

# Annual Review

## Canyon Coal Mine

<b>Name of operation</b>	Canyon Coal Mine
<b>Name of operator</b>	Whitehaven Coal Mining Ltd
<b>Development consent/project approval number</b>	DA 8-1-2005
<b>Name of holder of development consent/project approval</b>	Whitehaven Coal Mining Ltd
<b>Mining lease number</b>	ML 1464, ML 1471
<b>Name of holder of mining lease</b>	Whitehaven Coal Mining Ltd
<b>Water licence number</b>	WAL 29458
<b>Name of holder of water licence</b>	Whitehaven Coal Mining Ltd
<b>MOP start date</b>	7 September 2015
<b>MOP end date</b>	6 September 2022
<b>Annual review start date</b>	1 January 2021
<b>Annual review end date</b>	31 December 2021
<p><b>I, Daryl Robinson, certify that this audit report is a true and accurate record of the compliance status of Canyon Coal Mine for the period 1st January 2021 until 31st December 2021, and that I am authorised to make this statement on behalf of Whitehaven Coal Mining Pty Ltd.</b></p> <p>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.</p> <p>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).</p>	
<b>Name of authorised reporting officer</b>	Daryl Robinson
<b>Title of authorised reporting officer</b>	Environmental and Rehabilitation Manager Gunnedah Open Cut Operations
<b>Signature of authorised reporting officer</b>	
<b>Date</b>	28/02/2022

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## 1. STATEMENT OF COMPLIANCE

The compliance status of the Canyon Coal Mine (CCM) as at the 31<sup>st</sup> December 2021 is summarised in **Table 1a**. **Table 1b** notes non-compliances that occurred during the reporting period which were identified in the Independent Environmental Audit (IEA), as finalised in December 2021. **Table 1c** provides a key for the compliance status as listed in **Table 1b**.

**Table 1a - Statement of Compliance**

Approval	Were all conditions of the relevant approval(s) complied with?
Development Consent DA 8-1-2005	No
Mining Lease 1471	Yes
Mining Lease 1464	Yes
Water Access Licence 29458	Yes
Mining Operations Plan	Yes

**Table 1b - Non-Compliances**

Relevant Approval	Condition, Schedule & Number	Condition Description (Summary)	Compliance Status	Comment	Section
DA 8-1-2005	5.10	<p>Within 1 month of the approval of any management plan/strategy or monitoring program required under this consent (or any subsequent revision of these management plans/strategies or monitoring programs), the completion of the independent audits required under this consent (see conditions 30 of schedule 3 and condition 6 of schedule 5), or the completion of the AEMR (see condition 5 of schedule 5), the Applicant shall:</p> <p>(a) provide a copy of the approved document/s to NSC, GSC, relevant agencies and the CCC; and</p> <p>(b) ensure that a copy of the relevant documents is made publicly available at NSC and GSC offices, to the satisfaction of the Secretary.</p>	ANC	<p>Records of submission of the 2019 Annual Review to the councils and CCC were available. No records were available for submission of the 2020 annual Review.</p>	

**Table 1c - 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: <ul style="list-style-type: none"> <li>- Potential for serious environmental consequences, but is unlikely to occur; or</li> <li>- Potential for moderate environmental consequences, but is likely to occur</li> </ul>
Low	Non-compliant	Non-compliance with: <ul style="list-style-type: none"> <li>- Potential for moderate environmental consequences, but is unlikely to occur; or</li> <li>- Potential for low environmental consequences, but is likely to occur</li> </ul>
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)

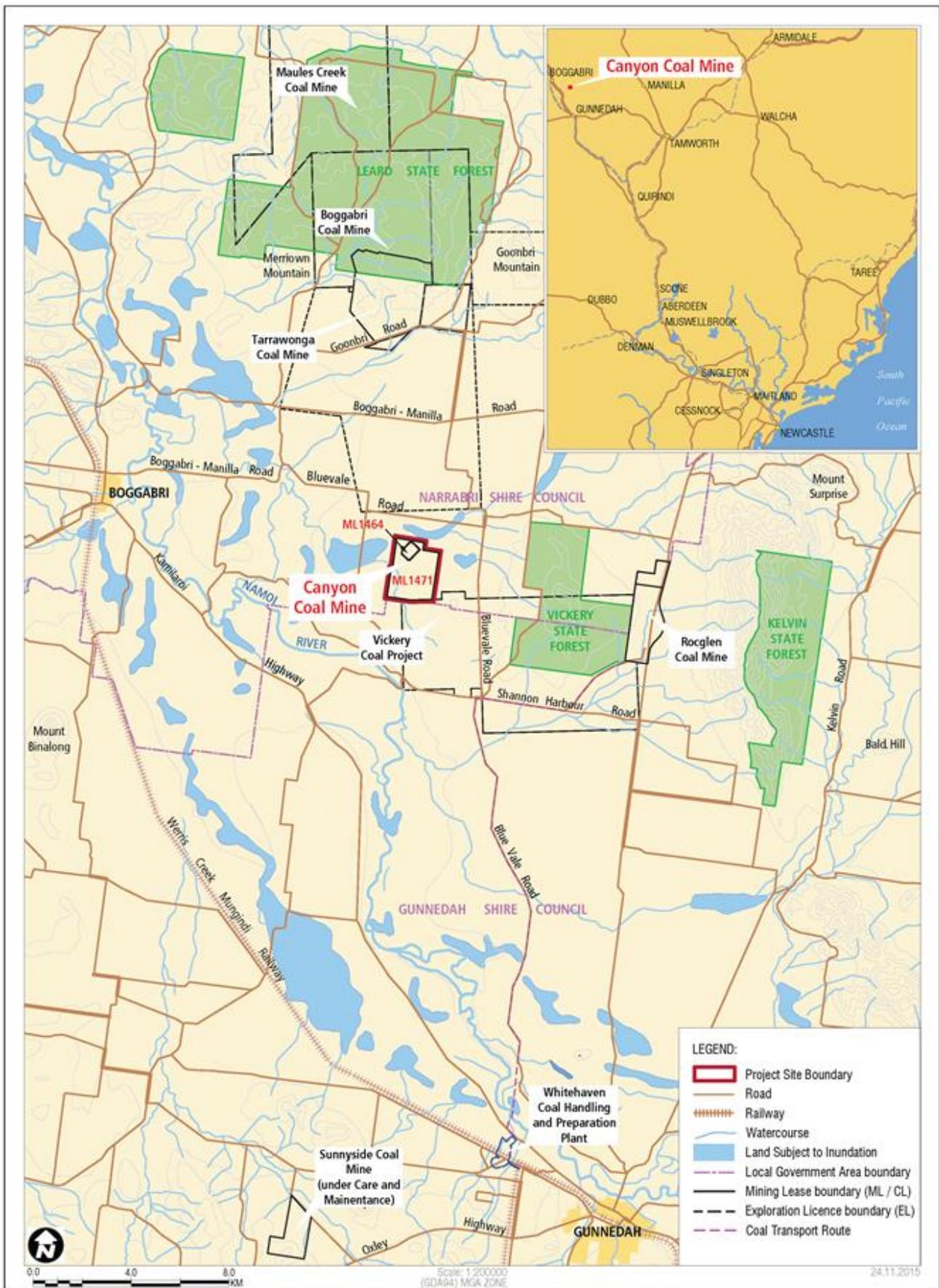


Figure 1. Project Locality

## 2. INTRODUCTION

This is the twentieth Annual Review (AR), formally Annual Environmental Management Report (AEMR), produced for the CCM. It has been prepared in accordance with Condition 3 of Mining Leases (MLs) 1464 and 1471 (Mining Act 1992) and Schedule 5, Condition 5 of DA 8-1-2005, as modified. The AR follows the format required by the NSW Governments Annual Review Guideline (October, 2015). The AR covers the period from the 1<sup>st</sup> January 2021 until the 31<sup>st</sup> December 2021.

