SIMEC

MEMBER OF GFG ALLIANCE

TAHMOOR SOUTH - AIR QUALITY GREENHOUSE GAS MANAGEMENT PLAN

Tahmoor Coal

Contents

Contents 2

1 Introduction 5

1.1 Background 5

1.2 Purpose 5

1.3 Scope 5

1.4 Preparation 6

2 Planning 8

2.1 Statutory Requirements and Legislation 8

2.1.1 Development Consent Conditions 8

2.1.2 Environment Protection and Biodiversity Conservation Act 11

2.1.3 Management Plan Requirements 11

2.1.4 EIS Commitments 12

2.1.5 Limits and Criteria 13

2.1.6 Performance Indicators 15

2.1.7 Other Leases and Licences 15

3 Stakeholder Consultation 16

3.1 Internal Stakeholder Communication 16

3.2 External Stakeholder Communication 16

3.3 Consultation to Date 16

4 Existing Environment 18

5 Air Quality Baseline Data 19

5.1 PM10 19

5.2 TSP 20

5.3 PM2.5 20

5.4 Dust Deposition Gauges 20

5.5 EPA Data 21

6 Air Quality Management System 22

6.1 Design Controls 22

6.2 Operational Controls 22

6.3 Management Measure Effectiveness 25

7 Air Quality Monitoring Program 26

7.1 Monitoring Standards 26

7.2 Monitoring Program 26

7.2.1 Meteorological Monitoring and Effectiveness 30

7.2.2 Visual Air Quality Monitoring 30

7.3 Monitoring Equipment Effectiveness 30

8 Greenhouse Gas Background and Baseline Data 31

8.1 Scope 1 and Scope 2 Emissions 31
8.1.1 Carbon Neutrality 33
8.2 Scope 3 Emissions 33
9 Greenhouse Gas Management Measures 34
9.1 Estimated Greenhouse Gas Emissions vs Limits 35
9.2 Management Measure Effectiveness 36
10 Greenhouse Gas Monitoring Program 37
10.1 Scope 1 Emissions 38
10.2 Scope 2 Emissions 38
10.3 Monitoring Equipment Effectiveness 38
11 Odour Management, Mitigation and Monitoring 39
12 Contingency Plan 40
12.1 Adaptive Management/Continuous Improvement 40
13 Implementation and Reporting 41
13.1 Tahmoor Environmental Management System (EMS) Framework 41
13.2 Reporting 41
13.3 Incidents 42
13.4 Non-Compliances 43
13.5 Exceedances 44
13.6 Complaints and Disputes 44
13.7 Risk and Change Management 45
13.8 Roles & Responsibilities 45
13.9 Internal Audits & Reviews 46
13.10 Independent Environmental Audit 46
13.11 Employee & Contractor Training 48
14 Review and Improvement 49
14.1 Plan Audit 49
14.2 Plan Review 49
15 Document Information 50
15.1 Access to Information 50
15.2 Related Documents 51
15.3 Reference Information 51
16 Change Information 52
APPENDIX A – Air Quality Trigger Action Response Plan (TARP) 53
Trigger Action Response Plan 53
Level 1 Trigger – Alert / Investigate 53
Level 2 Trigger – High Alert / Rectify 53
Level 3 Triggers – Stop – Withdrawal / Removal 53
Persons affected 54
Action / Response 54
Action / Response 54

Action / Response 54
APPENDIX B – Consultation 55
APPENDIX C – Letter of Endorsement 60
APPENDIX D – Letter of Approval 63

1 Introduction

1.1 Background

Tahmoor Coal Pty Ltd (Tahmoor Coal) owns and operates Tahmoor Mine, an underground coal mine extracting coking coal which is an ingredient in the production of steel. The mine surface operations are located south of Tahmoor NSW, which is within the greater Sydney Basin - approximately 80 km southwest of Sydney. Tahmoor Mine is within the Wollondilly Shire Council (WSC) Local Government Area (LGA). Underground workings extend north under the town of Tahmoor and Picton with two ventilation shafts being located on the outskirts of town. The location of Tahmoor Mine in the regional context is shown in **Figure 1.**

Tahmoor Mine surface facilities are situated in between the townships of Tahmoor and Bargo, and adjacent to Remembrance Drive on land owned by Tahmoor Coal with mining conducted under both crown and freehold property (see **Figure 1**). Surface facilities at Tahmoor Mine include administration buildings and offices, a materials store, diesel tanks, electrical workshop, mechanical workshop, bathhouse, ventilation fan, Coal Handling Preparation Plant (CHPP), storage areas, run of mine stockpile and product stockpiles. A third party owned power station is also located on-site and utilises methane from the mines' gas drainage system to produce electricity. Extracted coal is processed on site prior to transportation via rail to the Port Kembla Coal Terminal.

An Environmental Impact Statement (EIS) was exhibited in early 2019 seeking approval for the extraction of up to 48 million tonnes (Mt) of ROM coal over a 13-year mine life. Tahmoor Coal subsequently revised the proposed mine design and submitted amended development applications on two occasions (in February and August 2020). In April 2021, Tahmoor Coal received Development Consent SSD 8445 (the Consent) for the Tahmoor South Project, which involves use of the existing surface infrastructure and the extension of underground longwall mining to the south of existing workings. The Project has consent to extract up to 4 Mtpa of ROM coal, with a total of up to 33 Mt of ROM coal extracted over a 10-year period until 31 December 2033.

1.2 Purpose

The purpose of this **Air Quality and Greenhouse Gas Management Plan (AQGMP)** is to provide a framework for Tahmoor Coal personnel to ensure that compliance is achieved with relevant internal and external regulatory requirements related to air quality and greenhouse gas (GHG) management at Tahmoor Coal. The plan ensures that impacts on the community are minimised and managed within a structured framework. The plan is intended to be utilised for any onsite construction as well as the ongoing operation of Tahmoor Mine.

This plan is to ensure compliance with Development Consent (SSD 8445) (the Consent) Condition B18, Part B.

1.3 Scope

This ***AQGMP*** includes management measures and monitoring requirements relating to:

a) Particulate matter;
b) Odour; and
c) GHG production.

The **AQGMP** applies to all activities associated with Tahmoor Coal, including construction, and forms part of the Environmental Management System (EMS). Separate Construction Environmental Management Plans will also be created for specific approved construction activities onsite, these plans will be used in conjunction with this **AQGMP**.

1.4 Preparation

This management plan has been prepared by Michelle Grierson, Senior Environmental Scientist with Umwelt (Australia) Pty Ltd and has been technically reviewed by Jane Barnett, Partner – Air Quality with The ERM Group (ERM). Michelle and Jane have been endorsed by the Department of Planning, Industry and Environment (DPIE) as suitability qualified to prepare this AQGMP (**see Appendix B**).

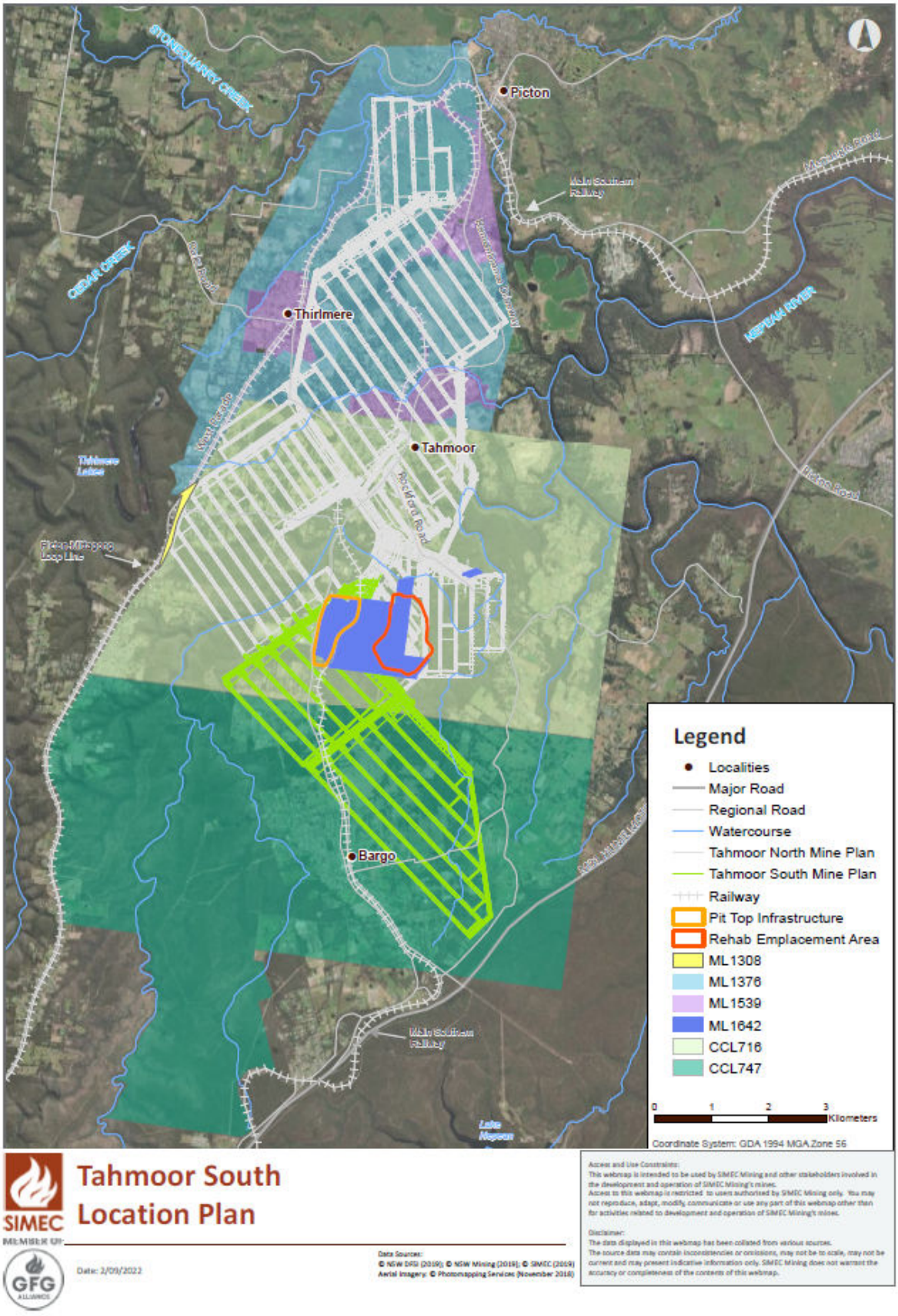

Figure 1 Tahmoor Coal Site Location

2 Planning

2.1 Statutory Requirements and Legislation

2.1.1 Development Consent Conditions

The requirement for this management plan is established by Condition B18 under Part B of the Consent. **Table 1** outlines all air quality and GHG requirements and identifies where these requirements have been addressed.

Table 1 Air Quality and GHG Development Consent Conditions

Condition Reference	Condition	Where Addressed
Odour		
B10	The Applicant must ensure that no offensive odours, as defined under the POEO Act, are emitted from the site.	Section 11
Air Quality Criteria		
B11	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 receivers on privately-owned land.	Section 6
B12	The air quality criteria in Table 3 (of the consent) do not apply if the Applicant has an agreement with the owner/s of the relevant receiver or land to exceed the air quality criteria, and the Applicant has advised the Department in writing of the terms of this agreement.	Noted - Currently no agreements in place.
Mine-owned Land		
B13	Particulate matter emissions generated by the development must not exceed the criteria listed in Table 3 (of the consent) at any occupied residence on mine-owned land (including land owned by another mining company) unless:	
(a)	the tenant and landowner (if the residence is owned by another mining company) have been notified of any health risks associated with such exceedances in accordance with the notification requirements under PART D of this consent;	
(b)	the tenant of any such land that is owned by the Applicant can terminate their tenancy agreement without penalty at any time, subject to giving 14 days' notice;	Noted – currently not required.
(c)	air quality monitoring is regularly undertaken to inform the tenant and landowner (if the residence is owned by another mining company) of the likely particulate matter emissions at the residence; and	
(d)	data from this monitoring is presented to the tenant and landowner in an appropriate format for a medical practitioner to assist the tenant and landowner in making informed decisions on the health risks associated with occupying the property.	
Air Quality Operating Conditions		
B14	The Applicant must:	-
(a)	take all reasonable and feasible steps to:	-
(i)	minimise odour, fume, and particulate matter (including PM10 and PM2.5) emissions of the development, paying particular attention to minimising odour from ventilation shafts, wheel-generated haul road emissions, and emissions from the REA and stockpiles;	Section 6 and Section 11
(ii)	eliminate or minimise the risk of spontaneous combustion;	Covered within the Tahmoor South Spontaneous Combustion Management Plan
(iii)	improve energy efficiency and reduce fugitive greenhouse gas emissions of the development;	Table 13

	(iv)	implement greenhouse gas abatement measures (including beneficial reuse and/or flaring) with respect to methane produced by underground coal mining;	Table 13
	(v)	minimise visible off-site air pollution generated by the development; and	Section 6
	(vi)	minimise to the greatest extent practicable, the extent of potential dust generating surfaces exposed on the site at any given point in time;	Section 6
	(b)	operate a comprehensive air quality management system that uses a combination of predictive meteorological forecasting and real-time air quality monitoring data to guide the day to day planning of mining operations and the implementation of both proactive and reactive air quality mitigation measures to ensure compliance with the relevant conditions of this consent and to respond to any air quality readings that exceed the 24 hour criteria specified in Table 3 (of the consent), irrespective of whether those exceedances are on a total or incremental basis;	Section 6 and Section 13.5
	(c)	minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events;	Section 6
	(d)	carry out regular air quality monitoring to determine whether the development is complying with the relevant conditions of this consent; and	Section 7
	(e)	regularly assess the air quality monitoring data and modify operations on the site to ensure compliance with the relevant conditions of this consent.	Section 6.3
Air and Greenhouse Gas Management Plan			
B18		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;	Appendix B
	(b)	be prepared in consultation with the EPA, NSW Health, Clean Energy Regulator and the CCC;	Section 3
	(c)	describe the measures to be implemented to ensure:	
	(i)	compliance with the air quality criteria and operating conditions in this consent;	Section 6, Section 7 and Section 13
	(ii)	best practice management is being employed (including in respect to energy efficiency and the minimisation of greenhouse gas emissions from the site); and	Section 9
	(iii)	the air quality impacts of the development are minimised during adverse meteorological conditions and extraordinary events;	Section 6
	(d)	describe the air quality management system in detail;	Section 6
	(e)	describes the measures to be implemented to:	
	(i)	minimise the carbon dioxide equivalent of greenhouse gases released from the site, consistent with Condition B19; and	Section 9
	(ii)	ensure that air quality impacts on nearby receivers associated with the flaring or venting of gases are minimised to the greatest extent practicable; and	Section 9
	(f)	include an air quality monitoring program, undertaken in accordance with the Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales (EPA, 2016) or its latest version, that:	Section 7
	(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, including two continuous particulate monitors located near the closest receivers: • west of the main surface facilities; and • north-east of the REA;	Section 7
	(ii)	adequately supports the air quality management system;	Section 7
	(iii)	includes a protocol for identifying an air quality incident and notifying the Department and relevant stakeholders of any such incident; and	Section 13.3
	(iv)	provides for annual public reporting of Scope 1 and 2 GHG emissions, including the 3 year rolling average specified in Condition B19	Section 15.1
B19		The Applicant must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that greenhouse gas emissions generated by the development are minimised, and must:	Section 9
	(a)	within two years of the development consent being granted (and each third year after that), commission and prepare a study, prepared to the satisfaction of the Planning	Table 13

		Secretary, to determine whether there are any reasonable and feasible measures that can be implemented to further reduce the abated Scope 1 and 2 GHG emissions;	
	(b)	if the study required by Condition B19 (a) finds there are reasonable and feasible measures, implement these measures in a timeframe determined in consultation, and to the satisfaction of, the Planning Secretary;	Noted – If required Tahmoor Coal will implement any measures identified through the study required for Condition B19 (a).
	(c)	ensure that the development does not exceed the Scope 1 and 2 GHG emissions in Appendix 9, based on a 3 year rolling average;	Table 5, Table 13 and Section 13.5
	(d)	monitor and report actual GHG emissions, (including both annual figures and 3 year rolling average), on an annual basis to the Planning Secretary and publicly in accordance with the Air Quality and Greenhouse Gas Management Plan required by Condition B18;	Section 10 and Section 13.2
	(e)	ensure that any exceedances of the forecast Scope 1 and 2 GHG emissions (based on a 3 year rolling average) are offset by a mechanism to address the exceedances to the satisfaction of the Planning Secretary (this mechanism may take into account any exceedances already offset under other applicable Commonwealth or State requirements);	Table 13 and Section 13.5
	(f)	ensure that appropriate annual returns are made under the National Greenhouse and Energy Reporting legislation.	Section 13.2
B20		The Applicant must not commence construction until the Air Quality and Greenhouse Gas Management Plan is approved by the Planning Secretary.	Noted – Tahmoor Coal will not commence construction until this plan is approved.
B21		The Applicant must implement the Air Quality and Greenhouse Gas Management Plan as approved by the Planning Secretary.	Noted– Tahmoor Coal implement this plan once approved.
Meteorological Monitoring			
B22		Prior to the commencement of construction and 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 (EPA, 2016); and	Section 7.2.1
Notification of Exceedances			
D6		As soon as practicable and no longer than 7 days after obtaining monitoring results showing an exceedance of any noise or air quality criterion in PART B of this consent, the Applicant must provide the details of the exceedance to any affected landowners, tenants and the CCC.	Section 13.5
D7		For any exceedance of any air quality criterion in PART B of this consent, the Applicant must also provide to any affected landowners and tenants a copy of the fact sheet entitled “Mine Dust and You” (NSW Health, 2017).	Section 13.5
Independent Review			
D8		If a landowner considers the development to be exceeding any relevant air quality or noise criterion in Part B of this consent, they may ask the Planning Secretary in writing for an independent review of the impacts of the development on their residence or land.	Noted
D9		If the Planning Secretary is not satisfied that an independent review is warranted, the Planning Secretary will notify the landowner in writing of that decision, and the reasons for that decision, within 21 days of the request for a review.	Noted
D10		If the Planning Secretary is satisfied that an independent review is warranted, within 3 months, or other timeframe agreed by the Planning Secretary and the landowner, 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: (i) consult with the landowner to determine their concerns; (ii) conduct monitoring to determine whether the development is complying with the relevant criteria in PART B or PART C; and (iii) if the development is not complying with the relevant criterion, identify measures that could be implemented to ensure compliance with the relevant criterion; and	Noted – Tahmoor Mine will adhere to these conditions when necessary.

