ANGLESEA MINE COAL COVERAGE PROJECT REVIEW

TECHNICAL REVIEW

For

ALCOA

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FINAL REPORT

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EXECUTIVE SUMMARY

Mining One has conducted a site visit for the purpose of assessing an interim mine shutdown strategy to ensure the in-pit coal asset (including any remnant coal and other coal-associated combustible components) is adequately secured as to provide a suitable level of risk mitigation for adverse heating and potential ignition of the coal this includes reducing the potential of spontaneous combustion or ash attack. The interim mine shutdown period will be maintained until final landform work commences at Anglesea including rehabilitation and revegetation of the site.

Mining One endorse the current strategy of capping all horizontally (flat lying) oriented coal asset exposure with 1.0m of material with a clay content greater than 10%. A clay content of less than 10% can be tolerated where remnant coal is being encapsulated.

For vertically exposed coal (coal in the pit faces) Mining One have recommended two alternative strategies:

1. Full encapsulation of the coal with a 5.0m buffer as to prevent ash attack and coal oxidation.
2. A managed program involving daily pit inspections and suitably managed action plans. This option will deliver a fire risk in line with the current risks associated with the vertically exposed coal, which historically has been low.

Mining One is comfortable that there is adequate supply of suitable material within the site waste dumps to achieve the encapsulation of the coal within these guidelines. As this represents the first phase of the mine closure Mining One recommends that these strategies be monitored during the interim period to ensure adequate coverage is achieved. These recommendations have been made understanding that equipment and manpower constraints dictate that priority be given to the flat-lying coal assets so that these are covered prior to the mine shutdown on the 31st August 2015.

1.1 Abbreviations

Abbreviation	Description
Alcoa	Alcoa, Australia Limited
Bcm	Bank Cubic Metre
Lcm	Loose Cubic Metre
Kt	Kilo tonnes (1,000 tonnes)
Waste	Waste material refers to the inert overburden material that has been placed into waste dumps usually consisting of clays and sands.
Interim closure	This refers to the initial phase of the mine shutdown and entails covering the coal asset and establishing management plans to mitigate the risk of spontaneous combustion and ash attack. The interim closure period will extend from the completion of the work outlined in this report until final pit rehabilitation and landform work is commenced.
TARP	Target Action Response Plan

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Mining One Pty Ltd

2 INTRODUCTION

Mining One was engaged by Alcoa to provide a technical review of the preliminary mine shutdown plan for the Anglesea mine. Subsequently, Mining One appointed Cameron Farrington (see Appendix 1 for his resume) as the project lead based on his previous coal experience. The preliminary shutdown plan includes pit works that are to be completed by the 31st of August 2015 and is designed to be an interim closure measure until the final closure rehabilitation works commence.

A one day site visit was conducted to inspect the current status of the mine and to inspect the material that is being used for capping the coal to ensure its suitability. No soil testing has been carried out to support these recommendations and they are primarily based on data made available to Mining One on the day of the visit combined with technical experience. It is viewed that the recommendations made in this document will suffice to secure the coal seams as to prevent ash attack as well as spontaneous combustion of the in-pit coal asset.

2.1 Scope of Work

With the shutdown of the mine currently scheduled for 31st August 2015, there remains a substantial body of work to be completed to ensure the site is secured and minimal risk from ash attack or spontaneous combustion occurs. Alcoa have commenced a program of covering the in-pit coal assets and requested Mining One to provide some advice pertaining to the strategy, i.e.:

- Validate that the current method and approach to encapsulation will suffice to secure the site until final closure rehabilitation can be started.
- Calculate the volume of material required to cover the pit floor (approximately 32 ha was estimated by Alcoa but was later established to be 41.3 ha) as well as determine what volumes are required to buffer any exposed coal seams in the west wall of the pit.
- Review the pit and advise of methods and strategies to improve the success of the interim mine shutdown exercise.

The work is to be based on a best professional judgement as the scope of work did not include a full technical assessment of the soils. This report provides a high level overview of the placement of cover material, as well as recommendations on methods and processes to achieve an acceptable level of cover. Fleet analysis has not been included into the study as this was deemed to be beyond the current scope. Figure 2-1 below shows that the waste material available to be used for capping in that particular area of the existing waste dump is approximately 1.67 million bcm.

The purpose of the work is to provide an interim measure to mitigate the risk of spontaneous combustion and ash attack until final mine rehabilitation takes place.

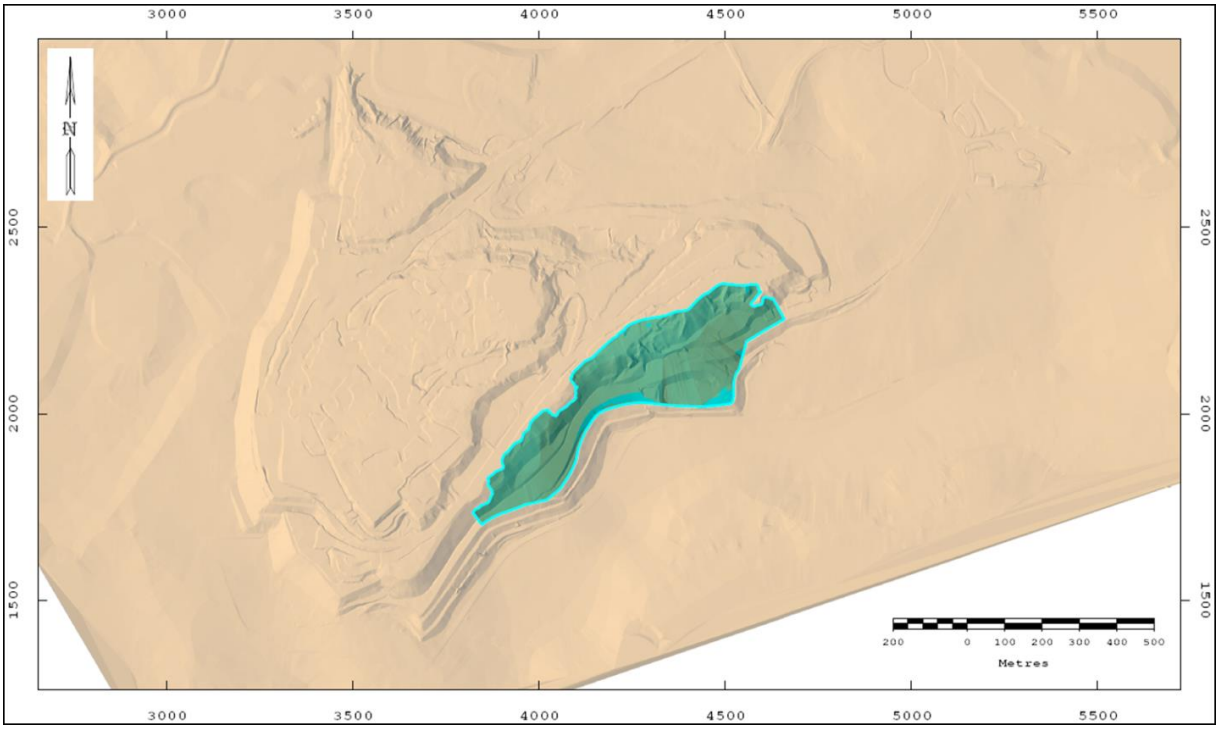

Figure 2-1 Waste Material from Existing Dump

3 SITE VISIT

Mining One attended site on the 23rd of June 2015 to conduct an inspection of the mine (Figure 3-1) and to review the mine shutdown strategy for the operation. This visit established that the mine shutdown and closure would occur in two stages. The initial stage, called the shutdown phase, would focus on securing the site against ash attack and spontaneous combustion events while the second stage, called the closure phase, would see the final landform be established and definitively secure the coal asset located within the pit area, including the vertical exposure of the coal seam. The power station and associated infrastructure were not included in the site visit nor are they included in the scope of work.

The initial phase of the mine closure (referred to interim closure strategy) is expected to be complete prior to mine shutdown. The final closure phase will be undertaken following development of a detailed rehabilitation plan, which is envisioned to require significant stakeholder discussions. The primary purpose of the interim closure strategy is to secure the coal asset against fire risk and it is anticipated that actions performed during this phase will not be inconsistent with the final closure of the site.

