



**NSW  
Resources  
Regulator**

COMPLIANCE AUDIT REPORT

# **WAMBO MINE – TOPSOIL MANAGEMENT**

Wambo Coal Pty Ltd



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## Introduction

### Background

A condition of all mining leases issued under the *Mining Act 1992* requires that any disturbance resulting from the activities carried out under the lease must be rehabilitated to the satisfaction of the Minister. Management of topsoil and any cleared vegetation including mulch, is a key component for successful rehabilitation outcomes.

Topsoil must be stripped and salvaged in an appropriate manner to maximise its value for use in rehabilitation. Only the upper soil layer is usually biologically active and of value in rehabilitation activities. The lease holder must understand the soils on site to ensure that sufficient topsoil can be stripped to provide a suitable growing medium in the rehabilitation phases. It is generally considered best practice for stripped topsoil to be directly respread on rehabilitation areas where land shaping has taken place and the area is ready for final rehabilitation.

Where mining operations have not progressed to the stage of having areas available for topsoil to be directly respread, stockpiling of stripped topsoil may be necessary. Poor handling and stockpiling practices may result in a significant loss of viable seed and topsoil quality. Management and maintenance of these stockpiles is essential to prevent erosion and weed infestation, and to retain maximum soil reserves for use during rehabilitation.

As part of the compliance audit program, an audit of the topsoil management activities associated with the mining operations at the Wambo Mine was undertaken on 11 June 2019.

### Audit objective

The objective of the audit was to assess the operational performance of Wambo Mine, particularly in relation to the management of topsoil, and the ability of the lease holder to implement management systems and controls to provide for the sustainable management of the mine's topsoil resources.

### Audit scope

The scope of the audit included:

- the topsoil management activities across the Wambo Mine as described in the approved mining operations plan (MOP) and associated management plans
- a review of documents and records pertaining to the topsoil management activities

- the assessment of compliance for the period commencing 11 June 2018 and ending 11 June 2019.

## Audit criteria

The audit criteria against which compliance was assessed included:

- commitments made in Wambo Coal mining operations plan 2018 – 2020, prepared by Wambo Coal Pty Ltd, dated December 2017

## Publishing and disclosure of information

This audit report will be published on the NSW Resources Regulator's website consistent with Section 365 of the *Mining Act 1992*.

This audit report may be publicly disclosed consistent with the *Government Information (Public Access) Act 2009*

## Audit methods

The audit process involved interviewing site personnel and a review of documentation and samples of records provided by the lease holder. A site inspection was undertaken to determine the level of compliance of the operations and assess its operational performance. The audit process and methodology are described in more detail below.

### Opening meeting

The opening meeting was held onsite at the Wambo mine office on 11 June 2019. The audit team was introduced, and the scope of their responsibilities was conveyed to the auditees to outline the objectives and scope of the audit. The methods used by the team to conduct the audit were explained including interviewing personnel, reviewing documentation, examining records and conducting a site inspection to assess specific compliance requirements.

## Site interviews and inspections

### Data collection and verification

Where possible, documents and data collected during the audit process were reviewed on site. Several documents were unable to be reviewed on site and were provided following the site visit.

All information obtained during the audit process was verified by the audit team where possible. For example, statements made by site personnel were verified by viewing documentation and/or site inspections where possible. Where suitable verification could not be provided, this has been identified in the audit findings as not determined.

### Site inspections

A site inspection was undertaken of the following areas:

- stockpile 8 – well vegetated, not signposted
- stockpile 6 – significant weeds, poor quality topsoil, used in pasture rehabilitation
- stockpile 5 – well formed, significant weeds, signposted
- stockpile 7 – well vegetated, stockpile greater than 3 metres height, steep batters
- stockpile 1A – mostly respread, isolated pockets remain, significant weeds

- stockpile 1 – trees and shrubs developing, some erosion on batters
- stockpile 15 – paddock dumped, well vegetated.

## Closing meeting

The closing meeting was held onsite at the Wambo mine office on 11 June 2019. The objectives of this meeting were to discuss any outstanding matters, present preliminary findings and outline the process for finalising the audit report.