	(b) give the Planning Secretary and landowner a copy of the independent review; and (c) comply with any written requests made by the Planning Secretary to implement any findings of the review.	
Monitoring and Environmental Audits		
E21	Any condition of this consent that requires the carrying out of monitoring or an environmental audit, whether directly or by way of a plan, strategy or program, is taken to be a condition requiring monitoring or an environmental audit under Division 9.4 of Part 9 of the EP&A Act. This includes conditions in respect of incident notification, reporting and response, non-compliance notification, compliance report and independent audit. For the purposes of the condition, as set out in the EP&A Act, "monitoring" is monitoring of the development to provide data on compliance with the consent or on the environmental impact of the development, and an "environmental audit" is a periodic or particular documented evaluation of the development to provide information on compliance with the consent or the environmental management or impact of the development.	Noted
E22	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 Part B, providing that these representative monitoring locations are set out in the respective management plan/s.	Section 7

2.1.2 Environment Protection and Biodiversity Conservation Act

Under Section 130(1) and 133(1) of the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act), Tahmoor Coal received approval (EPBC 2017/8084) for the Tahmoor South Project on the 1st October 2021.

2.1.3 Management Plan Requirements

Consent Condition E5 outlines the general requirements for all management plans. **Table 2** outlines the requirements under this condition and identifies where these requirements have been addressed.

Table 2 Management Plan Requirements

Condition Reference	Condition	Where Addressed
E5	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;	Section 5 and Section 8
(b)	details of:	-
(i)	the relevant statutory requirements (including any relevant approval, licence or lease conditions);	Section 2.1
(ii)	any relevant limits or performance measures and criteria; and	Section 2.1.5
(iii)	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;	Section 2.1.6
(c)	any relevant commitments or recommendations identified in the document/s listed in condition A2(c);	Section 2.1.4
(d)	a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Section 6 and Section 9
(e)	a program to monitor and report on the:	-
(i)	impacts and environmental performance of the development; and	Section 7 and Section 10
(ii)	effectiveness of the management measures set out pursuant to condition E5(d);	Section 6.3 and Section 9.1
(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;	Section 12

(g)	a program to investigate and implement ways to improve the environmental performance of the development over time;	Sections 12.1 and 14
(h)	a protocol for managing and reporting any:	-
(i)	incident, non-compliance or exceedance of any impact assessment criterion or performance criterion;	Sections 13.3 13.4 and 13.5
(ii)	complaint; or	Section 13.6
(iii)	failure to comply with other statutory requirements;	Covered collectively within Sections 5.3, 5.4 and 5.5
(i)	public sources of information and data to assist stakeholders in understanding environmental impacts of the development; and	Section 15.1
(j)	a protocol for periodic review of the plan.	Section 14

2.1.4 EIS Commitments

Condition A2 (g) of the Consent states that the development may only be carried out generally in accordance with the Tahmoor South EIS. The relevant Tahmoor South EIS documents include:

a) Tahmoor South Project Environmental Impact Statement (EIS), Volumes 1 and 7, dated January 2019;
b) Tahmoor South Project Amendment Report (PAR), including Appendices A to R and response to submissions, dated February 2020;
c) Tahmoor South Project Second Amendment Report, Appendices A to O and response to submissions, dated August 2020;
d) Additional information responses dated 14 September 2020, 23 October 2020 and 4 November 2020;
e) Submission to the Independent Planning Commission (IPC) February 2021.

Tahmoor South EIS commitments relevant to this management plan are outlined in **Table 3**.

Table 3 EIS Commitments

Instrument	Reference	Commitment	Where Addressed
Air Quality			
EIS/ RTS	AQ-1	**Potential impact:** Impacts of construction of the Project on air quality sensitive receptors **Management and mitigation measures:** Develop and implement an Air Quality Management Plan for inclusion in the CEMP. The Air Quality Management Plan would include management and mitigation measures to minimise dust generation.	This plan will be utilised to manage construction and ongoing operation of Tahmoor Coal.
RTS	AQ-2	**Potential impact:** Impacts of construction of the Project on air quality sensitive receptors **Management and mitigation measures:** Consult nearest residents to the proposed ventilation shaft sites during detailed design.	Section 3.3
RTS	AQ- 6	**Potential impact:** Impacts of the operation of the Project on air quality sensitive receptors **Management and mitigation measures:** Installation and monitoring of additional real-time PM10 monitors to target the most sensitive receptors likely to be affected by dust.	Section 5.3
Greenhouse Gas			
EIS/ RTS	GHG-3	**Potential impact:** Generation of GHG from operation of the Project **Management and mitigation measure:** Monitor the upcast ventilation shaft sites to enable accurate measurements of ventilation emissions. Monitoring to be reported within the Annual Review.	Section 10

EIS/ RTS	GHG-4	**Potential impact:** Generation of GHG from operation of the Project **Management and mitigation measure:** Prepare an Energy Savings Action Plan in accordance with the NSW Energy Administration Amendment (Water and Energy Savings) Act, 2005 and the Guidelines for Energy Savings Action Plans (DEUS, 2005). The plan will include standards to minimise energy use and GHG emissions from the Project's operations.	Table 13 Completed in association with Condition B19 (a)
EIS/ RTS	GHG-5	**Potential impact:** Generation of GHG from operation of the Project **Management and mitigation measure:** Ensuring maintenance, calibration and record keeping is undertaken on the main ventilation shafts and fans to enable GHG emission calculations. Maintaining records for monthly electricity use and monthly ROM coal production to allow calculation of greenhouse gas emissions. Monitoring to be reported annually within the Annual Review.	Section 10.3
EIS/ RTS	EHR-1	**Potential impact:** Potential impact of diesel emissions on the health of individuals **Management and mitigation measures:** Undertake monitoring programs and regular maintenance and servicing of diesel vehicles on site to reduce risks to the exposed community.	Table 13
PAR	NA	In relation to Scope 3 emissions, Tahmoor Coal's current end customers include: 1. Australian consumers of metallurgical coking coal (notably the two steelmakers in Australia: BlueScope and OneSteel Manufacturing, which is an affiliated company of Tahmoor Coal); 2. Consumers of metallurgical coking coal located in Germany, Japan, India, United Kingdom and Netherlands; and 3. End customers in other locations from time to time. Tahmoor Coal's current end customer base is located in countries that are signatories to the Paris Agreement within the United Nations Framework Convention on Climate Change. Tahmoor Coal would continue to manage the reduction of the Scope 3 emissions from the Amended Project to the greatest extent possible by continuing to sell its coal to customers with end users located in countries that are parties to the Paris Agreement, or countries with equivalent domestic policies for reducing greenhouse gas emissions.	Section 8.2
Submission to IPC	2(a)	To support the CN30 program, and to support the objectives of the NSW Climate Change Policy Framework, Tahmoor Coal will continue to investigate opportunities for the reduction of Scope 1 and Scope 2 emissions from this Project as part of an Energy Savings Action Plan (or 'Air Quality and Greenhouse Gas Management Plan'). Tahmoor Coal is willing to make specific references to carbon neutrality commitments in any standalone Statement of Commitments.	Table 13
Submission to IPC	2(b)	Tahmoor Coal is willing to accept a Recommended Condition identical to conditions B32, B34, B35 and B36 'Management of Scope 3 Greenhouse Gas Emissions' of Part B 'Specific Environmental Conditions' of the United Wambo Open Cut Coal Mine (SSD 7142) Approval granted by the IPC on the 29 August 2019, relating to the preparation of an Export Management Plan, as described in 4.6.1.	Noted

2.1.5 Limits and Criteria

Consent Condition E5 (b) (ii) outlines the requirement for management plans to provide details of any relevant limits, performance measures and criteria. **Table 4** outlines all relevant criteria and limits for this **AQGMP**.

In accordance with Condition B11 of the Consent, Tahmoor Coal 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 Consent criteria listed in **Table 4** at any receivers on privately-owned land or mine-owned land (including land owned by another mining company).

Table 4 Limits and Criteria

Instrument	Pollutant	Averaging Period	Criteria
SSD 8445	Particulate matter < 10 µm (PM10)	Annual	25 µg/m³ (a,c)
		24 Hour	50 µg/m³ (b)
	Particulate matter < 2.5 µm (PM2.5)	Annual	8 µg/m³ (a,c)
		24 Hour	25 µg/m³ (b)
NSW EPA Air Quality Criteria	Total Suspended Particulates (TSP)	Annual	90 µg/m³
EPL 1389	Deposited Dust	Annual	2 g/m² (maximum allowable increase)
EPL 1389	Deposited Dust	Annual	4 g/m² (maximum allowable total)
SSD 8445	Predicted Scope 1 and 2 GHG Emissions	3 Year Rolling Average	See **Table 5**

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.

In accordance with Condition B19 (c) of the Consent, Tahmoor Coal shall ensure that the development does not exceed the Scope 1 and 2 GHG emissions in **Table 5** below, based on a 3-year rolling average.

Table 5 Scope 1 and 2 GHG Emissions Limits

Project Year (Calendar Year)	Scope 1 GHGE (t CO2-e) (flaring and power generation occurring)	Scope 2 GHGE (t CO2-e)	Total Scope 1 + Scope 2 GHGE (t CO2-e)
1 (2021)	230,041	14,764	244,805
2 (2022)	1,003,246	64,389	1,067,635
3 (2023)	1,636,849	105,054	1,741,903
4 (2024)	2,054,557	131,863	2,186,420
5 (2025)	1,843,089	118,291	1,961,380
6 (2026)	2,065,327	132,555	2,197,882
7 (2027)	2,070,977	132,917	2,203,894
8 (2028)	2,301,721	147,727	2,449,448
9 (2029)	1,859,357	119,335	1,978,692
10 (2030)	2,016,949	129,450	2,146,399
11 (2031)	1,761,824	113,076	1,874,900
12 (2032)	466,314	29,928	496,242
Total	**19,310,249**	**1,239,350**	**20,549,599**
Annual average	**1,609,187**	**103,279**	**1,712,466**

2.1.6 Performance Indicators

In accordance with Consent Condition E5 (b) (iii), **Table 6** outlines the specific performance indicators that are proposed to be used to judge the performance of the development and any management measures. These indicators are regularly monitored and reported on as outlined within **Section 13.2**.

Performance Indicators are defined as 'Tahmoor Coal derived environmental performance indicators set to maintain compliance with the performance measures and/or objectives outlined within Schedule 2 Part B of the Consent'.

Monitoring that will be conducted to assess Tahmoor Coal's performance against these indicators is outlined within **Sections 7.2** and **10.**

Table 6 Performance Indicators

Aspect	Indicator	Reporting Mechanism
Air Quality	Number of exceedances from Air Quality criteria/limits	Annual Return and Annual Review
Air Quality	Number of complaints regarding Air Quality	Annual Review
GHG	Number of exceedances of GHG emissions, based on a 3-year rolling average.	NGERs Reporting and Annual Review
GHG	Number of complaints regarding GHG emissions	Annual Review

2.1.7 Other Leases and Licences

All development consents, leases, licences, and other relevant approvals are stored in the Cority Compliance Management database, which is administered by both site and Liberty GFG Corporate and on the Tahmoor Coal storage drive. A summary of the relevant leases and licences is provided in **Table 7**.

Table 7 Mining Leases and Licences

Title	Description	Granted	Expires
CCL 716	Original Tahmoor Leases	15/06/1990	13/03/2021
CCL 747	Bargo Mining Lease	23/05/1990	06/11/2025
ML 1376	Tahmoor North Lease	28/08/1995	28/08/2043
ML 1308	Small Western lease to west of CCL716	02/03/1993	02/03/2035
ML1642	Pit-top and REA surface Mining Lease	27/08/2010	27/08/2031
ML 1539	Tahmoor North Extensions Lease	16/06/2003	16/06/2024
EPL 1389	Environmental Protection Licence	01/05/2012	No Expiry
WAL36442 and WAL25777	Water Access Licences	6/12/2013	No Expiry
XSTR200005	Dangerous Goods Licence	02/02/2017	02/02/2027

3 Stakeholder Consultation

3.1 Internal Stakeholder Communication

Internal stakeholders include employees, contractors and visitors of Tahmoor Coal. Any internal communications relating to air quality and GHG will be conducted in accordance with the *TAH-HSEC-00119- Communication and Engagement Procedure.* This procedure outlines:

a) Methods of communication between internal stakeholders;

b) Types of information that is communicated between internal stakeholders;

c) Responsibilities for communication of information to internal stakeholders; and

d) Review of communication methods, including the consideration of feedback to / from internal stakeholders.

3.2 External Stakeholder Communication

External stakeholders include neighbours and the local / regional community, local council, state and federal government agencies and regulators, and press / media. Any external communications relating to air quality and GHG will be conducted in accordance with Tahmoor Coals standard communications procedures. External stakeholders are identified in accordance with the following:

- *TAH-HSEC-00031- Community Development Plan; and*
- *TAH-HSEC-00039 – Stakeholder Engagement Plan*.

External stakeholder communication is undertaken in accordance with:

- *TAH-HSEC-00039– Stakeholder Engagement Plan*; and
- *TAH-HSEC-00119- Communication and Engagement Procedure*.

These documents include information on the following topics:

a) Methods of communication to external stakeholders.

b) Types of information that is communicated between external stakeholders.

c) Responsibilities for communication of information to external stakeholders.

d) Review of communication methods, including the consideration of feedback to / from external stakeholders.

A key objective of *TAH-HSEC-00119 - Communication and Engagement Procedure* is to maintain positive relationships established with the local community and other external stakeholders.

3.3 Consultation to Date

The following stakeholders have been involved in the drafting of this AQGMP:

a) Environmental Protection Agency (EPA)
b) NSW Health
c) Clean Energy Regulator
d) Tahmoor Community Consultative Committee (TCCC)

The feedback provided by stakeholders is summarised within **Table 8** below. Tahmoor Coal will also consult with the nearest residents to the proposed ventilation shaft sites during the detailed design phase, anticipated to commence in 2022.

Table 8 Consultation to Date

Consulted Parties	Consultation	Outcomes of Consultation
EPA	Management Plan Review and Feedback	Email received 25.10.2021. Feedback addressed in Appendix D.
NSW Health	Management Plan Review and Feedback	No response received.
Clean Energy Regulator	Management Plan Review and Feedback	Emails received: 18/10/2021 19/10/2021 25/10/2021 Feedback addressed in Appendix D.
TCCC	Management Plan Review and Feedback	Email received 23/10/2021. Feedback addressed in Appendix D.

4 Existing Environment

The Bureau of Meteorology (BoM) collects climatic information in the vicinity of the Tahmoor Colliery. Climatic information collected from Picton Council Depot Automatic Weather Station (AWS) (located approximately 6 km from Tahmoor Colliery) shows that the annual average maximum and minimum temperatures experienced at Picton are 23.4°C and 8.8°C respectively. On average January is the hottest month, with an average maximum temperature of 29.3°C. July is the coldest month, with average minimum temperature of 1.7°C.

Rainfall data collected at Picton shows that February is the wettest month, with an average rainfall of 91.2 mm. The average annual rainfall is 800.9 mm (Bureau of Meteorology, 2021).

Local meteorological data has been collected at the Tahmoor South meteorological station since July 2012. On an annual basis, the most common winds are from the southwest and south-southwest. This pattern is reflected in most seasons except during summer when the predominant winds are from the north-eastern quadrant. The average wind speed recorded at Tahmoor South is 1.6 m/s and calm conditions (<= 0.5 m/s) are frequent at approximately 24% of the time (ERM Australia Pacific Pty Ltd, 2019).