Figure 3-1 : Anglesea Mine Showing the Entire Site

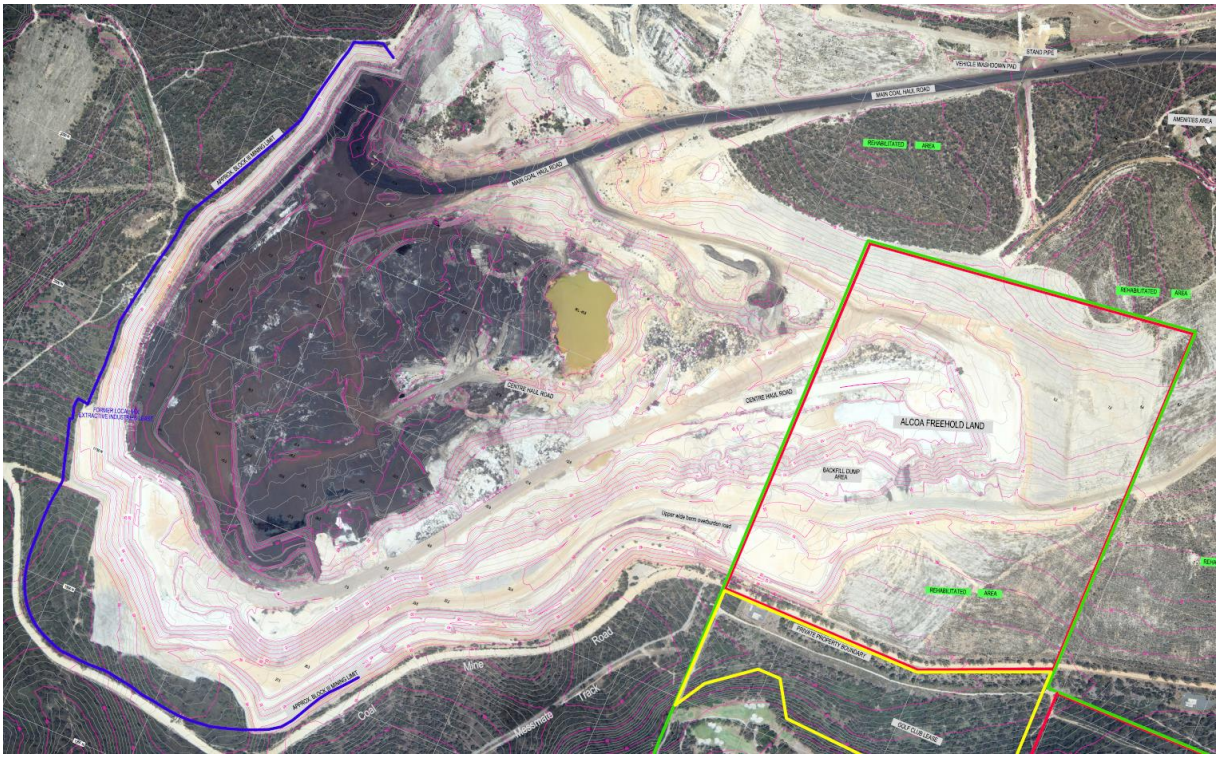

Figure 3-2 : Anglesea Pit

The site visit was primarily focused on critiquing the initial phase of the mine shutdown strategy and to make recommendations on ensuring that the initial shutdown would secure the coal for a period up until the initiation of the final closure and rehabilitation phase.

3.1 Equipment

The following mining equipment is utilised to mine the Main pit

- 2 x PC1250 excavators
- 5 x Cat 775 Haul trucks
- 1 x 834G Dozer
- 1 x Cat D9 Dozer
- 1 x Cat 16H Grader; and
- 1 x Cat 775 Water Truck

This equipment will be utilised to complete the majority of the infill dumping of the pit floor to provide a 1.0m capping across the pit to provide ash protection and to seal the coal from spontaneous combustion events.

At the time of the visit a D10 dozer had been contracted to commence battering the high wall to assist with the interim shutdown works. All other fill work is to be carried out by the site equipment.

3.2 Status of the pit

Mining One recommends that efforts be made to remove all coal fines from around the coal seam and if possible be disposed of them through the power station as these present the greatest spontaneous combustion risk post mine closure. This applies to all fine material located around the mine site as the removal of fines can significantly reduce the potential of coal oxidation.

During the site visit, it was observed that many of the vertical coal faces have been exposed for many years and have not displayed signs of spontaneous combustion. Generally, oxidation of the coal (Carbon) commences immediately after being exposed to the atmosphere and then reduces exponentially over time. While oxidation of the coal never ceases, the rate of oxidation stabilises over time. Therefore, Mining One considers many of these exposed high wall faces to be a relatively low risk with respect to a spontaneous combustion event from occurring. A program of frequent inspection would suffice during the interim closure period.

Approximately 41 hectares of horizontal surface is exposed in the base of the pit however most of this area has had the bulk of the coal seam removed. Figure 3-3 illustrates two hatched areas that represent unmined or partially mined coal seams; the remainder of the pit has been mined out with only remnant coal remaining as a result of not mining into the underlying clays which would present as dilution at the power station. These two areas have different risk profiles:

- The hatched areas (Blue polygons) represent 30.5% of the horizontal exposure and consists of competent coal seams, if a spontaneous combustion event was to occur in these areas then the coal would fuel the event, therefore Mining One suggest that attention be paid to the use of high clay content materials when capping these areas. A cover of no less than 1.0m should be used over these areas.
- The remainder of the pit has been mined out and the remnant coal sits on a base of inert clay, this represents a lower risk and therefore material selection is not as critical. Mining One suggest a covering of at least 1.0m be placed over these areas as to reduce the potential of ash attack or spontaneous combustion. However, the clay content in this material is not as critical and a clay content approximating 10% or greater would be considered adequate.

Mining One have suggested that a coverage of 1.0m be maintained across site as described above as it is viewed that while this presents a minimum, yet adequate coverage it also allows easier access to the seams if a spontaneous combustion event occurs, this equates to approximately 417,000 lcm of material for capping of the horizontally exposed coal.

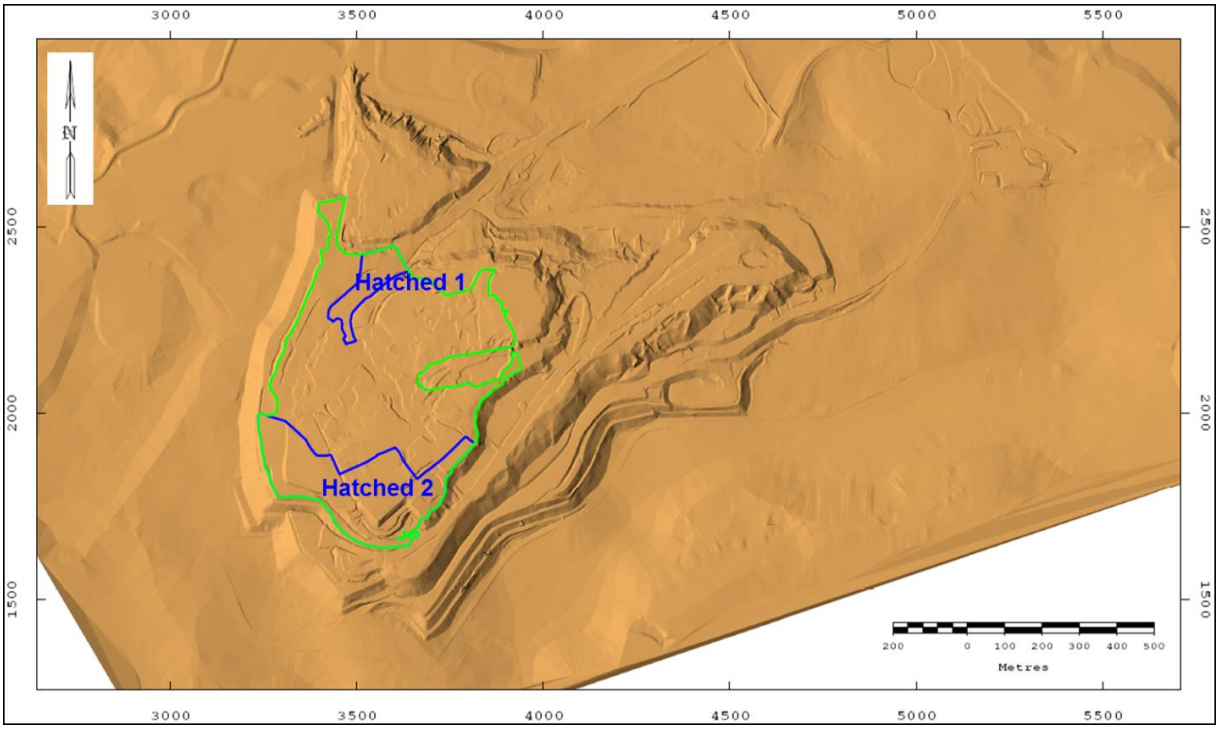

Figure 3-3 : Hatched Areas showing unmined or partially mined coal seam.

