ESTABLISHED 1907

MUSWELLBROOK COAL COMPANY

2024 ANNUAL ENVIRONMENTAL MANAGEMENT REPORT

Name of Leaseholder:	**Muswellbrook Coal Company Limited**
Name of Mine:	**Muswellbrook Coal**
Titles/Mining Leases:	**Consolidated Coal Lease 713** **Mining Lease 1304** **Mining Lease 1562**
AEMR Commencement Date: AEMR End Date:	**1 January 2024** **31 December 2024**
Reporting Officer:	**Julie Thomas**
Title:	**Environmental Superintendent**
Signature:	
Date:	**18 March 2025**

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1.0 INTRODUCTION

Muswellbrook Coal Company (MCC) is a wholly owned subsidiary of the Idemitsu Australia. MCC has a long association with coal mining at Muswellbrook, with underground coal mining commencing in 1907 and open cut operations in 1944. The mine is located on Muscle Creek Road, approximately 3 kilometres to the north-east of Muswellbrook.

On September 1, 2003, Development Consent for DA 205/2002 was granted by Muswellbrook Shire Council (MSC) to extend the former MCC No.1 Open Cut. The No.1 Open Cut Extension commenced operations in March 2005 and has a capacity to produce up to 2,000,000 tonnes coal per annum. This approval has subsequently been modified on several occasions with the latest modification granted in 2016 to allow mining in an area known as the "Continuation Project" and to extend the life of the mining operations to 2022. Rehabilitation activities will continue past this date. A modification to the approval was granted on 20 December 2022 to allow the storage, handling and transport of coal to continue until the end of March 2023. An additional modification to the consent was granted on 27 February 2024 to align rehabilitation requirements with updated mining lease conditions and other administrative changes.

The current mine life at MCC is zero years. Mining operations ceased in 2022, with coal storage, handling and transport continuing until the end of March 2023. Final rehabilitation of the mine was ongoing during 2024.

1.1 STRUCTURE OF THIS REPORT

The structure of this report incorporates the reporting requirements stipulated in the MCC Development Consent, specifically Condition 42. This report also incorporates the reporting requirements in MCC's water licences.

This Annual Environmental Management Report (AEMR) provides a summary of activities, environmental management and performance at MCC from 1 January 2024 to 31 December 2024 (herein referred to as the 'reporting period').

In accordance with the Development Consent, copies of this AEMR will be made available to:

- Muswellbrook Shire Council (MSC),
- NSW Department of Climate Change, Energy, the Environment, and Water (DCCEEW),
- NSW Department of Planning, Housing and Infrastructure (DPHI),
- NSW Environment Protection Authority (EPA), and
- MCC Community Consultative Committee (CCC).

A copy of the report is also available on MCC's website:
https://www.idemitsu.com.au/operations/muswellbrook-coal/approvals-plans-reports/

1.2 CONSENTS, LEASES AND LICENCES

MCC operates under a number of development consents issued by Muswellbrook Shire Council (MSC). The primary consent is DA 205/2002, which was approved by MSC in 2003 for the operation of the Open Cut 1 extension. This DA has been modified on several occasions with the most recent modification being in 2024.

Mining activities at MCC were carried out wholly within Consolidated Coal Lease 713, Mining Lease 1562 and Mining Lease 1304.

In addition to the above approvals MCC operates under the following licences:

- Environmental Protection Licence (EPL) 656 issued under the Protection of the Environment Operations Act 1997.
- Water Licences WAL39806, WAL41503, and WAL41521, issued under the Water Management Act 2000.

An application was submitted to MSC in April 2022 to vary the development consent to tidy up conditions relating to rehabilitation management and removal of the Muswellbrook Bypass area from MCC's consent. This modification was approved during the reporting period.

During the reporting period, MSC approved the relinquishment of historical consents DA277 (No.2 Colliery) and ID721 (Operation of Washery).

Relevant consents, authorisations and licences are summarised in **Table 1**.

Table 1: Consents, Authorisations and Licences

Approval	Description	Consent Authority	Date Granted	Expiry/ Renewal Date
DA 205/2002 (MSC)	Approval for Extension of MCC Open Cut 1	Muswellbrook Shire Council	1 Sep 2003	Mining to 31 Dec 2022 and storage, handling and transport to end of March 2023 No end date to approval
DA 205/2002 (MSC) – Amendment to Condition 1.1	Power line relocation and additions to Workshop	Muswellbrook Shire Council	19 Dec 2005	
DA 205/2002 (MSC) Amendment to 1.1 and 11.3	Relocate office buildings, workshop and bathhouse	Muswellbrook Shire Council	13 July 2009	
DA 205/2002 (MSC) Amendment to 11.1	Extension of mining into Area C	Muswellbrook Shire Council	23 Dec 2010	
DA 205/2002 (MSC) Amendment to 1.1(a), 31, 33, 39, 45 and 58.	Revision to Mining Infrastructure Building Requirements and Rehabilitation Plan Revision to permit the continuation of mining operations for an additional 5 years.	Muswellbrook Shire Council	29 Oct 2013	
DA 205/2002 (MSC) Amendment to 1.1, 1.2 & 6.3.2 and additional conditions 59 & 60.	Modification to Permit the Continuation of Mining Operations at Muswellbrook Coal Mine for an Additional Five (5) Years- Multiple Allotments- Coal Road Muswellbrook.	Muswellbrook Shire Council	12 Dec 2013	

Approval	Description	Consent Authority	Date Granted	Expiry/ Renewal Date
DA 205/2002 (MSC) General revision of consent conditions	Modification to allow mining operations to mine additional areas and to extend the mine life to 2022.	Muswellbrook Shire Council	26 Oct 2016	
DA 205/2002 Conditions 2, 4 and 8 and Appendix A	Modification to allow the storage, handling and transportation of coal until the end of March 2023	Muswellbrook Shire Council	20 Dec 2022	
DA 205/2002 Conditions 2, 10, 14, 15, 17, 18, 19, 19A, 20, 23, 30, 33, 35, 40, 41, 47 and 49	Modification to align rehabilitation requirements with updated mining lease conditions, to allow the removal of land associated with the Muswellbrook Bypass and other administrative changes	Muswellbrook Shire Council	27 February 2024	
Consolidated Coal Lease 713	Mining Lease	NSW Resources Regulator	5 May 1990	24 Nov 2034
Mining Lease 1304	Mining Lease	NSW Resources Regulator	12 Jan 1993	24 Nov 2034
Mining Lease 1562	Mining Lease	NSW Resources Regulator	16 Feb 2005	16 Feb 2026
Environmental Protection Licence 656	Environmental Licence	Environmental Protection Authority	6 Dec 2000	Not applicable
WAL39806	Water Licence	WaterNSW	3 Nov 2016	Not applicable
WAL41503	Water Licence	WaterNSW	25 Oct 2017	Not applicable
WAL41521	Water Licence	WaterNSW	4 Nov 2019	Not applicable

1.3 MINE CONTACTS

The names and contacts of site personnel responsible for rehabilitation and environmental management, planning and support functions are shown in **Table 2**.

Table 2: Mine Contacts

Name	Position	Contact Number
Brett O'Kane	Head of Muswellbrook Site	(02) 6542 2300
Julie Thomas	Environmental Superintendent	(02) 6542 2300
Rod Gallagher	Rehabilitation Operations Manager Mining Engineering Manager	(02) 6542 2300

1.4 EMPLOYEE LEVELS

The number of employees and full-time equivalent contractors at MCC for this reporting period is shown in **Table 3**, along with a comparison to the numbers from previous reporting periods.

Table 3: Employee Levels

Year	Employees	Full-Time Equivalent Contractors
2024	6	111
2023	6	57
2022	8	32
2021	55	71
2020	62	82
2019	65	93
2018	67	77

1.5 ACTIONS REQUIRED FROM PREVIOUS AEMR REVIEW

Neither the RR or MSC conducted an AEMR inspection or provided feedback on the AEMR, so there are no actions arising from the previous AEMR.

1.6 COMPLIANCE STATUS

1.6.1 REPORTABLE INCIDENTS

During the reporting period, there were no reportable environmental incidents at MCC.

1.6.2 COMPLIANCE REVIEW

In accordance with the requirements of Condition 42 (a) of the development consent, a detailed compliance review of the performance of the project against conditions of this consent and statutory approvals was undertaken at the end of the reporting period. MCC were compliant with the conditions of consent and statutory approvals during the reporting period.

2.0 ACTIVITIES DURING THE REPORTING PERIOD

2.1 EXPLORATION

Previous exploration has provided a good understanding of the resources in the area. For this reason, no additional drilling or other exploration activities were done during the reporting period. No further exploration is planned at MCC.

2.2 LAND PREPARATION

To allow for the continuation of the rehabilitation, tree clearing on historical rehabilitation and small areas of remnant pasture were undertaken during the reporting period. Prior to this clearing commencing, a pre-clearance survey was undertaken by an ecologist to identify any habitat features or threatened species that needed additional management. No issues were identified during the pre-clearance survey that required additional management.

2.2.1 TOPSOIL MANAGEMENT

The volume of stockpiled topsoil remaining is very limited and has not been used in rehabilitation activities this reporting period. Any topsoil cleared in historical rehabilitation areas is not reused in rehabilitation activities due to the presence of *Acacia Saligna* seed in

the topsoil. *Acacia Saligna* was previously used in rehabilitation activities, however, due to concerns with this species outcompeting other species, it is no longer used in rehabilitation seed mixes.

2.3 CONSTRUCTION

During the reporting period no construction activities occurred.

2.4 MINING

Coal mining at MCC was completed in November 2022 and coal haulage from site was completed in March 2023. No further coal mining activities are proposed at MCC.

Activities on site during this reporting period have focused on rehabilitation of the site.

The status of the operations at the end of the reporting period is shown in **Figure 1**.

2.5 MINERAL PROCESSING

Coal processing at MCC was finalised during December 2022. Demolition of the CHPP was completed during 2023. No further coal processing activities are proposed at MCC.

2.6 WASTE MANAGEMENT

During the reporting period a Total Integrated Waste Management Service was maintained on site to manage all waste streams generated on site. This includes general waste, cardboard and paper recycling, timber, waste oil, and steel. The site continues to separate and recycle waste materials, when possible, to assist in reducing the amount of waste going to the local landfill.

Table 4 shows the amount of waste that was removed from site during the reporting period. MCC has maintained a high percentage of waste recycled during the period.

Table 4: Waste Stream Generation

Month	Total Waste Removed (tonnes)	Total Waste to Landfill (tonnes)	Percentage Reused/ Recycled
January	56.03	1.52	54.51
February	46.73	1.14	45.59
March	27.97	0.61	27.36
April	30.98	2.07	28.91
May	55.50	1.08	54.43
June	63.07	6.53	56.54
July	72.10	4.38	67.71
August	74.00	1.16	72.85
September	84.33	3.90	80.43
October	54.45	3.13	51.33
November	58.22	2.42	55.80
December	38.01	0.82	37.19
Total	**661.38**	**28.75**	**95.65**

Figure 2 compares the annual total waste to landfill for this reporting period to previous reporting periods and **Figure 3** compares the percentage of recycled waste during this reporting period to previous reporting periods.

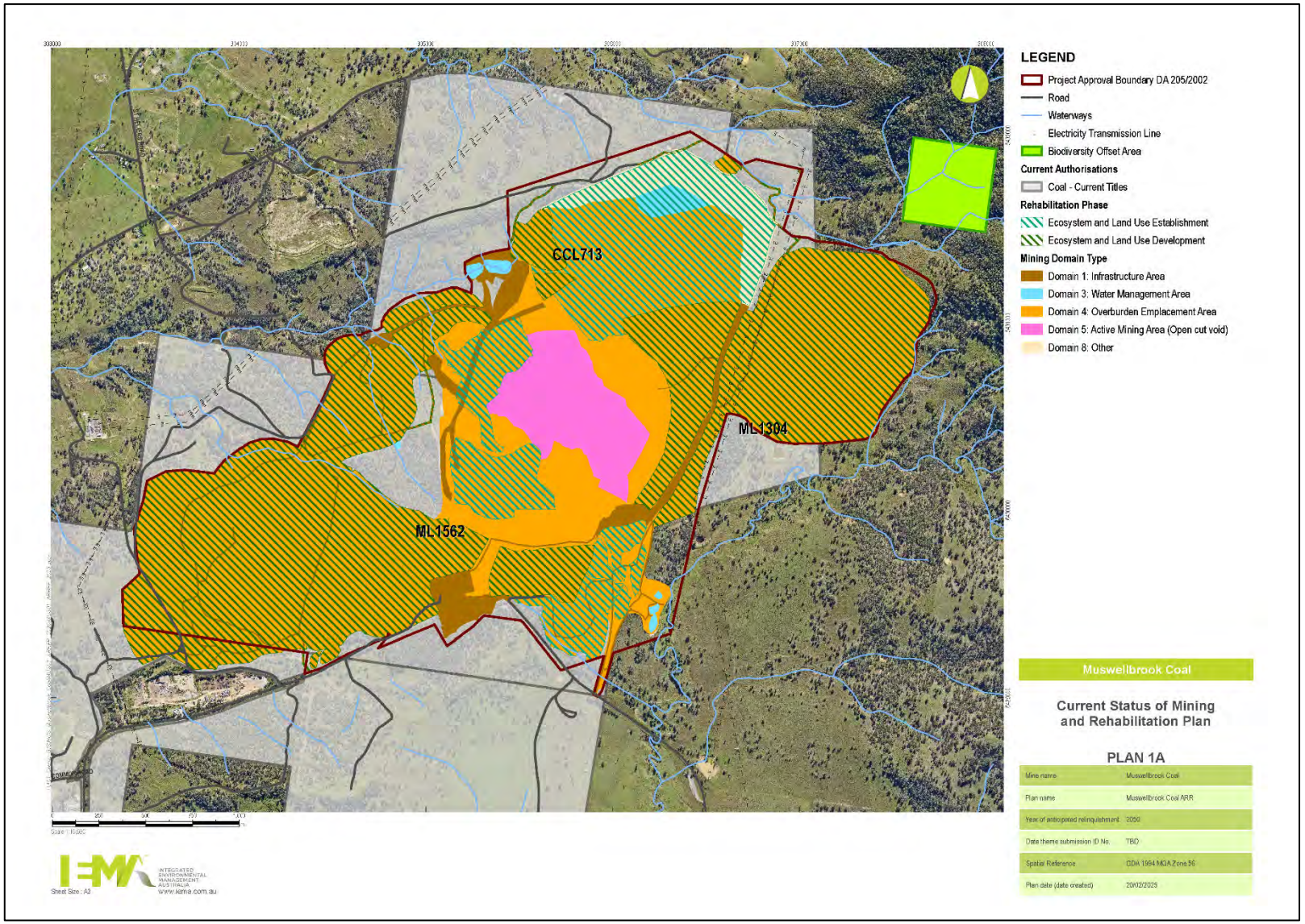

Figure 1: Status of Mining and Rehabilitation at End of Reporting Period

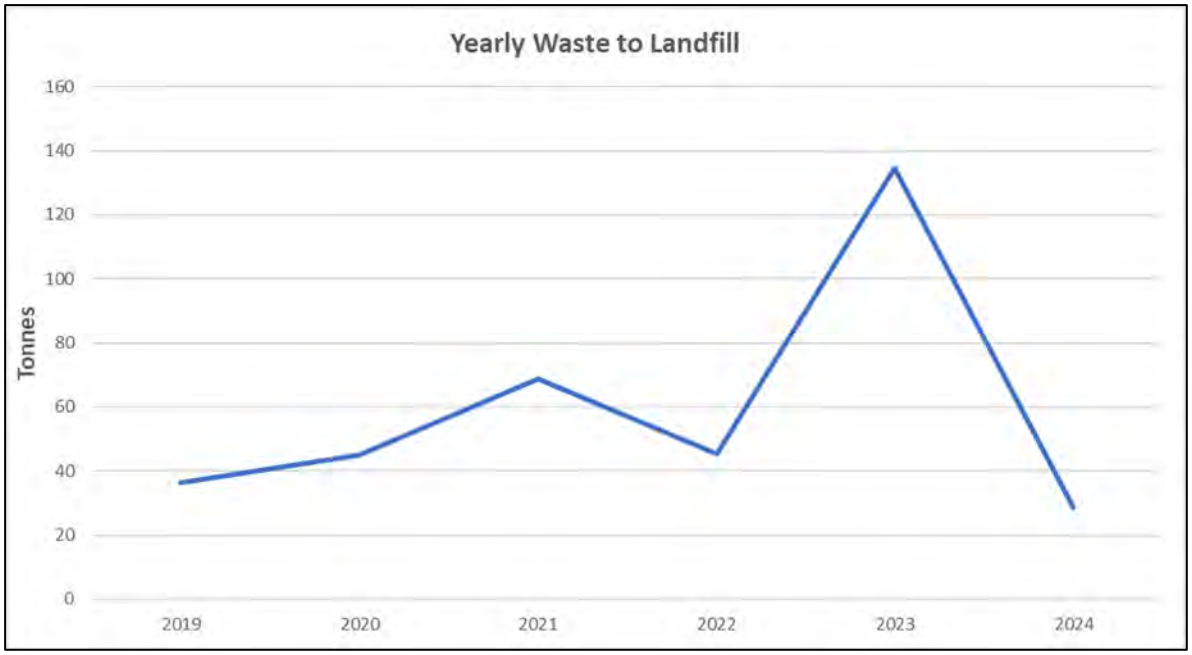

Figure 2: Annual Total Waste to Landfill

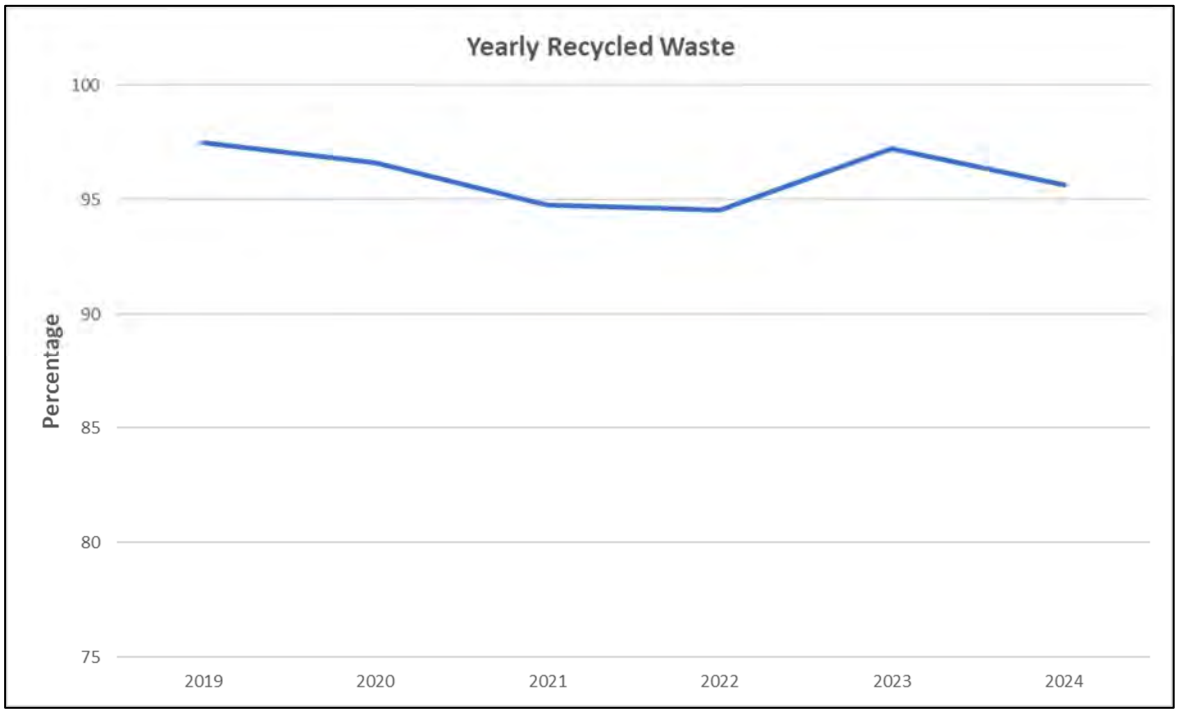

Figure 3: Waste Recycled Yearly

2.7 PRODUCT COAL AND TRANSPORT

The last product coal was transported off site in March 2023. No further coal transport activities are proposed at MCC.

2.8 PRODUCTION SUMMARY

The key production milestones and material production achieved during the reporting period are shown in **Table 5**.

Table 5: Key Production Milestones/Material Production

Material	Unit	This Report
Stripped topsoil	m^3	0.00
Overburden moved for coal production	m^3	0.00
ROM coal extracted	Mt	0.00
Reject material	Mt	0.00
Product	Mt	0.00

2.9 HAZARDOUS MATERIALS MANAGEMENT

2.9.1 FUEL STORAGE

Diesel fuel is stored in three Class C1 above ground, self-bunded tanks, with a capacity of 105,000L each.

2.9.2 EXPLOSIVES

Blasting contractors were employed to carry out total loading service on site. Storage of explosives was in two external magazines and an above ground tank for raw materials with 30,000L capacity. Blasting activities at MCC were completed during the reporting period and the blasting related infrastructure has been decommissioned and removed from site.

2.10 WATER MANAGEMENT

The primary objective of the Water Management Plan (WMP) is to enable the effective management of on-site water to minimise the impact of mining operations on surface and ground water resources, both on and adjacent to the mine site. As mining has now been completed, some of the water management infrastructure is no longer required (e.g., water no longer needs to be supplied for coal processing) or needs to be relocated to allow rehabilitation activities to progress. During the reporting period water management infrastructure continued to be decommissioned and/or relocated to address updated water management requirements.

The objectives of the WMP are to:

- Meet the water supply needs of the project,
- Separate clean water runoff produced by undisturbed catchments from dirty (sediment-laden) and contaminated runoff from disturbed catchments,
- Use appropriate sedimentation controls for dirty water,
- Where possible, recycle and reuse dirty and contaminated mine water for dust suppression and wash down activities,
- Allow clean water to flow through the catchment,
- Where possible, and where mine safety permits, use disused open cuts and underground mines as mine water storages,
- Have nil discharge of saline mine water by containing all saline mine water on site and minimising the risk of accidental off-site discharge,
- Monitoring of surface and groundwater to determine significant impacts to water quality or beneficial use and undertaking remedial action where required, and
- Monitoring the surface water and groundwater to support mine closure planning.

2.10.1 WATER STORAGE

Volumes of stored water available at MCC are provided in **Table 6**.

Table 6: Stored Water

VOLUMES (m^3)	START REPORTING PERIOD	END REPORTING PERIOD	STORAGE CAPACITY
DIRTY WATER			
Brickworks Dam 1	6,100	Dry	51,000
Brickworks Dam 2	4,000	2,600	20,000
Dam 3	10,200	10,300	30,000
SALINE OR MINE WATER			
Dam1	26,000	24,300	30,000
Dam 2	12,000	15,400	20,000
Final Settling Pond	3,500	3,900	22,000

2.10.2 GROUNDWATER EXTRACTION

MCC holds three licences to extract ground water. The volumes of groundwater extracted in this reporting period are shown **Table 7**. No new bores were constructed during the reporting period. No changes were made to groundwater extraction entitlements during the reporting period. As mining activities and coal processing has finished at MCC, groundwater extraction for use in the operations has decreased significantly. The groundwater extracted this reporting period was used for dust suppression and minor spontaneous combustion management.

Table 7: Groundwater Extraction

Licence No.	Source	Water Sharing Plan	Volume Extracted (ML)	Extraction Entitlement (ML)
WAL39806 (small borehole)	Sydney Basin-North Coast Groundwater Source	North Coast Fractured and Porous Rock Groundwater Sources 2016	53.1	1,000
WAL41503 (large borehole)	Sydney Basin-North Coast Groundwater Source	North Coast Fractured and Porous Rock Groundwater Sources 2016	93.3	2,200
WAL41521 (open cut voids)	Sydney Basin-North Coast Groundwater Source	North Coast Fractured and Porous Rock Groundwater Sources 2016	99.6	1,400

2.10.3 WATER BALANCE

The calculated water balance for the reporting period is provided in **Table 8**. The water balance indicates a water surplus for the year. Extra water has been stored in on-site surface and underground water storages.

The water balance model was last updated in 2015 as part of the DA modification received in 2016. Each year inputs and outputs are measured or estimated based on the water balance developed for the site. There are no predictions from the 2016 SEE to compare the water balance data to, however the SEE notes that the site generally operated in water deficit up until the 2014 water balance. The water balance is now generally in surplus due to lower volumes of water being used for dust suppression and spontaneous combustion management

as the operational areas are condensed into smaller areas. Water is no longer required for coal washing, as this process is no longer occurring on site.