Further information on the existing environment at Tahmoor South is available within Appendix N of the Tahmoor South EIS (January 2019).

5 Air Quality Baseline Data

A comprehensive baseline assessment was carried out within the Air Quality Impact Assessment provided in Appendix N of the Tahmoor South EIS (January 2019). A summary of this assessment is provided below. Baseline data for Tahmoor South includes data from the existing dust monitors operated by Tahmoor Coal and nearby EPA monitoring stations.

5.1 PM10

Tahmoor has two existing High Volume Air Sampler (HVAS) measuring PM10 concentrations around the mine site, see **Figure 6**. Data has been captured since Quarter 2 (Q2) 2013 and is displayed in **Figure 2**. All results are well below the maximum 24-hour average except for one result in Q1 2019. This result of 87.9 µg/m³ was attributed to the 2019 bushfires and is not representative of PM10 concentrations from the mine site.

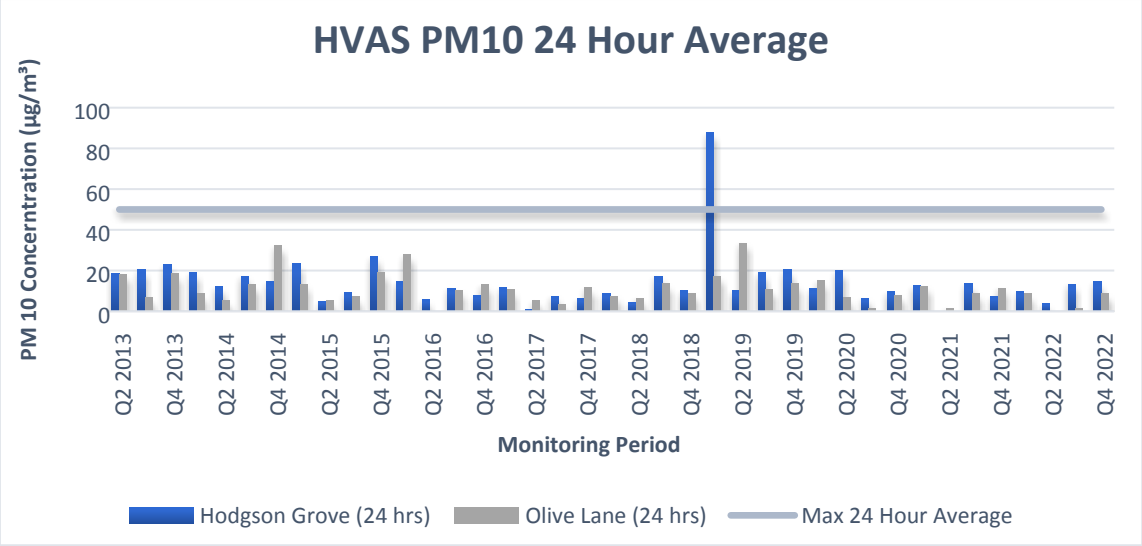

Figure 2: HVAS PM10 Concentrations

Tahmoor also monitors PM10 concentrations using an existing TEOM continuous monitor, at 5-minute intervals located on Charlies Point Road, shown on **Figure 6**. Data is available from January 2012. A summary of the data collected is shown in **Figure 3**. The average PM10 across all years of data is 13.38 µg/m³. Elevated PM10 levels were also experienced during the January 2019 bushfire period.

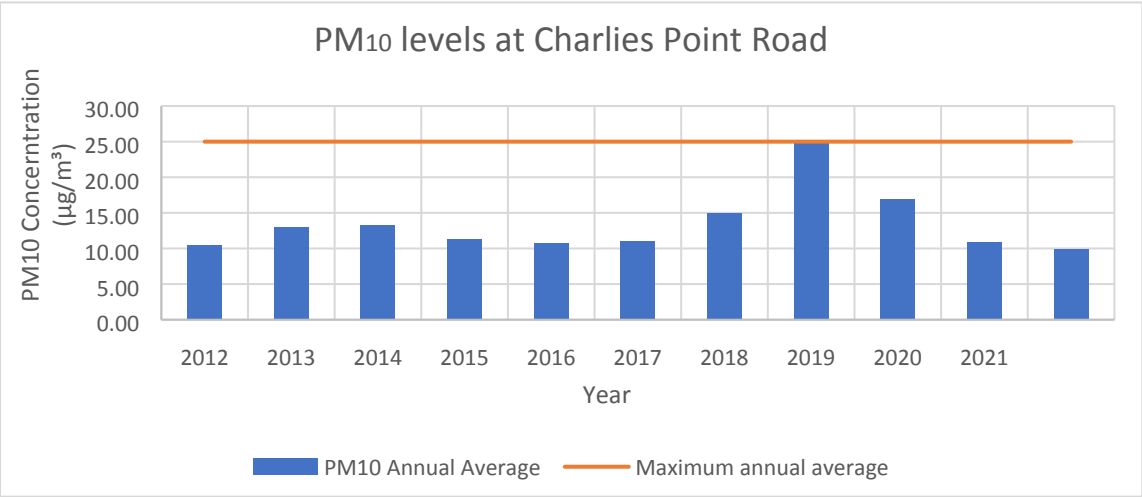

Figure 3: TEOM 24 Hour PM10 Concentrations

5.2 TSP

Tahmoor monitors Total suspended particulate matter (TSP) using one HVAS located on Charlies Point Road, shown on **Figure 6.** TSP has been monitored weekly with results available on a monthly basis since 2015. A summary of the data collected is shown in **Figure 4**. The average TSP across all years of data is 20.88 µg/m³.

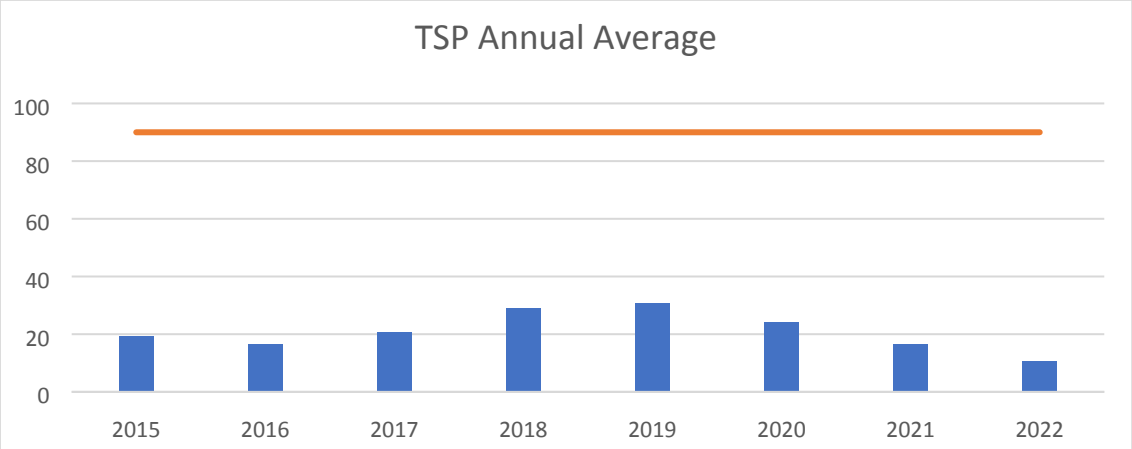

Figure 4: HVAS TSP Annual Average Concentrations

5.3 PM2.5

Tahmoor Coal has commenced monitoring of PM2.5 onsite through the instalment of two(2) new continuous dust photometers approved for use by the EPA from July 2022. These new dust monitors (see figure 6 for locations) have been located specifically near Tahmoor Coal's closest receivers with ADR1 being installed on the western bank of the Coking coal stockpile area (between the school and surface activities) and ADR2 located to the North-east of the REA. These monitors also monitor PM10 concentrations in the air continuously and have been equipped with real-time alarm activation and limit triggers in line with Tahmoor South Air Quality Trigger Action Response Plan (TARP). Previous to this there is limited PM2.5 concentration data available in the vicinity of the Tahmoor Mine. Tahmoor South use the EPA Beta Attenuation Mass (BAM) monitoring PM2.5 instruments at Camden and Bargo as baseline data for the area. The annual average for the available Camden monitoring data since 2013 is 7.35 µg/m3. The Bargo annual average since 2017 is 7.83 µg/m3.

5.4 Dust Deposition Gauges

Tahmoor monitors dust deposition using a total of 10 depositional dust gauges located off-site, see **Figure 6. Figure 5** below provides a summary of the annual average dust deposition data collected from 2010 to 2022. Review of the monitoring data on a month-by-month basis shows occasions where elevated dust deposition levels detected in certain months at Site 3 and Site 12. In general, levels fluctuate between an average of 0.5 – 2.0 g/m2/month. Due to no significant changes to the scale and location of the mining operation, it is anticipated levels will continue within this range throughout mining of Tahmoor South.

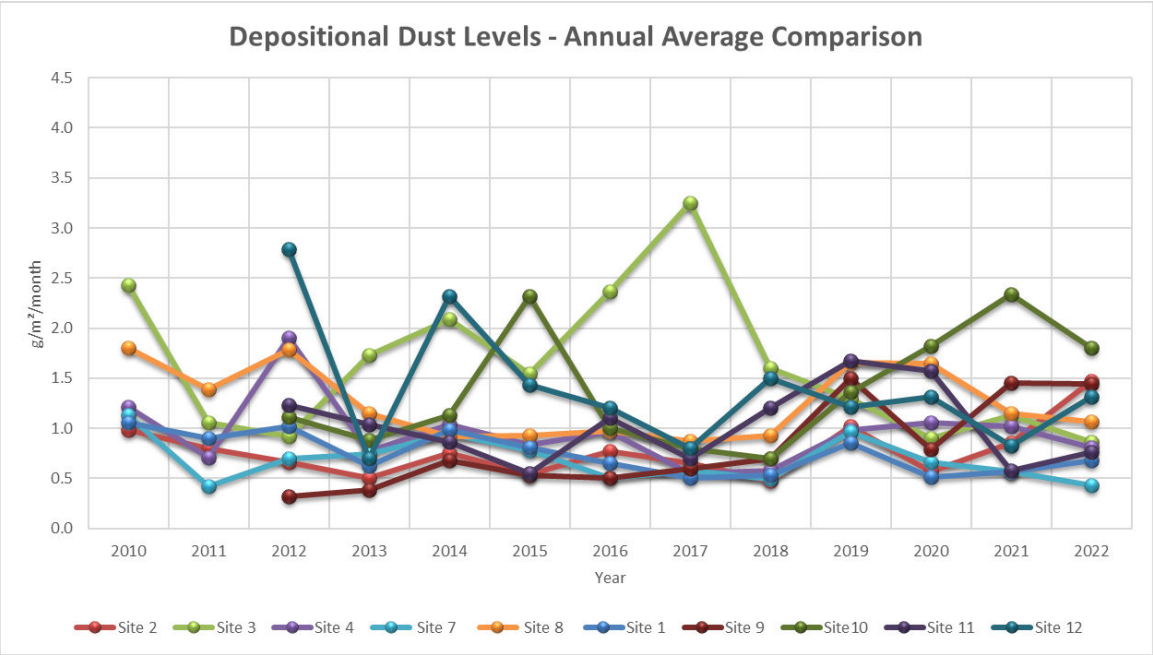

Figure 5: Depositional Dust Levels - Annual Average Comparison

5.5 EPA Data

In addition to the monitoring data collected on-site at Tahmoor, data from several NSW EPA monitoring stations were analysed within the Tahmoor South EIS. There are five monitoring stations in Southwest Sydney, as follows:

- Bargo (Silica Road) located approximately 6 km south of Tahmoor Coal pit-top operations and REA;
- Oakdale (Ridge Road) located approximately 23 km northwest of Tahmoor Coal pit-top operations and REA;
- Macarthur (UWS Campbelltown Campus) located approximately 27 km northeast of Tahmoor Coal pit-top operations and REA;
- Campbelltown West (Campbelltown TAFE) located approximately 28 km northeast of Tahmoor Coal pit-top operations and REA; and
- Camden (aerodrome) located approximately 24 km north of Tahmoor Coal pit-top operations and REA.

Data from these monitoring sites between 2007 and 2017 were used to provide an indication of existing ambient air quality in the area.

The annual PM10 average between all sites is 14.6 µg/m³, with no exceedances of the annual average EPA criterion of 25 µg/m³ at any of the monitors between 2007 and 2017. There have been exceedances of the 24-hour average EPA impact assessment criterion of 50 µg/m³ at all sites. Exceedances of greater than 10% of the 24-hour average criterion of 50 µg/m³ were recorded at Bargo on 5 occasions (17 September 2011, 5 and 17 October 2013, and 7 and 22 May 2016). The reason for these exceedances is not clear, however as this is an isolated event at both sites it may be due to localised activity in the area.

The average ratio of PM2.5/PM10 across all EPA monitoring sites is 0.4, the same average as at EPA Camden station. Further detail on EPA baseline data is available within Appendix N of the Tahmoor South EIS.

6 Air Quality Management System

Air quality management measures have been developed to minimise the impact of dust generation from Tahmoor Mine operations on privately and mine-owned properties. Air quality management measures are separated into design controls and operational controls. The following controls take into account the recommendations made in the following documents:

- Tahmoor South Project Environmental Impact Statement, Volumes 1 to 7. ERM Australia Pacific Pty Ltd. (2019).
- Particulate Matter Control Best Practise Determination for Tahmoor Colliery. Tahmoor Colliery (2012).

Risks related to air quality are identified annually in both the Broad Brush Risk Assessment (BBRA) for Tahmoor Coal and the Environment & Community specific BBRA (ECBBRA). The hazards identified in these risk assessments include top dust generating areas during both construction and development phases:

- Wheel generated dust from haul roads (Sealed and Unsealed);
- Activity on stockpiles (ROM, Product and Topsoil); and
- Wind erosion from exposed Areas.

6.1 Design Controls

The following controls outlined in **Table 9** are incorporated into the design and layout of Tahmoor Mine and its associated infrastructure.

Table 9: Design Air Quality Management Measures

Area	Control Type	Dust Controls	Responsibility
Roads (Sealed and Unsealed)	Proactive	Road Sealing is identified on a risk based approach during audits and inspections. Use low silt content material for unsealed road construction where possible.	Environment & Community (E&C) Department.
Stockpiles (ROM, Product and Topsoil)	Proactive	Enclosed conveyors, under pans, belt cleaners, skirting points, chutes within the plant.	Project Teams during detailed design.
Exposed Areas	Proactive	Keep exposed areas to a minimum by rehabilitating areas efficiently and effectively	Project Team

6.2 Operational Controls

The following proactive and reactive controls outlined in **Table 10** are incorporated into the day-to-day operations and construction activities of Tahmoor Mine and its associated infrastructure.