CCM is located within the Narrabri Shire, approximately 30 km north-west of Gunnedah, 16 km east-south-east of Boggabri and immediately north of the former Vickery Coal Mine (**Figure 1**). Mining at CCM ceased in July 2009, and the mine is now in closure.

### 2.1 Mine Contacts

The management personnel responsible for the CCM during the reporting period and their relevant contact details are as follows:

- Mr Daryl Robinson, Environmental and Rehabilitation Manager Gunnedah Open Cut Operations for the Whitehaven Group. 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.

### 3. APPROVALS

#### 3.1 Tenements, Licences and Approvals

**Table 3.1** identifies the approvals in place for the CCM 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
Department of Planning, Infrastructure & Environment (DPIE)	Development Consent: DA 8-1-2005, Mod. 3	30 <sup>th</sup> June 2005	N/A
Department of Regional NSW – Division of Mining, Exploration and Geoscience (DMEG)	ML 1471	7 <sup>th</sup> Sept 2000	6 <sup>th</sup> Sept 2042
Department of Regional NSW – Division of Mining, Exploration and Geoscience (DMEG)	ML 1464	21 <sup>st</sup> Dec 1999	20 <sup>th</sup> Dec 2020 (Renewal sought)
Department of Primary Industry - Water	WAL 29458 (90WA822498)	12 <sup>th</sup> Sept 2012	In perpetuity

### 4. OPERATIONS SUMMARY

#### 4.1 Mining Operations

No mining operations have occurred at the CCM during the reporting period (refer to **Table 4.1**).

**Table 4.1 - Production Summary**

Material	Approval Limit	Previous Reporting Period (actual)	This Reporting Period (actual)	Next Reporting Period (forecast)
Waste Rock/Overburden	N/A	0	0	0
ROM Coal/Ore	N/A	0	0	0
Coarse Reject	N/A	0	0	0
Fine Reject (Tailings)	N/A	0	0	0
Saleable Product	N/A	0	0	0

#### 4.2 Next Reporting Period

Activities planned for the next reporting period are expected to be limited to environmental monitoring, weed and pest control, water sharing and maintenance earthworks, if and as required.

## 5. ACTIONS REQUIRED FROM PREVIOUS ANNUAL REVIEW

**Table 5** summarises the request made by the Department of Planning, Industry and Environment (DPI&E) and commitments made by Whitehaven Coal (WHC) in the last Annual Review.

**Table 5 - Actions from 2020 Annual Review**

Action required from previous Annual Review	Requested by	Action taken by the Operator	Where discussed in Annual Review
Provide a copy of the AR to Narrabri and Gunnedah Councils, relevant agencies, CCC and project website.	DPI&E	AR shared with the listed groups.	Section 9
Implementation of feral animal control.	Operator	Feral animal control undertaken.	Section 6.2.5
Continued implementation of DA 8-1-2005, environmental monitoring and management and relevant management plans	Operator	Ongoing	Section 3
Completion of outstanding IEA actions	Operator	Ongoing	Section 10

## 6. ENVIRONMENTAL PERFORMANCE

### 6.1 Air Quality

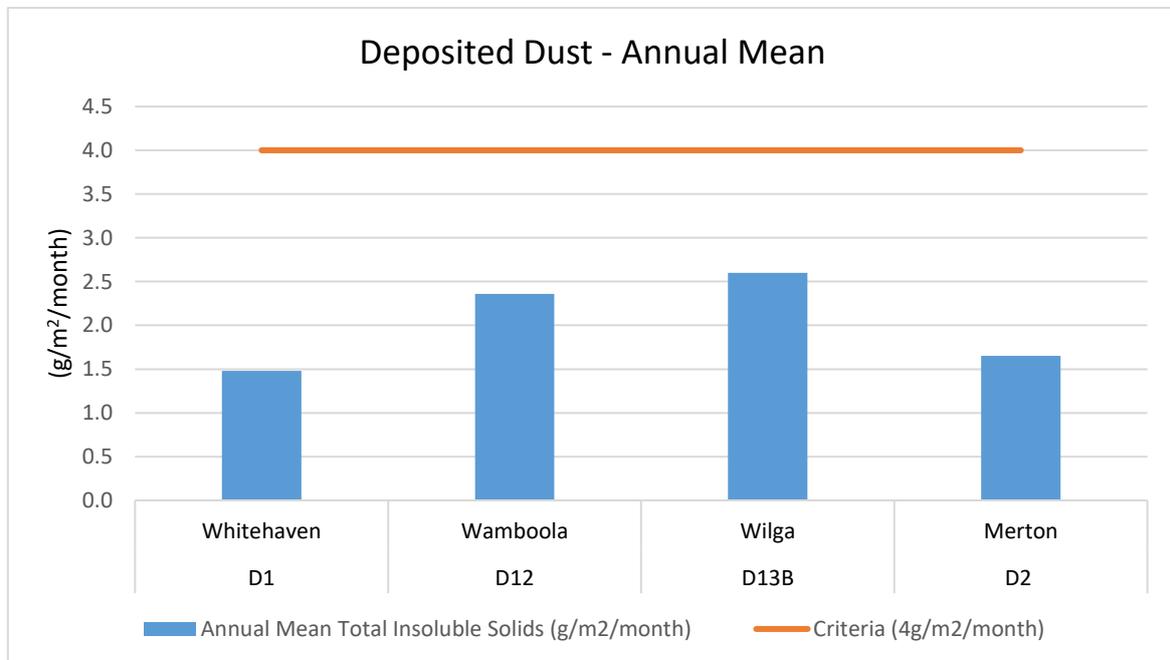
Dust and air quality criteria for CCM is noted in DA 8-1-2005 however, they are not relevant as no operational activities have occurred during the reporting period.

#### 6.1.1 Dust Monitoring

The site remained in closure and no mining activity occurred on the site during the reporting period. Monitoring of deposited dust is undertaken on a monthly basis, with results within the criteria of 4g/m<sup>2</sup>/month (Table 6.1.1).

