



**Department of Primary Industries**  
Review of Rehabilitation Bond  
Calculator Use for Brown Coal Mines  
Loy Yang Mine Example  
December 2008



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## Executive Summary

GHD has been engaged by the Department of Primary Industries (DPI) to:

- ▶ Use the DPI Rehabilitation Bond Calculator (Calculator) to assess rehabilitation liability at the Loy Yang Mine; and
- ▶ To comment on the suitability of rates within the Calculator for use within the large scale brown coal mines.

This study is not aimed to determine the Bond that should be carried by the Loy Yang mine, as this should be determined in discussions between DPI and Loy Yang Power. However it is aimed to compare any changes in rehabilitation liability using the Rehabilitation Bond Calculator for actual mine situations in 1997 and 2008 and to predict liability levels in 2018.

### 1.1 Findings

From the study the main findings are that:

- ▶ The Calculator is a sound way of estimating the rehabilitation liability.
- ▶ For the large scale brown coal mines the Calculator exaggerates the allowance that should be made for project management of the rehabilitation activity and this unnecessarily increases the level of estimated rehabilitation liability.
- ▶ Infrastructure dismantling is the largest portion of the calculated rehabilitation liability and as this requirement is not expected for more than 30 years, GHD question whether the current Bond calculation method is appropriate.
- ▶ The current estimated liability for 1997 is higher than the Bond level due to:
  - The use of \$2008 in this assessment as a basis for liability estimation that affects all the factors in the calculation;
  - The introduction of the project management and contingency fee allowance in the Calculator, that was not thought to be a consideration in 1997; and
  - The liability is estimated rather than negotiated, as occurred in 1997 as part of the sale of the mine by the government.
- ▶ The rehabilitation liability is estimated to have increased from 1997 to 2008 by about \$4M, due to increased mine size and partly due to the current assumption of a lower flood level in the 2008 case for the final rehabilitated mine than was the case for the 1997 assessment (then and now).
- ▶ The rehabilitation liability is estimated to increase from 2008 to 2018 by about \$1M, due to increased mine batter areas and reduced external dump liabilities.

### 1.2 Bond Methodology

One study finding questions whether the current method of estimating the rehabilitation liabilities for Bond determination suits the large brown coal mines in Victoria. The



reason for the Bond is to provide the state with sufficient money to rehabilitate a mine of the mine owner “walked away”. These mines, critical to the production of electricity for this state for the foreseeable future are not going to shut down in the near term without very major implications for Victoria. Even if current operators “walked away”, others would be persuaded to continue running the mine.

The majority of the Liability is for the dismantling of the mine’s infrastructure and buildings at the end of mine life, more than 30 years away, the accumulative value of the Bond payment (say 2% of the insurance) is quite a substantial impost on the mine owners. In effect over 50 years the mine owner would have paid twice the cost for this rehabilitation (once for insurance cover over the life of the mine and once when the work was actually done). Furthermore if shutting down is not an option for the state then this portion of the Bond money provides little value to the state. It is understood no Bond requirement is required for the adjacent power station buildings that are not on the Mining Licence.

Perhaps of more significance than the cost of the Bond is the potential that a changed Bond could discourage open and transparent discussion on appropriate rehabilitation measures for the open cuts - especially if any change would enlarge the Bond. There are critical questions to resolve in the rehabilitation of this and other Latrobe Valley mines, some are future issues and others come from the long legacy of operations by the SECV. Issues such as how to rehabilitate exposed coal faces, and how to ensure rehabilitation does not affect the opportunities of expanding mines into super pits, need to be resolved and actioned. These issues should be resolved, preferably without the threat that Rehabilitation Bonds would need re-evaluation upwards.

Perhaps the Bond could be better used to focus attention on the mine rehabilitation requirements of these mines rather than forcing the mining companies to carry a large insurance debt for so many years. The Bond should provide credit opportunities for completed rehabilitation. A number of alternative methodologies for calculating the Bond have been suggested.



## 1. Scope

The DPI requirements of this project are as follows:

1. Review the rehabilitation plan in light of the current state of the site in consultation with Minerals and Petroleum Division. Determine the most efficient program of works required to achieve the objectives of this plan, or a higher standard of rehabilitation if it can be achieved at no additional cost;
2. Apply the draft environmental guidelines 'Establishment and Management of Rehabilitation Bonds for the Mining and Extractive Industries' and the 'Rehabilitation Liability Calculator' to MIN5189 in its current state (includes plant and infrastructure up to and including the coal bunker but does not include power station);
3. Salvage value of infrastructure to be considered for offset of demolition or removal cost.
4. Apply the draft environmental guidelines 'Establishment and Management of Rehabilitation Bonds for the Mining and Extractive Industries' and the 'Rehabilitation Liability Calculator' to MIN5189 as the site to obtain a current annual rehabilitation liability increase on current production levels and the liability that existed at the time of the sale to the LYP Partner 3 on 6 May 1997.
5. Compare changes in rehabilitation liability of each domain area of the site; and,
6. Document the methodology applied to achieve the results provided in the calculator.

NB In the case that the "Rehabilitation Liability Calculator" does not adequately address all aspects of the rehabilitation liability, the contractor should use other recognised methodologies as appropriate in consultation with DPI to ensure the project objective is met.



**Figure 1 Aerial Photo of Loy Yang Mine in 1996 (source DPI)**





## 2. Liability Calculation Using Bond Calculator

The following report presents estimates of the rehabilitation liability using the DPI Bond Calculator. The study examines in May 1997, when the original sale of Loy Yang mine occurred; for the current period, November 2008; and provides a prediction for 2018.

### 2.1 Assumptions

- ▶ Costing for all periods is in 2008 AUD.
- ▶ In 1997, the proposal for the final void treatment was to flood the mine to the adjacent Traralgon Creek level, which is approx. RL 50. An inlet channel and drop structure would be required to divert Traralgon Creek flood flows into the mine.
- ▶ By 2008, it is recognised that the ability to find sufficient water to fill the mine for rehabilitation purposes would be difficult and for this study it is assumed there is a “lowered landscape” rehabilitation arrangement. In this rehabilitated area, beyond space required for internal dumping it is assumed that there would be sufficient water to fill the mine to RL –10 and that this level could be maintained. Hence in this study the final void treatment assumption is to flood the mine to a stable level, with rainfall and ground water seepage balanced by evaporation. RL –10 has been used for this stable level, which was sourced from an internal Loy Yang study to identify the long term stable water level following end of mine life closure.
- ▶ For the 2018 case, the current proposal to flood the mine to a stable level is assumed to remain relevant. Internal overburden placement will have commenced, but will not be above the RL –10 level.
- ▶ For each case the mine overburden batters will be laid back at 3H to 1V using dozed cut to fill with the final surface topsoiled and planted to pasture. Coal batters below the dozed overburden batter will remain as mined. Coal benches are clay covered as part of the mining operation. Coal batters and benches will be planted with shrubs and bushes.
- ▶ The waste dump will generally be shaped and clay covered as part of the dump development operations. Rehabilitation will involve final shaping, topsoiling or amelioration of the clay surface and planting to pasture or native grasses. There will be insufficient topsoil available to treat all of the remaining areas of the waste dump. Where topsoil is unavailable it is assumed that the additional expenditure incurred on amelioration of the clay surface material and on planting of native grasses will be equivalent to the topsoiling cost.
- ▶ Concrete slabs and foundations from areas below the ultimate flooding level will not be removed. Mine equipment and conveyors will be scrapped. Surface buildings and the Raw Coal Bunker are to be removed.
- ▶ For costing of the 2018 period, it is assumed that the mines northern overburden batter will be rehabilitated in stages, with completed within 2 years of excavation.