Table 10: Operational and Construction Air Quality Management Measures

Area	Control Type	Dust Control	Responsibility
General	Proactive	A comprehensive air quality management system including predictive meteorological forecasting and real-time air quality monitoring data (i.e., real-time response triggers) has been implemented at Tahmoor Coal. The system assists in managing air emissions and mitigating potential impacts in a proactive manner. Further details are provided in Section	CHPP Control

Area	Control Type	Dust Control	Responsibility
General	Proactive	The air quality model, developed during the initial Tahmoor South EIS will be referred to when setting early warning alarms or analysing data.	E&C Department and CHPP Control
General	Proactive	Mine personnel will be provided with training in dust controls for mine operations.	All personnel
General	Proactive	Regular cleaning of drains and gutters to reduce potential for dust build up.	Surface Superintendent
Emplacement Area	Proactive	Rehabilitation of emplacement areas, and obsolete roads, will be undertaken according to the approved Mine Operations Plan in order to minimise windblown dust potential.	E&C Department
Stockpiles (ROM, Product and Topsoil)	Proactive	Automatic water sprays are triggered by wind speed monitoring at the on-site Weather Station, linked back to CHPP Control. If wind is in excess of 6.8m/s for a 5-minute period, an alarm triggers CHPP control to turn on sprays. The CHPP Control Room may also be switched on at any time as required by conditions such as low moisture content of stockpile.	CHPP Control
Stockpiles (ROM, Product and Topsoil)	Reactive	Reduce vehicle traffic and speed around stockpiles until dust controls are implemented.	Surface Superintendent
Stockpiles (ROM, Product and Topsoil)	Proactive	Maintenance of enclosed conveyors, under pans, belt cleaners, skirting points, chutes within the plant.	CHPP Supervisors as scheduled by work orders or as required.
Stockpiles (ROM, Product and Topsoil)	Proactive	Implementation of the following measures from the Tahmoor South Spontaneous Combustion Management Plan, to minimise or eliminate the risk of spontaneous combustion: - Reshaping and covering of exposed batters; - Reduction of spoil heights and covering with inert material; - Where required, selective placement and appropriate management of material high in carbon content; - Suitable placement and covering of course rejects with inert material to reduce potential for heat production and odour; and - Visual inspection and Adiabatic Self Heating test (if required) for signs of heat production on the REA.	CHPP Production Coordinator & Rehab Emplacement Contractor & Environmental Specialist
Rail	Proactive	Rail loads manually sprayed as required.	CHPP Control
Rail	Proactive	Rail loads monitored for overloading and adjusted/washed down where necessary Cleaning of rail wagons where spillage occurs during loading. Profile of coal in wagon will be adjusted if overfilling causes excessive height above the gunnel in order to prevent loss during transport.	CHPP Control
Roads (Unsealed)	Proactive and Reactive	Watering with a water truck as required and increased frequency based on weather conditions. If dusty conditions are detected which require watering, personnel to contact CHPP Control to notify water truck.	CHPP Control
Roads (Unsealed)	Proactive	Chemical dust suppressant applied once a month (or as required)	E&C Department to coordinate monthly application.
Roads (Unsealed)	Reactive	Operators and CHPP Control will monitor wheel generated dust. If dust is visible above wheel arches, then a water truck should be called, and operations modified to control emissions until the road is watered.	Truck Operators and CHPP Control
Roads (Unsealed)	Reactive	Operators and CHPP Control will monitor wheel generated dust. If wheel generated dust (or dust from loading or tipping) is visible	Truck Operators and CHPP Control

Area	Control Type	Dust Control	Responsibility
		above the tray height or cabin roof then operations should be modified or ceased until dust controls are implemented.	
Roads (Sealed and Unsealed)	Proactive	Covering of loads if hauling dry material. Haulage supervisor to ensure trucks leaving site have load covers if required.	Operators
Roads (Sealed and Unsealed)	Proactive	40km/hr speed limit enforced on haul roads.	CHPP Control and haulage contractor.
Roads (Sealed and Unsealed)	Proactive	Where practical the distances hauled will be minimised.	CHPP Control and haulage contractor.
Roads (Sealed and Unsealed)	Proactive	Operators to avoid overloading trucks to reduce spillage and arrange clean-up of any spills as they occur.	Truck Operators
Roads (Sealed and Unsealed)	Proactive	Enforcement of speed limits on all roads across the mine site in line with the site Traffic Management Plan.	Surface Superintendent
Roads (Sealed and Unsealed)	Proactive	Hose down trucks as required prior to exiting site. Operator responsibility to ensure truck is free of loose mud/coal/other material before leaving site to prevent tracking this material onto public roads.	Truck Operators
Roads (Sealed)	Proactive	Routine inspection of exit road to detect drag out of material onto Remembrance Drive or Charlies Point Road. Road sweeper or water truck implemented as required.	Surface Superintendent
Exposed Areas	Proactive and Reactive	Watering with a water truck as required and increased frequency based on weather conditions. If dusty conditions are detected which require watering, personnel to contact CHPP Control Room to notify water truck.	CHPP Control and Personnel
Exposed Areas	Proactive	Chemical dust suppressant applied once a month (or as required)	E&C Department
Exposed Areas	Proactive	Areas not needed are sealed and/or re-vegetated to keep exposed areas to a minimum	E&C Department
Exposed Areas	Proactive and Reactive	Supervisors conduct regular visual inspection to identify the requirement for modifying operations or calling for additional dust controls.	Surface Superintendent
Exposed Areas	Proactive and Reactive	During adverse weather conditions or extraordinary events, the following measures will be implemented in accordance with the TARPs provided in Appendix A: - CHPP Control, Mine Control and E&C Department to monitor conditions, assess impact of weather conditions and modify operations as required; - Increase dust suppression activity and intervals as required; - Ensure correct operation of dust suppression systems; - Reduce operator's vehicle activity/speed; - Apply additional suppression or alteration of activity as necessary; - Stop dust generating operations pending further suppression/alteration of activity if dust continues and only recommence operations if the dust suppression system is operable, site preparation is adequate and weather conditions permit.	CHPP Control and Mine Control, & E&C Department
Construction		Tahmoor Coal will implement specific Construction Environmental Management Plans for construction activities on site. These plans will include control measures for construction activities such as: - Operation of watering carts; - Keeping drop heights to a minimum where possible; - Limiting tracking of materials on public roads using wheel wash, grates or stabilised egress; - Using Handheld photometers as a check of dust levels in windy conditions where practicable.	Project Team & E&C Department

6.3 Management Measure Effectiveness

The effectiveness of dust controls will continue to be evaluated throughout the life of the mine. Additional dust management controls, including new technologies, will be investigated and implemented where practicable.

Adaptive management and continuous improvement measures will be implemented accordingly as outlined in **Section 12.1**.

7 Air Quality Monitoring Program

7.1 Monitoring Standards

Air quality monitoring will be undertaken in accordance with the following Australian Standards and approved methods for sampling:

- EPA 'Approved methods for the sampling and analysis of air pollutants in NSW' (EPA 2007);
- The High Volume Air Samplers (HVAS) will be operated in accordance with AS/NZS 3580.9.3-2015 Methods for sampling and analysis of ambient air - Determination of suspended particulate matter – Total suspended particulate matter (TSP) - High volume sampler gravimetric method.
- Continuous monitors will be operated in accordance with AS 3580.9.8:2008 Methods for Sampling and Analysis of Ambient Air - Determination of Suspended Particulate Matter - PM10 Continuous Direct Mass Method Using a Tapered Element Oscillating Microbalance Analyser.
- Continuous monitors will be operated in accordance with AS/NZS 3580.9.11:2016 Methods for Sampling and Analysis of Ambient Air - Determination of Suspended Particulate Matter – PM10 Beta Attenuation Monitors
- Continuous monitors will be operated in accordance with AS/NZS 3580.9.12:2013 Methods for Sampling and Analysis of Ambient Air - Determination of Suspended Particulate Matter – PM2.5 Beta Attenuation Monitors
- The dust deposition gauges will be operated in accordance with **AS/NZS 3580.10.1:2016** Methods for Sampling and Analysis of Ambient Air – Determination of Particulate Matter – Deposited Matter – Gravimetric Method.

7.2 Monitoring Program

The Tahmoor Coal air quality monitoring program includes a combination of dust deposition gauges (DDG), HVAS (PM10 and TSP), real-time continuous dust monitoring devices (PM10 and PM2.5), visual monitoring and meteorological stations. All monitoring locations are shown in **Figure 6** and in **Table 11**.

Two continuous particulate monitors will be installed prior to secondary workings. These will be installed near the closest receivers:

- west of the main surface facilities; and
- north-east of the REA.

Monitoring locations have been selected to assess compliance with air quality criteria (**Table 4**) and the performance indicators outlined within **Table 6**. Prevailing winds, compass points and background dust were assessed prior to site selection, however the locations selected have been chosen as they are representative of the nearest point to source and sensitive receivers. The EPA have accepted the use of calibrated photometers for indicative real time assessment of particulate levels where dust control is considered more significant than absolute accuracy of results. This will be examined as an option for the proposed real time continuous monitors (northeast and west side of site boundary).

Real time continuous monitors will be accessed in conjunction with predictive meteorological forecasting (see Section 7.2.1) by site personnel to determine real time air quality conditions. Data from the monitoring systems can be received at pre-set intervals or can be accessed remotely as required. Each monitoring unit is fitted with alarming capabilities that can inform relevant personnel that air quality at the monitor has reached a pre-set value (as defined within the TARPs provided in Appendix A), or that weather conditions are adverse for air quality. Alarms are then sent via SMS to the Environmental Specialist and other relevant personnel to warn that air quality is reaching the predetermined limit. Appropriate actions can then be taken modify operations where deemed necessary to maintain operational compliance.

Real time monitoring data results and TARP triggers etc will be reviewed during the Annual Review process and utilised to inform future operating practices.

Table 11: Air Quality Monitoring Points

Monitoring Type	X	Y	Unit	Site ID	Statutory Requirement	EPA ID Number (if relevant)	Location Description	Sampling /Assessment Frequency	Impact Assessment Criteria (Averaging Period)
DDG	150.580934	-34.248707	g/m²/month	1	EPL 1389	7	Gas Plant Header Tank	Monthly/Monthly Review of Data	2 g/m² (Annual - maximum allowable increase) 4 g/m² (Annual - maximum allowable total)
DDG	150.577652	-34.248586	g/m²/month	2	EPL 1389	8	Top of fan House Bund		
DDG	150.576481	-34.252015	g/m²/month	3	EPL 1389	9	By Entry to Stockpiles		
DDG	150.575292	-34.256056	g/m²/month	4	EPL 1389	10	Bund by Graveyard		
DDG	150.592881	-34.248274	g/m²/month	7	EPL 1389	11	End of Road Reject Area 1		
DDG	150.593676	-34.260371	g/m²/month	8	EPL 1389	12	By New Entry to Reject Area		
DDG	150.588238	-34.266021	g/m²/month	9	NA	NA	South Side of the Site Boundary		
DDG	150.575076	-34.258748	g/m²/month	10	NA	NA	West Side of the Site Boundary		
DDG	150.576425	-34.247802	g/m²/month	11	NA	NA	North Side of the Site Boundary		
DDG	150.602662	-34.246410	g/m²/month	12	NA	NA	East Side of the Site Boundary		
HVAS PM10	150.598167	-34.238784	µg/m³	15	SSD 8445 - Private Residence	15	4 Hodgson Grove, Northeast side of boundary	Monthly/Monthly Review of Data	25 µg/m³ (Annual) 50 µg/m³ (24 Hour)
HVAS PM10	150.573570	-34.247173	µg/m³	14	SSD 8445 - Private Residence	14	2 Olive Lane, West side of the site boundary	Quarterly/Quarterly Review of Data	
TEOM PM10	150.587415	-34.265945	µg/m³	13	SSD 8445 - Private Residence	13	115 Charlies Point Road, South side of the site boundary	Continuous/Monthly Review of Data. As needed review if alarmed or complaint received.	
PM10/PM2.5 Continuous	150.576561 (indicative)	-34.251049 (indicative)	µg/m³	ADR2	SSD 8445 - Private Residence	NA	4 Hodgson Grove, Northeast side of boundary		
PM10/PM2.5 Continuous	150.598167 (indicative)	-34.238784 (indicative)	µg/m³	ADR1	SSD 8445 - Private Residence	NA	West Side of Site Boundary		

HVA TSP	150.587415	-34.265945	µg/m³	TSP	NA	NA	115 Charlies Point Road, South side of the site boundary	Weekly/Monthly review of data.	90 µg/m³ (Annual)
Weather Station	150.575290	-34.255318	Various	NA	SSD 8445	NA	Tahmoor Mine Pit Top	Continuous/Daily review conducted to monitor potential for adverse conditions.	NA

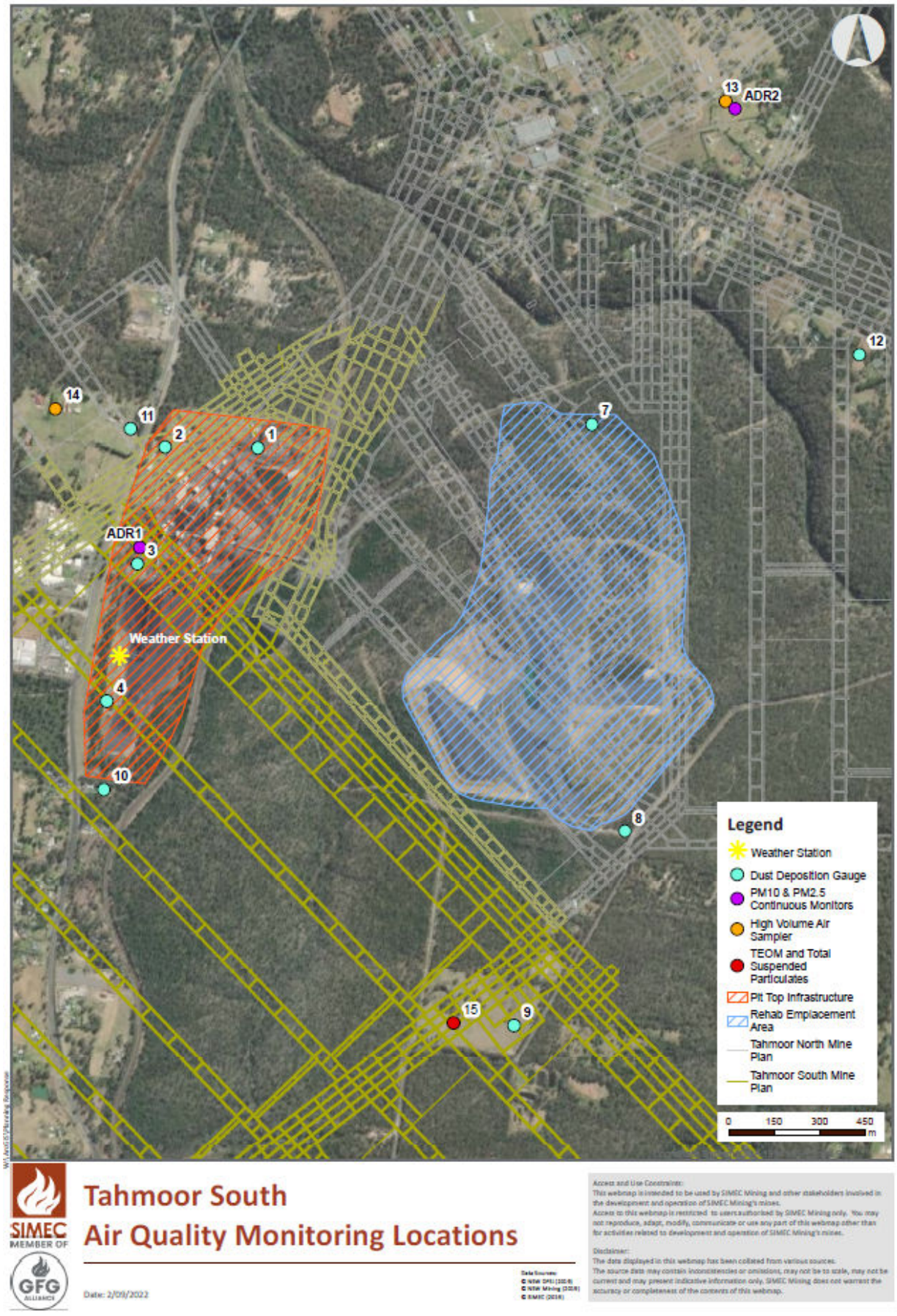

Figure 6: Monitoring Locations

7.2.1 Meteorological Monitoring and Effectiveness

Tahmoor Coal operate a meteorological station on an ongoing basis to manage adverse weather conditions and to assist with the implementation of appropriate controls on a proactive basis. The monitoring station complies with the requirements in the Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales (EPA, 2016). Logged meteorological parameters include:

- barometric pressure;
- evapotranspiration;
- saturation vapour pressure;
- solar radiation;
- relative humidity;
- wind speed;
- wind direction;
- temperature at 2 metres and 10 metres above ground;
- rainfall;
- Sigma theta; and
- Pasquill Gifford Stability number.

The weather station is located west of the pit top stockpiles and is maintained and operated in accordance with AS/NZS 3580.14:2014 Methods for sampling and analysis of ambient air – Meteorological monitoring for ambient air quality monitoring applications.

7.2.2 Visual Air Quality Monitoring

Visual monitoring of onsite dust generation from vehicles and movements around the mine site are monitored by CHPP Control and Mine Control through:

- Regular visual inspections conducted at the start of each shift to identify the requirement for modifying operations or calling for additional dust controls
- One dust surveillance camera on the stockpile and one on the yard are accessible by personnel based in CHPP Control. The two cameras record video 24-hours a day, 7 days per week. The Control Room Officer will regularly assess dust conditions in respects to the visual triggers shown in **Appendix A** and contact the Shift Supervisor to address any trigger conditions as required.

7.3 Monitoring Equipment Effectiveness

Tahmoor Coal outsource the management of air quality monitoring equipment to ALS Global (ALS) Wollongong. ALS have NATA Accredited facilities which meet Australian Standard requirements for dust gauge sample collection and laboratory testing. ALS conduct required maintenance and inspections on the air quality monitoring equipment onsite (however not NATA accredited for this work) on a regular basis and ensure that the sampling system is working to the operational requirements of the relevant standards outlined in **Section 7.1.** A quarterly calibration inspection and full service is conducted on the current TEOM on Charlies Point Road and the two (2) recently installed PM10/PM2.5 photometers by Lear Siegler Australasia.

Data from the particulate matter monitoring program will be routinely reviewed, analysed and validated for compliance with the relevant criteria. E&C employees will be involved in the review, analysis and validation of monitoring data for recording and reporting purposes, and to review the effectiveness of existing controls.

Internal audits of monitoring equipment associated with air quality will be conducted in accordance with **Section 13.9**.

8 Greenhouse Gas Background and Baseline Data

8.1 Scope 1 and Scope 2 Emissions

Scope 1 GHG emissions are defined as those emissions that occur from sources that are owned or controlled by Tahmoor Mine. Scope 1 emissions will be generated from various sources at Tahmoor Coal including from:

- Run-of-mine coal extracted from gassy underground mine;
- Collection and venting/flaring of pre-drained gas;
- Collection and venting/flaring of goaf gas (post drainage);
- Venting of mine ventilation return air;
- Diesel oil combustion;
- Petrol combustion;
- Post-mining activities; and
- Use of sulfur hexafluoride (SF6).