**Table 6.1.1 - Depositional Dust**

Site	Property Name	Annual Mean Total Insoluble Solids (g/m <sup>2</sup> /month)
D1	Whitehaven	1.50
D2	Merton	1.70
D12	Wamboola	2.40
D13b	Wilga	2.60

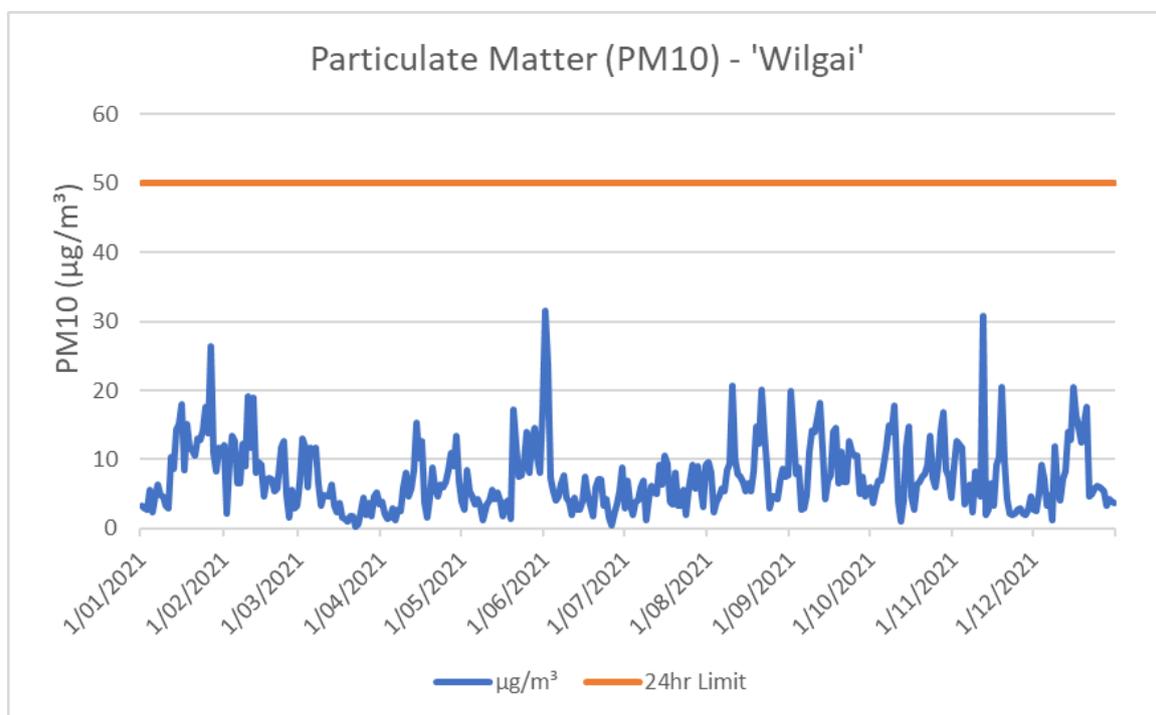


**Figure 2. Deposited Dust Annual Mean**

### 6.1.2 Air Quality Monitoring

PM<sub>10</sub> is measured at a Whitehaven Coal owned property, approximately 1.5 km to the east of the north-eastern boundary of the mining lease. The results were within required criteria with a mean annual PM<sub>10</sub> particulate level of 7.4 µg/m<sup>3</sup> against criteria of 30 µg/m<sup>3</sup>. This value is within the predicted mean annual PM<sub>10</sub> particulate levels in the EIS (between 15 µg/m<sup>3</sup> and 35 µg/m<sup>3</sup>).

The 24-hour average PM<sub>10</sub> particulate level reported no exceedances with 31.5 µg/m<sup>3</sup> being the maximum value for the reporting period. This is expected as the mine remains in closure with very limited exposed areas and no earthworks or haulage taking place. Total suspended particulate matter was within target criteria during the year with a mean value of 14.8 µg/m<sup>3</sup>.



**Figure 3. "Wilgai" Particulate Matter (PM10)**

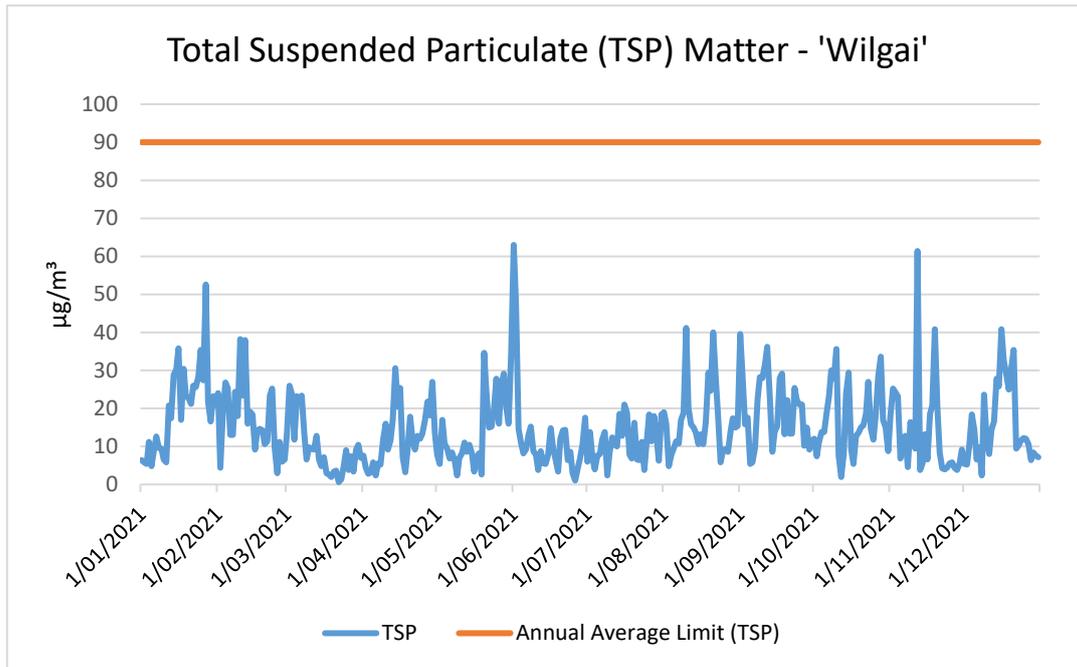


Figure 4. "Wilgai" Total Suspended Particulate (TSP) Matter

### 6.1.3 Key Environmental Performance/Management Issues

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

### 6.1.4 Proposed Improvements to Environmental Management

No improvements are proposed within the next reporting period.

## 6.2 Onsite Biodiversity

### Introduction

A detailed ecological field assessment of rehabilitated areas and analogue sites was undertaken in October 2021. Monitoring was undertaken using the Whitehaven Annual Rehabilitation Monitoring Methodology (WARMM v1.4—Aspect Ecology 2021).

Monitoring in the Woodland Domain comprised:

- the establishment of three new 'best-on-offer' (DPIE 2020) local analogue woodland sites situated in one of the two target native vegetation communities specified in the MSRP (CMOP tbl 18, equivalent to lower slopes/ drainage slats Target) Poplar Box – Yellow Box – Western Grey Box grassy woodland Plant Community Type ID 101 in the BioNet Vegetation Classification System); comprising—
  - two monitoring sites previously established and monitored using an earlier method;
  - and

- the establishment of one new monitoring site
- fourteen Woodland Domain sites, capturing all Woodland Zones, comprising—
  - 11 sites co-located with historical plots;
  - 3 sites in newly established; and
- twenty-four categorical Rehabilitation Point Assessments across the rehabilitation, aimed at further improving rehabilitation data spatial coverage.