At the time of the visit, coal was still being excavated from the south western corner of the pit and capping of the coal had commenced within the central region of the pit. The following suite of slides provides an overview of the status of the pit at the time of the site visit. Figure 3-4 is an overview of the approximate location of the photos contained herein.

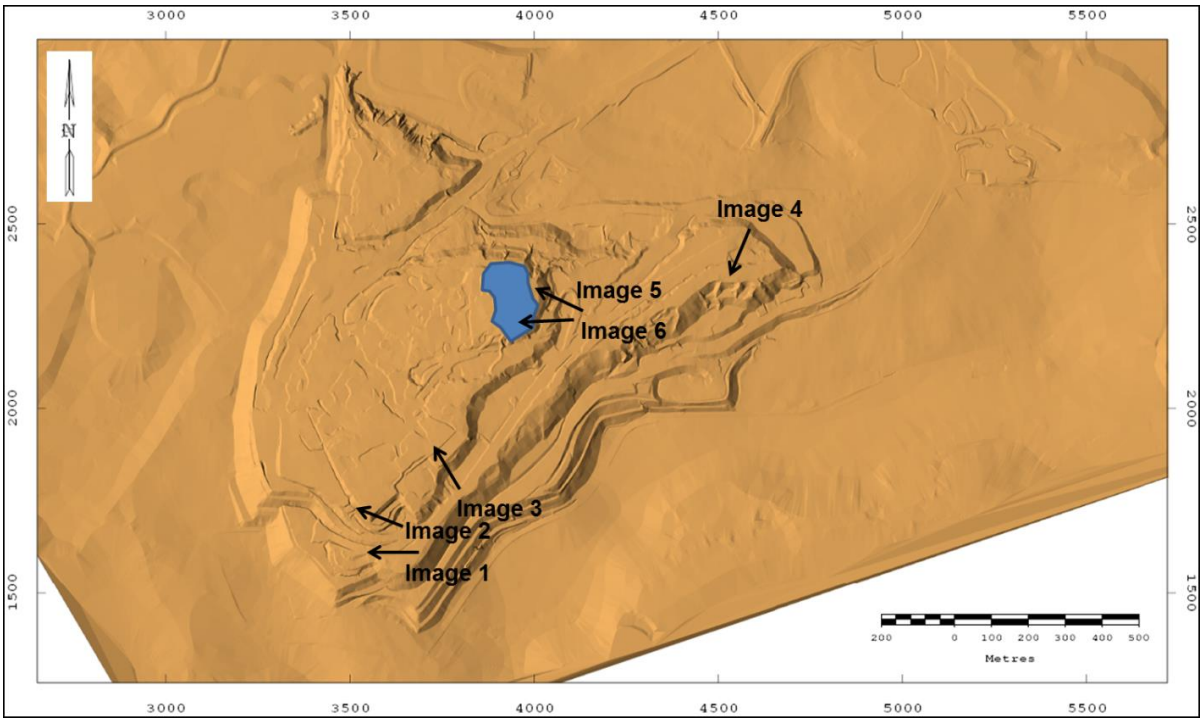

Figure 3-4 : Demographics of Photos

3.2.1 Image 1 – South Western Coal

At the time of the side visit, adequate coal had been exposed in the south western region of the pit to supply the power station through until August 2015 when the power station will be shut down. Accessibility to the coal will be required through until late-August and then this area will be capped. A combination of load and haul of waste onto the pit floor and dozer push from overburden located above the coal seam will be used to cover the coal (Figure 3-5). Based on observation during the site visit, the material in the pit face appears to be a combination of sand and clays which is considered suitable for cover material.

Figure 3-5 : Coal Mining South Western Corner

3.2.2 Image 2 – South Western Coal face.

The limit of the coal located in the South Western region of the pit as discussed in section 3.2.1 has an exposed coal edge approximating 10 metres vertical exposure. Figure 3-6 illustrates the coal edge which will require management during the interim closure period as it is relatively fresh with significant amounts of fines present at the face. It is suggested that the fines be removed as to reduce the potential of a post closure spontaneous combustion event. As this coal has been recently exposed it is suggested that the vertical exposure also be sealed against the elements with not less than 1.0m of material containing more than 10% clays.

If this face is not covered, a program involving daily inspection of the face must be implemented as part of the interim closure strategy to ensure the fresh material is not subject to a spontaneous combustion event. This is particularly true during the summer months where the ambient temperature can contribute to the initiation of the spontaneous combustion event.

Figure 3-6 : South Western Coal Edge

Mining One recommends that all vertical coal faces that have been exposed for less than 2 years should be covered as part of the interim closure strategy. The vertical coal face in Figure 3-6 should be covered by pushing the waste contained in the pit wall over the coal using dozer push as this face represents fresh material.

For vertically exposed coal in other areas of the pit on-going monitoring is recommended during the interim closure period.

3.2.3 Image 3 – Northern aspect of pit floor

Alcoa have commenced covering the pit floor with waste material sourced from the South Eastern in-pit waste dumps. This work has commenced to mitigate the risk of spontaneous combustion events as well as shield the coal against ash attack in the event of nearby bushfires, this work is clearly evident in Figure 3-7 with the waste material being placed at a thickness of 1.0m. This work is progressing well with the dump trucks tracking over the waste material to advance the encapsulation of the coal. This method provides a twofold benefit:

- By minimising access onto the floor of the pit the remnant coal is not being disturbed and therefore exposure of fresh coal material to oxidation is minimised thereby reducing the potential of a spontaneous combustion event during the covering phase.
- The second benefit is that the inert waste material that is being used to cover the coal is being compacted by the loaded trucks thereby reducing the void space in the capping and providing a more effective seal from the atmosphere.

Mining One is satisfied that this method will achieve adequate compaction of the waste material to deliver adequate encapsulation of the coal. On-going monitoring during the interim closure period will provide an opportunity to identify problem areas if they are to arise. However, based on the evidence available, Mining One believe that the current strategy is adequate.

Inspection of the pit floor indicated that the material being used for the encapsulation is of a varied nature. Nevertheless, adequate clays are present in most of the waste material. Therefore this material is deemed suitable for capping. There was evidence of a white sandy

material which had very little clay content and is identified as coarse white sand. This material should not be used to cap the coal seams as identified in Figure 3-3. Mining One recommends that Sand and Clayey Sand classed material (ref Figure 3-8) be deposited around the sump as this area has already been mined and has minimal coal present, in addition a rise in the dam level in line with the traditional water table will submerge the coal and eliminate the potential of any heating event:

- It should be noted that moisture can often be seen as a contributor to a spontaneous combustion event and moist fine material presents the least favourable condition in which to leave the coal exposed to the atmosphere. However, there is a critical moisture level that when exceeded mitigates the risk of spontaneous combustion events as the water then acts to dissipate the heat. In addition, moisture within the capping material acts as a sealant against the oxygen rich atmosphere and is therefore a desirable characteristic of the capping material.

Figure 3-7 : Northern Aspect of Pit Floor

3.2.4 Image 4 – Capping Material

An inspection of the waste material being sourced for capping was undertaken with the main observations being that all material being sourced for capping has minimal rock in it and is therefore considered ideal for capping as it predominantly consists of clays and sands. As the material is being sourced from an old waste dump the material was well blended and had a good distribution of clays through it. With the exception of the white coarse sand most of the material appeared to contain adequate clay to provide a competent cap. It should be noted that inspection of this material indicated clay levels approximating 20%, this is considered ideal for encapsulation of the coal.

Figure 3-8 : Source of Capping Material

3.2.5 Images 5 and 6 – Pit Limits

Figure 3-9 and Figure 3-10 show the encapsulated area of the pit which extends west and north of the sump. As can be observed in the images, the coal seams have been excavated to the under laying clay and is indicated where white can be see surfacing through the coal.

During the site visit, it was observed that a clay material was present under the coal seam which would provide an ideal capping material but will not be excavated as part of the interim closure strategy. While this material provides an excellent capping material, it will not be excavated as part of the mine closure for a number of reasons:

- This layer of clay plays an important part of the artesian aquifers in the area and should be left intact.
- This clay presents a materials handling challenge as it is of such a high clay content that the material would stick to excavator buckets and truck bodies making it near impossible to handle with the current fleet on site.

