Delta coal	Doc Owner:	**Environmental Compliance Coordinator**
	Doc No:	

Chain Valley Colliery and Mannering Colliery

Air Quality and Greenhouse Gas Management Plan

(incorporating an Air Quality Monitoring Program and Greenhouse Gas Efficiency Plan)

DRAFT V2

Reviewer/s	Judith Cox – SLR Consulting – Principal Consultant
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Date:	24/01/2021

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Chain Valley Colliery Development Consent SSD-5465

Condition 13, of Schedule 3 within Development Consent SSD-5465 requires that an Air Quality Management Plan be prepared for the development. This Air Quality and Greenhouse Gas Management Plan has been prepared to satisfy the requirements detailed below. A comprehensive review of the requirements of Development Consent SSD-5465 with reference to the appropriate sections of this document addressing the conditions, has been provided in **Appendix B** of this report.

Condition No.	Requirements	Relevant section of this document
Schedule 3 Specific Environmental Conditions		
13	**Air Quality Management Plan** The Applicant must prepare an Air Quality Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:	
	a) be prepared in consultation with the EPA, and submitted to the Planning Secretary for approval within 6 months of the date of this consent;	**a) Section 1.6** (Consultation) and **Appendix A**
	b) describe the measures that would be implemented to ensure compliance with the relevant air quality criteria and operating conditions of this consent;	b) **Section 3.2** (Dust Management), **Section 3.4** (Odour Management), **Section 3.5** (Fume Management), **Section 3.7** (Management of Unexpected Impacts) and **Section 3.8** (Air Quality Forecasting)
	c) describe the measures that would be implemented to minimise the release of greenhouse gas emissions from the site;	**Section 5.4** (Greenhouse Gas Control Measures)
	a) describe the proposed on-site air quality management system; and	**Section 1.1** (Purpose)
	d) include an air quality monitoring program that: • is capable of evaluating the operating conditions of this consent; • evaluates and reports on: - the effectiveness of the air quality management system; and - - compliance against the air quality operating conditions; defines what constitutes an air quality incident, and includes a protocol for identifying and notifying the Department and relevant stakeholders of any air quality incidents.	**Section 3** (Air Quality Management), **Section 4** (Air Quality Monitoring) and **Section 6.3** (Incident or Non-compliance Reporting)

Mannering Colliery Project Approval 06_0311

Condition 17, of Schedule 3 within Project Approval 06_0311 requires that an Air Quality and Greenhouse Gas Management Plan be prepared for the development. This Air Quality and Greenhouse Gas Management Plan has been prepared to satisfy the requirements detailed below. A comprehensive review of the requirements of Project Approval MP06_0311 with reference to the appropriate sections of this document addressing the conditions, has been provided in **Appendix C** of this report.

Condition No.	Requirements	Relevant section of this document
Schedule 3 Specific Environmental Conditions		
17	**Air Quality and Greenhouse Gas Management Plan** The Applicant must prepare an Air Quality and Greenhouse Gas Management Plan for the development to the satisfaction of the Planning Secretary. This plan must: a) be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary; b) describe the measures to be implemented to ensure: i. capture and flaring of methane produced by underground coal mining; ii. compliance with the air quality criteria and operating conditions in this consent; iii. best practice management is being employed (including in respect of minimisation of greenhouse gas emissions from the site and energy efficiency); and iv. the air quality impacts of the development are minimised during adverse meteorological conditions and extraordinary events; c) describe the air quality management system in detail; and d) include an air quality monitoring program, undertaken in accordance with the Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales (DEC, 2007), that: i. uses monitors to evaluate the performance of the development against the air quality criteria in this consent and to guide day to day planning of operations; ii. adequately supports the air quality management system; and iii. includes a protocol for identifying an air quality incident and notifying the Department and relevant stakeholders of any such incident. Note: "Methane produced by underground coal mining" does not include methane within mine ventilation air.	a) **Section 1.6** (Consultation) **Appendix A** b) i. **Section 5.4** (Greenhouse Gas Control Measures) ii. **Section 3** (Air Quality Management) **Section 4.2** (Monitoring Locations), **Section 4.3** (Real-time Alarms), iii. **Section 3.2** (Dust Control Measures) and **Section 5.4** (Greenhouse Gas Control Measures) iv. **Section 3.7** (Management of Unexpected Impacts) and **Section 3.8** (Air Quality Forecasting) c) **Section 3** (Air Quality Management) and **Section 4** (Air Quality Monitoring) d) i. **Section 4** (Air Quality Monitoring) and **Section 4.3** (Real-time Alarms) ii. **Section 4** (Air Quality Monitoring) iii. **Section 4.1** (Air Quality Criteria) and **Section 6.3** (Incident or Non-compliance Reporting)

1 Introduction

1.1 Purpose

Great Southern Energy Pty Ltd t/as Delta Coal (Delta Coal) have prepared this Air Quality and Greenhouse Gas Management Plan incorporating an Air Quality Monitoring Program and Greenhouse Gas Efficiencies Plan (AQGHGMP) for Chain Valley Colliery (CVC) and Mannering Colliery (MC) in order to satisfy requirements detailed within:

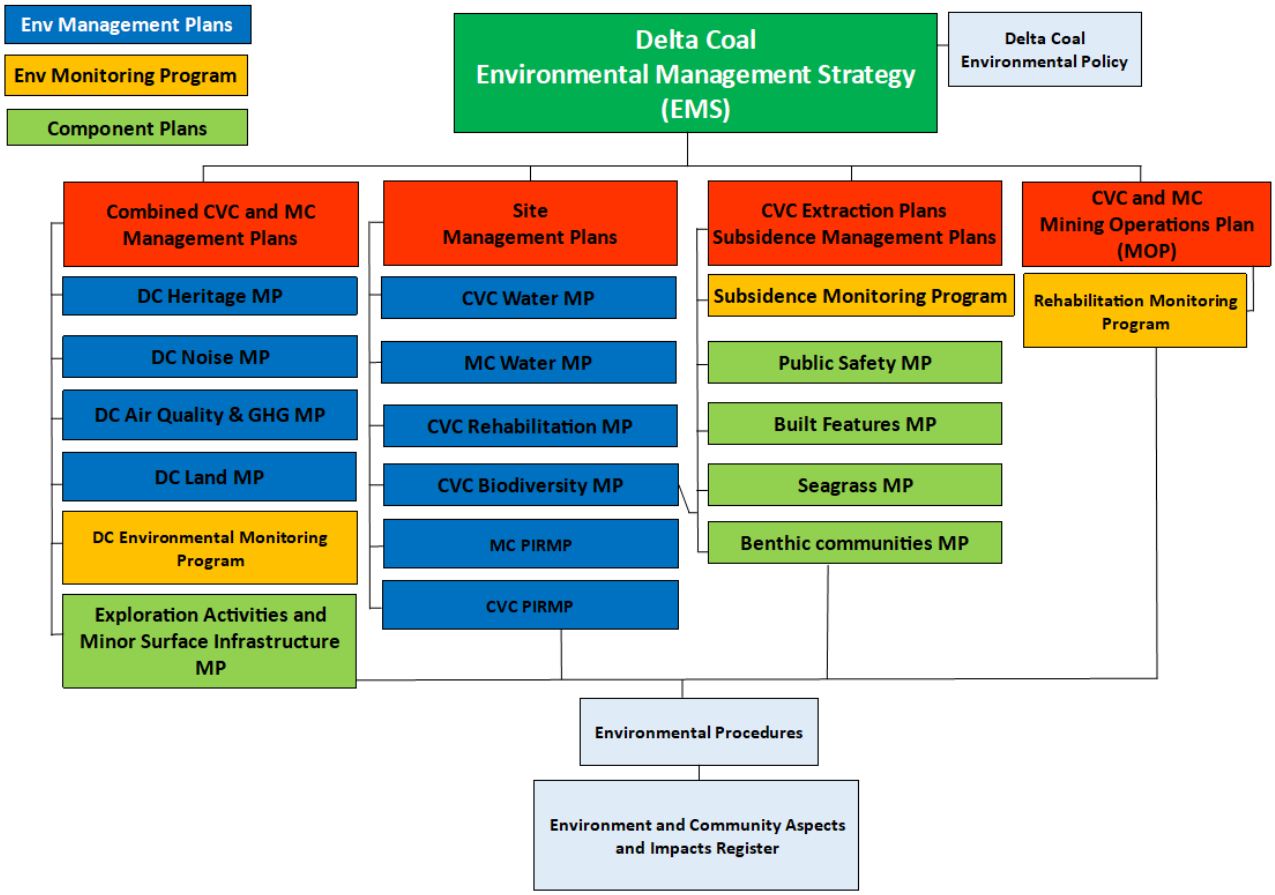
- Requirements of Development Consent SSD-5465 (CVC Development Consent) Modification 4 (**Appendix B**);
- Requirements of Project Approval 06_0311 (MC Project Approval) Modification 5 (**Appendix C**);
- Requirements of Environmental Protection License (EPL) 1770 (**Appendix D**); and
- Requirements of EPL 191 (**Appendix E**).

The purpose of the AQGHGMP is to:

- Provide a description of the mitigation and management measures to be implemented by DC and its contractors to minimise and mitigate the potential for air quality and greenhouse gas (GHG) impacts on the local community and the environment;
- Provide detail of the measures required to ensure compliance with the CVC Development Consent Modification 4, MC Project Approval Modification 5, CVC EPL 1770 and MC EPL 191;
- Detail the impact assessment criteria applying to the site;
- Detail the air quality and GHG monitoring and reporting requirements;
- Identify the requirements for air quality incident reporting and reviews of the document;
- provide a mechanism for assessing and reporting of air quality monitoring results against the relevant air quality impact assessment criteria;
- Identify persons responsible for implementation of the requirements of the AQGHGMP; and
- Document regulatory consultation.

This Delta Coal AQGHGP forms part of the Environmental Management Strategy (EMS) framework which has been detailed in **Figure 1**.

Figure 1: Delta Coal Environmental Management Strategy Framework

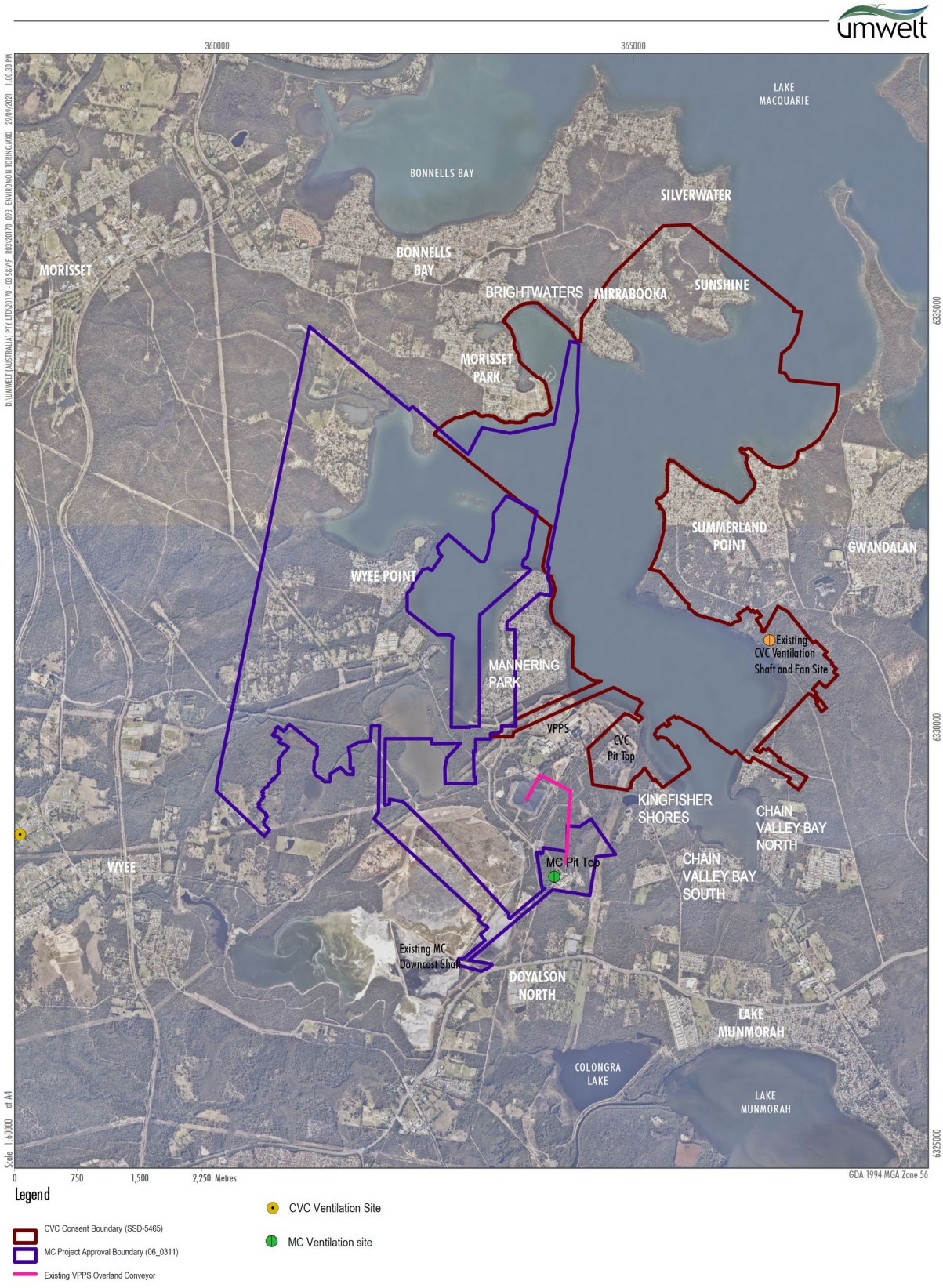


1.2 Background

Both CVC and MC are neighbouring underground coal mines located on the southern side of Lake Macquarie approximately 60 km south of Newcastle and 80 km north of Sydney, the sites locality has been identified on **Figure *2***. The CVC and MC pit tops are located approximately 1.5 km south-east and 3 km south of the township of Mannering Park respectively.

As of 1 April 2019, Great Southern Energy Pty Ltd (trading as Delta Coal) own and operate the two underground coal mines. Mining is currently undertaken at CVC with coal being transported underground via a series of underground crushers and sizers to MC where the coal is screened and sent directly to the Vales Point Power Station (VPPS) via an overland conveyor.

Figure 2: Chain Valley Colliery and Mannering Colliery Locality



1.4 Approved Operations

CVC undertakes coal extraction through both first workings and secondary workings (miniwall and pillar extraction methods), with run of mine (ROM) coal transported underground to MC where the coal is crushed and screened and conveyed directly to VPPS.

CVC Development Consent Modification 3 and MC Project Approval Modification 5 was approved on 26 June 2020.

The primary alterations within Modification 3 to the CVC Development Consent allowed for:

- The transport of ROM coal from CVC to MC via the underground conveyors linking the operations at a rate up to the annual extraction level approved under SSD-5465 (i.e. 2.1 Mtpa); and
- A change in the consent's definition of 'first workings' to allow a broader use of bord and pillar mining methods within the approved consent boundary.

The primary alterations Modification 5 to the MC Project Approval allowed for:

- An increase in the rate of ROM coal handled at MC and transported via overland conveyor to VPPS from 1.3 Mtpa to 2.1 Mtpa;
- An extension of allowed operations until 31 December 2027; and
- Use of alternate bord and pillar mine designs.

Modification 4 to the CVC Development Consent was granted in July 2021 and allowed:

- Extension of the CVC consent boundary to incorporate the Northern Mining Area and mining leases acquired from Myuna Colliery; and
- Increasing the number of employees under the CVC Development Consent from 220 to 330 full-time equivalent employees.