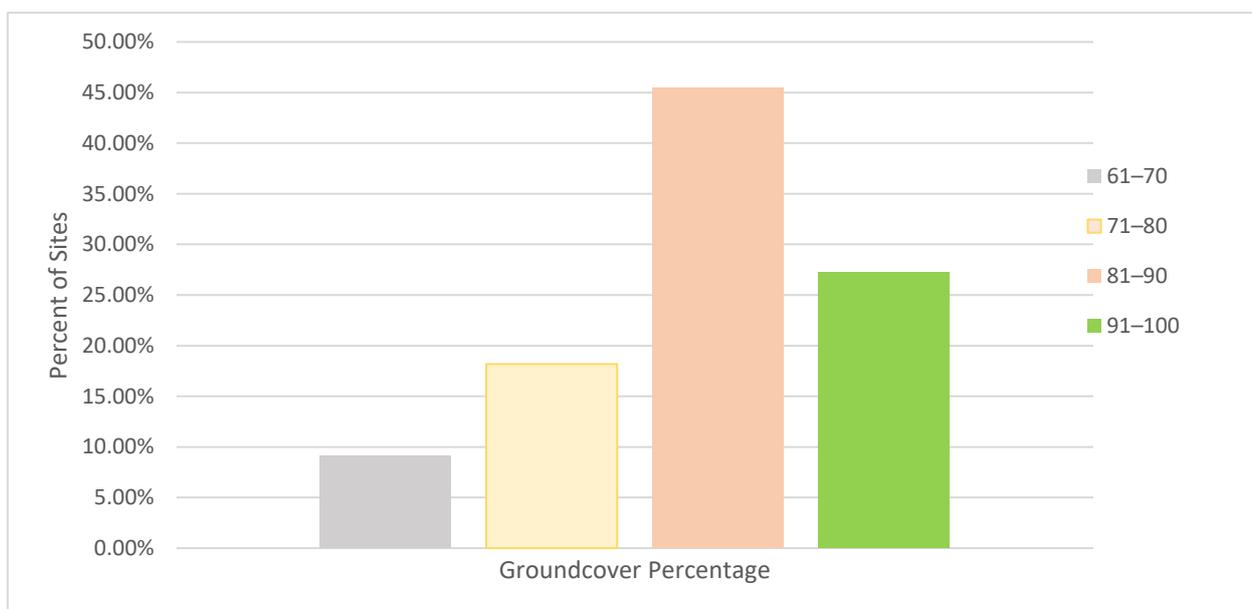
Monitoring in the Pasture Domain comprised:

- two analogue sites co-located with historical reference sites;
- nine rehabilitation sites, comprising five sites co-located with historical plots;
- twelve categorical point assessments at notable locations within the Pasture rehabilitation, aimed at highlighting priority areas and further improving rehabilitation data spatial coverage.

### 6.2.1 Woodland Domain

#### Groundcover

Groundcover in canyon mine woodland RPAs was usually high with 45% of sites having over 81-90% total cover. Very high cover of more than 91% was observed at 27% of sites with covers of 71-80 and 61-70% also occurring at only 18% and 9% of sites (**Figure 5**).



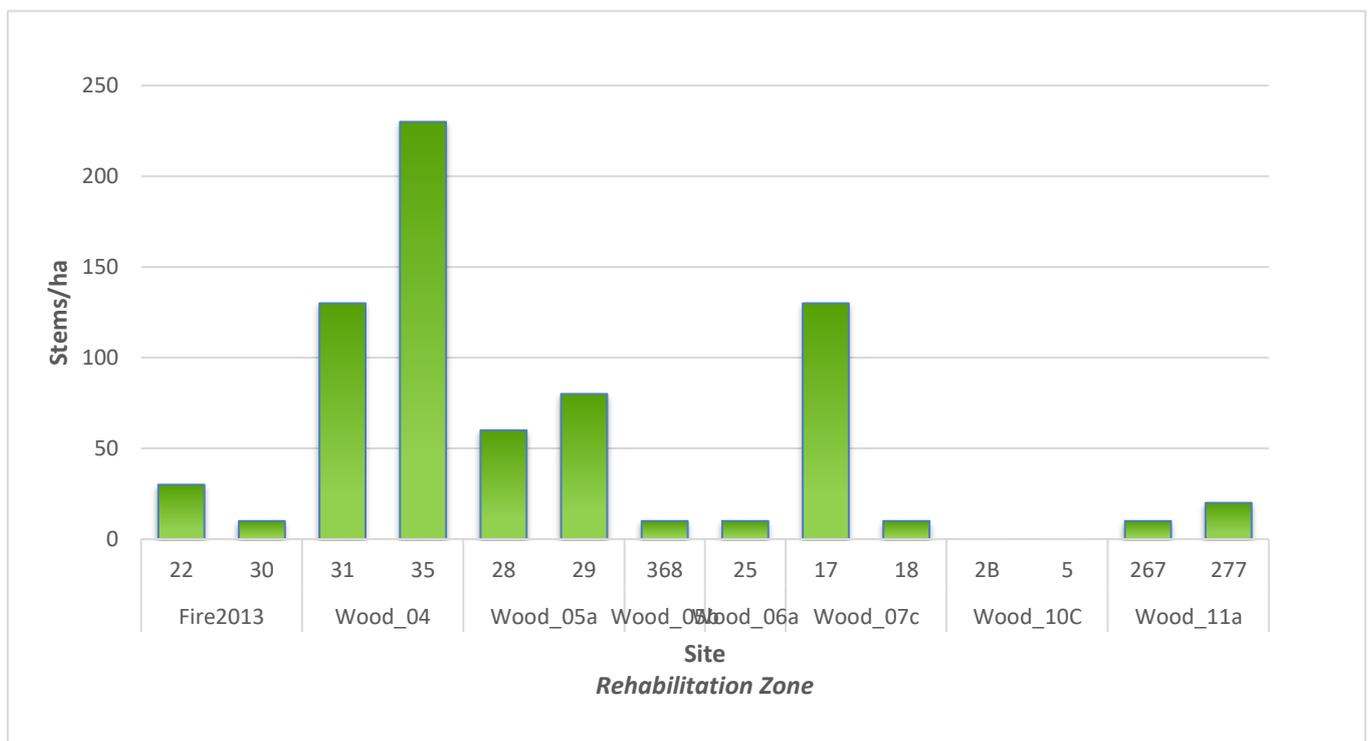
**Figure 5. Groundcover of woodland sites at Canyon Mine grouped into 10% increments, bar height represents the percent of total sites with that cover range.**

### Species Composition

In general, observations in the field indicated that Woodland rehabilitation at Canyon Mine often comprised diverse and well-established woodland with high diversity of tree and shrub species. The understorey often consisted of abundant, diverse mostly native groundcovers. Most sites had high native species diversity and mostly moderate to low weed cover.

### Tree density

Density of trees >2m tall was variable at Canyon; the highest densities (>100 stems/ha) were at Wood 04 and one site in Wood 07c (**Figure 6**). Wood 05a had intermediate densities (>50 stems/ha). The remaining sites had lower densities in the range of 10–30 stems/ha, apart from Wood 10c which had no trees >2 m tall (and no trees < 2m tall either—data not shown).