For the external waste dump, rehabilitation will also be in stages, with completion within 3 years of completion of final end batters.

## 2.2 Methodology

To analyse the rehabilitation requirements of the Loy Yang mine site, the mine and the dump area have been analysed in small areas with similar geographic features and long term use. The attached figures show the mine and dump areas of Loy Yang for the three periods, with the breakdown of the various areas. The rehabilitation works undertaken and the future requirements are then determined for each of these areas for each period of development. The summation of these areas is then used in the Rehabilitation Bond Calculator.

## 2.3 Calculation Outcome

Full details of the Mine Rehabilitation Liabilities calculated for Loy Yang for 1997, 2008 and 2018 are provided in Appendices A, B and C and summarised below.

### 2.3.1 May 1997

Figure 2 indicates the position of the Loy Yang Mine in 1997. Areas for consideration of rehabilitation requirements are shown numbered. Coloured areas indicate the areas rehabilitated at that time.

The approved work plan in 1997 was based on flooding the mine to approx. RL 50. Only the upper overburden batter would remain exposed above the final water level. Coal batters and benches below the overburden batter would be flooded and therefore rehabilitation was not required.

For the normal Bond Calculation the estimated cost for rehabilitation of the mine in May 1997 was 2008\$24.4 M (\$30.5 M when including the designated 26% Third Party Management and Contingencies). It should be noted that this estimate is made using the current Bond Calculator rates, not as they would have been estimated in 1997.

To help fill the mine void, it was proposed to divert flood water from Traralgon Creek into the mine. A diversion structure, channel and drop structure would be required to divert the water into the mine as well as a bridge structure for Traralgon Creek Road over the diversion channel. The estimated cost of the diversion channel works is approx. \$2.0 M. This cost has not been included in the estimated rehabilitation costs.



