period, as activities will be limited to aftercare and maintenance.

5.2 Biodiversity

5.2.1 Threatened Flora

Investigations into the occurrence of threatened flora within the Project Approval Area were undertaken as part of the Environmental Assessment by Geoff Cunningham Natural Resource Consultants Pty Ltd in 2007, following field surveys in October and December 2006. The investigation identified no significant impact on threatened flora species, endangered ecological communities, endangered flora populations or critical habitat as a consequence of the development, either because they do not exist in the area or avoidance is possible due to project design.

Investigations identified a remnant of the White Box Yellow Box Blakely's Red Gum Woodland endangered ecological community within the study area but concluded that it would not be affected in any significant manner by the mine.

A remnant of the Native Vegetation on Cracking Clay Soils of the Liverpool Plains endangered ecological community was also identified within the study area. It was noted that a small section of this community would be temporarily affected by the Coocooboonah Lane re-alignment but the community would be rehabilitated and enhanced following rehabilitation after mining ceases. It was assessed that this action, due to its temporary impact and final environmental enhancement, would not require approval under the Commonwealth EPBC Act.

Much of the area has been cleared in the past and most of this cleared area has been cultivated. The vegetation on the cleared areas has been invaded by introduced species. The establishment of the mine site did not involve clearing of native vegetation and as such no biodiversity offsets were required.

5.2.2 Threatened Fauna

Investigations into the occurrence of threatened fauna within the Project Approval Area were undertaken by Kevin Mills and Associates as part of the Environmental Assessment, following surveys conducted in September 2006. These investigations identified that the proposed development was unlikely to significantly affect any of the threatened species, fauna populations or communities listed under the Threatened Species Conservation Act 1995, or their habitats.

It was also concluded that development of the mine was not likely to have a significant impact on any matter of national environmental significance listed under the *Environment Protection*

and Biodiversity Conservation Act 1999. Referral to the Commonwealth Minister for the Environment for assessment and approval was therefore not warranted.

The area surrounding the mine site supports a viable koala population. NMPL has undertaken a number of measures to minimise the impacts on this population, including:

- Relocating the southern section of Coocooboonah Lane to avoid disturbing remnant koala habitat;
- Erecting a koala-proof fence around the active mine area;
- Minimising clearing and utilising local tree species for revegetation with an emphasis on koala feed trees. This has continued since the last reporting period with koala feed trees planted in koala corridor.

5.2.3 Ecological Monitoring

Introduction

detailed annual ecological assessment of rehabilitated areas and analogue sites was undertaken by Aspect Ecology Pty Ltd during October/November 2023. Monitoring was undertaken using the Whitehaven Annual Rehabilitation Monitoring Methodology (WARMM—Aspect Ecology [*in prep*.]). Completion criteria targets are limited to mean targets derived from analogue site values or specific values provided in the RMP. The New South Wales Department of Planning and Environment BioNet benchmarks listed in the RMP have been superseded in a recent revision (Oliver et al., 2019) and have been omitted from this report. Analogue benchmark values have been derived using all available analogue site data from current and prior monitoring years.

Monitoring in the Woodland Domain comprised:

- eight repeat monitoring woodland rehabilitation sites; and
- one repeat monitoring analogue woodland site.

Monitoring in the Pasture Domain comprised:

- seven repeat monitoring pasture rehabilitation sites;
- one newly established pasture site;
- one repeat monitoring analogue pasture site; and
- three categorical point assessments at notable locations within the Pasture rehabilitation.

Woodland Domain – Surface cover

In the 2023 monitoring year, all rehabilitation areas met the phase-specific completion criterion target except for the rehabilitation established in 2012, which was slightly below the threshold (see Figure 6).

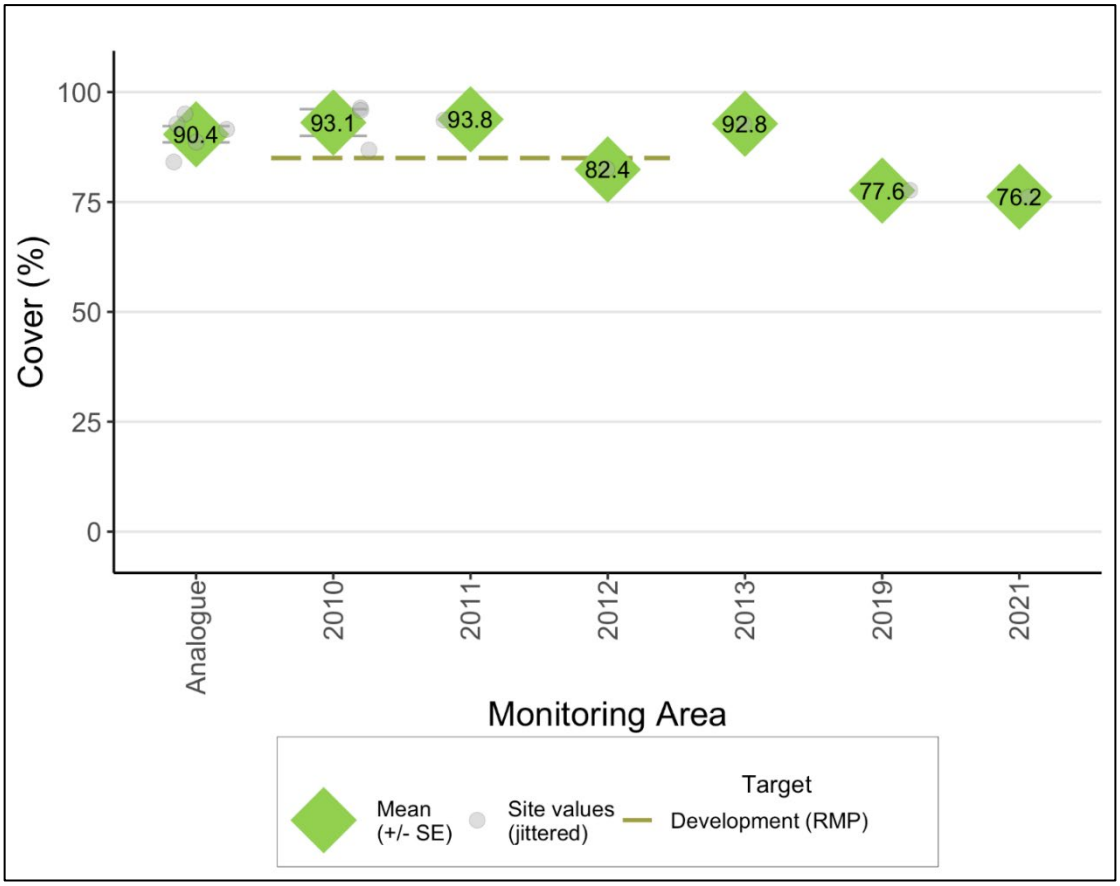

Figure 6. Woodland surface cover at Sunnyside Coal Mine and Analogue sites.

Woodland Domain – Native Grass Cover

In the 2023 monitoring year, the analogue site minimum was 23.5% and the mean was 42.7%. This results in derived targets of 5.6% for the initial Establishment Phase, 11.7% for the remainder of the Ecosystem Establishment Phase, and 34.2% for the Ecosystem Development Phase. Only one rehabilitation area, established in 2021, met completion criteria targets for this indicator (see Figure 7).

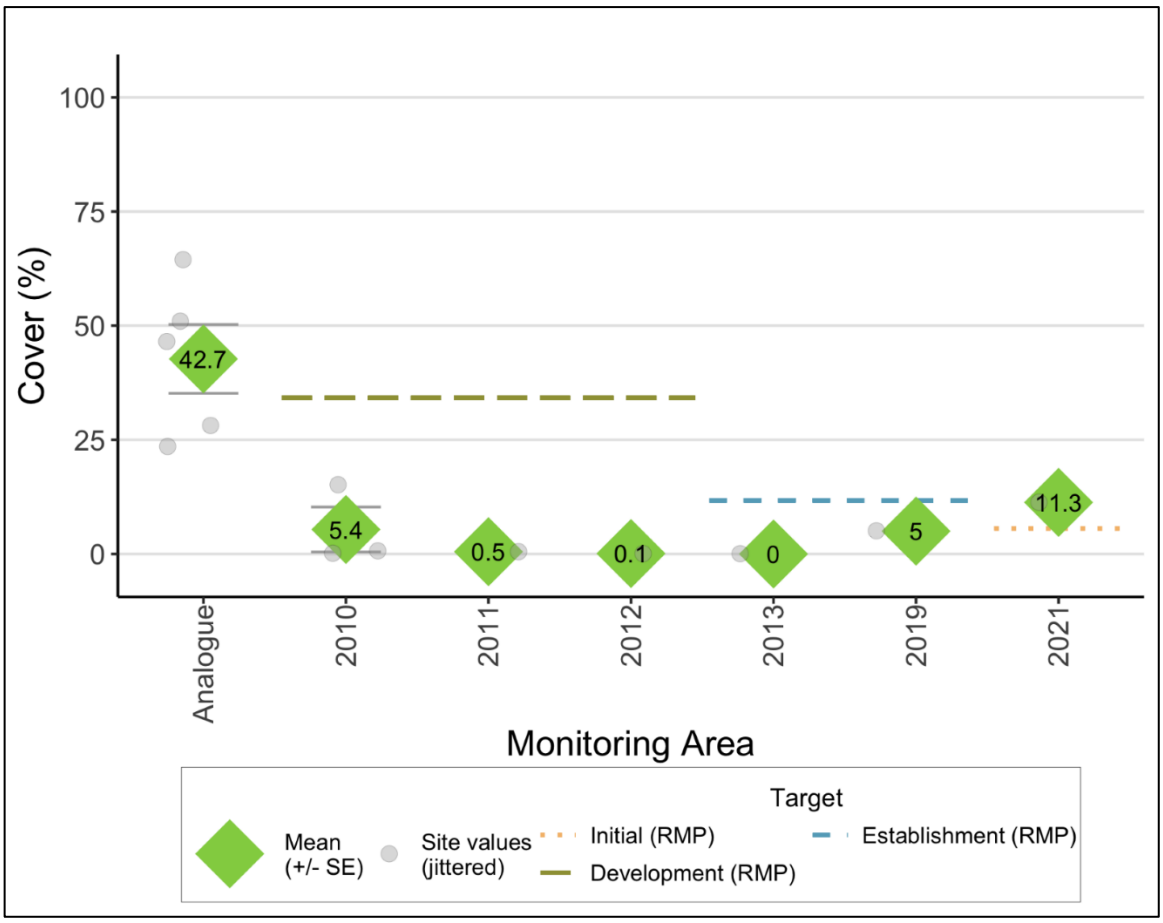

Figure 7. Woodland native grass cover at Sunnyside Coal Mine and Analogue sites.