Table 8: Site Water Balance

INPUTS	ML/year
Ground Water Seepage	100.0
Surface Water Runoff and Dam Capture	113.3
Entrainment in Coal	0.0
Potable Water	2.7
Underground Workings – Dewatering Bores	146.4
TOTAL	**362.4**
OUTPUTS	**ML/year**
Entrainment in Coal	0.0
Discharge Off Site	0.0
Spontaneous Combustion Management – water infusion and sprays	9.0
Dust Suppression – water carts	62.8
Evaporation from Dams	113.3
Septic Pump Out	0.4
TOTAL	**185.5**
Balance	**176.9**

2.11 OTHER INFRASTRUCTURE MANAGEMENT

MCC maintains Muscle Creek Road as per the requirements of the Development Consent and in accordance with a Routine Maintenance Annual Plan (RMAP), which has been approved by MSC. During the previous reporting period, MCC commissioned a Commission Assessment Report of Muscle Creek Road. This report identifies the final maintenance work required before the maintenance of this road is handed back to MSC. The report was submitted to MSC during the last reporting period for their review and acceptance. Numerous meetings and a site inspection were held throughout the reporting period, however, at the end of this reporting period, MCC were still waiting on acceptance of this report from MSC.

3.0 ENVIRONMENTAL MANAGEMENT AND PERFORMANCE

3.1 ENVIRONMENTAL MANAGEMENT

To measure compliance with the management plans, the development consent and various licences, MCC undertakes a comprehensive monitoring program. Details on the individual monitoring programs are provided in the following sections.

3.2 METEOROLOGICAL

During the reporting period, MCC continued to maintain a Meteorological Monitoring Station (MMS) on rehabilitated land to the immediate west of Open Cut 1. The MMS provides 10m elevation wind speed and direction, 2m and 10m elevation air temperature, rainfall, humidity, barometric pressure, sigma theta and stability class.

Meteorological data provided in this report was sourced from the MMS. Wind data, rainfall and temperature results are summarised below. Data recovery for the monitoring period was 99.97%.

3.2.1 WIND SPEED AND DIRECTION

Quarterly wind roses are provided in **Figure 4**. These results are generally consistent with the predominant wind patterns in the Hunter Valley.

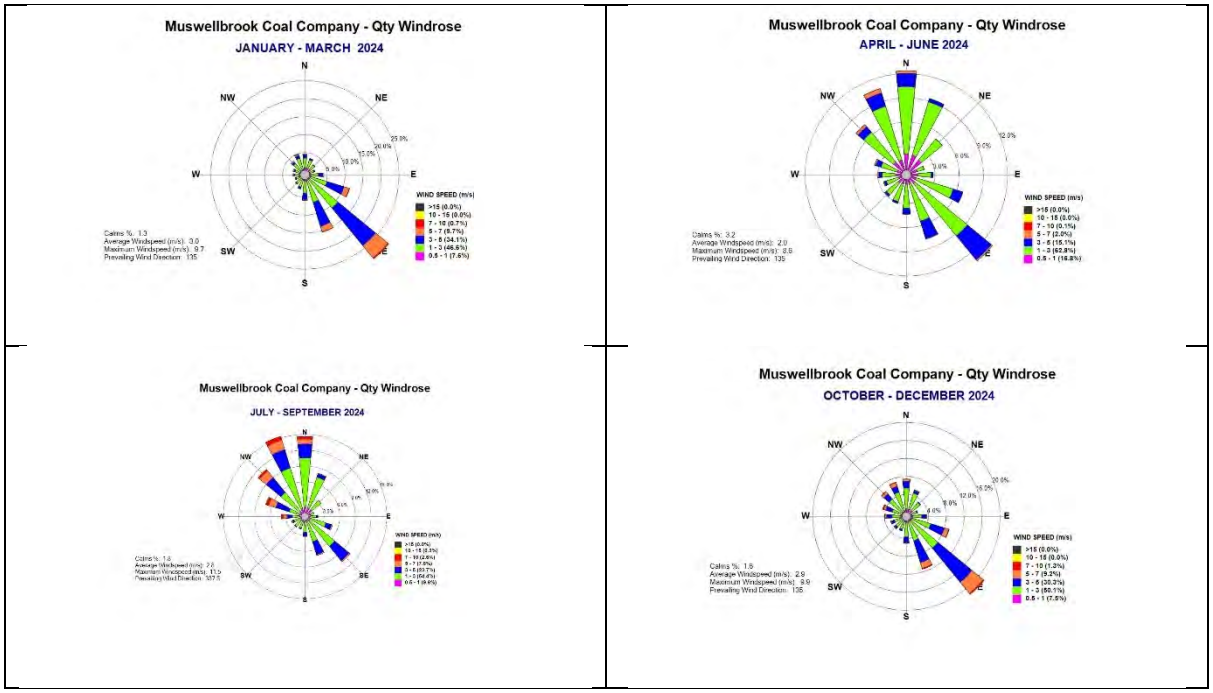

Figure 4: Quarterly Wind Roses

3.2.2 RAINFALL

Total rainfall recorded during the reporting period was 713.2mm, which is above the long-term average recorded onsite since 2005 of 616.9mm. A summary of rainfall during the reporting period, compared to the long-term average recorded onsite since 2005, is provided in **Table 9** and **Figure 5**.

Table 9: Rainfall Data

Month	Muswellbrook Coal Actual (mm)	Muswellbrook Coal Average (mm)
January	42.0	61.1
February	65.4	69.7
March	35.6	72.8
April	112.8	36.7
May	72.2	25.6
June	107.0	53.5
July	45.8	37.0
August	47.6	35.5
September	56.4	33.8
October	40.4	48.8
November	54.2	77.9
December	33.8	64.7
Total	**713.2**	**616.9**

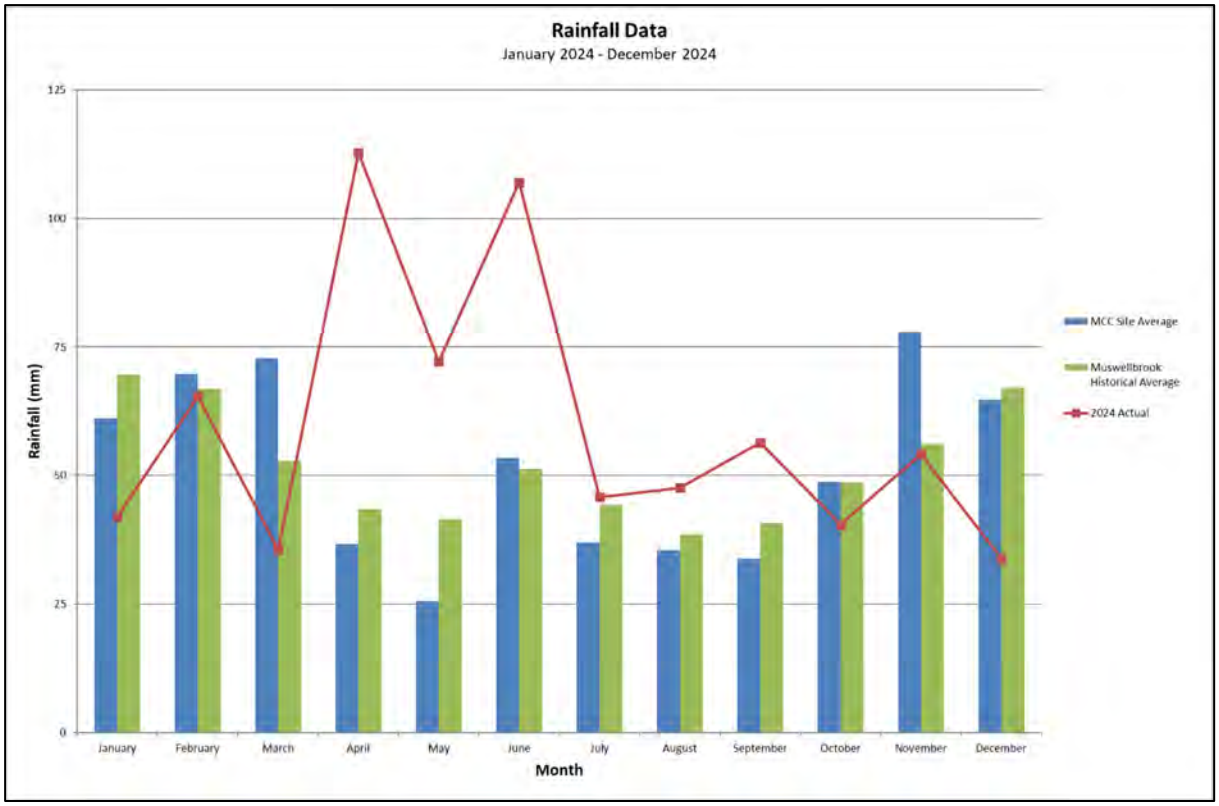

Figure 5: Rainfall Graph

3.2.3 TEMPERATURE

Maximum temperature recorded during the reporting period was 41.0°C and the minimum recorded was 0.0°C. A summary of minimum, maximum and average monthly temperatures during the reporting period is provided in **Table 10** and **Figure 6**.

Table 10: Temperature Data

Month	Minimum Temperature (ºC)	Average Temperature (ºC)	Maximum Temperature (ºC)
January	14.0	24.8	41.0
February	15.0	23.9	40.4
March	12.0	22.0	37.6
April	6.4	17.3	31.8
May	1.6	13.3	23.2
June	0.5	10.5	20.6
July	0.8	10.4	19.6
August	0.4	14.0	26.9
September	0.0	15.0	28.2
October	6.4	17.5	31.4
November	12.4	22.1	38.4
December	10.6	24.5	39.0
Summary	**0.0**	**18.0**	**41.0**

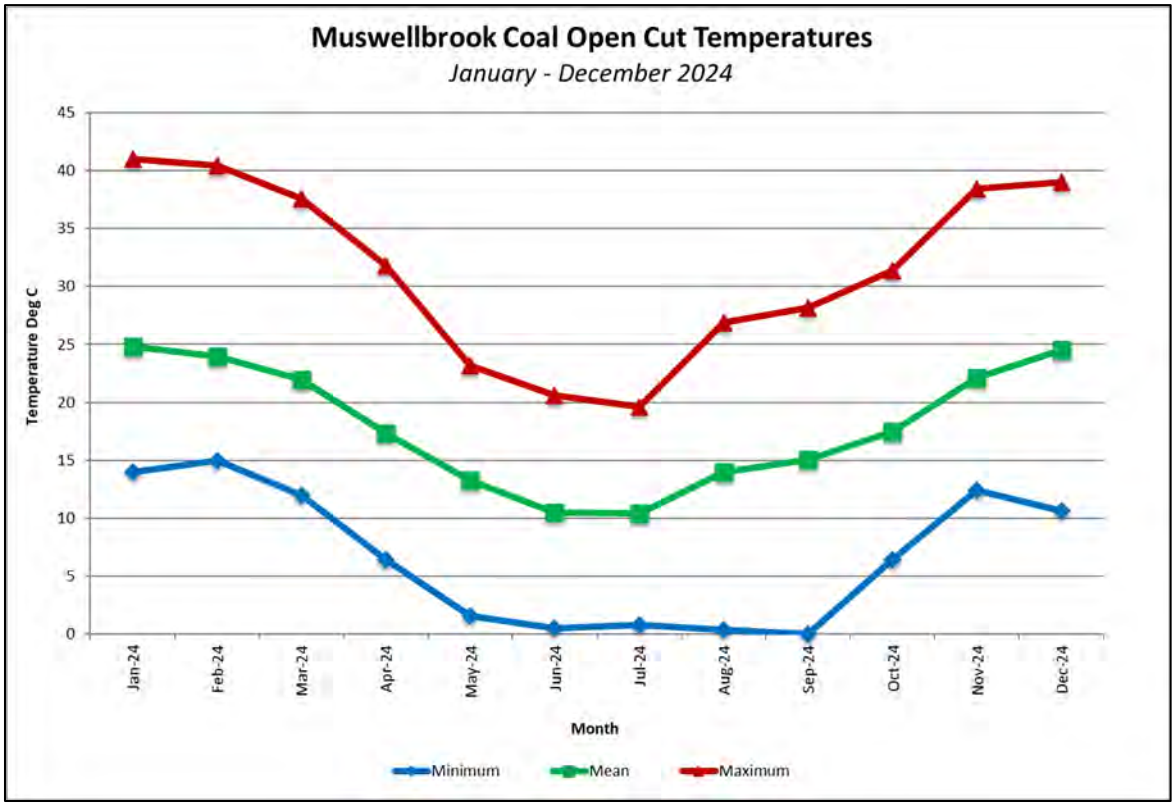

Figure 6: Temperature Graph

3.3 AIR QUALITY MANAGEMENT

3.3.1 ACTIVITIES THIS REPORTING PERIOD

During the reporting period MCC continued to operate in accordance with the approved Air Quality Management Plan (AQMP). The primary objective of air quality management at MCC is to manage and minimise the impact of dust from the operations on the environment and nearby residences. MCC utilise a daily dust forecasting tool to assist with managing dust emissions from the site.

During the reporting period, MCC updated the AQMP following the consent modification to confirm the management and monitoring requirements associated with the rehabilitation of the site. The updated AQMP was approved by MSC. As part of the approval of the AQMP, MSC accepted the removal of the gas monitoring requirements as they are no longer required now that mining has ceased. MCC require the approval of the EPA as well to remove this equipment and this approval was pending at the end of the reporting period.

The Sulphur Dioxide (SO_2) criteria were changed as part of the consent modification approved during the reporting period. The updated criteria are shown in **Table 13**.

3.3.2 AIR QUALITY MONITORING

The air quality criteria that apply to MCC are shown in **Table 11** to **Table 13**. The air quality monitoring sites are displayed in **Figure 7**.

Table 11: Long Term Particulate Matter Criteria

Pollutant	Standard / Goal
Particulate Matter <10μg (PM_{10})	30μg/m^3 (annual mean)

Table 12: Short Term Particulate Matter Goal

Pollutant	Standard/Goal
Particulate Matter <10µm (PM_{10})	50µg/m^3 (24-hour average)

Table 17 and 18 Note: • Total impact (i.e., incremental increase in concentrations due to the development plus background concentrations due to all other sources); • Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, (but not Spontaneous Combustion within the mine) or any other activity agreed by Council.

Table 13: Atmospheric Gas Content Criteria

Pollutant	Criterion	
Sulphur Dioxide (SO_2)	20ppb (24-hour average)	100ppb (1 hour average)
Hydrogen Sulphide (H_2S)	100ppb (24-hour average)	500ppb (1 hour average)

Note:

- *Total impact (i.e., incremental increase in concentrations due to the development plus background concentrations due to all other sources).*
- *Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, (but not Spontaneous Combustion within the mine) or any other activity agreed by Council*

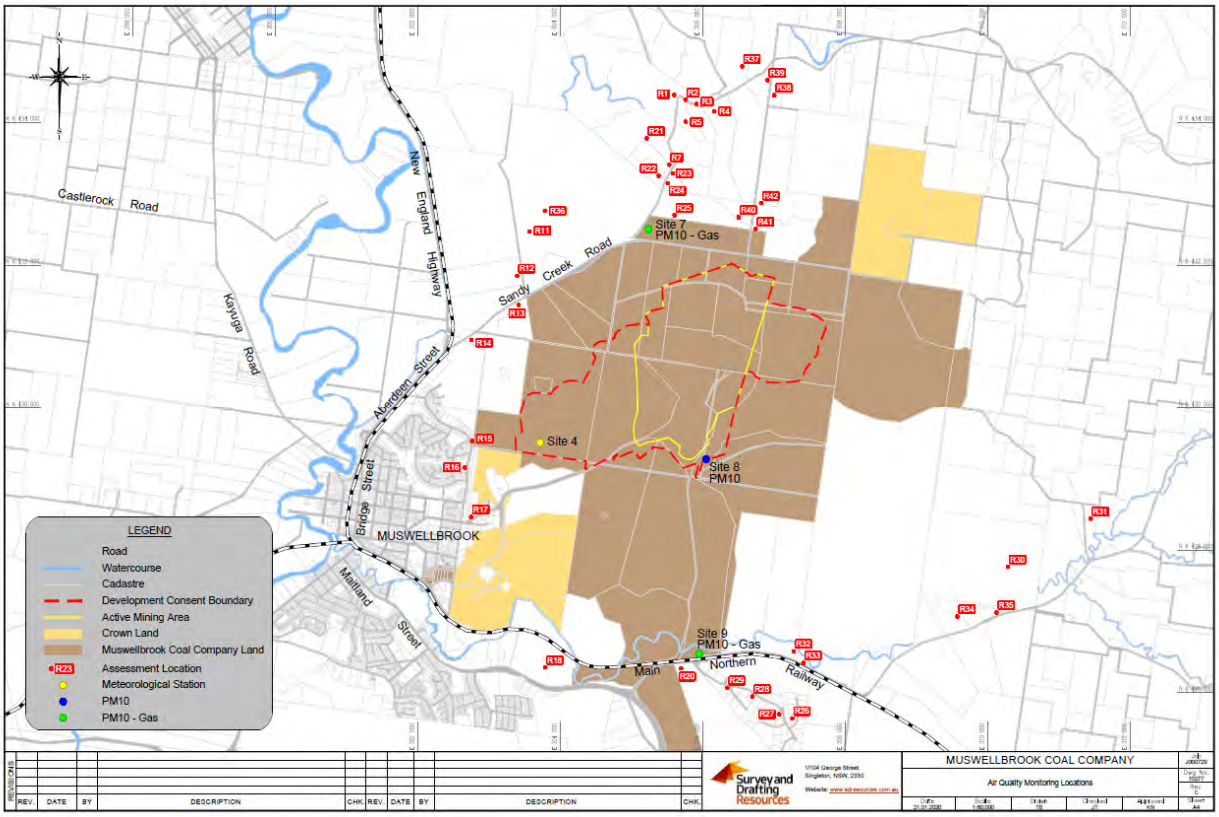

Figure 7: Air Quality Monitoring Locations

Particulate Matter <10µg (PM_{10})

MCC operate three real-time PM_{10} monitoring units with all three units continuously relaying data to a password protected website.

The PM_{10} units are continuous electronic monitoring systems that are subject to equipment faults, communication losses, power outages and maintenance downtime. High data recovery is considered essential and data recovery levels obtained during the reporting period were 96.0% across the three units. The losses of data were due to power supply interruptions, equipment calibrations and minor malfunctions.

The criteria in the development consent apply to PM_{10} levels at residential locations and as monitoring location Site 8 is used as a management tool, it is not subject to the criteria in the development consent. There were no days during the reporting period where the 24-hour PM_{10} result was above the 24-hour criteria of 50µg/m^3 at the compliance-based monitoring locations.

The annual average PM10 did not exceed the 30µg/m^3 annual criteria during the reporting period. **Table 14** displays the average PM10 value at each site during the reporting period with the results graphically presented in **Figure 8** to **Figure 10**. A table of comprehensive PM10 results is provided in **Appendix 1**.

Table 14: Real-Time PM_{10} Averages

Site Number	Annual Average PM_{10} Concentration (µg/m^3)	Annual Average Criteria (µg/m^3)	Data Recovery %
7	14.4	30	99.4
8	19.1	NA	91.5
9	14.3	30	97.0

Table 15 compares the results from Sites 7 and 9 for this reporting period, background results and predictions made in the 2016 Statement of Environmental Effects (SEE). The results this reporting period are lower than the background levels and the predicted results in the SEE.

Table 15: Comparison of Real-Time PM_{10} Results (Sites 7 and 9)

Year	Monitoring Results (µg/m^3)		Background Results (µg/m^3)		SEE Predicted Results (µg/m^3)	
	Site 7	Site 9	Site 7	Site 9	Site 7	Site 9
2024	14.4	14.3	16.9	16.9	23.0	17.0
2023	14.5	15.8	16.9	16.9	23.0	17.0
2022	13.1	13.1	16.9	16.9	23.0	17.0
2021	13.1	14.1	16.9	16.9	23.0	17.0
2020	17.1	18.1	16.9	16.9	23.0	17.0
2019	26.7	24.2	16.9	16.9	23.0	17.0