1.5 Surface Infrastructure

1.5.1 Chain Valley Colliery Surface Infrastructure

Surface infrastructure at CVC comprises facilities at the 14-hectare pit top area, located adjacent VPPS, off Construction Road at Mannering Park. There is an additional 0.3-hectare area at the ventilation facility located at Summerland Point. Both the pit top and ventilation facilities have remained largely unchanged since their establishment.

CVC operates 24 hours per day, seven days per week. Surface infrastructure with potential to impact air quality conditions comprise:

- Operations undertaken on unsealed ground surfaces;
- Dust generation from the former coal stockpile area and associated rehabilitation;
- Construction or demolitions works; and
- Mine ventilation fans.

1.5.2 Mannering Colliery Surface Infrastructure

MC operates 24 hours per day, seven days per week. Surface infrastructure with potential to impact air quality conditions comprises:

- Haulage system associated with the coal conveyor drift;
- Operation of coal stockpiling area;
- Coal-handling facilities for breaking, crushing, sizing and storing materials, noting however, dust suppression is in-built to these facilities;
- Use of earth moving to manage the product on the coal stockpile (currently a front-end loader, previously an excavator or dozer);
- Overland conveyor system to VPPS (noting the YE1 and YE2 overland conveyor system is owned and operated by Delta Electricity);
- Mine ventilation fans; and
- Operations undertaken on unsealed portions of the site including eastern portions of the storage yard.

1.6 Consultation

In accordance with Condition 13, Schedule 3 of the CVC Development Consent and Condition 17, Schedule 3 of the MC Project Approval, this AQGHGMP has been prepared following the approval of the most recent consent modifications.

This revision of the AQGHGMP (v1) was provided to the NSW Environmental Protection Authority (EPA) and the NSW Department of Planning, Industry and Environment (DPIE) on the 26 September 2020 and again on the 5 November 2020, following endorsement of independent experts by the Secretary (endorsement provided in **Appendix F**).

This AQGHGMP is based substantially on the previously approved AQMPs/AQGHGMPs for CVC and MC, however reflects changes related to CVC Development Consent and MC Project Approval modifications, as well as combining the AQGHGMPs to a DC overarching management plan.

Consultation with the NSW EPA and the DPIE will be presented within **Table 1** below, evidence of consultation will be provided in **Appendix A**.

Table 1: Consultation Summary

Stakeholder	Comments	Response/Action
NSW EPA	NSW EPA were provided the AQGHGMP on the 5th November 2020. The EPA noted it encourages the development of such plans, however the EPA does not approve or endorse these documents.	Nil.
NSW DPIE	NSW DPIE received V1 (26/09/2020) of the AQGHGMP on the 26th September 2020. Initial comments were provided by the DPIE on the 11th August 2021 – requesting the document be revised to address specific comments.	Delta Coal reviewed and updated the document in consideration of the comments made by the DPIE.

2 Statutory Requirements

2.1 Key Legislation, Policy and Guidelines

Both State and Commonwealth environmental legislation applies to DCs operation and activities. A number of legislative requirements, government policies and guidelines relating to management of air quality and greenhouse gases are applicable. Key items of legislation, standards and guidelines relevant to this AQGHGMP are:

- Environmental Planning and Assessment Act 1979 (EP&A Act);
- Protection of the Environment Operations Act 1997 (POEO Act);
- The Protection of the Environment Operations (Clean Air) Regulations 2010;
- National Greenhouse and Energy Reporting Act 2007 (NGER Act);
- National Greenhouse and Energy Reporting Regulations 2008 (NGER Regulations);
- The Approved Methods for Sampling and Analysis of Air Pollutants in NSW guidelines (DEC, 2007);
- AS/NZS 3580.10.1-2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulates - Deposited Matter - Gravimetric Method; and
- AS 3580.9.8-2008: *Methods for sampling and analysis of ambient air Determination of suspended particulate matter - PM_{10} continuous direct mass method using a tapered element oscillating microbalance analyse.*

2.2 Development Consent / Project Approval

2.2.1 Chain Valley Colliery Development Consent SSD-5465

Works at CVC will be undertaken in accordance with the CVC Development Consent, as per Condition 2, Schedule 2, as well as in general accordance with the Environmental Impact Statement (EIS), Statement of Environmental Effects (SEE) (MOD 1), SEE (MOD 2), SEE (MOD 3), SEE (MOD 4), Project Layout Plans and Statement of Commitments.

Air quality and greenhouse gas emission related requirements of the CVC Development Consent together with where they are addressed in this AQGHGMP are provided in **Appendix B**.

2.2.2 Mannering Colliery Project Approval 06_0311

In accordance with Condition 2, Schedule 2 of the MC Project Approval, works will be undertaken in accordance with the Project Approval as well as in general compliance with the Environmental Assessment (EA), EA (MOD 1), EA (MOD 2), EA (MOD 3), SEE (MOD 5), Project Layout Plans and Statement of Commitments.

Air quality and greenhouse gas emission related requirements of the MC Project Approval, together with where they are addressed in this AQGHGMP are provided in **Appendix C.**

2.3 Environmental Protection License

2.3.1 Chain Valley Colliery Environmental Protection License 1770

CVC operates under EPL 1770 issued by the NSW EPA under the POEO Act. The EPL has been modified, most recently on 1 April 2019 acknowledging the transfer of ownership from LakeCoal Pty Ltd to Great Southern Energy Pty Ltd.

Air quality and greenhouse gas emission related requirements of EPL 1770 together with where they are addressed in this AQGHGMP are provided in **Appendix D**.

2.3.2 Mannering Colliery Environmental Protection License 191

Mannering Colliery operates under EPL 191 issued by the NSW EPA under the POEO Act. The EPL has been modified, most recently on 1 April 2019 acknowledging the transfer of ownership from LakeCoal Pty Ltd to Great Southern Energy Pty Ltd.

Air quality and greenhouse gas emission related requirements of EPL 191 together with where they are addressed in this AQGHGMP are provided in **Appendix E.**

2.4 Greenhouse Gas and Energy Regulation

Under the NGER Act, DC is required to assess and report greenhouse gas emissions and energy usage. Under the NGER Act, DC reports the following to the Clean Energy Regulator (CER) annually:

- Scope 1 GHG emissions, which are the direct results of activities at a facility under the operational control of DC, such as underground mine ventilation emissions;
- Scope 2 GHG emissions, which are the emissions not under the control of DC, rather are associated with the generation of electricity that has been purchased by DC;
- Annual energy consumption such as diesel and electricity consumption; and
- Annual energy production, such as the energy in the extracted ROM coal.

The reporting of the above will be undertaken in accordance with the following legislation made under the NGER Act:

- National Greenhouse and Energy Reporting Regulations, 2008; and
- National Greenhouse and Energy Reporting (Measurement) Determination, 2008.

Submission of DCs GHG emissions data is made under the parent entity for both CVC, MC and Vales Point Power Station, Delta Electricity, NGER ID: 66 620 205 263.

2.5 National Pollutant Inventory

DC provides annual National Pollutant Inventory (NPI) reports for both CVC and MC to the NSW EPA. The DC pollutant inventory is available on the Commonwealth NPI website (www.npi.gov.au).

3 Air Quality Management

In accordance with applicable Development Consents and Project Approvals, Delta Coal will implement best practise air quality management at the site(s), including all reasonable and feasible measures to minimise the off-site odour, fume and dust emissions generated by the development.

The following section details Delta Coal's air quality management system and measures.

3.1 Air Quality Impact Assessments

3.1.1 CVC Air Quality Impact Assessment – PAEHolmes 2013

In order to assess the potential air quality impacts from the extension of CVC as sought under SSD-5465, the '*Chain Valley Colliery Mining Extension 1 Project – Air Quality and Greenhouse Gas Impact Assessment*', PAEHolmes, 2013 (PAEHolmes 2013) assessment was prepared in accordance with *The Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA 2005)*. Modelling was undertaken in the assessment using the TAPM and CALMET/CALPUFF models.

The predictions of the PAEHolmes 2013 assessment are summarised in **Table 2** and identify no predicted exceedances of the relevant criteria. Additionally, the assessment predicted no exceedances of the maximum PM_{10} 24-hour or maximum $PM_{2.5}$ 24-hour criteria as a result of CVC operations.

Table 2: Maximum Predicted Cumulative Air Quality Impacts (PAEHolmes 2013)

Receptor ID*	TSP Annual Average ($\mu g/m^3$)	PM_{10} Annual Average ($\mu g/m^3$)	$PM_{2.5}$ Annual Average ($\mu g/m^3$)	Depositional Dust Annual average (g/m^2/month)
Criterion	90	30	8	4
Background	44.8	17.9	6.1	1
1 (R12)	61	22	6.5	2.1
2 (R15)	50	20	6.3	1.2
3 (R19)	49	19	6.3	1.2
4 (R22)	47	19	6.3	1.1
5 (R9)	49	19	6.2	1.4

* For receptor locations see Figure 10.1, CVC Extension 1 Project EIS (EMM Consulting, 2013)

3.1.2 MC Air Quality Impact Assessment – Holmes Air Sciences, 2007

In order to assess the potential air quality impacts from the continued operation of MC as sought under the MC Project Approval, the *'Mannering Colliery Continuation of Mining Environmental Assessment, Air Quality and Greenhouse Gas Impact Assessment,* Holmes Air Sciences, 2007 (Holmes Air Sciences 2007) was undertaken. Criteria and background levels determined from the assessment are presented in **Table 3**.

Table 3: Background Air Quality Conditions and Proposed Criteria (Holmes Air Sciences, 2007)

Receptor ID*	TSP Annual Average ($\mu g/m^3$)	PM_{10} Annual Average ($\mu g/m^3$)	Depositional Dust Annual average (g/m^2/month)
Criterion	90	30	4
Background	40	18-23	1

The MC Air Quality Impact Assessment (Holmes Air Sciences, 2007) calculated total potential TSP emissions from all sources at MC to be 1.5 g/s and considered this to be a negligible emission in the context that the closest residential receptors are located approximately 800 m from the emission source. Modelling undertaken in the assessment indicated that MC's PM_{10} contribution to the annual average at the most affected receptor to be less than 0.05 $\mu g/m^3$. The extremely small anticipated contribution from MC operations indicated that further modelling was not justified.

3.2 Dust Control Measures

Following the development of the underground link between CVC and MC, all surface handling of ROM coal is undertaken at MC.

Due to the physical nature of mine operations, there is the potential for air quality emissions due to suspended dust particles. The dust generally emanates from crushing areas, stockpiles, unsealed roads and operational hardstand areas and are usually wind or traffic generated.

The crushing plant at MC is enclosed, has dust suppression sprays and shrouding which reduces the dust emanating from the building. Coal from the crushing plant is transported by an enclosed conveyor with water sprays on a tripper belt and falls to the reclaim valve in the stockpile area where it is sent via conveyor to the VPPS. The conveyors are fully covered with water sprays to reduce potential dust generation.

If the coal valve and reclaim tunnel conveyor to the VPPS are limiting product coal removal, the product coal is stockpiled. Where dust emissions are observed from stockpiled coal water sprays will be utilised to mitigate dust generation and the stockpiles will be wet prior to handling.

Adverse (enhancing) meteorological conditions that may affect dust impacts at sensitive receptors are considered when planning potential dust generating works, specifically the avoidance of dust generating works where strong winds and/or severe dry conditions are forecasted.

Measures undertaken to mitigate or prevent dust emissions from CVC and MC are presented in **Table 4.**

Table 4: Air Quality Management Practices

Action to Prevent or Mitigate Emissions	Timing	Performance Indicator
General Controls		
Prevent / limit the use of the emergency coal stockpile and coal handling machinery.	During adverse meteorological conditions and where practicable/achievable.	• No exceedances of dust criteria • No generation of visible dust from coal stockpiles, • No dust complaints from nearby receptors
Installation of water sprays and dust suppression measures as deemed suitable to minimise dust from coal stockpiles.	Where visible dust is generated from coal stockpiles, as deemed necessary to minimise dust generation	• No exceedances of dust criteria • No generation of visible dust from coal stockpiles, • No dust complaints from nearby receptors
Preventing or restricting (as achievable) potential dust generating mine activities such as heavy machinery operation, use of unsealed roads, earth/ground disturbing works, haul	During adverse meteorological conditions and where practicable/achievable.	• No exceedances of dust criteria • No generation of visible dust from site operations • No dust complaints from nearby receptors
Periodic use of a water-cart on unsealed roads and hardstand areas during dusty or dust generating conditions	Operation as required	No exceedances in dust criteria and no dust complaints from nearby receptors
Speed limit on both sites is limited to 15 km/hr	All hours	No visible dust
Use of a road sweeper on the mine entry road and internal sealed roads	Monthly or as required	No exceedances in dust criteria and no dust complaints from nearby receptors
Exposed surface areas will be minimised by rehabilitating any areas not required for mining related activities or support infrastructure	As required	Exposed areas minimised

Action to Prevent or Mitigate Emissions	Timing	Performance Indicator
Any soil stockpiles will be revegetated if not being used for rehabilitation activities	As required	Stockpiles revegetated where appropriate
Mobile plant will be serviced and maintained including exhaust systems	In accordance with servicing schedules for plant	Maintenance work orders completed
Air quality monitoring through the use of dedicated and site-specific dust deposition gauges (DDGs) and a continuous real-time PM_{10} monitor with an alarming system. $PM_{2.5}$ is monitored regionally with the mine's contribution to regional $PM_{2.5}$ concentrations considered following a $PM_{2.5}$ air quality criteria exceedance	Monthly sampling for DDGs (no greater than 30 ± 2 days between samples) and real-time	Data summary in Annual Reviews with data capture greater or equal to 90%
Air quality monitoring through the use of a Delta Coal dedicated PM_{10} real-time monitoring, with live data sharing and alarming/notification systems	Real-time alarming Results are reviewed and made public on the Delta Coal website in monthly environmental review	Data summary in Annual Reviews with data capture greater or equal to 90%
Review DDG, PM_{10} and $PM_{2.5}$ monitoring results on a monthly basis	Monthly	No exceedances of criteria with a summary provided in the Annual Reviews. Timely investigation of potential criteria exceedances
Respond to any potential or actual non-compliances and report these as required to regulatory bodies and other stakeholders	As required by approvals and licences	Non-compliance summary reported in Annual Review. Non-compliance reports sent to relevant stakeholders
Operation of complaints line with all complaints recorded in complaints register with corrective action undertaken	All hours of operation	Complaints responded to in a timely manner
Coal Mining, Crushing and Transport Controls		
Water sprays will be used on mining and crushing equipment to reduce dust levels at the source of generation	During hours of operation	No exceedances in dust criteria and no dust complaints from nearby receptors

Action to Prevent or Mitigate Emissions	Timing	Performance Indicator
Water sprays will be used at nominated conveyor transfer points	During hours of operation	No exceedances in dust criteria and no dust complaints from nearby receptors

3.3 Existing Environment

Local air quality is influenced by particulate emissions primarily from dry exposed surfaces, bushfires, dust storms, mining activities, clearing activities, stack emissions and vehicles.

Statements of Environmental Effects (SEEs) were prepared to facilitate CVC Development Consent Modification 4 (*Statement of Environmental Effects, Chain Valley Colliery – Modification 4*, Umwelt Consulting 2019) and MC Project Approval Modification 5 (*Statement of Environmental Effects, Mannering Colliery – Modification 5*, EMM Consulting 2019) and note that no significant changes in predicted air quality impacts. Rather, it was anticipated that a potential reduction due to the direct conveyance of product coal to VPPS, reducing road transportation and stockpiling of coal as described and assessed in PAEHolmes 2013 (CVC) and Holmes Air Sciences 2007 (MC).

The potential for particulate matter to disperse and result in impacts on nearby sensitive receivers is dependent on the quantity of particulate matter generated, its size, and the prevailing wind direction and speed. In summer the wind is predominantly from the south/south-east and north-east, while in winter the wind is predominantly from the south-west. Autumn and spring experience a combination of these wind conditions.