Woodland Domain – Native Mid-storey Abundance

The completion criteria target a minimum of 1 and 3 individuals for the initial (12–18 month) and ongoing (2–10 year) Ecosystem Establishment Phases, respectively (RMP tbl 13). The rehabilitation established in 2021 met the phase specific target for this indicator (Figure 8).

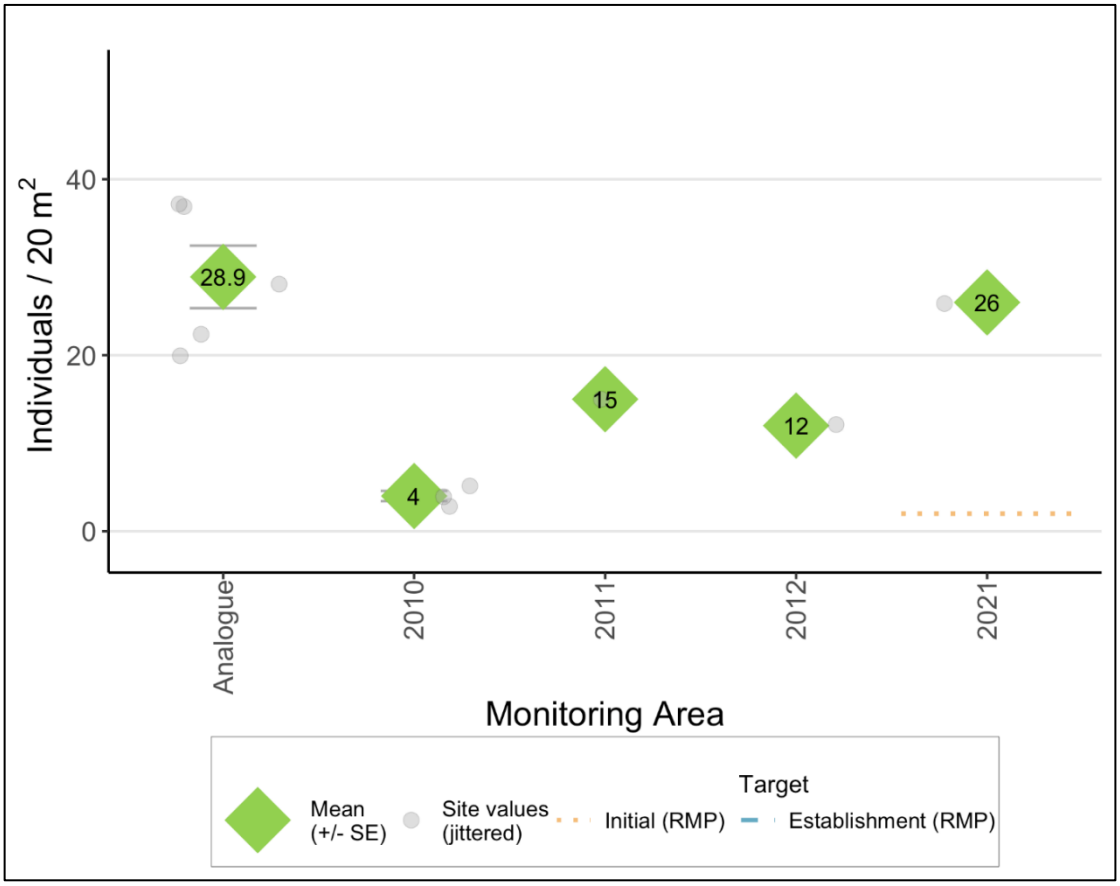

Figure 8. Woodland mid-storey abundance at Sunnyside Coal Mine and Analogue sites. Note: Target lines present in legend but not visible in the plot area indicate that targets exist but are not currently applicable given current rehabilitation age.

Woodland Domain – Native Overstorey Abundance

The completion criteria target a minimum of 4 and 8 species for the initial (12–18 month) and ongoing (2–10 year) Ecosystem Establishment Phases, respectively (RMP tbl 13). Rehabilitation established in 2021 achieved the phase-specific target for this indicator (Figure 9).

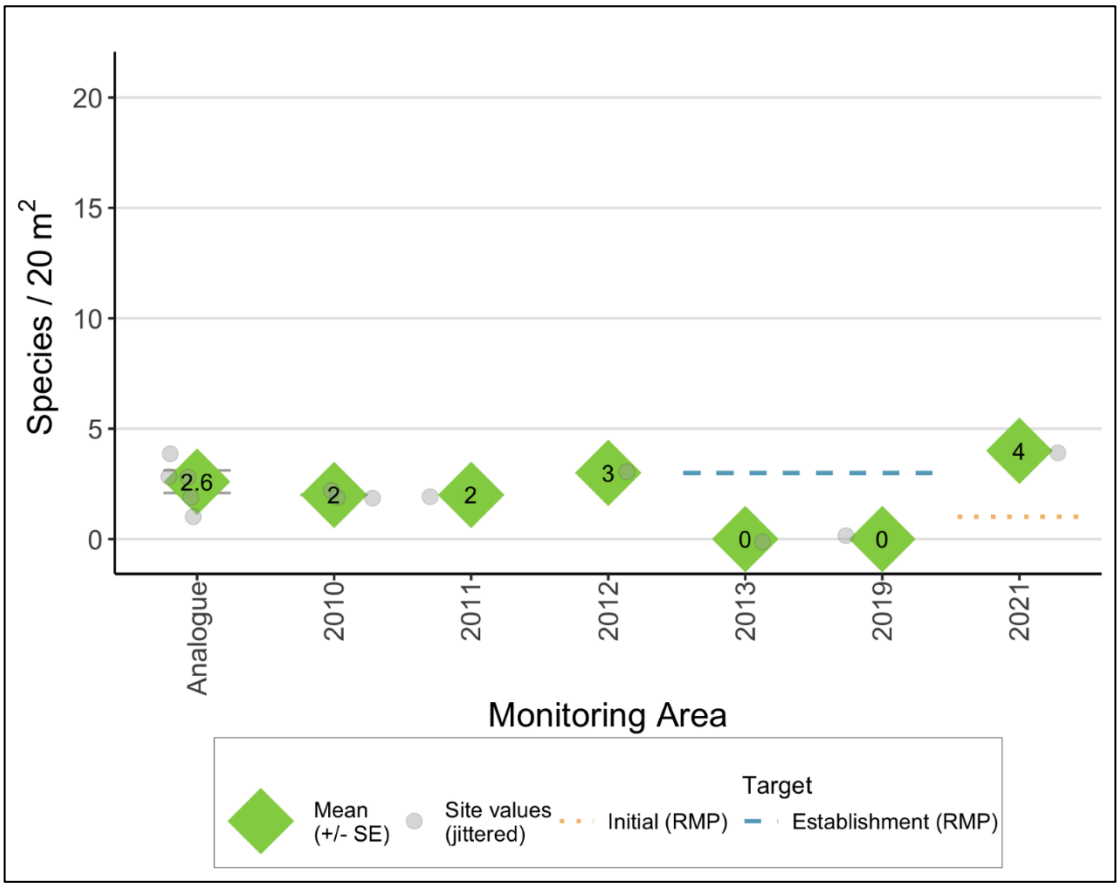

Figure 9. Woodland overstorey abundance at Sunnyside Coal Mine and Analogue sites.

Pasture Domain – Surface Cover

To achieve the completion criterion target for this indicator, surface cover is to be greater than 85% during the Ecosystem Development Phase (RMP tbl 12). Additionally, no bare surfaces greater than 20 m x 20 m in area or greater than 10 m in length down slope are to be present at year 5 following establishment (RMP tbl 12). No rehabilitation sites were recorded as having large bare surfaces. Pasture domain surface cover results shown in Figure 10.

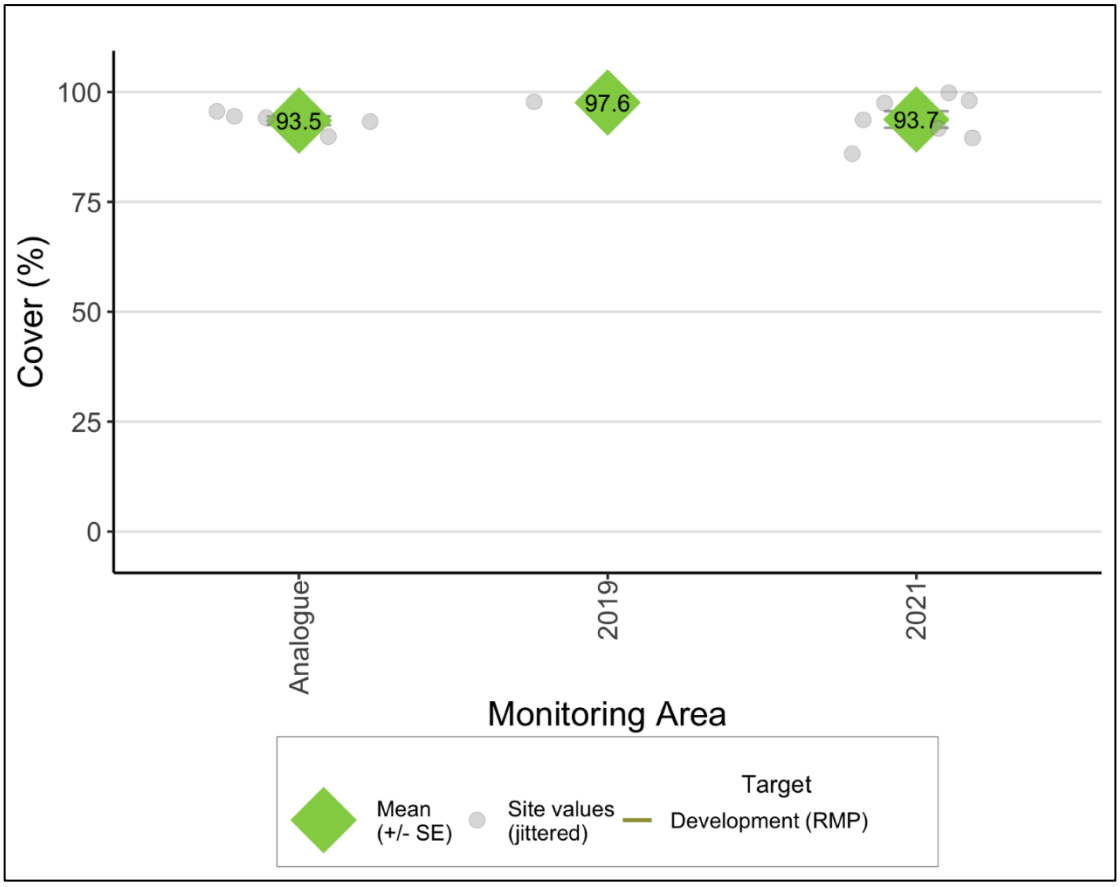

Figure 10. Pasture surface cover at Sunnyside Coal Mine and Analogue sites.