## Compliance assessment definitions

The reporting of results from the compliance audit was determined based on the definitions presented below in Table 1.

Table 1 Audit assessment categories

| ASSESSMENT                    | CRITERIA  |
|-------------------------------|---|
| <b>Compliance</b>             | Sufficient and appropriate evidence is available to demonstrate the particular requirement has been complied with.  |
| <b>Non-compliance</b>         | <p>Clear evidence has been collected to demonstrate the particular requirement has not been complied with. There are three subcategories of non-compliance reflecting the severity and level of risk associated with the non-compliance:</p> <p>NC1 – the absence of planning or implementation of a required operational element that has the potential to result in a significant risk</p> <p>NC2 – an isolated lapse or absence of control in the implementation of an operational element that is unlikely to result in a significant risk</p> <p>NC3 – an administrative or reporting non-compliance that does not have a direct environmental or safety significance</p> <p>Note: The identification of a non-compliance in this audit may or may not constitute a breach of the <i>Mining Act 1992</i>. Non-compliances identified in this audit report may be further investigated by the NSW Resources Regulator</p> |
| <b>Observation of concern</b> | Where an auditee may be compliant at the time of the audit but there are issues that exist that could result in the potential for future non-compliance if not addressed.   |

| ASSESSMENT                               | CRITERIA   |
|--|--|
|  | <p>Observation of concern was also used where an issue may not have particular compliance requirements, but which was not conducive to good management or best practice.</p>   |
| <p><b>Suggestion for improvement</b></p> | <p>Where changes in processes or activities inspected or evaluated at the time of the audit could deliver improvement in relation to risk minimisation, sustainable outcomes and management practices.</p>   |
| <p><b>Not determined</b></p>             | <p>The necessary evidence has not been collected to enable an assessment of compliance to be made within the scope of the audit.</p> <p>Reasons why the audit team could not collect the required information include:</p> <ul style="list-style-type: none"> <li>■ insufficient information on the file relating to the period covered by the audit or insufficient evidence collected to reach a conclusion</li> <li>■ the wording on the criteria (approval condition) meant that no evidence could be gathered, or it was too difficult to gather the evidence.</li> </ul> <p>A ‘not determined’ assessment was also made where the condition was outside of the scope of the audit.</p> |
| <p><b>Not applicable</b></p>             | <p>The circumstances of the authorisation or title holder have changed and are no longer relevant, e.g. no longer mining, mining equipment and plant has been removed, etc.</p> <p>An invoking element in the criteria was not activated within the scope of the audit.</p>  |

## Reporting

Following completion of the site audit, the audit checklists were completed, and audit notes were reviewed to compile a list of outstanding matters to be noted in the audit report. This report was prepared to provide an overview of the operational performance of the site in relation to the management of topsoil and identify any non-compliances or observations of concern noted by the auditors during the site inspections and interviews.

The draft audit findings were forwarded to Wambo for comment. Consideration was given to the representations made during the finalisation of the audit report as discussed in the audit findings.



## Audit findings

### Topsoil stripping operations

As described in Section 2.3.3.3 of the approved MOP, Wambo has implemented a surface disturbance permit (SDP) process and an SDP is required for each topsoil stripping operation. Examples of SDPs for topsoil stripping operations were reviewed during the audit to confirm that the process was implemented.

No topsoil stripping operations were in progress at the time of the audit, so it was not possible to verify implementation of the topsoil stripping and handling procedures described in Section 3.3.6 of the MOP. It was confirmed that topsoil stripping was carried out by Wambo personnel, supervised by environmental personnel. Topsoil mulching was carried out by contractors.

### Direct placement of topsoil

Section 3.3.6 of the MOP identifies that direct placement of excavated topsoil onto reshaped areas was preferred to stockpiling, to avoid rehandling and to reduce the potential for topsoil degradation or loss. Direct placement of topsoil was not inspected during the audit because there were no recent examples of direct placement available.