The nearest residential areas to CVC and MC are Macquarie Shores Home Village, Kingfisher Shores and Chain Valley Bay to the east, several isolated residences to the south adjacent the Pacific Highway and Mannering Park beyond the VPPS to the north. Elsewhere, the areas to the north, south and west generally comprise industrial facilities and vegetation.

Depositional dust monitoring is undertaken via dust deposition gauges (DDGs) installed around CVC, which been used to monitor monthly levels since 2012. DDGs around MC have been monitored since 2006. A tapered element oscillating microbalance (TEOM) that records $PM_{10}$was installed in 2013 and is currently located at the Mannering Park Sewage Treatment Plant. The locations of the DDGs and TEOM have been identified on **Figure 3**.

As CVC, MC, and other significant industrial ventures in the local area commenced operations prior to the advent of the EP&A Act or significant air quality monitoring, no site-specific background data is available against which to assess incremental changes in air quality as a consequence of CVC operations. Rather, the PAEHolmes 2013 Air Quality Impact Assessment derived site values for various air quality parameters based on local and regional data sources which are presented in **Table *5***.

Table 5: Derived Local Ambient Air Quality (Air Quality Impact Assessment, PAEHolmes, 2013)

Air Quality Parameter	Annual Average Concentration	Data Source
Depositional dust	1g/m^2/month	Mannering Colliery DDGs
Total Suspended Particles (TSP)	44.88 µg/m^3	Wallsend EPA Monitor
PM_{10}	17.9 µg/m^3	Wallsend EPA Monitor
$PM^{2.5}$	6.1 µg/m^3	Wallsend EPA Monitor

3.4 Odour Management

Spontaneous combustion of coal and fumes from blasting are the primary potential source of odour at a coal mine. These are discussed in **Section 3.5** and **Section 3.6**, respectively.

3.5 Fume Management

Fumes are generally associated with blasting at open cut mines. Post-blast fumes can produce an orange or brown plume under less than ideal blast conditions. Given blasting is not undertaken and it is an underground setting, fumes are not considered to be a source to ambient air quality, and unlikely to contribute to any exceedances of the relevant criterion.

3.6 Spontaneous Combustion

The R70 self-heating rate value recorded for a sample from the middle of the Fassifern Seam is 3.03 °C/h. This rates the coal as having medium intrinsic spontaneous combustion reactivity for New South Wales conditions. This value is consistent with the rank and type of coal and agrees with previous test results obtained for the Fassifern Seam at CVC. The self-heating rates of the samples from CVC are significantly lower than coals from the Hunter Valley.

Moist adiabatic benchmark tests of the samples from CVC indicate that self-heating is controlled by the moisture in the coal and the initial start temperature. Heating development to thermal runaway would take in the order of 48 to 72 days for the middle of the Fassifern Seam, but the top and bottom of the seam show self-heating over a protracted period, before any possible thermal runaway could take place. Similarly, the higher ash content Chain Valley Rider Seam also shows a protracted delay in self-heating due to its lower intrinsic reactivity.

While the laboratory R70 analysis of the Fassifern seam coal at CVC indicates a medium propensity for spontaneous combustion, propensity to spontaneously combust is only one factor in a complex chain of conditions that can create spontaneous combustion in underground coal mines. There are no known underground spontaneous combustion incidences in the Fassifern seam of neighbouring mines or in-situ at CVC or MC. Accordingly, the risk of spontaneous combustion is considered to be low. Coal stockpiling at MC is kept to a minimum and is managed in such a way as to limit risk of combustion.

The incidence of underground spontaneous combustion is addressed within the site-specific Spontaneous Combustion Principal Hazard management plan (PMHMP 00009 - Spontaneous Combustion).

Underground controls to mitigate risk of spontaneous combustion include:

- The mine has no known recorded in-situ spontaneous combustion events in its 50+ year history at CVC. A heating was discovered and managed at MC in June 2015;
- Spontaneous combustion is considered at the mine design phase;
- Trigger Action Response Plans have been developed to identify and manage any deviation from normal operating conditions with respect to indicators of spontaneous combustion;
- The mine monitors gases using a multipoint tube bundle gas analysis system; and
- The mine conducts regular underground inspections by Mining Officials.

Surface incidence of spontaneous combustion is considered a minimal risk given seam characteristics and limited stockpiling activities undertaken due to consistent operation of conveyors to VPPS.

There are some combustible materials throughout the mine's (predominantly within dam embankments) which, while not prone to spontaneous combustion, still pose a combustion risk when exposed to external heat sources such as bushfires.

Following cessation of mining:

- All remaining saleable coal material will be recovered; and
- An assessment of combustion risk over surface areas within all domains will be undertaken and recommended actions will be implemented.

3.7 Management of Unexpected Impacts

In the event that expected air quality impacts are discovered or anticipated to be occurring at off-site receptors, DC will consider management options including but not limited to:

- Review of management controls and monitoring systems specific to the affected residence;
- Mitigations options (such as installation of dust suppression and air conditioning units); and
- Entering into an impact cooperation agreement with the landowner.

3.8 Meteorological Management

Delta Coal utilises meteorological monitoring to aid in guiding the site(s) air quality management system. The meteorological data obtained is used to determine prevailing local weather conditions, including wind direction, wind speed, temperatures, solar radiation and humidity. The monitoring can be used to guide the appropriate mitigation measures and intensity that measures are required under, this can be useful in determining air quality impact sources, the likely intensity of the impact and the likely migration direction and speed of air quality impacts (i.e. dust plume migration).

Review of historical information can be utilised by Delta Coal in regards to likely periods of dust generating meteorological conditions to aid yearly forecasting and planning, as well as determining the source of dust from site.

4 Air Quality Monitoring and Measurement

4.1 Air Quality Criteria

In accordance with the CVC Development Consent (as modified) and MC Project Approval (as modified), DC must ensure all reasonable and feasible avoidance and mitigation measures are employed so that particulate emissions generated by the sites do not cause exceedances of the air quality criteria in **Table 6**.

Table 6: CVC and MC Air Quality Criteria

Pollutant	Averaging Period	Criterion	
Particulate matter < 2.5 µm ($PM_{2.5}$)	Annual	[a, c] 8 µg/m^3	
	24-hour	[b] 25 µg/m^3	
Particulate matter < 10 µm (PM_{10})	Annual	[a, c] 25 µg/m^3	
	24-hour	[b] 50 µg/m^3	
Total suspended particulate (TSP) matter	Annual	[a, c] 90 µg/m^3	
Deposited dust	Annual	[b] 2 g/m^2/month	[a] 4 g/m^2/month

Notes:

a Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources).
b Incremental impact (i.e. incremental increase in concentrations due to the development on its own).
c Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Planning Secretary
d Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air – Determination of Particulate Matter – Deposited Matter – Gravimetric Method.

It is noted within the CVC Development Consent and MC Project Approval that the air quality criteria in presented in **Table 6** of this AQGHGMP do not apply if DC has an agreement with the owner/s of the relevant residence or land to exceed the air quality criteria, and DC has advised the DPIE in writing of the terms of this agreement.

4.2 Monitoring Locations

Consistent with previously approved Air Quality Management Plans for CVC and MC, and in recognition of routine compliance with the applicable criteria since the commencement of monitoring, the monitoring locations for the dust deposition monitoring network and real-time PM_{10} monitoring remain unchanged, with exception to DDG006.

DDG006 was established in January 2020 to the east of the CVC vent fan site at Summerland Point, following frequent contamination of DDG005. Following approval of this AQGHGMP by the Planning Secretary, monitoring site DDG005 will be uninstalled due to frequent contamination deemed unrelated to the CVC vent fan operations.

DC air quality monitoring locations are shown on **Figure 3** and comprise:

- One real-time PM_{10} monitor (RTD001);
- One real-time $PM_{2.5}$ monitor (RTD002) managed by VPPS; and
- Ten dust deposition gauges:
  - DDG001 to DDG004 and DDG006 established to monitor depositional dust in order to satisfy CVC air quality monitoring reequipments; and
  - DG1 to DG5 established to monitor depositional dust in order to satisfy the MC Project Approval and the MC EPL.

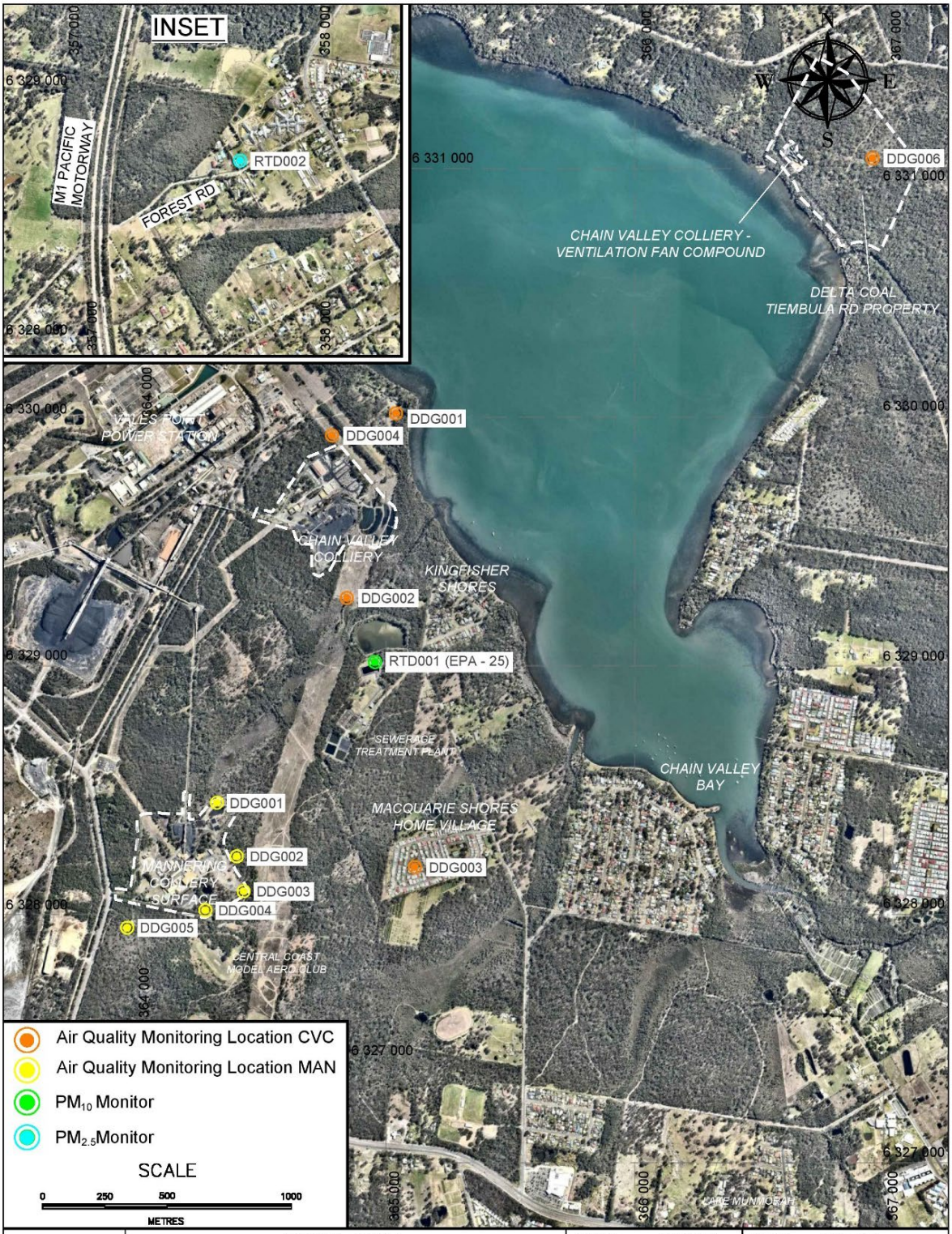
Table 7 describes the location of monitoring points. **Figure 3** shows air quality monitoring points.

Table 7: Air quality Monitoring Locations

Site ID no.	GPS Coordinates	Location
Continuous Real-time Monitoring Locations		
RTD001	Easting 364955 Northing 6329015	PM_{10} at Mannering Park Sewerage Treatment Plant, 220 Tall Timbers Road
RTD002[#]	Easting: 357628 Northing: 6328710	$PM_{2.5}$ at Forest Road, Wyee
Chain Valley Colliery Dust Deposition Gauge Locations		
DDG001	Easting 365040 Northing 6330016	North-east of CVC, mine cottages
DDG002	Easting 364842 Northing 6329273	South of CVC, powerline easement
DDG003	Easting 365115 Northing 6328190	South of CVC, Macquarie Shores Village
DDG004	Easting 364782 Northing 6329927	North of CVC, powerline easement
DDG006	Easting 366955 Northing 6331042	East of vent fan site, Summerland Point
Mannering Colliery Dust Deposition Gauge Locations		
DG1 (EPL 191 ID: 3)	Easting 364319 Northing 6328448	North-west of final dam
DG2 (EPL 191 ID: 4)	Easting 364399 Northing 6328232	North of hardstand area
DG3 (EPL 191 ID: 5)	Easting 364427 Northing 6328092	North-east of hardstand area
DG4 (EPL 191 ID: 6)	Easting 364273 Northing 6328016	East of car park
DG5 (EPL 191 ID: 7)	Easting 363959 Northing 6327946	South of main site entry

[#] $PM_{2.5}$ managed by VPPS

Figure 3: Air Quality Monitoring Locations



4.3 Real-time Alarms

Delta Coal utilises a real-time alarm on its Tapered Element Oscillating Microbalance (TEOM) PM_{10} unit in support to its proactive air quality management system. The real-time alarming system allows the implementation of reactive air-quality management controls. Alarming levels include a warning when PM_{10} concentrations approach air quality criteria and an alarm for exceedances of criteria. Alarms trigger investigation and in the event of an on-site source being determined, then implementation of air quality controls as required to mitigate impacts of site generated emissions to air quality, in particular, dust control measures as required.

4.4 Method and Frequency

All methods utilised to monitor potential air pollution within the DC air quality monitoring program are undertaken in accordance with the *Approved Methods for Sampling and Analysis of Air pollutants in New South Wales* (DEC, 2007).

4.4.1 Method and Frequency – TEOM PM10

Table 8 outlines the air monitoring requirements as per the CVC EPL (Condition M2.2). It is noted that the MC EPL does not detail requirement for PM_{10} monitoring, however, is a condition of the both the MC Project Approval and CVC Development Consent.

Table 8: Air Monitoring Requirements for EPA ID 25

Pollutant	Units of measure	Frequency	Sampling Method
Particulate matter	micrograms per cubic metre ($\mu g/m^3$)	Continuous	AM-22 AS 3580.9.8-2001

The TEOM real-time monitoring station will record PM_{10} concentrations continuously, i.e. 24 hours per day, 7 days per week. Monitoring will only cease for maintenance and servicing of the monitoring unit or under circumstances beyond DC's control. Data capture to date has exceeded the 90% capture rate (greater than 7884 hours from 8760 hours in a year) as required by the approved methods.

The TEOM is programmed to record data every 5 minutes, including instantaneous, one-hour average and 24-hour average PM_{10} mass concentrations. The hourly and 24-hour average data is calculated on the hour. The monitor has a measurement range of 0 to 1,000,000 $\mu g/m^3$ (1 g/m^3) with accuracies of ± 2 $\mu g/m^3$ (1-hr average) and ± 1 $\mu g/m^3$ (24-hr average), and resolution of 0.1 $\mu g/m^3$. The monitor also has a large internal data storage capacity (500,000 records) and accordingly can run for an extended period of time in the event of a telemetry system failure, without loss of data.

Every 30 minutes the real time data from the monitor is sent via wireless connection to a web-based data management system. A web-based interface then allows the data to be viewed or downloaded, reports to be created and automated alarm generation when the predefined triggers are reached.