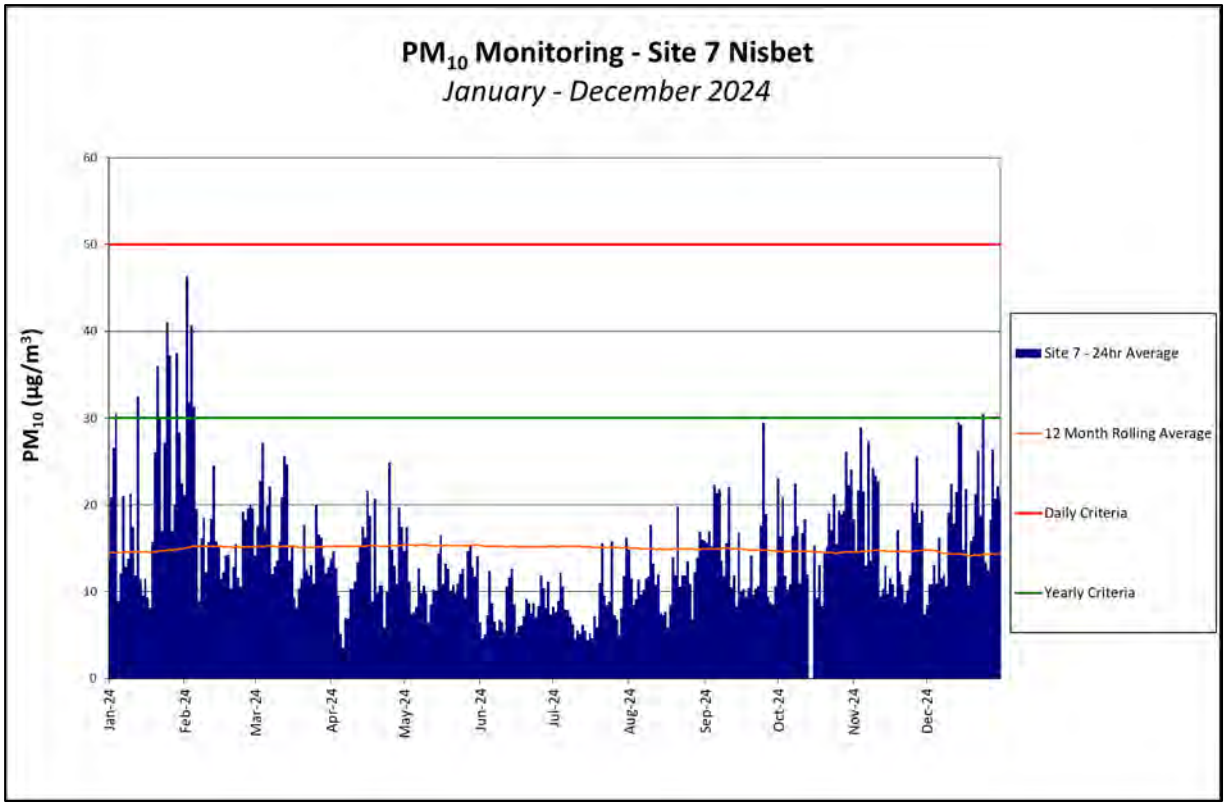

Figure 8: Site 7 PM_{10} Results

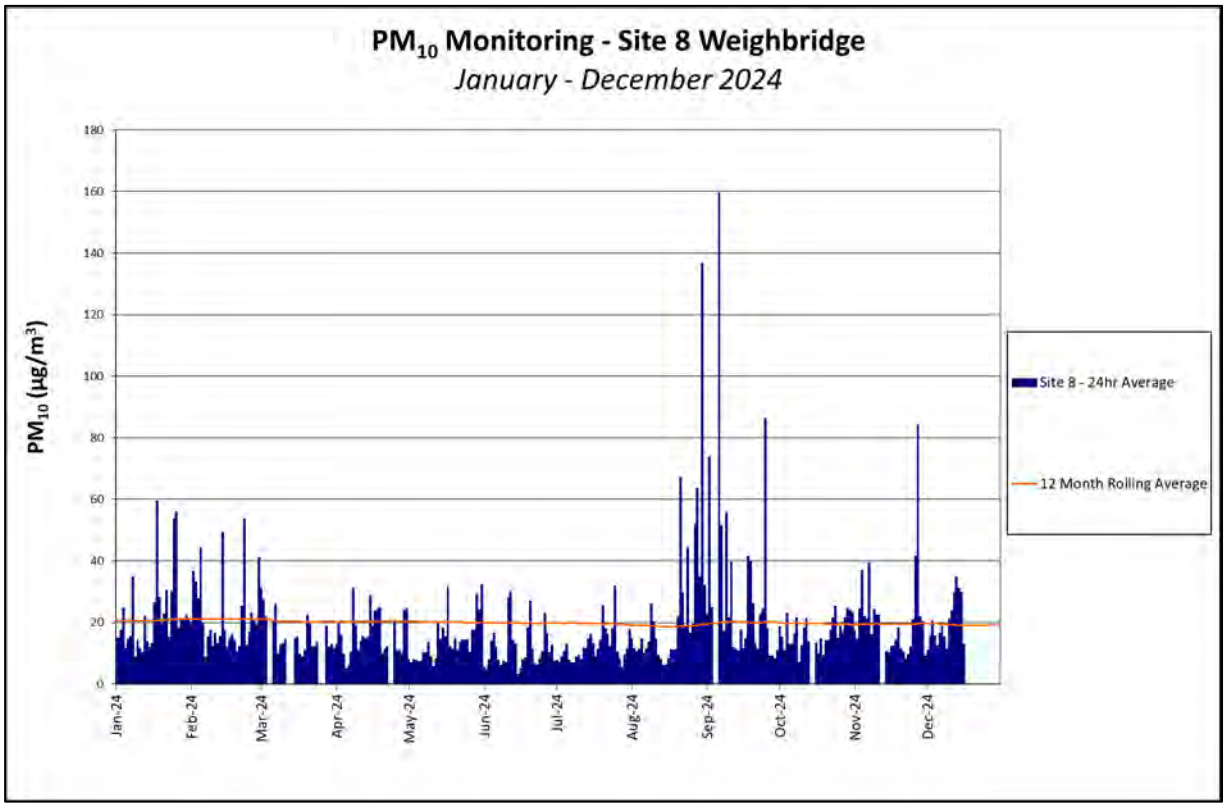

Figure 9: Site 8 PM_{10} Results

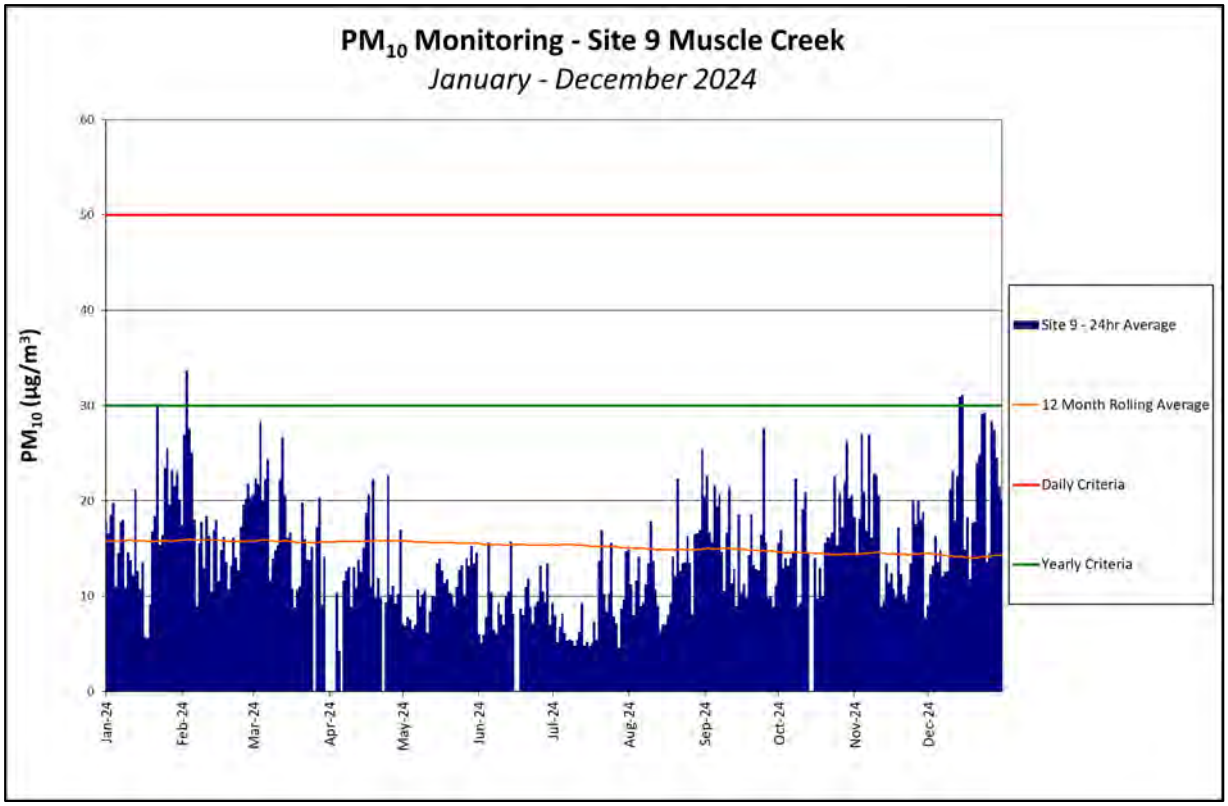

Figure 10: Site 9 PM_{10} Results

Gas Monitoring (Hydrogen Sulphide and Sulphur Dioxide)

MCC operate two real-time gas monitors that measure Hydrogen Sulphide (H_2S) and Sulphur Dioxide (SO_2). The locations of these monitors are shown in **Figure 7**.

The criteria for H_2S and SO_2 are shown in **Table 13**. A summary of the monitoring results is shown in **Table 16** and this shows that there were no results above these criteria during the reporting period. 24-hour data from Nisbet is missing in January and April due to equipment malfunction.

Table 16: Summary of Gas Data Results

Month	Highest H_2S 1-hour result (ppb)	Highest H_2S 24-hour result (ppb)	Highest SO_2 1-hour result (ppb)	Highest SO_2 24-hour result (ppb)
Site 7 – Nisbet				
January	75.6	13.3	69.9	13.5
February	32.1	4.1	35.8	4.4
March	30.9	3.9	35.5	3.6
April	75.6	13.3	69.9	13.5
May	53.0	7.2	61.6	7.7
June	54.5	11.5	59.0	12.2
July	13.1	2.9	15.3	2.6
August	76.7	5.7	62.1	4.8
September	11.1	2.2	14.9	2.1
October	16.9	3.9	16.5	3.5
November	32.7	3.6	33.6	3.5
December	15.7	3.1	18.0	3.1

Month	Highest H_2S 1-hour result (ppb)	Highest H_2S 24-hour result (ppb)	Highest SO_2 1-hour result (ppb)	Highest SO_2 24-hour result (ppb)
Site 9 – Muscle Creek				
January	No Data	No Data	No Data	No Data
February	9.1	4.2	9.8	3.9
March	5.0	3.9	19.9	4.6
April	No Data	No Data	No Data	No Data
May	6.3	3.7	29.0	6.2
June	6.0	3.8	56.2	13.6
July	7.5	4.2	10.5	4.5
August	7.7	3.6	54.8	5.1
September	8.7	3.6	8.2	4.1
October	6.2	4.4	14.1	4.1
November	9.2	5.0	16.8	3.9
December	9.7	4.3	10.0	4.1

3.3.3 ACTIVITIES NEXT REPORTING PERIOD

When the landform establishment works for the rehabilitation are finalised the AQMP and associated monitoring will no longer apply at MCC. It is anticipated that these works will be completed during the next reporting period. At the completion of these works, the air quality monitoring will cease, and the monitoring equipment will be decommissioned and removed. The AQMP will be removed from the Environmental Management System as an active management plan.

3.4 GREENHOUSE GAS

No methane drainage or ventilation issues were associated with the Open Cut operations during this reporting period. Several boreholes intersect the underground workings that are used for gas and water monitoring. These boreholes are capped and opened only for monitoring purposes.

MCC supply data to Idemitsu Australia for their corporate reporting requirements for the National Greenhouse and Energy Reporting (NGER's) process.

3.5 EROSION AND SEDIMENT CONTROL

3.5.1 ACTIVITIES THIS REPORTING PERIOD

During the reporting period MCC continued to manage erosion and sediment in accordance with the approved Water Management Plan (WMP) prepared in accordance with condition 25 of the DA. During the reporting period, MCC updated the WMP following the consent modification to confirm the management and monitoring requirements associated with the rehabilitation of the site. The updated WMP was approved by MSC.

The key considerations for erosion and sediment control at MCC include:

- restricting the extent of disturbance to the minimum that is practical and in accordance with the Rehabilitation Management Plan,
- progressive rehabilitation of disturbed land, where possible, and the construction of drainage controls to improve the stability of rehabilitated land,
- protection of natural drainage lines and watercourses by the construction of erosion control devices such as diversion banks and channels and sediment retention dams as necessary,
- restriction of access to rehabilitated areas,

- management of erosion and sediment control of affected surface watercourses/water bodies, including creek lines within or adjacent to the development consent boundary,
- regular inspection of dams to monitor their efficiency and any required maintenance, and
- inspection and maintenance, if required, of sediment and erosion controls including dams and drainage lines following storm events.

Two main natural catchments exist around the site, associated with Muscle and Sandy Creeks. The area contains undisturbed land surfaces that drain towards Sandy Creek. However, some of the runoff is captured by dams. Water from undisturbed catchments is diverted around the operations by diversion banks and channelled into adjacent watercourses.

All disturbed or newly rehabilitated areas contain diversion banks (major and minor graded banks) to control the flow of water from catchment areas and to contain dirty runoff on the mine site.

With the progress of the rehabilitation of the site, new contour drains and drop structures are being installed to manage water flow across the site.

3.5.2 EROSION AND SEDIMENT CONTROL MONITORING

Erosion and sediment control monitoring is conducted as part of the surface water monitoring program. Surface water monitoring is discussed in **Section 3.6**.

3.5.3 ACTIVITIES NEXT REPORTING PERIOD

During the next reporting period, MCC will continue to manage and monitor erosion, and sediment impacts in accordance with the WMP.

3.6 SURFACE WATER MANAGEMENT

3.6.1 ACTIVITIES THIS REPORTING PERIOD

During the reporting period MCC continued to manage surface water impacts in accordance with the approved Water Management Plan (WMP) prepared in accordance with condition 25 of the DA. During the reporting period, MCC updated the WMP following the consent modification to confirm the management and monitoring requirements associated with the rehabilitation of the site. The updated WMP was approved by MSC.

The trigger values for water quality in Muscle Creek are presented in **Table 17**. If monitored conditions are outside the upper or lower trigger levels for 3 continuous monthly results, MCC will investigate the results. There is no surface water quality limits defined in the EPL.

Table 17: Trigger Values for Muscle Creek Water Quality

Site	pH 20th/80th Percentile Trigger Values	EC (µS/cm) 80th Percentile Trigger Values	TSS (mg/L) 80th Percentile Trigger Values
SW07 – Muscle Creek – Upstream	7.7–8.0	4,048	13
SW08 – Muscle Creek – Downstream	7.8–8.0	5,136	10

3.6.2 SURFACE WATER MONITORING

MCC undertake a surface water monitoring program that consists of monthly and quarterly monitoring. The locations of the surface water monitoring sites are shown in **Figure 11**. The monthly surface water monitoring results are provided in **Appendix 2**.

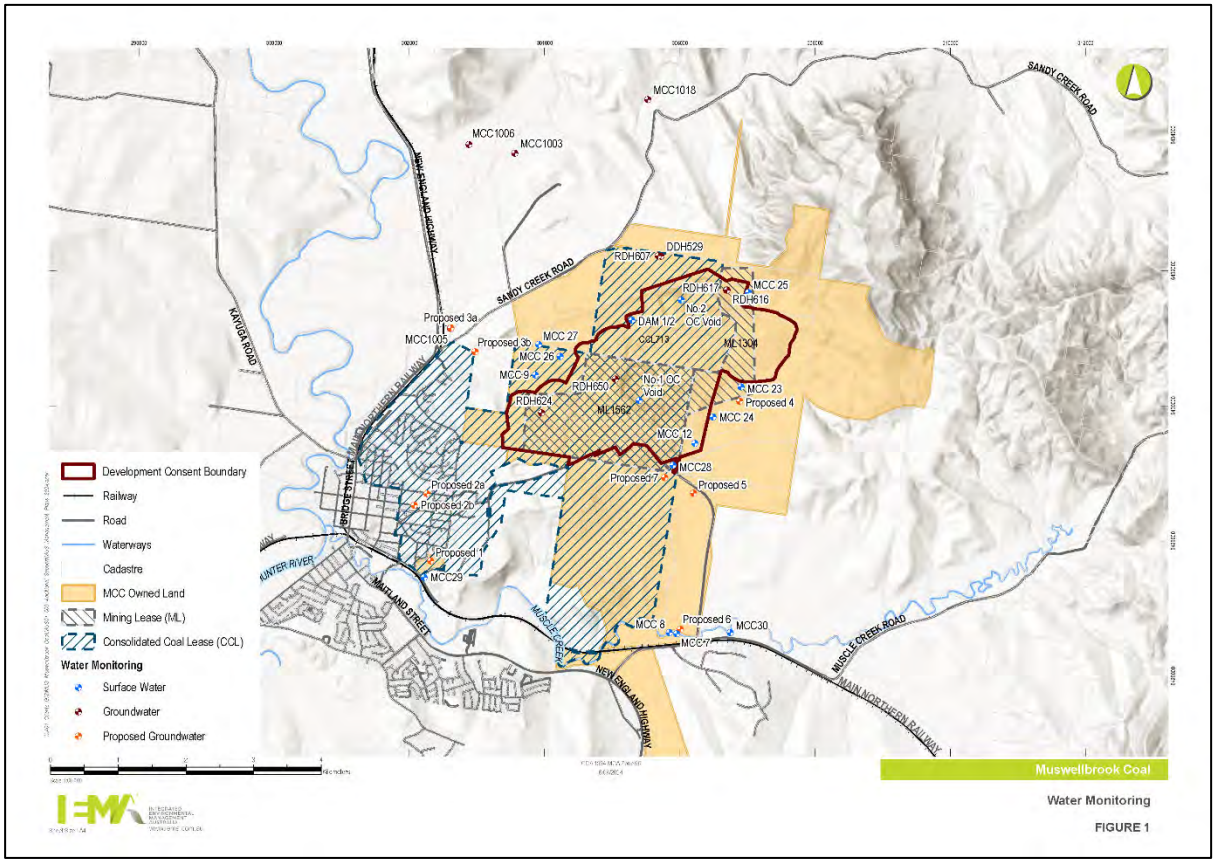

Figure 11: Water Monitoring Locations

pH

The pH levels at surface water monitoring sites were generally within the recommended ecosystem pH levels of 6.5–9.5 throughout the reporting period (**Figure 12**). At one site (MCC25) there were low pH results for 2 months during the reporting period. These results were obtained after the site had become dry and was being recharged after rainfall. Once the site was recharged, the pH returned to normal levels. As shown in **Figure 13,** the results from this reporting period are consistent with the results from previous reporting periods. There are no predictions to compare these results to.

Electrical Conductivity (EC)

Typically, EC levels for mine water are greater than 4,000µS/cm (**Figure 14**). EC levels in water courses surrounding the operation are influenced by rainfall and runoff. They are lower during periods of high rainfall and higher during periods of low rainfall.

A comparison of EC results from the reporting period to previous reporting periods is shown in **Figure 15**. There are no predictions to compare these results to.

Total Suspended Solids (TSS)

The results from this reporting period are shown in **Figure 16.** A comparison of TSS results from the reporting period to previous reporting periods is shown in **Figure 17**. TSS results can be highly variable with runoff from heavy rainfall causing short-term increases before conditions return to normal. There are no predictions to compare these results to.