### Topsoil stockpiling operations

#### Topsoil stockpiling

Section 3.3.6 of the approved MOP describes requirements for the location and construction of topsoil stockpiles. These requirements include:

- topsoil stockpiles should not be located in the path of planned or potential projects or operations
- the planned final rehabilitation location for the topsoil should be considered when locating the stockpile
- stockpiles should not be placed on excessively steep landform, that will increase erosion and potentially hamper recovery

- stockpiles should be shaped to reduce their susceptibility to wind erosion, especially if placed on top of overburden dumps
- preferably topsoil stockpiles shall be no greater than three metres in height
- the working face of the stockpile should be battered down to approximately 30°
- every effort will be made to avoid equipment trafficking over topsoil. Stockpiles should be isolated from adjacent operations and accidental vehicle access, and clearly identified by a sign to reduce the likelihood of interference.

Generally, stockpiles were observed to be located outside of active mining areas. It was also observed that most of the topsoil stockpiles were signposted, except for stockpile 8, which was not signposted. This is raised as **observation of concern no. 1**. Several of the stockpiles inspected were observed to be not in accordance with the location and construction requirements outlined in the MOP as follows:

- It was observed that topsoil from stockpiles 1A and 6 had been borrowed from but not completely removed. The excavated face had not been reshaped to ensure water shedding and stockpile stability and had not been re-sown with a protective cover crop (Figure 1 and Figure 2). These issues are raised as **non-compliance no. 1**.
- Stockpile 7 was close to the Homestead Pit and was observed to have quite steep batters that were eroding (Figure 3). The height of this stockpile was uncertain but could be as high as 10 metres on the northern side. During the audit site inspection, the light vehicle was driven up onto the stockpile (Figure 4). These issues are raised as **non-compliance no. 2**.

*Figure 1 Stockpile 6, not shaped, sparse vegetation, weed infestation*



Figure 2 Stockpile 1A, sparse vegetation, not well shaped, weed infestation



Figure 4 Stockpile 7 with light vehicle parked on top



Figure 3 Stockpile 7 showing steep eroding batters



## Inspection and maintenance of stockpiles

Section 3.3.6 of the approved MOP describes the requirements for maintenance of existing stockpiles. This includes:

- vegetation establishment should be monitored for the first three months (or until a cover crop has successfully established), with remedial works undertaken immediately, as required, until vegetation establishment

- on an annual basis, the stockpiles will be inspected for erosion, vegetation cover health, weed infestation and other general degradation or interference
- maintenance and remedial works will be scheduled, as needed. Such maintenance and remedial works may include:
  - repair of erosion, diversion of drainage paths and desilting of sediment control structures
  - slashing, re-seeding or supplementary planting
  - weed and pest animal control measures.

There was clear evidence that these measures have not been implemented in the past, for example, weed infestations on stockpiles 1A, 5, and 6, and erosion on stockpiles 1 and 7. It is acknowledged that Wambo has recently implemented a new topsoil management protocol and has taken steps to address some issues.

For example, stockpile 5 was originally paddock dumped but has now been shaped and signposted in accordance with the requirements of the MOP. However, significant infestations of thorn apple and fireweed were observed (Figure 5), indicating that further work is required. It was also noted that establishment of a cover crop on this stockpile appeared to have failed (Figure 6) and no evidence of monitoring of vegetation establishment as specified in the approved MOP was provided. These issues are raised as **non-compliance no. 3**.

Figure 5 Weed infestations on stockpile 5



Figure 6 Lack of cover crop establishment on stockpile 5



The revised topsoil management protocol being implemented by Wambo includes an annual inspection of all topsoil stockpiles by a qualified agronomist. The first inspection by an agronomist was completed earlier in 2019 and a program of works to address the issues identified has been developed. Further inspections by the Regulator will be required to verify implementation of these actions.