As can be observed in the two figures the vertical exposure of coal around the western pit limit presents a coverage issue and with limited time available it is unlikely that complete covering of this will be achieved. Mining One believes that the long term exposure of this coal presents minimal combustion risk and proposes that the vertical faces be left exposed in the period between the interim closure work and final rehabilitation. However, if this strategy is pursued then the following items need to be part of the management strategy:

- Daily inspections of the pit must take place.
- A water cart and an appropriate management strategy for tackling coal fire and spontaneous combustion must be maintained on site. Mining One believe that a spontaneous combustion event is highly unlikely given the site history and competence of the vertically exposed coal, if heating of the faces does occur then a chemical

suppressant such as RST's "Flame Out" product should be considered. Details of this product are contained in Appendix B.

- A TARP (Target Action Response Plan) must be developed to provide appropriate procedures for the escalation of a nearby bushfire event.

Figure 3-9 : North Western Aspect of Pit

Figure 3-10 : Western Aspect of Pit

3.3 Material observations

During the site visit, time was spent inspecting the pit to determine the suitability of the capping strategy that has been developed by Alcoa. This involved spending time on the bench inspecting the in-pit materials for their suitability. Fortunately the natural characteristics of the local materials lend themselves to suitable capping as the material ranges from course sand through to fine clay. Mining One would suggest that a 1.0m capping over the coal with a clay content exceeding 10% would be ideal and based on the observations made during the site visit it appears that this is achievable.

It should be noted that the white coarse sand material demonstrated very little cohesion when being inspected and should be blended with material containing high clay content in order to achieve the desired outcomes. It is recommended that the small area that had already been covered with the white course sand be sheeted with additional capping containing a clay contend exceeding 10%.

Site Materials ranged from coarse sand through to heavy clay as outlined in Table 3-1. The largest particle size observed while on site was a loamy type material with little observation of rocks within the mining area. This indicated that the material lends itself well to being used for capping the coal.

Table 3-1 : Field Material Classification

Field Texture	Behaviour of Moist ball of material	Ribbon Length	Estimated Clay Content
Sand	➢ Coherence nil to very slight, grains do not bond and cannot be molded	Nil	<5%
Clayey Sand	➢ Slight Coherence, grains bond and are sticky when wet. Clay is visible on hands after handling	5 - 15mm	5 – 10%
Sandy Loam	➢ Material able to be formed into ball is just coherent so readily breaks apart. Sand grains are visible	15 - 25mm	10 – 20%
Silty Loam	➢ Ball of material is coherent, smooth when manipulated	Approx. 25mm	Approx. 25%
Sand Clay Loam	➢ Strongly Coherent ball; very smooth to silky when manipulated	25 – 40mm	>25%
Clay Loam, Sandy	➢ Plastic when balled with small to medium grained sand particles	40 – 50mm	20 – 30%
Sandy Clay	➢ Plastic when balled with small grained sand particles	50 – 75mm	35 – 40%

Field Texture	Behaviour of Moist ball of material	Ribbon Length	Estimated Clay Content
Light Clay	➢ Smooth to touch little or no sand particles. Plastic ball when moulded	50-75mm (slight resistance to ribbon shear	35 – 45%
Medium Clay	➢ Handles like plasticine and can be easily formed into rods without fracture	>75mm (mod resistance to ribbon shear	45 – 55%
Heavy Clay	➢ Handles like stiff plasticine.	>75mm (firm resistance to ribbon shear	> 50%

Ribbon length is the length the material can hold when the material is sheared between thumb and forefinger. Table 3-2 provides and illustration of the different material types that were observed during the site visit.

While significant amounts of sand were observed while on site, the presence of clays was also abundant and blending of these materials can achieve a suitable material mix. With the addition of moisture, most materials will adequately confine the coal. Industry practice is to use 1.0m to 5.0m of material to cap reactive coals and it is generally driven by the material type being used.

The small particle size of the material being used at Anglesea suggests that 1.0m of capping would suffice for capping the coal but it is recommended that monitoring be maintained during the interim closure period to validate this assumption.

Table 3-2: Field examples of material types found at site

Sand

Clayey Sand

Sandy Loam

Sandy Clay

Medium – Heavy Clay

Heavy Clay

4 DATA ANALYSIS

4.1 History of Fire Events

Only three open flame events associated with spontaneous combustion have occurred over the 50+ year mine life. Mining One reviewed the fire register and all other events have been smoke events (i.e. no open flame and readily contained and extinguishable) associated with the heating of coal fines within the pit area.

Discussions were held with site personnel who indicated that smoke events were limited and were often associated with fresh, moist fines being exposed to oxygen. Potential events such as these will be mitigated with the capping strategy that has been outlined within this report.

With respect to the exposed coal seams around the pit limits it was established that these seams have been exposed to the elements for extended periods and Mining One suggests that if a vertical face has been exposed for more than 2 years without a spontaneous combustion event then this would be regarded as a low potential for a spontaneous combustion event. Therefore Mining One believes the likelihood of these seams becoming fire risks during the interim closure period is unlikely.

- For vertically exposed coal that has been exposed for a period exceeding two years it is suggested that these faces are of a low risk and can be remain open to the elements requiring weekly inspections for signs of spontaneous combustion.
- For vertically exposed coal that has been exposed for less than two years that is left exposed then a process of inspecting the faces daily for signs of spontaneous combustion during the initial three months after the pit closure must be adopted. After the initial three months, if there have been no heating events then an inspection regime observing the faces at least twice a week can be conducted until two years is exceeded.

While fire and smoke events have not been extensive during the 55 years of operation, the site will need to be adequately secured as to prevent the occurrence of fire or smoke events by either ash attack or spontaneous combustion.

Methods should be considered to manage such events:

- Cover all horizontally exposed coal (coal floor) with waste containing approximately 10% clay to a depth of 1.0m, as to prevent the exposure to oxygen, this should be compacted by utilising loaded trucks to track the material, and;
- Cover all vertically exposed (coal wall) coal with 1.0m of compacted waste. It will be difficult to cover vertical coal with 1.0m of waste and therefore the most conventional and preferred way to buffer the coal is to buffer the coal with a 5.0m buffer by placing it with scrapers or equivalent equipment:

To cover all the western wall vertically exposed coal will require a significant amount of waste material to be placed (75,000 lcm). Based on the current interim shutdown strategy it is unlikely that time will permit for this to be delivered. Therefore, Mining One proposes that the vertical faces be left as they are and that daily inspections of the faces be conducted as is currently practiced. This process will require that a water cart be maintained on site to address ash attack and if necessary assist with any spontaneous combustion events. In addition to this, Mining One proposes that a TARP (Target Action Response Plan) be in place to provide clear directives when escalating a potential fire event for both ash attack and spontaneous combustion events..

4.2 Ash Induced Fire Event

Ash induced fire events refer to coal fires that are ignited as a direct consequence of localised bushfires causing embers to fall onto the coal. The biggest risk of ash event is associated with horizontally exposed coal where the ash can rest on the coal causing ignition. For this reason all horizontally exposed coal should be covered with 1.0m of waste material.

Vertically exposed coal presents a lesser risk as embers are unlikely to rest on the wall, however in the event of the localised fire the coal should be carefully monitored and preferably wetted with a suitable fire suppressing chemical so as to mitigate the potential of ignition. If access to the pit is not possible due to the fire event then the mine should be inspected after the event as soon as possible.

The management strategy for such events should be documented in detail in a TARP to ensure an adequate response to the localised fire event. The TARP should be reviewed periodically with all emergency response entities.

The area surrounding the mine site appeared to be native bushland which is susceptible to periodic bush fires. The risk of the fire front attacking the coal is associated not so much with the fire ingressing into the pit but rather hot ash from the fires being blown into the pit. For this reason, the intensity of the heat that the coal will be exposed to will be relatively low and the 1.0m of capping on all horizontally exposed surfaces is considered adequate as to prevent ash attack.

4.3 Spontaneous Combustion Fire Event

Spontaneous combustion events are fire or smoke events associated with a chemical reaction between the coal, impurities and oxygen in the atmosphere. As with all fire events this can be managed through the removal of one of three fire ingredients:

- Heat, which is caused by the chemical reaction with oxygen in the air.
- Oxygen – from the air.
- Fuel – This is the coal seam itself.

