



TAHMOOR SOUTH

SURFACE SPONTANEOUS COMBUSTION

MANAGEMENT PLAN

Tahmoor Coal Pty Ltd



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Document Control

Version	Date Reviewed	Review team (Consultation)	Change Summary
V1	15/12/2021	Zina Ainsworth, Charlie Wheatley	Draft review

1 Introduction

1.1 Background

Tahmoor Coal Pty Ltd (Tahmoor Coal) owns and operates Tahmoor Mine, an underground coal mine extracting primarily coking coal which is a component 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 townships 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 Spontaneous Combustion Management Plan (SCMP) is to provide a framework for Tahmoor Coal (TC) personnel to ensure that compliance is achieved with relevant internal and external regulatory requirements related to Spontaneous Combustion management at Tahmoor Coal. The plan ensures that impacts on the community are minimised and managed within a structured framework.

This plan is to ensure compliance with Development Consent (SSD 8445) (the Consent) Condition B15, Part B.

1.3 **Scope**

This SCMP includes management measures and monitoring requirements relating to spontaneous combustion within the Rehab Emplacement Area (REA). Spontaneous combustion in an underground setting will be managed through separate appropriate safety precautions and management measures outlined within the Underground Spontaneous Combustion Principal Hazard Management Plan (TAH-HSEC-00110). The SCMP applies to all surface activities associated with Tahmoor Coal and forms part of the Environmental Management System (EMS).

1.4 Preparation

This management plan has been prepared by Michelle Grierson, Senior Environmental Scientist with Umwelt (Australia) Pty Ltd. Michelle has been endorsed by the Department of Planning, Industry and Environment (DPIE) as suitability qualified to prepare this plan (see Appendix A).

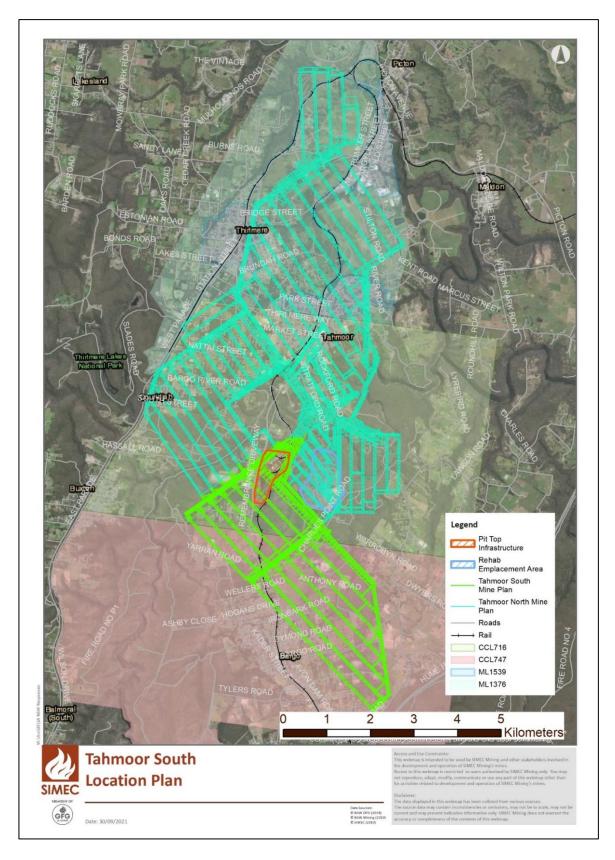


Figure 1 Tahmoor Coal Site Location

2 Planning

2.1 Statutory Requirements and Legislation

2.1.1 Development Consent Conditions

The requirement for this management plan is established by Condition B15 under Part B of the Consent. **Table 1** outlines the requirements under this condition and identifies where these requirements have been addressed.