## Reuse of stockpiled topsoil

Topsoil from stockpile 6 had been respread over a pasture rehabilitation area across the road from the stockpile. This area was inspected during the audit and was found to be significantly weed infested (galena and thorn apple) (Figure 7), in a similar manner to the weed infestations observed on the remaining stockpile (Figure 8). This would suggest that the requirements for topsoil placement and treatment specified in the approved MOP were not implemented. These requirements include ‘*an assessment of weed infestations on stockpiles should be undertaken to determine if individual stockpiles require herbicide application and/or “scalping” of weed species prior to topsoil spreading.*’ This is raised as **non-compliance no. 4**.

Figure 7 Weed infestations from respread topsoil on a rehabilitation area



Figure 8 Thornapple weed infestation on stockpile 6, reflected in rehabilitation when respread



## Record keeping

Evidence was sighted to confirm that Wambo has established a topsoil register as required by the stockpile management measures described in the approved MOP. It was also noted that Wambo was

using a SAP-based compliance register and tracker that should provide for improved outcomes for topsoil management if it was consistently implemented.

The revised topsoil management protocol includes the requirement for a topsoil stripping permit in addition to the SDP process. No examples of the implementation of this topsoil stripping permit process were available for review during the audit. Implementation of this revised procedure will be reviewed during future inspections by the Regulator.

## **Lease holder response to draft audit findings**

Wambo was provided with a copy of the draft audit report and invited to submit a response to the draft audit findings. A copy of the response is provided in Appendix 1.

The Wambo response had only one minor correction to the text in relation to topsoil stripping operations being carried out by operational personnel and not by contractors. It is the topsoil mulching that was carried out by contractors. The text of the audit report was amended to correct this error.

## Audit conclusions

From the evidence reviewed during the audit, and observations made on site during the audit site inspections, it is concluded that Wambo has established procedures and processes for the stripping, handling, and management of topsoil from its mining operations. Observations made during the site inspection would suggest that implementation of these measures had not been well managed in the past. It is acknowledged that Wambo has recently implemented a revised topsoil management protocol but further inspections by the Regulator will be required to verify the implementation and effectiveness of these measures.

Four non-compliances, and one observation of concern were noted by the auditor as summarised in Table 2 and Table 3 below.

*Table 2 Summary of non-compliances identified*

| NON-COMPLIANCE NO. | DESCRIPTION OF ISSUE   | RECOMMENDATION   |
|--------------------|--|--|
| 1                  | It was observed that topsoil from stockpiles 1A and 6 had been borrowed from but not completely removed. The excavated face had not been reshaped to ensure water shedding and stockpile stability and had not been re-sown with a protective cover crop as required by the stockpile maintenance requirements outlined in Section 3.3.6 of the approved MOP.  | Excavated faces on stockpiles should be reshaped and resown in accordance with the requirements of the approved MOP. |
| 2                  | Stockpile 7 was observed to have quite steep batters that were eroding. The height of this stockpile was uncertain but could be as high as 10 metres on the northern side, greater than the three metre height specified in the MOP. During the audit site inspection, the light vehicle was driven up onto the stockpile, even though the MOP specifies that every effort will be made to avoid trafficking over topsoil. | Review the erosion on the batters at stockpile 7 and educate personnel to avoiding trafficking over topsoil.         |

| NON-COMPLIANCE NO. | DESCRIPTION OF ISSUE   | RECOMMENDATION  |
|--------------------|--|---|
| 3                  | <p>Stockpile 5 was originally paddock dumped but has been shaped and signposted in accordance with the requirements of the MOP. However, significant infestations of thorn apple and fireweed were observed, indicating that further work is required. It was also noted that establishment of a cover crop on this stockpile appeared to have failed and no evidence of monitoring of vegetation establishment as specified in Section 3.3.6 of the approved MOP was provided.</p>  | <p>Implement weed management, establish a cover crop and monitor vegetation establishment as described in the approved MOP.</p> |
| 4                  | <p>Topsoil from stockpile 6 had been respread over a pasture rehabilitation area across the road from the stockpile. This area was inspected during the audit and was found to be significantly weed infested (galena and thorn apple), in a similar manner to the weed infestations observed on the remaining stockpile. This would suggest that the requirements for topsoil placement and treatment specified in the approved MOP were not implemented. These requirements include <i>'an assessment of weed infestations on stockpiles should be undertaken to determine if individual stockpiles require herbicide application and/or 'scalping' of weed species prior to topsoil spreading.'</i></p> | <p>Implement weed management practices as described in the approved MOP.</p>  |