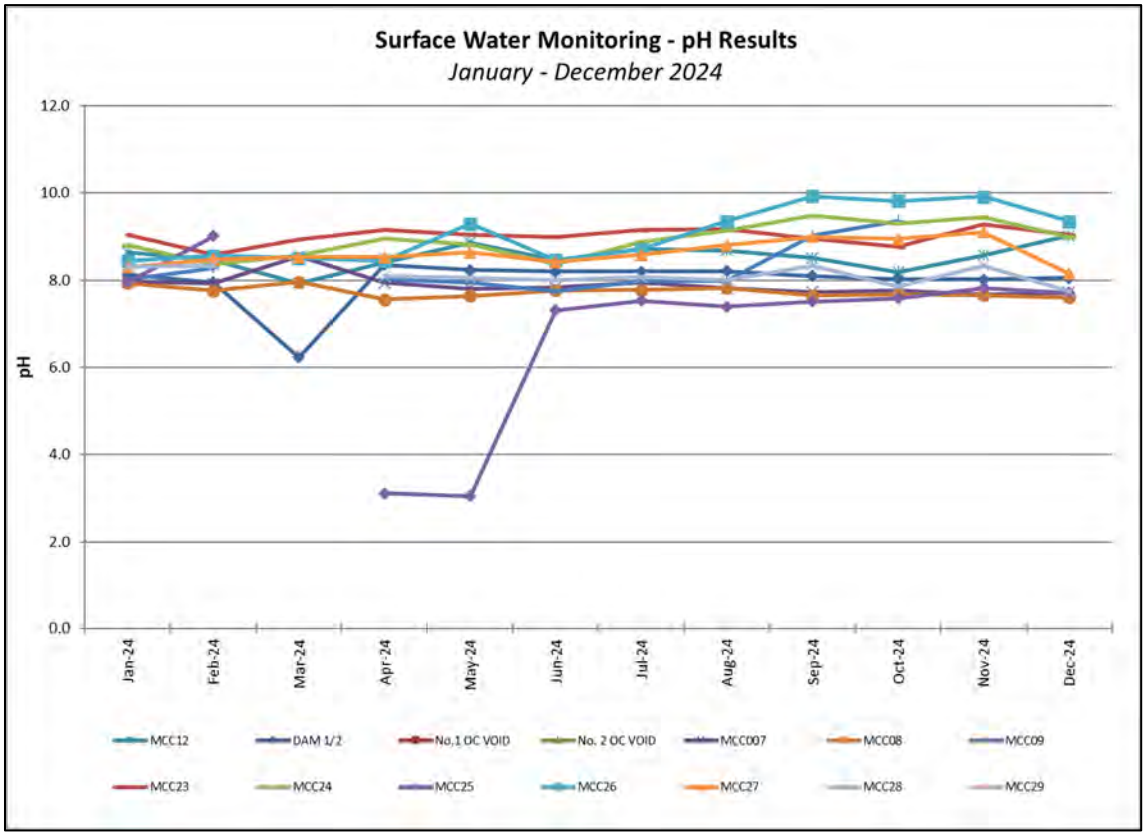

Figure 12: Surface Water Monitoring Results – pH

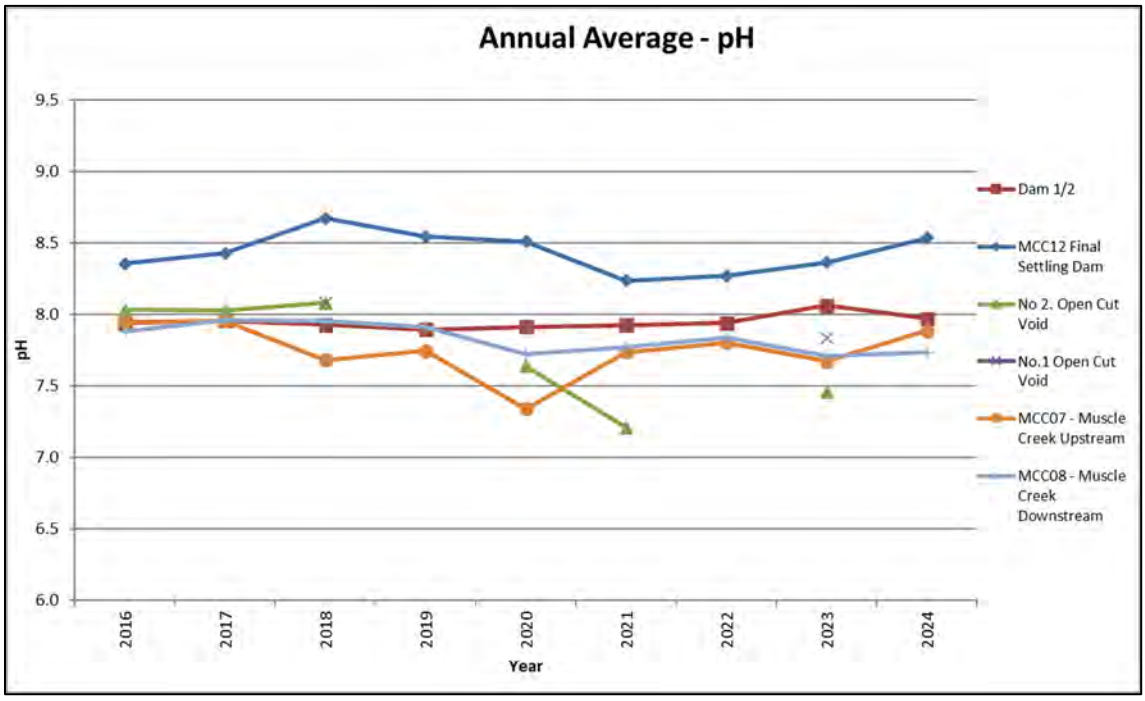

Figure 13: Comparison of pH results to Historical Results

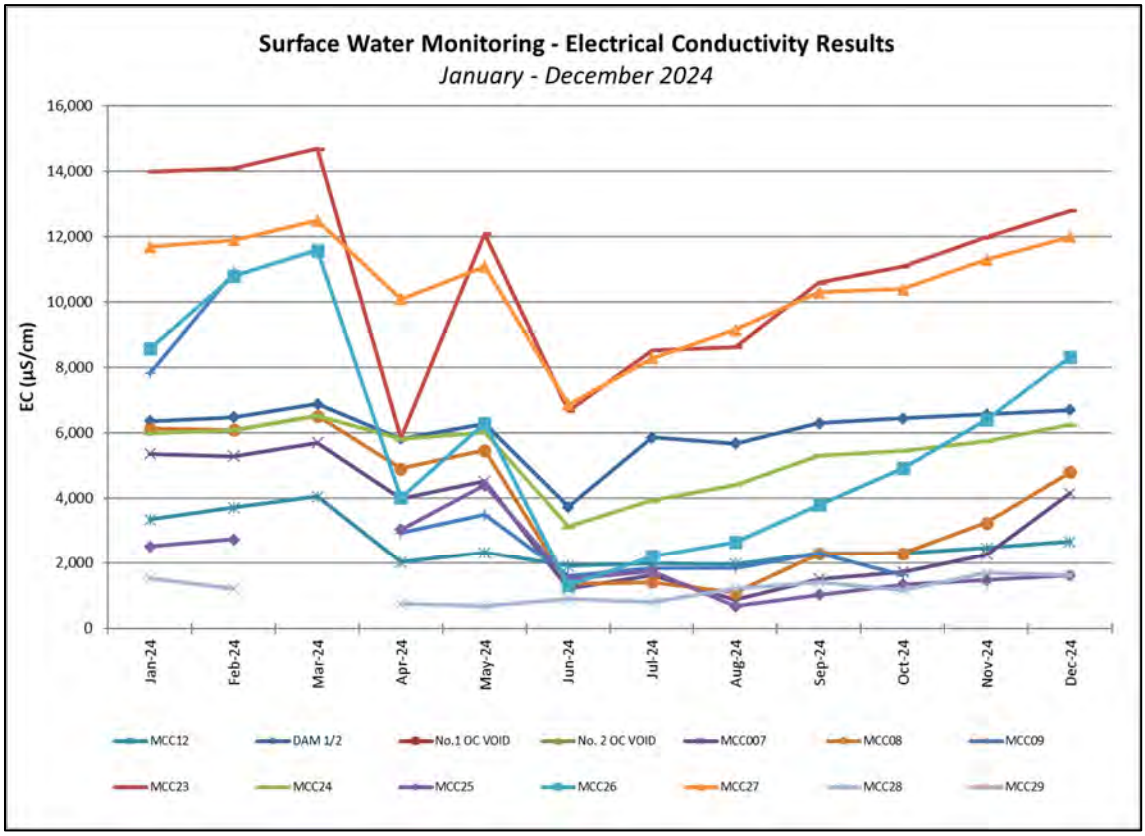

Figure 14: Surface Water Results – Electrical Conductivity

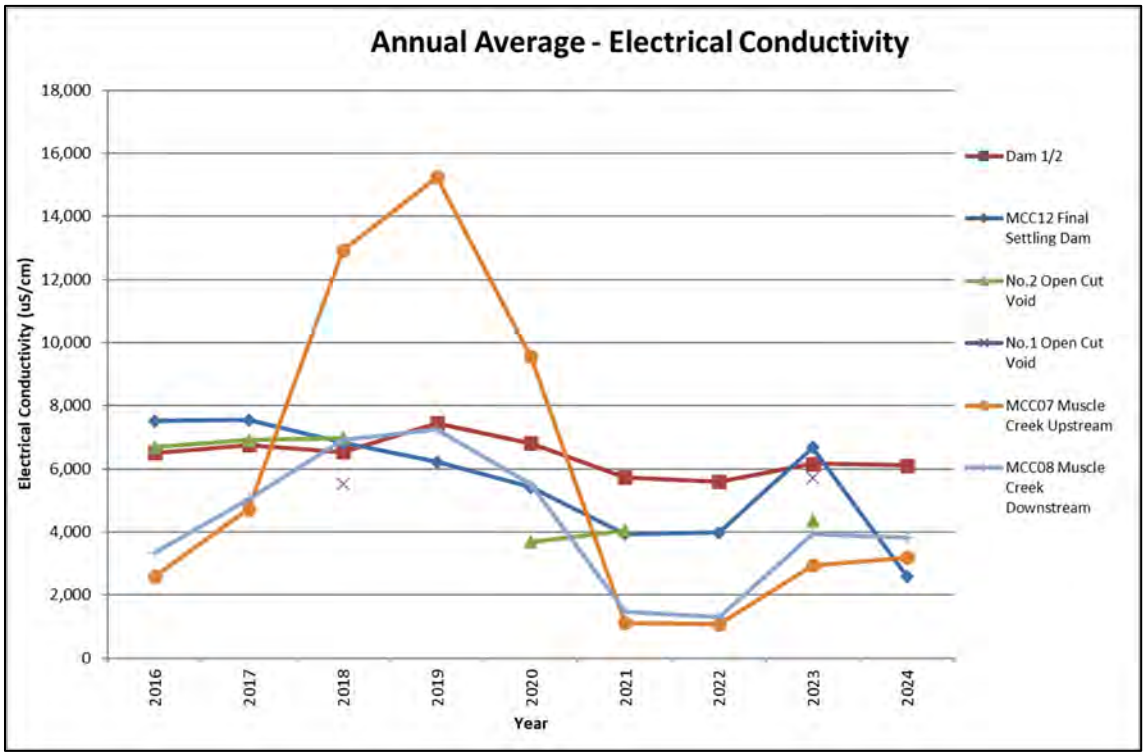

Figure 15: Comparison of EC results to Historical Results

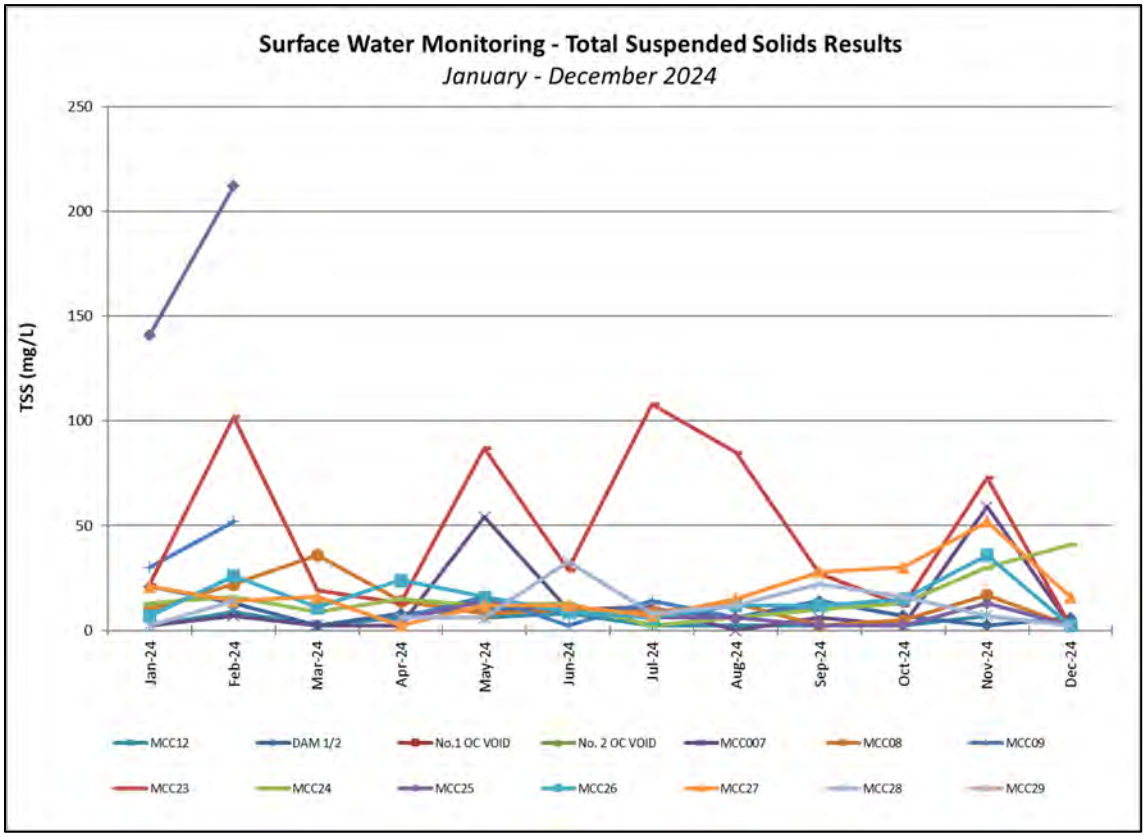

Figure 16: Surface Water Results – Total Suspended Solids

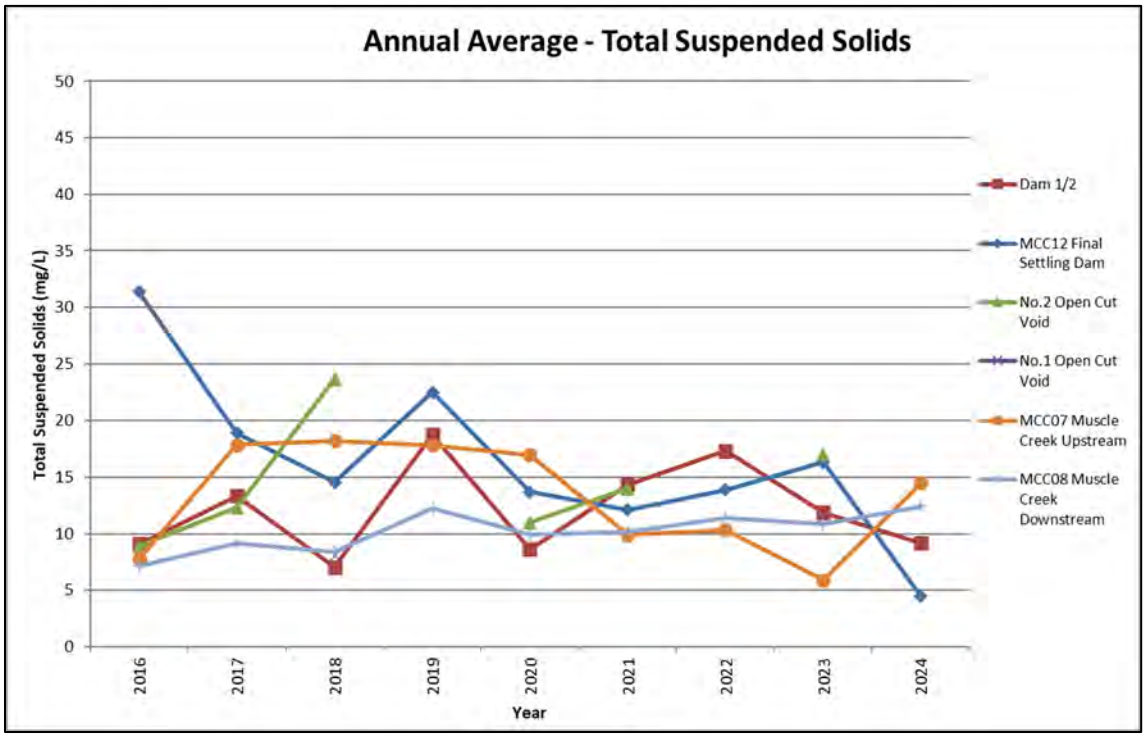

Figure 17: Comparison of TSS results to Historical Results

3.6.3 ACTIVITIES NEXT REPORTING PERIOD

During the next reporting period, MCC will continue to manage and monitor surface water quality impacts in accordance with the WMP.

3.7 GROUNDWATER MANAGEMENT

3.7.1 ACTIVITIES THIS REPORTING PERIOD

During the reporting period MCC continued to manage groundwater impacts in accordance with the approved Water Management Plan (WMP) prepared in accordance with condition 25 of the DA. During the reporting period, MCC updated the WMP following the consent modification to confirm the management and monitoring requirements associated with the rehabilitation of the site. The updated WMP was approved by MSC.

Groundwater trigger levels have been established for selected sites with the trigger levels shown in **Table 18**. If monitored conditions are outside the upper or lower trigger levels for 3 continuous monthly results, MCC will investigate the results.

Table 18: Groundwater Monitoring Trigger Levels

WATER LEVELS			
Bore/Well	**Aquifer**	**Lower Trigger Level (m) BTOC**	**Lower Trigger Level (m) AHD**
MCC1003	Alluvial	8.6	146.5
MCC1006	Alluvial	10.3	144.6
MCC1017	Hardrock	18.1	180.7
MCC1018	Hardrock	19.0	181.9
pH			
Bore/Well	**Aquifer**	**Lower Trigger pH**	**Upper Trigger pH**
MCC1003	Alluvial	7.1	7.3
MCC1006	Alluvial	7.1	7.4
ELECTRICAL CONDUCTIVITY			
Bore/Well	**Aquifer**	**Upper Trigger EC**	
MCC1003	Alluvial	1,666	
MCC1006	Alluvial	1,152	

3.7.2 GROUNDWATER MONITORING

MCC undertake a groundwater monitoring program that consists of bi-monthly monitoring. The locations of the groundwater monitoring sites are shown in **Figure 11**.

As shown in **Table 19** the levels in the underground workings, and the pH and Electrical Conductivity results from this reporting period are generally consistent with previous years. There are no predictions to compare these results to.

Table 19: Comparison of Underground Working Results

Year	Average pH	Average EC *(µS/cm)*	Relative Level (RL) *(AHD metres)*
2024	7.0	6,778	114
2023	7.2	6,158	107
2022	7.0	6,338	107
2021	7.0	6,306	106
2020	7.1	6,098	106
2019	7.3	6,265	104
2018	7.0	5,965	107
2017	7.5	6,455	114

The water level, pH and Electrical Conductivity of the groundwater data for this reporting period are shown in **Figure 18, Figure 19** and **Figure 20**.

These results show that there is no impact on alluvial water sources from operations at MCC. The groundwater monitoring results are provided in **Appendix 2**.

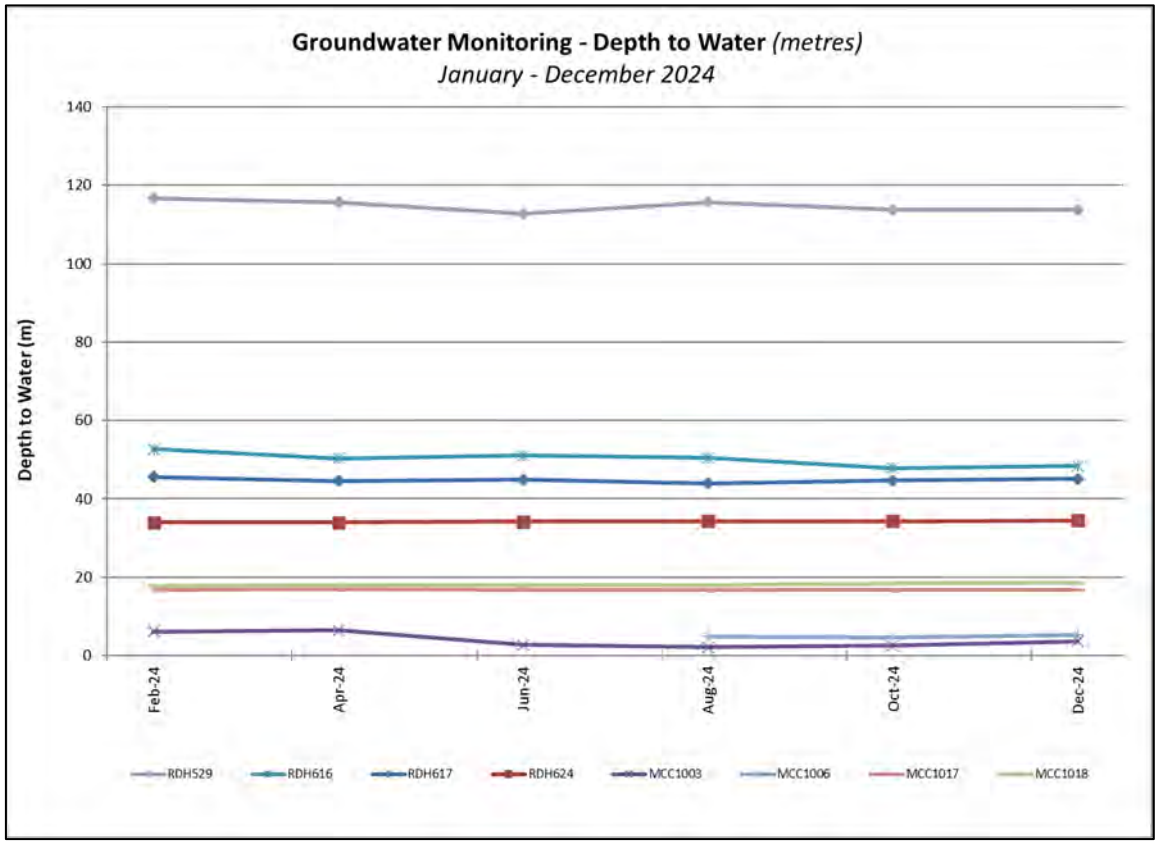

Figure 18: Groundwater Monitoring Results – Depth to Water

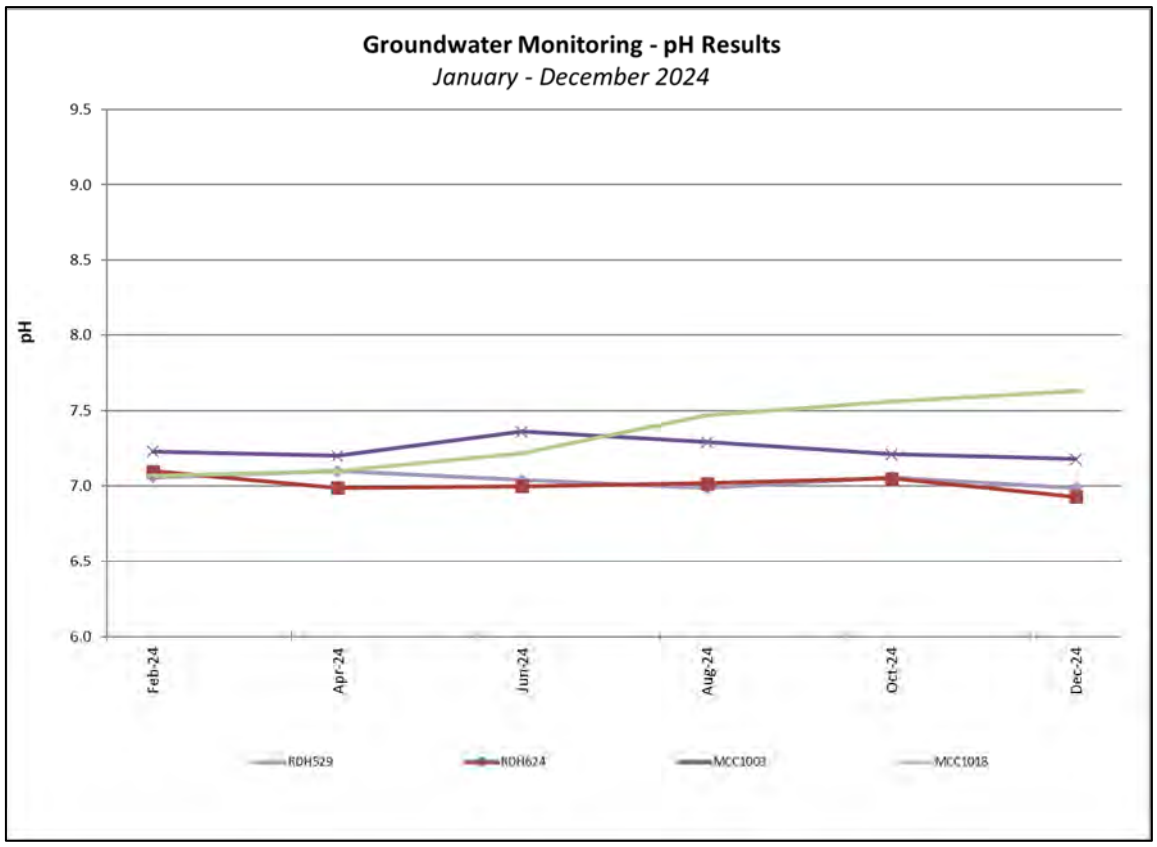

Figure 19: Groundwater Monitoring Results – pH

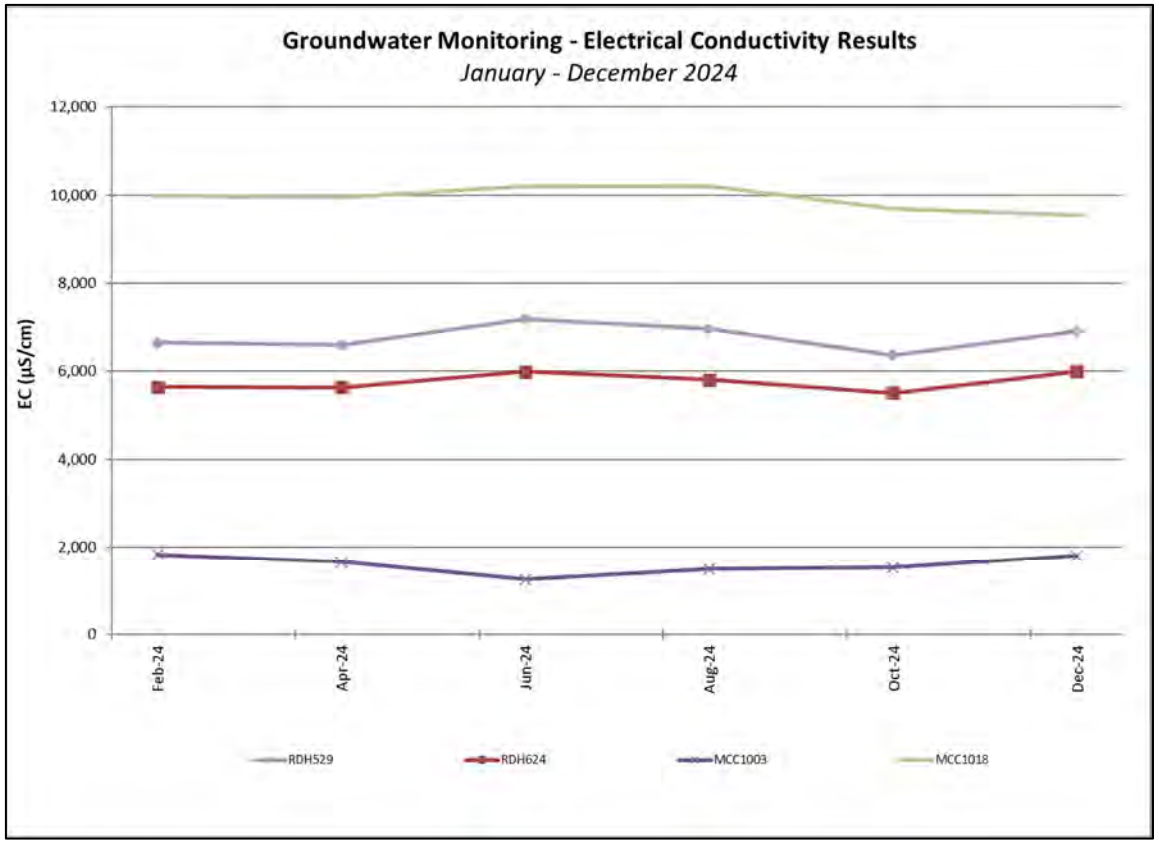

Figure 20: Groundwater Monitoring Results – Electrical Conductivity

As shown in **Figure 21** to **Figure 23**, the results from this reporting period are generally consistent with the results from previous reporting periods. There are no predictions to compare these results to.