Table 1 Development Consent Conditions

Condition Reference	Condition	Where Addressed
	The Applicant must:	Section 4.2
B14	(a) take all reasonable and feasible steps to:	
	(ii) eliminate or minimise the risk of spontaneous combustion.	
B15	The Applicant must prepare a Spontaneous Combustion Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:	This Plan
(a)	be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary;	Section 1.4 and Appendix A
(b)	be prepared in consultation with the Resources Regulator; and	Section 3.3
(c)	describe the measures to be implemented to minimise the risk of spontaneous combustion on the site.	Section 4.2
B16	The Applicant must not commence second workings under this consent until the Spontaneous Combustion Management Plan is approved by the Planning Secretary.	Noted – Tahmoor Coal will not commence second workings until this plan is approved.
B17	The Applicant must implement the Spontaneous Combustion Management Plan as approved by the Planning Secretary.	Noted
B60	Rehabilitation Management Plan The Applicant must prepare a Rehabilitation Management Plan for the development, in accordance with the conditions imposed on the mining lease(s) associated with the development under the Mining Act 1992. This plan must:	Section 4.2 and Rehabilitation Management Plan (under development)
	(c) include detailed performance indicators and completion criteria for each rehabilitation domain, and triggers for remedial actions, including actions to be undertaken in the event that vegetation establishment is impacted by spontaneous combustion;	

2.1.2 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 the accordance with relevant guidelines,		NA
(a)	a summary of relevant background o	r baseline data;	Section 4.1
(b)	details of:		NA
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(b) (i)	the relevant statutory requirements (including any relevant approval, licence or lease conditions);	Section 2.1
(b) (ii)	any relevant limits or performance measures and criteria; and	NA
(b) (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 2.1.5
(c)	any relevant commitments or recommendations identified in the document/s listed in condition A2(c);	Section 2.1.3
(d)	a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Section 4.2
(e)	a program to monitor and report on the:	NA
(e) (i)	impacts and environmental performance of the development; and	Section 4.3
(e) (ii)	effectiveness of the management measures set out pursuant to condition E5(d);	Section 4.2.1
(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;	NA
(g)	a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 6
(h)	a protocol for managing and reporting any:	NA
(h) (i)	incident, non-compliance or exceedance of any impact assessment criterion or performance criterion;	Sections 5.3 and 5.4. Exceedance and impact assessment criteria not applicable.
(h) (ii)	complaint; or	Section 5.5
(h) (iii)	failure to comply with other statutory requirements;	Covered collectively within Sections 5.3 and 5.4.
(i)	public sources of information and data to assist stakeholders in understanding environmental impacts of the development; and	Section 7.1
(j)	a protocol for periodic review of the plan.	Section 6

2.1.3 EIS Commitments

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

- 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; and
- e) Submission to the Independent Planning Commission (IPC) February 2021.

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

Table 3 EIS Commitments

EIS Reference	Commitment	Where Addressed
PAR	The following recommendations would be adopted to monitor for AMD and spontaneous combustion: - Surface water and groundwater monitoring for AMD and spontaneous combustion would continue at the existing monitoring frequency as part of the sites surface and groundwater management plan. Surface water and groundwater monitoring would be conducted during active placement of CHPP rejects to measure any variation in salinity or contaminants of concern in the REA runoff and leachate and its surrounding environment to monitor for any effects of AMD generation.	Surface and Groundwater monitoring are covered within the Surface Water and Groundwater Management Plans.
PAR	The following recommendations would be adopted to monitor for AMD and spontaneous combustion: - The REA would undergo regular visual inspections for the presence of spontaneous combustion. Inspections would observe the stockpiles for any visible signs of smoke or any other obvious signs of heat production such as steam;	Section 4.2
PAR	The following recommendations would be adopted to monitor for AMD and spontaneous combustion: - Contingency procedures would be developed as required (for surface water, groundwater and spontaneous combustion), with the measures to be developed being dependent on the issue that requires addressing.	Section 4.5
PAR	The following recommendations would be adopted to monitor for AMD and spontaneous combustion: - Performance indicators would be identified prior to extraction of the proposed underground workings and a statistical assessment would be undertaken to detect when, or if, a significant change has occurred in the surface water or groundwater system which should benchmark the natural variation in water quality and spontaneous combustion; and	The 'performance measures' used to monitor the condition of groundwater are the trigger levels to be defined upon completion of the groundwater predictive scenario modelling. Further addressed within the Groundwater Management Plan.
PAR	The following recommendations would be adopted to monitor for AMD and spontaneous combustion: - A monitoring and management strategy along with an outline of a TARP would be prepared to provide guidance on the procedures and actions required regarding the surface water and groundwater systems in the proposed REA.	TARPs provided within the Surface Water and Groundwater Management Plans.

2.1.4 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. A summary of the relevant mining leases is provided in **Table 4**. A summary of other approvals and licences is provided in **Table 5**.