Covering the coal with inert material is a common practice in mining as it removes the exposure of the coal to oxygen. Additionally, it provides material mass to dissipate heat. Anglesea has a substantial supply of suitable inert material to cap the coal seam that this presents as the most logical option for the interim as well as the long term closure strategy. In light of this the following should be noted:

- 1.0m of capping represents a minimum and is recommended on the basis that the interim closure strategy will not extend for more than 12 months and a monitoring program will be in place during this time frame
- Vegetation will compromise the capping as the root systems can provide course for the oxygen to access the coal. The short timeframe associated with the interim closure mitigates the risk of this.
- The containment of moisture in the capping will provide an impermeable membrane for the coal. The clays in the capping material will contain moisture to maintain this membrane. Total void space removal is the ideal objective.

Based on historic evidence, the coal at Anglesea is not highly volatile with respect to spontaneous combustion and therefore management of the coal should not be too difficult. Removal of all fines is an important element of the strategy to stabilise the area.

As these recommendations are being made for the interim closure process, Mining One has endorsed the minimum capping levels, as on-going monitoring provides an opportunity to identify any problematic areas. If there are problem areas the 1.0m of capping is easily removed to access the area to be addressed.

4.3.1 Literature Review

There has been a significant amount of research on spontaneous combustion over the years and the findings can be wide and varied and considerable time could be spent sifting through this information. An ACARP report generated by the CSIRO in 2008 titled “Spontaneous Combustion in Open Cut Coal Mines” (Day, 2008) provides a general summary of the key learnings from such studies and has been used as a reference in this section of the report. Other references have been used and have been referenced accordingly.

(Day, 2008) suggests that spontaneous combustion results from self-heating which is caused mainly by the oxidation of coal and other carbonaceous materials. If the heat generated is trapped, the temperature of the material will begin to rise and if unchecked may ultimately ignite. Management of spontaneous combustion for spoil piles can be achieved by placing inert layers of between 1.0m and 2.0m of clay material. This should increase in the absence of clay and as the material becomes blockier. Clay material of up to 10.0m or more could be required for material such as blocky sandstone. It is also mentioned that these layers must not be subject to excessive erosion or other processes that can lead to the formation of cracks which would allow the entry of oxygen. The adoption of 1.0 – 2.0m of clay material is further supported by Coaltech(2003).

Moisture in the coal is potentially a significant source of heat which can contribute to the risk of spontaneous combustion. The two main exothermic (heat generating) processes associate with moisture are the condensation of water vapour to liquid water and the adsorption of water onto the internal surface of the coal. Additionally some investigations have shown that moisture increases the rate of oxidation while others have indicated that the rate is suppressed in the presence of moisture. It is suggested that these observations are on the basis that there is a critical moisture content that once exceeded becomes a supressing characteristic.

Another concern for spontaneous combustion is that solar radiation can promote the heating effect and contribute to the spontaneous combustion. For this matter, covering the coal provides a shield against solar heat as well as oxygen. It should also be noted that oxygen will be depleted as a result of the spontaneous combustion reaction. Therefore, by removing the entry of oxygen into the coal, if there is a reaction event the oxygen will eventually be exhausted preventing further heating. Additionally, the capping material assists in the dissipation of the heat thereby assisting in the mitigation of fire events.

The rate at which coal oxidises is highest when first exposed to oxygen but decreases rapidly over a short period so the highest risk period is the initial exposure to oxygen. It is therefore suggested that the older workings around Anglesea present a lower risk to oxidation if they remain undisturbed. Therefore care must be taken not to create a problem by overworking the older parts of the pit. Oxidation is also a function of particle size as the surface area of the coal increases with a reduction in particle size, hence the susceptibility of fines to oxidize is far greater than for large competent coal bodies.

The ultimate objective of any coal covering exercise is the complete removal of oxygen as to prevent the oxidation of coal from occurring

Predicting the heating behaviour of coal stockpiles is very difficult as such modelling require all processes involved to be accurately predicted such as oxygen transport, heat dissipation and movement of other products and reactants. Because of this detail modelling heat generation is not a reliable option. The best option is to use infrared imagery of the stored coal to identify where heating is taking place.

4.3.1.1 Prevention and management of Spontaneous Combustion

The prevention of spontaneous combustion can be achieved by removing elements of the fire triangle (air, fuel, and heat). In this case, coal is the fuel element. As such, air and heat must be the elements that should be addressed. Theoretically sufficient ventilation can prevent spontaneous combustion as this could dissipate the heat generated by the oxidation of the coal. However, this strategy is unrealistic and would likely provide oxygen for the ongoing oxidation of the coal and therefore result in ongoing emission issues.

Another strategy that provides an absolute control is the storage of the coal under water. At the Anglesea mine, this is a real solution as the local water table if allowed to return to its historic levels would cover most of the coal. This is an opportunity for the long term containment of the coal. However, it is not considered a practical solution for the interim closure period for which this report has been prepared.

Based on industry practices, most management strategies are based on restricting access of air into the coal. Therefore the most commonly adopted strategies include (Day, 2008):

- Compacting the surface layers of coal, especially near the base of a stockpile to restrict flow into the coal.

Using impervious cover layers, such as fly ash (environmental constraint) and sand has been found to be effective in preventing self-heating. This strategy is the most logical method of control to be used by the Anglesea mine due to the abundance of suitable material the cover material needs to contain moisture to reduce the diffusivity sufficiently and create a impervious layer against oxygen ingress. Roberts et al (2004) suggested that for clay rich materials with high moisture retention properties (as observed at Anglesea), cover layers in the order of 1-2 m thick would be suitable to prevent heating. Nonetheless, consideration must also be given to the cover materials resistance to erosion and response to geotechnical instability such as cracking.

- Chemical sealants and inhibitors have also been used to mitigate the incident of heating
- Regular monitoring and if possible routine temperature measurements using thermal couples or infrared monitors can indicate areas of self-heating.
- In the event that hot spots are found, it is important that these be brought under control as quickly as possible to prevent propagation of the problem. This can be achieved by digging the material out and spreading in a thin layer until it has cooled. Once cooled it should be compacted and encapsulated again.

5 MATERIAL HANDLING

There are two phases to the material handling exercise at Anglesea, the first phase involves the capping and compaction of all horizontally exposed coal assets. These coal assets represent the greatest risk to ash attack as it presents a large surface area upon which ash can come to rest on coal and cause ignition of the coal asset.

Mining One endorses the strategy of capping these coal assets with 1.0m of inert cover material drawn from the overburden dumps. The cover material should have a clay content of greater than 10% based on field measurements using Table 3-1 as a guideline. This will provide adequate protection from ash attack and more importantly seal the coal against oxidation leading to spontaneous combustion. Special attention should be paid to the insitu coal seams that require absolute control on the clay content to ensure adequate coverage of the coal is achieved.

Figure 5-1 provides an illustration of the coal asset area requiring cover for the Anglesea mine. This area will require approximately 413,000 lcm of material to provide encapsulate the area. The cover material will be sourced from the existing overburden dumps as well as pushed from the existing pit walls by a dozer battering down in situ material from the pit wall.