Table 3 Summary of observations of concern identified

| OBSERVATION OF CONCERN NO. | DESCRIPTION OF ISSUE  | RECOMMENDATION  |
|----------------------------|---|---|
| 1                          | Section 3.3.6 of the approved MOP requires topsoil stockpiles to be clearly identified by a sign to reduce the likelihood of interference. It was observed that most of the topsoil stockpiles inspected were signposted, except for stockpile 8, which was not signposted. | Ensure all topsoil stockpiles are signposted as required by the approved MOP. |



DOC19/640227

Mr Peter Jaeger  
Manager Environment & Community  
Wambo Coal Pty Ltd  
By email: [pjaeger@peabodyenergy.com](mailto:pjaeger@peabodyenergy.com)

Dear Mr Jaeger

**Subject: Compliance Audit – Wambo Coal Pty Ltd**

An audit of the topsoil management activities associated with the Wambo Mine was undertaken 11 June 2019 as part of the compliance audit program undertaken by the Department of Planning, Industry & Environment (DPIE) – Resources Regulator (the Regulator).

We now offer you the opportunity to review the draft compliance audit report and submit any comments you may have regarding the content of the report to Jenny Ehmsen by 9 August 2019 so that they may be considered in finalising the report. We further advise that any comments provided by you will be attached to the final report as an Appendix. If, however, we have not received a response by the above date, we will assume that you are satisfied with the report and it will then be finalised. A copy of the final report will then be forwarded to you.

You should note that the Regulator will be publishing the final audit report on its website, which will include any response you provide to the draft audit report.

If you require further information or clarification on any matters regarding this audit, please do not hesitate to contact Jenny Ehmsen on 02 4063 6443.

Yours sincerely

A handwritten signature in black ink that reads 'Jenny Ehmsen'.

**Jenny Ehmsen**  
Principal Compliance Auditor

29 July 2019

**From:** Jaeger, Peter F  
**To:** [Jenny Ehmsen](#)  
**Cc:** [Dan Adams](#)  
**Subject:** RE: Compliance Audit: Topsoil management  
**Date:** Friday, 16 August 2019 8:18:39 AM  
**Attachments:** [image001.png](#)  
[image002.jpg](#)  
[image003.jpg](#)

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Hi Jenny,

Apologies, only one (1) small comment within the document. On pg. 10 '*Topsoil stripping is carried out by contractors*'. Topsoil stripping is carried out by the operations, however topsoil mulching is carried out by a contractors.

Regards,

## Peter Jaeger

Manager: Environment & Community

### Wambo Coal

PMB 1 | Singleton, NSW 2330

Office Phone: +61 2 6570 2206 | Mob: +61 417 527 585

[pjaeger@peabodyenergy.com](mailto:pjaeger@peabodyenergy.com)



---

**From:** Jenny Ehmsen <jenny.ehmsen@planning.nsw.gov.au>  
**Sent:** 29 July 2019 09:00  
**To:** Jaeger, Peter F <PJaeger@peabodyenergy.com>  
**Cc:** Dan Adams <dan.adams@planning.nsw.gov.au>; Monique Meyer <monique.meyer@planning.nsw.gov.au>  
**Subject:** Compliance Audit: Topsoil management

**\*\*This Message originated from a Non-Peabody source\*\***

Good morning Peter

Please find attached a covering letter and copy of the draft audit report for your review and comment.

Regards

Jenny

## Jenny Ehmsen Principal Compliance Auditor

Resources Regulator | Department of Planning, Industry and Environment

T 02 4063 6443 | M 0438 735 010 | E [jenny.ehmsen@planning.nsw.gov.au](mailto:jenny.ehmsen@planning.nsw.gov.au)

516 High Street Maitland NSW 2320

[www.resourcesregulator.nsw.gov.au](http://www.resourcesregulator.nsw.gov.au)



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