Recommendations

It is recommended that:

- Weed management is continued to reduce perennial exotic grass abundance in the woodland rehabilitation;
- ground plantings are continued to increase the diversity of the woodland rehabilitation groundcover; and
- feral animal control campaigns continue.

5.2.4 Weeds

Contractors undertook weed inspections and treatment at Sunnyside Mine in reporting period. The main weeds treated on site were Broadleaf weeds, other weed species that were treated include Prickly lettuce, Buffel grass, Fleabane, Saffron thistle, Noogoora Burr and

Johnson grass. Weed treatment was carried out using a spot spraying method and slashing where suitable.

5.2.5 Feral Animal Control

Feral animal control on the property was limited to work undertaken south of the Koala fence which utilised 1080 fox baits.

5.2.6 Koala Management

During the reporting period no koalas were spotted onsite by mine personal.

5.2.7 Performance/Management Issues

No major issues.

5.2.8 Proposed Improvements to Environmental Management

In response to the recommendations outlined in section 5.2.3, Whitehaven Coal commit to the following;

- Continue field surveys to confirm areas of rehabilitation where infill planting is required. A re-planting plan will be developed and executed as required.
- In addition to annual ecological monitoring, rehabilitation will continue to be monitored on a monthly basis and reported on within the monthly inspection checklist, to ensure rehabilitation areas are reflecting species presence and abundance of analogue sites.

5.3 Blasting

There is no further blasting to occur on site.

5.3.1 Proposed Improvements to Environmental Management

No improvements are proposed for the next reporting period. All blasting at the mine site has ceased. Blast monitors have been decommissioned and removed.

5.4 Operational Noise

5.4.1 Criteria

Operational noise criteria for SCM are specified in PA 06_0308 and EPL 12957, as follows:

Table 5.4.1 Operational Noise Criteria

Location	Day	Evening
	$L_{Aeq\ (15\ min)}$	$L_{Aeq\ (15\ min)}$
All privately-owned land	35	35

5.4.2 Environmental Management Measures

Control of noise generation and propagation at the mine is by a combination of general source and propagation path methods including:

- There is no longer any bulk haulage or movement of material on site. Only activities are aftercare and maintenance
- No afterhours work carried out
- No general maintenance of equipment on site

5.4.3 Noise Monitoring Results

Approval to no longer carry out attended noise monitoring was received from the EPA and the Noise management plan was amended accordingly and was approved by DPIE in September 2020. There were no noise complaints registered for the reporting period and no attended noise monitoring was required.

5.4.4 Key Environmental Performance/Management Issues

Any maintenance or aftercare activities are to be within daylight hours.

5.4.5 Proposed Improvements to Environmental Management

None. There is no permanent equipment stationed on site. Any maintenance activities will be during day hours.

5.5 Waste Management

During the reporting period there were no activities onsite requiring additional material brought to site and no additional waste produced. There is no equipment onsite requiring maintenance monitoring. Due to no waste generated by the site during the reporting period, there is no activity to base a comment on the effectiveness of the waste management process as defined in the Sunnyside Coal Mine Waste Management Plan.

All remaining waste was removed from site in the previous reporting year (2022).

5.6 Aboriginal Heritage Management

5.6.1 Environmental Management Measures

An assessment of the cultural heritage of the mine site was conducted by Archaeological Surveys and Reports Pty Ltd (ASR). Prior to the investigation, ASR contacted the Red Chief Local Aboriginal Land Council (LALC) and Bigundi Biame Gunnedarr Traditional People to arrange for site officers to assist in the survey. A representative from each group was present for the site survey conducted on the 12th September 2006 and the coal transport route survey

on the 7th December 2006. The ASR assessment was used in the preparation of the Environmental Assessment for the mine, undertaken by R.W. Corkery & Co. Pty Ltd on behalf of Namoi Mining Pty.

Four sites were recorded during the investigation, as detailed in 7.5.2. Only one site (AGG1) was recorded within the mine site while the three isolated artefact sites were identified to the south of the mine site.

All Aboriginal Heritage sites are managed in accordance with the Sunnyside Coal Mine Aboriginal Cultural Heritage Management Plan, prepared in accordance with Schedule 3 Condition 32 of PA 06_0308 Consolidated.

5.6.2 Consultation

No soil stripping of previously undisturbed areas took place during the reporting period. No additional Aboriginal cultural heritage items were discovered during the reporting period and no consultation with Aboriginal stakeholders was conducted. Known heritage sites are listed in **Table 5.6.2.**

Table 5.6.2 Aboriginal Artefacts

Site Name	Site Type	Site Description/Comments
Sunnyside AGG1	Axe Grinding Groove	Axe grinding groove at the rim of a cliff-like scarp (beside a small water-filled natural depression in the rock). Dimensions: 28cm (L) x 6cm (W) x 2cm (D). Located approximately 150m from the southern side of the open cut area.
Sunnyside ISO1	Isolated Artefact	Flake with possible retouch to one margin located on the bank beside the upper reaches of a dry creek (on a vehicle track). Dimensions: 21 x 12 x 3mm
Sunnyside ISO2	Isolated Artefact	Proximal fragment of a flake located on the bank beside the upper reaches of a dry creek. Dimensions: 22 x 22 x 5mm.
Sunnyside OS1	Artefact Scatter	Artefact scatter of at least ten artefacts in a lozenge-shaped area of 30 x 8m, on the upper slopes down slope of a contour bank down slope of a saddle. Artefact types: flakes and flaked pieces, including a backed blade.
Source: Modified after ASR (2007) – EA SCSC Part 7		

5.6.3 Key Environmental Performance/Management Issues

The preservation conveyor belt strip was removed from the axe grinding grove that is located south of the mine pit, as blasting is no longer taking place. Inspections found no impact on the heritage site.

5.6.4 Proposed Improvements to Environmental Management

No improvements are proposed within the next reporting period.

5.7 Natural Heritage

There are no features of natural heritage within the Project Approval area and hence, no specific management procedures are required.

5.8 Spontaneous Combustion

5.8.1 Environmental Management Measures

A carbonaceous test procedure was developed to identify and manage any carbonaceous material within 5m of the final landform. A total of 99 test pits to identify carbonaceous material with potential for spontaneous combustion were dug to at least 5m below final landform in 2020. All carbonaceous material is buried on +5m below final landform.

5.8.2 Key Environmental Performance/Management Issues

No incidence of spontaneous combustion occurred.

5.8.3 Proposed Improvements to Environmental Management

As final rehabilitation has been completed and confirmation that there is no material with a potential for spontaneous combustion within 5m of the final landform, no further management activities are required.

5.9 Bushfire Management

5.9.1 Environmental Management Measures

SCM is located within an area of cleared agricultural land.

Measures to deal with bushfires include the following;

- Hot work permit system to manage activities that could potentially cause fire.
- Whitehaven Coal have engaged a firefighting contract company LRM Fire and Rescue on a retainer bases to assist in case of any fire breakout.

5.9.2 Key Environmental Performance/Management Issues

No key environmental performance/management issues were identified during the reporting period.

5.9.3 Proposed Improvements to Environmental Management

No improvements are proposed within the next reporting period.

5.10 Environmental Performance Summary

An environmental performance summary for SCM is presented in **Table 5.10.**

Table 5.10 Environmental Performance

Aspect	Approval Criteria / EIS Prediction	Performance during the reporting period	Trend / Key Management Implications	Implemented / proposed management actions
Air Quality	Refer Section 6.1.1	No recorded PM10 exceedances of the 24h limit of 50 µg/m³.	Nil.	Ongoing implementation of the Air Quality Management Plan.
Biodiversity	EIS prediction of no impact on known koala population.	No recorded impact on koala population. No koala deaths recorded onsite.	Nil	Additional tree planting in woodland areas
Heritage	EIS prediction of potential blast impact on a recorded site.	No recorded impact on site.	Nil	Blasting has ceased on site
Spontaneous Combustion	EIS prediction of no material spontaneous combustion	No in-pit spontaneous combustion found during the year.	Nil	Test pitting for carbonaceous material to ensure no material with potential for SponCom within 5m of final landform has been completed.
Noise	35dB	No exceedances	Nil	Site activities limited to aftercare and maintenance.
Blasting	<115dB overpressure	No exceedances	Nil- all blasting has ceased.	Nil.

6 WATER MANAGEMENT

The SCM lies within the catchment of the Namoi River. The majority of the surface water runoff flows northwards across the mine site. It then flows into Coocooboonah Creek which flows north-west within a constructed waterway paralleling Coocooboonah Lane. From there, it flows into Rock Well Creek then into Native Cat Creek which continues to flow north-west for 6km. Runoff then flows northwards within Collygra Creek where it flows across a floodplain area before flowing into the Namoi River some 25km north of the Mine Site. The remainder of the mine's surface water flows south into Coocooboonah Creek ultimately flowing into the Namoi River to the north.

The design of sediment dams is to prevent off site runoff of water with TSS values above guideline levels. There are no longer any exposed surface areas on site generating high sediment runoff.

Two wet weather discharge points are nominated in the current EPL 12957. These are Storage Dam 3 (EPL ID No. 9) and Storage Dam 4 (EPL ID No. 10). Two additional monitoring points are nominated on the EPL for water quality monitoring during discharge events. These are Coocooboonah Creek Upstream (CCUS – EPL ID No. 11) and Coocooboonah Creek Downstream (CCDS – EPL ID No. 12).

6.1.1 Surface Water Management

All sediment basins, storage dams and associated banks and drains have been designed and constructed in accordance with the *Managing Urban Stormwater: Soils and Construction Vol 2E Mines and Quarries* (DECC, 2008) in conjunction with the references to Volume 1 (Landcom, 2004).

6.1.2 Surface Water Monitoring Results

SCM has a requirement to undertake surface water monitoring on a quarterly basis in addition to the monitoring of any wet weather discharge event.

Summary of water quality results are given in **Table 6.1.2**, and complete surface water quality monitoring results are provided in Appendix 1. SD3, SD4, SB4 and SB5 were dry when quarterly sampling was conducted for the reporting period. SB2 was dry during quarter 4 sampling and SD1 was dry during quarter 3 and quarter 4 sampling. Production Bore dam and the Void was backfilled (Nov 2020) above groundwater level.