Scope 2 emissions are a category of indirect emissions that accounts for GHG emissions from the generation of purchased energy products (principally electricity, steam/heat). Scope 2 emissions cover purchased electricity brought into the organisational boundary of the entity, and they physically occur at the facility where electricity is generated. Entities report the emissions from the generation of purchased electricity that is consumed in its owned or controlled equipment or operations as Scope 2.

Tahmoor Coal monitors and reports GHG emissions in accordance with the:

- National Greenhouse and Energy Reporting Scheme (NGERS) Measurement Determination 2008;
- National Greenhouse and Energy Reporting Safeguard baselines table - Facility details and Safeguard facility reported emissions (the Safeguard Mechanism requires Australia's largest greenhouse gas emitters to keep their net emissions below an emissions limit (the Safeguard baseline).

Previous 'Reported Emissions Baseline' have been based on a historical peak emission year (FY12 1,543,151 t CO2-e for Scope 1 emissions). At end of FY23 (that is for FY24 and beyond), Tahmoor will transition to a Production Adjusted baseline. The AQGMP will be updated accordingly at this time to reflect this change.

Tahmoor Coal reports the Scope 1 and Scope 2 sources outlined within Table 12.

Methods of reporting are conducting using NGERs Method 1 and Criterion A. Method 1 provides estimation procedures derived directly from the methodologies used by the Department of Industry, Science, Energy and Resources for the preparation of Australia's National Greenhouse Accounts. Method 1 most useful for emission sources where the source is relatively homogenous, such as from the combustion of standard liquid fossil fuels and where the emissions resulting from combustion will be very similar across most facilities. Criterion A is the measurement criteria quantified using invoices (NGER, 2021)

Table 12 Scope 1 and Scope 2 Sources, Activity Types and Method.

Source Category	Source of Emissions	Activity Type	Fuel/Energy Commodity	Fuel Usage	Criterion	Method
Scope 1 Emissions						
Fuel combustion	Stationary and Transport energy purposes (excluding electricity generation)	Emissions released from combustion of liquid fuels other than petroleum oils or greases - Transport	Gasoline (other than for use as fuel in an aircraft) - Transport post-2004	Combustion	A	Method 1

Source Category	Source of Emissions	Activity Type	Fuel/Energy Commodity	Fuel Usage	Criterion	Method
		energy purposes	Diesel oil - Transport post-2004	Combustion	A	Method 1 & Method 2
		Emissions released from combustion of petroleum based oils or greases	Petroleum based oils (other than petroleum based oil used as fuel)	Combustion	A	Method 1 & Method 2
			Petroleum based greases	Combustion	A	Method 1
		Emissions released from coal mine waste gas flared	Coal mine waste gas that is captured for combustion	Combustion	-	Method 2
Fugitive emissions	Underground mines	Fugitive emissions from extraction of coal	-	-	-	Method 4
		Fugitive emissions from post mining activities	-	-	-	Method 1
Industrial processes	Emissions of Hydrofluorocarbons and sulphur hexafluoride gases	Emissions of sulphur hexafluoride gases from gas insulated switchgear and circuit breaker applications	-	-	-	Method 1
Scope 2 Emissions						
		Purchase and loss of electricity from main electricity grid in a State or Territory	-	-	-	-

Results are published yearly and represent baseline GHG emissions for the Tahmoor South project, see **Figure 7** for yearly results since Financial Year (FY) 16.

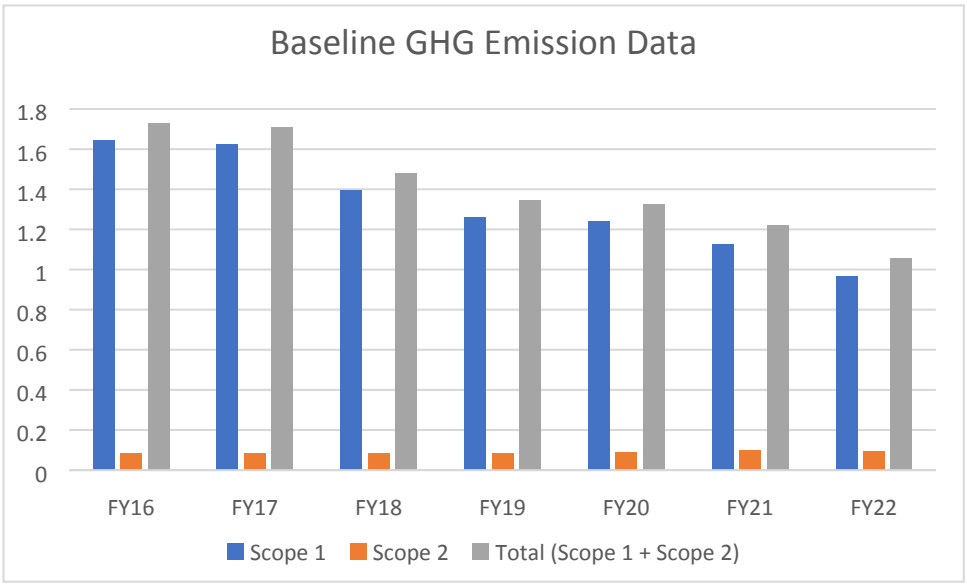

Figure 7: Total Scope 1 and 2 Greenhouse Emissions since FY16

For comprehensive GHG calculations and resultant estimated emissions from each of the GHG scopes for Tahmoor South, please refer to the Tahmoor South - Project Amendment Report (Feb 2020).

8.1.1 Carbon Neutrality

GFG Alliance, which Tahmoor Coal is a part of, aims to be carbon neutral by 2030. As part of the GFG Alliance, combining upstream and downstream steel manufacturing, SIMEC is focussed on developing large scale green energy capacity to support their low-carbon metals and industrials strategy, known as GREENSTEEL. Essential for this strategy is low-cost, clean and reliable power supply and a priority is therefore to grow SIMEC's capacity to generate green energy for industry. Existing and pending assets include hydro, wind, water, biodiesel and waste-to-energy technologies.

8.2 Scope 3 Emissions

Scope 3 emissions are defined as those emissions that are a consequence of the activities of an entity, but which arise from sources not owned or controlled by that entity. Some examples of Scope 3 activities provided in the GHG Protocol are extraction and production of purchased materials, transportation of purchased fuels, and use of sold products and services. Under the National Greenhouse and Energy Reporting Act 2007 (NGER Act 2007), facilities triggering GHG emission and energy usage thresholds are required to report Scope 1 and Scope 2, but not Scope 3.

Tahmoor Coal's current end customers include:

- Australian consumers of metallurgical coking coal (notably the two steelmakers in Australia: BlueScope and OneSteel Manufacturing, which is an affiliated company of Tahmoor Coal);
- Consumers of metallurgical coking coal located in Germany, Japan, India, United Kingdom and Netherlands; and
- End customers in other locations from time to time.

Tahmoor Coal's current end customers are located in countries that are signatories to the Paris Agreement within the United Nations Framework Convention on Climate Change. Scope 3 emissions are not monitored by Tahmoor Coal, however Scope 3 emissions from the Tahmoor South will continue to be reduced to the greatest extent possible by continuing to sell its coal to customers with end users located in countries that are parties to the Paris Agreement, or countries with equivalent domestic policies for reducing GHG emissions.

9 Greenhouse Gas Management Measures

Tahmoor Coal shall ensure that all reasonable and feasible measures to minimise GHG emissions are implemented to avoid exceedances of the predicted GHG emissions listed in **Table 5**.

A number of management measure options were evaluated within the Tahmoor South EIS to determine those that were feasible from those that were not achievable. Fundamentally, the reduction of fugitive methane emissions by both flaring and, if available, diversion of waste mine gas to the third party owned Waste Coal Mine Gas (WCMG) Power Plant was considered to be best practice methane management for underground coal mining operations. Tahmoor Coal commit to implementing a number of reasonable and feasible measures to minimise GHG emissions. Recommended measures are described **Table 13.**

Table 13 GHG Mitigation Measures

Mitigation Measure	Description	Responsibilities
Creation of Mine Plan	Maximising energy efficiency is a key consideration in the development of the mine plan. For example, significant savings of GHG emissions (through increased energy efficiency) can be achieved by mine planning decisions which minimise haul distances and therefore fuel use. Tahmoor Coal commit to referencing carbon neutrality commitments in any standalone Statement of Commitments.	E&C Department
Mining operations	Reducing fugitive methane emissions using the following abatement measures: • Flaring. • Methane recycled through third party power generation (WCMG Power Plant), if available. • Where possible, use of ventilation control devices in sections of the mine not in use enabling them not to be ventilated (unless required for safety purposes), thereby reducing fugitive emissions). • Use of electric winder, not diesel transport, as the primary method of materials transport for the mine. • Sealing of panels to reduce methane emissions from the goaf. Scope 3 emission from the Tahmoor South will continue to be reduced to the greatest extent possible by continuing to sell its coal to customers with end users located in countries that are parties to the Paris Agreement, or countries with equivalent domestic policies for reducing greenhouse gas emissions.	Technical Services Manager
Monitoring	Use of real-time gas (methane and carbon dioxide), temperature, pressure and associated volumetric flow monitoring 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. Undertake monitoring programs and regular maintenance and servicing of diesel vehicles on site to ensure efficiencies in fuel use. Odour monitoring for potential flaring and venting impacts to nearby receivers will be conducted in accordance with Section 11. Noise monitoring for potential flaring and venting impacts to nearby receivers will be conducted in accordance with the Tahmoor South Noise Management Plan.	Technical Services Manager Engineering Manager
Recording	Ensuring maintenance, calibration and record keeping is undertaken on the main ventilation shaft and fans to allow calculation of greenhouse gas emissions. Maintaining records for monthly electricity use and monthly ROM coal production to allow calculation of greenhouse gas emissions. Monitoring to be reported annually within the Annual Review.	Control and Systems Engineer E&C Department

Mitigation Measure	Description	Responsibilities
Action Plans and Studies	In accordance with Condition B19 (a), within two years of the development consent being granted (and each third year after that), Tahmoor Coal will commission and prepare a study to determine whether there are any reasonable and feasible measures that can be implemented to further reduce the abated Scope 1 and 2 GHG emissions. The study will form part of an Energy Savings Action Plan, in accordance with the Guidelines for Energy Savings Action Plans (DEUS, 2005). The action plan will include standards to minimise energy use and GHG emissions from Tahmoor Coal's operations. If the study and associated action plan finds there are reasonable and feasible measures, Tahmoor Coal will implement these measures in a timeframe determined in consultation, and to the satisfaction of, the Planning Secretary.	E&C Department
Offsets	In the unlikely event of an exceedances of the forecast Scope 1 and 2 GHG emissions (based on a 3 year rolling average), Tahmoor Coal will investigate and implement appropriate offsets to address the exceedances to the satisfaction of the Planning Secretary. Noting that any mechanism to offset may take into account any exceedances already offset under other applicable Commonwealth or State requirements.	E&C Department

9.1 Estimated Greenhouse Gas Emissions vs Limits

The following table presents a summary of the projected Scope 1, 2 and 3 emission estimates following the implemented of management measure outlined in **Section 9**, the projections are the equivalent to the emission limits discussed in **Section 2.1.5**.

Table 14 Summary of Estimated Emissions

Project Year (Calendar Year)	Scope 1 GHGE (t CO2-e) (flaring and power generation occurring)	Scope 2 GHGE (t CO2-e)	Total Scope 1 + Scope 2 GHGE (t CO2-e)	Total Scope 3 GHGE (t CO2-e) Energy Production
1 (2021)	230,041	14,764	244,805	525,244
2 (2022)	1,003,246	64,389	1,067,635	2,880,188
3 (2023)	1,636,849	105,054	1,741,903	4,837,896
4 (2024)	2,054,557	131,863	2,186,420	6,618,074
5 (2025)	1,843,089	118,291	1,961,380	6,467,475
6 (2026)	2,065,327	132,555	2,197,882	7,763,571
7 (2027)	2,070,977	132,917	2,203,894	7,735,856
8 (2028)	2,301,721	147,727	2,449,448	8,463,474
9 (2029)	1,859,357	119,335	1,978,692	6,939,653
10 (2030)	2,016,949	129,450	2,146,399	6,515,485
11 (2031)	1,761,824	113,076	1,874,900	5,520,472
12 (2032)	466,314	29,928	496,242	1,565,209
Total	**19,310,249**	**1,239,350**	**20,549,599**	**65,832,595**
Annual average	**1,609,187**	**103,279**	**1,712,466**	**5,486,050**

Note: Scope 3 emissions do not have corresponding limits under Consent SSD 8445.

9.2 Management Measure Effectiveness

The effectiveness of the measures outlined within reasonable and feasible measures to reduce GHG emissions (and energy consumption) will be monitored and evaluated throughout the life of the mine, as Tahmoor Coal will annually estimate GHG emissions and energy consumption in accordance with NGER and Energy Efficiency Opportunities requirements.

Adaptive management and continuous improvement measures will be implemented accordingly as outlined in **Section 12.1**.

10 Greenhouse Gas Monitoring Program

Tahmoor monitors and reports greenhouse gas emissions in accordance with the NGERS Measurement Determination 2008, which provides methods and criteria for calculating greenhouse gas emissions and energy data under the NGER Act 2007.

A simplified overview of Tahmoor Coal's inputs and emission outputs are provided in **Figure 8**.

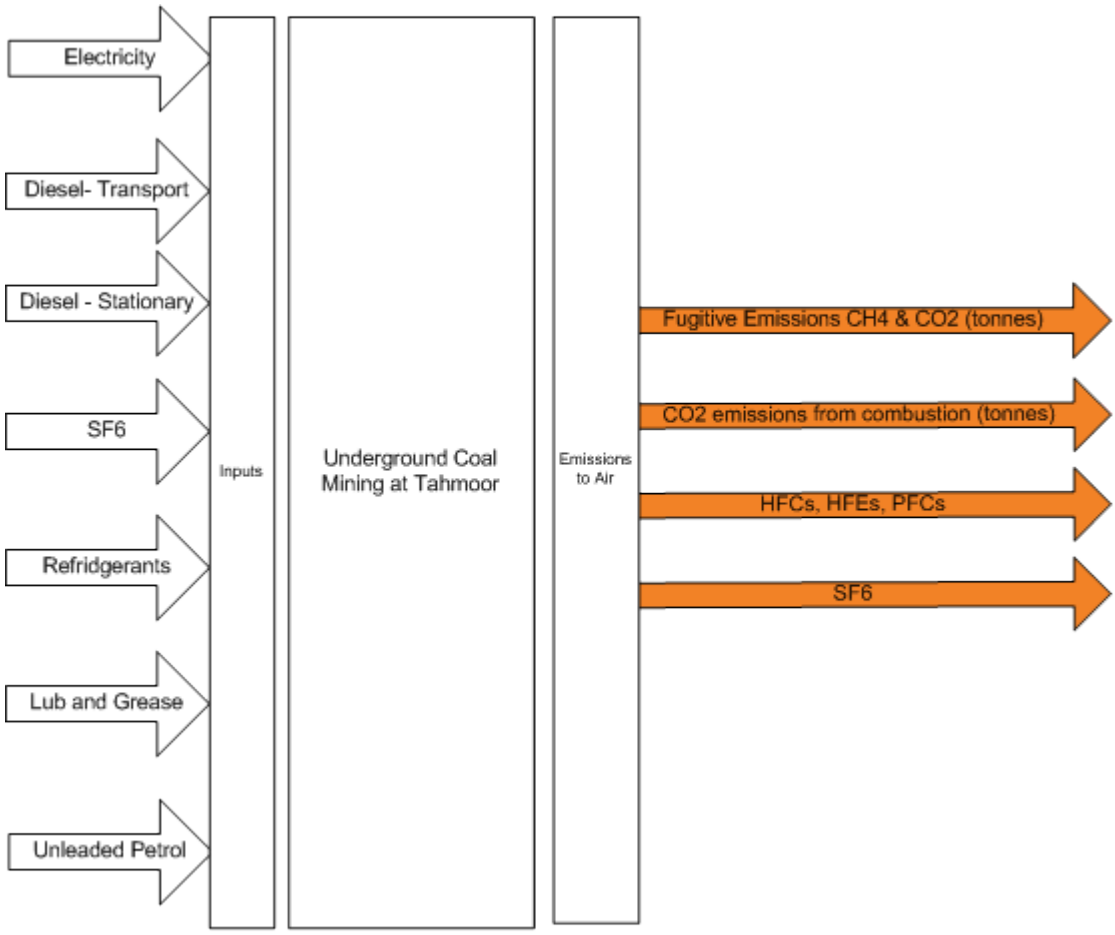

Figure 8: Tahmoor NGER Process Map Overview

A Continuous Emission Monitoring (CEM) is currently in place at the Tahmoor Mine and will continue to be utilised for Tahmoor South. The CEM system meets the requirements of Method 4 (direct measurement of emissions of GHGs) as described within Part 1.3 of the NGER Measurement Determination 2008. Division 1.3.1 of Part 1.3 of the NGERs Determination states that:

- Method 4 required the direct measurement of emissions released from the source from the operation of a facility during a year by monitoring the gas stream at a site within part of the area (for example, a duct or stack) occupied for the operation of the facility.