**Figure 6. Density of >2m tall trees within rehabilitation sites at Canyon in 2021, grouped by rehabilitation zone.**

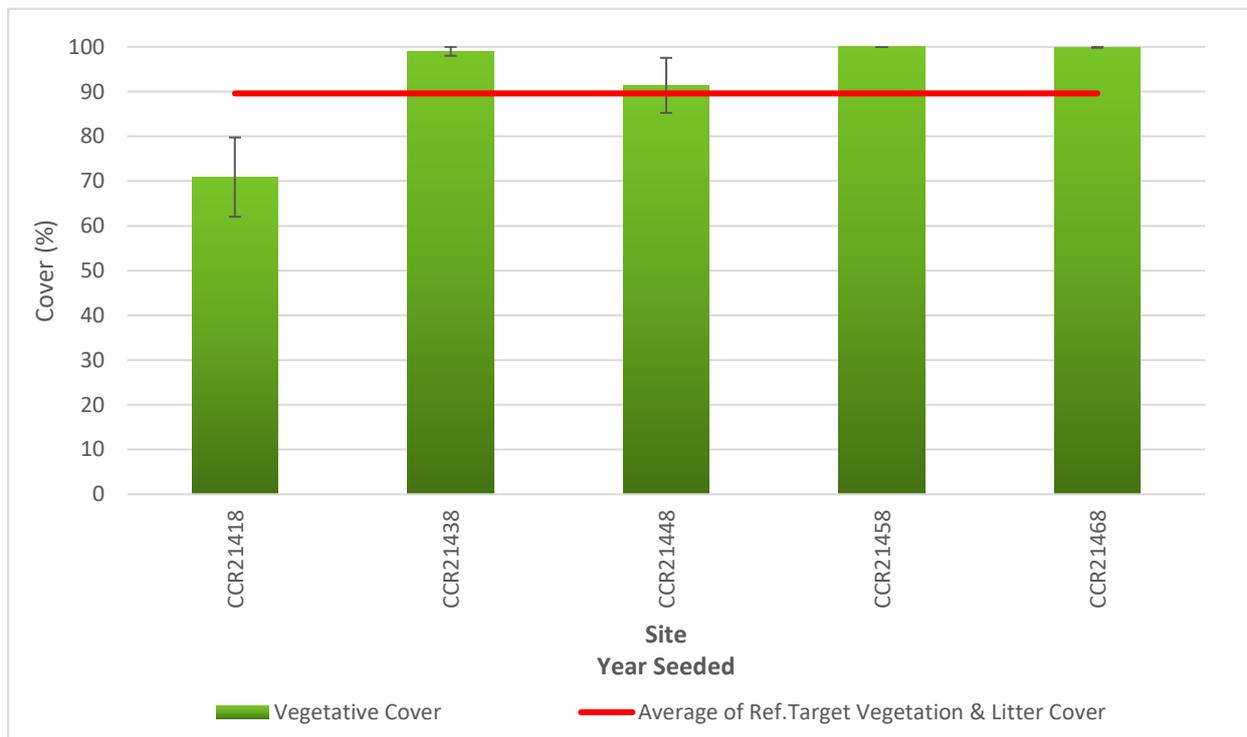
The abundance of trees taller than two metres in woodland rehabilitation at canyon mine were most often rated as frequent or common, less sites had an absence or rarity of trees of this size and sites with occasional trees over two metres were the least common. Smaller trees of less than two metres

in height were rare in the majority of RPAs (55%) and occasional in 27% of sites, this size class of trees was evenly split (9%) between absent and frequent in the remaining sites.

### 6.2.2 Pasture Domain

#### Groundcover

All but one pasture site at Canyon Mine (CCR21418) exceeded the average value for vegetative cover observed at Analogue sites (89.6%) (**Figure 7**) Combined Pasture completion criteria ground cover components (vegetation, leaf litter, and mulch) at Canyon Mine.



**Figure 7. Combined Pasture completion criteria ground cover components (vegetation, leaf litter, and mulch) at Canyon Mine. Line shows average cover at analogue sites. Bars show standard error of the mean.**

### 6.2.3 Fauna

Fauna habitat consisted primarily of abundant stag tree emplacements featuring perches and hollows at most sites, while habitat features on the ground were lacking with very little rock or coarse woody debris. Eastern Grey Kangaroos, skinks, and numerous species of birds, including Noisy Miners, were observed. Traces of feral rabbits or hares were present in the form of scats at one site.

#### **6.2.4 Recommendations**

**It is recommended that:**

- supplemental tube stock plantings be carried out in approximately half of the sites in which there has been low seedling survival or insufficient planting density;
- Spot spraying be conducted in areas that require supplemental tube stock planting to facilitate seedling development; and
- Retreatment of some sites in which weeds are dominate and seedling establishment was poor.

#### **6.2.5 Weeds and Pests**

Given their proximity to one another, feral animal monitoring and control was undertaken on the Canyon Coal Mine which is considered to be applicable to the Vickery Coal Mine (VCM). Monitoring cameras have been successful in monitoring pests. Monitoring indicates that feral pig and fox abundance has increased since 2020 with a score of medium - high, compared to low in 2020 and Kangaroo abundance was high which is consistent with the previous reporting period. Quarterly monitoring will continue and trends will be reviewed regularly. Weed monitoring found high densities of Paterson's Curse, African Boxthorn and Prickly Pear which is consistent with previous reporting periods.

#### **6.2.6 Key Environmental Performance/Management Issues**

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

#### **6.2.7 Proposed Improvements to Environmental Management**

No improvements are proposed within the next reporting period.

### **6.3 Biodiversity Offsets**

The approved WHC Biobank Biodiversity Offset Management Plan (BOMP, 2013) outlines the Biodiversity Offset Strategy requiring 1,524ha of native woodland to be maintained and improved on the Yarrari and Belah properties (collective known as Biobank BOA) with subsequent biobanking credits retired relating to the Rocglen Coal Mine, Canyon Coal Mine and Tarrawonga Coal Mines.

### **Offset Security Management**

The WHC Biobank BOA was secured under a NSW Biobanking Agreement on 28 June 2012 (now converted to Biodiversity Stewardship Agreement under the Biodiversity Conservation Act 2016). The BOMP outlines the intention to transfer the property to the National Parks Estate as an addition to the Boonalla Aboriginal Area (formerly Kelvin State Forest) after Year 10 (~2023).

### **Weather Summary of MCCM Offset Properties**

Regionally central meteorological station to the BOAs is the Gunnedah Pool site (BOM 2021) which has recorded highly variable rainfall over the last 3 years; from driest in 140 years of 237mm in 2019, followed by above average rainfall years in 2020 and 2021 of 833mm and 990mm respectively resulting in major flooding of the Namoi River in November and December 2021. WHC maintains a meteorological station adjacent to the Biobank BOA with a summary of weather conditions experienced at the Roseglass Offset property during the 2021 reporting period being annual daily average temperature range between 1°C in July and 37°C in January. The total annual rainfall was 775mm with the maximum in November (171mm) and minimum in May (19mm).

### **Infrastructure Management**

During the reporting period, maintenance of signage and gates undertaken as required to continue to restrict unauthorised access and minimise livestock incursion. Also during the reporting period, 691m of redundant internal fences were deconstructed from the Yarrari Offset property and 22 redundant or derelict assets/infrastructure were removed, previously associated with the former agricultural use of Biobank BOA. Waste removed is either recycled (in the case for scrap metal) or disposed offsite (general municipal waste and tyres) at local Waste Management Facilities. Any remaining derelict assets/infrastructure items will continue to be assessed, removed and remediated as required prior to transfer of Yarrari and Belah Offset properties to National Park Estate.

### **Seed Management**

The routine seed assessments on the Biobank BOA aims to identify on a seasonal basis the life cycle stage and development of native plants to identify what, where, when and how to target appropriate resources to collect seed for future revegetation programs. A total of 14 species were collected resulting in 6,093 grams of local provident seed to the Biobank BOA. As part of the WHC group wide revegetation planning; the onsite collected seed was supplemented with commercially sourced local and regional provident seed by reputable seed collectors. A local revegetation provider was engaged

to propagate the seed to produce Box Gum and non-EEC/CEEC Woodland overstorey species seedlings required for the 2021 revegetation program completed as well as planning for the 2022 revegetation program for the Biobank BOA.