Figure 2 Loy Yang Mine at 1997

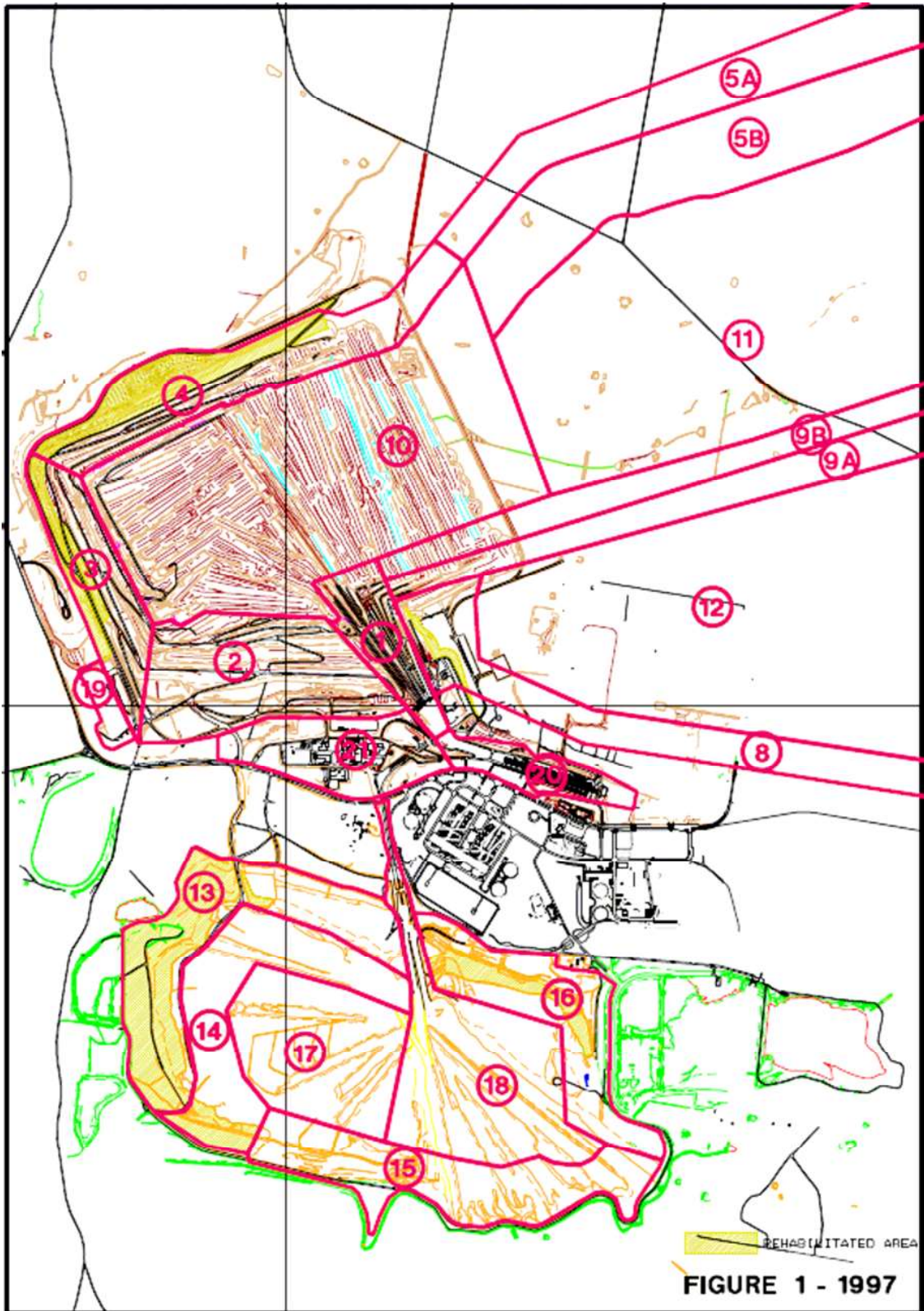




Table 1 Summary of Rehabilitation Liability - 1997

| <b>Summary Report of Rehabilitation Liability Calculation</b>  |   |
|--|---|
| <b>Site Name:</b>  | Loy Yang Power                                      |
| <b>Tenement number(s):</b>   | MIN5189   |
| <b>Site Owner:</b>   | Great Energy Alliance Corporation (GEAC)            |
| <b>Site Operator:</b>  | Loy Yang Power                                      |
| <b>Current Bond:</b>   | \$ 15,000,000.00                                    |
| <b>Date of Last Rehabilitation Bond Review:</b>  | 35556   |
| <b>Site Contact:</b>   | Michael Laird Jon Missen                            |
| <b>Position:</b>   | General Manager Mine Environment and Land Manager   |
| <b>Address:</b>  | Loy Yang Power<br>PO Box 1799<br>Traralgon VIC 3844 |
| <b>Phone:</b>  |   |
| <b>email:</b>  |   |
| Domain   | Rehabilitation Liability                            |
| Domain 1: Infrastructure Areas   | \$18,075,990.00                                     |
| Domain 2: Tailings & Coarse Rejects Storage Facilities (1)   | \$0.00  |
| Domain 2: Tailings & Coarse Rejects Storage Facilities (2)   | \$0.00  |
| Domain 2: Tailings & Coarse Rejects Storage Facilities (3)   | \$0.00  |
| Domain 3: Overburden & Waste Dumps   | \$3,158,125.00                                      |
| Domain 4: Pits (1)   | \$2,336,775.00                                      |
| Domain 4: Pits (2)   | \$0.00  |
| Domain 4: Pits (3)   | \$0.00  |
| Domain 5: Other Management Issues  | \$827,000.00  |
| <b>Sub-Total</b>   | <b>\$24,397,890.00</b>                              |
| Third Party Project Management & Contingencies   | \$6,099,472.50                                      |
| <b>Total Rehabilitation Liability for the Operation</b>  | <b>\$30,497,362.50</b>                              |
| <p>This rehabilitation liability calculation has estimated using the best available information at the time it is a true and accurate reflection of the total rehabilitation bond required to be lodged by this mine</p> |   |
| -----  | -----   |
| <b>Site Manager</b>  | <b>Date:</b>  |



### **2.3.2 November 2008**

Figure 3 indicates the position of the Loy Yang Mine in 2008. Areas for consideration of rehabilitation requirements are shown numbered. Coloured areas indicate the areas rehabilitated at that time.

In this analysis it is assumed that the current proposal to have a lowered landscape design with flooding of the mine to approx. RL –10, the coal batters and benches between the overburden batter and RL –10 will be planted with shrubs and bushes. This is an additional rehabilitation cost to the 1997 period.

For the normal Bond Calculation the estimated cost for rehabilitation of the mine in 2008 is \$27.6 M (2008), (\$34.5 M when including the 26% Third Party Management and Contingencies). This is an increase in Bond liability estimate of approximately \$3 to 4M (2008). About 10% of this is due to the increased liability from more exposed coal from the lowered water level assumed in this case than in 1997.

### **2.3.3 2018 Projection**

Figure 4 indicates the predicted position of the Loy Yang Mine in 2018. Areas for consideration of rehabilitation requirements are shown numbered. Coloured areas indicate the areas rehabilitated at that time.

The estimated cost for rehabilitation of the mine in 2018 is \$28.4 M (2008), (\$35.5 M when including the 26% Third Party Management and Contingencies). This is an increase in Bond liability estimate of approximately \$1 M (2008) resulting from increased mine batters but reduced external dump batters. As with the 2008 assessment a lower water level was assumed than for 1997.