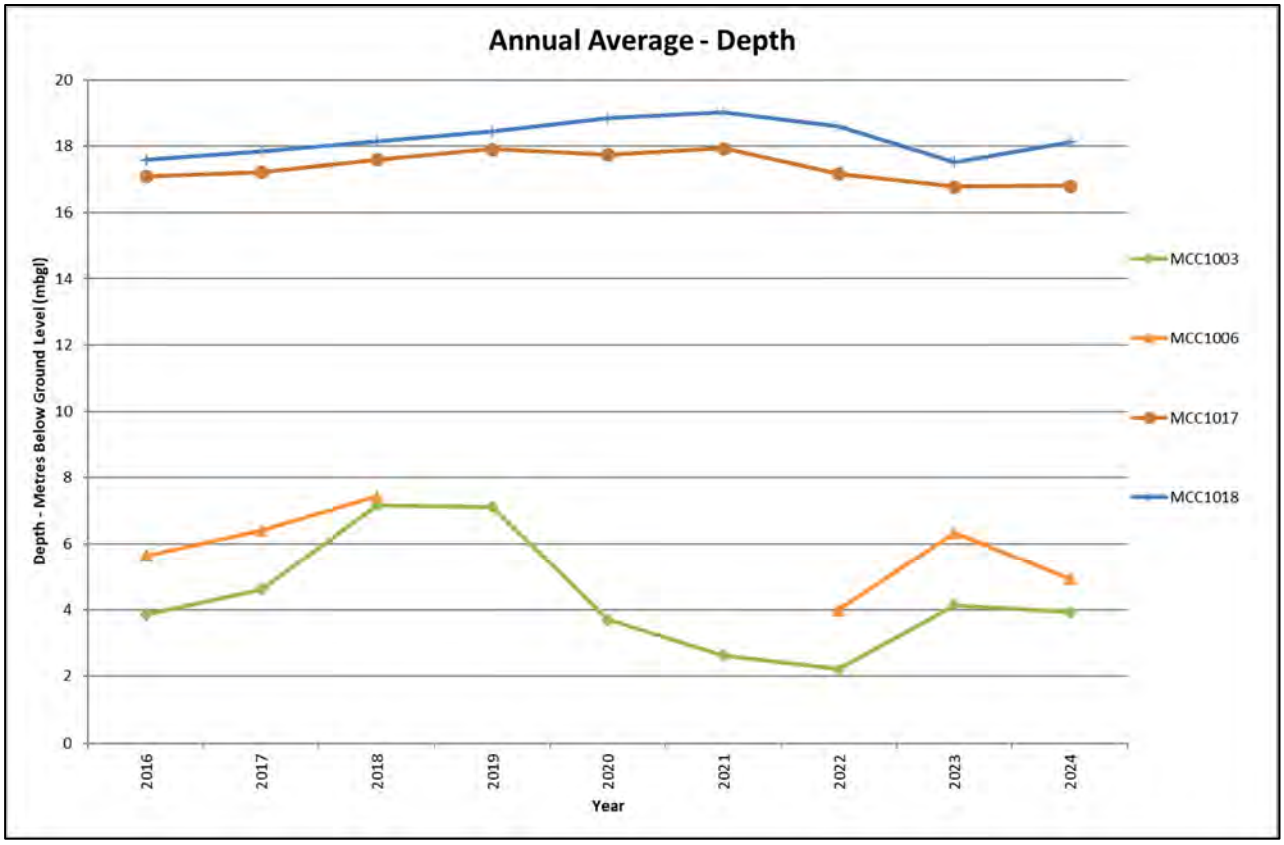

Figure 21: Comparison of Depth to Historical Results

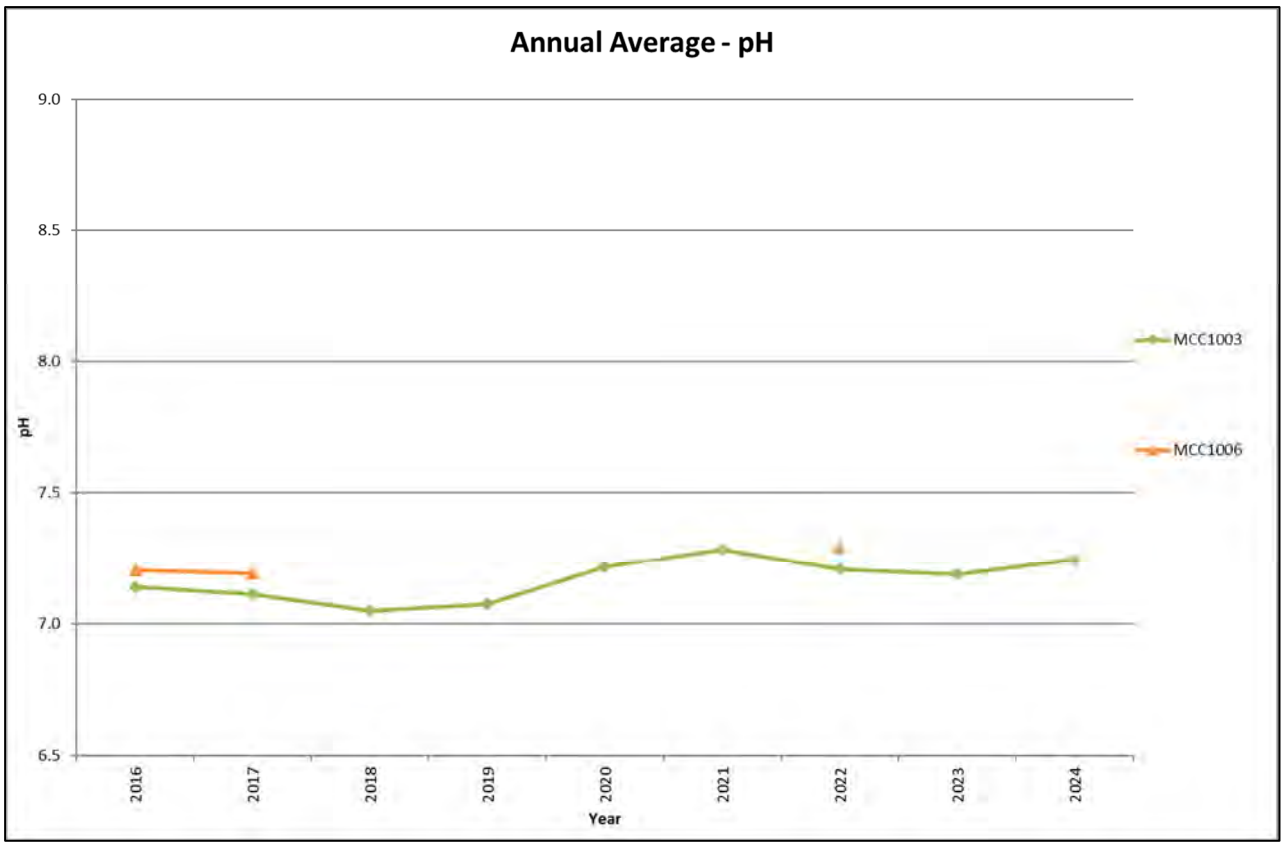

Figure 22: Comparison of pH Results to Historical Results

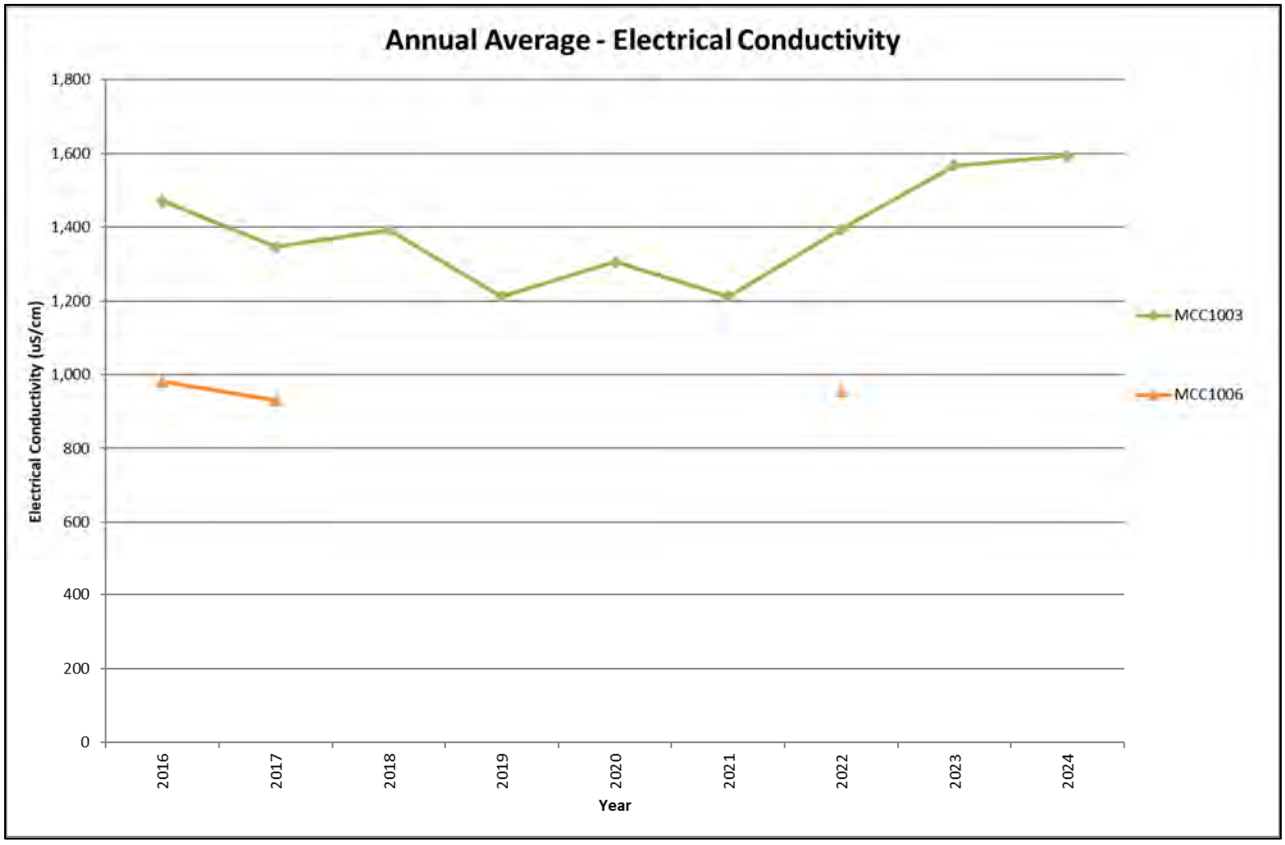

Figure 23: Comparison of Electrical Conductivity Results to Historical Results

3.7.3 ACTIVITIES NEXT REPORTING PERIOD

During the next reporting period, MCC will continue to manage and monitor groundwater quality impacts in accordance with the WMP. This will include the installation of additional groundwater monitoring wells to assist with updating the site's groundwater model and to monitor groundwater recovery following the completion of activities at MCC. MCC will update the WMP to include the final locations of these groundwater monitoring wells and information on the updated groundwater model.

3.8 CONTAMINATED LAND

During the reporting period detailed contamination assessments continued to be undertaken across the site as part of rehabilitation of the site. The assessments have focused on areas that are no longer required for active operations on site (e.g. ammonium nitrate storage areas). These reports have identified that for most of the areas assessed that there is no contamination remediation work that needs to be undertaken.

Contamination assessments will continue to be undertaken as areas are no longer required for active operations on site (e.g., laydown areas).

3.9 FLORA AND FAUNA MANAGEMENT

MCC continues to manage impacts on flora and fauna in accordance with the Rehabilitation Management Plan.

MCC is set amongst an area of existing disturbed and mined land. The area is extensively altered from its natural state through current and past mining operations.

Five vegetation communities have been identified within the DA boundary at MCC. These are:

- Hunter Floodplain Red Gum Woodland,
- Central Hunter Grey Box-Ironbark Woodland,
- Regenerating Central Hunter Grey Box-Ironbark Woodland,
- Aquatic Forbland, and
- Mine Rehabilitation.

No threatened flora species have been identified at MCC. The area that was disturbed was not considered important habitat for threatened fauna. The area was also not considered critical habitat.

To allow for the continuation of the rehabilitation, tree clearing on historical rehabilitation was undertaken during the reporting period. Prior to this clearing commencing, a pre-clearance survey was undertaken by an ecologist to identify any habitat features or threatened species that needed additional management. No issues were identified during the pre-clearance survey that required additional management.

3.10 WEEDS, PEST AND FERAL ANIMALS

MCC continues to manage weeds, pest and feral animals on site.

Weed Control

Weed control and eradication techniques used at MCC include:

- Promotion of vigorous pasture growth to out-compete weeds,
- Minimisation of area available for weed infestation, through prompt revegetation of bare areas,

- Spraying with selective herbicides, and
- Physical removal by chipping/slashing.

Feral Animal Control
During the reporting period, MCC undertook a wild dog and fox control program.

3.11 BLASTING

3.11.1 ACTIVITIES THIS REPORTING PERIOD

During the reporting period MCC continued to manage blasting impacts in accordance with the approved Blast Management Plan (BMP) prepared in accordance with condition 33 of the DA. During the reporting period, MCC updated the BMP following the consent modification to confirm the management and monitoring requirements associated with the rehabilitation of the site. The updated BMP was approved by MSC.

The primary objective of blast management at MCC is to manage and minimise the impact of blasting operations on nearby residences. The intent of best practice goals in drill and blast activities is to comply with the fragmentation requirements for each blast. The use of best practice techniques will reduce air blast overpressure, ground vibration, fumes and odours from blasting activities.

Members of the public are notified of proposed blasting times by contacting the Blast Information Service Line where they hear a recorded message or by looking at the "Blasting Notices" page of the Muswellbrook Shire Council Website.

The last blasting activities at MCC were undertaken during the reporting period. Following the last blast at MCC, the blast monitors were decommissioned and removed from site. This will be the last report that will contain blast monitoring data.

3.11.2 BLAST MONITORING

All blasts are monitored by four automatically triggered blast monitors. The monitors are maintained in accordance with the relevant standards and calibrated annually.

The blasting criteria that apply to MCC are shown in **Table 20**.

Table 20: Blast Criteria

Vibration (mm/s)	Allowable Exceedance
5	5% of total number of blasts over a 12-month period
10	0%
Overpressure (dB(L))	**Allowable Exceedance**
115	5% of total number of blasts over a 12-month period
120	0%

The blast monitoring network is provided in **Table 21** and locations are displayed in **Figure 24**.

Table 21: Blast Monitoring Network

Blast Monitor	Location
B1 (Queen St)	In the vicinity of the nearest non-company owned residence
B2 (School)	At the Muswellbrook Public School, Roger Street, North Muswellbrook
B3 (99 Queen St)	At the northern end of Queen Street, North Muswellbrook
B4 (Nisbet)	Sandy Creek Road, approximately 1.2km to the north of MCC

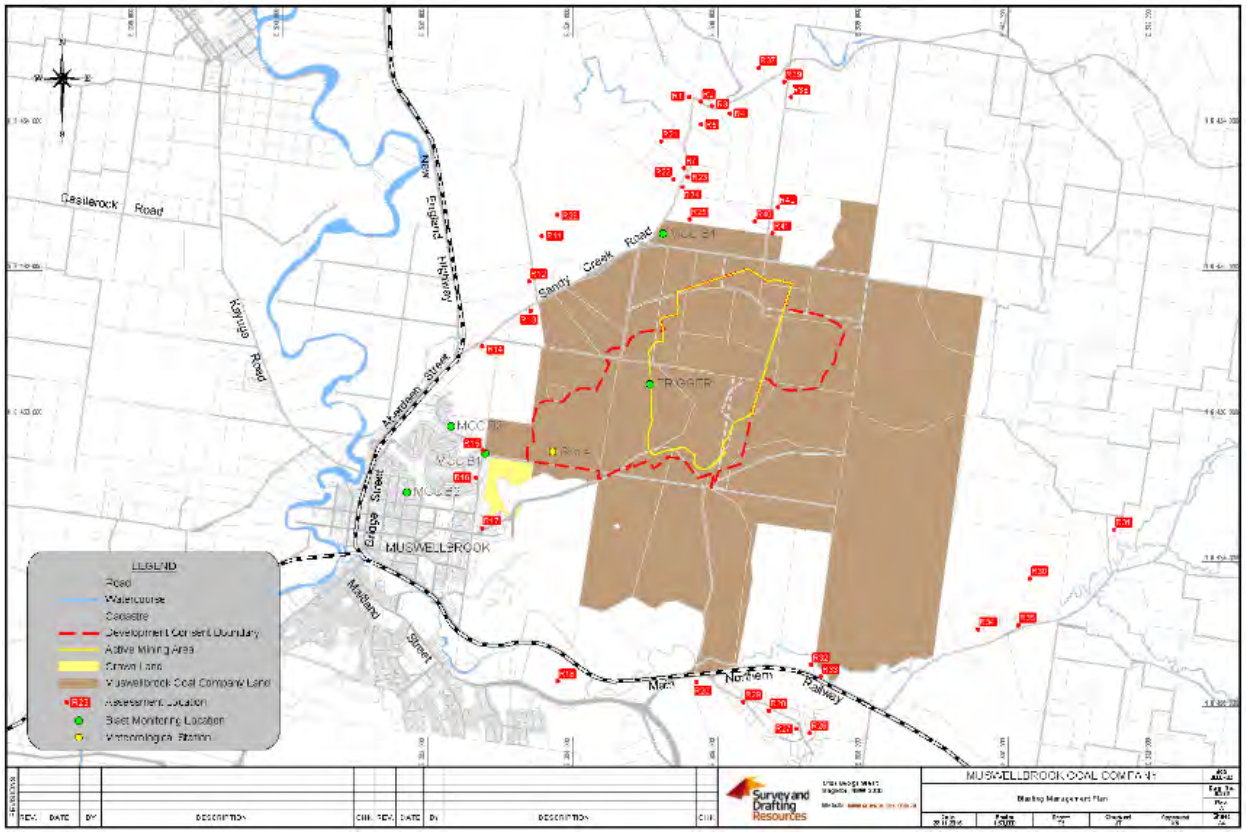

Figure 24: Blast Monitoring Locations

During the reporting period, eight blast events occurred at MCC. These blasts were required to allow removal of the highwall in Open Cut 1 as part of the rehabilitation activities on site. The four blast monitors were operational throughout the reporting period, with 100% of data captured during the reporting period.

A summary of blast monitoring results is displayed in **Table 22** and **Figure 25** to **Figure 28**.

Table 22: Blast Monitoring Results

Date/ Time	B1 Queen St		B2 School		B3 99 Queen St		B4 Nisbet	
	Overpressure (dB(L))	Vibration (mm/s)	Overpressure (dB(L))	Vibration (mm/s)	Overpressure (dB(L))	Vibration (mm/s)	Overpressure (dB(L))	Vibration (mm/s)
05/01/24 1:34pm	107.7	0.44	101.0	0.27	105.2	0.55	112.2	1.05
17/01/24 1:03pm	103.5	0.31	103.0	0.15	104.3	0.25	102.3	0.56
31/01/24 3:59pm	108.6	0.53	105.0	0.58	108.4	1.00	102.8	0.86
14/02/24 12:08pm	104.3	0.17	91.5	0.13	101.7	0.19	101.3	0.30
20/08/24 12:33pm	82.3	0.06	90.7	0.05	97.3	0.04	83.4	0.07
20/08/24 1:01pm	95.4	0.06	92.3	0.05	96.5	0.06	89.5	0.12
22/08/24 12:41pm	93.2	0.32	90.7	0.27	98.0	0.38	99.0	0.61
29/08/24 9:38am	97.1	0.20	92.3	0.13	98.0	0.24	99.0	0.39

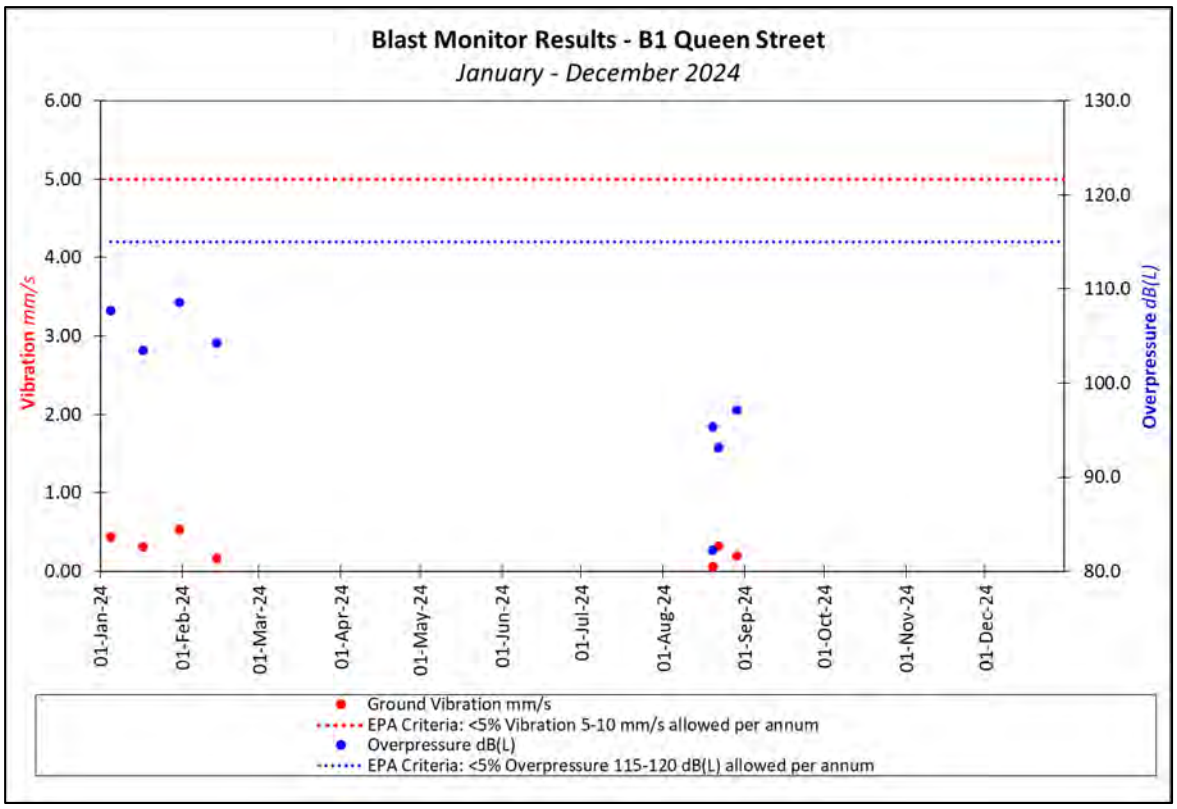

Figure 25: Queen Street Blast Monitoring Results

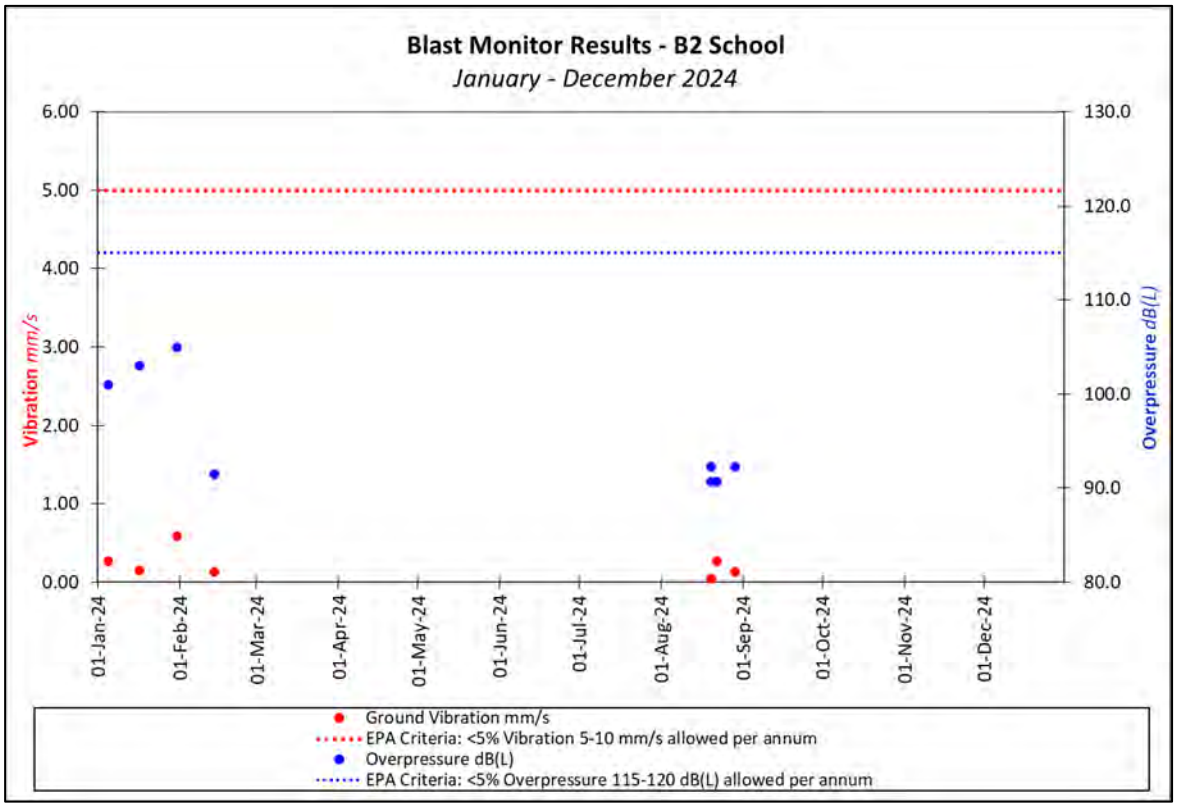

Figure 26: School Blast Monitoring Results

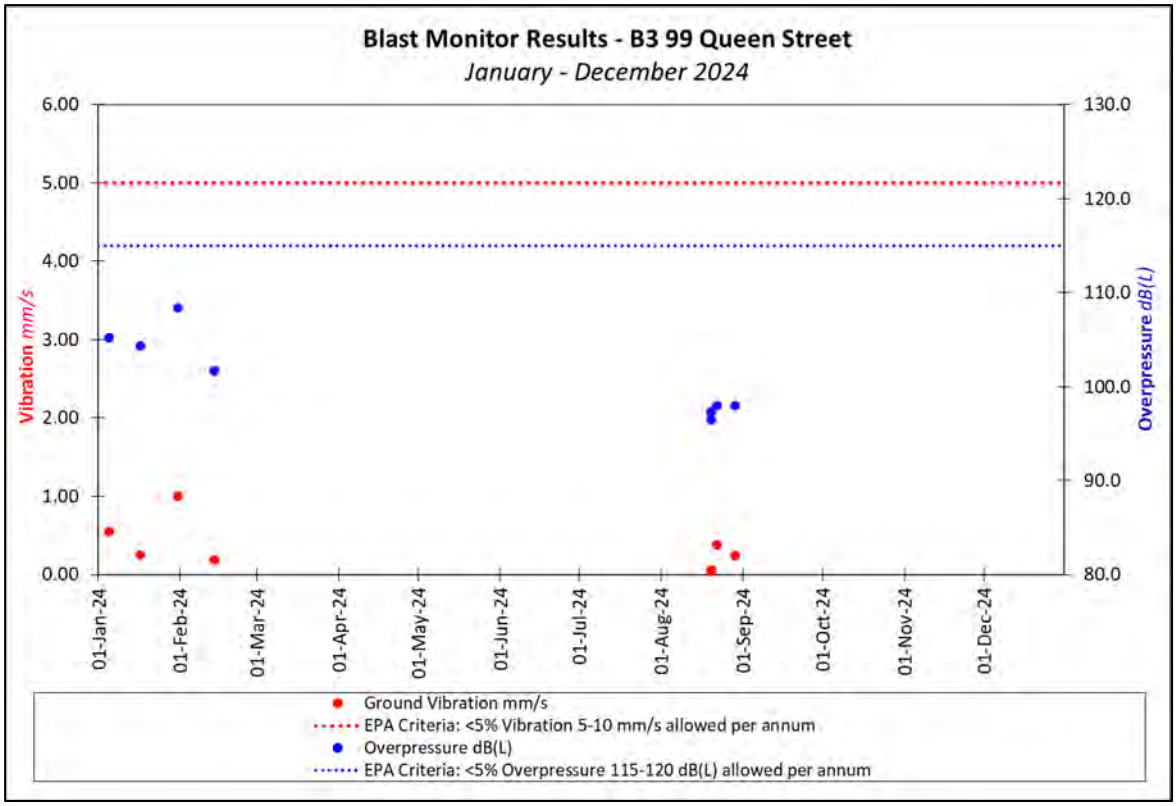

Figure 27: 99 Queen Street Blast Monitoring Results

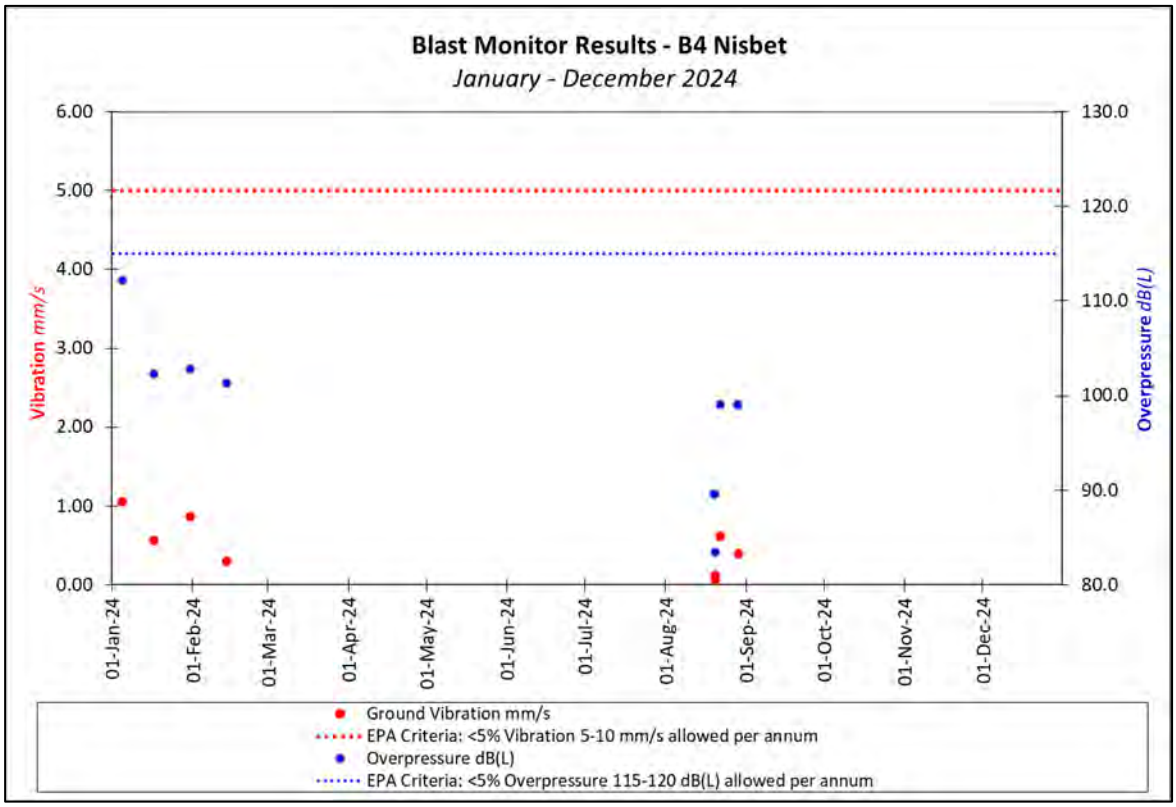

Figure 28: Nisbet Blast Monitoring Results

Table 23 compares the average results from the blast monitoring sites during this reporting period, historical monitoring results, and predictions made in the 2016 Statement of

Environmental Effects (SEE). The results this reporting period are consistent with historical monitoring results and the predicted results in the SEE.