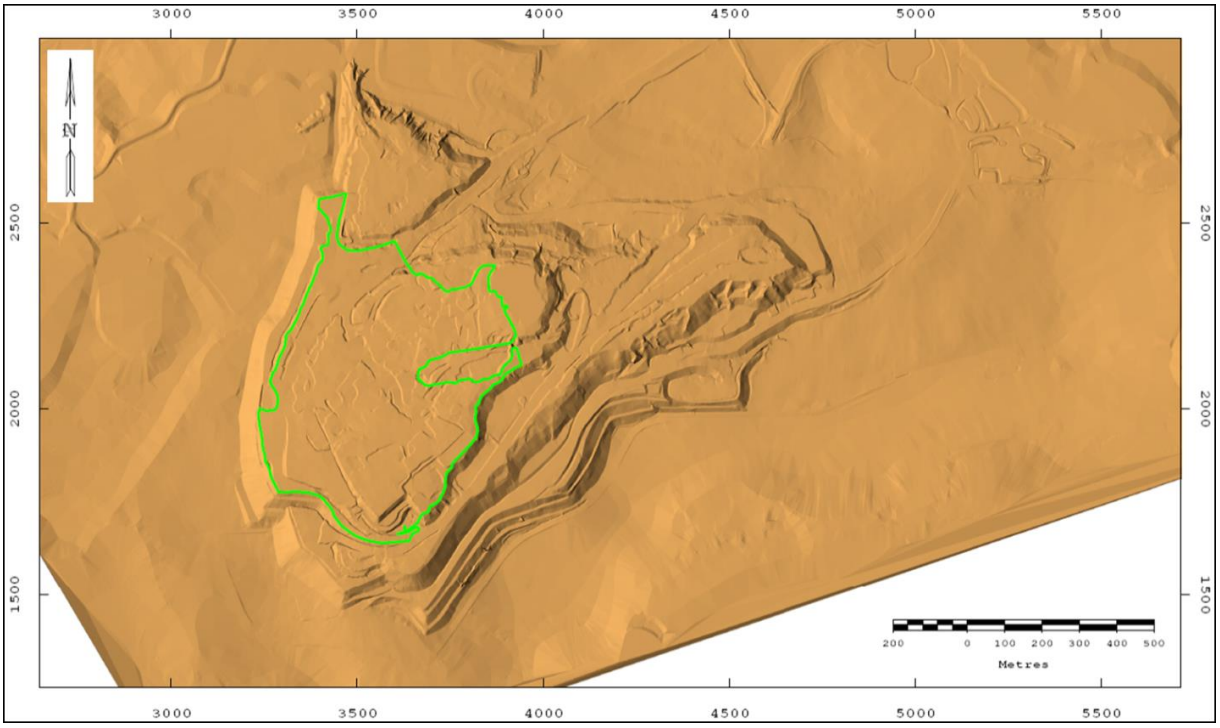

Figure 5-1 : Horizontally Exposed Coal Encapsulation Area

Where vertical coal has been exposed for less than two years it is recommended that the faces be buffered with a 5.0m batter. It is expected that this material would be placed using scrapers and would provide encapsulation of the vertical coal exposure around the limits of the pit. Figure 5-2 provides an illustration of the vertical encapsulation which would require approximately 75,000 lcm of material to encapsulate the entire pit.

- If vertical coal exposure that has been exposed for less than two years cannot be buffered during the interim closure period then these faces must be inspected daily for signs of spontaneous combustion during the initial three months after the pit closure. If

there has been no evidence of spontaneous combustion after this period then regular inspections a couple of times a week can be conducted until the two years is exceeded.

Vertical faces that have been exposed for more than 2 years can be left exposed but should be monitored on a regular basis but not less than weekly for tell-tale signs of spontaneous combustion. A fire inhibiting chemical suitable for extinguishing spontaneous combustion in coal should be maintained on standby in the event a spontaneous combustion event occurs. Management of this chemical should be included in the interim closure TARP.

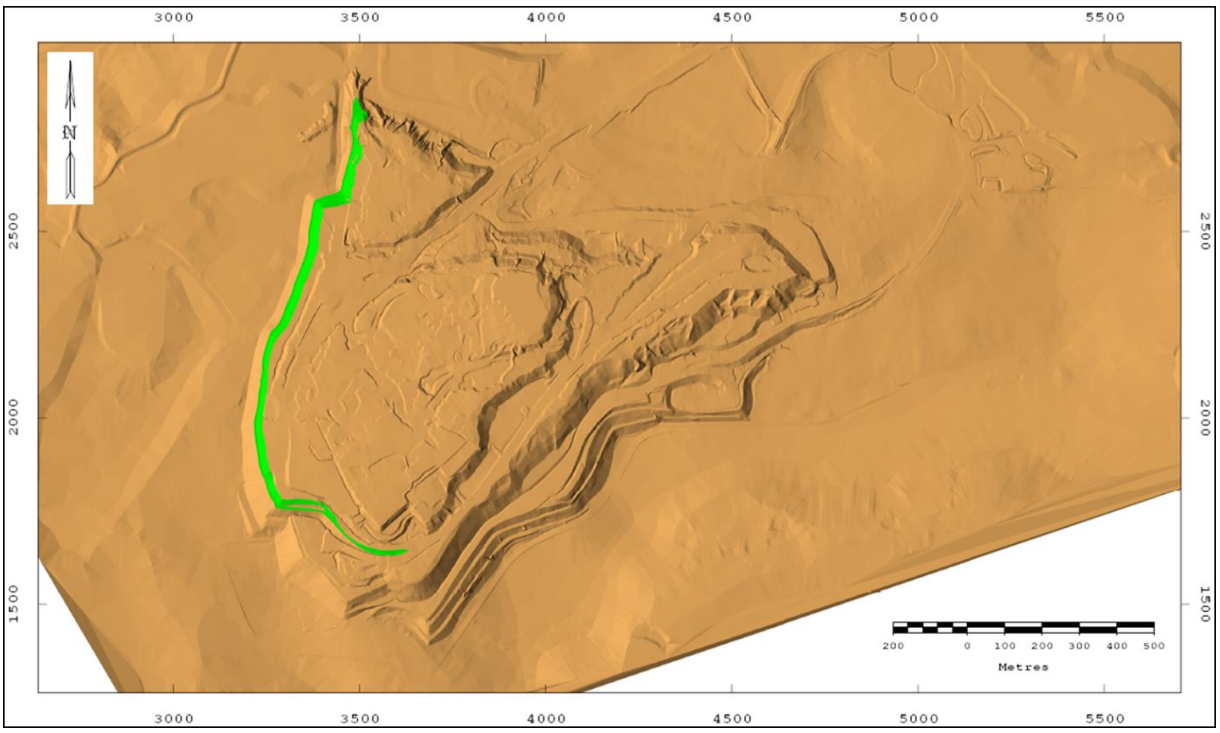

Figure 5-2 : Vertical Coal Encapsulation around Pit Limit

5.1.1 Risks

There are a number of risks associated with the interim shutdown strategy these risks include:

- If horizontal coal assets are not fully encapsulated and/or a strategy is adopted to monitor the uncovered vertical coal faces rather than to provide cover then adequate resources must be at hand to address any unplanned heating event. If inadequate plans are in place then the consequences could be significant for Alcoa.
- Erosion presents a significant risk to the integrity of the cover material, with potential to allow partial exposure of the coal assets. A program of monitoring and upkeep must be maintained to ensure the coal assets remain covered within the specifications defined by this document.
- Time to deliver – At the time of the site visit there was approximately 10 weeks available to complete the encapsulation of the coal. This timeframe is tight, based on the current fleet on site and represents a risk to the interim closure plan. Additional equipment may be required prior to the August deadline if the site fleet is unable to meet the coal coverage production targets.

6 RECOMMENDATIONS

Mining One understands that the final closure plan and rehabilitation program has not been completed but is expected to be similar to that which is outlined in the currently approved Anglesea Mine Work Plan. With this in mind, Mining One make the following recommendations for the Anglesea interim shutdown strategy:

- During the site visit there was evidence of heaped coal fines located along coal edges and within the pit floor area. These piles of fines pose a spontaneous combustion risk and should be minimised as far as practicable prior to encapsulation of the pit floor.
- The risk associated with ash attack is limited to the summer period and therefore encapsulation of all horizontally exposed coal is recommended with at least one metre of waste material and this will also provide encapsulation of the coal to prevent oxidation of the coal and foreseeable spontaneous combustion events:
    - Where coal seams are being covered, it is advised that the capping material contain not less than 10% clay to help retain moisture and seal the seam against oxidation.
    - Where the coal seam is removed and only remnants of coal are exposed the use of clay is optional, this area can be capped with the sand.
    - Compaction is recommended and can be achieved using either loaded trucks or the water cart during the placement of the material. Failing this a vibrating roller would be recommended.
- Where practical, the preferred method of securing the exposed seams in the pit faces (vertically exposed coal) is to encapsulate this with waste material by dozing over the exposed areas, this is more critical for vertical faces that have been exposed for less than two years, however due to timing constraints and the practicalities of this, the following mitigation can be adopted as an optional strategy:
    - Leave the vertically exposed coal open to the elements. For faces that have been exposed for less than two years daily monitoring must be conducted for the initial three months post closure and then twice weekly thereafter. For faces that have been exposed for more than two years the face must be inspected at least once a week for signs of spontaneous combustion.
        - If a heating event does occur daily inspection must resume for a period of three months after the event the twice weekly until the face has shown no spontaneous combustion issues for more than two years.
    - Maintain a water cart on standby primarily for addressing ash attack and consider a product such as RST's "Flame-out" product if signs of spontaneous combustion become evident. Use this in accordance with the manufacturer's recommendations to quell any potential coal combustion risk.
    - This recommendation is made on the basis that many of these faces have been exposed to the elements for up to 28 years with no heating events being recorded. In addition the risks associated with a fire event have not changed from when the mine was operating and therefore these mitigation strategies are in line with historic actions.