Figure 3 Loy Yang Mine at 2008

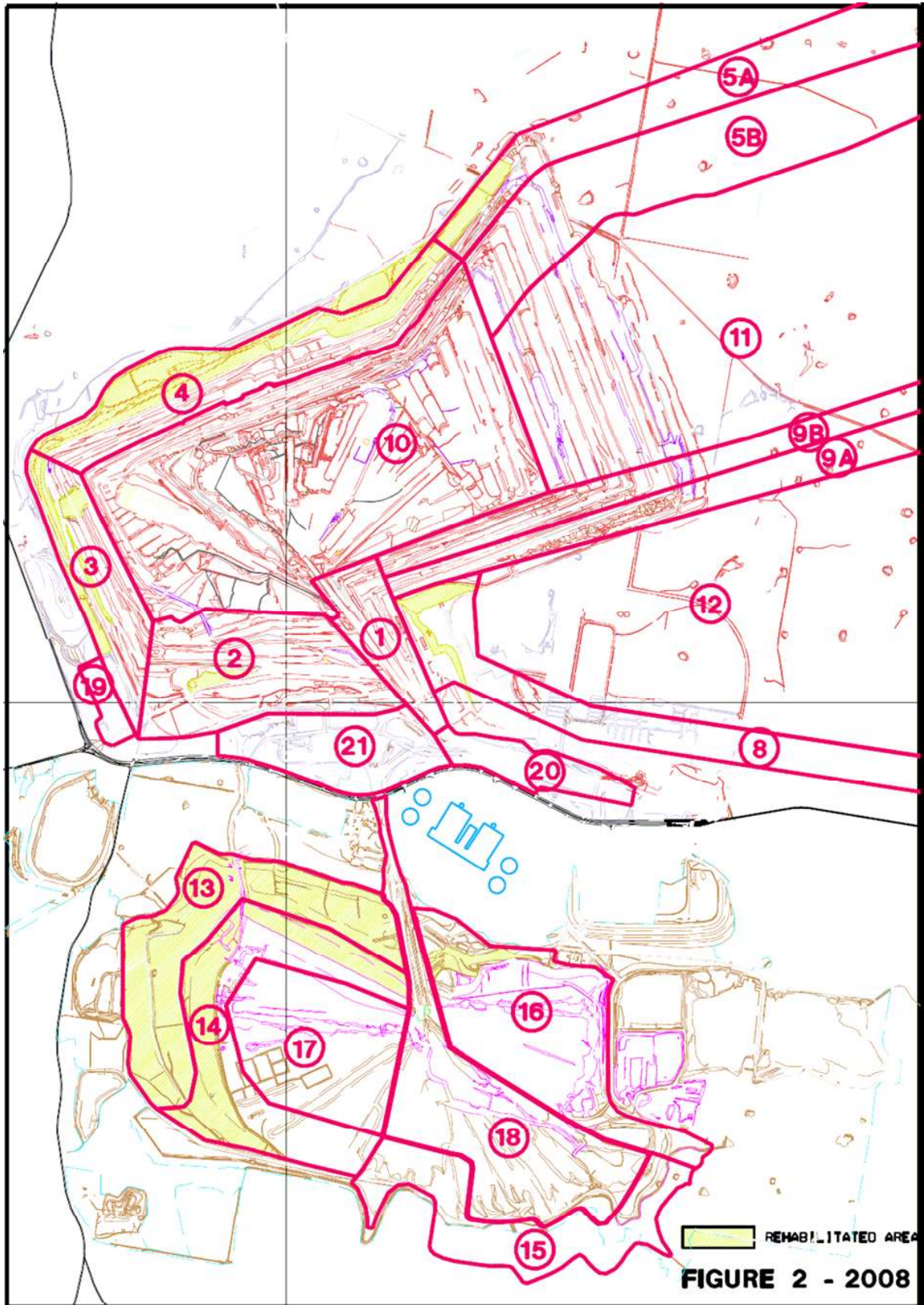




Table 2 Summary of Rehabilitation Liability - 2008

| <b>Summary Report of Rehabilitation Liability Calculation</b>  |   |
|--|---|
| <b>Site Name:</b>  | Loy Yang Power                                      |
| <b>Tenement number(s):</b>   | MIN5189   |
| <b>Site Owner:</b>   | Great Energy Alliance Corporation (GEAC)            |
| <b>Site Operator:</b>  | Loy Yang Power                                      |
| <b>Current Bond:</b>   | \$ 15,000,000.00                                    |
| <b>Date of Last Rehabilitation Bond Review:</b>  | 35556   |
| <b>Site Contact:</b>   | Michael Laird Jon Missen                            |
| <b>Position:</b>   | General Manager Mine Environment and Land Manager   |
| <b>Address:</b>  | Loy Yang Power<br>PO Box 1799<br>Traralgon VIC 3844 |
| <b>Phone:</b>  |   |
| <b>email:</b>  |   |
| Domain   | Rehabilitation Liability                            |
| Domain 1: Infrastructure Areas   | \$19,069,240.00                                     |
| Domain 2: Tailings & Coarse Rejects Storage Facilities (1)   | \$0.00  |
| Domain 2: Tailings & Coarse Rejects Storage Facilities (2)   | \$0.00  |
| Domain 2: Tailings & Coarse Rejects Storage Facilities (3)   | \$0.00  |
| Domain 3: Overburden & Waste Dumps   | \$2,993,050.00                                      |
| Domain 4: Pits (1)   | \$4,470,070.00                                      |
| Domain 4: Pits (2)   | \$0.00  |
| Domain 4: Pits (3)   | \$0.00  |
| Domain 5: Other Management Issues  | \$1,014,000.00                                      |
| <b>Sub-Total</b>   | <b>\$27,554,360.00</b>                              |
| Third Party Project Management & Contingencies   | \$6,000,590.00                                      |
| <b>Total Rehabilitation Liability for the Operation</b>  | <b>\$34,442,950.00</b>                              |
| <p>This rehabilitation liability calculation has estimated using the best available information at the time it is a true and accurate reflection of the total rehabilitation bond required to be lodged by this mine</p> |   |
| -----  | -----   |
| <b>Site Manager</b>  | <b>Date:</b>  |



Figure 4 Loy Yang Mine Predicted Position in 2018





Table 3 Summary of Rehabilitation Liability - 2018

| <b>Summary Report of Rehabilitation Liability Calculation</b>  |   |
|--|---|
| <b>Site Name:</b>  | Loy Yang Power                                      |
| <b>Tenement number(s):</b>   | MIN5189   |
| <b>Site Owner:</b>   | Great Energy Alliance Corporation (GEAC)            |
| <b>Site Operator:</b>  | Loy Yang Power                                      |
| <b>Current Bond:</b>   | \$ 15,000,000.00                                    |
| <b>Date of Last Rehabilitation Bond Review:</b>  | 35556   |
| <b>Site Contact:</b>   | Michael Laird Jon Missen                            |
| <b>Position:</b>   | General Manager Mine Environment and Land Manager   |
| <b>Address:</b>  | Loy Yang Power<br>PO Box 1799<br>Traralgon VIC 3844 |
| <b>Phone:</b>  |   |
| <b>email:</b>  |   |
| Domain   | Rehabilitation Liability                            |
| Domain 1: Infrastructure Areas   | \$19,859,240.00                                     |
| Domain 2: Tailings & Coarse Rejects Storage Facilities (1)   | \$0.00  |
| Domain 2: Tailings & Coarse Rejects Storage Facilities (2)   | \$0.00  |
| Domain 2: Tailings & Coarse Rejects Storage Facilities (3)   | \$0.00  |
| Domain 3: Overburden & Waste Dumps   | \$2,304,075.00                                      |
| Domain 4: Pits (1)   | \$5,019,394.00                                      |
| Domain 4: Pits (2)   | \$0.00  |
| Domain 4: Pits (3)   | \$0.00  |
| Domain 5: Other Management Issues  | \$1,211,000.00                                      |
| <b>Sub-Total</b>   | <b>\$28,393,709.00</b>                              |
| Third Party Project Management & Contingencies   | \$7,098,427.25                                      |
| <b>Total Rehabilitation Liability for the Operation</b>  | <b>\$35,492,136.25</b>                              |
| <p>This rehabilitation liability calculation has estimated using the best available information at the time it is a true and accurate reflection of the total rehabilitation bond required to be lodged by this mine</p> |   |
| <b>Site Manager</b>  | <b>Date:</b>  |





## 2.4 Comparison of the Different Periods

For all periods examined, the estimated infrastructure rehabilitation costs make up the greatest proportion of the calculated Rehabilitation Liability (i.e. approx. 70% to 75%). This activity, totalling \$ 18 M to 19 M (2008), including \$11.7 M for the rehabilitation of major surface building areas such as workshops, administrative buildings, the raw coal bunker, drive tower and the crusher house. This cost remains constant for all periods.

Rehabilitation costs within mine batters continue to grow only at a small rate as the mine develops. This is because only small additional areas requiring rehabilitation are opened each year. The majority of these areas occur on the northern and southern side of the mine. Note the operational face moves to the east each year but does not change much in size.

On the other hand progressive rehabilitation can only be carried out on faces that have reached their final location. At Loy Yang mine only the northern crest of the mine is assumed to be at the limit of mining (due to the buffers associated with the City of Traralgon and the Traralgon By-Pass) and will require progressively rehabilitation. The southern batter is a temporary batter proposed to be excavated in the long term development of the mine and hence does not require rehabilitation in these periods. The operating face will also remain open until the end of the mine development and so will not require rehabilitation in these periods. The rehabilitation costs of these southern and working overburden and coal benches and faces will not become available for rehabilitation until much later in the end of mine life.

External Waste Dump Rehabilitation costs will reduce over time as sections of the dump are completed and rehabilitated. Waste dumping activities will commence in the internal dump in 2014 and will not become a rehabilitation liability for some years - i.e. until they develop above RL -10. Dumping in the external dump will continue with one system until around 2025. Ash dumping will also continue in the external dump until the close of the business so there will be some parts of the external dump that cannot be rehabilitated until the end of the mine.

## 2.5 Rehabilitation Area Requirements

Average rates of rehabilitation undertaken for the two periods 1997 to 2008, and predicted for 2008 to 2018 are shown in Table 4.

**Table 4 Summary of Completed Rehabilitation**

| Period              | Mine Area Rehabilitated | Dump Area Rehabilitated | Total Area Rehabilitated | Difference over Period | Average Rehabilitation per Year |
|---------------------|-------------------------|-------------------------|--------------------------|------------------------|---------------------------------|
| 1997<br>(Actual)    | 37.2 Ha                 | 108.8 Ha                | 146.0 Ha                 |                        |                                 |
| 2008<br>(Actual)    | 63.4                    | 146.9                   | 210.3                    | 64.3 Ha                | 5.9 Ha                          |
| 2018<br>(Estimated) | 81.8 Ha                 | 260.8 Ha                | 342.6 Ha                 | 132.3 Ha               | 13.2 Ha                         |

The approximate area of land requiring rehabilitation for the assessed periods are shown in Table 5.