Table 23: Comparison of Blasting Results

Year	Vibration (mm/s)		Overpressure (dBL)	
	Average Monitoring Results	EA Predicted Results	Average Monitoring Results	EA Predicted Results
2024	0.40	0.7	100.0	111.0
2023	0.70	0.7	105.5	111.0
2022	0.22	0.7	93.5	111.0
2021	0.25	0.7	97.1	111.0
2020	0.20	0.7	98.0	111.0
2019	0.19	0.7	100.1	111.0
2018	0.20	0.7	101.3	111.0

3.11.3 ACTIVITIES NEXT REPORTING PERIOD

There will be no blasting activities in the next reporting period and the BMP will be removed from MCC's Environmental Management System, as it will no longer be required.

3.12 NOISE MANAGEMENT

3.12.1 ACTIVITIES THIS REPORTING PERIOD

During the reporting period MCC continued to operate in accordance with the approved Noise Management Plan (NMP) prepared in accordance with condition 39 of the DA. During the reporting period, MCC updated the NMP following the consent modification to confirm the management and monitoring requirements associated with the rehabilitation of the site. The updated NMP was approved by MSC.

The main objective of the NMP is to manage and minimise the impact of noise from operations on the environment and nearby residences.

3.12.2 NOISE MONITORING

The noise monitoring network is provided in **Table 24** and locations are displayed in **Figure 29**.

Table 24: Noise Monitoring Network

Location	Description
R13	Sandy Creek Road
R15	Queen St
R17	Queen St
R25	Sandy Creek Road
R32	Muscle Creek Road

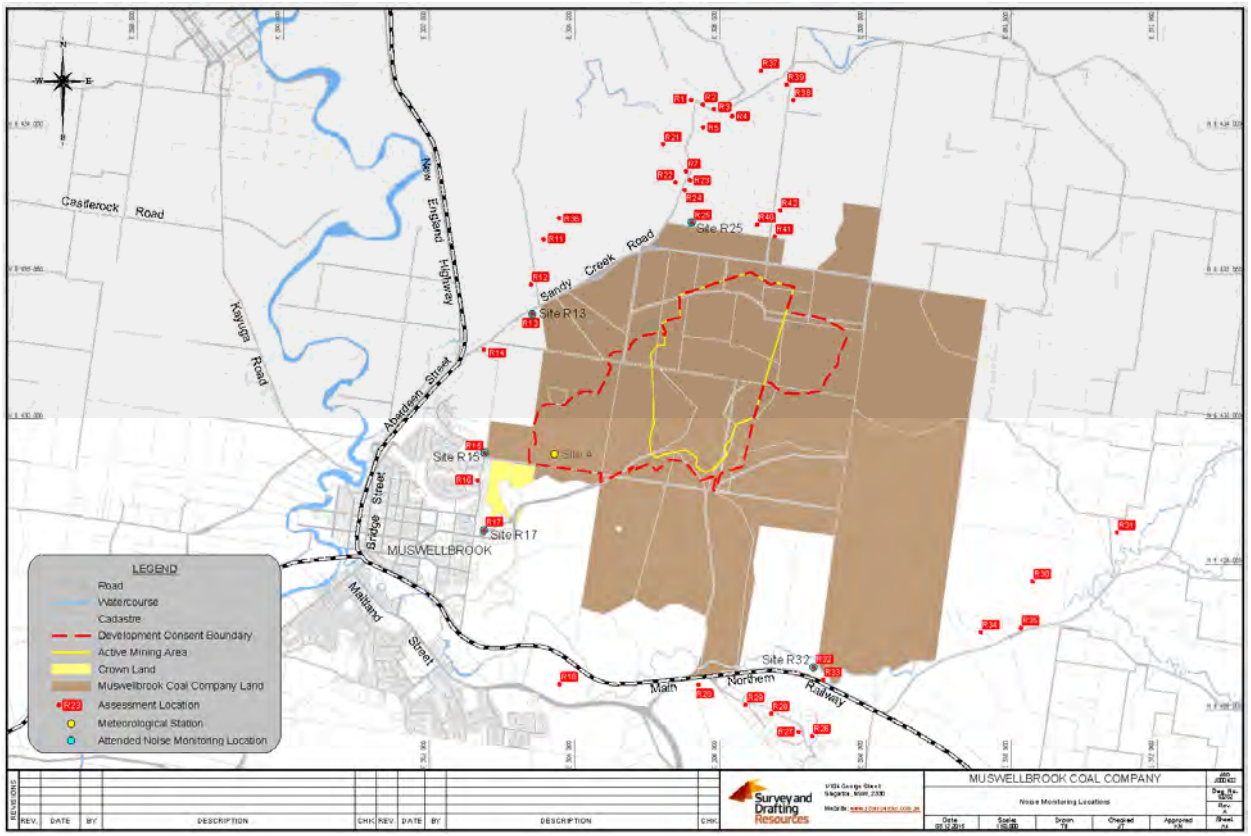

Figure 29: Noise Monitoring Locations

MCC has a network of five attended noise survey locations. Monitoring is conducted at these sites monthly. Monthly attended monitoring allows for a variety of operating configurations, weather conditions and seasonal variations to be measured. The noise consultant schedules the monitoring to occur at times unknown to MCC and they determine the intervals between surveys and the time of measurement. Each attended noise survey is conducted during night periods only.

All noise surveys are performed in accordance with the EPA "NSW Noise Policy for Industry", the Periodic Noise Monitoring programme and Australian Standard 1055 "Acoustics, Description and Measurement of Environmental Noise" as specified in the NMP.

Measurements were taken in third-octave bands with an instrument that has Type 1 characteristics as defined in AS1259-1990 "Acoustics – Sound Level Meters". The instrument has a current calibration as per manufacturer's instructions and calibration was also confirmed prior to and at the completion of measurements with a Sound Level Calibrator. The LA_{eq} (15-minute) noise emission levels, at each monitoring site, were determined.

The actual noise level received at individual residences may vary due to:

- The location of equipment,
- The elevation of equipment,
- Impacts from other noise sources, and
- Prevailing meteorological conditions.

A summary of the results are shown in **Appendix 3** and **Figure 30** to **Figure 34.** The operational related noise sources were from engine noise, dozer tracks and general equipment hum.

Table 25 and **Table 26** compare the average noise monitoring results for this reporting period, historical monitoring results, and predictions made in the 2016 Statement of Environmental Effects (SEE). The results are below historical monitoring results and the predicted results in the SEE.

Table 25: Comparison of Average LA_{eq} Noise Results

Year	R13 Sandy Creek Road		R15 Queen Street		R17 Queen Street		R25 Sandy Creek Road		R32 Muscle Creek Road	
	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted
2024	21	40	20	37	23	34	25	41	18	32
2023	30	40	23	37	19	34	30	41	18	32
2022	23	40	20	37	20	34	24	41	17	32
2021	24	40	22	37	18	34	27	41	25	32
2020	27	40	24	37	22	34	25	41	26	32
2019	29	40	25	37	24	34	29	41	20	32
2018	29	40	29	37	31	34	30	41	24	32

Table 26: Comparison of Average LA_{max} Noise Results

Year	R13 Sandy Creek Road		R15 Queen Street		R17 Queen Street		R25 Sandy Creek Road		R32 Muscle Creek Road	
	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted
2024	22	37	22	33	25	31	27	40	19	32
2023	32	37	24	33	20	31	34	40	18	32
2022	25	37	22	33	22	31	26	40	19	32
2021	28	37	28	33	22	31	33	40	29	32
2020	31	37	28	33	26	31	28	40	29	32
2019	33	37	29	33	28	31	33	40	23	32
2018	34	37	34	33	37	31	35	40	26	32

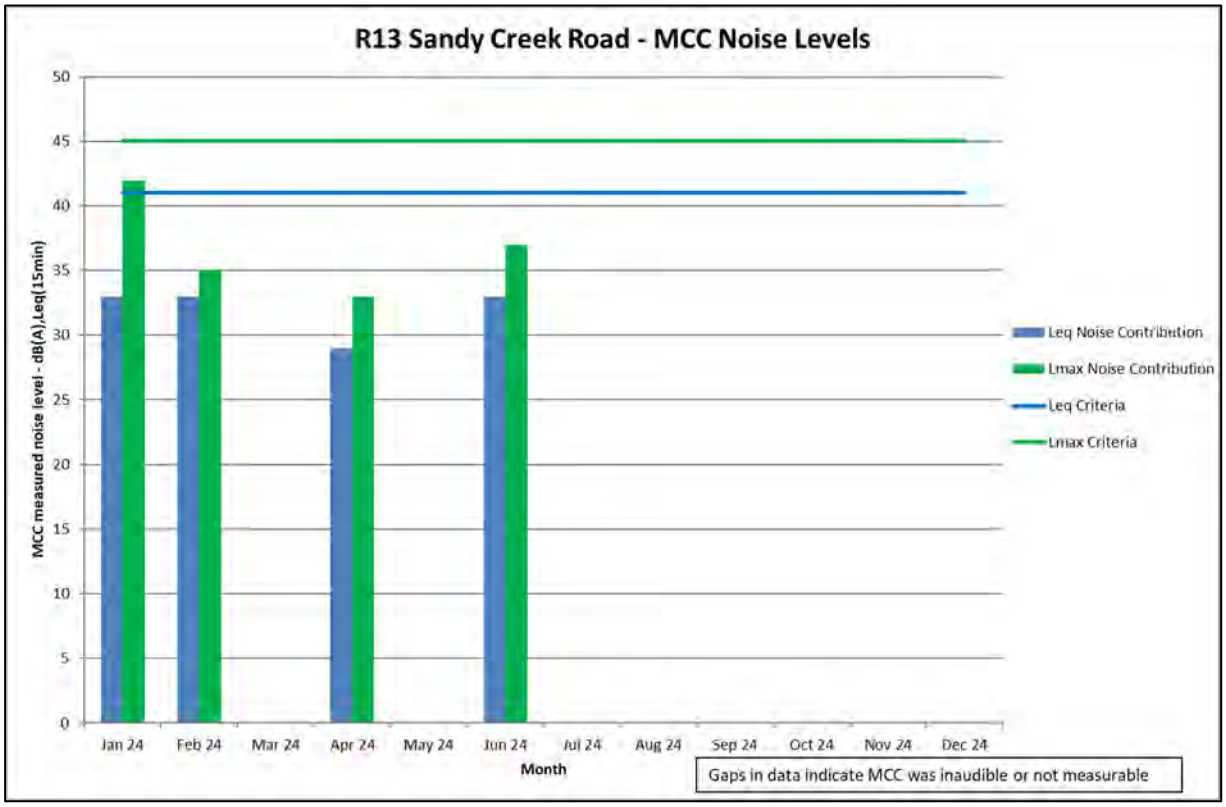

Figure 30: R13 Sandy Creek Road Noise Monitoring Results

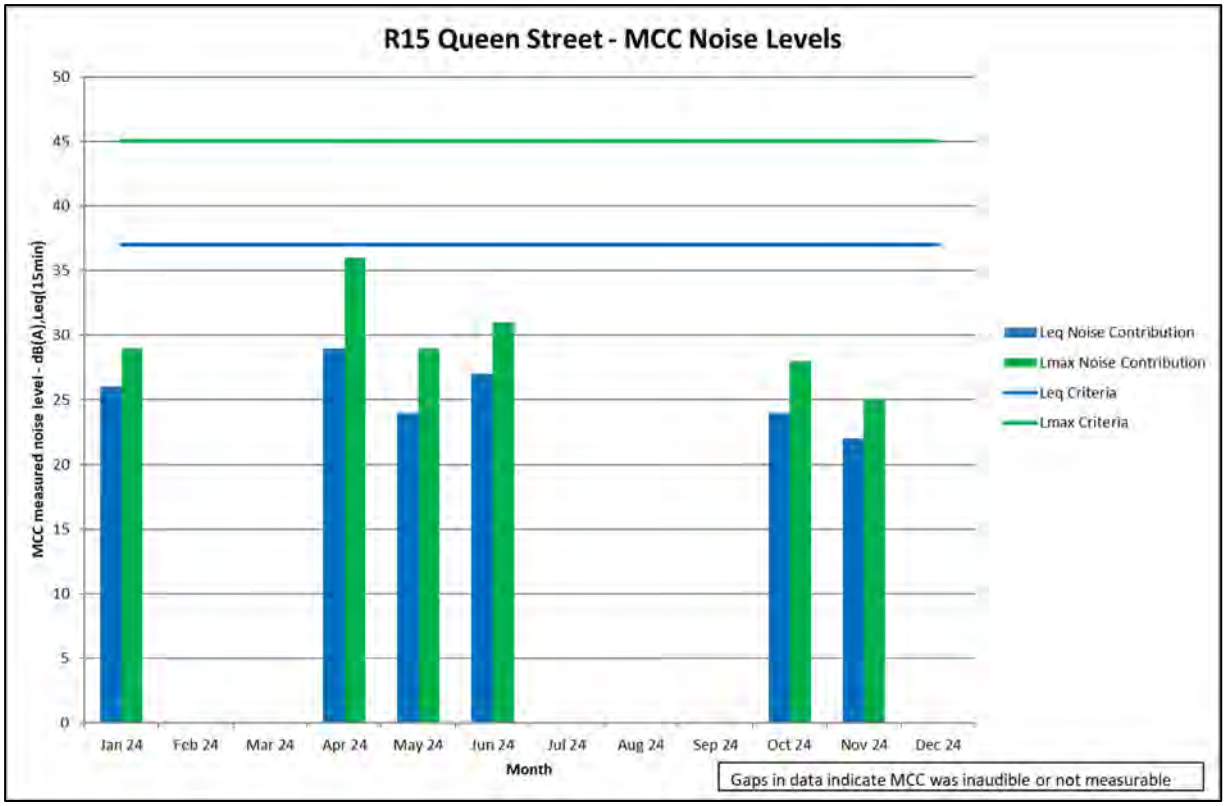

Figure 31: R15 Queen Street Noise Monitoring Results

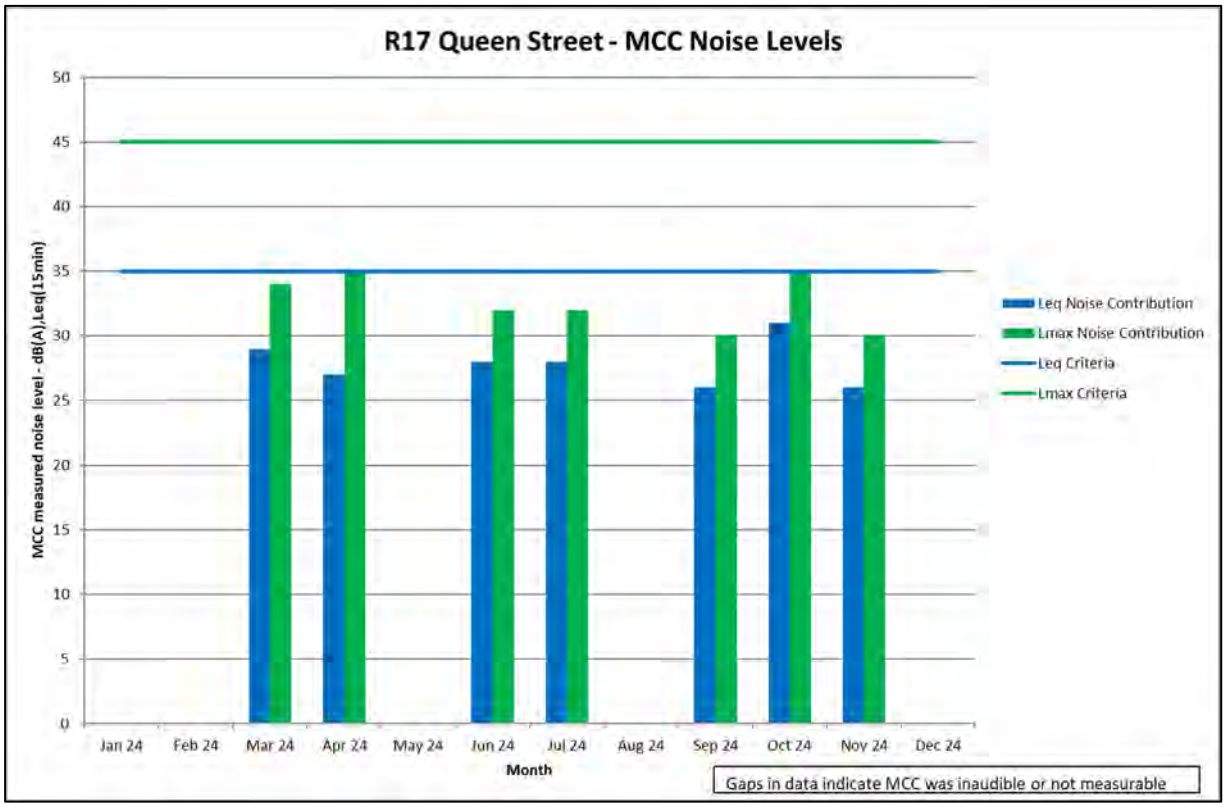

Figure 32: R17 Queen Street Noise Monitoring Results

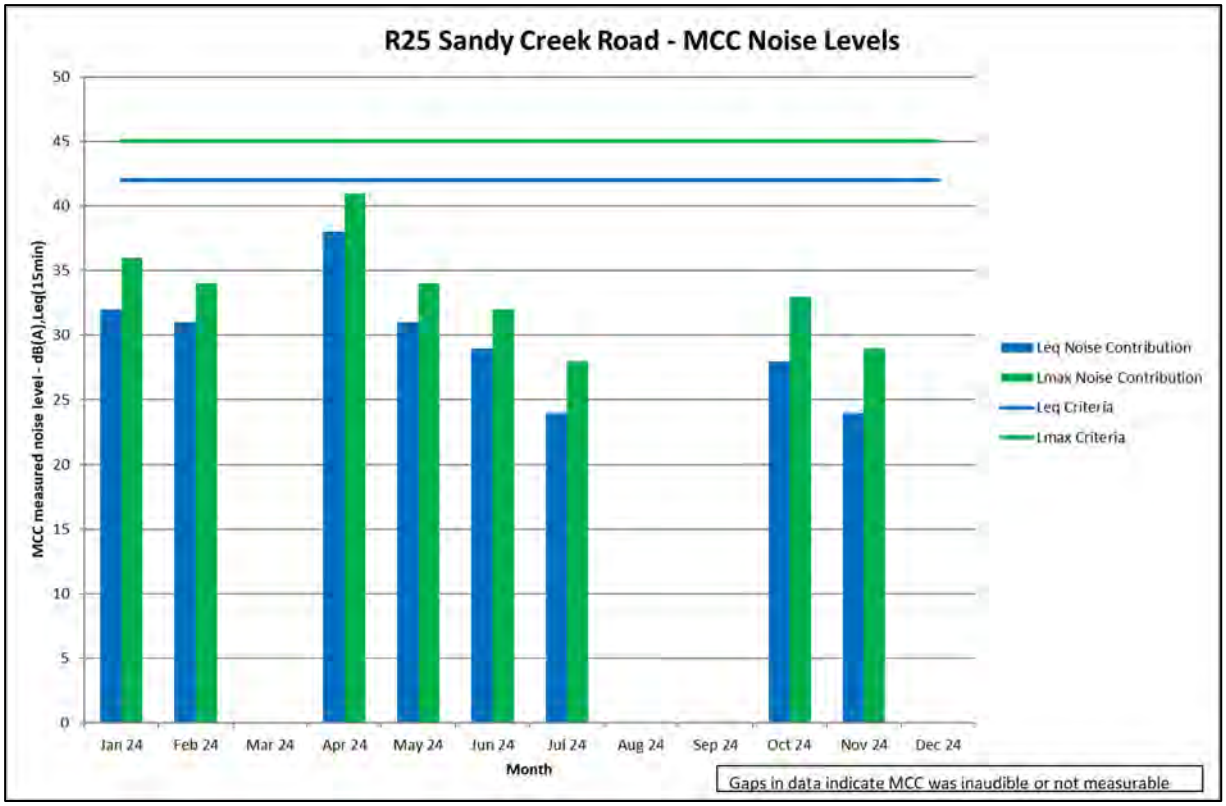

Figure 33: R25 Sandy Creek Road Noise Monitoring Results

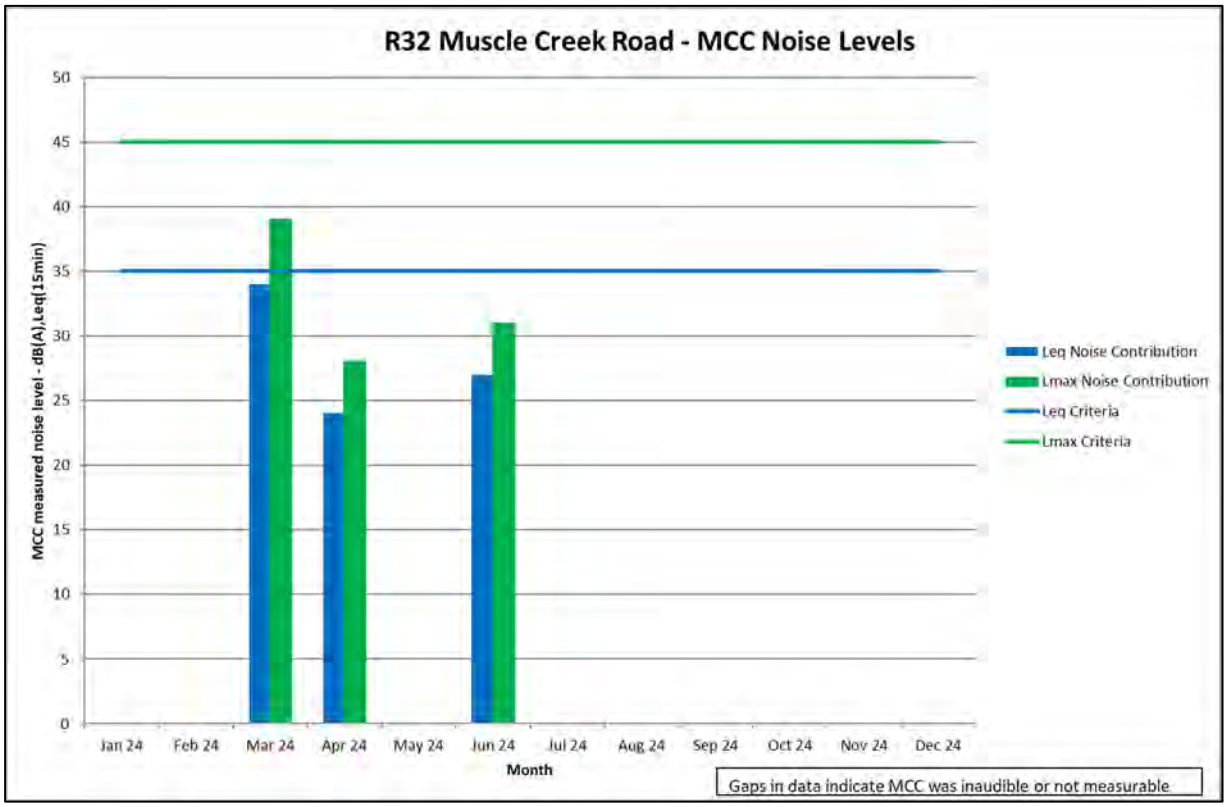

Figure 34: R32 Muscle Creek Road Noise Monitoring Results

3.12.3 ACTIVITIES NEXT REPORTING PERIOD

When the landform establishment works for the rehabilitation are finalised the NMP and associated monitoring will no longer apply at MCC. It is anticipated that these works will be

completed during the next reporting period. At the completion of these works, the noise monitoring will cease and the NMP will be removed from the Environmental Management System as an active management plan.