### **Revegetation Management**

The revegetation schedule within Biobanking Agreement 43 requires enhancement planting to occur between Year 8 (2021) and 10. During the reporting period, revegetation ground preparation utilised tractors and excavators augering holes (to a depth >0.3m) to relieve compaction, improve permeability and infiltration to increase sub-surface soil moisture for planting during May 2021. WHC coordinated an enhancement (overstorey) revegetation program in June 2021 across the Biobank BOA covering 124ha planted with 3,832 hiko seedlings of Box-Gum and other Woodland species. Combined with good seasonal conditions, routine tree watering and maintenance activities post planting have been successful to ensure that 92% survival has been achieved for the Biobank BOA which is commensurate with the target Woodland vegetation structure.

### **Heritage Management**

During the reporting period, annual heritage inspections were completed on the 32 known Aboriginal archaeological heritage sites within the Biobank BOA. Each site is maintained with demarcation fencing around the heritage site perimeter and signage to mitigate access and disturbance. During this reporting period, 444m of fencing was maintained during 2021 of the total 4.3km of demarcation fencing around these heritage sites across the Biobank BOA.

### **Habitat Management**

During the reporting period, no specific habitat management works were undertaken.

### **Weed Management**

WHC coordinated routine formal weed monitoring/inspections undertaken across Biobank BOA in February, May, September and December 2021. The priority weeds identified included legacy weeds inherited from previous owners management regimes such as African/Consul Lovegrass, Buffel Grass, and Common Prickly Pear as well as a range of broadleaf weeds within revegetation areas. The weed monitoring/inspections ensure that timely and prioritised weed control is undertaken on a seasonal basis with the spatial information directly given to spraying contractors to identify what, where, when and how to target appropriate resources across the Biobank BOA for weed control.

During the reporting period, WHC implemented a weed control program across the Biobank BOA including 502ha treated between January and November 2021 targeting primarily Fleabane, African/Consul Lovegrass, Buffel Grass and Broadleaf weed species as required. Only appropriately qualified and experienced weed contractors (AQF3 accreditation or higher for use of herbicide) were engaged to undertake weed control works for WHC.

### **Feral Animals Management**

WHC undertook routine pest animal monitoring across the Biobank BOA in February, May, September, and November 2021. The adoption of a “monitor, measure and manage” approach to feral animal management will allow WHC to implement adaptive management in response to changes being measured through monitoring in feral animal abundance specific to the different geographical regions of the Biobank BOA. Feral animal monitoring utilises the relevant methodologies for specific feral animals generally in accordance with the NSW DPI *Monitoring Techniques for Vertebrate Pests* so that a range of methods can be used such as transects/spotlighting and cameras traps where practicable and relevant to specific offset areas/properties. Monitoring demonstrated that certain animals like Eastern Grey Kangaroos can be high, Feral Pigs can be high in abundance seasonally with all other feral animal species recorded as scarce to low abundance levels across 2021. The feral animal monitoring ensures that timely and prioritised feral animal control is undertaken on a seasonal basis identifying what, where, when and how to target appropriate resources across the Biobank BOA for feral animal management.

During the reporting period, WHC implemented a comprehensive feral animal control program across the Biobank BOA with routine 1080 baiting and pig trapping programs undertaken in March (24 Foxes removed from 112 baits presented), June & July (33 Foxes removed from 84 baits presented and 3 Feral Pigs trapped), September (16 Foxes removed from 84 baits presented and 2 Feral Pigs trapped) and December 2021 (26 Foxes removed from 56 baits presented and 4 Feral Pigs trapped). A total of 336 baits were presented across the Biobank BOA with 29% taken by feral animals. Night time open range shooting programs were implemented in conjunction with the other routine control programs resulting in an additional 1 Feral Cat, 11 Hares, 1 Fox and 3 Feral Pigs were controlled in 2021. In addition, 369 goats were harvested from the Biobank BOA during 2021 with saleable Goats on sold to an abattoir. Only appropriately qualified and experienced feral animal contractors

(appropriate feral animal management qualifications, NSW firearms licence and pesticide accreditation where relevant) were engaged to undertake feral animal control works for WHC.

### **Soil & Erosion Management**

Annual inspections were undertaken including unsealed firebreak tracks and associated drainage structures across the Biobank BOA to review appropriate erosion and sediment control measures required in accordance with the Blue Book (Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom 2004)). With the above average rainfall during the reporting period; 4 locations of targeted additional maintenance was identified out of 6 observations within the Biobank BOA to mitigate further erosion and sedimentation. The remaining sites and tracks/drainage structures are maintained during routine WHC Biodiversity fire break track maintenance program.

### **Grazing Management**

Biobank BOA was destocked in 2016 and continued to be destocked with no strategic grazing occurring during the reporting period. There was no reported stock incursion within the reporting period.

### **Bushfire Management**

The Biobanking Agreement 43 prohibits the use of fire within the Biobank BOA until Year 40 with no fire recorded on the Biobank Offset in 2021. During the reporting period, no bushfires occurred and no ecological burns were undertaken.

### **Monitoring Program**

During the reporting period, the ecological monitoring program of the Biobank BOA included winter bird surveys that were undertaken in August 2021 and annual spring flora monitoring of 32 sites across 5 vegetation zones (VZs) undertaken during October 2021. During the winter bird surveys, three threatened species (Speckled Warbler, Dusky Woodswallow and Grey-crowned Babbler) were recorded. During flora monitoring, 2 VZs (North-west Slopes Dry Sclerophyll Woodlands – Good condition, Western Slopes Grassy Woodlands – Good condition) were recorded as meeting or exceeding completion criteria for all 4 biometrics. Native plant species richness (NPS) completion criteria (native species richness benchmark for relevant biometric vegetation communities) was met or exceeded at 4 out of 5 VZs. Native overstorey cover (NOS) completion criteria (minimum overstorey cover benchmark for relevant biometric vegetation communities) was met or exceeded at 2 out of 5 VZs. Native midstorey cover (NMS) completion criteria (minimum midstorey cover

benchmark for relevant biometric vegetation communities) was met or exceeded at 4 out of 5 VZs. Native ground cover grass (NGCG) completion criteria (minimum groundcover benchmark for relevant biometric vegetation communities) was met or exceeded at 4 out of 5 VZs. Comparison of individual plot data shows that NPS increased from 59% last year to 81% of sites meeting or exceeding completion criteria in 2021. Native overstorey cover (NOS) increased from 21% last year to 31% of sites meeting or exceeding the completion in 2021. Native midstorey cover (NMS) decreased slightly from 79% last year to 72% of sites meeting or exceeding the completion criteria in 2021. Native ground cover grass (NGCG) increased from 44% last year to 66% of sites meeting or exceeding the completion criteria in 2021.

## **6.4 Blasting**

### **6.4.1 Criteria**

Blasting criteria for CCM are noted in DA 8-1-2005 however, they are not relevant for this reporting period as no blasting was undertaken onsite.

### **6.4.1 Key Environmental Performance/Management Issues**

No blasting was undertaken during the reporting period.

### **6.4.2 Proposed Improvement to Environmental Management**

No blasting is proposed within the next reporting period.

## **6.5 Operational Noise**

DA 8-1-2005 details the noise criteria for site operations and coal haulage, however there was no requirement for noise monitoring during the reporting period as CCM is no longer operational.

### **6.5.1 Key Environmental Performance/Management Issues**

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

### **6.5.2 Proposed Improvements to Environmental Management**

No improvements are proposed within the next reporting period.