- On-going monitoring of the site must be maintained throughout the interim shutdown period as to ensure unplanned events are mitigated. It is also advised that the local CFA be made aware of the current coal coverage strategy and are familiar with the location of all infrastructure and equipment to assist if an unplanned event occurs:
    - As a minimum, weekly inspections of the mining area must be carried out to ensure the encapsulation has not been compromised and that there are no signs of spontaneous combustion:
        - The site must be inspected shortly after all significant rain events to inspect the coal encapsulation for water erosion as the waste material at site will be susceptible to coal being exposed due to erosion.
        - During fire events the fire brigade must be notified and frequent inspections of the pit made to ensure ash attack has not occurred. The event of an unplanned fire event is a low probability however it is recommended that a TARP (Target Action Response Plan) be prepared to ensure appropriate actions are taken in the event of a local bush fire.

7 REFERENCES

Coaltech (2003) “Prevention and control of Spontaneous Combustion – Best Pracctice Guidelines for Surface Coal Mines in South Africa” (Coaltech Research Association)

McDonald RC, Isbell RF, Speight JG, Walker J, Hopkins MS (1998) “Australian Soil and Land Survey Field Handbook” (Australian Collaborative Land Evaluation Program. Canberra).

Roberts, O.C., Saghafi, A., Cheng, J., Perrier, C. and Carras, J.N., (2004). “Rehabilitation of spontaneous combustion-prone spoil piles” (ACARP Project C9031)

Stuart Day – CSIRO energy Technology (2008)”Spontaneous Combustion in Open Cut Coal Mines” (ACARP Project C17006).

Appendix A
Resume of investigating Engineer

Cameron Farrington
Principal Mining Engineer

Cameron is a Principal Mining Engineer who has a diverse background in mining. Having spent the past 19 years as a mining professional, Cameron has become an effective leader. He has had exposure to a number of commodities including Iron Ore, Gold, Diamonds and Coal where he has learnt to understand the fundamental value drivers for the respective commodity and derive value. While Cameron holds an engineering degree as well as a MBA in finance, his true acumen has been honed by years at the face as an operational professional. From front line management through to his role as the site SSE, he has learnt to manage the workforce and understand the importance of holding people to account.

Cameron has held numerous positions during his career, ranging from engineering, contract manager, project manager, operations superintendent and culminating in a legislatively appointed site manager where he was responsible for the day to day management of a coal mine in Central Queensland

Cameron's strong operational background along with his technical expertise has seen Cameron engaged in a raft of projects including; Due diligence, capability assessments, JORC and NI 43-101 reports in various commodities, organisational design, equipment selection and mine optimisation where he has delivered substantial value to his clients.

Cameron's Project Management skills combined with his financial acumen have enabled Cameron to facilitate a number of projects from financial feasibility through to implementation.

Cameron is a chartered professional of the Australasian Institute of Mining and Metallurgy (AusIMM (CP))

Qualifications

- Masters of Business Administration (Finance), Deakin University, Geelong, 2007
- Bachelor of Engineering (Mining), University of Ballarat, 1995

Registrations

- Australasian Institute of Mining and Metallurgy Chartered Professional, AusIMM(CP), Mining Engineering.

Other Training

- Queensland – Site Senior Executive appointment
- Northern Territory Quarry Managers Certificate of competency
- Six Sigma – Black belt training

Areas of Expertise

- Project Management
- Financial Modelling
- Drilling and Blasting
- Fleet selection and costing
- Strategic Planning (Open Pits)
- Organisational design and planning

Relevant Experience

Employer **Mining One Consultants**

Position **Principal Mining Engineer**

- BMA
    - Technical lead on ICAM investigation involving explosives.
    - Investigate root cause of an unplanned explosives event.
    - Review procedures.
    - Recommend corrective actions.
- MMG
    - Fleet Study and equipment selection.
    - Organisational design.
    - Maintenance planning and modelling.
    - Develop in house equipment ownership model.
- Evolution Mining (Gold)
    - Financial justification for owner mining transition
    - Evaluation of operational capability
        - Fleet simulation – equipment selection
        - Maintenance planning and costing
        - Time usage modelling
    - Board paper and board approval for project
    - Project management of transition to owner miner
        - Organisational design and recruitment
        - Systems architecture (commercial, Maintenance, Production) and implementation

- Facilitate contract agreements; equipment acquisition, supply agreements, service agreements.
- Maintenance planning
- Fleet acquisition
- Cultural transition
- Safety and training transition

- FM Global
  - Business interruption claim
  - Dredge productivity modelling (Mineral Sands)
- Crocodile Gold
  - Feasibility study for Stawell Gold Mine (Gold)
  - Strategic Planning
  - Contract mining scope of works and contract
  - Reserve estimation
- China Gold
  - Prepare NI 43-101 for the Jiama Project (Poly Metallic)
  - Strategic Planning
  - Mine Valuation modelling
  - Reserve estimation
- White Rock Minerals
  - Due Diligence Report (Silver)
  - Optimisation and valuation
  - Mining capability analysis
- Manas Resources
  - Strategic Planning (Gold)
  - Operational capability analysis
  - Reserve reporting
- Anglesea Coal Mine
  - Strategic Planning (Coal)
  - Fleet Production Analysis (Coal)

Employer **Cameron Mining Solutions**

Position **Director**

Responsibilities/Experience:

- Develop client relationships in all matters of engineering and operations.

- Evaluate operational constraints for a number of clients and identify where opportunities existed to improve the value of an asset.
    - Review planning and constraints on planning
    - Inventory modelling
    - Mining intensity, understanding limitations
- Mine planning reviews.
- Develop mine closure plans for a coal mine
    - Final landform
    - Coal encapsulation and security
    - Environmental compliance
- Conduct risk based evaluation of mine plans to ensure the integrity of the plans.
- Provide technical management support to a number of clients.
- Life of asset mine planning.
- Evaluate operational and organisational design of a mining asset.
- Feasibility and Prefeasibility studies including optimisation of mining resources.
- Financial modelling of mining assets including the preparation of bankable feasibility study.
- Provide operational support to clients, including coaching of engineers and supervisors.
- Conduct modified theory of constraints analysis of coal operations to identify critical density of equipment and identify optimum performance of a system.

Employer **John Holland Mining: Isaac Plains Mine**

Position **Project Manager - SSE**

Responsibilities/Experience:

- As Site Senior Executive ensure all aspects of the Safety and Health Management Systems are maintained and implemented effectively to a workforce exceeding 270 personnel.
- Map the Safety and Health Management plan to the coal mining act and regulation and Prepare principal hazard management plan.
- All aspects of managing a health and safety management plan.
- Secure coal waste material as to prevent long term environmental impacts.
- Liaise and maintain relationships with business stakeholders including, Isaac Plains Coal Management, Vale, Aquila, John Holland and the Leighton's Group.
- Implement visible Felt leadership and the management and development of the site management team including; Safety and Training, Technical Services, Production, Maintenance, Commercial, Human Resources.
- Maintain budget and KPI deliverables.
- Ensure cost control and contract compliance of the project.

- Coaching and mentoring of site management and superintendent personnel.

Employer **BHP Mitsubishi Alliance: Goonyella-Riverside Mine**

Position **Fleet Performance Superintendent**

Responsibilities/Experience:

- Implement and maintain Modular Mining – feet management system on site.
- Manage a team of 10 supervisors and ensure daily monitoring of key KPI's.
- Conduct business improvement studies to deliver value to the business.
- Implement electronic prestart inspections through the fleet management system.
- Monitor and communicate fleet performance metrics to the production department to ensure timely focus on potential problems within the mining operation.
- Maintain the information centre for the production department.
- Developed a Strong safety culture within the project team and contribute to organisation safety objectives.

Employer **BHP Mitsubishi Alliance: Goonyella-Riverside Mine**

Position **Project Manager**

Responsibilities/Experience:

- Developed a Strong safety culture within the project team and contribute to organisation safety objectives.
- A Key member in the development of strategic guidelines for BMA core production processes based on clear operational philosophies and organisational design.
- Investigative work into coal loss mechanisms and the evaluation of lost value.
- Preparation of progress reports and dissemination to the management team.
- Financial analysis of production strategies.
- Worked closely with project group to define clear strategic processes for the BMA assets.
- Project management;
  - Contractor/Consultant/Change management
  - Supervision and Commercial management of project
  - Management of skilled project team (senior engineers and surveyors).
- Budget preparation including CAPEX and OPEX justification and management.
- Effective project safety management.

Employer **BHP Mitsubishi Alliance: Peak Downs Mine**

Position **Drill and Blast Superintendent**

Responsibilities/Experience:

- Maintained robust safety record across drill and blast production department. 3 years without a lost time injury or recordable injury.