The system will include various instrumentation located at the upcast vent shafts to measure key parameters including:

- Pressure of the gas stream in kilopascals (kPa);
- Flow rate of the gas stream in cubic metres per second (m3/s);
- Proportion of methane and carbon dioxide in the volume of the gas stream (v/v); and
- Temperature in Kelvin (K).

10.1 Scope 1 Emissions

The main greenhouse gas emissions at Tahmoor Coal are Scope 1 emissions from three main sources:

a) Mine Ventilation Air (No.2 Up-cast Shaft);
b) Gas Extraction Plant; and
c) Gas Flaring Plant.

Flow volumes, gas concentrations (CO2 and CH4), temperature, pressure and humidity are measured in the No.2 ventilation shaft and reported in accordance with NGERS requirements.

Gas is drained using in-seam gas drilling techniques to capture and direct pre-mining and post-mining (goaf) gas to the Gas Extraction Plant located on the surface at Tahmoor Coal. Gas is then sent to the third party owned on-site WCMG power station, with surplus gas sent to the on-site Gas Flaring Plant. Tahmoor Coal has adopted a strategy whereby the maximum level of gas available is provided to the third party owned power station, with only the excess gas flared, to ensure the site is always reducing the mine's emissions profile. Usage is monitored and reported in accordance with NGERS requirements.

Other sources of Scope 1 emissions at Tahmoor Coal include the use of diesel, unleaded fuel, lubricants, greases and waste oil. Usage is monitored and reported in accordance with NGERS requirements.

10.2 Scope 2 Emissions

The main scope 2 emissions at Tahmoor Coal include the use of electricity, used to power much of the infrastructure underground and on the surface including the longwall and development mining equipment, coal handling and preparation equipment, ventilation fans and lighting. Electricity usage is monitored and reported in accordance with NGERS requirements.

10.3 Monitoring Equipment Effectiveness

Internal audits of monitoring equipment associated with GHG emissions will be conducted in accordance with **Section 13.9**.

11 Odour Management, Mitigation and Monitoring

Measures will be put in place, as far as practicable, to ensure that no offensive odours as defined under the *Protection of the Environment Operations Act (POEO Act)* are emitted from Tahmoor Colliery. **Table 15** outlines proactive and reactive mitigation measures that will be implemented to control potential odour sources.

Table 15 Odour Management Measures

Area	Control Type	Dust Controls	Responsibility
Fan Sites	Proactive	Any new upcast shaft site fans will incorporate a fan outlet flue, approximately 30 metres high, to minimise any odours discharge from the mine ventilation return air. Various modelling studies were completed to determine the optimum stack height of 30m.	Project Teams during detailed design.
General	Reactive	If significant shale oil is encountered at the working face, an odour survey will be conducted as required to determine whether odour is detectable and/or offensive at nearest affected residences.	Technical Services Department & E&C Department
General	Proactive	Implementation of the Spontaneous Combustion Management Plan to proactively reduce the potential for odours to be emitted from the Rehab Emplacement Area (REA).	E&C Department
General	Reactive	If odour complaints are received, a site investigation will be conducted, paying particular attention to ventilation shafts, wheel-generated haul road emissions, and emissions from the REA and stockpiles. The investigation will aim to identify any unusual odour sources within the Tahmoor Colliery site and take appropriate action to mitigate the odour as required.	E&C Department
REA	Proactive	Implementation of the following measures from the Tahmoor South Spontaneous Combustion Management Plan, to minimise or eliminate the risk of spontaneous combustion: - Reshaping and covering of exposed batters; - Reduction of spoil heights and covering with inert material; - Where required, selective placement and appropriate management of material high in carbon content; - Suitable placement and covering of course rejects with inert material to reduce potential for heat production and odour; and - Visual inspection and Adiabatic Self Heating test (if required) for signs of heat production on the REA.	CHPP Production Coordinator & Rehab Emplacement Contractor & Environmental Specialist

Odour monitoring will be conducted by environmental representatives at the same time as routine noise monitoring. Any odours noted during routine noise monitoring will be reported, investigated, and remediated immediately.

12 Contingency Plan

In accordance with Condition E5 (f) of the Consent, in the event that monitoring indicates that air quality criteria and limits are considered to have been exceeded or are likely to be exceeded, a response will be undertaken in accordance with **Section 13.5** and the **Trigger Action Response Plans (TARP) provided in Appendix A**. This response is a contingency plan that describes the management/corrective actions which can be implemented where required to remedy the exceedance.

The success of remediation measures that have been implemented for any TARP exceedance would be reviewed as part of the implementation of any corrective actions and within the Annual Review.

12.1 Adaptive Management/Continuous Improvement

In accordance with Condition E4 of the Consent, where any exceedance of the criteria outlined within this document has occurred and is attributed to Tahmoor Coal Operations, Tahmoor Coal will:

a) take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur;
b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action;
c) within 14 days of the exceedance occurring (or other timeframe agreed by the Planning Secretary), submit a report to the Planning Secretary describing these remediation options and any preferred remediation measures or other course of action; and
d) implement reasonable remediation measures as directed by the Planning Secretary

Tahmoor Coal have adopted the "Plan-Do-Check-Act" model as shown in **Figure 9.** This model will be applied to all aspects of Tahmoor Coal's environmental management and is utilised to embed the continuous improvement process in all system documents.

As PM10 and PM2.5 continuous monitoring is a new addition for Tahmoor Mine, Tahmoor Coal may review and update any TARPs in accordance with the process below at any stage. Any update to this plan will be communicated to the appropriate stakeholders and approved in accordance with the Consent.

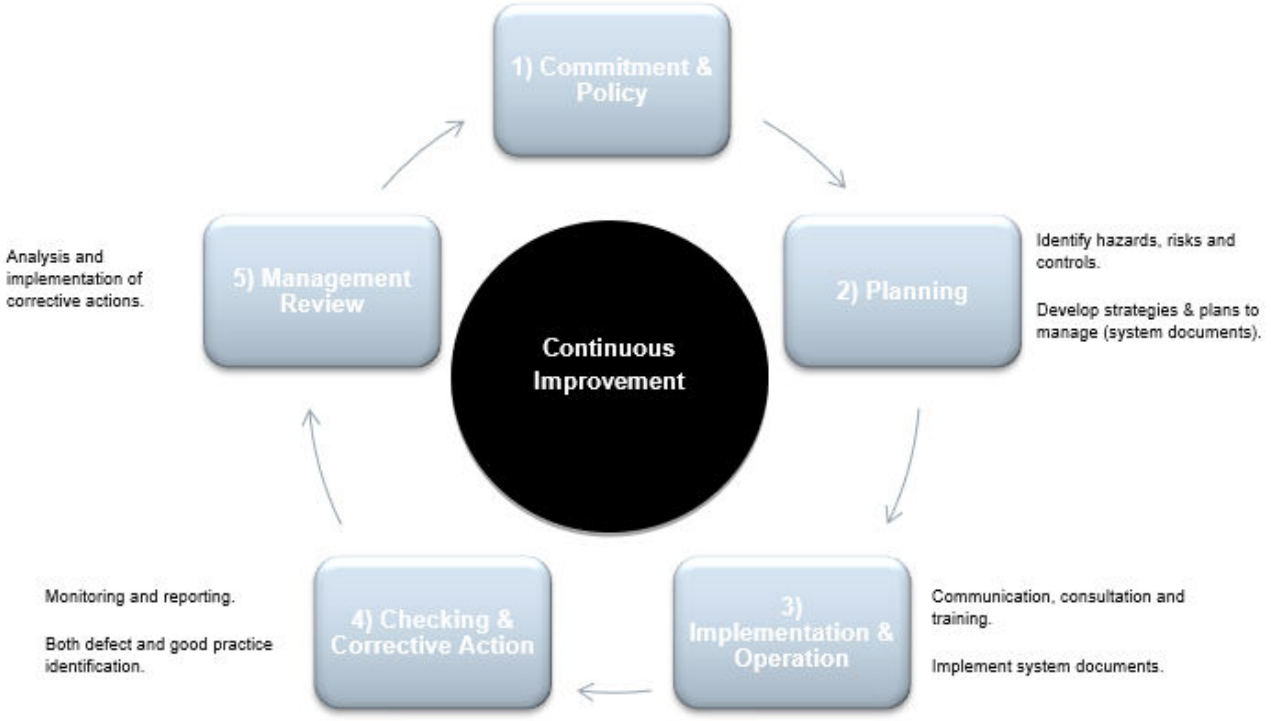

Figure 9: Continuous Improvement Model

13 Implementation and Reporting

13.1 Tahmoor Environmental Management System (EMS) Framework

The *TAH-HSEC-00375 - Tahmoor South Environmental Management Strategy (EMS) Document* provides the strategic context for the environmental management of Tahmoor Coal and forms part of the broader Health, Safety, Environment and Community (HSEC) management systems at Tahmoor Coal. The EMS outlines how Tahmoor Coal manages environment and community (E&C) aspects, impacts and performance. It provides a framework for the standards, plans and procedures implemented to ensure operations are managed in accordance with the ISO:14001 principles.

The objectives of the EMS are:

a) To provide an overall framework for environmental management at Tahmoor utilising the principles of ISO:14001;

b) To ensure compliance with all development consent, licences and approvals at Tahmoor Coal;

c) To detail the relationship and interactions between various operational and environmental components at Tahmoor Coal;

d) To provide effective mechanisms for external communications, maintaining a relationship with the local community; and

e) To assist Tahmoor Coal employees and contractors in administering their responsibilities regarding environmental management.

This plan will be implemented in conjunction with the EMS framework.

13.2 Reporting

Tahmoor Coal's reporting requirements are outlined in **Table 16.**

Table 16 Tahmoor Coal AQGMP Reporting Requirements

Instrument	Report	Details	Submitted/Uploaded
EPL 1389	Monthly Website Reports	Tahmoor Coal's Air Quality data is reviewed and uploaded on a monthly basis.	Uploaded to Tahmoor Coal website http://www.simec.com/mining/tahmoor-coal-pty-ltd/publications/
EPL 1389	Annual Return	A statement of compliance with the licence conditions and a report of the pollution monitoring of the pollutant loads generated by Tahmoor Coal.	Submitted to EPA
Consent Condition E13 and E14	Annual Review	Tahmoor Coal submit an Annual Review by the end of March each year. The Annual Review: - describes 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 calendar year; - includes 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 EIS.	Copies of the Annual Review are submitted to the Planning Secretary (DPIE), Council and relevant agencies and made available to the CCC and any interested person upon request. Copies are also available on the Tahmoor Coal website http://www.simec.com/mining/tahmoor-coal-pty-ltd/publications/

Instrument	Report	Details	Submitted/Uploaded
		- identifies 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; evaluates and reports on the effectiveness of air quality management systems; and compliance with the performance measures, criteria and operating conditions of this consent; - identifies any trends in the monitoring data over the life of the development and provide any raw monitoring data as requested by the Planning Secretary; - identifies any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and - describes what measures will be implemented over the next calendar year to improve the environmental performance of the development. Tahmoor Coal's Annual Review also includes reporting of actual GHG emissions, (including both annual figures and 3 year rolling average).	
NGER Act 2007	Six Monthly Annual Return	Greenhouse gas emissions (GHG) are reported every six (6) months in the National Greenhouse and Energy Reporting Annual Return as a requirement under the NGER Act. NGER provides information about GHG emissions, energy production and energy consumption.	NGER reports are legally required to be submitted to the Clean Energy Regulator by 31 October each year
National Pollutant Inventory	Annual NPI Report	The Environmental Protection Authority requires facilities to report NPI emissions, compliant with the Protection of the Environment Operations (General) Regulation 2009. The NPI program requires participating organisations to report the emissions of up to 93 substances.	Via the NPI online reporting system by 30 September each year.

13.3 Incidents

The Consent defines an incident as '*an occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance*'.

Material Harm is defined within the Consent as 'harm to the environment that:

- *involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial, or results in actual or potential loss or property damage of an amount, or*
- *amounts in aggregate, exceeding $10,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment)*

An air quality incident may occur when an investigation into a non-compliance or exceedance of air quality criteria identifies an air quality impact outside predicted impact and in-line with the definition above.

Tahmoor Coal manages and responds to incidents in accordance with the following plans:

a) TAH-HSEC-232 - Emergency and Incident Manual;
b) TAH-HSEC-00155 - Pollution Incident Response Management Plan; and
c) TAH-HSEC-00224 - Notification of Environmental Pollution Incidents.

These plans have been developed to manage preparation, incident response and reporting requirements under the *POEO Act 1997*. The management plans provide roles and responsibilities, management strategies, action and response plans and record management protocols for incidents and emergencies.

The Planning Secretary will be notified in writing via the Major Projects website immediately after Tahmoor Coal becomes aware of an incident. The notification will identify the development (including the development application number and the name of the development if it has one) and set out the location and nature of the incident.

Written Incident Notification will be submitted to the Planning Secretary via the Major Projects website within seven days after Tahmoor Coal becomes aware of an incident.

Written Incident Notifications will include:

a) the development and application number;
b) details of the incident (date, time, location, a brief description of what occurred and why it is classified as an incident);
c) how the incident was detected;
d) when Tahmoor Coal became aware of the incident;
e) any actual or potential non-compliance with conditions of consent;
f) describe what immediate steps were taken in relation to the incident;
g) identify further action(s) that will be taken in relation to the incident; and
h) identify a project contact for further communication regarding the incident.

Within 30 days of the date on which the incident occurred or as otherwise agreed to by the Planning Secretary, Tahmoor Coal will provide the Planning Secretary and any relevant public authorities (as determined by the Planning Secretary) with a Detailed Incident Report.

Detailed Incident Reports will include:

a) a summary of the incident;
b) outcomes of an incident investigation, including identification of the cause of the incident;
c) details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence; and
d) details of any communication with other stakeholders regarding the incident.

13.4 Non-Compliances

The Consent defines a non-compliance as ‘an occurrence, set of circumstances or development that is in breach of the consent’. Non-compliances or system defects detected during monitoring, inspections and audits will be managed in accordance with the *TAH-HSEC-00375 - Tahmoor South EMS Document*, with corrective action plans developed and implemented to rectify any issues.

The Planning Secretary will be notified in writing via the Major Projects website within seven days after Tahmoor Colliery becomes aware of any non-compliance. If a non-compliance is detected, the following steps will be followed:

a) Identify and confirm the non-compliance (i.e. review against approval criteria or condition and confirm that a non-compliance has occurred);
b) Complete internal environmental incident reporting documentation including an investigation to capture all relevant information;
c) In accordance with the relevant approval, determine what action (i.e. external reporting) is required. Specifically, determine if immediate reporting is required and to which stakeholders, or ensure that the event is captured for future reporting;
d) Following the incident investigation, develop a corrective action plan aimed at preventing future re-occurrence; and
e) Complete all required reporting and consult with relevant agencies on the corrective action plan to be implemented.

A non-compliance notification will identify the following:

a) the development and the application number,
b) the condition of consent that the development is non-compliant with
c) the way in which it does not comply and the reasons for the non-compliance (if known); and
d) any actions which have been, or will be, undertaken to address the non-compliance.

A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

13.5 Exceedances

For the purposes of this plan, an exceedance is defined as 'any instance where monitoring results show an exceedance of criterion outlined within the Consent or other regulatory instrument'. Air quality exceedances will generally be managed by Tahmoor Coal through the Contingency Plan and TARP process as outlined in **Section 12** and **Appendix A**. Tahmoor Coal will respond to any air quality readings that exceed the 24 hour criteria specified in **Table 4** irrespective of whether those exceedances are on a total or incremental basis.

In accordance with Consent Condition D7, as soon as practicable and no longer than 7 days after obtaining monitoring results showing an exceedance of air quality criteria outlined in **Table 4**, Tahmoor Coal will provide the details of the exceedance to any affected landowners, tenants and the CCC. Tahmoor Coal will also provide to any affected landowners and tenants a copy of the fact sheet entitled "Mine Dust and You" from NSW Health.

Exceedances in GHG emissions will be monitored and reported annually during the Annual Review process and will be measured against the performance indicators outlined within **Table 6.** Any exceedances of the forecast Scope 1 and 2 GHG emissions (based on a 3-year rolling average) will be offset by a mechanism to address the exceedances to the satisfaction of the Planning Secretary.

13.6 Complaints and Disputes

Community Complaints at Tahmoor Coal are managed in accordance with:

- *TAH-HSEC-00039- Stakeholder Engagement Management Plan*
- *TAH-HSEC-00120- Community Complaints & Enquiry Procedure.*

Tahmoor Coal operates a 24-hour complaints line (1800 154 415) for receiving community complaints and other stakeholder communications. The general process detailed in *TAH-HSEC-00120- Community Complaints & Enquiry Procedure* for responding to complaints is:

a) Acknowledging all complaints and responding to the complainant within 24 hours where practicable;
b) Registering all complaint details in Cority;
c) Investigating complaints impartially considering the facts and the circumstances prevailing at the time;
d) Implementing corrective actions if required; and
e) Reporting to relevant stakeholders of investigation outcomes and corrective actions taken.