To ensure ongoing and accurate monitoring results a monthly maintenance and calibration schedule are in place for the monitoring system in accordance with OEM specifications and AS 3580.9.8-2008: *Methods for sampling and analysis of ambient air Determination of suspended particulate matter - PM_{10} continuous direct mass method using a tapered element oscillating microbalance analyser*. Compliance to daily limits is determined from real-time alarms and weekly reviews while compliance to annual PM_{10} limits will be assessed as part of the Annual Review.

4.4.2 Method and Frequency – $PM_{2.5}$

VPPS operate a beta-attenuation monitor (BAM) to record atmospheric $PM_{2.5}$ concentrations at Forest Road, Wyee, and actively provides $PM_{2.5}$ air quality data to DC via real-time data sharing. The BAM monitor location is identified on **Figure 3**. Sampling and maintenance of the unit is undertaken in accordance with OEM specifications and AS/NZS 3580.9.12:2013: *Methods for sampling and analysis of ambient air method 9.12: Determination of suspended particulate matter – $PM_{2.5}$ beta attenuation monitors*. Compliance to daily limits is determined from real-time alarms and weekly reviews while compliance to annual PM_{10} limits will be assessed as part of the Annual Review.

4.4.3 Method and Frequency – Total Suspended Particulates

Dedicated Total Suspended Particulate (TSP) monitoring is not undertaken at either MC or CVC. Alternatively, it is noted that an established relationship between TSP concentration and the concentration of particulate matter less than 10 microns in aerodynamic diameter (PM_{10}). In areas where coal mining is a significant component of the local particulate emission inventory, PM_{10} typically comprises approximately 40% of the TSP as documented in *'Air Pollution from Coal Mining and Related Developments',* State Pollution Control Commission, 1983 (SPCC 1983) and others. In air sheds where the particulate emission inventory is dominated by internal combustion engines, this percentage may reach 50% or greater.

Thus, as prior studies have confirmed that the long-term average of PM_{10} to TSP ratio is close to 0.4, compliance with TSP criteria can subsequently be determined by the mathematical equation:

$$TSP\ (annual\ average)\ =\ \frac{PM10\ (annual\ average)}{0.4}$$

Due to the nature of the relationship between TSP and PM^{10} concentrations, the TSP criterion for both mines of 90 µg/m^3 will always be met provided annual PM^{10} concentrations satisfy respective air quality criteria of 25 µg/m^3.

4.4.4 Method and Frequency – Dust Deposition Gauges

The DDGs will collect dust particles which settle out of the atmosphere. The deposited dust is assessed as insoluble solids. Monitoring of deposited dust will be undertaken every 30 days (±2 days), in accordance with AS/NZS 3580.10.1-2003: *Methods for sampling and analysis of ambient air – Determinations of particulate matter – Deposited matter – Gravimetric method*.

4.5 Meteorological Monitoring

DC operates a continuous meteorological monitoring station at MC. The MC meteorological station is located approximately 1.4km to the south, south-west of the CVC pit top facilities, with data available in real time which is accessed through a web-based portal. The meteorological monitoring station is operated in accordance with:

- AS 3580.14-2011: *Methods for sampling and analysis of ambient air - Meteorological monitoring for ambient air quality monitoring applications;*
- AS *2923-1987: Ambient Air – Guide for Measurement of Horizontal Wind for Air Quality Applications;* and
- The meteorological monitoring requirements of *Approved Methods for Sampling of Air Pollutants in NSW* (DEC, 2007).
- Meteorological monitoring requirements of the *Noise Policy for Industry 2017, NSW EPA (NPfI 2017).*

The MC meteorological station is located adjacent to the site sediment dams as shown on **Figure 3**. All monitoring equipment will be calibrated in accordance with the equipment manufacturers requirements and routinely maintained. The parameters currently measured at the MC weather station are presented in **Table 9**.

Table 9: Meteorological Monitoring at EPA Point 26

Parameter Measured	Units	Sampling Method	Sample/Averaging period nominated in EPL
Temperature at 2m	Degrees Celsius	AM-2 and AM-4 Approved Methods for the Sampling and Analysis of Air pollutants in NSW (DEC, 2007).	15 minutes / 1 hour
Temperature at 10m	Degrees Celsius		15 minutes / 1 hour
Relative Humidity	Percent		15 minutes / 1 hour
Rainfall	Millimetres		15 minutes / 24 hours
Wind speed at 10m	Kilometres per hour		15 minutes / 1 hour
Wind direction at 10m	Degrees		15 minutes / 1 hour
Barometric pressure	Hectopascals		15 minutes
Sigma Theta (standard deviation of wind direction)	Degrees		15 minutes / 15 minutes
Solar Radiation	Watts per square metre		15 minutes

Additionally, the Bureau of Meteorology (BOM) operates a weather station at Norah Head, approximately 18 km from the site, from which data can be obtained in the event the weather station is not functioning for a period of time. VPPS has a meteorological station positioned in Wyee which can be used as a backup if data at Mannering Meteorological station is unavailable.

5 Greenhouse Gas Management

5.1 Background

The two "scope" categories (Scope 1 and Scope 2) that are directly related to the on-site operation of CVC and MC comprise:

- Scope 1 greenhouse gas emissions which are the emissions released to the atmosphere as a direct result of an activity, or series of activities at a facility level. Scope 1 emissions are sometimes referred to as direct emissions and are specified under the NGER legislation and must be reported. Examples at CVC and MC are:
  - Fugitive emissions, such as methane and carbon dioxide emissions from the ventilation shaft
  - Emissions from the burning of diesel fuel in surface and underground vehicles
  - Gases used for welding (acetylene), gases in underground transformers (SF6);
  - Gas from Run of Mine (ROM) coal.
- Scope 2 greenhouse gas emissions are the emissions released to the atmosphere from the indirect consumption of an energy commodity. For example, 'indirect emissions' come from the use of electricity produced by the burning of coal in another facility. For CVC and MC, the Scope 2 emissions are the indirect emissions from the mining operation's consumption of purchased electricity that is produced by another organisation. Examples of Scope 2 emissions at CVC and MC includes electricity requirements for the following:
  - Mine ventilation (comprising majority of the mines electricity usage)
  - Continuous supply of compressed air to provide pneumatic power for air diaphragm pumps
  - Coal production equipment including continuous miners, coal haulage and conveyors and coal crushers and sizers.
- Scope 3 emissions are all other indirect emissions, and occur as a consequence of the activities (including extraction of coal and use of the sold product) of a facility.

Greenhouse gases are considered to comprise the following gases under the NGER Act:

- Carbon dioxide
- Methane
- Nitrous oxide
- Sulfur hexafluoride
- Specified hydrofluorocarbons in the Act
- Specified perfluorocarbons in the Act

Previous assessment of greenhouse gas emissions and energy efficiencies have been undertaken separately at CVC and MC, and are detailed in **Section 5.2** and **Section 5.3**.

5.2 CVC Greenhouse Gas Emissions

An Assessment of GHG Emissions, '*Chain Valley Colliery – Modification 2 – Greenhouse Gas Assessment',* Pacific Environment Limited, 2015 (Pacific Environment, 2015) was undertaken as part of a SEE facilitating CVC

Development Consent Modification 2. The estimated Scope 1, Scope 2 and Scope 3 emissions in tonnes CO_2 equivalents are shown in **Table 10.** Estimated emissions were the same for all years of operations.

***Table 10: Summary of Predicted CVC Greenhouse Gas Emissions* (Pacific Environment, 2015)**

Activity	Estimated Emissions (t CO_2-e)
Scope 1 Emissions	724,000
Scope 2 Emissions	26,000
Scope 3 Emissions	5,027,000

SSD-5465 Modification 2 proposed to increase the extractable annual volume of ROM coal at CVC from 1.5 Mtpa to 2.1 Mtpa. The estimated additional cumulative annual Scope 1 and Scope 2 emissions resulting from the 600,000 t increase in ROM coal production totalled 142,000 t CO_2-e, assuming the maximum extractable amount was achieved annually.

5.3 MC Greenhouse Gas Emissions

Assessment of potential GHG emissions undertaken as part of the Holmes Air Sciences 2007 assessment however the assessment factored coal production from Mannering Collier, which has since ceased due to changes in the site's operations. The estimated GHG emissions from the assessment are presented in **Table 11**.

Table 11: Summary of Predicted MC Greenhouse Gas Emissions (Holmes Air Sciences, 2007)

Activity	Estimated Emissions (t CO_2-e)
Scope 1 – Diesel combustion	372
Scope 1 – Fugitive Emissions	571,449
Scope 1 – TOTAL (Mine operations only)	**571,821**
Scope 2 Emissions	11,751
Total emissions (mine operations only)	**583,572**

Scope 3 emissions (i.e. GHG emissions due end use of the coal) presented in the assessment (2.2 Mt CO_2-e) have been omitted from this AQGHGMP and the table above as Mannering Colliery does not currently mine ROM coal, nor is mining of coal at MC anticipated in the foreseeable future.

5.4 Greenhouse Gas Control Measures

All reasonable and feasible measures to minimise the release of GHG emissions from DC operated facilities will be undertaken. A summary of the processes used to manage and minimise GHG emissions at CVC and MC are presented in **Table 12**.

Table 12: Greenhouse Gas Control Measures

Action to Prevent or Mitigate Emissions	Timing	Performance Indicator
The primary man and materials transport for the mine is undertaken through the use of an electric winder, not diesel transport.	Equipment design phase	Electric winder implemented

Action to Prevent or Mitigate Emissions	Timing	Performance Indicator
Completed miniwall panels will be sealed to reduce methane emissions from the goaf.	Ongoing – at completion of each panel	Completed miniwall goafs sealed
Herringbone production panels will have ventilation control devices installed and will not be ventilated (unless required for safety / inspection purposes), reducing fugitive emissions.	Ongoing – based on mining activities and areas	Implementation of Ventilation Arrangements Management Plan
Eliminate the use of public roads to transport coal from Mannering Colliery.	Implemented, public/private roads are no longer used for coal transport.	Transport now via conveyor
All coal will be transported via conveyor from CVC to MC, unless coal is intended for export, or, under extraordinary circumstances.	Ongoing	Transport via conveyor when hauling coal to VPPS, with exception for extraordinary circumstances.
Real time gas (methane and carbon dioxide), temperature, pressure and associated volumetric flow monitoring will be used at the ventilation shaft site to allow accurate measurement of ventilation (including methane and carbon dioxide) emissions, which will then allow further feasibility assessment of reuse options.	Installed	Data capture greater or equal to 90%.
Ensure maintenance, calibration and record keeping is undertaken on the main ventilation shafts and fans to allow calculation of greenhouse gas emissions.	Monthly	Report annually
Maintain records for monthly electricity/diesel/acetylene/SF6/HFC/CFC and monthly ROM coal production to allow calculation of greenhouse gas emissions	Quarterly	Report annually
Consider energy efficiency criteria as part of the procurement process	As required	Comparison of fuel efficiency/exhaust emissions

DC does not require pre- or post-gas drainage at CVC or MC. Given the low methane concentrations and ventilation quantities in the underground workings, flaring is not currently a potential way to reduce greenhouse gas emissions from the mine.

5.5 Greenhouse Gas Assessment Systems

CVC and MC are required to report GHG emissions in accordance with the National Greenhouse and Energy Reporting System (NGERS) at a corporate level.

The NGER Act and the NGER Regulations requires individual sites to report greenhouse gas emissions, energy consumption and energy production if certain thresholds are exceeded.

Thresholds relate to whether the site generates greenhouse gases (Scope 1 and 2) in excess of certain tonnage limit of CO2-e; or the site produces in excess of certain amount of energy or the site consumes in excess of certain amount of energy.

5.6 Greenhouse Gas Monitoring and Measurement

Greenhouse gas monitoring will be undertaken primarily through the monitoring of the composition and volume of the out-bye ventilation stream at the main ventilation shaft site for each site. Other sources of greenhouse gas emissions, including diesel use, oil and grease use, acetylene use, ROM coal mined and electricity use will be documented to enable the calculation of Scope 1 and 2 emissions.

Greenhouse gas determinations will be undertaken in accordance with the requirements of the NGER Act and the NGER Regulations and reported annually to the Australian Government's Clean Energy Regulator.

5.7 Parameters and Frequency Measured

5.7.1 Chain Valley Colliery

The CVC main ventilation fan site is monitored via a telemetry system logging real-time gas concentrations and parameters to determine the volumes of gas emitted, these data are regularly confirmed with the collection and analysis of gas-bag samples from the main ventilation fan site and at entry to the CVC drift portal. Details regarding GHG monitoring at CVC are presented in **Table 13**.

Table 13: CVC Greenhouse Gas Monitoring Details

Parameter	Monitoring Point	Frequency of Monitoring	Emissions Calculated	Comments
Methane	Main ventilation shaft	Real-time, continuous	Emissions factors used to convert from tonnes of CH_4 to tonnes of CO_2-e	Includes real-time, continuous monitoring of temperature, pressure and volumetric flow to accurately calculate emissions
Carbon Dioxide	Main ventilation shaft	Real-time, continuous	Tonnes of CO_2-e	Includes real-time, continuous monitoring of temperature, pressure and volumetric flow to accurately calculate emissions
Diesel Use	Stocktake/invoices	Annually	Emissions factor used to convert kL use to tonnes of CO_2-e	Reported from invoices. *Opening stock* and *Deliveries* minus *Closing Stock* equals *Usage*

Parameter	Monitoring Point	Frequency of Monitoring	Emissions Calculated	Comments
Oil Use	Stocktake/invoices	Annually	Emissions factor used to convert kL use to tonnes of CO_2-e	Reported from invoices. *Opening stock* and *Deliveries* minus C*losing Stock* equals *Usage*
Grease Use	Stocktake/invoices	Annually	Emissions factor used to convert kL use to tonnes of CO_2-e	Reported from invoices. *Opening stock* and *Deliveries* minus C*losing Stock* equals *Usage*
Electricity Use	Electricity meters/invoices	Monthly	Emissions factor used to convert kWh use to tonnes of CO_2-e	Usage on invoice comes from metered records, in kWh
Acetylene Use	Stocktake/invoices	Annually	Emissions factor used to convert kg use to tonnes of CO_2-e	Usage based on invoicing and size of Acetylene bottle(s)
ROM Coal Production	Calculated from weightometer and stockpile surveys	Monthly	Fugitive emissions factor based on ROM production. Emissions factor used to determine tonnes of CO_2-e	Final annual production in tonnes taken from annual coal royalty return
SF_6 in switchgear	Stocktake	Annually	Emissions factor used based on the amount of SF_6 onsite contained within switchgear and circuit breakers.	Register of SF_6 containing plant is maintained and records of SF_6 use are kept to enable calculation of greenhouse gas emissions

5.7.2 Mannering Colliery

GHG concentration monitoring at MC comprises the monthly collection of gas-bag samples with analysis at a National Association of Testing Authorities (NATA) accredited laboratory for gas composition at the site including permissible GHGs (CO_2 and CH_4). To determine the volume of gas emitted, statutory monthly mine ventilation surveys are utilised to determine gas make. The survey is undertaken with an appropriately calibrated anemometer. Details regarding GHG monitoring at MC are presented in **Table 14**.