## **6.5 Aboriginal Heritage Management**

### **6.5.1 Environmental Management Measures**

Four Aboriginal heritage sites have been discovered since 1999, during investigations for the CCM. Two of these sites, Whitehaven 3 and Whitehaven 4, were located within the Mining Lease area. Whitehaven 3, a scar tree located adjacent to the southern mine lease boundary, has been protected

by fencing to minimise the potential for adverse impacts. Whitehaven 4 was located within the extraction area, and artefacts at this site were salvaged by representatives of the Red Chief LALC in accordance with a Section 90 Permit (No. 2051) prior to disturbance. The remaining two heritage sites, Whitehaven 1 and Whitehaven 2, although not located within the Mine Lease boundary, have also been fenced and demarcated to avoid disturbance.

No additional consultation with Aboriginal stakeholders was required during the reporting period.

### **6.5.3 Key Environmental Performance/Management Issues**

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

### **6.5.4 Proposed Improvements to Environmental Management**

No improvements are proposed within the next reporting period.

## **6.6 Natural Heritage**

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

## **6.7 Bushfire Management**

### **6.7.1 Environmental Management Measures**

CCM is located within an area of cleared agricultural land, and WHC personnel liaise with the local Rural Fire Service, as required. No bushfire incidents occurred on, or adjacent to, the mine site during the calendar year.

### **6.7.2 Key Environmental Performance/Management Issues**

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

### **6.7.3 Proposed Improvements to Environmental Management**

The premier access roads will be graded and cleared of vegetation and utilised as fire breaks. Due to substantial precipitation in the last quarter of 2021 site access roads have become overgrown with vegetation.

## **6.8 Environmental Performance Summary**

An environmental performance summary for CCM is presented in **Table 6.9** below.

**Table 6.9 - Environmental Performance**

Aspect	Approval Criteria/EIS Prediction	Performance during the Reporting Period	Trend/Key Management Implications	Implemented/ Proposed Management Actions
Blasting	DA 8-1-2005, Schedule 3 (12 & 13)	N/A. No blasting on site.	No blasting on site.	No blasting on site.
Noise	DA 8-1-2005, Schedule 3 (6)	N/A. No operational activity on site.	N/A	N/A
Water	DA 8-1-2005, Schedule 3 (19)	EC levels in the void and groundwater trending upwards.	Final void acts as a groundwater sink and as such changes in water quality are not expected to extend off site.	N/A
Air Quality	DA-8-1-2005, Schedule 3 (1)	Compliance with the annual average depositional dust criteria, annual average PM <sub>10</sub> level and 24-hour PM <sub>10</sub> level	No operational activities on CCM.	N/A
Rehabilitation	DA 8-1-2005, Schedule 3 (28)	Rehabilitation progresses	Continue monitoring, and manage weeds and pests as required.	Ongoing environmental monitoring and management

## 7. WATER MANAGEMENT

### 7.1 Surface Water Management & Performance

Surface water management on site is limited to the lower void. Water monitoring occurs on a 6-monthly basis for water level and quality in the void. 2021 sampling results show an increase in Electrical Conductivity (EC) at the beginning of the reporting period, which then decreased toward the end of the reporting period, likely due to high rainfall in the last quarter of the reporting period. +pH in the lower void is at 8.63 which is generally consistent with the average pH recorded on the site (8.74). Total Suspended Solids (TSS) were within criteria and oil and grease levels are not detectable. The void water level in December 2021 was recorded at 142 ML which is an increase of 29 ML from the 113 ML reported in August 2020.

#### 7.1.1 Water Take

There was no groundwater take from void seepage during the reporting period.

### 7.2 Groundwater Management & Performance

Current monitoring requirements include six (6) monthly monitoring as per **Table 7.2** below.

**Table 7.2 - Groundwater Monitoring Parameters**

GW Bore	Parameters					
	Standing Water Level (SWL)	pH	Conductivity	Cl	Na	Oil & Grease
GW-7	✓					
GW-8	✓					
GW-9	✓					
GW-11	✓	✓	✓	✓	✓	✓
P3	✓	✓	✓	✓	✓	✓

Results show the Standing Water Level (SWL) of sites GW-7, GW-9, GW-11 and P3 remain generally consistent. Site GW-8 shows regular fluctuations in SWL over the long term which was due to being connected to a solar pump. Now the pump is not operational, the water level has been consistent (**Figure 8**). All sites continue to display water quality results that are generally consistent with the long-term trends. GW-11 has displayed a slight decrease in Electrical Conductivity (EC) since 2020. GW-7, GW-8 and GW-9 all show slightly declining pH levels across the reporting period, all are still

within criteria. P-3 shows consistent EC and pH values. No oil and grease have been identified in monitoring bores.

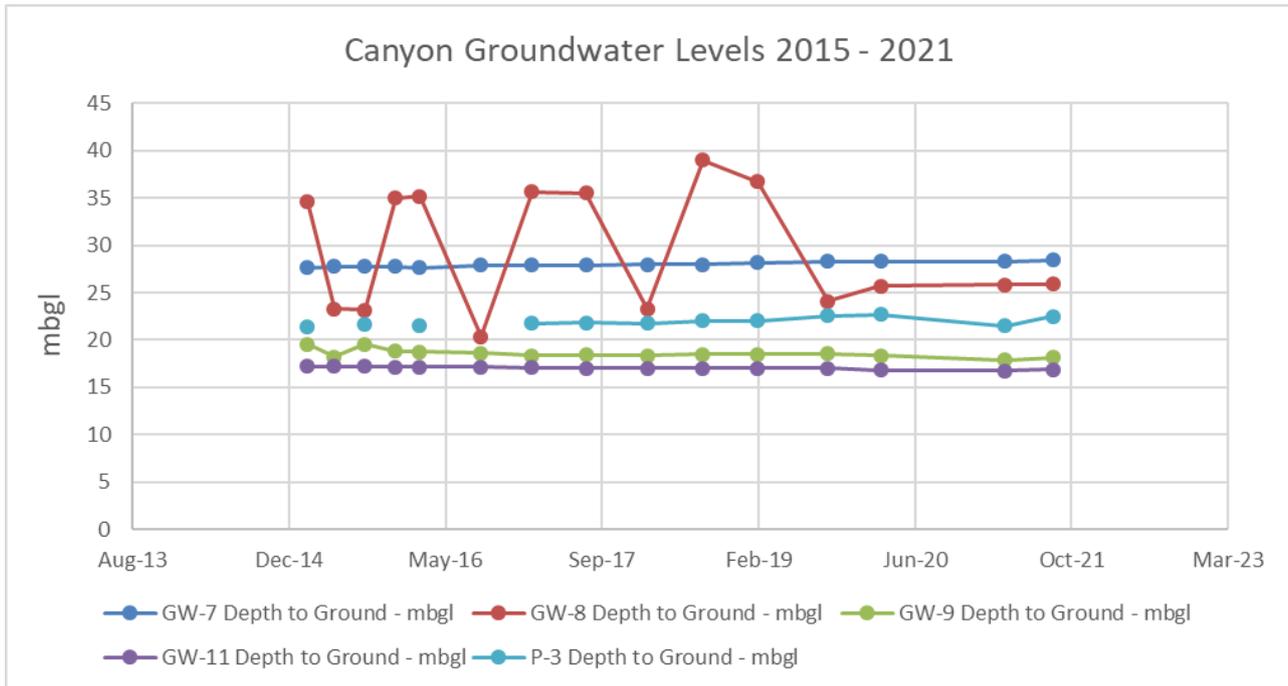


Figure 8. Canyon Groundwater Levels 2015 - 2021

### 7.1.1 Water Take

During the reporting period, no water was taken from any bores on site. WHC has a groundwater approval for 50 ML take.