A record of all community complaints in relation to activities undertaken by the licensee must be kept in a legible form and be in accordance with EPL 1389. The following information will also be kept in the event of a community complaint; as required by Section M4 in EPL1389:

a) The date and time of the complaint;
b) The method by which the complaint was made;
c) Any personal details of the complainant which were provided by the complainant or a note to that effect;
d) The nature of the complaint;

e) The action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
f) If no action was taken by the licensee, the reasons why no action was taken.

These records must be kept for at least 4 years after the complaint was made and be able to be produced to any authorised officer who asks to see them. In the event of a dispute or conflict between Tahmoor Coal personnel and a member of the community, the Tahmoor Coal E&C Manager will facilitate communication between both parties to reach a resolution, which may include a meeting with the complainant to discuss the issue.

Where relevant, negotiations will be initiated in accordance with any relevant Consent conditions. This general process is documented in *TAH-HSEC-00039 - Stakeholder Engagement Management Plan*. If a dispute cannot be resolved, the matter will be escalated to involve the site Operations Manager or General Manager as required and may involve consultation with the relevant government agency to assist in reaching a determination on the matter.

13.7 Risk and Change Management

Aspects and impacts at Tahmoor Coal are considered for operational activities, legislative requirements and internal and external stakeholder views. Key aspects and impacts are identified during the annual review of the Tahmoor Coal Environment and Community (E&C) Broad Brush Risk Assessment (BBRA) and the operational Life of Mine (LOM) Risk Assessment and Site Wide Broad-Brush Risk Assessment (Mine BBRA).

The purpose of the E&C BBRA is to identify significant E&C aspects and impacts across the site, the risk they pose and the controls necessary to effectively manage them. Management of potential impacts is prioritised according to the level of risk each aspect is assigned. Once all identified aspects, impacts, risks and management controls have been identified within the Annual E&C Risk Assessment, associated plans are updated accordingly.

The purposed of the Mine BBRA is to identify significant aspects and impacts of operations at a site level. Existing or proposed management controls are identified to reduce the risk of impacts on the E&C. The need for any new (or modifications to existing) approvals is also identified during this process.

The LOM Risk Assessment considers aspects and impacts of business activities at a strategic level. These risk assessments cover the life of mine risks associated with each operation. The outcomes of the LOM Risk Assessment are used in conjunction with the Tahmoor Coal E&C BBRA and Mine BBRA to develop the annual capital and operational budget and the associated work schedule.

In accordance with Tahmoor Coal's Health & Safety Management System, project and activity specific risk assessments are completed as required and include assessment of E&C risks.

13.8 Roles & Responsibilities

E&C management is regarded as part of the responsibilities of all employees and contractors at Tahmoor Coal. Specific information pertaining to the role, responsibility, authority and accountability of key personnel involved in environmental management at Tahmoor Coal is provided in **Table 17** below.

Table 17 Roles and Responsibilities

Role	Responsibilities
Head of Operations	Provide adequate environmental personnel/resources for implementation of this plan and associated plans.
Environment & Community Manager	Facilitate a process of managing overall compliance with regulatory requirements and undertake external reporting for legislative non-compliances as required. Determine adequate resources and funds are available to ensure the effectiveness of this procedure; and certify compliance and adherence to this plan. Develop, implement and maintain this plan. Liaise with relevant government authorities in relation to regulatory conditions and compliance issue.

Role	Responsibilities
	Liaise with the community as required and as per the Stakeholder Engagement Strategy, including facilitation of Community Consultative Committee meetings.
All Managers/Supervisors	Activities under their control are to be undertaken in accordance with this plan and associated management plans and site procedures. Manage environmental controls within their jurisdiction are operated and maintained in a proper and efficient manner. Report all environmental incidents and complaints in a timely manner.
Environmental Specialist	Responsible for coordinating environmental compliance on-site including timely completion of monitoring and reporting in accordance with internal and external requirements. Sign off on the accuracy of reports and the suitability of recommendations. Develop, implement, review and maintain this plan and system documents. Implement process for self-assessment audits. Assign persons responsible for completion of audit actions and set a due by date. Monitor that planned actions arising out of audits are implemented. Ensure all community complaints are addressed, investigated and appropriately managed as per site procedures, and reported internally as per internal requirements.
All Coordinators	Activities under their control are to be undertaken in accordance with this plan and associated management plans and site procedures. Manage environmental controls within their jurisdiction are operated and maintained in a proper and efficient manner. Report all environmental incidents and complaints in a timely manner.
All Persons	Activities under their control are to be undertaken in accordance with this plan and associated management plans and site procedures. Manage environmental controls within their jurisdiction are operated and maintained in a proper and efficient manner. Report all environmental incidents and complaints in a timely manner.

13.9 Internal Audits & Reviews

In accordance with internal company requirements, Tahmoor Coal has implemented a system for the monitoring and review of E&C performance at the site. Tahmoor Coal is to provide ongoing monitoring and regular management review of E&C performance to:

a) Confirm the adequacy and effectiveness of management plans, procedures and standards;

b) Address any identified weaknesses;

c) Share good performance and lessons learnt with other sites; and

d) Ensure ongoing compliance with all leases, licences and approvals.

Process or area specific internal audits are also conducted periodically, generally administered by the E&C Manager, focussing on the following areas:

a) Air quality;

b) Water management;

c) Erosion and sediment control; and

d) Statutory approvals.

These audits may be conducted by consultants on behalf of Tahmoor Coal, by Liberty GFG employees or may be self-assessments conducted by Tahmoor Coal personnel. Audit results and corrective actions are recorded in Cority and assigned to responsible personnel for completion within appropriate timeframes.

13.10 Independent Environmental Audit

In accordance with Conditions E15 – E20 of the Consent, Tahmoor Coal will complete Independent Environmental Audits of the development at the frequencies determined within DPIE's Independent Audit Post Approval Requirements (2020) and outlined below in **Table 18**.

Tahmoor Coal will complete independent audits in accordance with the following Consent Conditions:

a) E15: Independent Audits of the development must be conducted and carried out in accordance with the Independent Audit Post Approval Requirements (2020).
b) E16: Proposed independent auditors must be agreed to in writing by the Planning Secretary prior to the commencement of an Independent Audit.
c) E17: Planning Secretary may require the initial and subsequent Independent Audits to be undertaken at different times to those specified in the Compliance Reporting Post Approval Requirements (2020), upon giving at least 4 weeks' notice (or timing) to Tahmoor Coal of the date upon which the audit must be commenced.
d) E18: In accordance with the specific requirements in the Independent Audit Post Approval Requirements (2020), Tahmoor Coal will:
    i. review and respond to each Independent Audit Report prepared under Condition C5 of the Development Consent, or Condition C6 where notice is given by the Planning Secretary;
    ii. submit the response to the Planning Secretary; and
    iii. make each Independent Audit Report, and response to it, publicly available within 60 days of submission to the Planning Secretary. unless otherwise agreed by the Planning Secretary.
e) E19: Independent Audit Reports and Tahmoor Coal's response to audit findings must be submitted to the Planning Secretary within 2 months of undertaking the independent audit site inspection as outlined in the Independent Audit Post Approvals Requirements (2020) unless otherwise agreed by the Planning Secretary.

E20: Notwithstanding the requirements of the Independent Audit Post Approvals Requirements (2020), the Planning Secretary may approve a request for ongoing independent operational audits to be ceased, where it has been demonstrated to the Planning Secretary's satisfaction that independent operational audits have demonstrated operational compliance.

Table 18 Independent Audit Frequencies

Phase	Initial Independent Audit	Ongoing Independent Audit Intervals
Construction	Within 12 weeks of the commencement of construction	At intervals, no greater than 26 weeks from the date of the initial Independent Audit or as otherwise agreed by the Secretary.
Operation	Within 26 weeks of the commencement of operation	At intervals, no greater than 3 years or as otherwise agreed by the Secretary.
Closure /Rehabilitation	Within 52 weeks from notifying of suspension/ceasing of operations	At intervals no greater than 1 year or as otherwise agreed by the Secretary.

The audits will assess:

a) Environmental performance of the Mine;
b) Compliance with the requirements of all relevant:
    i. Development consents;
    ii. Mining leases;
    iii. Exploration Authorisations; and
    iv. Site environmental protection licence
c) Environmental assessments; and
d) Plans and programs required by above approvals.

The audit will review the adequacy of the following requirements under the above mentioned approvals:

e) Strategies;

f) Plans; and

g) Programs

The audit will recommend appropriate measures and corrective actions to improve environmental performance at Tahmoor Coal. Audit results and corrective actions are recorded in Cority and assigned to responsible personnel for completion within appropriate timeframes.

13.11 Employee & Contractor Training

Environmental training for Tahmoor Coal employees and contractors is conducted in accordance with the Environment & Community Training Needs Analysis, which Tahmoor Coal manages through the Scenario Training Database. General environmental awareness training is provided to all employees and contractors annually through a generic visitor induction and the SafeCoal training session scheduled by the Tahmoor Coal Health, Safety & Training Department.

14 Review and Improvement

14.1 Plan Audit

Audits of the **AQGMP** be conducted in consultation with the Plan owner and nominated individuals and shall focus on the content and implementation. Audits on the implementation shall consist of reviews of the safe working procedures and risk assessments developed to ensure safe operation of this **AQGMP**, they may also involve discussions with personnel involved in the management plan to determine understanding and compliance.

Should an audit of this **AQGMP** determine that a deficiency is evident in the content or implementation; a corrective action must be developed and implemented. Actions will be assigned to a nominated individual and tracked in Cority.

The Environment and Community Manager is responsible to verify that the nominated corrective action has been implemented by way of a follow up audit. Any changes to the **AQGMP** are to be managed and communicated to all personnel in line with the Change Management Process.

14.2 Plan Review

This **AQGMP** will be reviewed:

Event based: in accordance with Condition E7 (a) of the Consent, a review will be required within 3 months of any incident, event or finding that identifies an inadequacy in the **AQGMP**, risk assessment or associated documents to continue to effectively manage the identified hazard; a change to the workplace itself or any aspect of the work environment, a change to a system of work, a process or a procedure; or

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 the development consent must be revised, to the satisfaction of the Planning Secretary. Where revisions are required, the revised document will be submitted to the Planning Secretary for approval within six weeks of the review; or

Time based: in the absence of regular event-based reviews and in accordance with Condition E7 (b-e) of the Consent, this plan will be reviewed within three months of:

b) the submission of an Annual Review under Condition E13;
c) the submission of an Independent Environmental Audit under Condition E15;
d) the approval of any modification of the conditions of this consent (unless the conditions require otherwise); or
e) notification of a change in development phase under Condition A19;

If deemed appropriate, external service providers may be included in the review process. All reviews are to be documented.

15 Document Information

Relevant legislation, standards and other reference information will be regularly reviewed and monitored for updates and will be included in the site management system. Related documents and reference information in this section provides the linkage and source to develop and maintain site compliance information.

15.1 Access to Information

Information pertaining to Tahmoor Coal's general environmental performance against internal targets and external approvals criteria is reported to the community via the mine website and Tahmoor Coal's Community Consultative Committee (TCCCC). In accordance with Consent Condition E23 (a), Tahmoor Coal will upload the following details to the Tahmoor Coal website:

- the EIS;
- all current statutory approvals for the development;
- all approved strategies, plans and programs required under the conditions of SSD 8445;
- 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 SSD 8445;
- 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 phase and progress of the development;
- contact details to enquire about the development or to make a complaint;
- a complaints register, updated monthly;
- a register of incident and non-compliance notifications made to the Planning Secretary, updated monthly;
- the Annual Reviews of the development;
- audit reports prepared as part of any Independent Environmental Audit of the development and the Tahmoor Coal's response to the recommendations in any audit report;
- annual returns made under the National Greenhouse and Energy Reporting legislation; and
- any other matter required by the Planning Secretary.

15.2 Related Documents

Related documents, listed in the below table, are internal documents directly related to or referenced from this document.

Table 19 Related Documents

Number	Title
TAH-HSEC-00173	Tahmoor Coal Environmental Management System Framework Document
TAH-HSEC-00120	Community Complaints & Enquiry Procedure
TAH-HSEC-00221	Website Management Procedure
TAH-HSEC-00031	Community Development Plan
TAH-HSEC-00039	Stakeholder Engagement Plan
TAH-HSEC-00232	Emergency and Incident Manual
TAH-HSEC-00155	Pollution Incident Response Management Plan
TAH-HSEC-00224	Notification of Environmental Pollution Incidents

15.3 Reference Information

Reference information, listed in the below table (**Table 18**), contains information that is directly related to the development of this document or referenced from within this document.

Table 20 Reference Information

References
AS 3580.14:2014 Methods for sampling and analysis of ambient air – Meteorological monitoring for ambient air quality monitoring
AS/NZ 3580.9.3-2015 Methods for sampling and analysis of ambient air - Determination of suspended particulate matter – Total suspended particulate matter (TSP) - High volume sampler gravimetric method
AS 3580.9.8:2008 Methods for Sampling and Analysis of Ambient Air - Determination of Suspended Particulate Matter - PM10 Continuous Direct Mass Method Using a Tapered Element Oscillating Microbalance Analyser)
AS/NZS 3580.10.1:2003 Methods for Sampling and Analysis of Ambient Air – Determination of Particulate Matter – Deposited Matter – Gravimetric Method
Bureau of Meteorology. (2021, July 19). Climate statistics for Australian locations Picton Council Depot (068052). Retrieved from Australian Government Bureau of Meteorology: http://www.bom.gov.au/climate/averages/tables/cw_068052.shtml
EPA (2016), “Approved Methods for the Modelling and Assessment of Air Pollutants in NSW”, August 2016.
ERM Australia Pacific Pty Ltd. (2019). *Tahmoor South Project Environmental Impact Statement, Volumes 1 to 7.*
NGER (2008). National Greenhouse and Energy Reporting (Measurement) Determination
Tahmoor Colliery (2012). *Particulate Matter Control Best Management Practice Determination.*
NGER (2021). Methods and measurement criteria guideline.

16 Change Information

Table 21 Document History

Version	Date Reviewed	Review team (Consultation)	Change Summary
0.1	30/09/2021	Jane Barnett	Technical Review of plan
1.0	08/10/2021	Zina Ainsworth, Michelle Grierson, Natalie Brumby	Development of Plan
2.0	14/03/2022	Zina Ainsworth, Charlie Wheatley	Revision following DPE comments
2.1	17/06/2022	Natalie Brumby	Reviewed in accordance with Condition 46 of DA 67/98 following submission of the 2021 Annual Review to DPE. Reviewed in accordance with condition E7(e) of SSD 8445 following change in development phase under condition A9 (construction commencement on 16th May 2022).
3.0	19/10/2022	Natalie Brumby, Thomas O'Brien	Reviewed in accordance with Condition E7(c), (d) and (e) following an Independent Environmental Audit (10th August 2022), following the approval of any modification (Mod 1 approved 19th July 2022) and following the commencement of first and second workings (18th Oct 2022) of the Consent SSD 8445. Section 5, Figure 1, 6 and 7 updated.
4.0	16/06/2023	Natalie Brumby	Reviewed in accordance with Condition E7(b) following the submission of an Annual Review (31st March 2023), Condition E7(c) following the submission of an Independent Environmental Audit (2nd June 2023) and Condition E7 (d) following the approval of any modification (MOD 2 - 13th June 2023) of the Consent SSD 8445.