**Table 5 Summary of Mine Areas Requiring Rehabilitation**

| Period                 | Mine Area Requiring Rehabilitation | Dump Area Requiring Rehabilitation | Total Area Requiring Rehabilitation | Difference over Period | Av Change in Rehabilitation Required |
|------------------------|------------------------------------|------------------------------------|-------------------------------------|------------------------|--------------------------------------|
| 1997<br>(Actual)       | 120.5 Ha O/B                       | 407.5 Ha                           | 528.0 Ha                            |                        |                                      |
| 2008 *<br>(Actual)     | 135.8 Ha O/B<br>167.2 Ha Coal      | 386.2 Ha                           | 689.2 Ha                            | 161.2                  | 14.7 Ha                              |
| 2018 **<br>(Estimated) | 152.8 Ha O/B<br>191.8 Ha Coal      | 297.3 Ha                           | 641.9 Ha                            | -47.3                  | -4.7 Ha                              |

\* For 2008, the mine flooding scenario is to a lower level than in 1997 (RL -10 compared to RL 50), with the result that coal batters will remain exposed and will be rehabilitated with shrub and bushes. This is assumed to also be the case for 2018.

\*\* The reduction of the area requiring rehabilitation in 2018 results from the commencement of internal waste dumping by one of the stacker/conveyor systems. A substantial area of the external waste dump can be rehabilitated as a result. While there is a reduction in total area, the bond amount does not reduce as the increase in the mine overburden batter area is at a greater cost than the reduction in overburden areas.



### 3. Comments on the Use of the Calculator for Estimating the Rehabilitation Bond in Large Scale Brown Coal Mines

#### 3.1 What to Include in Bond Calculator

The current way to calculate the rehabilitation bond for mines in Victoria is to provide funding for rehabilitation works should the mine operator walk away leaving a legacy for the state to rectify. This is a perfectly rational methodology for a small or short life mine where the fluctuations of the market or ore grade can quickly change. The mine operator may need to walk away and a new miner may be unlikely to be tempted to take over the required rehabilitation of the mining area even if they were prepared to go into a mining operation at the site.

However, is this likely for the major brown coal mines in the Latrobe Valley ?

With the current reliance of the state of Victoria on the electricity provided by the Latrobe Valley power stations, it is unlikely that these power plants will shut down within the next ten years or 15 years. And even then only in a planned method to ensure continued electrical supply to Victoria. Even if the current power station owners were to walk away from their business, the state of Victoria would need to bring in new operators to ensure continued power supply to the state. The coal mines providing the power stations are also unlikely to be shut down. The new mine and power station operator could start mining possibly with a greatly reduced capital commitment (assuming the previous owner walked away) and hence would be more able to mine at a profit.

Most of the rehabilitation liability, as estimated from the bond calculator, is for the removal of infrastructure in the final shut down of the mine. The infrastructure is essential to enable the continued operation of the mine prior to closure. For the current Loy Yang Mine the Infrastructure rehabilitation costs calculated are \$17 M from a total estimate of rehabilitation liability of \$26 M (ignoring the Third Party Management and Contingencies). A similar argument could be raised about the operating and temporary mine faces would not be rehabilitated until the end of the mine life. Around \$1.4 M are estimated for the rehabilitation of the current operating face and southern overburden batter face, which will not be rehabilitated for many years to come, in a longer term mine development.

If it is assumed that the rehabilitation of these long term assets and the final rehabilitation of the mine are unlikely for many years to come, is it sensible to carry a Bond for so many years ahead ?

#### 3.2 Alternative Solutions to the Bond

Alternative methods of bond calculation might be considered that focus on achieving rehabilitation activities in the short term and bonding these distant rehabilitation



requirements may not be necessary until much closer to the closing down of the mine. A number of options have been considered:

**Current Situation:** - the Bond calculator reviews the whole of life mine Work Plan, estimates all future rehabilitation issues, values the cost of the works and accumulates the cost regardless of the predicted time of expenditure. This option allows for the mine to close at any time.

**Alternative 1 – Look-Ahead Window:** Assumes that the mine will be required to continue operation for a considerable period. A rehabilitation plan would be prepared for a 5 to 10 year look-ahead window to identify items that will require rehabilitation within the window period. The bond amount would be based on these items. Items which require rehabilitation beyond the window period would not be considered in the bond calculation. As the mine continued to develop and these items fall within the 5 to 10 year window period, then they would be considered in the bond calculation.

**Alternative 2 – Net Present Value:** Also assumes that the mine will be required to continue operation for a considerable period. A rehabilitation plan would be prepared for the whole of life Work Plan. The rehabilitation bond would be calculated using Net Present Value to discount the items that would be rehabilitated in the longer term. This alternative considers all items requiring rehabilitation and this would result to increase the bond value for the items as they draw closer. This option has the advantage over Alternative 1 and 2 that all the rehabilitation requirements are identified although the cost value within the Bond is time related.

**Alternative 3 – Sinking Fund:** It is possible to use a sinking fund to manage money put aside for rehabilitation purposes. The amount of money could be contributed on a linear basis or on a net present value basis so that the full rehabilitation plan could be achieved. If coal was sold to other users a levy could be applied. This might be a suitable arrangement for coal users on the Loy Yang Bench. The mine could draw money for successful completion of rehabilitation works encouraging action. It is understood this option has been tried in Victoria and due to the complications of the system and the “banking” responsibilities was replaced by the current system. Even so it seems to have some advantages and potentially the “banking” responsibilities could be arranged by companies.

### 3.3 Other Considerations in the Bond Calculator

Most of the rates included in the Bond Calculator do not seem unreasonable. However there are a number of items that may be considered differently.

**Third Party Project Management and Contingencies** - GHD is concerned at the large amount of money allocated to Third Party Project Management and Contingencies. The allowance is comprised 5% for ongoing monitoring, 10% for project management and 10% for contingency and maybe reasonable for smaller mines, where the total cost of rehabilitation is small and a high percentage is required to cover the project management requirement. However the allowance is very high for the Latrobe Valley coal mines given that the rehabilitation liability estimate is high. It seems unreasonable that \$6 or 7M would be required to project manage the works



necessary to rehabilitate these mines if the operator walks away. For these large mines an allowance closer to 5% for project management and 5% for contingencies may be more realistic. For other mines a step change in the applied rate, or perhaps a sliding scale, could be used based on the estimated rehabilitation costs. Alternatively project management costs could be estimated from the size of the project team required and the period over which the team would be required to complete the rehabilitation works.

**Removal of Plant and Conveyors** – Most of the plant and conveyor items will have a resale or scrap value. Removal of some of these items could be at lower cost than the allowance in the bond calculator. If this can be demonstrated, a reduced cost for these items could be considered.

**Mine Buildings** – Many of the main buildings associated with the mine could be put to other use should the mine close, i.e. an industrial park. If this can be demonstrated, costs for the removal of these buildings could be excluded.