Table 4 Mining Lease

Lease	Title	Granted	Expires
CCL 716	Original Tahmoor Leases	15/06/1990	13/03/2021 (approval pending)

ML 1376	Tahmoor North Lease	28/08/1995	06/11/2016 (approval pending)
ML 1308	Small Western lease to west of CCL716	02/03/1993	02/03/2035
ML 1539	Tahmoor North Extensions Lease	16/06/2003	16/06/2024

Table 5 Approvals/Licences

Approval Title / Description	Date Granted	Expiry Date
Environmental Protection Licence 1389	01/05/2012	No Expiry
WAL36442 and WAL25777	6/12/2013	No Expiry
Dangerous Goods Licence XSTR200005	18/01/2012	02/02/2017

2.1.5 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, or guide the implementation of, the development or any management measures (discussed in **Section 4.2**).

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'.

Table 6 Performance Indicators

Aspect	Indicator
Complaints	Zero complaints relating to spontaneous combustion.
Incidents	Zero incidents relating to spontaneous combustion.

3 Stakeholder Consultation

3.1 Internal Stakeholder Communication

Internal stakeholders include employees, contractors and visitors of Tahmoor Coal. *TAH-HSEC-00119-Communication and Engagement Procedure* has been developed to include the following:

- 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 spontaneous combustion will be conducted in accordance with Tahmoor Coals standard communication 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

A draft version of this management plan was distributed to the following stakeholders for review and feedback:

a) Resource Regulator

The feedback provided by stakeholders is summarised within **Table 7** below.

Table 7 Consultation to Date

Consulted Parties	Consultation Conducted	Outcomes of Consultation
Resource Regulator	Draft Management Plan provided for comment on the 16/12/2022.	No response received as of 28/04/2022

4 Spontaneous Combustion Management and Monitoring

Spontaneous combustion is the process of self-heating coal and carboniferous reject material stockpiles by oxidation. On exposure to air, coal undergoes a continuous oxidizing reaction. A hazard exists when the rate of heat production by this exothermic reaction exceeds the rate of cooling, produced mainly by the convective effects of air. The coal can then increase in temperature until combustion takes place. The actual spontaneous combustion process is complex and subject to a number of influencing factors, including gas and water content, particle size, secondary mineralisation and attendant leakage paths, oxygen supply and the rate of exposure of the coal to oxygen and convection cooling.

Tahmoor Mine is situated at the southern end of the Permo-Triassic Sydney Basin in the Illawarra Coal Measures, which have four workable seams, with the uppermost being the currently mined Bulli Seam.

The REA contains reject material from the Tahmoor Mine CHPP and comprises washed rejects from the product Bulli Coal seam, as well as roof and floor material that has been extracted with the coal.

The material that will be placed at the REA from the proposed Tahmoor South Bulli seam extraction will have the same geological, lithological and geochemical characteristics as the material from the current Tahmoor Mine operations.

4.1 Baseline Data

Geoterra Pty Ltd (Geoterra) were commissioned by Tahmoor Coal to conduct an assessment of the existing and potential spontaneous combustion nature of the Rehab Emplacement Area (REA) at Tahmoor Mine for the Tahmoor South Project. The potential sources of spontaneous combustion from the operation include the Bulli Seam, as well as roof and floor rejects from the Coal Handling and Preparation Plant (CHPP). Geoterra (2013) utilised resources from ACIRL and CSIRO to investigate the factors likely to contribute to the occurrence and spread of spontaneous combustion in spoil emplacement areas. Findings from the project suggest the primary contributing factors were:

- Coal/carbonaceous shale oxidation the oxidation of coal and carbonaceous shale within the spoil heaps. A direct relationship was found between the percentage of carbonaceous waste and the propensity for spontaneous combustion to occur and to be sustained;
- Heat and wetting when water interacts with solid coal, heat is liberated. This phenomenon can generate sufficient heat to cause oxidation in both solid and broken coal and carbonaceous material;
- Heat and water condensation and evaporation the transfer of heat throughout an overburden spoil emplacement area by condensation and evaporation of water contributes to the spread of spontaneous combustion; and
- Oxidation of pyrite the oxidation of pyrite, whilst not essential, can further increase the likelihood of spontaneous combustion of spoil material if sufficiently carbonaceous.