3.13 VISUAL AMENITY, LIGHTING AND LANDSCAPING

During the reporting period MCC continued to operate in accordance with the approved Visual Amenity, Lighting and Landscaping Management Plan (VALLMP) prepared in accordance with condition 22 of the DA. During the reporting period, MCC updated the VALLMP following the development consent modification to confirm the management requirements associated with the rehabilitation of the site. The VALLMP has been submitted to MSC for their review and approval. MCC is awaiting approval of the VALLMP from MSC at the end of the reporting period.

The primary objectives of the VALLMP are to implement visual reduction strategies to minimise the visual amenity, lighting and landscape impact on the community and meet the development consent requirements.

During the next reporting period MCC will continue to manage visual amenity, lighting and landscaping in accordance with the VALLMP. MCC will continue to work with MSC to obtain approval of the updated VALLMP.

3.14 ABORIGINAL HERITAGE

During the reporting period, no ground disturbance operations required consultation with Aboriginal groups.

MCC has successfully completed salvage operations and continues to maintain and protect one Aboriginal cultural site located within the mine lease boundary. The site is fenced, and sign posted to prevent disturbance by mine personnel but is outside the area to be disturbed for site activities. MCC has no ongoing requirement to protect the site in perpetuity. Once rehabilitation has been completed, the fencing and signage will be removed.

3.15 EUROPEAN HERITAGE

There are no European Heritage sites located at MCC that require ongoing management.

3.16 SPONTANEOUS COMBUSTION

3.16.1 ACTIVITIES THIS REPORTING PERIOD

During the reporting period MCC continued to operate in accordance with the approved Spontaneous Combustion Management Plan (SCMP) prepared in accordance with condition 31 of the DA. During the reporting period, MCC updated the SCMP following the development consent modification to confirm the management and monitoring requirements associated with the rehabilitation of the site. The SCMP has been submitted to MSC for their review and approval. MCC is awaiting approval of the SCMP from MSC at the end of the reporting period.

The main objective of the SCMP is to minimise the occurrence and manage the effect from spontaneous combustion in:

- Pit 1,
- Pit 2, and
- Elsewhere with the disturbance area.

The SCMP lists the preventative measures, control measures and trigger action response

plans (TARP's) for each of these areas.

Regular spontaneous combustion reports are provided to both RR and EPA. These reports identify existing and new incidents of spontaneous combustion, mitigation procedures and improvements to these procedures, effectiveness of actions, areas capped, areas removed, areas under water infusion and complaints received. The report also includes a plan showing the extent and location of spontaneous combustion areas.

All affected areas during the reporting period were within the overburden emplacement areas. The areas that were treated each month are shown in **Table 27.** A historical comparison of affected areas without active control measures is provided in **Table 28**. The area affected by spontaneous combustion without active control is still higher than usual this reporting period. This is due to the dozer push of carbonaceous material as part of the rehabilitation activities on site. This movement is required to achieve final landform and to be able to cap these areas with inert material. These areas will be managed as part of the rehabilitation activities to remove them from the final landform.

Table 27: Spontaneous Combustion Report Summary

Reporting Month	Areas Capped (m^2)	Areas Mined (m^2)	Area Under Water Infusion (m^2)
January	0	0	0
February	0	0	0
March	0	0	0
April	0	0	0
May	0	0	0
June	0	0	0
July	0	0	0
August	0	0	0
September	0	0	0
October	0	0	0
November	0	0	0
December	0	0	0

Table 28: Summary of Spontaneous Combustion Affected Areas Without Active Control

Total Area Affected by Spontaneous Combustion Without Active Control (m^2)							
	2018	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Jan-Mar	96	52	114	250	153	2,171	30,172
Apr-Jun	60	44	166	356	167	1,888	1,368
Jul-Sep	36	64	258	424	1,395	37,147	371
Oct-Dec	56	87	286	597	1,710	9,996	2,134
Yearly Average	**62**	**62**	**206**	**149**	**856**	**12,800**	**8,511**

One of the requirements of the SCMP is to prepare an annual plan in relation to spontaneous combustion management activities and then at the end of the reporting period to review the actual activities against the planned activities and identify any opportunities for improvement in relation to spontaneous combustion management. Below is a summary of the review of the action plan from this reporting period.

The planned activities for this reporting period were to continue final landform establishment of Open Cut 1 and the CHPP area. This work involved the movement of carbonaceous material into the final position and to continue covering this material with inert material.

All the work was undertaken as per the plan. Gas levels and odour complaints were low throughout the reporting period.

3.16.2 ACTIVITIES NEXT REPORTING PERIOD

During the next reporting period MCC will continue to manage spontaneous combustion in accordance with the SCMP. MCC will continue to work with MSC to obtain approval of the updated SCMP.

3.17 BUSHFIRE

Management of bushfire risks are undertaken in accordance with the approved Fire Management Plan (FMP) prepared in accordance with condition 23 of the DA. During the reporting period, MCC updated the FMP following the development consent modification to address the updated requirements for the FMP. The FMP was developed by a bushfire consultant and in consultation with the NSW Rural Fire Service.

The primary objective of this FMP is to provide mitigation measures addressing the following:

- To prevent the potential ignition and spread of bushfires from MCC landholdings to neighbouring properties and minimise the risk to fire fighters and the public from bush fires;
- The protection of life and safety of personnel and broader community on MCC operations, landholdings, and surrounding area;
- To protect MCC infrastructure, continued operations and the environment from the effects of bushfire;
- To understand the environmental and cultural constraints and opportunities regarding bushfire management; and
- To identify and demonstrate how MCC is meeting its legislative requirements with regards to bushfire management.

There were no bushfire outbreaks within the development consent area during the reporting period. Annual inspections are conducted of the access tracks and powerline easements. These are slashed regularly to maintain access and reduce fuel loads. Weeds are sprayed in asset protection zones around all infrastructure, including buildings, electrical infrastructure and explosives storage facilities.

During the next reporting period MCC will continue bushfire management in accordance with the FMP.

3.18 HYDROCARBON CONTAMINATION

Hydrocarbon storage facilities were constructed as part of the workshop, stores and blasting facilities. These storage facilities comply with the requirements of *AS1940 – The storage and handling of flammable and combustible liquids*. Activities undertaken on site to reduce the risk of hydrocarbon contamination include:

- Above ground fuel storage tanks are self-bunded to contain any spillage which may occur,
- Waste oil from the workshop is stored in a bunded waste oil tank and is removed as required,
- Oily water runoff from the re-fuelling bay drains into an above ground sump which is fully bunded, and
- Runoff from the hardstand wash-down bay passes through a three-staged silt trap and an oil/water separator. The collected silt is routinely cleaned out.

3.19 METHANE DRAINAGE/VENTILATION

As no underground mining occurred at MCC during the reporting period, no methane drainage or ventilation was required.

3.20 PUBLIC SAFETY

During the reporting period, public safety was managed in accordance with current MCC procedures. Fences surrounding the operational areas and along property boundaries were inspected and maintained.

A security patrol is conducted by a local security firm when the site is not manned. A series of security cameras are established around the site to monitor access to the site.

3.21 OTHER ISSUES AND RISKS

No incidents of unauthorised damage to surface infrastructure were recorded during this reporting period.

4.0 COMMUNITY RELATIONS

MCC undertakes community consultation through the Community Consultative Committee, discussions with community members and operating a toll free 24-hour Environmental Contact Line (1800 600 205). MCC are a member of the Upper Hunter Mining Dialogue – a forum for the mining industry and the community to discuss concerns relating to mining impacts.

4.1 ENVIRONMENTAL COMPLAINTS

MCC operates a toll free 24-hour Environmental Contact Line where community members can communicate their concerns to site personnel. On receiving a complaint, site personnel investigate the complaint, take action to reduce impact as required and report back to the complainant with the findings. The recording of environmental complaints and the operation of the Environmental Contact Line is conducted in accordance with the MCC Development Consent and Environmental Protection Licence conditions.

Twelve complaints were received during the reporting period. More details on the complaints are provided in **Appendix 4**. **Table 29** and **Figure 35** provide a summary of the complaints received during the reporting period.

Table 29: Summary of Complaints

Type of Complaint	Number	Percentage
Noise	7	59%
Lighting	3	25%
Dust	1	8%
Blast	1	8%
Total	**12**	**100%**

In comparison to the previous reporting periods, there has been an increase in the number of complaints received and a change in the types of complaints received. No odour complaints were received during this reporting period and the majority of the complaints were related to noise. The complaint history chart is shown in **Figure 36**.

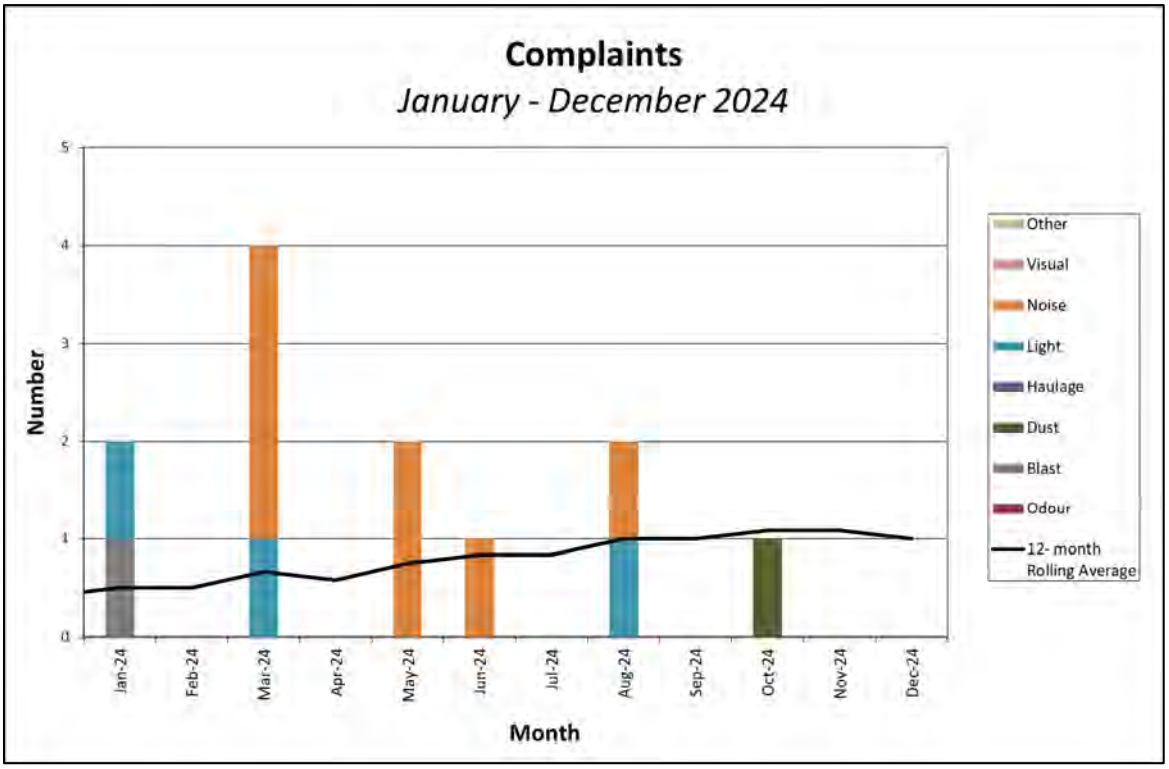

Figure 35: Complaint Summary

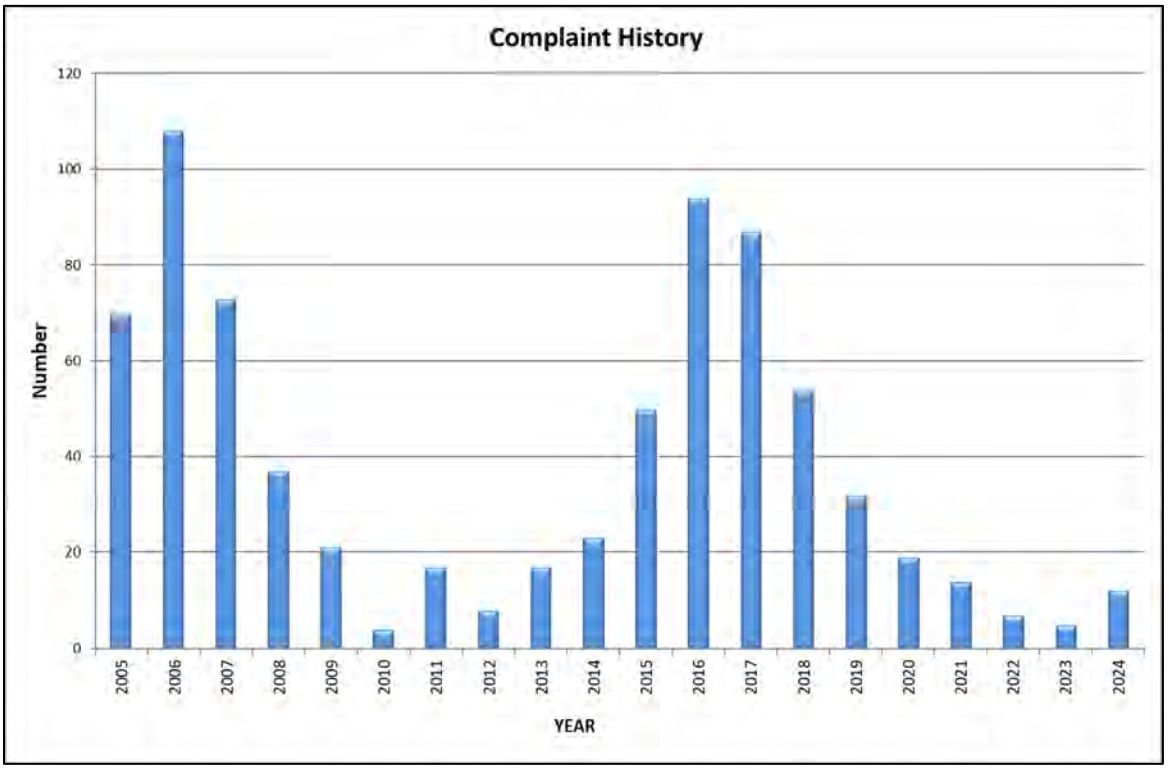

Figure 36: Complaint History

4.2 COMMUNITY LIAISON, SPONSORSHIPS AND DONATIONS

MCC personnel maintain contact with nearby residents and are committed to continually fostering and developing strong links with the community. Community support throughout the reporting period included donations to the following organisations:

- Variety – The Children's Charity; and
- Special Children's Christmas Party.

4.3 COMMUNITY CONSULTATIVE COMMITTEE

MCC's Community Consultative Committee (CCC) provides information regarding mine operations to the local community. The aim of the committee is to provide an effective communication mechanism so that members of the local community have adequate information on operational and environmental matters. CCC meetings were held in June 2024 and December 2024 at the MCC office with additional updates provided to the members in March 2024 and September 2024. Committee members are actively involved in the review of environmental monitoring data and are kept up to date on operations through presentations and site visits.

The CCC is comprised of one Councillor, one council staff representative, five community representatives (including Wanaruah Local Aboriginal Lands Council), a representative from Thiess and two MCC representatives.

5.0 ANNUAL REHABILITATION REPORT

Please refer to the 2024 Annual Rehabilitation Report for details of the rehabilitation undertaken during the reporting period. A copy of the report is available on MCC's website: https://www.idemitsu.com.au/operations/muswellbrook-coal/approvals-plans-reports/

6.0 REHABILITATION FORWARD PROGRAM

Please refer to the 2025-2027 Forward Program for details of the rehabilitation proposed to be undertaken during the next reporting period. A copy of the report is available on MCC's website:
https://www.idemitsu.com.au/operations/muswellbrook-coal/approvals-plans-reports/

7.0 ACTIVITIES PROPOSED IN THE NEXT AEMR PERIOD

During the next reporting period, the following activities are planned:

- Complete the bulk shaping rehabilitation works for the site.
- Continue to work with Council to finalise the updates to the Environmental Management Plans, as required.
- Continue to implement obligations in the Environmental Management Plans including the Rehabilitation Management Plan.
- Continue rehabilitation activities as committed to in the Forward Program.
- Continue with detailed environmental studies associated with the closure of the site.

Appendix 1: Air Quality Monitoring Results

REAL-TIME PM_{10} MONITORING RESULTS

January 2024			
SAMPLE DATE	SITE 7	SITE 8	SITE 9
01-Jan-24	13.7	15.0	17.8
02-Jan-24	20.8	15.0	16.6
03-Jan-24	26.6	17.6	18.5
04-Jan-24	30.5	24.8	19.8
05-Jan-24	9.0	11.7	11.0
06-Jan-24	12.1	14.6	14.5
07-Jan-24	21.0	15.5	17.8
08-Jan-24	12.8	34.9	18.0
09-Jan-24	13.8	8.9	10.9
10-Jan-24	21.3	14.3	14.6
11-Jan-24	17.5	11.7	13.7
12-Jan-24	11.9	10.4	12.2
13-Jan-24	32.6	22.0	21.2
14-Jan-24	11.4	13.8	12.6
15-Jan-24	9.5	12.0	10.7
16-Jan-24	11.5	13.4	13.6
17-Jan-24	9.3	26.6	5.7
18-Jan-24	8.1	59.5	5.6
19-Jan-24	15.7	28.4	9.1
20-Jan-24	26.1	19.6	16.8
21-Jan-24	35.9	23.0	18.4
22-Jan-24	30.1	30.6	30.2
23-Jan-24	17.0	15.4	15.4
24-Jan-24	27.1	30.1	16.4
25-Jan-24	41.1	53.8	23.5
26-Jan-24	37.2	56.1	25.6
27-Jan-24	17.0	18.4	19.6
28-Jan-24	20.0	21.4	23.3
29-Jan-24	37.4	21.0	21.5
30-Jan-24	28.3	22.6	23.0
31-Jan-24	22.4	20.9	20.1

February 2024			
SAMPLE DATE	SITE 7	SITE 8	SITE 9
01-Feb-24	21.2	20.2	17.5
02-Feb-24	46.3	36.8	27.0
03-Feb-24	31.8	33.3	33.6
04-Feb-24	40.7	28.0	27.6
05-Feb-24	31.4	44.6	25.1
06-Feb-24	19.6	19.8	18.1
07-Feb-24	9.0	8.9	8.9
08-Feb-24	16.2	15.5	15.5
09-Feb-24	18.5	17.5	17.8
10-Feb-24	12.3	12.3	12.9
11-Feb-24	15.7	16.7	18.4
12-Feb-24	18.4	13.4	16.3
13-Feb-24	24.5	15.8	10.5
14-Feb-24	15.8	49.4	17.0
15-Feb-24	15.3	17.6	18.0
16-Feb-24	11.5	11.9	11.6
17-Feb-24	12.2	15.0	14.9
18-Feb-24	14.2	16.2	16.2
19-Feb-24	14.3	14.1	13.5
20-Feb-24	10.4	10.5	10.7
21-Feb-24	12.8	12.3	13.2
22-Feb-24	15.5	25.4	16.1
23-Feb-24	11.6	53.7	14.0
24-Feb-24	10.6	12.8	12.7
25-Feb-24	19.2	16.9	17.3
26-Feb-24	18.3	23.3	19.6
27-Feb-24	19.6	20.7	20.2
28-Feb-24	20.0	19.3	21.8
29-Feb-24	19.6	41.1	20.3

March 2024			
SAMPLE DATE	SITE 7	SITE 8	SITE 9
01-Mar-24	14.2	31.2	20.7
02-Mar-24	17.5	27.5	22.4
03-Mar-24	22.8	21.9	21.8
04-Mar-24	27.2	No Data	28.4
05-Mar-24	17.3	No Data	20.0
06-Mar-24	19.9	20.5	22.3
07-Mar-24	22.1	26.0	24.4
08-Mar-24	12.1	10.1	11.7
09-Mar-24	12.9	12.8	13.9
10-Mar-24	13.6	13.5	14.8
11-Mar-24	15.8	14.7	15.3
12-Mar-24	20.8	No Data	22.3
13-Mar-24	25.6	No Data	26.7
14-Mar-24	24.7	No Data	20.6
15-Mar-24	13.6	15.1	16.1
16-Mar-24	15.1	15.5	16.7
17-Mar-24	9.3	9.9	10.8
18-Mar-24	8.2	9.0	8.8
19-Mar-24	10.3	11.2	10.6
20-Mar-24	11.4	22.6	11.0
21-Mar-24	17.7	19.5	19.8
22-Mar-24	12.5	12.1	16.0
23-Mar-24	11.9	12.4	13.8
24-Mar-24	13.0	13.6	13.8
25-Mar-24	10.9	No Data	15.2
26-Mar-24	20.0	No Data	No Data
27-Mar-24	16.6	No Data	17.3
28-Mar-24	16.2	19.0	20.4
29-Mar-24	14.0	12.1	9.1
30-Mar-24	12.1	12.9	14.2
31-Mar-24	12.8	11.8	No Data

April 2024			
SAMPLE DATE	SITE 7	SITE 8	SITE 9
01-Apr-24	13.7	12.9	No Data
02-Apr-24	14.7	20.4	No Data
03-Apr-24	12.7	16.1	No Data
04-Apr-24	9.5	9.9	10.3
05-Apr-24	5.1	5.2	4.3
06-Apr-24	3.5	6.1	No Data
07-Apr-24	7.0	10.3	11.6
08-Apr-24	6.9	31.3	12.6
09-Apr-24	10.4	19.2	13.0
10-Apr-24	10.3	11.1	8.9
11-Apr-24	11.1	14.1	13.0
12-Apr-24	13.3	15.7	10.9
13-Apr-24	15.1	15.0	13.9
14-Apr-24	17.5	15.2	12.6
15-Apr-24	16.2	28.8	15.1
16-Apr-24	21.7	18.9	18.7
17-Apr-24	18.7	23.8	20.7
18-Apr-24	8.9	24.4	10.9
19-Apr-24	20.7	25.1	22.3
20-Apr-24	9.9	10.1	9.8
21-Apr-24	10.8	11.6	11.9
22-Apr-24	10.7	12.2	9.8
23-Apr-24	5.9	No Data	No Data
24-Apr-24	10.1	No Data	9.4
25-Apr-24	24.9	20.5	22.7
26-Apr-24	14.9	11.2	10.2
27-Apr-24	13.0	11.1	11.1
28-Apr-24	10.9	10.1	9.2
29-Apr-24	19.7	24.1	10.2
30-Apr-24	17.5	24.6	17.0

May 2024			
SAMPLE DATE	SITE 7	SITE 8	SITE 9
01-May-24	14.7	7.9	7.2
02-May-24	17.4	7.0	6.9
03-May-24	11.1	8.2	7.8
04-May-24	7.5	7.7	7.5
05-May-24	7.6	7.4	6.5
06-May-24	8.2	7.7	7.0
07-May-24	12.7	10.2	10.7
08-May-24	9.9	10.2	8.9
09-May-24	10.7	13.5	10.1
10-May-24	9.9	9.1	10.6
11-May-24	6.5	5.7	6.1
12-May-24	8.5	8.4	8.4
13-May-24	10.2	20.2	10.0
14-May-24	10.1	14.7	10.0
15-May-24	14.4	18.3	13.4
16-May-24	16.6	15.4	13.9
17-May-24	10.9	31.9	12.7
18-May-24	13.2	12.3	11.4
19-May-24	12.6	11.3	11.7
20-May-24	10.1	15.2	10.4
21-May-24	10.8	11.2	10.2
22-May-24	9.9	13.7	9.0
23-May-24	10.9	14.5	11.0
24-May-24	12.0	14.5	12.8
25-May-24	12.7	14.4	13.2
26-May-24	9.3	10.4	10.1
27-May-24	14.7	17.8	14.0
28-May-24	15.4	17.5	13.2
29-May-24	12.8	29.3	15.2
30-May-24	11.8	24.1	13.4
31-May-24	14.1	32.5	14.6