Appendix A

## Rehabilitation Liability Calculation 1997

Loy Yang Mine 1997



## Summary Report of Rehabilitation Liability Calculation

|                            |  |   |  |
|----------------------------|--|---|--|
| <b>Site Name:</b>          | <input style="width: 95%;" type="text" value="Loy Yang Power"/>  |   |  |
| <b>Tenement number(s):</b> | <input style="width: 95%;" type="text" value="MIN5189"/>   |   |  |
| <b>Site Owner:</b>         | <input style="width: 95%;" type="text" value="Great Energy Alliance Corporation (GEAC)"/>                          |   |  |
| <b>Site Operator:</b>      | <input style="width: 95%;" type="text" value="Loy Yang Power"/>  |   |  |
| <b>Current Bond:</b>       | <input style="width: 15%;" type="text" value="\$"/> <input style="width: 30%;" type="text" value="15,000,000.00"/> | <b>Date of Last Rehabilitation Bond Review:</b>                               | <input style="width: 25%;" type="text" value="35556"/> |
| <b>Site Contact:</b>       | <input style="width: 45%;" type="text" value="Michael Laird"/>   | <input style="width: 45%;" type="text" value="Jon Missen"/>                   |  |
| <b>Position:</b>           | <input style="width: 45%;" type="text" value="General Manager Mine"/>  | <input style="width: 45%;" type="text" value="Environment and Land Manager"/> |  |
| <b>Address:</b>            | <input style="width: 95%;" type="text" value="Loy Yang Power"/>  |   |  |
|                            | <input style="width: 95%;" type="text" value="PO Box 1799"/>   |   |  |
|                            | <input style="width: 95%;" type="text" value="Traralgon VIC 3844"/>  |   |  |
| <b>Phone:</b>              | <input style="width: 30%;" type="text"/>   | <b>email:</b>   | <input style="width: 60%;" type="text"/>               |

| Domain   | Rehabilitation Liability |
|--|--------------------------|
| Domain 1: Infrastructure Areas                             | \$18,075,990.00          |
| Domain 2: Tailings & Coarse Rejects Storage Facilities (1) | \$0.00                   |
| Domain 2: Tailings & Coarse Rejects Storage Facilities (2) | \$0.00                   |
| Domain 2: Tailings & Coarse Rejects Storage Facilities (3) | \$0.00                   |
| Domain 3: Overburden & Waste Dumps                         | \$3,158,125.00           |
| Domain 4: Pits (1)   | \$2,336,775.00           |
| Domain 4: Pits (2)   | \$0.00                   |
| Domain 4: Pits (3)   | \$0.00                   |
| Domain 5: Other Management Issues                          | \$827,000.00             |
|  |                          |
| <b>Sub-Total</b>   | <b>\$24,397,890.00</b>   |
| Third Party Project Management & Contingencies             | \$6,099,472.50           |
| <b>Total Rehabilitation Liability for the Operation</b>    | <b>\$30,497,362.50</b>   |

This rehabilitation liability calculation has estimated using the best available information at the time it is a true and accurate reflection of the total rehabilitation bond required to be lodged by this mine

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**Site Manager**

-----  
**Date:**

**Open Cut Coal Mine Operations:**

**Domain 1: Infrastructure Areas**

Detail of person filling out the Worksheet:

|            |                             |
|------------|-----------------------------|
| Name       | Nicole Anderson             |
| Position   | GHD-Environmental Scientist |
| Department | Civil and Environment       |
| Date       | 6/02/08                     |

Legend:

|  |   |
|--|---|
|  | Item fixed no entry required                        |
|  | Input from site optional (if information available) |
|  | Input mandatory (where applicable)                  |
|  | Default Rate where an alternative is not provided   |