Spontaneous combustion laboratory analyses were conducted on four (post washery laboratory testing) drill core intervals of the Bulli Seam, roof and floor from exploration bores TBC25, TBC26, TBC34 and TBC36. The Adiabatic Self-Heating Test conducted on the TBC25 / 26 / 34 / 36 composite sample of the Proposed Tahmoor South Bulli seam rejects indicates that the rate of self-heating from 40 - 70°C (R70) was 0.003°C/hr. The data indicates that spontaneous combustion of the carbonaceous material is unlikely. All tested samples were classified as Non Acid Forming and had a low spontaneous combustion potential.

Monitoring of the existing REA, as it has been sequentially constructed, shaped and revegetated since the early 1980's, indicates there has been no observed occurrence of spontaneous combustion. This observation supports the laboratory test results that the occurrence of spontaneous combustion from CHPP rejects from the proposed Bulli Seam extraction at Tahmoor South is unlikely.

Based on field and laboratory data from studies of both the potential and existing REA materials, it is not anticipated that there will be any significant observable spontaneous combustion associated with the proposed placement of Tahmoor South Bulli Seam waste material on the proposed extension to the REA.

4.2 Management Measures

The risk of adverse air quality and negative impacts to rehabilitation associated with spontaneous combustion at Tahmoor Mine is low. No specific waste management handling, storage or testing procedures are considered to be required in regard to spontaneous combustion management, however the following spontaneous combustion management measures outlined in **Table 8** will be implemented.

Table 8 Spontaneous Combustion Management Measures

Aspect	Proactive/Reactive	Measure	Responsible
Batters	Proactive	Reshaping batters to allow the movement of air over the surface rather than penetrating through the unshaped steep batters into rock voids.	CHPP Production Coordinator & Rehabilitation Emplacement Contractor & Environmental Specialist
Batters	Proactive	Covering exposed batters with at least 300mm of inert material and compacting wherever possible.	CHPP Production Coordinator & Rehab Emplacement Contractor & Environmental Specialist
Spoil Piles	Proactive	Reduction of spoil pile heights to increase stability, compaction and to reduce voids. Spoil piles include small areas of spoil deposited by trucks prior to emplacement.	CHPP Production Coordinator & Rehab Emplacement Contractor
Spoil Piles	Proactive	Planning spoil dumps so that inert material is dumped over the top of carbonaceous material.	CHPP Production Coordinator & Rehab Emplacement Contractor
Carbon Content	Proactive	Where required, selective placement and appropriate management of material high in carbon content.	CHPP Production Coordinator & Rehab Emplacement Contractor
Course Rejects	Proactive	Coarse reject material will be placed at a suitable depth within the final landform in accordance with the <i>Tahmoor South Rehabilitation Strategy</i> . This will minimise any potential interference to rehabilitation establishment as well as minimise the potential for spontaneous combustion or ignition of carbon material (in particular in the event of bushfire) occurring within the revegetated landscape.	CHPP Production Coordinator & Rehab Emplacement Contractor & Environmental Specialist
REA	Proactive	Visual inspections will be conducted in accordance with the <i>Tahmoor South Rehabilitation Strategy</i> . Inspections will include observation of stockpiles for any visible signs of smoke or obvious signs of heat production.	CHPP Production Coordinator & Environmental Specialist
REA	Proactive	Adiabatic Self Heating test work will be conducted, if required, during the REA construction process.	Environmental Specialist

Aspect	Proactive/Reactive	Measure	Responsible
Coal	Proactive	R70 heat testing conducted on a yearly basis to determine propensity of spontaneous combustion.	Technical Services
Rehabilitation	Reactive	Tahmoor Coal has developed a Biodiversity Management Plan which includes a detailed Biodiversity Monitoring Program for all areas of the Mine, including rehabilitated areas. Monitoring of rehabilitated areas is undertaken annually to assess the success of the rehabilitation against established completion criteria, as detailed in the Tahmoor South Rehabilitation Strategy, Rehabilitation Management Plan (RMP) (Under Development). In the unlikely event that vegetated/rehabilitated areas are identified to be impacted by spontaneous combustion, these areas will be further rehabilitated to ensure completion criteria are met.	Environmental Specialist
Odour	Proactive	Covering with inert material to reduce odour emissions.	CHPP Production Coordinator & Rehab Emplacement Contractor & Environmental Specialist
Odour	Reactive	If odour enquiries from the public are received on such occasions, an investigation into the source of the odour will be conducted.	Environmental Specialist
Visual signs of heating in REA or other stockpile area.	Reactive	In the event self-heating is observed, or spontaneous combustion occurs, it is important that the hazards are dealt with systematically and quickly. The options to control instances of self-heating or spontaneous combustion are essentially limited to the two options below, in order of preference: Dig the material out and spread it out, using stockpile dozers; and or Dig the material out and spread it out, using a long reach excavator.	CHPP Production Coordinator & Rehab Emplacement Contractor

4.2.1 Management Measure Effectiveness

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

Adaptive management and continuous improvement measures will be implemented accordingly as outlined in **Section 4.5**.