APPENDIX A – Air Quality Trigger Action Response Plan (TARP)

Normal State	• *Normal conditions* • *No alarms* • *No wheel dust visible above wheel height* • *Continue to monitor dust levels*

	Level 1 Trigger – Alert / Investigate	Level 2 Trigger – High Alert / Rectify	Level 3 Triggers – Stop – Withdrawal / Removal
Trigger Action Response Plan	5-minute average wind speed exceeds 6.8 m/s (for 3 or more consecutive 5-minute periods) **OR** 5-minute ambient air temperature is greater than 28°C (for 3 or more consecutive 5-minute periods) **OR** Dust visible at wheel height or deck height. **OR** Small, sporadic dust generated by weather on stockpiles/reject **AND** 24-hour rolling average PM10 continuous monitoring (once implemented) concentration greater than 35 µg/m3 **AND** 24-hour rolling total rainfall is less than 2mm	5-minute average wind speed exceeds 10 m/s (for 3 or more consecutive 5-minute periods) **OR** 5-minute ambient air temperature is greater than 32°C (for 3 or more consecutive 5-minute periods) **OR** Dust visible at vehicle height or at deck height **OR** Small amount of dust generated by weather on stockpiles/reject **AND** 24-hour rolling average PM10 continuous monitoring (once implemented) concentration greater than 40 µg/m3 **AND** 24-hour rolling total rainfall is less than 2mm	5-minute average wind speed exceeds 12 m/s (for 3 or more consecutive 5-minute periods) **OR** 5-minute ambient air temperature is greater than 40°C (for 3 or more consecutive 5-minute periods) **OR** Dust visible above vehicle height or deck height **OR** Significant amount of dust generated by weather on stockpiles/reject **AND** 24-hour rolling average PM10 continuous monitoring (once implemented) concentration greater than 45 µg/m3 **AND** 24-hour rolling total rainfall is less than 2mm

Persons affected	Action / Response	Action / Response	Action / Response
CHPP Control	• Monitor for further change • Ensure dust suppression activities are continuing normally	• Inform supervisors and necessary personnel • Monitor conditions • Assess impact of weathers conditions and modify operations as required • Increase dust suppression activity and intervals as directed • Ensure correct operation of dust suppression systems • Apply additional suppression or alteration of activity as necessary	• Stop dust generating operations pending further suppression/alteration of activity • Monitor conditions • Increase dust suppression activity and intervals as directed • Ensure correct operation of dust suppression systems • Only recommence operations if the dust suppression system is operable, site preparation is adequate and weather conditions permit
Mine Control	• Ensure dust suppression activities are continuing normally	• Monitor conditions • Inform supervisors and necessary personnel	• Stop dust generating operations pending further suppression/alteration of activity • Monitor conditions • Only recommence operations if the dust suppression system is operable, site preparation is adequate and weather conditions permit
E&C Department	• Monitor for further change	• Monitor conditions • Inform supervisors and necessary personnel	• Monitor conditions
Mine personnel	• Reduce operator's vehicle speed	• Reduce operator's vehicle activity/speed	• Stop dust generating operations pending further suppression/alteration of activity • Only recommence operations if the dust suppression system is operable, site preparation is adequate and weather conditions permit

APPENDIX B – Consultation

Agency	Date response received	Comments	Response
EPA	Via email on 25.10.2021	I note that the EPA Bargo weather station is much closer to Tahmoor (6 km) than Camden (25 km) although both are acceptable for use.	Addition of Bargo PM2.5 monitoring station within Section 5.3.
		Table 10: Are there any speed limit on the haul road between washery and emplacement area?	Added to Table 10
		Table 10: Is this for an open cut mine?: Only the minimum area necessary for mining operations will be disturbed at any time.	Removed from Table 10
		Table 10: Cleaning of rail wagons where spillage occurs during loading. Profile of coal in wagon will be adjusted if overfilling causes excessive height above the gunnel in order to prevent loss during transport. Routine inspection of exit road to detect drag out of material onto Remembrance Drive or Charlies Point Road.	All additions in track changes within Table 10 accepted.
		Table 10: Although the measures in this table are fairly generic, there is no reference to the new vent shaft construction and fugitive dust from site preparation, earthworks, shaft spoil handling. Measures could include watering, keeping drop heights to a minimum, and limiting tracking of materials on public roads using wheel wash, grates or stabilised egress. Handheld photometers can also be used as a check of dust levels in windy conditions.	Air Quality management measures associated with the construction of the vent shafts will be covered by project specific Construction Environmental Management Plans (CEMP). Tahmoor Mine will implement the measures suggested if feasible during the development of these CEMPs.
		Section 7.1: EPA has accepted the use of calibrated photometers for indicative real time assessment of particulate levels where dust control is considered more significant than absolute accuracy of results. This could be examined as an option for the proposed western continuous monitors.	Noted – Tahmoor have amended wording on the addition of proposed western continuous monitors.
		Update methodology. May need to be updated in the licence as well: • The dust deposition gauges will be operated in accordance with **AS/NZS 3580.10.1:2016** Methods for Sampling and Analysis of Ambient Air – Determination of Particulate Matter – Deposited Matter – Gravimetric Method.	Noted and amendments in track changes accepted.

Agency	Date response received	Comments	Response
		Section 7.2: Suggest adding paragraph to explain how locations have been selected to assess performance criteria (eg sensitive receivers, nearest point to source, background, prevailing winds, compass points etc), Could also say how real time monitoring data results will be used to inform operating practices. Eg. Through TARP and trigger level alarms for PM10/PM2.5 and medium-long term review of monitoring data.	Information added to Section 7.2.
		Table 11: Location number not shown on Figure 6. Also would be helpful to include GNNS co-ordinates preferably in decimal lat/long.	Information added to Table 11 and Figure 6.
		Section 7.2.1: "The weather station is maintained and operated in accordance with AS/NZS 3580.14:2014 Methods for sampling and analysis of ambient air – Meteorological monitoring for ambient air quality monitoring applications." Please describe location and add to table 11 and Figure 6 if possible.	Location description added, and location added to Figure 6.
		Table 13: If significant shale oil is encountered at the working face, an odour survey will be conducted to determine whether odour is detectable and/or offensive at nearest affected residences.	Added to Table 15
Clean Energy Regulator	Emails received: 18/10/2021 19/10/2021 25/10/2021	Condensed from emails: The Clean Energy Regulator recommend that your management plan: • states that your emissions estimation methods will be the same as used for NGER reporting purposes • itemises the NGER emission sources, activities, measurement criteria and methods that will be covered by and/or used for estimation of emissions for management of greenhouse gases. Tahmoor Coal would want to demonstrate consistency with: • Safeguard facility reported emissions 2019–20 (cleanenergyregulator.gov.au) • National Greenhouse and Energy Reporting Safeguard baselines table - Facility details (cleanenergyregulator.gov.au).	Discussed within Section 8 and Table 12 Addition of consistency with Safeguard facility reported emissions and National Greenhouse and Energy Reporting Safeguard baselines table - Facility details added to Section 8.

Agency	Date response received	Comments	Response
		If you intend to use a production-adjusted safeguard baseline sometime in the future, you could also provide details to NSW planning about when and how.	
TCCC	Email received 23/10/2021	1. During the IPC assessment for this Project SIMEC promised to source 48,000 MWh per year of electricity of the Project's power needs from solar energy Why is there no mention of this commitment in this draft plan? Has the purchase of solar energy been abandoned? *In addition to the proposed framework for development consent conditions outlined below in Section 6, GFG has executed a Power Purchase Agreement for 15 MW capacity from the Molong Solar Farm to offset GHGE, providing 48,000 MWh per year of electricity. This is anticipated to offset the approximate daytime power requirements at Tahmoor Coal in conjunction with the power generation plant. In terms of CO2-e, the Molong Solar Farm would offset approximately 300,000 t CO2-e, based on the forecast carbon intensity of the NSW grid over the 10-year Project life.* *The purchase of electricity from the Molong Solar Farm would therefore effectively reduce the total Scope 1 and 2 GHGE of the Project from 20,549,599 t CO2-e to 20,249,599 t CO2-e.[1]*	GFG Alliance has executed a Power Purchase Agreement with Molong Solar Farm.
		2. Will SIMEC purchase 100% renewable energy for this Project? Such a commitment could reduce the Project's Scope 2 GHGEs by about 0.94 Mt CO2-e? Does SIMEC consider the purchase of 100% RE to be 'reasonable and feasible' for this project?	GFG Alliance has executed a Power Purchase Agreement with Molong Solar Farm. Currently it is not reasonable and feasible for Tahmoor Coal to implement 100% renewable energy. Tahmoor Coal will continue to investigate options to improve Greenhouse Gas emissions in accordance with the Energy Savings Plan – discussed in Table 13.
		3. Why are there zero actions in the plan that commit Tahmoor Coal to specific, measurable reductions in GHG emissions (expressed as a percentage of total Scope 1 and 2 GHG emissions per annum)? At least one action was proposed by Tahmoor Coal during the assessment process, but this has been dropped from this draft plan (the Molong Solar Farm would offset approximately 300,000 t CO2-e, based on the forecast carbon intensity of the NSW grid over the 10-year Project life.).	GFG Alliance has executed a Power Purchase Agreement with Molong Solar Farm. Tahmoor Coal will continue to investigate options to improve Greenhouse Gas emissions in accordance with the Energy Savings Plan – discussed in Table 13.
		4. How many tonnes of fugitive emissions - measured in tonnes of avoided CO2-e GHG emissions	Over the life of the Project, the maximum estimated total GHGE

Agency	Date response received	Comments	Response
		per annum - does Tahmoor Coal expect to save by each of the measures listed below (taken from 'Table 12 GHG Mitigation Measures')? · Flaring. · Methane recycled through third party power generation (WCMG Power Plant), if available. · Use of ventilation control devices in sections of the mine not in use enabling them not to be ventilated (unless required for safety purposes), thereby reducing fugitive emissions). · Use of electric winder, not diesel transport, as the primary method of materials transport for the mine. · Sealing of panels to reduce methane emissions from the goaf.	(unabated scenario) would total 93.8 Mt CO2-e, including approximately: - 26.7 Mt CO2 of Scope 1 (with an annual average of 2.22 Mt CO_2-e); - 1.24 Mt CO2 of Scope 2 (with an annual average of 0.1 Mt CO_2-e); and - 65.8 Mt CO2 of Scope 3 (with an annual average of 7.81 Mt CO_2-e). Under the 'abated' scenario, around 35% of the methane gas would be captured and either flared or used for power generation. This would reduce Scope 1 and 2 emissions by around 26.5%. Therefore, a reduction of 7.38 Mt CO_2-e. It should be noted that the concentration of methane within the captured gas is not always suitable for beneficial reuse and therefore, flaring and power generation is subject to variability. No specific figures are available for the use of ventilation control devices, electric winder or sealing of panels.
		5. A measure proposed to reduce fugitive methane emissions in 'Table 12 GHG Mitigation Measures' is qualified, suggesting it may not eventuate. Will the WCMG Power Plant be available? "the reduction of fugitive methane emissions by both flaring and, if available, diversion of waste mine gas to the Energy Developments Limited (EDL) Waste Coal Mine Gas (WCMG) Power Plant was considered to be best practice methane management for underground coal mining operations." The commitment to this measure in Table 12 is also qualified: "Methane recycled through third party power generation (WCMG Power Plant), if available."	The Waste Coal Mine Gas (WCMG) Power Plant has been successfully utilised at Tahmoor Coal for more than ten years. There are periods where the plant is not available due to maintenance and power outages. During these times Tahmoor Coal relies on other means of fugitive methane emission management e.g., flaring.
		6. Given the importance of mitigating VAM emissions and the prominence of this issue during the NSW IPC assessment, together with a statement by Tahmoor Coal that this measure could be implemented, why is there no mention at all of VAM abatement in this draft plan?	Ventilation Air Methane abatement was assessed as part of the NSW IPC assessment, at this point in time it was not considered to be reasonable or feasible.
		7. In Table 12, Tahmoor Coal says it will "commit to referencing carbon neutrality commitments in any	This statement relates to the ongoing commitment by the GFG

Agency	Date response received	Comments	Response
		standalone Statement of Commitments." What does this statement mean?	Alliance, which Tahmoor Coal is a part of, which aims to be carbon neutral by 2030. As part of the GFG Alliance, combining upstream and downstream steel manufacturing SIMEC is focussed on developing large scale green energy capacity to support their low-carbon metals and industrials strategy, known as GREENSTEEL. Essential for this strategy is low-cost, clean and reliable power supply and a priority is therefore to grow SIMEC's capacity to generate green energy for industry. Existing and pending assets include hydro, wind, water, biodiesel and waste-to-energy technologies.
		8. In accordance with Condition B19 (c) of the Consent, Tahmoor Coal commits to ensuring that the development does not exceed the Scope 1 and 2 GHG emissions in red below (Table 5 – draft GHG plan). We note that this cap on emissions (red bars below) represents a significant increase in emissions above those emitted by the existing operation (blue bars below). What are the annual Scope 1 and 2 GHG emissions projected for this development once Tahmoor Coal implements all of the measures described in this draft plan?	The annual Scope 1 and Scope 2 emissions predicted in Table 5 are consistent with the emission projections post abatement measures discussed in Section 9. Tahmoor Coal will be increasing its ROM Coal production quantities from pre-Tahmoor South mining. This increase will be the source of the increase in Greenhouse Gas emissions. Actual projected emissions have been added in Section 9.1.
NSW Health	NA	No feedback received	NA

APPENDIX C – Letter of Endorsement

Planning, Industry & Environment

Ms Zina Ainsworth
Manager Environment and Community
SIMEC Mining
2975 Remembrance Drive
Tahmoor NSW 2573

16/08/2021

Dear Ms. Ainsworth

Tahmoor South Coal (SSD-8445)
Management Plan Experts Endorsement

I refer to your request (SSD-8445-PA-2) for the Secretary's approval of suitably qualified persons to prepare the Management Plans for the Tahmoor South Coal (SSD-8445).

The Department has reviewed the nominations and information you have provided and is satisfied that these experts are suitably qualified and experienced. Consequently, I can advise that the Secretary approves the appointment of the following experts to prepare the following Management Plans:

Management Plan	Suitably Qualified Person
Noise Management Plan	Michelle Grierson – Senior Environmental Scientist Umwelt Australia Pty Ltd Katie Teyhan (Technical Reviewer) - Associate Acoustics Manager Newcastle EMM
Spontaneous Combustion Management Plan	Michelle Grierson – Senior Environmental Scientist Umwelt Australia Pty Ltd
Water Management Plan	Camilla West - Senior Water Resources Scientist Tony Marszalek - Director and Principal Water Resources Engineer Hydro Engineering & Consulting Pty Ltd
Groundwater Management Plan	Will Minchin – Hydrogeologist Maxime Philibert - Hydrogeologist SLR Consulting
Biodiversity Management Plan	Luke Baker - Team Leader Ecology Niche Environment and Heritage
Rehabilitation Strategy	Michelle Grierson – Senior Environmental Scientist Umwelt Australia Pty Ltd
Traffic Management Plan	Michelle Grierson – Senior Environmental Scientist Umwelt Australia Pty Ltd
Social Impact Management Plan	Amanda Bateman – Community Liaison Specialist Tahmoor Coal Pty Ltd

It is noted that it was proposed that Michelle Grierson – Senior Environmental Scientist Umwelt Australia Pty Ltd was proposed to prepare the Air Quality and Greenhouse Gas Management Plan. Given the significance of the technical aspects associated with air quality and greenhouse gas emissions at the project, the Department requests that a technical specialist be proposed to work with Ms Grierson to prepare this Air Quality and Greenhouse Gas Management Plan. Please provide further details of the proposed air quality expert by lodging further details via the portal.

If you wish to discuss the matter further, please contact Wayne Jones on (02) 6575 3406.

Yours sincerely

Stephen O'Donoghue
Director
Resource Assessments
As nominee of the Secretary

Planning, Industry & Environment

Zina Ainsworth
Manager Environment and Community
SIMEC Mining
2975 Remembrance Drive
Tahmoor, NSW, 2573

02/09/2021

Dear Ms. Ainsworth

Tahmoor South Coal (SSD-8445)
Air Quality and Greenhouse Gas Expert Approval

I refer to your request (SSD-8445-PA-3) for the Secretary's approval of suitably qualified persons to prepare the Air Quality and Greenhouse Gas Management Plan for the Tahmoor South Coal (SSD-8445).

The Department has reviewed the nominations and information you have provided in SSD-8445-PA-2 and SSD-8445-PA-3 and is satisfied that these experts are suitably qualified and experienced. Consequently, I can advise that the Secretary approves the appointment of Michelle Grierson – Senior Environmental Scientist Umwelt Australia Pty Ltd to prepare, and Jane Barnett – Partner, Air Quality ERM as technical reviewer of the Air Quality and Greenhouse Gas Management Plan.

If you wish to discuss the matter further, please contact Wayne Jones on (02) 6575 3406.

Yours sincerely

Stephen O'Donoghue
Director
Resource Assessments
As nominee of the Secretary

APPENDIX D – Letter of Approval

Planning, Industry & Environment

Zina Ainsworth
Environment & Community Manager
Tahmoor Coal Pty Ltd
2975 Remembrance Drive
TAHMOOR New South Wales 2573

17/03/2022

Dear Ms. Ainsworth

Tahmoor South Coal (SSD-8445)
Air Quality and Greenhouse Gas Management Plan

Thank you for submitting the revised Air Quality and Greenhouse Gas Management Plan in accordance with Condition B18 of Schedule 2 of the consent for the Tahmoor South Coal (SSD-8445-PA-4).

The Department has carefully reviewed the document and is satisfied that it generally meets the requirements of the condition.

The Department also notes that a copy of the management plan was provided to NSW Health via the portal, and you are yet to receive feedback. Accordingly, the Secretary has conditionally approved the revised Air Quality and Greenhouse Gas Management Plan (Revision V2, dated March 2022).

Within two months of receiving comments from NSW Health that require amendments to the plan, the Department requests that you update the plan, including evidence of how the comments have been addressed, and resubmit to the Department for review and approval via the Major Projects portal.

Please ensure that the approved plan is placed on the project website at the earliest convenience.

If you wish to discuss the matter further, please contact Charissa Pillay on 02 99955944.

Yours sincerely

JEvans

Jessie Evans
Director, Resource Assessments
Resource Assessments

As nominee of the Secretary