Table 14: MC Greenhouse Gas Monitoring Details

Parameter	Monitoring Point	Frequency of Monitoring	Emissions Calculated	Comments
Methane	Main ventilation shaft	Monthly gas bag sample and monthly Ventilation Surveys	Emissions factors used to convert from tonnes of CH_4 to tonnes of CO_2-e	Monthly samples analysed by NATA accredited laboratory. Ventilation surveys undertaken utilising NATA accredited methods and calibrated equipment.
Carbon Dioxide	Main ventilation shaft	Monthly gas bag sample and monthly Ventilation Surveys	Tonnes of CO_2-e	Monthly samples analysed by NATA accredited laboratory. Ventilation surveys undertaken utilising NATA accredited methods and calibrated equipment.
Diesel Use	Stocktake/invoices	Annually	Emissions factor used to convert kL use to tonnes of CO_2-e	Reported from invoices. *Opening stock* and *Deliveries* minus *Closing Stock* equals *Usage*
Oil Use	Stocktake/invoices	Annually	Emissions factor used to convert kL use to tonnes of CO_2-e	Reported from invoices. *Opening stock* and *Deliveries* minus *Closing Stock* equals *Usage*
Grease Use	Stocktake/invoices	Annually	Emissions factor used to convert kL use to tonnes of CO_2-e	Reported from invoices. *Opening stock* and *Deliveries* minus *Closing Stock* equals *Usage*
Electricity Use	Electricity meters/invoices	Monthly	Emissions factor used to convert kWh use to tonnes of CO_2-e	Usage on invoice comes from metered records, in kWh
Acetylene Use	Stocktake/invoices	Annually	Emissions factor used to convert kg use to tonnes of CO_2-e	Usage based on invoicing and size of Acetylene bottle(s)
SF_6 in switchgear	Stocktake	Annually	Emissions factor used based on the amount of SF_6 onsite contained within switchgear and circuit breakers.	Register of SF_6 containing plant is maintained and records of SF_6 use are kept to enable calculation of greenhouse gas emissions

6 Reporting

6.1 Routine Reporting

The air quality monitoring results will be reviewed and reported on a monthly basis to confirm compliance with the criteria specified. Notification systems are active on both Delta Coals PM_{10} and Delta Electricity's $PM_{2.5}$ unit to notify the Delta Coal Environmental Compliance Coordinator when air quality criteria are approaching or exceeding 24-hour limits.

Corrective action is taken where results or trends indicate a non-compliance or risk of future non-compliance.

Greenhouse gas determinations will continue to be undertaken in accordance with the requirements of the NGER Act and the NGER Regulations and reported annually to the Australian Government's Clean Energy Regulator.

As a result of reporting under the NGER Act, emissions data will be made available publicly via the Clean Energy Regulator's website, www.cleanenergyregulator.gov.au.

6.2 Annual Review

The Air Quality and GHG Monitoring results will be presented in the Annual Review prepared for each site and will include a summary of monitoring results during the past year; a comparison against the air quality impact criteria; a summary of previous years' monitoring results; a comparison of the impacts with those predicted in the Environmental Impact Statement and present an analysis of the potential cause(s) of any significant discrepancies. The Annual Reviews will also identify any trends in air quality impacts and identify any non-compliance over the year as well as describing any actions currently implemented or planned to ensure compliance with the air quality impact criteria.

Relevant authorities will be forwarded a copy of the Annual Reviews as well as members of the Community Consultative Committee and local Councils (Central Coast and Lake Macquarie). The Annual Reviews will also be placed on the DC website (www.deltacoal.com.au) along with monthly summaries of environmental monitoring results.

The EPA will also be provided with an annual return including monitoring details as required by the CVC EPL and MC EPL.

6.3 Incident or Non-compliance Reporting

An air quality **incident** is considered to comprise a pollution event where-by actual or potential environmental harm has occurred as a result of the operation.

An air quality **non-compliance** is where environmental monitoring results identify an exceedance of development consent or EPL air quality limits as a result of the operations of the mine(s).

Following DC becoming aware of an incident, where ameliorative actions may reduce the threat or harm to the environment, DC will immediately undertake actions to mitigate or rectify the issue. Should potential or actual harm to the environment be identified, the DPIE will be notified immediately in writing via the Major Projects Planning Portal website (Condition 6, Schedule 6- SSD-5465), along with other appropriate regulatory authorities via phone and/or email, and applicable remediation measures applied. These actions will be followed by an investigation into the cause of the incident, with the incident investigation report to be provided to the DPIE and relevant regulatory authorities within 7 days of the incident. Pollution incident response protocol is identified within the Pollution Incident Response Management Plans (PIRMPs), which are maintained electronically within Delta Coals 'M-Files' document management system as well as physical copies within the sites respective 'Control Room'.

If monitoring reveals that, as a direct result of DC operations, levels have exceeded the relevant criteria outlined in **Section 4.1**, then DC will immediately notify the DPIE via the major projects planning portal and other regulatory authorities (such as the NSW EPA) will be notified via phone and/or email of the non-compliance. Delta Coal will then investigate the source of the non-compliance through an incident report. The investigation report will be provided to the DPIE and any other appropriate regulatory authorities within 7 days of the incident or within an alternatively agreed timeframe.

The investigation into the incident or non-compliance will consider any activities, plant operations or other factors that may have caused or contributed substantially to the incident / non-compliance. The written report will be provided to any affected landowner and/or existing tenants, including tenants of mine owned properties, to the DPIE, EPA and any other relevant stakeholders within 7 days of the date of the incident or being made aware of the incident (such as receiving monitoring data). The Incident Investigation Report will:

- Describe the date, time and nature of the observation
- Identify the cause (or likely cause) of the damage
- Describe what action has been taken to date
- Describe the proposed measures to address the impacts and prevent further such occurrences.

Following a confirmed exceedance of relevant air quality criteria presented in **Section 4.1** caused by the operation of the mines, affected landowners and/or tenants of the land will be sent a copy of the NSW Health fact sheet entitled "*Mine Dust and You*" (NSW Health, 2017), as well as copy of the Delta Coal incident / non-compliance investigation via mail / letter drop as soon as reasonably practicable.

Affected landowners are defined as persons or entities whose real property will be physically affected by the activity of the operation, Delta coal is committed to maintaining open and constructive communication with affected individuals/landowners and groups.

DC will implement the recommendations of the investigation in order to address any potential future incidents. Additional details of the incident reporting process are provided in the Environmental Management Strategy (EMS).

Any incidents or complaints will be recorded and fully investigated to find root causes and corrective actions implemented where necessary. Additionally, the following measures will be undertaken:

- A review of management practices to systematically identify and implement options to modify site practices so as to ensure effective control of dust-generating activities and achieve the air quality criteria stated in this plan;
- Additional air quality monitoring may be conducted at a complainant's request at an appropriate frequency; and
- Unpredicted greenhouse gas emissions will be identified, where possible, and corrective action implemented.

7 Stakeholder Management Response and Training

7.1 Complaint Protocol

DC has a 24-hour telephone hotline (1800 115 277) through which members of the public can lodge complaints, concerns, or to raise issues associated with the operation. This service aims to promptly and effectively address community concerns and environmental matters. All complaints are recorded and responded to. The information recorded in the complaint register includes:

- Date and time the complaint was lodged
- Personal details provided by the complainant
- Method by which the complaint was made
- Nature of the complaint
- Action taken or, if no action was taken, the reason why
- Follow up contact with the complainant.

7.2 Independent Review

As detailed in the CVC Development Consent and MC Project Approval, an Independent Review can be requested by a landowner who "*considers the development to be exceeding the relevant criteria in Schedule 3*".

If the Secretary is satisfied that an independent review is warranted, then within 2 months of the Secretary's decision the Applicant shall:

(a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Secretary, to:
- *consult with the landowner to determine his/her concerns;*
- *conduct monitoring to determine whether the development is complying with the relevant criteria in Schedule 3; and*
- *if the development is not complying with these criteria then identify the measures that could be implemented to ensure compliance with the relevant criteria; and*

(b) give the Secretary and landowner a copy of the independent review

7.3 Dispute Resolution

If any disputes are not adequately addressed by the complaints handling process then they will be handled by the Environment and Community Coordinator. If the response of DC is not considered to satisfactorily address the concern of the complainant, a meeting may be convened with the complainant and the Mine Manager together with the Environmental Compliance Coordinator (ECC) to determine any further options to reduce potential impacts.

Any actions agreed from the meeting will be implemented by DC. After implementation of the proposed actions the complainant will be contacted, and advice sought as to the satisfaction or otherwise with the measures taken.

If no agreed outcome is determined, or the complainant is still not satisfied by the action taken, then an Independent Review may be requested by the complainant. If determined to be warranted by the Secretary, an

independent review will be undertaken in accordance with the process identified in Schedule 5 of the CVC Development Consent / Schedule 4 of the MC Project Approval.

7.4 Training, Awareness and Competence

Training is an essential component of the implementation phase of this AQGHGMP. The ECC will ensure that training and awareness processes are implemented to manage, identify and minimise potential impacts of DC operations and to ensure personnel are aware of their roles and responsibilities in terms of air quality management and energy efficiency.

Generally training at DC consists of induction training for new starters and contractors along with environmental awareness training at two-year intervals and ongoing "toolbox" training for all permanent employees as required. Site inductions also specifically identify that no unauthorised clearing is to occur.

As the document owner, the ECC is the contact point for any person that does not understand this document or their specific requirements and will provide guidance and training to any person that requires additional training regarding this management plan.

7.5 Community Consultation

Air quality results from routine monitoring are published publicly on the Delta Coal website (www.deltacoal.com.au) in the monthly environmental report, this includes depositional dust, PM^{10} and $PM^{2.5}$ monitoring results. This AQGHGMP can also be downloaded from the Delta Coal website.

Delta Coal also holds a Community Consultative Committee where registered representatives are updated on the mines operations including environmental monitoring results and projects.

8 Audit and Review

8.1 Management Plan Review

In accordance with Condition 5, Schedule 5 of the MC Project Approval and Condition 5, Schedule 6 of the CVC Development Consent, this AQGHGMP shall be reviewed, and if necessary revised, within 3 months of the following:

- The submission of an Annual Review
- The submission of an Incident Report
- The submission of an Independent Environmental Audit
- Following any modification to the CVC Development Consent, MC Project Approval or either of the EPL's granted to DC.

In accordance with Condition 24, Schedule 2 of the CVC Development Consent and Condition 17, Schedule 2 of the MC Project Approval, if the Planning Secretary agrees, a strategy, plan or program may be staged or updated without consultation being undertaken with all parties required to be consulted in the relevant conditions of the approval/consent.

It is noted that if deemed necessary, the Planning Secretary may require that this AQGHGMP be revised, to the satisfaction of the Planning Secretary. Where revisions are required the revised document must be submitted to the Planning Secretary for approval within six (6) weeks of the review.

8.2 Audits

Internal and external audits of this document will be carried out as described below. Internal and external audits shall be objective and if possible be conducted by a person or organisation independent of the document being audited.

Audits shall be carried out by personnel who have the necessary qualifications and experience to make an objective assessment of the issues. The extent of the audit, although pre-determined, may be extended if a potentially serious deviation from this document is detected.

Any audit non-conformances and/or improvement opportunities will have corrective and preventative actions implemented to avoid recurrence, these actions will be loaded into the site Incident Database to ensure the actions are assigned to the relevant people and completed.

External audits will be conducted utilising external specialists and will consider this document and related documents. External auditors shall be determined based on skills and experience and upon what is to be accomplished.

An Independent Environmental Audit (IEA) was undertaken of both CVC and MC during June 2019. In accordance with CVC Development Consent Schedule 6, Condition 9 and MC Project Approval Schedule 5, Condition 9 IEA's will be scheduled for every three years thereafter (unless the Secretary directs otherwise) by an audit team whose appointment has been endorsed by the Secretary.

8.3 Continuous Improvement

In accordance with the DC Environmental Policy, DC commits to implementing and maintaining an Environmental Management System that aims to continuously improve environmental performance. DC will continuously seek to further air quality management by the way of improving existing controls and investigating new and emerging

technologies, implementing new controls where required, and thoroughly investigating any exceedance and non-compliance events.

9 Records and Document Control

9.1 Records

The ECC will maintain all Environmental Management System records which are not of a confidential nature. Records that will be maintained include:

- Monitoring data and equipment calibration
- Environmental inspections and auditing results
- Environmental incident reports
- The complaints register
- Licenses and permits.

All records will be stored such that they are legible, readily retrievable and protected against damage, deterioration and loss. Records will be maintained for a minimum of four (4) years or as otherwise required under any legislation, licence, lease, permit or approval.

9.2 Document Control

This document and all others associated with the Environmental Management System shall be maintained in a document control system that complies with the site Document Control Standard which is available to all site personnel. Any proposed change to this document will be made via the ECC.

Details regarding document revisions are provided in **Table 15**.

Table 15: AQGHGMP Revision Details

Version	Date	Details of Revision	Company	Reviewed by/ Authorised by
V1	26/09/2020	Original Delta Coal AQGHGMP	SLR Consulting Pty Ltd and Great Southern Energy Pty Ltd t/a Delta Coal	J. Cox (SLR Consulting Pty Ltd) L. McWha (Delta Coal)
V2	24/01/2022	Updates to address DPIE RFI to Original Delta Coal AQGHGMP	Great Southern Energy Pty Ltd	L. McWha (Delta Coal).

10 Roles and Responsibilities

All employees and contractors undertaking works on behalf of DC are responsible for environmental management. However, various positions in the organisation have roles, responsibilities and authorities for managing environmental aspects, action plans, programs and controls. Roles and responsibilities specific to completing the requirements of this AQGHGMP are identified in **Table 16**.

Table 16: Air Quality, Greenhouse Gas and Energy Efficiency Roles and Responsibilities

Roles	Responsibilities
General Manager	• Ensure that adequate financial and personnel resources are made available for the implementation of the AQGHGMP
CVC Site Supervisor MC Site Supervisor	• Ensure that the controls for air quality and greenhouse gases are implemented • Ensure dust suppression controls are implemented.
Manager of Mechanical Engineering	• Ensure mobile plant is serviced and maintained, including exhaust systems • Ensure water sprays are maintained and used on mining equipment to reduce dust levels at the source of generation
Manager of Electrical Engineering	• Ensure real-time gas (methane and carbon dioxide), temperature, pressure and associated volumetric flow monitoring is operational at the ventilation shaft site to allow accurate measurement of ventilation emissions. This will allow a feasibility assessment of any future reuse options that are developed • Ensure maintenance, calibration and record keeping is undertaken on the main ventilation shaft and fans to allow calculation of greenhouse gas emissions
Ventilation Officer	• Ensure all completed panels are sealed to reduce methane emissions • Ensure sections of the mine not in use have ventilation control devices installed and will not be ventilated (unless required for safety purposes) • Undertake monthly gas bag samples and analysis • Regularly check the real time and tube bundle system to ensure >90% data capture and data accuracy
Mine Accountant/Purchasing Officer	• Maintain records for monthly electricity use, diesel, acetylene and monthly ROM coal production to allow calculation of greenhouse gas emissions • Maintain usage and/or purchasing records for diesel, oils, grease and acetylene, to allow calculation of greenhouse gas emissions

Roles	Responsibilities
Environmental Compliance Officer	• Co-ordinate the air quality monitoring, through the use of deposited dust gauges and volumetric sampling • Review monitoring results on a monthly basis • Summarise real time PM_{10} and $PM_{2.5}$ data and obtain daily 24-hour averages on a monthly basis • Compile the Annual Review • Complete the annual National Greenhouse and Energy Reporting (NGER) requirements • Complete the annual NPI reporting • Follow up Air Quality or Greenhouse Gas related complaints • Complete environmental monitoring data summaries and place on the company website • Complete the annual return for EPL 1770 and EPL 191 each year • Ensure meteorological monitoring is undertaken in the vicinity of the site (Mannering Colliery meteorological station) • Respond to any potential or actual non-compliances and report these as required to regulatory bodies and other stakeholders • Undertake reviews of this document • Undertake or coordinate the required audits of this document • Ensure exposed surface areas are minimised by rehabilitating any areas not required for mining related activities or support infrastructure • Ensure any soil stockpiles are revegetated if not being used in the short term for rehabilitation activities • Ensure a water cart is operated as required around the pit top area, and covers areas including, but not limited to the hardstands, car park area, roads, coal stockpile area, areas trafficked by coal haulage trucks and the surface of the coal stockpile (when existing) • Providing adequate training to employees and contractors regarding their requirements under this site AQGHGMP
Employees and contractors	• Comply with the requirements of this AQGHGMP • Report any air quality or greenhouse gas issues to the ECC

11 References

Documents used in the preparation of this management plan are detailed in Error! Reference source not found..