4.3 Monitoring

Monitoring for signs of self-heating and spontaneous combustion is completed as part of the CHPP Supervisors weekly inspection. These inspections look for the presence of spontaneous combustion in accordance with the *Tahmoor South Rehabilitation Strategy*, with the inspections observing the stockpiles for any visible signs of smoke or any other obvious signs of heat production. More regular monitoring of the REA is completed throughout the week, and any signs of spontaneous combustion would also be noted during these inspections if observed.

Comments of occurrences and remedial actions taken are to be included in the CHPP Supervisors report.

4.4 Identifying signs of Spontaneous Combustion in Stockpiles

There are three main signs to look for during inspections:

Water vapour Plumes

These occur when the water vapour associated with the warm air from self-heating mixes with cooler air at the surface. They are most prevalent in the early morning, or after rain.

Discolouration

Heating of coal and carbonaceous material causes them to decompose, resulting in the distillation of tars and other compounds. These products may condense on the spoil near or on the surface, resulting in discolouration of the spoil.

Odours

The distillation products from coal and carbonaceous materials have a distinctive smell best described as "tarry". Unlike water vapour plumes and surface discolouration, odours cannot pinpoint the source of self-heating.

4.5 Contingency Measures

In accordance with Condition E5 (f) of the Consent, in the event that monitoring indicates that performance measures are considered to have been exceeded or are likely to be exceeded, the following response will be undertaken:

- Any person observing spontaneous combustion signs is to report the outbreak to the CHPP Production Coordinator and Environment & Community (E&C) Manager.
- The CHPP Production Coordinator and E&C Manager will develop and implement a suitable field action plan for immediate action. Typically, actions considered take into account:
 - o Risk assessment to personnel, environment, community and operations
 - o Immediate and short term mining constraints
 - o Availability of inert material for coverage
 - Accessibility to the area
 - o Degree of outbreak area affected

This response is a contingency plan that describes the management/corrective actions which can be implemented where required to remedy the exceedance. Potential actions to be implemented include:

- Immediate capping (where available)
- Track rolling and reshaping to a rounded profile
- Spread out and track roll if possible
- Reshape spoil batters to reduce potential airflow through spoils
- Relocating dumping schedules to specific areas within the emplacement area
- Continual monitoring of areas where actions have been implemented.

The success of actions that have been implemented for any exceedance would be reviewed as part of any Corrective Action Management Plan and the Annual Review.

4.6 Adaptive Management/Continuous Improvement

If the performance indicators outlined within **Section 2.1.5** are surpassed, the E&C Manager will implement the "Plan-Do-Check-Act" model as shown in **Figure 2**. This model will be applied to all aspects of Tahmoor Coal's environmental management including spontaneous combustion management and is utilised to embed the continuous improvement process in all system documents.

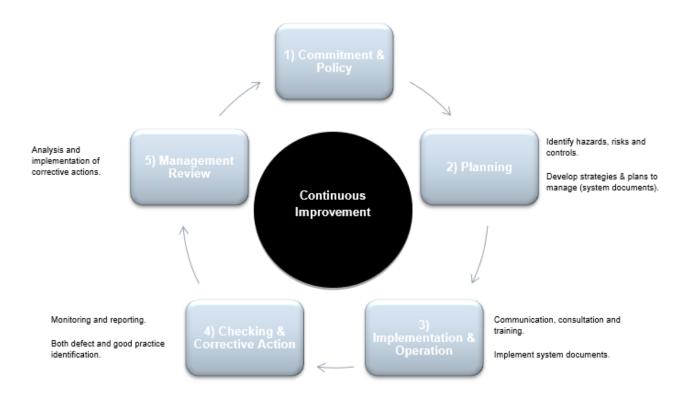


Figure 2: Continuous Improvement Model

5 Implementation and Reporting

5.1 Tahmoor Environmental Management System (EMS) Framework

The Tahmoor Environmental Management System (EMS) Framework 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.