There were no discharges during the reporting period.

Table 6.1.2 Summary Surface Water Monitoring Results

Storage	No. Samples	Annual Average Oil and Grease	Annual Average Conductivity	Annual Average pH
		mg/L	µS/cm	
SD4	Dry during sampling			
Production Bore Dam	Dam removed			
Void	Dam removed; void is free draining			
SB4	Dry during sampling			
SD3	Dry during sampling			
SB2	3 (Q4 dam dry)	<5	188	9
SD2	Dam removed			
SD1	2 (Q3 & Q4 dry)	<5	1150	8.4
SB5	Dry during sampling			

6.1.3 Key Environmental Performance/Management Issues

No non-conformances or changes were made to surface water management program during the reporting period.

6.1.4 Proposed Improvements to Environmental Management

No improvements are proposed within the next reporting period.

6.1.5 Water Take

SCM groundwater licence (WAL 29537) is for 120 units from the Gunnedah - Oxley Basin. Licence is in the process of being transferred. There was no water take during the reporting period.

Water storage on site at end of reporting year was 0 ML as all dams were dry.

6.2 Groundwater Management

6.2.1 Environmental Performance/Management

The mine's performance with respect to groundwater performance/management, the prevention of pollution, and the assessment of impacts on groundwater availability to other surrounding users, has been assessed through groundwater level and chemistry monitoring undertaken at a series of piezometers and bores within the Project Area and adjacent properties.

6.2.2 Groundwater Monitoring

The details of groundwater monitoring throughout the reporting period are listed in **Table 6.2.2**. Complete monitoring datasets are provided in Appendix 2.

Groundwater sampling and analysis was undertaken by Acirl Pty Ltd (ALS) during the reporting period. Below are some points to note regarding monitoring locations and frequencies:

- Bore 27356 has not been monitored since June 2012. The windmill located over the bore has been dismantled and removed from site.
- Standing Water Level (SWL) data is unavailable for bores 27356, 44884, 3709.
- Werona bore pump was last used in 2019. Since then, the bore pump and generator have been removed. As of March 2021, water levels were at 19.66 mbgl.

Table 6.2.2 Groundwater Monitoring Points

Site ID (see Figure 2)	Registered Bore No. & Licence No	Property/ Location	Frequency		Purpose
			SWL*[2], EC*[3] and pH	Representative Metals and Ions	
P1*[1]	GW968386 90BL253767	"Plainview"	Quarterly	Six monthly	To determine existing status and any impacts
P2*[1]	GW968387 90BL253768	"Ferndale"	Quarterly	Six monthly	
P3	GW968388 90BL253769	"Sunnyside"	Quarterly	Six monthly	
P7	GW968392 90BL254689	"Sunnyside"	Quarterly	Six monthly	To determine existing status and any impacts
P8	GW968393 90BL254690	"Sunnyside"	Quarterly	Six monthly	
3709*[1]	N/A	"Ivanhoe"	Quarterly	Six monthly	
22497*[1]	N/A	"Coocooboonah"	Quarterly	Six monthly	
44677*[1]	N/A	"Werona"	Quarterly	Six monthly	
44884*[1]	N/A	"Lilydale"	Quarterly	Six monthly	
6249*[1]	N/A	"Lilydale"	Quarterly	Six monthly	
901460	GW901460 90BL249138	"Illili"	Quarterly	Six monthly	To determine existing status and any impacts
27356	GW027356 90BL020042	"Sunnyside"	Quarterly	Six monthly*[5]	
45061	N/A	"Coocooboonah"	Quarterly	Six monthly	
Werona Production	90BL255246	"Werona"	Quarterly	Six monthly*[5]	

*[1] Non-Company owned bore	*[2] SWL – Standing Water Level	*[3] EC = Electrical Conductivity
*[4] Company production bore	*[5] – Not available this reporting period due to lack of access	

6.2.1 Groundwater Levels

Groundwater levels have remained stable and reflect reduced rainfall and dryer climatic conditions. Mine void was closed and made free draining in December 2020.