Table 17: References

Reference	Title
Australian Standards	• AS/NZS ISO 14001:2004 Environmental management systems – Requirements with guidance for use • AS/NZS ISO 14004:2004 Environmental management systems – General guidelines on principles, systems and support techniques • AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air – Determination of Particulate Matter – Deposited Matter – Gravimetric Method • AS 3580.9.8-2008: *Methods for sampling and analysis of ambient air Determination of suspended particulate matter - PM_{10} continuous direct mass method using a tapered element oscillating microbalance analyser* • AS 3580.14-2011: Methods for sampling and analysis of ambient air - Meteorological monitoring for ambient air quality monitoring applications • *The Approved Methods for the Modelling and Assessment of Air Pollutants in NSW, NSW EPA, 2005*
Legislation and Regulations	• Environment Protection Licence (EPL) 1770 • *Mining Act 1992* • *National Greenhouse and Energy Reporting Act 2007* • National Greenhouse and Energy Regulations 2008 • National Greenhouse and Energy Reporting (Measurement) Determination • Development Consent SSD-5465 (as modified) • Project Approval MP06_0311 (as modified) • *Protection of the Environment Operations Act, 1997* • Protection of the Environment Operations (Clean Air) Regulation 2010
Delta Coal documents	EMS 001 Delta Coal Environmental Management Strategy
External documents	• *Chain Valley Colliery Mining Extension 1 Project, Environmental Impact Statement*, EMM Consulting, 2013 ○ *Chain Valley Colliery Mining Extension 1 Project – Air Quality and Greenhouse Gas Impact Assessment'*, PAEHolmes, 2013 • *Chain Valley Colliery – Modification 1, Statement of Environmental Effects*, EMM Consulting, 2014 • *Chain Valley Colliery – Modification 2, Statement of Environmental Effects*, EMM Consulting, 2015 • *Statement of Environmental Effects, Chain Valley Colliery – Modification 3*, EMM Consulting, 2019 • *Statement of Environmental Effects, Chain Valley Colliery Modification 4, Umwelt Consulting November 2020* • *Mannering Colliery, Continuation of Mining, Environmental Assessment*, Hanson Bailey 2007 • *Mannering Colliery – Extension of Mine Project, Section 75W Modification to project Approval 06_0311*, GSS Environmental, 2012

Reference	Title
	• *Mannering Colliery – Modification 2, Environmental Assessment*, EMM Consulting Pty, 2014 • *Mannering Colliery – Modification 3, Environmental Assessment*, EMM Consulting, 2015 • *Administrative Modification to MP06_0311,* EMM Consulting, 2016 (MP06_0311 Modification 4) • *Statement of Environmental Effects, Mannering Colliery – Modification 5*, EMM Consulting 2019 • *Air Pollution from Coal Mining and Related Developments*, State Pollution Control Commission, 1983 • *Chain Valley Colliery – Modification 2 – Greenhouse Gas Assessment*, Pacific Environment Limited, 2015 • *Mine Dust and You,* NSW Health, 2017

12 Definitions

AQGHGMP Air Quality and Greenhouse Gas Management Plan

CVC Chain Valley Colliery

DP&E Department of Planning & Environment (former)

DPIE Department of Planning, Industry and Environment

DTIRIS Department of Trade, Investment, Regional Infrastructure and Services

EPA NSW Environment Protection Authority

EPL Environmental Protection License

g/m^2/month grams per square metre per month

MC Mannering Colliery

NSW New South Wales

OEH NSW Office of Environment and Heritage

POEO Act *Protection of the Environment Operations Act 1997*

ROM Run of mine

Secretary Secretary of the Department, or nominee

TEOM Tapered element oscillating microbalance

APPENDIX A – CONSULTATION

Evidence of consultation with key stakeholders will be maintained within **Appendix A**.

Dear Mr McWha

Delta Coal, Air Quality and Greenhouse Gas Management Plan

I refer to the Delta Coal, Air Quality and Greenhouse Gas Management Plan for Chain Valley Colliery and Mannering Colliery submitted on 5 November 2020.

The Environment Protection Authority (EPA) encourages the development of such plans to ensure that proponents have determined how they will meet their statutory obligations and designated environmental objectives. However, as a regulatory authority, the EPA does not approve or endorse these documents as our role is to set environmental objectives for environmental management, not to be directly involved in the development of strategies to achieve those objectives.

The EPA has not reviewed the above document.

Should you have any questions please phone Steve Clair on 4908 6850.

Regards

Peter Jamieson
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Report pollution and environmental incidents 131 555 (NSW only) or +61 2 9995 5555

APPENDIX B – CHAIN VALLEY COLLIERY DEVELOPMENT CONSENT SSD-5465 SUMMARY

Relevant sections of the Chain Valley Colliery Development Consent SSD-5465 (Mod 4) detailing the requirements of the AQGHGMP and are reproduced in **Table B** below along with identification of where the requirements are addressed in this document.

Table B: CVC Development Consent SSD-5465 Requirements

Condition No.	Requirements	Relevant section of this document
Schedule 2 Administrative Conditions		
22	**Evidence of Consultation** Where conditions of this consent require consultation with an identified party, the Applicant must: a) consult with the relevant party prior to submitting the subject document b) provide details of the consultation undertaken including: i. the outcome of that consultation, matters resolved and unresolved ii. details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved.	a) **Section 1.6** (Consultation) and **Appendix A** b) **Section 1.6** (Consultation) and **Appendix A**
23	**Staging, Combining and Updating Strategies, Plans or Programs.** With the approval of the Planning Secretary, the Applicant may: a) prepare and submit any strategy, plan or program required by this consent on a staged basis (if a clear description is provided as to the specific stage and scope of the development to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program); b) combine any strategy, plan or program required by this consent (if a clear relationship is demonstrated between the strategies, plans or programs that are proposed to be combined); c) update any strategy, plan or program required by this consent (to ensure the strategies, plans and programs required under this consent are updated on a regular basis and incorporate additional measures or amendments to improve the environmental performance of the development); and NSW Government Department of Planning, Industry and Environment d) combine any strategy, plan or program required by this consent with any similar strategy, plan or program required by an adjoining mining consent or approval, in common ownership or management.	a) **Section 8.1** (Management Plan Review) b) **Section 8.1** c) **Section 8.1** d) **Section 8.1**

<table>
<tr><th>Condition No.</th><th>Requirements</th><th>Relevant section of this document</th></tr>
<tr><td>24</td><td>Staging, Combining and Updating Strategies, Plans or Programs.

If the Planning Secretary agrees, a strategy, plan or program may be staged or updated without consultation being undertaken with all parties required to be consulted in the relevant condition in this consent.</td><td>Section 8.1 (Management Plan Review)</td></tr>
<tr><td>28</td><td>Compliance

The Applicant must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this consent relevant to activities they carry out in respect of the development.</td><td>Section 7.4 (Training, Awareness and Competence) and Section 10 (Roles and Responsibilities)</td></tr>
<tr><td colspan="3">Schedule 3 Specific Environmental Conditions</td></tr>
<tr><td>11</td><td>Air Quality Criteria

Table 3: Air quality criteria
<table>
<tr><th>Pollutant</th><th>Averaging period</th><th colspan="2">Criterion</th></tr>
<tr><td rowspan="2">Particulate matter < 2.5 µm ($PM_{2.5}$)</td><td>Annual</td><td colspan="2">[a, c] 8 µg/m³</td></tr>
<tr><td>24 hour</td><td colspan="2">[b] 25 µg/m³</td></tr>
<tr><td rowspan="2">Particulate matter < 10 µm (PM_{10})</td><td>Annual</td><td colspan="2">[a, c] 25 µg/m³</td></tr>
<tr><td>24 hour</td><td colspan="2">[b] 50 µg/m³</td></tr>
<tr><td>Total suspended particulate (TSP) matter</td><td>Annual</td><td colspan="2">[a, c] 90 µg/m³</td></tr>
<tr><td>[d] Deposited dust</td><td>Annual</td><td>[b] 2 g/m²/month</td><td>[a] 4 g/m²/month</td></tr>
</table>
Notes for Tables 3 to 5:
a) Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to other sources).
b) Incremental impact (i.e. incremental increase in concentrations due to the development on its own).
c) Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents, illegal activities or any other activity agreed to by the Secretary.
d) Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.</td><td>Section 4.1 (Air Quality Criteria).</td></tr>
</table>

Condition No.	Requirements	Relevant section of this document
12	***Operating Conditions*** The Applicant must: *a)* implement best practice air quality management at the site, including all reasonable and feasible measures to minimise the off-site odour, fume and dust emissions generated by the development; *b)* implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site; *c)* operate an air quality management system on site to ensure compliance with the relevant conditions of this consent; *d)* minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events (see note c to Table 3 above); *e)* regularly assess the air quality monitoring data, and modify operations on site to ensure compliance with the relevant conditions of this consent, to the satisfaction of the Planning Secretary.	a) **Section 3** (Air Quality Management), **Section 3.2** (Dust Management), **Section 3.4** (Odour Management), **Section 3.5** (Fume Management), **Section 3.7** (Management of Unexpected Impacts) and **Section 3.8** (Air Quality Forecasting) b) **Section 5.4** (Greenhouse Gas Control Measures) c) **Section 3.2** (Dust Management), **Section 3.4** (Odour Management), **Section 3.5** (Fume Management), **Section 3.7** (Management of Unexpected Impacts) and **Section 3.8** (Air Quality Forecasting) d) **Section 3.7** (Management of Unexpected Impacts) and **Section 3.8** (Air Quality Forecasting) e) **Section 4.1** (Air Quality Criteria), **Section 4.3** (Real-time Alarms)
13	**Air Quality Management Plan** The Applicant must prepare an Air Quality Management Plan for the development to the satisfaction of the Planning Secretary. This plan must: c) be prepared in consultation with the EPA, and submitted to the Planning Secretary for approval within 6 months of the date of this consent;	a) **Section 1.6** (Consultation) and **Appendix A**

Condition No.	Requirements	Relevant section of this document
	d) describe the measures that would be implemented to ensure compliance with the relevant air quality criteria and operating conditions of this consent; e) describe the measures that would be implemented to minimise the release of greenhouse gas emissions from the site; d) describe the proposed on-site air quality management system; and f) include an air quality monitoring program that: • is capable of evaluating the operating conditions of this consent; • evaluates and reports on: - the effectiveness of the air quality management system; and - - compliance against the air quality operating conditions; • defines what constitutes an air quality incident, and includes a protocol for identifying and notifying the Department and relevant stakeholders of any air quality incidents.	d) **Section 3.2** (Dust Management), **Section 3.4** (Odour Management), **Section 3.5** (Fume Management), **Section 3.7** (Management of Unexpected Impacts) and **Section 3.8** (Air Quality Forecasting) c) **Section 5.4** (Greenhouse Gas Control Measures) e) **Section 1.1** (Purpose) e) **Section 3** (Air Quality Management), **Section 4** (Air Quality Monitoring) and **Section 6.3** (Incident or Non-compliance Reporting)
14	**Meteorological Monitoring** During the life of the development, the Applicant must ensure that there is a suitable meteorological station operating in the vicinity of the site that: a) complies with the requirements in the Approved Methods for Sampling of Air Pollutants in New South Wales guideline; and b) is capable of continuous real-time measurement of temperature lapse rate in accordance with the NSW Industrial Noise Policy, unless a suitable alternative is approved by the Planning Secretary following consultation with the EPA.	**a) Section 4.5** (Meteorological Monitoring) **b) Section 4.5** (Meteorological Monitoring)

Condition No.	Requirements	Relevant section of this document
Schedule 5 – Additional Procedures		
1	**Notification of Land Owners** As soon as practicable after obtaining monitoring results showing: a) an exceedance of any relevant criteria in Schedule 3, the Applicant must notify affected landowners in writing of the exceedance, and provide regular monitoring results to each affected landowner until the development is again complying with the relevant criteria; and b) an exceedance of any relevant air quality criteria in Schedule 3, the Applicant must send a copy of the NSW Health fact sheet entitled "Mine Dust and You" (NSW Health, 2017) (as may be updated from time to time) to the affected landowners and/or existing tenants of the land (including the tenants of any mine-owned land)	a) **Section 6.3** (Incident or Non-compliance Reporting) b) **Section 6.3** (Incident or Non-compliance Reporting)
2	**Independent Review** If an owner of privately-owned land considers the development to be exceeding the relevant criteria in Schedule 3, then he/she may ask the Planning Secretary in writing for an independent review of the impacts of the development on his/her land. If the Planning Secretary is satisfied that an independent review is warranted, then within 2 months of the Planning Secretary's decision the Applicant must: a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Planning Secretary, to: • consult with the landowner to determine his/her concerns; b) give the Planning Secretary and landowner a copy of the independent review.	a) **Section 7.2** (Independent Review b) **Section 7.2** (Independent Review)
Schedule 6 – Environmental Management, Reporting and Auditing		
3	**Management Plan Requirements** Management plans required under this consent must be prepared in accordance with relevant guidelines, and include: a) a summary of relevant background or baseline data; b) details of: • the relevant statutory requirements (including any relevant approval, licence or lease conditions); • any relevant limits or performance measures and criteria; and • the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures; c) any relevant commitments or recommendations identified in the document/s listed in condition 2(e) of Schedule 2;	a) **Section 3.1** (Air Quality Impact Assessment) b) **Section 2.1** (Key Legislation, Policy and Guidelines), **Section 2.2** (Development Consent / Project Approval), **Section 4.1** (Air Quality Criteria) **c) Section 3.1.1** (CVC Air Quality Impact Assessment)

Condition No.	Requirements	Relevant section of this document
	d) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	d) **Section 3** (Air Quality Management) and **Section 4** (Air Quality Monitoring)
	e) a program to monitor and report on the: • impacts and environmental performance of the development; and • effectiveness of the management measures set out pursuant to condition 2(e) of Schedule 2;	e) **Section 4** (Air Quality Monitoring) and **Section 6** (Reporting)
	f) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	f) **Section 3.7** (Management of Unexpected Impacts)
	g) a program to investigate and implement ways to improve the environmental performance of the development over time;	g) **Section 8.3** (Continuous Improvement)
	h) a protocol for managing and reporting any: • incident, non-compliance or exceedance of any impact assessment criterion or performance criterion; • complaint; or • failure to comply with other statutory requirements;	h) **Section 6.3** (Incident or Non-compliance Reporting) and **Section 7.1** (Complaint Protocol)
	i) public sources of information and data to assist stakeholders in understanding environmental impacts of the development; and	i) **Section 6.1** (routine Reporting)
	j) a protocol for periodic review of the plan. **Note**: The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans	j) **Section 8.1** (Management Plan Review)
4	**Management Plan Requirements** The Applicant must ensure that management plans prepared for the development are consistent with the conditions of this consent and any EPL issued for the site.	**Section 2** (Statutory Requirements)
5	**Revision of Strategies, Plans and Programs** Within three months of: a) the submission of an incident report under condition 6; b) the submission of an Annual Review under condition 8; c) the submission of an Independent Environmental Audit under condition 9; or d) the approval of any modification of the conditions of this consent (unless the conditions require otherwise), the suitability of existing strategies, plans and programs required under this consent must be reviewed by the Applicant.	**Section 8.1** (Management Plan Review)