5.2 **General Reporting**

Tahmoor Coals' reporting requirements are outlined in Table 9.

Table 9 Tahmoor Coal Reporting Requirements

Instrument	Report	Details	Submitted/Uploaded
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; - 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	Copies of the Annual Review are submitted to 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
			performance measures, criteria and operating conditions of his consent;	
		d	dentifies any trends in the monitoring data over the life of the development and provide any raw monitoring data as requested by the Planning Secretary;	
		ir	dentifies any discrepancies between the predicted and actual mpacts of the development, and analyse the potential cause of any significant discrepancies; and	
		Ci	describes what measures will be implemented over the next calendar year to improve the environmental performance of the development.	

5.3 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)

This definition excludes "harm" that is authorised under either this consent or any other statutory approval.'

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

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

These plans have been developed to manage preparation, incident response and reporting requirements under the Protection of the Environment Operations Act 1997 (NSW).

The management plans provide roles and responsibilities, management strategies, action and response plans and record management protocols for incidents and emergencies.

The Planning Secretary must be notified in writing via the Major Projects website immediately after Tahmoor Coal becomes aware of an incident. The notification must 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. A 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.

5.4 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 Tahmoor Coal Environmental Management Framework Document (TAH-HSEC-00173), 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.

5.5 Complaints and Disputes

Community Complaints at Tahmoor Coal are managed in accordance with TAH-HSEC-00119-Communication and Engagement and 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;
- 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 to Tahmoor Coal's Environmental Protection Licence 1389.

The following information will also be kept in the event of a community complaint; as required by Section M4 in Tahmoor Coal's EPL 1389:

- 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-00119- Communication and Engagement. 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.

5.6 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, including spontaneous combustion, 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.

5.7 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 10** below.

Table 10 Accountabilities

Role	Accountabilities for this document
Executive General Manager Coal 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. Liaise with the community as required and as per the Stakeholder Engagement Strategy, including facilitation of Community Consultative Committee meetings.
All Managers	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.

5.8 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 General Manager E&C, 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.

5.9 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 11**.

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:
 - 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.
- f) 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 11 Independent Audit Frequencies

Phase	Initial Independent Audit	Ongoing Independ	dent Audit Intervals
	«Docum ent.Code	«Document. DocumentSt	«Document.Curre ntRevision.Effecti
	»	atus»	veDate»

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

The audit will also assess:

- c) Environmental assessments; and
- d) Plans and programs required by above approvals.

The audit will review the adequacy of the following requirements under the abovementioned 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.

5.10 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.

6 Review and Improvement

6.1 Plan Audit

Audits of the *SCMP* be conducted in consultation with the Plan owner and nominated individuals and shall focus on the content and implementation.

Audits on the content shall consist of a determination of understanding of the **SCMP** by the individual's allocated responsibility under this plan.

Audits on the implementation shall consist of reviews of the safe working procedures and risk assessments developed to ensure safe operation of this *SCMP*, they may also involve discussions with personnel involved in the management plan to determine understanding and compliance.

Should an audit of this *SCMP* 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 & 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 *SCMP* are to be managed and communicated to all personnel in line with the Change Management Process.

6.2 Plan Review

This **SCMP** 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 *SCMP*, 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

in accordance with Condition E8 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 must be revised, to the satisfaction of the Planning Secretary. Where revisions are required, the revised document must be submitted to the Planning Secretary for approval within six weeks of the review; 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.

7 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.

7.1 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). Examples of reports to government agencies include:

- a) Environmental Protection Licence Annual Return (submitted to Environment Protection Authority);
- b) Annual Review (submitted to Department of Planning & Infrastructure, Council, TCCCC etc.); and
- c) Independent Environmental Audit (submitted to Department of Planning & Infrastructure).

These reports are prepared in accordance with relevant guidelines and *TAH-HSEC-00119- Communication* and *Engagement* and are published on Tahmoor Coal's website in accordance with *TAH-HSEC-00221-Website Management Procedure*.