- Lead a production based work group exceeding 50 employees including Supervisors, OCE's, Shotfirers and drillers.
- Manage an annual budget exceeding $30 million. Including asset evaluation, justification and acquisition.
- Implement breakthrough drill and blast practices to deliver improvements in business efficiency and profit.
- Manage and advise on all areas of blasting legislation and procedures.
- Reduced the occurrence of 'wait on blast' delays dramatically to optimise the businesses ability to deliver and exceed annual production targets.
- Worked cohesively with the Superintendent group including; Safety, Draglines, Prestrip and Mining to maximise business performance.
- Responsible for all Project management; Contract management and Asset acquisition associated with drill and blast.
- Active participation with BMA blasting community.

Employer **BHP Mitsubishi Alliance: Central Queensland Office**

Position **Senior Mining Engineer**

Responsibilities/Experience:

- Senior Drill and Blast engineer with business improvement and optimisation group.
- Development of drill and blast community within BMA to ensure the sharing and communication of information across BMA assets.
- Work with dynamic cross section of BMA employees in the area of Project facilitation and implementation.
- Project management.
- Investigate reactive ground management strategies.
- Represent BMA at numerous meetings and conferences including presenting to industry groups.
- Development of BMA drill and blast risk matrix and SOP's for the Drill and Blast Group.
- Extensive involvement/management of an extensive list of business improvement projects:
  - Coal loss measurement.
  - Resource to customer project.
  - Low density explosives study.
  - Waste oil in bulk explosives.
  - Drill and blast management system.
  - Equipment justifications.
  - BMA internal benchmarking system.
  - Last Drop – coal recovery strategy.
  - BMA Drill and Blast Standard operating Procedures.
  - BMA Security Sensitive Ammonium Nitrate actions plan.

Employer **Rio Tinto: Merlin Diamond Project Fly in / Fly out**

Position **Senior Mining Engineer**

Responsibilities/Experience:

- Work in roster with the Mine Manager to ensure roster coverage and contract management.
- Manage site technical team to ensure timely delivery of monthly reports and maintenance of contract works schedule.
- Develop, co-ordinate and implement safety standards to meet Rio Tinto Safety Guidelines.
- Long and short term mine planning and logistics including contractor management and cost control.
- Preparation of and maintenance of annual budgets, short range forecasting and variations.
- Pit optimisation, feasibility and design work including sensitivity analysis.
- Co-ordination of site drill and blast, including management of supply contract.
- Work with management team to develop and deliver business KPI's.
- Address regulatory and reporting requirements relating to mine management, health, safety and environment with Department of Mines and Energy.
- Manage and co-ordinate site Mining contractors to ensure compliance with contract obligations.
- Integrate Indigenous workers into the workforce as part of the companies commitment/relationship with the local communities.
- Carry out performance appraisals for personnel in the mining department & ensure training is provided as negotiated.
- Prepare mine closure plans in accordance with Rio Tinto and regulatory recommendations to ensure post-mining obligations are minimised.

Employer **Ashton Mining: Merlin Diamond Project**

Position **Mining Engineer**

Responsibilities/Experience:

- Long and short term mine design and planning, CAPEX and OPEX justifications.
- Greenfield project development, evaluation and design.
- Management of both EPC & EPCM based contracts during site design and construction.
- Design and maintain pit-dewatering systems.
- As Drill and Blast Co-ordinator work with contractors to negotiate optimum drill and blast and design, co-ordinate and establish product performance testing.
- Develop site scheduling system.
- Prepare drilling budgets for deep hole drilling program and delineation of ore deposit.

  - Justification and management of exploration project.
- Co-ordinate hydrological drilling of water bores for the establishment of a water supply to the process plant and potable drinking water.
- Maintenance of pit designs and contract works.
- Carry out mine surveying duties in the absence of the Mining Surveyor.

Employer BHP: Integrated Steel, Whyalla South Australia

Position Mining Engineer

Responsibilities/Experience:

- Short/Long term scheduling utilising Datamine, MS Excel and Xpac software.
- Develop pit designs based on recommended design criteria.
- Drill and blast design utilising 3x3 pro software package.
- Haulage simulations through the use of Talpac software package.
- Communicate mining plan to Grade Control department and contractors.
- Maintain communication with contractors to ensure mining plan and recommended practices are maintained.
- Design and implement slip monitoring system to ensure a safe work environment for mining personnel.
- Ensure safe practices were maintained through the application of BHP's safety audit system.
- Work as grade control officer - daily sampling, sample preparation and retrieval using Oracle based stockpile management program.
- Plan daily works to satisfy blending requirements as per a supply agreement.
- Scheduled daily production, drilling and blasting in accordance with the short term plan, including defining material stockpile destinations.

Appendix B

Examples of Chemical Agents for Improving Coal Management

FLAME - OUT COAL FIRE & SPONTANEOUS COMBUSTION PREVENTION

WHAT IS FLAME - OUT

A Formulated Fire Retardant developed by Reynolds Soil Technologies for extinguishing coal fires and used as a preventative against spontaneous combustion in stockpiles.

FLAME-OUT comes in two forms:
1) White crystalline powder which is readily soluble in water
2) Ready to use liquid

Simply dilute or add FLAME-OUT into a water cart or suitable watering equipment and spray directly over the coal fire or spray over the stockpile as it is being laid up.

A corrosion inhibitor is also contained in the product to help protect machinery.

HOW DOES IT WORK?

FLAME-OUT has been specifically designed and formulated for rapid penetration of the fire retarding chemistry that activates when heated.

Once activated, FLAME-OUT builds up a char layer on burning substrates, smothering the material and inhibiting the oxygen supply, thereby providing a barrier against the heat source or already ignited flame from another source. This charring is virtually instantaneous and will occur wherever FLAME-OUT exists within the stock pile and combustion process starts.

FLAME-OUT is simply diluted in water and sprayed over the problem area using readily available on site equipment.

APPLICATION

Powder
FLAME-OUT powder is readily soluble.
FLAME-OUT can be introduced directly into tankers provided the powder is added reasonably slowly with plenty of water agitation e.g. add powder slowly to a high pressure hose system.

Liquid
Easily added to water carts directly using an RST supplied pump if required or injected into irrigation lines.

*Although FLAME-OUT includes an effective corrosion inhibitor, it is good practice not to store FLAME-OUT solution in water tanks. It is suggested that at the end of each days usage water tanks, pumps, plumbing and hoses be thoroughly flushed with clean water.

	Powder	Liquid
Major Coal Fires	10% Solution	20% Solution
Spontaneous Combustion	3 - 5% Solution	6 - 10% Solution
Stockpile Protection	1 - 3% Solution	2 - 6% Solution

RST DUST EARTH WATER SOLUTIONS

1300 GOT DUST
info@rstsolutions.com.au www.rstsolutions.com.au

Solutions Delivered

RT20 DYNAMIC

LIQUID SOIL STABILISER

BENEFITS

- Latest super concentrate liquid dispersant for improved performance
- Increases road building material density and strengths (CBR)
- Improves qualities of usually substandard road building materials
- Requires significantly less water to achieve maximum material compaction
- Reduces water permeability through reduced void space between particles
- Increases road surface life and reduces maintenance
- Reduces the damaging affects of water.
- Reduces the amount of aggregate and traditional stabiliser addition
- Reduces maintenance requirements
- Reduces dust levels
- Cost Effective
- Easy to Use

DESCRIPTION

Through continued Research and development RT20 Dynamic is an advanced formulation of our RT20 Soil Stabiliser offering boosted performance and results. RT20 Dynamic is a liquid soluble, environmentally safe additive that enables soil and gravels to attain a much higher density and strength than could be attained in natural materials for road construction.

RT20 Dynamic enables the treated material to be compacted faster using less water, improving CBR strengths and increasing densities by reducing the void spaces between the soil particles in turn reducing waters ability to permeate through the compacted material.

APPLICATION

RT20 Dynamic compliments standard construction practices in road construction and earthworks. Simply add the required quantity of RT20 Dynamic into the water truck that is used for compacting the material.

For existing pavement rehabilitation rip the road to the recommended depth, break up all large clumps of material, apply the diluted product during the total process and blend and compact.

HEALTH, SAFETY, ENVIRONMENT AND THE COMMUNITY (HSEC)

RST strives, through a process of continuous improvement, to fully integrate health, safety, environmental and community (HSEC) consciousness into all aspects of its activities

For more information and to obtain the Material Safety Data Sheet please contact RST.

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DOCUMENT INFORMATION

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OCUMENT REVIEW AND SIGN OFF

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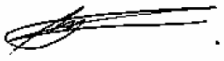
V1	Bill Frazer	Manager Tech Services		1/7/15