Condition No.	Requirements	Relevant section of this document
	If necessary, to either improve the environmental performance of the development, cater for a modification or comply with a direction, the strategies, plans and programs required under this consent must be revised, to the satisfaction of the Planning Secretary. Where revisions are required, the revised document must be submitted to the Planning Secretary for approval within six weeks of the review. **Note**: This is to ensure strategies, plans and programs are updated on a regular basis and to incorporate any recommended measures to improve the environmental performance of the development.	
6	**Incident Notification** The Applicant must immediately notify the Department and any other relevant agencies immediately after it becomes aware of an incident. The notification must be in writing via the Department's Major Projects website and identify the development (including the development application number and name) and set out the location and nature of the incident.	**Section 6.3** (Incident or Non-compliance Reporting)
7	**Non-Compliance Notification** Within seven days of becoming aware of a non-compliance, the Applicant must notify the Department of the non-compliance. The notification must be in writing via the Departments Major Projects website and identify the development (including the development application number and name), set out the condition of this consent that the development is non-compliant with, why it does not comply and the reasons for the noncompliance (if known) and what actions have been, or will be, undertaken to address the non-compliance. Note: A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.	**Section 6.3** (Incident or Non-compliance Reporting)

Condition No.	Requirements	Relevant section of this document
8	**Annual Review** By the end of March in each year after the commencement of the development, or other timeframe agreed by the Planning Secretary, a report must be submitted to the Department reviewing the environmental performance of the development, to the satisfaction of the Planning Secretary. This review must: a) describe the development (including any rehabilitation) that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current financial/calendar year; b) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, including a comparison of these results against the: • relevant statutory requirements, limits or performance measures/criteria; • requirements of any plan or program required under this consent; • monitoring results of previous years; and • relevant predictions in the document/s listed in condition 2(e) of Schedule 2; c) identify any non-compliance or incident which occurred in the previous calendar year, and describe what actions were (or are being) taken to rectify the non-compliance and avoid reoccurrence; d) evaluate and report on: • the effectiveness of the noise and air quality management systems; and • compliance with the performance measures, criteria and operating conditions of this consent; e) identify any trends in the monitoring data over the life of the development; f) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and g) describe what measures will be implemented over the next calendar year to improve the environmental performance of the development Copies of the Annual Review must be submitted to the affected Councils and made available to the CCC and any interested person upon request.	**Section 6.2** (Annual Review)

Condition No.	Requirements	Relevant section of this document
9	**Independent Environmental Audit** By the end of February 2022, and every three years after, unless the Planning Secretary directs otherwise, the Applicant must commission and pay the full cost of an Independent Environmental Audit of the development. The audit must: a) led by a suitably qualified, experienced and independent auditor whose appointment has been endorsed by the Planning Secretary; b) be led and conducted by a suitably qualified, experienced and independent team of experts (including any be expert in field/s specified by the Planning Secretary) whose appointment has been endorsed by the Planning Secretary; c) be carried out in consultation with the relevant agencies and the CCC; d) assess the environmental performance of the development and whether it is complying with the relevant requirements in this consent, water licences and mining leases for the development (including any assessment, strategy, plan or program required under these approvals); e) review the adequacy of any approved strategy, plan or program required under the abovementioned approvals and this consent; f) recommend appropriate measures or actions to improve the environmental performance of the development and any assessment, strategy, plan or program required under the abovementioned approvals and this consent; and be conducted and reported to the satisfaction of the Planning Secretary	**Section 8.2** (Audits)
12	Noise and/or air quality monitoring under this consent may be undertaken at suitable representative monitoring locations instead of at privately-owned residences or other locations listed in Schedule 3, providing that these representative monitoring locations are set out in the respective management plan/s.	**Section 4.2** (Monitoring Locations)

Condition No.	Requirements	Relevant section of this document
13	**Access to Information** Until the completion of all rehabilitation required under this consent, the Applicant must: a) make the following information and documents (as they are obtained, approved or as otherwise stipulated within the conditions of this consent) publicly available on its website: • the documents referred to in condition 2(e) of Schedule 2 of this consent; • all current statutory approvals for the development; • all approved strategies, plans and programs required under the conditions of this consent; • the proposed staging plans for the development if the construction, operation or decommissioning of the development is to be staged; • minutes of CCC meetings; • regular reporting on the environmental performance of the development in accordance with the reporting requirements in any plans or programs approved under the conditions of this consent; • a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs; • a summary of the current progress of the development; • contact details to enquire about the development or to make a complaint; • a complaints register, updated monthly; • the Annual Reviews of the development; • audit reports prepared as part of any Independent Environmental Audit of the development and the Applicant's response to the recommendations in any audit report; and • any other matter required by the Planning Secretary; and keep such information up to date, to the satisfaction of the Planning Secretary	**Section 6.1** (Routine Reporting)

Condition No.	Requirements	Relevant section of this document
Appendix 9 - Statement of Commitments		
Air Quality and greenhouse gases	Management and monitoring of air quality and greenhouse gases will continue to be undertaken in accordance with the Colliery's AQGHGMP, which will be reviewed and updated as required to include the commitments made below. Delta Coal will: • investigate the use of a stacker to replace hauling between current conveyor system and stockpiles; • undertake GHG monitoring comprising measurement of carbon dioxide and methane at the ventilation shaft and fan sites; and • record and report annual diesel, oil, grease, acetylene and electricity use to fulfil National Greenhouse and Energy Reporting Scheme requirements.	• **Section 3.2** (Dust Control Measures) • **Section 5.6** (Greenhouse Gas Monitoring and Measurement) and **Section 5.7** (Parameters and Frequency). • **Section 5.7** (Parameters and frequency)

APPENDIX C – MANNERING COLLIERY PROJECT APPROVAL 06_0311 SUMMARY

Relevant sections of the Mannering Colliery Project Approval 06_0311 (Mod 5) detailing the requirements of the AQGHGMP and are reproduced in **Table C** below along with identification of where the requirements are addressed in this document.

Table C: Mannering Colliery Project Approval 06_0311 Requirements

Condition No.	Requirements	Relevant section of this document
Schedule 2 Administrative Conditions		
14	**Evidence of Consultation** Where conditions of this consent require consultation with an identified party, the Applicant must: a) consult with the relevant party prior to submitting the subject document b) provide details of the consultation undertaken including: i. the outcome of that consultation, matters resolved and unresolved details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved.	a) **Section 1.6** (Consultation) and **Appendix A** b) **Section 1.6** (Consultation) and **Appendix A**
15	**Staging, Combining and Updating Strategies, Plans or Programs.** With the approval of the Planning Secretary, the Applicant may: a) prepare and submit any strategy, plan or program required by this consent on a staged basis (if a clear description is provided as to the specific stage and scope of the development to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program); b) combine any strategy, plan or program required by this consent (if a clear relationship is demonstrated between the strategies, plans or programs that are proposed to be combined); c) update any strategy, plan or program required by this consent (to ensure the strategies, plans and programs required under this consent are updated on a regular basis and incorporate additional measures or amendments to improve the environmental performance of the development); and NSW Government Department of Planning, Industry and Environment d) combine any strategy, plan or program required by this consent with any similar strategy, plan or program required by an adjoining	e) **Section 8.1** (Management Plan Review) f) **Section 8.1** g) **Section 8.1** h) **Section 8.1**

<table>
<tr><th>Condition No.</th><th>Requirements</th><th>Relevant section of this document</th></tr>
<tr><td></td><td>mining consent or approval, in common ownership or management.</td><td></td></tr>
<tr><td>16</td><td>Staging, Combining and Updating Strategies, Plans or Programs.

If the Planning Secretary agrees, a strategy, plan or program may be staged or updated without consultation being undertaken with all parties required to be consulted in the relevant condition in this consent.</td><td>Section 8.1 (Management Plan Review)</td></tr>
<tr><td>20</td><td>Compliance

The Applicant must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this consent relevant to activities they carry out in respect of the development.</td><td>Section 7.4 (Training, Awareness and Competence) and Section 10 (Roles and Responsibilities)</td></tr>
<tr><td colspan="3">Schedule 3 Specific Environmental Conditions</td></tr>
<tr><td>16</td><td>Air Quality Criteria

Impact Assessment Criteria

The Applicant must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria listed in Table 3 at any residence on privately-owned land.

Table 3: Air quality criteria
<table>
<tr><th>Pollutant</th><th>Averaging period</th><th colspan="2">Criterion</th></tr>
<tr><td rowspan="2">Particulate matter < 2.5 µm ($PM_{2.5}$)</td><td>Annual</td><td colspan="2">[a, c] 8 µg/m³</td></tr>
<tr><td>24 hour</td><td colspan="2">[b] 25 µg/m³</td></tr>
<tr><td rowspan="2">Particulate matter < 10 µm (PM_{10})</td><td>Annual</td><td colspan="2">[a, c] 25 µg/m³</td></tr>
<tr><td>24 hour</td><td colspan="2">[b] 50 µg/m³</td></tr>
<tr><td>Total suspended particulate (TSP) matter</td><td>Annual</td><td colspan="2">[a, c] 90 µg/m³</td></tr>
<tr><td>[d] Deposited dust</td><td>Annual</td><td>[b] 2 g/m²/month</td><td>[a] 4 g/m²/month</td></tr>
</table>
Notes for Tables 3 to 5:
a) Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to other sources).
b) Incremental impact (i.e. incremental increase in concentrations due to the development on its own).
c) Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents, illegal activities or any other activity agreed to by the Secretary.
d) Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling</td><td>Section 4.1 (Air Quality Criteria)

Section 4.4 (Method and Frequencies)</td></tr>
</table>

Condition No.	Requirements	Relevant section of this document
	and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.	
17	**Air Quality and Greenhouse Gas Management Plan** The Applicant must prepare an Air Quality and Greenhouse Gas Management Plan for the development to the satisfaction of the Planning Secretary. This plan must: a) be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary; b) describe the measures to be implemented to ensure: i. capture and flaring of methane produced by underground coal mining; ii. compliance with the air quality criteria and operating conditions in this consent; iii. best practice management is being employed (including in respect of minimisation of greenhouse gas emissions from the site and energy efficiency); and iv. the air quality impacts of the development are minimised during adverse meteorological conditions and extraordinary events; c) describe the air quality management system in detail; and d) include an air quality monitoring program, undertaken in accordance with the Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales (DEC, 2007), that: i. uses monitors to evaluate the performance of the development against the air quality criteria in this consent and to guide day to day planning of operations; ii. adequately supports the air quality management system; and iii. includes a protocol for identifying an air quality incident and notifying the Department and relevant stakeholders of any such incident. Note: "Methane produced by underground coal mining" does not include methane within mine ventilation air.	a) **Section 1.6** (Consultation) **Appendix A** b) i. **Section 5.4** (Greenhouse Gas Control Measures) ii. **Section 3** (Air Quality Management) **Section 4.2** (Monitoring Locations), **Section 4.3** (Real-time Alarms), iii. **Section 3.2** (Dust Control Measures) and **Section 5.4** (Greenhouse Gas Control Measures) iv. **Section 3.7** (Management of Unexpected Impacts) and **Section 3.8** (Air Quality Forecasting) c) **Section 3** (Air Quality Management) and **Section 4** (Air Quality Monitoring) d) i. **Section 4** (Air Quality Monitoring) and **Section 4.3** (Real-time Alarms) ii. **Section 4** (Air Quality Monitoring) iii. **Section 4.1** (Air Quality Criteria) and **Section 6.3** (Incident or Non-compliance Reporting)
17A	The Applicant must implement the Air Quality and Greenhouse Gas Management Plan as approved by the Planning Secretary.	**Section 7.4** (Training Awareness and Competency) and **Section 10** (Roles and Responsibilities)

Condition No.	Requirements	Relevant section of this document
17B	For the life of the development, the Applicant must ensure that there is a suitable meteorological station operating in the vicinity of the site that: a) complies with the requirements in the Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales (DEC, 2007); and b) is capable of measuring meteorological conditions in accordance with the NSW Noise Policy for Industry (EPA, 2017), unless a suitable alternative is approved by the Planning Secretary following consultation with the EPA	**a) Section 4.5** (Meteorological Monitoring) **b) Section 4** (Air Quality Monitoring)
Schedule 4 – Additional Procedures		
1	**Independent Review** If a landowner considers the development to be exceeding the impact assessment criteria in schedule 3, then he/she may ask the Planning Secretary in writing for an independent review of the impacts of the development on his/her land. If the Planning Secretary is satisfied that an independent review is warranted, the Applicant must within 2 months of the Planning Secretary's decision: a) consult with the landowner to determine his/her concerns; b) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Planning Secretary, to conduct monitoring on the land, to: • determine whether the development is complying with the relevant impact assessment criteria in schedule 3; and • identify the source(s) and scale of any impact on the land, and the development's contribution to this impact; and • give the Planning Secretary and landowner a copy of the independent review.	**Section 7.2** (Independent Review)
2	**Independent Review** If the independent review determines that the development is complying with the relevant impact assessment criteria in schedule 3, then the Applicant may discontinue the independent review with the approval of the Planning Secretary.	**Section 7.2** (Independent Review)

Condition No.	Requirements	Relevant section of this document
3	**Independent Review** If the independent review determines that the development is not complying with the relevant impact assessment criteria in schedule 3, and that the development is primarily responsible for this noncompliance, then the Applicant must: a) take all reasonable and feasible measures, in consultation with the landowner, to ensure that the development complies with the relevant criteria; and b) conduct further monitoring to determine whether these measures ensure compliance. If the additional monitoring referred to above subsequently determines that the development is complying with the relevant criteria in schedule 3, or the Applicant and landowner enter into a negotiated agreement to allow these exceedances, then the Applicant may discontinue the independent review with the approval of the Planning Secretary.	**Section 7.2** (Independent Review)
4	**Independent Review** If the independent review determines that the relevant criteria in schedule 3 are being exceeded, but that more than one development is responsible for this non-compliance, then the Applicant must, together with the relevant development/s: a) take all reasonable and feasible measures, in consultation with the landowner, to ensure that the relevant criteria are complied with; and b) conduct further monitoring to determine whether these measures ensure compliance; or (c) secure a written agreement with the landowner and other relevant developments to allow exceedances of the criteria in schedule 3, to the satisfaction of the Planning Secretary. If the additional monitoring referred to above subsequently determines that the developments are complying with the relevant criteria in schedule 3, then the Applicant may discontinue the independent review with the approval of the Planning Secretary.	**Section 7.2** (Independent Review)
5	**Independent Review** If the landowner disputes the results of the independent review, either the Applicant or the landowner may refer the matter to the Planning Secretary for resolution. If the matter cannot be resolved within 21 days, the Planning Secretary shall refer the matter to an Independent Dispute Resolution Process.	**Section 7.2** (Independent Review)

Condition No.	Requirements	Relevant section of this document
Schedule 5 – Environmental Management, Reporting and Auditing		
3	**Management Plan Requirements** Management plans required under this consent must be prepared in accordance with relevant guidelines, and include: a) a summary of relevant background or baseline data; b) details of: • the relevant statutory requirements (including any relevant approval, licence or lease conditions); • any relevant limits or performance measures and criteria; and • the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures; c) any relevant commitments or recommendations identified in the document/s listed in condition 2(e) of Schedule 2; d) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria; e) a program to monitor and report on the: • impacts and environmental performance of the development; and • effectiveness of the management measures set out pursuant to condition 2(e) of Schedule 2; f) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible; g) a program to investigate and implement ways to improve the environmental performance of the development over time; h) a protocol for managing and reporting any: • incident, non-compliance or exceedance of any impact assessment criterion or performance criterion; • complaint; or • failure to comply with other statutory requirements; i) public sources of information and data to assist stakeholders in understanding environmental impacts of the development; and j) a protocol for periodic review of the plan. **Note**: The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans	a) **Section 3.1.2** (MC Air Quality Impact Assessment) b) **Section 2** (Statutory Requirements), **Section 4.1** (Air Quality Criteria), performance indicators presented in **Table 4** (Air Quality Management Practises) and **Table 12** (Greenhouse Gas Control Measures) c) **Section 3.1.2** (MC Air Quality Impact Assessment) d) **Section 3.2** (Dust Control Measures), **Section 3.4** (Odour Management), **Section 3.5** (Fume Management), **Section 3.7** (Management of Unexpected Impacts) and **Section 5.3** (Greenhouse Gas Control Measures). e) **Section 4** (Air Quality Monitoring) and **Section 5.6** (Greenhouse Gas Monitoring and Measurement) f) **Section 3.7** (management of Unexpected Impacts) g) **Section 8.3** (Continuous Improvement) h) **Section 6.3** (Incident or Non-compliance Reporting) i) **Section 6.1** (Routine Reporting) and **Section 7.5** (Community Consultation) j) **Section 8.1** (Management Plan Review)