In accordance with Condition E23, Tahmoor Coal have made the following information and documents publicly available on its website:

- i. the EIS;
- ii. all current statutory approvals for the development;
- iii. all approved strategies, plans and programs required under the conditions of this consent;
- iv. the proposed staging plans for the development if the construction, operation or decommissioning of the development is to be staged;
- v. minutes of CCC meetings;
- vi. regular reporting on the environmental performance of the development in accordance with the reporting requirements in any plans or programs approved under the conditions of this consent;
- vii. 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;
- viii. a summary of the current phase and progress of the development;
- ix. contact details to enquire about the development or to make a complaint;
- x. a complaints register, updated monthly;
- xi. a register of incident and non-compliance notifications made to the Planning Secretary, updated monthly;
- xii. the Annual Reviews of the development;
- xiii. audit reports prepared as part of any Independent Environmental Audit of the development and the Applicant's response to the recommendations in any audit report;
- xiv. annual returns made under the National Greenhouse and Energy Reporting legislation
- xv. any other matter required by the Planning Secretary; and

Tahmoor Coal will keep such information up to date, to the satisfaction of the Planning Secretary.

7.2 Related Documents

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

Table 12 Related Documents

Number	Title	
TAH-HSEC-00173	Tahmoor Coal Environmental Management System Framework Document	
TAH-HSEC-00119	Communication and Engagement	
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-232	Emergency and Incident Manual	
TAH-HSEC-00155	Pollution Incident Response Management Plan	
TAH-HSEC-00224	Notification of Environmental Pollution Incidents	

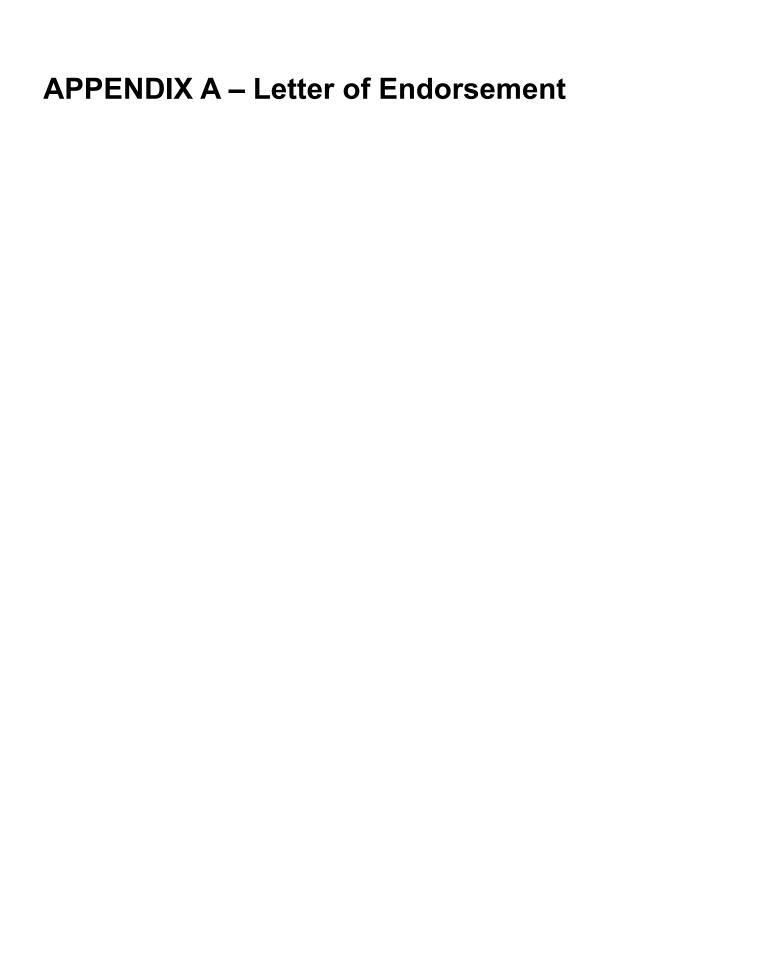
7.3 Reference Information

Reference information, listed in the below table, is information that is directly related to the development of this document or referenced from within this document.

Table 13 Reference Information

Title

Geoterra 2013 TAHMOOR SOUTH PROJECT REJECT EMPLACEMENT AREA ACID & METALLIFEROUS DRAINAGE AND SPONTANEOUS COMBUSTION ASSESSMENT





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.

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If you wish to discuss the matter further, please contact Wayne Jones on (02) 6575 3406. Yours sincerely
Tours since ey
Stephen O'Donoghue Director Resource Assessments As nominee of the Secretary