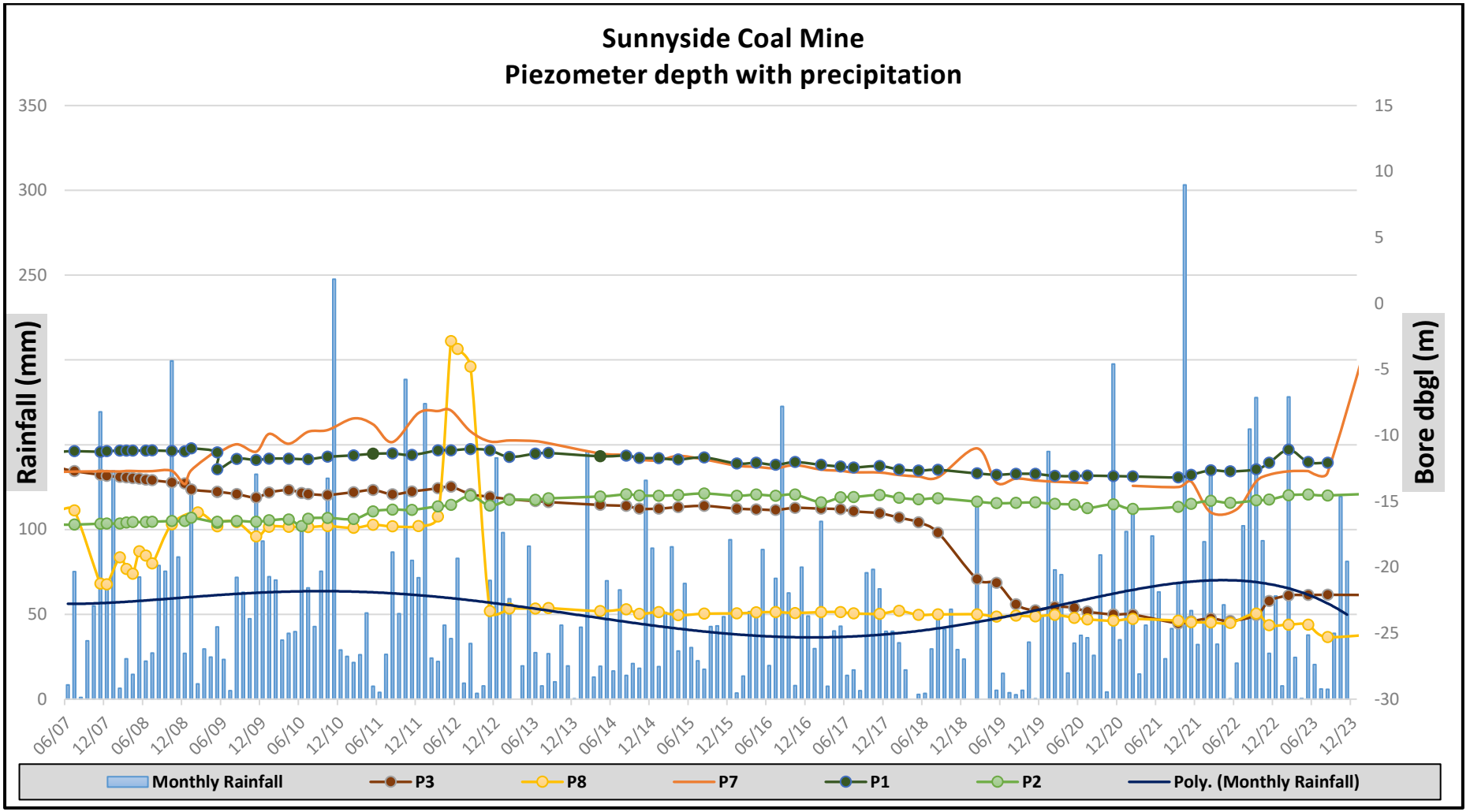

Figure 11 Monitoring piezometer water depth

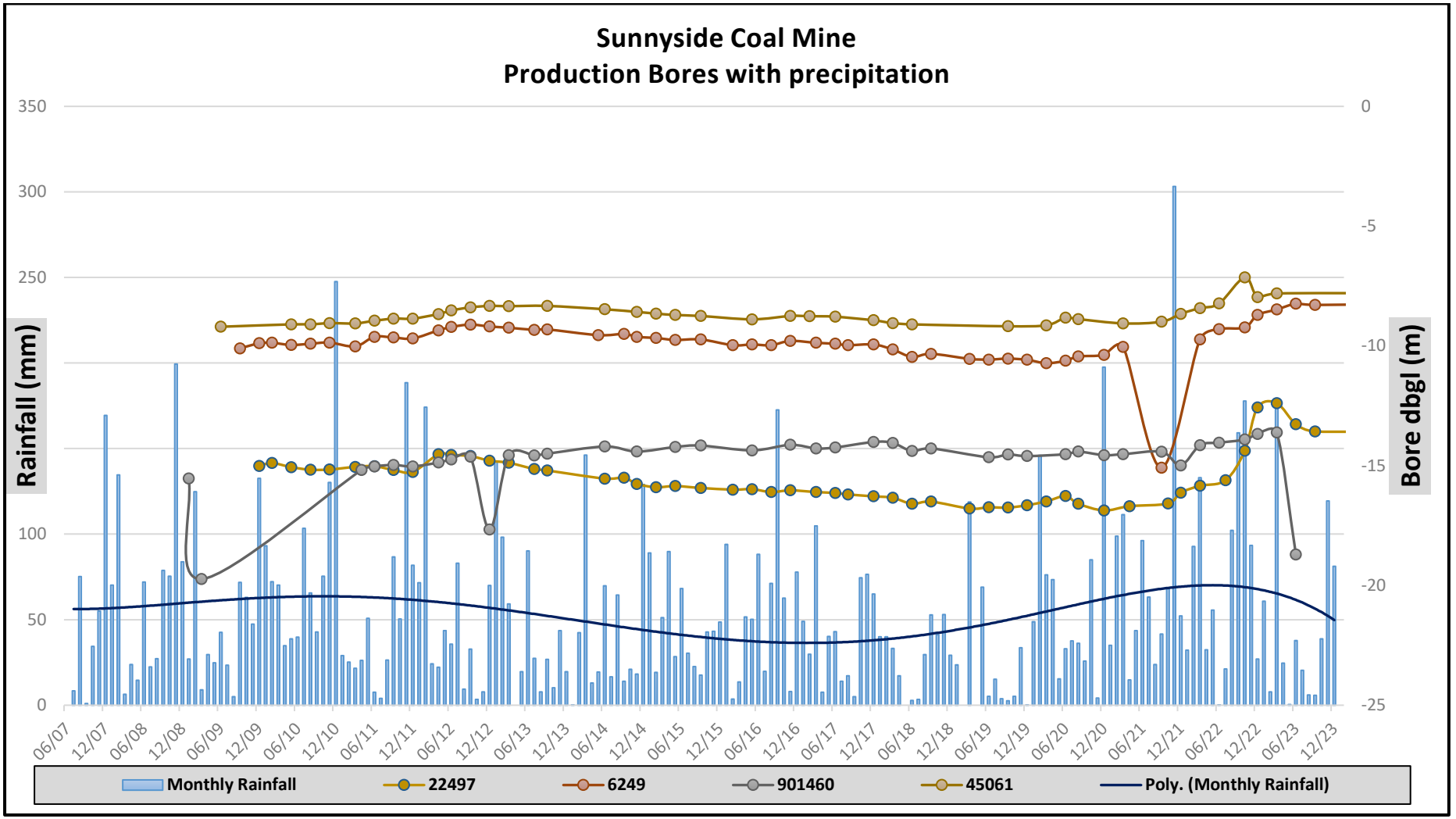

Figure 12 Production bore water depth

6.2.2 Groundwater quality

Analysis of samples taken during the reporting period has shown that groundwater quality has remained generally in line with historical data at most locations monitored. Groundwater levels reflect reduced rainfall and dryer climatic conditions. Water quality has been compared to the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000) (ANZECC) guidelines for stock watering (cattle). Groundwater has constant quality (very low metals, and pH between 7-8.3) across the monitoring region except for sodium and associated conductivity which varies depending on local geology and groundwater source. Sodium levels fluctuate from 131mg/l (Piezometer P8) to 744mg/l (Piezometer P7).

6.2.3 Groundwater Management

There is no groundwater extraction and the void has been backfilled and is free draining. Groundwater from surrounding bores, as well as the mine piezometers will continue to be monitored to assess any changes in groundwater quality or level.

6.2.4 Key Environmental Performance/Management Issues

No groundwater extraction occurred during the reporting period.

6.2.5 Proposed Improvements to Environmental Management

No proposed improvements. Ongoing monitoring to monitor for any changes.

7 REHABILITATION

7.1 Rehabilitation Performance during the Reporting Period

7.1.1 Status of Mining and Rehabilitation

The status of mining and rehabilitation at the completion of the reporting period is presented in **Figure 11.**

Outstanding rehabilitation works include:

- Two remaining exploration drill holes require sealing
- Two water dams (1.08ha) to be removed and filled after vegetation has successfully established and rehabilitation is safe and stable.
- Aftercare and maintenance of rehabilitated areas and infill planting where required.

Table 7.1.1 Rehabilitation Status

Mine Area Type [1]	Previous Reporting Period	This Reporting Period (Actual)	Next Reporting Period (Forecast)
	2023	2024	2025
A. Total Mine Footprint	107.82	107.82	107.82
B. Total Active Disturbance	1.08	1.08	**1.08
C. Land Being Prepared for Rehabilitation	0	0	0
D. Land Under Active Rehabilitation	97.02	97.02	97.02
E. Completed Rehabilitation	0	0	0

Footprint exclude 17.6ha conservation area (Koala Corridors)

**Two dams to be filled/rehabilitated after ecosystem sustainability has been achieved

7.1.2 Post Rehabilitation Land Uses

The overall closure goal for the Sunnyside Coal Mine is to establish a stable and safe landform that is commensurate with the surrounding topography and which maximises the return to an appropriate agricultural land use comparable to the pre-mining land use, but is considerate of the fact that the landform is a backfilled mining area.

The post-mining landform will include approximately 17.6 hectares (ha) of land rehabilitated with woodland species on dump and highwall slopes to enhance biodiversity values of the area, with additional, ±17.2 ha of trees planted on areas undisturbed by mining activities along the eastern, northern and western boundaries of the property to enhance the wildlife corridors (Conservation).

Land Use

Secondary Domain

- Conservation
- Native Ecosystem
- Pasture
- Water
- Final Depression High Wall

Final Landuse Domain

- Native Ecosystem
- Water Management Areas
- Water Storage (Excluding Final Void)

WHITEHAVEN COAL

Status of Mining and Rehabilitation

Figure 13

ML1624 (Project Boundary)

N

0 100 200

Meters

Datum: MGA Zone 56 **Author:** A.Raal **Image:** June 2022,

Date: Feb 2023 **Size/Scale:** 1:7,000 (A3)

MCR178: ~Spatial\ARCGIS\Sunnyside\Sunnyside.gdb

7.1.3 Rehabilitation Undertaken

Rehabilitation to final landform and seeding was completed in 2020. Rehabilitation undertaken during the 2023 reporting period included aftercare and maintenance of rehabilitated areas and infill planting on void slopes and woodland area west of the void joining western conservation corridor and existing remnant woodland on Sunnyside Hill. Plantings consisted of White box, Kurrajong, Narrow leafed iron bark, Blakely Red Gum, Red Ash, Tumble Down Gum, Large Mock-Olive and Native Olive.

7.1.4 Rehabilitation Monitoring

Monitoring consists of;

- Monthly site inspection by site environmental officer for weeds, feral animals, visual condition of planted tube stock and for signs of erosion.
- Annual detailed ecological assessment of rehabilitated areas and analogue sites by consultant ecologists.

7.1.5 Weeds Management

Weed management is discussed in section 5.2.4.

7.1.6 Renovation or Removal of Buildings

All fixed buildings, concrete pads and bitumen road base were removed. Concrete and bitumen were taken to Gunnedah Shire Council tip. No infrastructure remaining onsite.

7.1.7 Other Rehabilitation Undertaken

No further rehabilitation was undertaken.

7.1.8 Departmental Sign-off of Rehabilitated Areas

Departmental sign-off has not been requested for any rehabilitated areas.

7.1.9 Variations in Activities against RMP

Highwall drain works were completed in 2023.

7.1.10 Trials, Research Projects and Initiatives

No new trials undertaken during the reporting period.

7.1.11 Key Issues to Achieving Successful Rehabilitation

Three key issues to achieving successful rehabilitation are: -

- Establishment of vegetation species to meet Plant Community Types (PCT).
- Management of weeds and feral animals
- Ongoing monitoring and maintenance of drainage lines and drop structures

7.2 Actions for Next Reporting Period

- Infill planting of tree tube stock where required

- Ongoing Weed management and pest control
- Rehabilitation/sealing of two remaining exploration drill holes
- Ongoing pasture grass control in woodland areas

8 COMMUNITY

SCM maintains a designated complaints line and, in the event of a complaint, details pertaining to the complainant, complaint and action taken are recorded.

No complaints were received during the reporting period.

Last five years of complaints are listed in **Table 8**. Due to the low number of complaints graphing the data is not practical.

Table 8 Community Complaints

Community complaints			
Year	Number of complaints	Aspect	Comment
2023	None		
2022	None		
2021	None		
2020	None		
2019	None		
2018	1	Water	Metallic taste in rainwater tank
2017	None		
2016	1	Air quality	Odor and fumes from mine

Any complaints that are made are reported to the Community Consultative Committee and documented in the AR and the annual EPA Return. A complaints register is also maintained on Whitehaven's website.

Community contributions are managed in accordance with the Whitehaven Coal Donations and Sponsorship Policy. Whitehaven Coal donated $245,490.80 to local Gunnedah groups and over $339,094.89 to support local groups in Narrabri during the reporting period. Groups and activities which received contributions included, but were not limited to the following;

Gunnedah LGA:

Yawiriawiri Murri Ganuur descendants
Rotary Club Gunnedah west
Carroll community bus incorporated
Swimming Gunnedah incorporated
Extent
Combined Catholic schools p&f
Winganga Li Early Learning and Care Sevices
CrossFit Gunnedah
Gunnedah High School
Gunnedah Filipino Australia Community
Gunnedah Junior Rugby Club Incorporated
Gomeroi Roos
Australian Whipcrackers & Plaiters Association
Multicultural Women's Association Inc Charity no.
Gunnedah and District Bulldogs AFL
Naidoc Week Committee Incorporated
The Central Noth Rugby Union
Gunnedah Bulldogs
Gunnedah Shire Council
Gunnedah and District Chamber of Commerce
Women in Mining
Gomeroi Allstars
Gunnedah Pistol Club
Lions Club of Gunnedah
Gunnedah Junior Rugby Club Incorporated
Eric & Carol Hannan
Boggabri gunnedah Gun club
Gunnedah Ministers Fraternal
Dorothea Mackellar Poetry Awards
Lake Keepit Fishing Club
The Red Chief - Local Aboriginal Local Council
Gunnedah Shire Council
Gunnedah Shire Council
Gunnedah Swimming
cougar warriors
Gunnedah Shire Council
Plains of Plenty
Gunnedah Meals on Wheels
Curlewis PS P&C
Movember Foundation
Gunnedah and District Chamber of Commerce

Gunnedah South Public School P&C Association
Gunnedah Can Assist
Gunnedah Shire Council
Gunnedah High School
Gunnedah High School
Gunnedah & District Chamber of Comm
Pcyc Gunnedah

Narrabri LGA:

North Branding
Narrabri industrial network inc
education public schools
North western courier
Boggabri Golf Club
Forest Coaches
Narrabri Arts Eisteddfod Inc
Eulah Creek Recreation Reserve Trust
Wee waa & District Historical Society Inc
Presbyterian Social Service
Narrabri district junior rugby league club
rotary club narrabri
Narrabri Shire Community Radio Inc
The Rotary Club Of Narrabri Inc.
narrabri and district chamber of commerce
Narrabri High School
Narrabri & District Community Aid Service Incorporated
Narrabri Dolphins Water Polo Club Incorporated
Wee Waa Community Band Inc.
Narrabri Dolphins Water Polo Club Incorporated
Wee Waa Show Society Inc.
Narrabri industrial network inc
Narrabri Oztag
Narrabri Rugby League Football Club
Namoi Women's Shed Incorporated
Narrabri industrial network inc
Richard Barry
Narrabri RSL sub-Branch
Maules Creek Campdraft and Junior Rodeo 2023
Yarrie Lake Flore & Fuana Trust
St Xaviers Narrabri
Boggabri Rugby League Football Club
Nosh Narrabri Committee
Nosh Narrabri Committee
Boggabri Public School
WHC - Clontarf

9 INDEPENDENT AUDIT

The most recent Independent Environmental Audit (IEA) occurred in 2022, with submission of the final report and response to Audit Recommendations submitted to the Department in October 2022. Non-compliances identified by the IEA were risk ranked by the auditor in accordance with Table 1c. SCM subsequently developed an Audit Action Plan for the one administrative non-compliance. The Audit Action Plan is available on the Whitehaven Coal website, there are no outstanding audit actions.