| Management Precinct  | Activity / Description  | Applicable (Y or N) | Quantity | Unit           | Default Unit Rate | Alternative Unit Rate | Total Cost            | Additional Info.   | Description / Notes:   |
|--|---|---------------------|----------|----------------|-------------------|-----------------------|-----------------------|--|--|
| Coal Handling and Preparation Plant (CHPP)   | Disconnect and terminate services   | Y                   | 1        | item           | \$5,000.00        |                       | \$5,000.00            |  | This item includes disconnecting and terminating all services such as power, water and sewer. It is a "one off" cost for the administration area.  |
|  | Demolish and remove small buildings / tanks   | Y                   | 1440     | m <sup>2</sup> | \$70.00           |                       | \$100,800.00          |  | Enter the total area of small buildings and offices in the admin area. It should not include demountables which can be removed from site. It does not include workshops.   |
|  | Demolish and remove industrial buildings such as workshops and large sheds  |                     |          | m <sup>2</sup> | \$160.00          |                       |                       |  | Enter the total area of workshop facilities in the admin area.   |
|  | Remove Bitumen sealed areas (car park, etc). Includes disposal of waste bitumen material off site at an appropriate landfill facility.  |                     |          | m <sup>2</sup> | \$12.00           |                       |                       | Include all roads, carparks and hardstand in "Access and Haul Roads"   | Enter the total area of any bitumen car parks (or similar).  |
|  | Remove Concrete pads & footings (< 300mm thickness).  |                     |          | m <sup>2</sup> | \$10.00           |                       |                       |  | Enter the total area the workshops and buildings where concrete footings are estimated to be <300mm thick.   |
|  | Remove Concrete pads, footings and foundations (> 300mm thickness)  |                     |          | m <sup>2</sup> | \$30.00           |                       |                       |  | Enter the total area the workshops and buildings where concrete footings are estimated to be >300mm thick.   |
|  | Remove carbonaceous material (spillage or otherwise) from footprint of the Coal Handling Preparation Plant (CHPP), Run of Mine (ROM) & Product stockpiles.                            |                     |          | m <sup>3</sup> | Select from List  |                       |                       |  | Enter the total volume (ie. area x depth of material) to be scalped off for disposal.  |
| <b>Precinct Rehabilitation Liability</b>   |   |                     |          |                |                   |                       | <b>\$105,800.00</b>   |  |  |
| Main Work Shop and Stores Area (Heavy Industrial Area).  | Disconnect and terminate services   | Y                   | 1        | item           | \$5,000.00        |                       | \$5,000.00            |  | This item includes disconnecting and terminating all services such as power, water and sewer. It is a "one off" cost for the area.   |
|  | Demolish and remove small buildings / tanks   | Y                   | 200      | m <sup>2</sup> | \$70.00           |                       | \$14,000.00           |  | Enter the total area of small buildings and offices in the admin area. It should not include demountables which can be removed from site. It does not include workshops.   |
|  | Demolish and remove industrial buildings such as workshops and large sheds  | Y                   | 5550     | m <sup>2</sup> | \$160.00          |                       | \$888,000.00          |  | Enter the total area of workshop facilities in the admin area.   |
|  | Remove Bitumen sealed areas (car park, etc). Includes disposal of waste bitumen material off site at an appropriate landfill facility.  | Y                   | 0        | m <sup>2</sup> | \$12.00           |                       | \$0.00                | Include all roads, carparks and hardstand in "Access and Haul Roads"   | Enter the total area of any bitumen car parks (or similar).  |
|  | Remove Concrete pads & footings (< 300mm thickness).  | Y                   | 105000   | m <sup>2</sup> | \$10.00           |                       | \$1,050,000.00        | Includes concrete pads and footings for conveyors  | Enter the total area the workshops and buildings where concrete footings are estimated to be <300mm thick. The broken up concrete will be buried in the pit.   |
|  | Remove Concrete pads, footings and foundations (> 300mm thickness)  | Y                   | 46000    | m <sup>2</sup> | \$30.00           |                       | \$1,380,000.00        |  | Enter the total area the workshops and buildings where concrete footings are estimated to be >300mm thick. The broken up concrete will be buried in the pit.   |
|  | Demolish / relocate FIXED process infrastructure (ie. crushers, screening plants, pug mills and wet mix plants)   | N                   |          | m <sup>2</sup> | \$160.00          |                       |                       |  | This includes the cost to dismantle the crusher and relocate from the site.  |
|  | Remove all mobile plant and equipment from the site   |                     |          | @              | \$2,000.00        |                       |                       |  | This item includes removing all mobile plant and equipment from the site.  |
|  | Removal of general rubbish from the site to a licensed landfill facility  | Y                   | 1        | @              | \$650.00          |                       | \$650.00              |  | This rate includes the hire/lease and service charges for a 10m <sup>3</sup> skip bin for a period of 5 weeks as well as removal of the bin to the nearest licensed landfill area.   |
|  | Demolish and remove overland conveyors, transfer stations & gantries (scrapping only - does not include dismantling for re-use at another site).                                      | Y                   | 15675    | m              | \$100.00          |                       | \$1,567,500.00        |  | Enter the sum of the total length of overland conveyor and gantries.   |
|  | Demolish and remove overhead conveyors, transfer stations & gantries (scrapping only - does not include dismantling for re-use at another site)                                       | Y                   | 5880     | m              | \$250.00          |                       | \$1,470,000.00        |  | Enter the sum of the total length of overhead conveyor and gantries.   |
| Demolish thickener tanks or flocc tanks (variable rate for small, medium and large structures).  | N   |                     | @        | N              |                   |                       |                       | This includes removing all thickener or flocc tanks from the site including an associated pipework and pumps, etc. |  |
| <b>Precinct Rehabilitation Liability</b>   |   |                     |          |                |                   |                       | <b>\$6,375,150.00</b> |  |  |
| Removal and disposal of contaminated materials (for further information see Classification of Wastes. Pub 448.3, May 2007. Environment Protection Authority, Victoria) | Has a Contaminated Site Assessment been undertaken for the site? If not this item applies   |                     |          | item           | \$3,500.00        |                       |                       |  | Assessment required where it has been identified that there is significant potential of contaminated land.   |
|  | Removal and disposal of oil contaminated water from bunded areas and sumps.   | Y                   | 5000     | Lt             | \$0.25            |                       | \$1,250.00            |  | This includes the removal of contaminated water from bunded areas and sump using a vacuum truck and disposing of the water to a licensed facility. Need to add \$2.50 /km for out of metro areas.  |
|  | Load, cart and dispose of low-level contaminated soil off site to a licensed landfill. Assumes cartage to a local landfill. Add \$50/m <sup>3</sup> for cartage to regional landfill. | N                   |          | m <sup>3</sup> | \$390.00          |                       |                       |  | Allows for disposal fee of \$100 per tonne and cartage of \$30/tonne (assume local landfill).  |
|  | Load, cart and dispose of low-level contaminated soil off site to a licensed landfill. Assumes cartage to a local landfill. Add \$50/m <sup>3</sup> for cartage to regional landfill. | N                   |          | m <sup>3</sup> | \$390.00          |                       |                       |  | Allows for disposal fee of \$200 per tonne and cartage of \$50/tonne.  |
|  | Onsite remediation of hydrocarbon contaminated soils  | Y                   | 500      | m <sup>3</sup> | \$30.00           |                       | \$15,000.00           | > 500m <sup>3</sup>  | Where an assessment has been made to confirm that bioremediation is possible the total volume of material can be included for onsite land farming.   |
|  | Removal of underground fuel storage tank (UST) up to 5,000L capacity (include all site facilities and is to include pipes, bunds, etc)  |                     |          | @              | \$21,000.00       |                       |                       |  | Includes removal and disposal of tank; taking of validation samples and analysis; removal and off site landfill disposal of all back fill sand only. Assumes 30 tonnes of low level and 30 tonnes of high level contaminated back fill with rates to cart and dispose of \$130 and \$230 respectively.   |
|  | Removal of underground fuel storage tank (UST) above 5,000L and below 15,000L capacity (include all site facilities and is to include pipes, bunds, etc)                              | Y                   | 5        | @              | \$48,000.00       |                       | \$240,000.00          |  | Includes removal and disposal of tank; taking of validation samples and analysis; removal and off site landfill disposal of all back fill sand only. Assumes 100 tonnes of low level and 100 tonnes of high level contaminated back fill with rates to cart and dispose of \$130 and \$230 respectively. |
| <b>Precinct Rehabilitation Liability</b>   |   |                     |          |                |                   |                       | <b>\$256,250.00</b>   |  |  |