June 2024			
SAMPLE DATE	SITE 7	SITE 8	SITE 9
01-Jun-24	6.5	5.6	6.0
02-Jun-24	4.6	5.1	5.1
03-Jun-24	5.1	8.0	6.0
04-Jun-24	7.3	14.0	7.8
05-Jun-24	12.4	16.8	15.6
06-Jun-24	8.7	12.1	10.4
07-Jun-24	6.5	7.8	6.5
08-Jun-24	5.5	6.2	6.1
09-Jun-24	6.7	7.6	9.3
10-Jun-24	6.5	7.2	8.1
11-Jun-24	5.4	28.1	7.0
12-Jun-24	10.6	30.1	9.9
13-Jun-24	11.6	14.3	10.5
14-Jun-24	12.7	13.2	15.7
15-Jun-24	8.5	3.2	8.2
16-Jun-24	5.4	5.0	No Data
17-Jun-24	6.0	8.1	No Data
18-Jun-24	6.1	8.6	8.7
19-Jun-24	7.2	18.4	8.0
20-Jun-24	9.2	27.0	11.0
21-Jun-24	8.7	11.7	11.8
22-Jun-24	7.5	6.6	8.9
23-Jun-24	8.7	6.4	7.2
24-Jun-24	7.0	8.4	9.0
25-Jun-24	8.4	10.7	9.5
26-Jun-24	11.9	23.3	13.3
27-Jun-24	10.4	16.4	10.6
28-Jun-24	8.2	10.2	9.4
29-Jun-24	11.2	12.8	13.4
30-Jun-24	7.3	7.6	7.0

July 2024			
SAMPLE DATE	SITE 7	SITE 8	SITE 9
01-Jul-24	8.3	7.9	9.3
02-Jul-24	7.6	7.2	7.9
03-Jul-24	8.9	9.0	5.2
04-Jul-24	12.2	10.8	6.8
05-Jul-24	10.6	13.2	8.2
06-Jul-24	7.9	7.8	6.1
07-Jul-24	7.9	6.9	5.3
08-Jul-24	7.1	7.0	5.5
09-Jul-24	6.2	9.1	5.3
10-Jul-24	4.6	9.4	4.8
11-Jul-24	5.5	8.2	5.4
12-Jul-24	5.2	11.9	6.3
13-Jul-24	6.2	11.8	9.3
14-Jul-24	5.5	14.9	4.8
15-Jul-24	4.4	16.3	5.2
16-Jul-24	5.3	13.5	4.7
17-Jul-24	4.6	9.0	5.0
18-Jul-24	7.2	11.5	7.3
19-Jul-24	5.9	14.4	5.4
20-Jul-24	11.0	25.6	13.7
21-Jul-24	15.6	18.2	16.9
22-Jul-24	9.6	16.5	10.2
23-Jul-24	8.4	12.4	8.4
24-Jul-24	8.9	18.1	10.3
25-Jul-24	15.8	31.9	15.5
26-Jul-24	7.3	10.4	7.9
27-Jul-24	6.8	8.3	7.1
28-Jul-24	5.0	5.4	4.6
29-Jul-24	8.1	9.6	8.7
30-Jul-24	11.8	11.5	9.6
31-Jul-24	16.2	17.6	14.7

August 2024			
SAMPLE DATE	SITE 7	SITE 8	SITE 9
01-Aug-24	14.9	14.9	14.9
02-Aug-24	11.6	11.7	11.2
03-Aug-24	8.4	10.8	8.0
04-Aug-24	9.1	11.6	11.6
05-Aug-24	11.4	14.8	14.2
06-Aug-24	9.7	10.0	9.0
07-Aug-24	10.2	11.5	9.3
08-Aug-24	11.5	13.8	11.3
09-Aug-24	11.8	26.3	13.4
10-Aug-24	17.7	20.4	17.9
11-Aug-24	13.2	14.7	13.7
12-Aug-24	10.8	9.4	10.7
13-Aug-24	11.9	8.2	9.0
14-Aug-24	7.5	6.1	6.3
15-Aug-24	7.3	6.4	7.1
16-Aug-24	7.7	8.3	7.0
17-Aug-24	5.9	11.3	8.0
18-Aug-24	8.4	11.1	9.3
19-Aug-24	13.9	11.3	14.2
20-Aug-24	11.9	22.0	12.1
21-Aug-24	19.8	67.2	22.4
22-Aug-24	10.6	29.7	12.6
23-Aug-24	11.9	19.2	13.4
24-Aug-24	11.9	44.4	13.5
25-Aug-24	13.5	16.7	16.3
26-Aug-24	11.0	19.5	13.5
27-Aug-24	6.8	51.9	8.0
28-Aug-24	12.3	63.8	16.5
29-Aug-24	13.9	35.0	16.6
30-Aug-24	16.9	136.8	16.9
31-Aug-24	16.0	32.2	25.4

September 2024			
SAMPLE DATE	SITE 7	SITE 8	SITE 9
01-Sep-24	15.8	22.8	20.4
02-Sep-24	15.7	73.8	22.6
03-Sep-24	16.9	24.9	16.7
04-Sep-24	15.2	No Data	15.7
05-Sep-24	22.4	No Data	21.6
06-Sep-24	21.4	159.9	19.4
07-Sep-24	21.8	51.8	20.7
08-Sep-24	13.6	17.2	14.6
09-Sep-24	11.8	55.8	10.6
10-Sep-24	15.5	21.6	16.6
11-Sep-24	22.0	39.9	21.4
12-Sep-24	10.5	12.0	11.4
13-Sep-24	11.9	11.6	12.8
14-Sep-24	8.3	10.9	9.0
15-Sep-24	16.8	17.6	18.6
16-Sep-24	10.0	11.8	10.3
17-Sep-24	10.3	14.9	11.3
18-Sep-24	9.4	41.7	9.9
19-Sep-24	10.4	39.9	14.3
20-Sep-24	14.1	26.2	18.6
21-Sep-24	9.6	13.4	13.3
22-Sep-24	10.3	11.6	12.8
23-Sep-24	10.6	22.7	12.7
24-Sep-24	17.6	24.7	16.4
25-Sep-24	29.5	86.5	27.6
26-Sep-24	18.9	18.2	15.6
27-Sep-24	9.4	9.3	9.8
28-Sep-24	8.8	9.3	10.0
29-Sep-24	8.5	8.3	8.9
30-Sep-24	10.6	11.0	11.2

October 2024			
SAMPLE DATE	SITE 7	SITE 8	SITE 9
01-Oct-24	23.2	18.7	15.6
02-Oct-24	16.4	15.4	17.0
03-Oct-24	20.9	10.9	12.9
04-Oct-24	11.8	23.1	14.0
05-Oct-24	10.2	13.0	13.1
06-Oct-24	10.8	13.3	14.0
07-Oct-24	16.5	16.5	14.7
08-Oct-24	22.4	21.6	22.4
09-Oct-24	17.6	7.2	9.0
10-Oct-24	10.9	12.6	9.3
11-Oct-24	16.7	18.4	19.1
12-Oct-24	18.4	21.4	21.0
13-Oct-24	12.0	13.8	14.4
14-Oct-24	No Data	No Data	No Data
15-Oct-24	No Data	No Data	No Data
16-Oct-24	15.3	13.4	14.0
17-Oct-24	9.4	10.1	9.8
18-Oct-24	13.1	14.9	12.9
19-Oct-24	8.4	9.4	9.9
20-Oct-24	14.6	14.2	15.6
21-Oct-24	15.2	14.5	16.2
22-Oct-24	19.0	17.7	16.1
23-Oct-24	17.1	21.6	16.7
24-Oct-24	21.2	25.4	22.5
25-Oct-24	15.5	15.0	15.3
26-Oct-24	19.4	19.0	20.8
27-Oct-24	18.9	17.0	17.2
28-Oct-24	19.3	21.6	21.9
29-Oct-24	26.1	24.7	26.2
30-Oct-24	22.2	24.3	20.3
31-Oct-24	24.1	23.2	20.6

November 2024			
SAMPLE DATE	SITE 7	SITE 8	SITE 9
01-Nov-24	18.4	17.6	18.3
02-Nov-24	14.7	14.6	14.4
03-Nov-24	21.7	24.5	18.1
04-Nov-24	28.9	36.9	27.1
05-Nov-24	21.6	22.1	21.0
06-Nov-24	13.0	21.3	16.9
07-Nov-24	27.3	39.5	26.9
08-Nov-24	13.6	16.4	16.1
09-Nov-24	24.3	24.4	22.9
10-Nov-24	23.3	22.5	22.7
11-Nov-24	22.7	22.4	20.5
12-Nov-24	9.5	No Data	9.0
13-Nov-24	10.3	No Data	9.6
14-Nov-24	13.0	10.8	13.5
15-Nov-24	9.8	10.3	11.4
16-Nov-24	11.6	12.4	12.4
17-Nov-24	10.9	12.7	10.8
18-Nov-24	9.4	14.4	10.1
19-Nov-24	17.1	18.3	17.2
20-Nov-24	12.3	11.7	12.3
21-Nov-24	10.8	10.5	10.1
22-Nov-24	8.7	8.1	9.5
23-Nov-24	10.1	9.6	11.1
24-Nov-24	11.9	12.2	13.4
25-Nov-24	20.3	21.1	20.0
26-Nov-24	19.1	41.8	17.6
27-Nov-24	25.6	84.4	20.0
28-Nov-24	17.9	22.1	18.0
29-Nov-24	19.3	20.4	18.8
30-Nov-24	7.4	9.2	7.7

December 2024			
SAMPLE DATE	SITE 7	SITE 8	SITE 9
01-Dec-24	8.4	11.1	9.0
02-Dec-24	10.9	15.6	12.3
03-Dec-24	10.9	20.7	13.2
04-Dec-24	13.1	16.0	16.3
05-Dec-24	11.0	12.5	13.6
06-Dec-24	16.2	16.7	14.9
07-Dec-24	11.5	19.0	12.1
08-Dec-24	11.9	15.5	12.5
09-Dec-24	10.6	11.5	12.6
10-Dec-24	19.1	21.2	21.3
11-Dec-24	22.4	23.9	23.2
12-Dec-24	17.8	30.1	17.9
13-Dec-24	21.5	35.0	22.5
14-Dec-24	29.5	31.2	30.9
15-Dec-24	29.2	30.0	31.1
16-Dec-24	14.8	13.2	14.9
17-Dec-24	21.8	No Data	18.3
18-Dec-24	10.7	No Data	11.8
19-Dec-24	15.9	No Data	17.6
20-Dec-24	16.3	No Data	17.8
21-Dec-24	21.2	No Data	24.0
22-Dec-24	26.2	No Data	24.8
23-Dec-24	18.8	No Data	29.1
24-Dec-24	30.5	No Data	29.2
25-Dec-24	13.4	No Data	13.6
26-Dec-24	12.5	No Data	14.4
27-Dec-24	18.3	No Data	28.3
28-Dec-24	26.4	No Data	27.5
29-Dec-24	20.7	No Data	24.5
30-Dec-24	22.2	No Data	21.5
31-Dec-24	20.8	No Data	20.1

Appendix 2: Water Monitoring Results

SURFACE WATER MONITORING RESULTS – pH

Date	Dam 1/2	MCC12	No.2 Open Cut Void	No.1 Open Cut Void	MCC07	MCC08	MCC09	MCC23	MCC24	MCC25	MCC26	MCC27	MCC28
January	8.12	8.64	No access	Dry	7.96	7.93	8.02	9.04	8.80	7.95	8.44	8.30	8.31
February	7.95	8.46			7.92	7.76	8.28	8.59	8.36	9.01	8.56	8.48	8.33
March	6.23	7.93			8.54	7.96	Dry	8.94	8.57	Dry	8.51	8.53	Dry
April	8.35	8.40			7.94	7.56	8.02	9.16	8.96	3.11	8.44	8.53	8.09
May	8.23	8.86			7.80	7.64	7.95	9.05	8.82	3.05	9.29	8.64	8.06
June	8.20	8.46			7.83	7.77	7.75	8.99	8.37	7.31	8.46	8.42	8.00
July	8.20	8.71			7.94	7.78	7.98	9.15	8.88	7.53	8.71	8.58	8.07
August	8.21	8.68			7.81	7.82	7.98	9.18	9.14	7.39	9.35	8.80	8.00
September	8.10	8.51			7.73	7.65	9.02	8.96	9.48	7.51	9.93	8.99	8.33
October	8.02	8.19			7.76	7.68	9.36	8.76	9.30	7.58	9.82	8.95	7.86
November	8.01	8.57			7.68	7.66	Dry	9.28	9.44	7.82	9.92	9.10	8.33
December	8.05	9.02			7.71	7.60	Dry	9.04	8.99	7.71	9.35	8.15	7.74

SURFACE WATER MONITORING RESULTS – ELECTRICAL CONDUCTIVITY (µS/cm)

Date	Dam 1/2	MCC12	No.2 Open Cut Void	No.1 Open Cut Void	MCC07	MCC08	MCC09	MCC23	MCC24	MCC25	MCC26	MCC27	MCC28
January	6,370	3,350	No access	Dry	5,370	6,130	7,830	14,100	6,000	2,520	8,590	11,700	1,540
February	6,490	3,720			5,290	6,100	10,900	14,700	6,100	2,740	10,800	11,900	1,210
March	6,890	4,060			5,710	6,530	Dry	5,840	6,540	Dry	11,600	12,500	Dry
April	5,830	2,040			3,990	4,910	2,940	12,100	5,820	3,050	4,030	10,100	749
May	6,290	2,330			4,520	5,480	3,500	6,680	6,030	4,400	6,310	11,100	666
June	3,740	1,920			1,220	1,370	1,610	8,540	3,140	1,500	1,320	6,880	900
July	5,870	2,000			1,630	1,420	1,840	8,630	3,940	1,740	2,220	8,290	805
August	5,680	1,980			871	1,080	1,840	10,600	4,420	670	2,660	9,160	1,210
September	6,300	2,310			1,510	2,290	2,310	11,100	5,320	1,020	3,800	10,300	1,400
October	6,450	2,310			1,730	2,300	1,630	12,000	5,460	1,340	4,930	10,400	1,170
November	6,570	2,470			2,270	3,250	Dry	12,800	5,750	1,480	6,410	11,300	1,690
December	6,710	2,670			4,160	4,810	Dry	14,100	6,260	1,620	8,330	12,000	1,620

SURFACE WATER MONITORING RESULTS – TOTAL SUSPENDED SOLIDS (mg/L)

Date	Dam 1/2	MCC12	No.2 Open Cut Void	No.1 Open Cut Void	MCC07	MCC08	MCC09	MCC23	MCC24	MCC25	MCC26	MCC27	MCC28
January	21	<5	No access	Dry	<5	10	30	102	13	141	7	21	<5
February	13	9			7	22	52	19	16	212	26	14	14
March	<5	<5			<5	36	Dry	13	9	Dry	11	16	Dry
April	8	6			<5	14	6	87	15	5	24	<5	6
May	10	6			54	8	16	29	12	14	16	12	6
June	10	8			10	10	<5	108	13	9	9	12	33
July	10	<5			11	9	14	85	<5	6	6	7	8
August	6	<5			No result	13	6	27	6	6	12	15	12
September	14	<5			6	<5	12	12	10	<5	12	28	22
October	7	<5			<5	5	13	73	13	<5	15	30	16
November	<5	7			59	17	Dry	<5	30	13	36	52	7
December	6	<5			<5	<5	Dry	102	41	<5	<5	16	<5

Extra analysis for quarterly surface water data is available from MCC on request.

GROUND WATER MONITORING RESULTS – DEPTH TO WATER (mbgl)

Date	RDH529	RDH616	RDH617	RDH624	MCC1003	MCC1006	MCC1017	MCC1018
February	116.7	52.65	45.55	33.94	6.11	Dry	16.83	17.85
April	115.7	50.30	44.53	34.01	6.46	Dry	16.87	17.89
June	112.7	51.08	44.88	34.19	2.68	Dry	16.84	17.95
August	115.7	50.40	43.98	34.24	2.12	4.90	16.74	18.08
October	113.7	47.89	44.70	34.30	2.48	4.57	16.72	18.45
December	113.7	48.41	45.12	34.48	3.64	5.33	16.82	18.52

GROUND WATER MONITORING RESULTS – pH

Date	RDH529	RDH616	RDH617	RDH624	MCC1003	MCC1006	MCC1017	MCC1018
February	7.06	Depth only	Depth only	7.10	7.23	Depth only	Depth only	7.07
April	7.10			6.99	7.20			7.10
June	7.04			7.00	7.36			7.22
August	6.99			7.02	7.29			7.47
October	7.06			7.05	7.21			7.56
December	6.99			6.93	7.18			7.63

GROUND WATER MONITORING RESULTS – Electrical Conductivity

Date	RDH529	RDH616	RDH617	RDH624	MCC1003	MCC1006	MCC1017	MCC1018
February	6,650	Depth only	Depth only	5,640	1,830	Depth only	Depth only	9,990
April	6,590			5,630	1,660			9,950
June	7,190			5,990	1,250			10,200
August	6,960			5,810	1,490			10,200
October	6,370			5,510	1,530			9,690
December	6,910			6,000	1,800			9,550

Extra analysis for bi-monthly groundwater data is available from MCC on request.

Appendix 3: Noise Monitoring

Noise Monitoring Results – MCC Contribution LA_{eq}

Month	R13 Sandy Creek Rd	Criteria	R15 Queen St	Criteria	R17 Queen St	Criteria	R25 Sandy Creek Rd	Criteria	R32 Muscle Creek Rd	Criteria
Jan 24	33	41	26	37	Inaudible	35	32	42	Inaudible	35
Feb 24	33	41	Inaudible	37	Inaudible	35	31	42	Inaudible	35
Mar 24	Inaudible	41	Inaudible	37	29	35	Inaudible	42	34	35
Apr 24	29	41	29	37	27	35	38	42	24	35
May 24	Inaudible	41	24	37	Inaudible	35	31	42	Inaudible	35
Jun 24	33	41	27	37	28	35	29	42	27	35
Jul 24	Inaudible	41	Inaudible	37	28	35	24	42	Inaudible	35
Aug 24	Inaudible	41	Inaudible	37	Inaudible	35	Inaudible	42	Inaudible	35
Sep 24	Inaudible	41	Inaudible	37	26	35	Inaudible	42	Inaudible	35
Oct 24	Inaudible	41	24	37	31	35	28	42	Inaudible	35
Nov 24	Inaudible	41	22	37	26	35	24	42	Inaudible	35
Dec 24	Inaudible	41	Inaudible	37	Inaudible	35	Inaudible	42	Inaudible	35

Noise Monitoring Results – MCC Contribution $LA1_{1min}$

Month	R13 Sandy Creek Rd	R15 Queen St	R17 Queen St	R25 Sandy Creek Rd	R32 Muscle Creek Rd	Criteria
Jan 24	42	29	Inaudible	36	Inaudible	45
Feb 24	35	Inaudible	Inaudible	34	Inaudible	45
Mar 24	Inaudible	Inaudible	34	Inaudible	39	45
Apr 24	33	36	35	41	28	45
May 24	Inaudible	29	Inaudible	34	Inaudible	45
Jun 24	37	31	32	32	31	45
Jul 24	Inaudible	Inaudible	32	28	Inaudible	45
Aug 24	Inaudible	Inaudible	Inaudible	Inaudible	Inaudible	45
Sep 24	Inaudible	Inaudible	30	Inaudible	Inaudible	45
Oct 24	Inaudible	28	35	33	Inaudible	45
Nov 24	Inaudible	25	30	29	Inaudible	45
Dec 24	Inaudible	Inaudible	Inaudible	Inaudible	Inaudible	45

Appendix 4: Complaints Summary

SUMMARY OF COMPLAINTS

Date of Complaint	Time of Complaint	Date of Incident	Time of Incident	Location	Type of Complaint	Mode of Contact	Nature of Complaint	Action Taken
02-Jan-24	9:35pm	02-Jan-24	9:35pm	McCully's Gap	LIGHT	Environmental Hotline - Thiess Environment & Community Superintendent responded.	3 lighting plants shining into yard	OCE inspected the operation to determine the light source then adjusted the lighting plant positions in the Zone 1 dozer push area. At 9:45pm, the Rehabilitation Superintendent called the complainant to provide feedback that the lighting plant had been moved to minimise the lighting impact on their property.
01-Feb-24	12:58pm	31-Jan-24	12:58pm	North Muswellbrook	BLAST	Email from MSC - Thiess Environment & Community Superintendent responded.	Buildings shaking	Blast 5 in Zone 2 at 3:59pm. Results from all blast monitors were within compliance limits. Thiess ECS followed up with Council representative regarding complaint. Future blasts will have significantly reduced charges due to blasthole depths and will continue to be designed to reduce community impact by minimising vibration.
01-Mar-24	7:18pm	01-Mar-24	7:18pm	Muscle Creek	NOISE	Environmental Hotline - Thiess Environment & Community Superintendent responded.	Digger noise at top of hill	Thiess ECS noted to the complainant that no night shift activities were currently occurring and explained the rehab/closure process to mine out waste coal and manage spontaneous combustion risk. Complainant appreciated the information and was happy to know the spontaneous combustion odour would be gone after closure.
04-Mar-24	11:45am	01-Mar-24	Unknown	Unknown	NOISE	Email from EPA	Noise and vibration impacts	Complaint communicated to Thiess ECS and response letter provided to the EPA 14/3/2024.
26-Mar-24	8:16pm	26-Mar-24	8:16pm	McCully's Gap	LIGHT	Environmental Hotline - Thiess Environment & Community Superintendent responded.	Bright light pointing at complainant's home	Thiess OCE contacted complainant to discuss complaint. OCE adjusted light on the RL160. OCE checked back with complainant, and they were happy with the adjustment and thanked him for the quick response. Thiess ECS contacted the complainant to discuss the complainant's concerns the next day.

Date of Complaint	Time of Complaint	Date of Incident	Time of Incident	Location	Type of Complaint	Mode of Contact	Nature of Complaint	Action Taken
04-Apr-24	9:48am	27-Mar-24	1:30am	Woodlands Ridge	NOISE	Email from MSC (from EPA) - Thiess Environment & Community Superintendent responded.	Can hear digger swinging around	No action taken at time of complaint due to the delay in complaint notification emails (EPA to MSC to MCC). Thiess ECS contacted complainant on 8/4/2024 to discuss concerns but no answer. Message was left on voice mail. At time of complaint, bulk pushing was in progress, including an excavator and trucks hauling waste to RL120 dump.
13-May-24	7:45pm	13-May-24	7:42pm	Woodlands Ridge	NOISE	Environmental Hotline - Thiess Environment & Community Superintendent responded.	Could hear dozer rattling and the excavators constant hum	Operational changes were made to reduce noise impacts from the operation. OCE conducted an inspection and noted other machinery noise coming from the New England Highway road works. Complainant called again at 2:02am and reported they could still hear the dozer and digger.
24-May-24	12:35am	24-May-24	12:34am	Woodlands Ridge	NOISE	Environmental Hotline - Thiess Environment & Community Superintendent responded.	Noise	Operational changes were made to reduce noise impacts from the operation. OCE conducted an inspection on the access road and to the north of the operations - no area of concern was identified. Thiess Environment & Community Superintendent attempted to contact complainant a couple times (24/5/24 & 27/5/24) but no answer.
26-Jun-24	3:53pm	Unknown	Unknown	Muscle Creek	NOISE	Email from MSC - Thiess Environment & Community Superintendent responded.	Noise from heavy machinery especially after 1am keeping resident awake.	Ongoing noise management as per the Noise Management Plan (NMP). MSC noted they appreciated MCC still operating under NMP and EPL to manage noise. They also queried about an afternoon shift finishing at 3am on weekends and confirmation of a direct number for residents to call. Email reply to MSC with details relating to queries was sent 27 June 2024.
02-Aug-24	5:58pm	02-Aug-24	5:58pm	McCully's Gap	LIGHT	Environmental Hotline - Thiess Environment & Community Superintendent responded.	Light from site shining into complaints' home through the window.	Light in Zone 5 at RL260 was redirected to the east. OCE confirmed with Complaint that the light was no longer visible from their residence.
02-Aug-24	10:24pm	02-Aug-24	10:24pm	Unknown	NOISE	Environmental Hotline - Thiess Environment & Community Superintendent responded.	Noise from roaring engines every night keeping resident awake.	Ongoing noise management as per the Noise Management Plan (NMP). OCE inspected the access road and "Blues Road" with no concerns found. Dozer operators reminded to use first gear only.

Date of Complaint	Time of Complaint	Date of Incident	Time of Incident	Location	Type of Complaint	Mode of Contact	Nature of Complaint	Action Taken
01-Oct-24	3:48pm	01-Oct-24	3:48pm	Woodlands Ridge	DUST	Direct call to MCC office - Thiess Environment & Community Superintendent responded.	Visible dust and smoke	The OCE had identified a hot area near the top of the dozer push in zone 3A. Initially 3 dozers were working to reduce the hot material but due to excess dust this was reduced to 1 dozer. This however did not achieve the desired result, and the third dozer was instructed to withdraw from the hot material just prior to the complaint was received. The Environment Superintendent provided information to the complainant on what was causing the smoke/dust and an offer to meet in person to further discuss the issue was accepted.