Next Independent Audit is scheduled for 2025.

10 INCIDENTS AND NON-COMPLIANCES DURING THE REPORTING PERIOD

10.1 Reportable Incidents

None for the reporting period

10.2 Non-compliances

No non-compliances during the reporting period.

10.3 Regulatory Actions

No regulatory actions were issued to Sunnyside in 2023.

11 ACTIONS TO BE COMPLETED IN THE NEXT REPORTING PERIOD

The following measures will be continued, or implemented, in the next reporting period to improve the environmental or community performance of the operation: -

- Remove sedimentation dams no-longer required
- The continuation of environmental monitoring and management, as per the relevant approvals and environmental management plans;
- Review and revision of various Environmental Management Plans; and Continued community liaison and engagement with local stakeholders.

Appendix 1: Surface Water Monitoring Data

WHITEHAVEN COAL

Area/Site: *Sunnyside*
From Date: *01-Jan-2023* **To Date:** *01-Dec-2023*
Standard: *<Blank>*

Data Point: SUNNYSIDE_SB2; Northing: 224854; Easting: 6568067

	08-Feb-23	03-May-23	03-Aug-23	07-Nov-23
Rec ID	**89076**	**90227**	**91230**	**93710**
Lab Ref	**98772**	**99906**	**100908**	**103387**
Antimony (total)	<0.001	<0.001	<0.001	
Appearance	Slight Turbid	Slightly	Slight Turbid	
Arsenic-Total (mg/L)	0.002	<0.001	0.002	
Colour	Brown	Brown	Slight Brown	
Comments				No sample -
EC - Field	285	330	195	
Electrical Conductivity @ 25°C	200	185	180	
Molybdenum (total)	0.002	0.001	0.002	
Odour	Nil	Nil	NIL	
Oil & Grease	<5	<5	<5	
pH (pH Unit)	8.9	9	9.2	
pH Value (pH Unit)	9.01	9.03	9.47	
Selenium-Total (mg/L)	<0.01	<0.01	<0.01	
Temperature	26.1	16.9	12.3	
Total Organic Carbon	12	11	16	
Total Suspended Solids (TSS)	49	22	24	

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site:	***Sunnyside***		
From Date:	***01-Jan-2023***	**To Date:**	***01-Dec-2023***
Standard:	***<Blank>***		

WHITEHAVEN COAL

Area/Site: ***Sunnyside***
From Date: ***01-Jan-2023*** **To Date:** ***01-Dec-2023***
Standard: ***<Blank>***

Data Point: SUNNYSIDE_SB3; Northing: 224537.0332; Easting: 6569855.774

	08-Feb-23
Rec ID	**89095**
Lab Ref	**98791**
Comments	NO LONGER

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site:	***Sunnyside***		
From Date:	***01-Jan-2023***	**To Date:**	***01-Dec-2023***
Standard:	***<Blank>***		

WHITEHAVEN COAL

Area/Site: ***Sunnyside***
From Date: ***01-Jan-2023*** **To Date:** ***01-Dec-2023***
Standard: ***<Blank>***

Data Point: SUNNYSIDE_SB4; Northing: 224383.713; Easting: 6569783.0221

	08-Feb-23	03-Aug-23	07-Nov-23
Rec ID	**89077**	**91231**	**93711**
Lab Ref	**98773**	**100909**	**103388**
Comments	No sample -	Dry	No sample -

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site:	***Sunnyside***		
From Date:	***01-Jan-2023***	**To Date:**	***01-Dec-2023***
Standard:	***<Blank>***		

WHITEHAVEN COAL

Area/Site: ***Sunnyside***
From Date: ***01-Jan-2023*** **To Date:** ***01-Dec-2023***
Standard: ***<Blank>***

Data Point: SUNNYSIDE_SB5; Northing: 224944.083; Easting: 6569671.7898

	08-Feb-23	03-Aug-23	07-Nov-23
Rec ID	**89078**	**91232**	**93712**
Lab Ref	**98774**	**100910**	**103389**
Comments	No sample -	Dry	No sample -

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site:	***Sunnyside***		
From Date:	***01-Jan-2023***	**To Date:**	***01-Dec-2023***
Standard:	***<Blank>***		

WHITEHAVEN COAL

Area/Site: ***Sunnyside***
From Date: ***01-Jan-2023*** **To Date:** ***01-Dec-2023***
Standard: ***<Blank>***

Data Point: SUNNYSIDE_SD1; Northing: 225055.9165; Easting: 6569362.7446

	08-Feb-23	03-May-23	03-Aug-23	07-Nov-23
Rec ID	**89075**	**90226**	**91229**	**93709**
Lab Ref	**98771**	**99905**	**100907**	**103386**
Antimony (total)	<0.001	<0.001		
Appearance	Clear	Slightly		
Arsenic-Total (mg/L)	0.007	0.004		
Colour	Clear	Brown		
Comments			Dry	No sample -
EC - Field	1,330	985		
Electrical Conductivity @ 25°C	1,280	1,020		
Molybdenum (total)	0.006	0.006		
Odour	Nil	Nil		
Oil & Grease	<5	<5		
pH (pH Unit)	8.8	7.9		
pH Value (pH Unit)	8.72	8.39		
Selenium-Total (mg/L)	<0.01	<0.01		
Temperature	24.7	15.4		
Total Organic Carbon	37	20		
Total Suspended Solids (TSS)	22	23		

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site:	***Sunnyside***		
From Date:	***01-Jan-2023***	**To Date:**	***01-Dec-2023***
Standard:	***<Blank>***		

WHITEHAVEN COAL

Area/Site: ***Sunnyside***
From Date: ***01-Jan-2023*** **To Date:** ***01-Dec-2023***
Standard: ***<Blank>***

Data Point: SUNNYSIDE_SD2; Northing: 224648.2654; Easting: 6569332.6818

	08-Feb-23
Rec ID	**89094**
Lab Ref	**98790**
Comments	NO LONGER

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site:	***Sunnyside***		
From Date:	***01-Jan-2023***	**To Date:**	***01-Dec-2023***
Standard:	***<Blank>***		

WHITEHAVEN COAL

Area/Site: ***Sunnyside***
From Date: ***01-Jan-2023*** **To Date:** ***01-Dec-2023***
Standard: ***<Blank>***

Data Point: SUNNYSIDE_SD3; Northing: 224662.6955; Easting: 6568025.5527

	08-Feb-23	03-Aug-23	07-Nov-23
Rec ID	**89073**	**91227**	**93707**
Lab Ref	**98769**	**100905**	**103384**
Comments	No sample -	Dry	No sample -

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site:	***Sunnyside***		
From Date:	***01-Jan-2023***	**To Date:**	***01-Dec-2023***
Standard:	***<Blank>***		

WHITEHAVEN COAL

Area/Site: ***Sunnyside***
From Date: ***01-Jan-2023*** **To Date:** ***01-Dec-2023***
Standard: ***<Blank>***

Data Point: SUNNYSIDE_SD4; Northing: 224060.2377; Easting: 6568539.0248

	08-Feb-23	03-Aug-23	07-Nov-23
Rec ID	**89074**	**91228**	**93708**
Lab Ref	**98770**	**100906**	**103385**
Comments	No sample -	Dry	No sample -

Outliers: 0

Field Name	Result	Outlier Comment

WHITEHAVEN COAL

Area/Site:	***Sunnyside***		
From Date:	***01-Jan-2023***	**To Date:**	***01-Dec-2023***
Standard:	***<Blank>***		

Appendix 2: Groundwater Monitoring Data

		UNGROUPED FIELD							
		Appearance (Lookup)	Colour (Lookup)	EC	Odour (Nil, Sulfur, Othe	pH	Purge Type	Stick Up	SWL (bTOC)
				µS/cm		pH		m	m
POINTS	**SAMPLE TIME**								
SUNNYSIDE_Ivanhoe 3709	2023-12-07 08:45	Clear	Clear	5630	Nil	7	Tap	–	–
	2023-10-04 21:30	–	–	4400	–	7.3	–	–	–
	2023-06-28 12:20	Clear	–	4300	Nil	7.1	tAP	–	–
	2023-03-28 12:10	–	–	4590	Nil	7.2	Tap	–	–
SUNNYSIDE_45061 Coocooboonah	2023-12-01 14:30	Clear	Clear	5310	Nil	7.4	Bail	0.3	8.18
	2023-06-21 12:30	–	–	–	–	–	–	0.5	–
	2023-03-28 13:20	–	–	–	–	–	–	0.1	7.91
SUNNYSIDE_44884	2023-12-01 14:20	Clear	Clear	2210	Nil	8.5	Tap	0.47	–
	2023-09-28 09:15	Clear	–	2330	Nil	7.7	tap	0.47	–
	2023-06-09 10:30	Clear	–	1755	Nil	8.1	Tap	0.47	–
	2023-03-28 11:15	–	–	1985	Nil	8.2	Tap	0.47	–
SUNNYSIDE_P2	2023-12-01 11:00	Clear	Clear	3620	Sulfur	7.1	bail	0.82	15.07
	2023-09-28 12:10	Clear	–	3600	Nil	7.2	Bailer	0.82	15.38
	2023-06-21 11:00	Clear	–	3290	Nil	7.3	Bailer	0.82	15.31
	2023-03-28 11:00	–	–	3920	Nil	7.2	Bailer	0.82	15.37
SUNNYSIDE_P3	2023-12-01 10:40	Clear	Clear	5350	Nil	6.8	bail	0.44	22.57
	2023-09-28 10:05	Clear	–	5430	Nil	6.9	Bailer	0.44	22.53
	2023-06-21 09:30	Clear	–	5060	Nil	6.9	Bailer	0.44	22.55
	2023-03-28 09:30	–	–	6670	Nil	6.8	Bailer	0.44	22.58
SUNNYSIDE_P8	2023-12-01 10:20	Clear	Clear	1390	Nil	6.9	bail	0.75	25.17
	2023-09-28 10:30	Clear	–	1450	Nil	6.9	Bailer	0.75	26.05
	2023-06-21 09:55	Clear	–	1210	Nil	6.9	Bailer	0.75	25.1
	2023-03-28 10:30	–	–	1570	Nil	6.9	Bailer	0.75	25.1
SUNNYSIDE_P7	2023-12-01 10:00	Clear	Clear	5420	Nil	7.4	bail	0.45	13.27
	2023-09-28 10:55	Clear	–	5520	Nil	7.2	Bailer	0.45	13.28
	2023-06-21 10:20	Clear	–	5470	Nil	7.2	Bailer	0.45	13.16
	2023-03-28 10:00	–	–	6160	Nil	7.1	Bailer	0.45	13.18
SUNNYSIDE_6249	2023-12-01 09:15	Clear	Clear	4420	Nil	7.4	bail	0.33	8.57
	2023-09-28 09:40	Clear	–	4510	Nil	7.4	Bailer	0.33	8.62
	2023-06-09 11:00	Clear	–	4520	Nil	7.4	Bailer	0.33	8.57
	2023-03-28 12:20	–	–	4760	Nil	7.4	Bailer	0.33	8.81
SUNNYSIDE_22497	2023-12-01 08:45	Clear	Clear	4070	Nil	7.5	bail	0.2	13.74
	2023-09-28 11:30	Clear	–	4310	Nil	7.7	bail	0.2	13.77
	2023-06-21 12:00	Clear	–	1100	Nil	8.2	Bailer	0.2	13.47
	2023-03-28 12:50	–	–	1190	Nil	8.5	Bailer	0.2	12.59
SUNNYSIDE_P1	2023-09-28 08:45	Clear	–	3580	Nil	7.5	Bailer	0.96	13.05
	2023-06-21 11:30	Clear	–	3640	Nil	7.7	Bailer	0.96	12.99
	2023-03-28 11:45	–	–	4010	Nil	7.6	Bailer	0.96	12.94
SUNNYSIDE_44677 Werona Tanks	2023-06-09 11:30	Clear	–	4420	Nil	7.8	Tank Tap	–	–
	2023-03-29 11:30	Clear	–	4700	Nil	8	Tank Tap	0.67	–
SUNNYSIDE_901460	2023-06-09 10:00	–	–	–	–	–	–	0.4	19.11
	2023-03-29 10:45	–	–	–	–	–	–	0.4	14.01
SUNNYSIDE_Werona Production	2023-03-29 11:25	–	–	–	–	–	–	0.67	–