## 8. REHABILITATION

### 8.1 Rehabilitation during the reporting period

#### 8.1.1 Status of Mining and Rehabilitation

Table 8.1.1 summarises the rehabilitation status at CCM. The site is in closure and no further rehabilitation is planned.

**Table 8.1.1 - Rehabilitation Status**

Mine Area Type <sup>1</sup>	Previous Reporting Period (Actual)	This Reporting Period (Actual)	Next Reporting Period (Forecast)
	2020 (ha)	2021 (ha)	2022 (ha)
A. Total Mine Footprint	416.98	416.98	416.98
B. Total Active Disturbance	2.9	2.9	2.9
C. Land Being Prepared for Rehabilitation	0	0	0
D. Land Under Active Rehabilitation	249.8	249.8	249.8
E. Completed Rehabilitation	0	0	0

<sup>1</sup>Refer to Annual Review Guideline (p.11) for description of mine area types.

### 8.1.2 Post Rehabilitation Land Uses

The overall closure goal for Canyon is for the restored landform to be capable of sustaining pre-mining land-uses.

### 8.1.3 Renovation or Removal of Buildings

No renovation or removal of buildings occurred during the reporting period.

### 8.1.4 Other Rehabilitation Undertaken

No additional rehabilitation occurred during the reporting period.

### 8.1.5 Departmental Sign-off of Rehabilitated Areas

No departmental sign-off of rehabilitated areas was received during the reporting period.

### 8.1.6 Variations in Activities against MOP/RMP

Not applicable.

### 8.1.7 Trials, Research Projects Initiatives

No rehabilitation trials, research projects or other initiatives were undertaken during the reporting period.

### 8.1.8 Key Issues to Achieving Successful Rehabilitation

The key issues to achieving successful rehabilitation are:

- Landform stability (Final Void);
- Soil quality;
- Water quality;

- Pasture development; and
- Land management, including weed control.

Management measures to address these key issues, including both trigger levels and response, are described in the Closure Mining Operations Plan prepared by SLR Consulting Australia, and approved in September 2015 by the Division of Resources and Geoscience.

## **8.2 Actions for Next Reporting Period**

Proposed actions include the implementation of controls for feral animals and ongoing environmental monitoring and management, as per DA 8-1-2005 and relevant environmental management plans.

## 9. COMMUNITY

A Community Consultative Committee (CCC) for Canyon Coal Mine is covered under the terms of reference of the Vickery Coal Mine CCC, Two meetings were held in 2021 in conjunction with the Vickery extension Project. A copy of each Annual Review is provided to Narrabri and Gunnedah Councils, relevant agencies, CCC and project website.

No complaints have been received for the site since 2008.

Community contributions are managed in accordance with the Whitehaven Coal Donations and Sponsorship Policy. Whitehaven Coal donated \$250,444.65 to local Gunnedah and Regional groups during the reporting period. Groups which received contributions included, but were not limited to the following;

### **Gunnedah**

Gunny Munny  
Gunnedah Show Society  
St Marys College  
Two Rivers Arts Council  
Legacy  
Rotary Mental Health  
Curlewis Public School  
Gunnedah South Public School  
Gunnedah High School  
Gunnedah Public School  
Gunnedah Ministers Fraternal  
Gunnedah Water Tower Museum  
Gunnedah PCYC  
Gunnedah Shire Band Incorporated  
The Gunnedah Tennis Club  
Firebug Photography  
Black n Blue Boxing  
Gunnedah Show Society  
Gunnedah Eisteddfod Society  
Clontarf Foundation  
Clontarf Foundation  
Gunnedah Can Assist  
Gunnedah Bulldogs Rugby League Club  
Mary Ranken Child Care Centre  
Dorothea Mackellar Poetry Awards  
Gunnedah Junior Rugby League Football Club

### **Regional**

The OBG Co  
The OBG Co  
Currabubula Red Cross  
Westpac Rescue Helicopter Service  
Clontarf Foundation  
Operation Pilgrimage Group  
Curlewis Pre-School  
Liberty Party  
West Tigers Rugby League Club  
Clontarf Foundation  
Operation Pilgrimage Group  
Special Children's Christmas Party  
Touch Rugby League  
St Vincent De Paul Society  
Pilliga CWA  
Tamworth Family Support

Gunnedah Junior Rugby League Football Club  
Gunnedah High School  
Challenge Community Services  
Rotary Club of Gunnedah West Inc  
Funktionalität Event Management  
Gunnedah Baptist Community Preschool  
Gunnedah Public School  
Carroll Community Bus Incorporated  
Gunnedah & district Chamber of Commerce  
Winanga-Li Early Learning & care services  
Gunnedah Community Carols  
Lions Club Gunnedah  
Gunnedah District cricket Association &  
gunnedah junior cricket  
Gunnedah South School  
Open Opportunities  
Gunnedah High School  
Gomeroi Roos

## **10. INDEPENDENT AUDIT**

The most recent Independent Environmental Audit (IEA) of CCM was undertaken by an independent audit team from Environmental Resource Management Australia Pty Ltd (ERM) in September 2021, who were endorsed as the independent and qualified auditors by DPI&E.

The key audit outcomes related to:

- Distribution of Annual Review documents to relevant parties;

An action from the IEA relating to DA 8-1-2005 advised that WHC are required under condition 30 of schedule 3 and condition 6 of schedule 5 of this consent to provide a copy of the approved documents to Narrabri Shire Council (NSC), Gunnedah Shire Council (GSC), relevant agencies and the CCC: and ensure that a copy of the relevant documents is made publicly available at NSC and GSC offices, to the satisfaction of the Secretary. This action has now been completed.

## **11. INCIDENTS AND NON-COMPLIANCES DURING THE REPORTING PERIOD**

### **11.1 Reportable Incidents**

No incidents occurred during the reporting period.

### **11.2 Non-compliances**

There were no non-compliances during the reporting period.

### **11.3 Regulatory Actions**

There were no regulatory actions during the reporting period.

## 12. ACTIVITIES 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:

- Continued implementation of controls for feral animals;
- Weed control for African Boxthorn, Prickly Pear and Patersons Curse; and  
Continued implementation of DA 8-1-2005, environmental monitoring, management and relevant environmental management plans.

After care and maintenance of rehabilitated areas as required

## 13. REFERENCES

New South Wales Government (2015) Annual Review Guideline – Post Approval requirements for State significant mining developments, available:

[https://www.planning.nsw.gov.au/en/Policy-and-Legislation/Mining-and-Resources/~/\\_media/3AA21D35168042FE813DD0FB92E00E58.ashx](https://www.planning.nsw.gov.au/en/Policy-and-Legislation/Mining-and-Resources/~/_media/3AA21D35168042FE813DD0FB92E00E58.ashx), accessed on 4/01/2021

North West Local Land Services (2017) North West Regional Strategic Weed Management Plan 2017 – 2022.

R. W. Corkery & Co Pty. Ltd (2000) Environmental Impact Statement for the Stage 2 “Whitehaven” Open Cut Coal Mine Development near Boggabri.