Condition No.	Requirements	Relevant section of this document
4	**Management Plan Requirements** The Applicant must ensure that management plans prepared for the development are consistent with the conditions of this consent and any EPL issued for the site.	**Section 2** (Statutory Requirements)
5	**Revision of Strategies, Plans and Programs** Within three months of: e) the submission of an incident report under condition 6; f) the submission of an Annual Review under condition 8; g) the submission of an Independent Environmental Audit under condition 9; or h) the approval of any modification of the conditions of this consent (unless the conditions require otherwise), the suitability of existing strategies, plans and programs required under this consent must be reviewed by the Applicant. If necessary, to either improve the environmental performance of the development, cater for a modification or comply with a direction, the strategies, plans and programs required under this consent must be revised, to the satisfaction of the Planning Secretary. Where revisions are required, the revised document must be submitted to the Planning Secretary for approval within six weeks of the review. **Note**: This is to ensure strategies, plans and programs are updated on a regular basis and to incorporate any recommended measures to improve the environmental performance of the development.	**Section 8.1** (Management Plan Review)
6	**Incident Notification** The Applicant must immediately notify the Department and any other relevant agencies immediately after it becomes aware of an incident. The notification must be in writing to compliance@planning.nsw.gov.au and identify the development (including the development application number and name) and set out the location and nature of the incident.	**Section 6.3** (Incident or Non-compliance Reporting)

Condition No.	Requirements	Relevant section of this document
7	**Non-Compliance Notification** Within seven days of becoming aware of a non-compliance, the Applicant must notify the Department of the non-compliance. The notification must be in writing to compliance@planning.nsw.gov.au and identify the development (including the development application number and name), set out the condition of this consent that the development is non-compliant with, why it does not comply and the reasons for the noncompliance (if known) and what actions have been, or will be, undertaken to address the non-compliance. Note: A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.	**Section 6.3** (Incident or Non-compliance Reporting)
8	**Annual Review** By the end of March in each year after the commencement of the development, or other timeframe agreed by the Planning Secretary, a report must be submitted to the Department reviewing the environmental performance of the development, to the satisfaction of the Planning Secretary. This review must: h) describe the development (including any rehabilitation) that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current financial/calendar year; i) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, including a comparison of these results against the: • relevant statutory requirements, limits or performance measures/criteria; • requirements of any plan or program required under this consent; • monitoring results of previous years; and • relevant predictions in the document/s listed in condition 2(e) of Schedule 2; j) identify any non-compliance or incident which occurred in the previous calendar year, and describe what actions were (or are being) taken to rectify the non-compliance and avoid reoccurrence; k) evaluate and report on: • the effectiveness of the noise and air quality management systems; and • compliance with the performance measures, criteria and operating conditions of this consent;	**Section 6.2** (Annual Review)

Condition No.	Requirements	Relevant section of this document
	l) identify any trends in the monitoring data over the life of the development; m) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and n) describe what measures will be implemented over the next calendar year to improve the environmental performance of the development Copies of the Annual Review must be submitted to the affected Councils and made available to the CCC and any interested person upon request.	
9	**Independent Environmental Audit** By the end of February 2022, and every three years after, unless the Planning Secretary directs otherwise, the Applicant must commission and pay the full cost of an Independent Environmental Audit of the development. The audit must: g) led by a suitably qualified, experienced and independent auditor whose appointment has been endorsed by the Planning Secretary; h) be led and conducted by a suitably qualified, experienced and independent team of experts (including any be expert in field/s specified by the Planning Secretary) whose appointment has been endorsed by the Planning Secretary; i) be carried out in consultation with the relevant agencies and the CCC; j) assess the environmental performance of the development and whether it is complying with the relevant requirements in this consent, water licences and mining leases for the development (including any assessment, strategy, plan or program required under these approvals); k) review the adequacy of any approved strategy, plan or program required under the abovementioned approvals and this consent; l) recommend appropriate measures or actions to improve the environmental performance of the development and any assessment, strategy, plan or program required under the abovementioned approvals and this consent; and be conducted and reported to the satisfaction of the Planning Secretary	**Section 8.2** (Audits)

Condition No.	Requirements	Relevant section of this document
12	Noise and/or air quality monitoring under this consent may be undertaken at suitable representative monitoring locations instead of at privately-owned residences or other locations listed in Schedule 3, providing that these representative monitoring locations are set out in the respective management plan/s.	**Section 4.2** (Monitoring Locations)
13	**Access to Information** Until the completion of all rehabilitation required under this consent, the Applicant must: b) make the following information and documents (as they are obtained, approved or as otherwise stipulated within the conditions of this consent) publicly available on its website: • the documents referred to in condition 2(e) of Schedule 2 of this consent; • all current statutory approvals for the development; • all approved strategies, plans and programs required under the conditions of this consent; • the proposed staging plans for the development if the construction, operation or decommissioning of the development is to be staged; • minutes of CCC meetings; • regular reporting on the environmental performance of the development in accordance with the reporting requirements in any plans or programs approved under the conditions of this consent; • a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs; • a summary of the current progress of the development; • contact details to enquire about the development or to make a complaint; • a complaints register, updated monthly; • the Annual Reviews of the development; • audit reports prepared as part of any Independent Environmental Audit of the development and the Applicant's response to the recommendations in any audit report; and • any other matter required by the Planning Secretary; and keep such information up to date, to the satisfaction of the Planning Secretary	**Section 7.5** (Community Consultation)

Condition No.	Requirements	Relevant section of this document
Appendix 3 - Statement of Commitments		
Air Quality	A review of dust management strategies and mitigation measures will be undertaken against the best practice dust mitigation measures identified in the NSW Coal Mining Benchmarking Study: International Best Practice Measures to Prevent and/or Minimise Emissions of Particulate Matter from Coal Mining (Katestone Environmental Pty Ltd 2011), which was prepared for BCD. The review will identify any additional dust management practices that are reasonable and feasible for implementation at Mannering Colliery and will be undertaken generally in accordance with any requirements of a pollution reduction program that may be imposed by the EPA on the Manning Colliery EPL in the future.	**As per EPL, Completed 19/09/2012**

APPENDIX D – CVC EPL 1770 SUMMARY

Table D: Chain Valley Colliery EPL 1770 Requirements

Condition No.	Requirements	Relevant section of this document
P1	**Location of monitoring/discharge points and areas**	
P1.1	The following points referred to in the table below are identified in this licence for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air from the point. **EPA identification no.** / **Type of Monitoring Point** / **Type of Discharge Point** / **Location Description** 25 / Air Monitoring Point Particulate Matter PM10 Thermo Fisher Scientific TEOM 1405 / / MPSTP Compound 220 Tall Timbers Road Doyalson NSW 2262	**Section 4.2**
O3	**Dust**	
O3.1	The premises must be maintained in a condition which minimises or prevents the emission of dust on or from the premises.	**Section 3.2**
O3.2	Activities occurring in or on the premises must be carried out in a manner that will minimise the generation of wind-blown or traffic generated dust.	**Section 3.2, Section 3.7** and **Section 3.8**
O3.3	All trafficable areas, coal stockpile(s) and storage areas, and vehicle manoeuvring areas in or on the premises must be maintained, at all times, in a condition that will minimise the generation of dust.	**Section 3.2**
O3.4	All vehicles transporting coal from the premises must be covered immediately after loading to prevent windblown emissions and spillage. Note the covering must be maintained until immediately before unloading the trucks.	**NA** **see Section 3.2**
O3.5	The tailgates of all haulage trucks leaving the premises must be securely fixed prior to loading or immediately after unloading to prevent loss of material.	**NA** **see Section 3.2**
O3.6	Coal stockpiles must be maintained in a condition that will minimise the generation and emission of dust on the premises.	**Section 3.2**
M5	**Weather monitoring**	
M5.1	At the point(s) identified below, the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1 of the table below, using the corresponding sampling method, units of measure, averaging period and sampling frequency, specified opposite in	**Section 4.5**

<table>
<tr>
<td></td>
<td>the Columns 2, 3, 4 and 5 respectively

POINT 26
<table>
<tr><th>Parameter</th><th>Sampling method</th><th>Units of measure</th><th>Averaging period</th><th>Frequency</th></tr>
<tr><td>Rainfall</td><td>AM-4</td><td>millimetres</td><td>24 hours</td><td>Continuous</td></tr>
<tr><td>Wind Direction at 10 metres</td><td>AM-2 & AM-4</td><td>Degrees</td><td>1 hour</td><td>Continuous</td></tr>
<tr><td>Wind Speed</td><td>AM-2 & AM-4</td><td>metres per second</td><td>1 hour</td><td>Continuous</td></tr>
<tr><td>Temperature at 10 metres</td><td>AM-4</td><td>degrees Celsius</td><td>1 hour</td><td>Continuous</td></tr>
<tr><td>Sigma Theta</td><td>AM-2 & AM-4</td><td>Degrees</td><td>15 minutes</td><td>Continuous</td></tr>
<tr><td>Relative humidity</td><td>AM-4</td><td>percent</td><td>1 hour</td><td>Continuous</td></tr>
</table></td>
<td></td>
</tr>
<tr>
<td>G2.1</td>
<td>Complete Pollution Studies and Reduction Programs (PRPs)

Coal Mine Particulate Matter Control Best Practice – Requires licensee to conduct a site specific Best Management Practice (BMP) determination to identify ways to reduce particle emissions.
<table>
<tr><th>Program</th><th>Description</th><th>Completed Date</th></tr>
<tr><td>Coal Mine Particulate Matter Control Best Practice</td><td>Requires licensee to conduct a site specific Best Management Practice (BMP) determination to identify ways to reduce particle emissions</td><td>28-September-2012</td></tr>
<tr><td>Air Quality Monitoring</td><td>The licensee must evaluate best locations and install monitoring devices as defined in Project Approval MP10_0161 under the Environent Planning & Assessment Act 1979.</td><td>31-December-2013</td></tr>
</table></td>
<td>As per EPL, completed 28/09/2012 and 31/12/2013</td>
</tr>
</table>

APPENDIX E - MC EPL 191 SUMMARY

Table E: Mannering Colliery EPL 191 Requirements

Condition No.	Requirements	Relevant section of this document
P1	**Location of monitoring/discharge points and areas**	
P1.1	The following points referred to in the table below* are identified in this licence for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air from the point.	**Section 4.2**
O3	**Dust**	
O3.1	The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.	**Section 3.2**
O3.2	Activities occurring in or on the premises must be carried out in a manner that will minimise the generation, or emission from the premises, of wind-blown or traffic generated dust.	**Section 3.2**
O3.3	All trafficable areas, coal storage areas and vehicle manoeuvring areas in or on the premises must be maintained, at all times, in a condition that will minimise the generation, or emission from the premises, of wind-blown or traffic generated dust.	**Section 3.2**
O3.4	Trucks transporting coal from the premises must be covered immediately after loading to prevent windblown emissions and spillage. The covering must be maintained until immediately before unloading the trucks.	**NA, see Section 3.2**
O3.5	The tailgates of all haulage trucks leaving the premises must be securely fixed prior to loading or immediately after unloading to prevent loss of material.	**NA, see Section 3.2**
O3.6	Coal stockpiles must be maintained in a condition that will minimise the generation and emission of dust on the premises.	**Section 3.2**
M4	**Weather monitoring**	
M4.1	For each monitoring point specified in the table below, the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1. The licensee must use the sampling method, units of measure, averaging period and sample as the frequencies, specified opposite in the other columns. Point W1 **Parameter** / **Units of Measure** / **Frequency** / **Averaging Period** / **Sampling Method** Rainfall / mm / Continuous / 24 hour / AM-4 Wind direction / degrees / Continuous / 1 hour / AM-2 and AM-4	**Section 4.5**
M4.2	For the purpose of condition M4.1, Point W1 refers to a meteorological station established on the premises.	**Noted**

M4.3	The licensee may use the meteorological station established at Eraring Power Station provided the licensee has authority from Eraring Energy to access data from the Eraring Power Station at all times. However, if this station is not available at any time then condition M4.2 applies.	**NA**
G2.1	Complete Pollution Studies and Reduction Programs (PRPs) Coal Mine Particulate Matter Control Best Practice – Requires licensee to conduct a site specific Best Management Practice (BMP) determination to identify ways to reduce particle emissions.	**As per EPL, completed 19/09/2012**

APPENDIX F – SECRETARY ENDORSEMENT

NSW GOVERNMENT | Planning, Industry & Environment

Mr Chris Armit
Approvals Coordinator
Great Southern Energy Pty Ltd (t/as Delta Coal)
By Email: Carmit@DeltaCoal.com.au

09/10/2020

Dear Mr Armit

Chain Valley Colliery (SSD-5465) and Mannering Colliery (MP06_0311)
Request to Combine Management Plans and Approval of Experts

I refer to your letter of 2 October 2020 requesting the Planning Secretary's approval to combine specific management plans required under both the Chain Valley Colliery (SSD-5465) and Mannering Colliery (MP06_0311) development consents, in accordance with conditions 23(d) of Schedule 2 of SSD-5465 and 16(d) of Schedule 2 of MP06_0311 respectively.

The Department acknowledges the common ownership and management of both collieries by Great Southern Energy (trading as Delta Coal) and understands that they are managed in an integrated manner. Accordingly, the Department supports Delta Coal's request to combine specific management plans required under both consents to improve the on-site environmental management of the collieries.

Therefore, the Planning Secretary grants approval for Delta Coal to produce the following combined management plans:

- Heritage Management Plan – as required by condition 21A of Schedule 3 of SSD-5465 and condition 18A of Schedule 3 of MP06_0311;
- Land Management Plan – as required by condition 14 of Schedule 3 of MP06_0311;
- Noise Management Plan – as required by condition 9 of Schedule 3 of SSD-5465 and condition 3C of Schedule 3 of MP06_0311; and
- Air Quality and Greenhouse Gas Management Plan – as required by condition 13 of Schedule 3 of SSD-5465 and condition 17 of Schedule 3 of MP06_0311.

I also refer to your letter and supporting curriculum vitae requesting the Planning Secretary's approval of suitably qualified and experienced persons to prepare and review a number of management plans for the SSD-5465 and MP06_0311, in accordance conditions 21A(a) of Schedule 3 of SSD-5465 and 18A(a), 3C(a), 14(b), 17(a) of Schedule 3 of MP06_0311.

The Department has reviewed the nominations and information provided and is satisfied that the experts listed below are suitably qualified and experienced to assist in preparing the specified management plans. Consequently, the Planning Secretary approves the appointment of the following persons to prepare the listed management plans in accordance with the relevant conditions of SSD-5465 and MP06_0311.

Name	Organisation	Management Plan
Morgan Wilcox	EMM Consulting	Heritage Management Plan
Katie Teyhan	EMM Consulting	Noise Management Plan
Katie Weekes	EMM Consulting	Land Management Plan
Judith Cox	SLR Consulting	Air Quality and Greenhouse Gas Management Plan

For clarity, I would like to confirm that this approval is limited to the combining of the nominated management plans and does not extend to other requirements with respect to the preparation of, or required consultation for, other management plans for either of the development consents.

If you wish to discuss the matter further, please contact Melissa Anderson on 8275 1392.

Yours sincerely

Matthew Sprott
Director
Resource Assessments (Coal & Quarries)

As nominee of the Planning Secretary