					UNGROUPED LAB				
		SWL (GL)	Temperature	Water Colour	Alkalinity (Bicarbonate)	Alkalinity (Carbonate)	Alkalinity (total)	Aluminium (total)	Ammonia (N)
		m	°C		mg/L	mg/L	mg/L	mg/L	mg/L
POINTS	**SAMPLE TIME**								
SUNNYSIDE_Ivanhoe 3709	2023-12-07 08:45	–	23.8	–	–	–	–	–	–
	2023-10-04 21:30	–	19	–	–	–	–	–	–
	2023-06-28 12:20	–	20	Clear	–	–	–	–	–
	2023-03-28 12:10	–	21.5	Clear	–	–	–	–	–
SUNNYSIDE_45061 Coocooboonah	2023-12-01 14:30	7.68	20.1	–	–	–	–	–	–
	2023-06-21 12:30	–	–	–	–	–	–	–	–
	2023-03-28 13:20	7.81	–	–	–	–	–	–	–
SUNNYSIDE_44884	2023-12-01 14:20	–	23.8	–	–	–	–	–	–
	2023-09-28 09:15	–	21.8	clear	1010	20	1030	0.01	0.34
	2023-06-09 10:30	–	18.6	Clear	–	–	–	–	–
	2023-03-28 11:15	–	23.3	Clear	–	–	–	–	–
SUNNYSIDE_P2	2023-12-01 11:00	14.25	21.2	–	–	–	–	–	–
	2023-09-28 12:10	14.56	21.7	clear	893	–	893	0.51	17.3
	2023-06-21 11:00	14.49	19.9	Clear	–	–	–	–	–
	2023-03-28 11:00	14.55	21.2	Clear	–	–	–	–	–
SUNNYSIDE_P3	2023-12-01 10:40	22.13	21.7	–	–	–	–	–	–
	2023-09-28 10:05	22.09	22	clear	628	–	628	0.06	0.06
	2023-06-21 09:30	22.11	20.3	Clear	–	–	–	–	–
	2023-03-28 09:30	22.14	21.9	Clear	–	–	–	–	–
SUNNYSIDE_P8	2023-12-01 10:20	24.42	22	–	–	–	–	–	–
	2023-09-28 10:30	25.3	23.2	clear	311	–	311	0.08	5.56
	2023-06-21 09:55	24.35	20.8	Clear	–	–	–	–	–
	2023-03-28 10:30	24.35	21.8	Clear	–	–	–	0.04	–
SUNNYSIDE_P7	2023-12-01 10:00	–	21.5	–	–	–	–	–	–
	2023-09-28 10:55	12.83	22.2	clear	698	–	698	0.04	0.02
	2023-06-21 10:20	12.71	20.2	Clear	–	–	–	–	–
	2023-03-28 10:00	12.73	21.6	Clear	–	–	–	–	–
SUNNYSIDE_6249	2023-12-01 09:15	8.24	20.2	–	–	–	–	–	–
	2023-09-28 09:40	8.29	20.4	clear	496	–	496	0.02	0.13
	2023-06-09 11:00	8.24	19.8	Clear	–	–	–	–	–
	2023-03-28 12:20	8.48	20.6	Clear	–	–	–	–	–
SUNNYSIDE_22497	2023-12-01 08:45	13.54	20.6	–	–	–	–	–	–
	2023-09-28 11:30	13.57	23.8	clear	644	–	644	0.03	0.01
	2023-06-21 12:00	13.27	19.8	Clear	–	–	–	–	–
	2023-03-28 12:50	12.39	22.6	Clear	–	–	–	–	–
SUNNYSIDE_P1	2023-09-28 08:45	12.09	21.1	clear	868	–	868	0.07	0.01
	2023-06-21 11:30	12.03	20.5	Clear	–	–	–	–	–
	2023-03-28 11:45	11.98	21.4	Clear	–	–	–	–	–
SUNNYSIDE_44677 Werona Tanks	2023-06-09 11:30	–	17.3	Clear	–	–	–	–	–
	2023-03-29 11:30	–	23.7	Clear	262	30	292	0.01	0.02
SUNNYSIDE_901460	2023-06-09 10:00	18.71	–	–	–	–	–	–	–
	2023-03-29 10:45	13.61	–	–	–	–	–	–	–
SUNNYSIDE_Werona Production	2023-03-29 11:25	–	–	–	–	–	–	–	–

		Arsenic (total)	Barium (total)	Beryllium (total)	Boron (total)	Cadmium (total)	Calcium (dissolved)	Chloride	Chromium (total)
		mg/L	µg/L	mg/L	µg/L	mg/L	mg/L	mg/L	mg/L
POINTS	**SAMPLE TIME**								
SUNNYSIDE_Ivanhoe 3709	2023-12-07 08:45	–	–	–	–	–	–	–	–
	2023-10-04 21:30	–	–	–	–	–	–	–	–
	2023-06-28 12:20	–	–	–	–	–	–	–	–
	2023-03-28 12:10	–	–	–	–	–	–	–	–
SUNNYSIDE_45061 Coocooboonah	2023-12-01 14:30	–	–	–	–	–	–	–	–
	2023-06-21 12:30	–	–	–	–	–	–	–	–
	2023-03-28 13:20	–	–	–	–	–	–	–	–
SUNNYSIDE_44884	2023-12-01 14:20	–	–	–	–	–	–	–	–
	2023-09-28 09:15	0.006	479	0.001	80	0.0012	19	265	–
	2023-06-09 10:30	–	–	–	–	–	–	–	–
	2023-03-28 11:15	–	–	–	–	–	–	–	–
SUNNYSIDE_P2	2023-12-01 11:00	–	–	–	–	–	–	–	–
	2023-09-28 12:10	0.001	83	0.001	100	–	148	776	0.002
	2023-06-21 11:00	–	–	–	–	–	–	–	–
	2023-03-28 11:00	–	–	–	–	–	–	–	–
SUNNYSIDE_P3	2023-12-01 10:40	–	–	–	–	–	–	–	–
	2023-09-28 10:05	0.002	82	0.001	170	–	212	1440	–
	2023-06-21 09:30	–	–	–	–	–	–	–	–
	2023-03-28 09:30	–	–	–	–	–	–	–	–
SUNNYSIDE_P8	2023-12-01 10:20	–	–	–	–	–	–	–	–
	2023-09-28 10:30	0.001	147	0.001	–	–	91	299	–
	2023-06-21 09:55	–	–	–	–	–	–	–	–
	2023-03-28 10:30	0.001	–	–	< 50	< 0.0001	–	–	–
SUNNYSIDE_P7	2023-12-01 10:00	–	–	–	–	–	–	–	–
	2023-09-28 10:55	0.001	72	0.001	160	–	141	1440	–
	2023-06-21 10:20	–	–	–	–	–	–	–	–
	2023-03-28 10:00	–	–	–	–	–	–	–	–
SUNNYSIDE_6249	2023-12-01 09:15	–	–	–	–	–	–	–	–
	2023-09-28 09:40	0.001	316	0.001	70	0.0001	134	1230	–
	2023-06-09 11:00	–	–	–	–	–	–	–	–
	2023-03-28 12:20	–	–	–	–	–	–	–	–
SUNNYSIDE_22497	2023-12-01 08:45	–	–	–	–	–	–	–	–
	2023-09-28 11:30	0.001	93	0.001	70	–	108	1070	–
	2023-06-21 12:00	–	–	–	–	–	–	–	–
	2023-03-28 12:50	–	–	–	–	–	–	–	–
SUNNYSIDE_P1	2023-09-28 08:45	0.004	189	0.001	110	–	146	825	–
	2023-06-21 11:30	–	–	–	–	–	–	–	–
	2023-03-28 11:45	–	–	–	–	–	–	–	–
SUNNYSIDE_44677 Werona Tanks	2023-06-09 11:30	–	–	–	–	–	–	–	–
	2023-03-29 11:30	0.001	64	0.001	60	–	79	1400	0.001
SUNNYSIDE_901460	2023-06-09 10:00	–	–	–	–	–	–	–	–
	2023-03-29 10:45	–	–	–	–	–	–	–	–
SUNNYSIDE_Werona Production	2023-03-29 11:25	–	–	–	–	–	–	–	–

		Cobalt (total)	Copper (total)	EC at 25°C	Ionic Balance	Iron (total)	Lead (total)	Magnesium (dissolved)	Manganese (total)
		mg/L	mg/L	µS/cm	%	mg/L	mg/L	mg/L	µg/L
POINTS	**SAMPLE TIME**								
SUNNYSIDE_Ivanhoe 3709	2023-12-07 08:45	–	–	–	–	–	–	–	–
	2023-10-04 21:30	–	–	–	–	–	–	–	–
	2023-06-28 12:20	–	–	–	–	–	–	–	–
	2023-03-28 12:10	–	–	–	–	–	–	–	–
SUNNYSIDE_45061 Coocooboonah	2023-12-01 14:30	–	–	–	–	–	–	–	–
	2023-06-21 12:30	–	–	–	–	–	–	–	–
	2023-03-28 13:20	–	–	–	–	–	–	–	–
SUNNYSIDE_44884	2023-12-01 14:20	–	–	–	–	–	–	–	–
	2023-09-28 09:15	0.001	0.018	2380	0.98	1.82	0.003	36	70
	2023-06-09 10:30	–	–	–	–	–	–	–	–
	2023-03-28 11:15	–	–	–	–	–	–	–	–
SUNNYSIDE_P2	2023-12-01 11:00	–	–	–	–	–	–	–	–
	2023-09-28 12:10	0.001	0.008	3770	0.73	0.98	0.002	228	139
	2023-06-21 11:00	–	–	–	–	–	–	–	–
	2023-03-28 11:00	–	–	–	–	–	–	–	–
SUNNYSIDE_P3	2023-12-01 10:40	–	–	–	–	–	–	–	–
	2023-09-28 10:05	0.05	0.006	5930	5.87	0.69	–	357	3270
	2023-06-21 09:30	–	–	–	–	–	–	–	–
	2023-03-28 09:30	–	–	–	–	–	–	–	–
SUNNYSIDE_P8	2023-12-01 10:20	–	–	–	–	–	–	–	–
	2023-09-28 10:30	0.001	0.002	1600	1.78	0.35	–	70	1800
	2023-06-21 09:55	–	–	–	–	–	–	–	–
	2023-03-28 10:30	0.001	0.002	1560	6.36	0.34	< 0.001	–	1580
SUNNYSIDE_P7	2023-12-01 10:00	–	–	–	–	–	–	–	–
	2023-09-28 10:55	0.001	0.003	6040	4.29	0.07	–	296	15
	2023-06-21 10:20	–	–	–	–	–	–	–	–
	2023-03-28 10:00	–	–	–	–	–	–	–	–
SUNNYSIDE_6249	2023-12-01 09:15	–	–	–	–	–	–	–	–
	2023-09-28 09:40	0.003	0.006	4940	4.21	1.32	–	256	542
	2023-06-09 11:00	–	–	–	–	–	–	–	–
	2023-03-28 12:20	–	–	–	–	–	–	–	–
SUNNYSIDE_22497	2023-12-01 08:45	–	–	–	–	–	–	–	–
	2023-09-28 11:30	0.001	0.009	4450	4.34	3.23	–	256	406
	2023-06-21 12:00	–	–	–	–	–	–	–	–
	2023-03-28 12:50	–	–	–	–	–	–	–	–
SUNNYSIDE_P1	2023-09-28 08:45	0.001	0.009	3830	1.91	0.09	–	253	4
	2023-06-21 11:30	–	–	–	–	–	–	–	–
	2023-03-28 11:45	–	–	–	–	–	–	–	–
SUNNYSIDE_44677 Werona Tanks	2023-06-09 11:30	–	–	–	–	–	–	–	–
	2023-03-29 11:30	0.001	0.016	4680	0.55	0.07	0.002	248	11
SUNNYSIDE_901460	2023-06-09 10:00	–	–	–	–	–	–	–	–
	2023-03-29 10:45	–	–	–	–	–	–	–	–
SUNNYSIDE_Werona Production	2023-03-29 11:25	–	–	–	–	–	–	–	–

		Mercury (total)	Nickel (total)	Nitrate & Nitrite	Nitrate (as N)	Nitrite (as N)	pH	Potassium (dissolved)	Sodium (dissolved)
		µg/L	µg/L	mg/L	mg/L	mg/L	pH	µg/L	mg/L
POINTS	**SAMPLE TIME**								
SUNNYSIDE_Ivanhoe 3709	2023-12-07 08:45	–	–	–	–	–	–	–	–
	2023-10-04 21:30	–	–	–	–	–	–	–	–
	2023-06-28 12:20	–	–	–	–	–	–	–	–
	2023-03-28 12:10	–	–	–	–	–	–	–	–
SUNNYSIDE_45061 Coocooboonah	2023-12-01 14:30	–	–	–	–	–	–	–	–
	2023-06-21 12:30	–	–	–	–	–	–	–	–
	2023-03-28 13:20	–	–	–	–	–	–	–	–
SUNNYSIDE_44884	2023-12-01 14:20	–	–	–	–	–	–	–	–
	2023-09-28 09:15	–	1	0.01	0.01	0.01	8.33	4000	543
	2023-06-09 10:30	–	–	–	–	–	–	–	–
	2023-03-28 11:15	–	–	–	–	–	–	–	–
SUNNYSIDE_P2	2023-12-01 11:00	–	–	–	–	–	–	–	–
	2023-09-28 12:10	–	3	0.01	0.01	0.01	7.9	16000	342
	2023-06-21 11:00	–	–	–	–	–	–	–	–
	2023-03-28 11:00	–	–	–	–	–	–	–	–
SUNNYSIDE_P3	2023-12-01 10:40	–	–	–	–	–	–	–	–
	2023-09-28 10:05	–	9	0.18	0.15	0.03	7.59	24000	547
	2023-06-21 09:30	–	–	–	–	–	–	–	–
	2023-03-28 09:30	–	–	–	–	–	–	–	–
SUNNYSIDE_P8	2023-12-01 10:20	–	–	–	–	–	–	–	–
	2023-09-28 10:30	–	2	0.04	0.04	0.01	7.53	12000	131
	2023-06-21 09:55	–	–	–	–	–	–	–	–
	2023-03-28 10:30	< 0.1	2	0.09	0.09	0.01	6.96	–	–
SUNNYSIDE_P7	2023-12-01 10:00	–	–	–	–	–	–	–	–
	2023-09-28 10:55	–	2	5.72	5.72	0.01	7.98	20000	744
	2023-06-21 10:20	–	–	–	–	–	–	–	–
	2023-03-28 10:00	–	–	–	–	–	–	–	–
SUNNYSIDE_6249	2023-12-01 09:15	–	–	–	–	–	–	–	–
	2023-09-28 09:40	–	7	0.06	0.06	0.01	7.99	3000	546
	2023-06-09 11:00	–	–	–	–	–	–	–	–
	2023-03-28 12:20	–	–	–	–	–	–	–	–
SUNNYSIDE_22497	2023-12-01 08:45	–	–	–	–	–	–	–	–
	2023-09-28 11:30	–	1	0.13	0.13	0.01	8.21	8000	524
	2023-06-21 12:00	–	–	–	–	–	–	–	–
	2023-03-28 12:50	–	–	–	–	–	–	–	–
SUNNYSIDE_P1	2023-09-28 08:45	0.4	2	0.59	0.59	0.01	8.18	7000	375
	2023-06-21 11:30	–	–	–	–	–	–	–	–
	2023-03-28 11:45	–	–	–	–	–	–	–	–
SUNNYSIDE_44677 Werona Tanks	2023-06-09 11:30	–	–	–	–	–	–	–	–
	2023-03-29 11:30	–	14	0.75	0.75	0.01	8.38	11000	568
SUNNYSIDE_901460	2023-06-09 10:00	–	–	–	–	–	–	–	–
	2023-03-29 10:45	–	–	–	–	–	–	–	–
SUNNYSIDE_Werona Production	2023-03-29 11:25	–	–	–	–	–	–	–	–

		Sulfate (SO_4)	TDS (dried at 180°C)	Total Anion	Total Cation	Vanadium (total)	Zinc (total)
		mg/L	mg/L	meq/L	meq/L	µg/L	µg/L
POINTS	**SAMPLE TIME**						
SUNNYSIDE_Ivanhoe 3709	2023-12-07 08:45	–	–	–	–	–	–
	2023-10-04 21:30	–	–	–	–	–	–
	2023-06-28 12:20	–	–	–	–	–	–
	2023-03-28 12:10	–	–	–	–	–	–
SUNNYSIDE_45061 Coocooboonah	2023-12-01 14:30	–	–	–	–	–	–
	2023-06-21 12:30	–	–	–	–	–	–
	2023-03-28 13:20	–	–	–	–	–	–
SUNNYSIDE_44884	2023-12-01 14:20	–	–	–	–	–	–
	2023-09-28 09:15	6	1460	28.2	27.6	10	346
	2023-06-09 10:30	–	–	–	–	–	–
	2023-03-28 11:15	–	–	–	–	–	–
SUNNYSIDE_P2	2023-12-01 11:00	–	–	–	–	–	–
	2023-09-28 12:10	111	2280	42	41.4	10	76
	2023-06-21 11:00	–	–	–	–	–	–
	2023-03-28 11:00	–	–	–	–	–	–
SUNNYSIDE_P3	2023-12-01 10:40	–	–	–	–	–	–
	2023-09-28 10:05	195	3840	57.2	64.4	10	152
	2023-06-21 09:30	–	–	–	–	–	–
	2023-03-28 09:30	–	–	–	–	–	–
SUNNYSIDE_P8	2023-12-01 10:20	–	–	–	–	–	–
	2023-09-28 10:30	108	885	16.9	16.3	10	17
	2023-06-21 09:55	–	–	–	–	–	–
	2023-03-28 10:30	–	–	–	–	–	–
SUNNYSIDE_P7	2023-12-01 10:00	–	–	–	–	–	–
	2023-09-28 10:55	212	3820	59	64.3	10	32
	2023-06-21 10:20	–	–	–	–	–	–
	2023-03-28 10:00	–	–	–	–	–	–
SUNNYSIDE_6249	2023-12-01 09:15	–	–	–	–	–	–
	2023-09-28 09:40	135	3080	47.4	51.6	10	594
	2023-06-09 11:00	–	–	–	–	–	–
	2023-03-28 12:20	–	–	–	–	–	–
SUNNYSIDE_22497	2023-12-01 08:45	–	–	–	–	–	–
	2023-09-28 11:30	110	2760	45.3	49.4	10	80
	2023-06-21 12:00	–	–	–	–	–	–
	2023-03-28 12:50	–	–	–	–	–	–
SUNNYSIDE_P1	2023-09-28 08:45	111	4350	42.9	44.6	30	84
	2023-06-21 11:30	–	–	–	–	–	–
	2023-03-28 11:45	–	–	–	–	–	–
SUNNYSIDE_44677 Werona Tanks	2023-06-09 11:30	–	–	–	–	–	–
	2023-03-29 11:30	167	3320	48.8	49.3	10	356
SUNNYSIDE_901460	2023-06-09 10:00	–	–	–	–	–	–
	2023-03-29 10:45	–	–	–	–	–	–
SUNNYSIDE_Werona Production	2023-03-29 11:25	–	–	–	–	–	–