| Management Precinct  | Activity / Description   | Applicable (Y or N) | Quantity | Unit           | Default Unit Rate | Alternative Unit Rate | Total Cost             | Additional Info.   | Description / Notes:  |
|--|--|---------------------|----------|----------------|-------------------|-----------------------|------------------------|--|---|
| Administration Offices/Buildings                                       | Disconnect and terminate services  |                     | 1        | item           | \$5,000.00        |                       |                        |  | This item includes disconnecting and terminating all services such as power, water and sewer. It is a "one off" cost for the administration area.   |
|  | Demolish and remove small buildings / tanks  |                     |          | m <sup>2</sup> | \$70.00           |                       |                        |  | Enter the total area of small buildings and offices in the admin area. It should not include demountables which can be removed from site. It does not include workshops.  |
|  | Demolish and remove industrial buildings such as workshops and large sheds   |                     |          | m <sup>2</sup> | \$160.00          |                       |                        | Included in workshop buildings                                       | Enter the total area of workshop facilities in the admin area.  |
|  | Remove Bitumen sealed areas (car park, etc). Includes disposal of waste bitumen material off site at an appropriate landfill facility. |                     |          | m <sup>2</sup> | \$12.00           |                       |                        | Include all roads, carparks and hardstand in "Access and Haul Roads" | Enter the total area of any bitumen car parks (or similar).   |
|  | Remove Concrete pads & footings (< 300mm thickness).   |                     |          | m <sup>2</sup> | \$10.00           |                       |                        |  | Enter the total area the workshops and buildings where concrete footings are estimated to be <300mm thick.  |
|  | Remove Concrete pads, footings and foundations (> 300mm thickness)   |                     |          | m <sup>2</sup> | \$30.00           |                       |                        |  | Enter the total area the workshops and buildings where concrete footings are estimated to be >300mm thick.  |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       | <b>\$0.00</b>          |  |   |
| Sewerage / Water Treatment Plant                                       | Disconnect and terminate services  |                     | 1        | item           | \$5,000.00        |                       |                        |  | This item includes disconnecting and terminating all services such as power, water and sewer. It is a "one off" cost for the administration area.   |
|  | Demolish and remove small buildings / tanks  |                     |          | m <sup>2</sup> | \$70.00           |                       |                        |  | Enter the total area of small buildings and tanks.  |
|  | Load, cart and dispose of contaminated soil (ie. chemical spillage in / around storage sheds) off site to a licensed landfill          | N                   |          | m <sup>3</sup> | \$675.00          |                       |                        |  | Allows for disposal fee of \$200 per tonne and cartage of \$50/tonne.   |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       | <b>\$0.00</b>          |  |   |
| Access & Haul Roads  | Remove carbonaceous material from roadways (coal / rejects spillage)   |                     |          | m <sup>3</sup> | Select from List  |                       |                        |  | Enter the total volume (ie. area x depth of material) to be scalped off for burial in the pit.  |
|  | Remove Bitumen sealed areas (car park, etc). Includes disposal of waste bitumen material off site at an appropriate landfill facility. | Y                   | 164120   | m <sup>2</sup> | \$12.00           |                       | \$1,969,440.00         |  | Enter the total area of any bitumen car parks (or similar).   |
|  | Reshape, deep rip and ameliorate sealed unsealed roads   | Y                   | 80.9     | Ha             | \$2,500.00        |                       | \$202,250.00           |  | Enter the total area of the road footprint requiring reshaping and deep ripping.  |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       | <b>\$2,171,690.00</b>  |  |   |
| Landscaping, minor earthworks and revegetation throughout domain area. | Shaping or levelling of minor excavations, batters and stockpiles, final trim, rock rake and deep rip                                  | Y                   | 84       | Ha             | \$1,100.00        |                       | \$92,400.00            |  | This item includes the area requiring minor reshaping, rock raking and deep ripping to enhance revegetation program. It will generally include doing minor reshaping works to tidy up the site.   |
|  | Structural water management works, banks, drains, rock lined waterways, sediment dams  | Y                   | 84       | Ha             | \$1,400.00        |                       | \$117,600.00           |  | This item includes the catchment area requiring earthworks (banks, & drains, etc) to manage all surface water within the disturbance footprint. This rate is based on an average per hectare cost to install all required soil conservation earthworks.   |
|  | Rip hardstand areas  | N                   |          | Ha             | \$500.00          |                       |                        | Include all roads, carparks and hardstand in "Access and Haul Roads" | Includes any areas of compacted ground such as around and beneath plant and buildings   |
|  | Maintenance of the rehabilitated areas that are intended to be part of the ongoing closure of the site.                                | Y                   | 84       | Ha             | \$650.00          |                       | \$54,600.00            |  | This item includes the ongoing maintenance of the rehabilitation (ie. repairing banks/drains and application of fertiliser. It assumes application twice during the first five (5) years after establishment.   |
|  | Construct a standard stock fence around the site   |                     |          | m              | \$8.50            |                       |                        |  | This item include the construction of a standard stock fence around the site to prevent stock and unauthorized person entering the site while it is being rehabilitated.  |
|  | Source, cart, spread and rip topsoil   | Y                   | 84000    | m <sup>3</sup> | \$3.40            |                       | \$285,600.00           | haul distance > 5km  | This includes sourcing, carting and spreading of a suitable volume of topsoil to cover the entire disturbance footprint.  |
|  | Soil amelioration (adding gypsum, lime, etc)   | Y                   | 84       | Ha             | \$500.00          |                       | \$42,000.00            |  | This includes adding a soil ameliorant prior to preparation of seed bed for rehabilitation or assist stabilising dispersive soils (eg lime or gypsum).  |
|  | Direct seeding (native tree species OR using native grasses)   | Y                   | 5        | Ha             | \$2,000.00        |                       | \$10,000.00            |  | This rate includes acquiring a diverse mix of native tree & shrub species appropriate for the area (including understorey), mixing and treating the seed (ie smoke and heat) and applying the seed by hand at a rate between 4 - 10kg/ha (as applicable). This rate also includes undertaken soil sampling ahead of the rehabilitation program. |
|  | Direct seeding (pasture grass species)   | Y                   | 84       | Ha             | \$800.00          |                       | \$67,200.00            |  | This includes direct seeding of non native pasture grass species with the principal aim of return the land to a stable, sustainable grazing land use. It is different to using pasture grasses in for temporary erosion and sediment control. This rate also includes undertaking soil sampling ahead of the rehabilitation program.            |
|  | Single application of fertiliser (trees)   | Y                   | 5        | Ha             | \$140.00          |                       | \$700.00               |  | This item includes a single application of fertiliser during the initial seeding program.   |
|  | Single application of fertiliser (pasture)   | Y                   | 84       | Ha             | \$300.00          |                       | \$25,200.00            |  | This item includes a single application of fertiliser during the initial seeding program.   |
|  | Planting tubestock (< 15cm)  | Y                   | 1000     | @              | \$5.00            |                       | \$5,000.00             |  | This includes the seedling, fertiliser tablet, weed mat and guard - small tubestock.  |
|  | Hydro-seeding with straw mulching and bitumen tack.  |                     |          | m <sup>2</sup> | \$0.95            |                       |                        |  | This item has been included to capture the cost of any hydro seeding that may be required on the site.  |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       | <b>\$700,300.00</b>    |  |   |
| Water Dams   | Clean water dams to be retained after mine closure - make safe and minor earthworks to stabilise the water management structure.       |                     |          | @              | \$2,000.00        |                       |                        |  | This item includes making the dam spillway, and walls stable to ensure the integrity of the dam walls so they can remain after the closure of the project.  |
|  | OR Backfill and reinstate dam to natural surface.  |                     |          | m <sup>3</sup> | Select from List  |                       |                        |  | Dam to be backfilled (ie. reinstate the dam to be consistent with the natural surface). Some minor earthworks may be required.  |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       | <b>\$0.00</b>          |  |   |
| Other  | Demolish and remove Bucket wheel excavators/Stackers   |                     | 6        | item           | \$50,000.00       |                       | \$300,000.00           |  | This item includes <<to be added by the operator>>  |
|  | Demolish and remove Bunker drive tower   |                     | 1        | item           | \$1,790,000.00    |                       | \$1,790,000.00         |  |   |
|  | Raw Coal Bunker  |                     | 1        | item           | \$4,100,000.00    |                       | \$4,100,000.00         |  |   |
|  | Crusher house  |                     | 1        | item           | \$1,790,000.00    |                       | \$1,790,000.00         |  |   |
|  | Remove pipe work   |                     | 40000    | m              | \$5.00            |                       | \$200,000.00           |  |   |
|  | Fire Service Reservoir   |                     | 1        | item           | \$286,800.00      |                       | \$286,800.00           |  | This item includes <<to be added by the operator>>  |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       | <b>\$8,466,800.00</b>  |  |   |
| <b>Total Rehabilitation Liability for the "Domain"</b>                 |  |                     |          |                |                   |                       | <b>\$18,075,990.00</b> |  |   |

**Open Cut Coal Mine Operations:**

**Domain 3: Overburden & Waste Dumps**

Detail of person filling out the Worksheet:

|            |                             |
|------------|-----------------------------|
| Name       | Nicole Anderson             |
| Position   | GHD Environmental Scientist |
| Department | Civil and Environment       |
| Date       | 6/02/08                     |

Legend:

|  |   |
|--|---|
|  | Item fixed no entry required                        |
|  | Input from site optional (if information available) |
|  | Input mandatory                                     |
|  | Default Rate where an alternative is not provided   |

| Management Precinct  | Activity / Description   | Applicable (Y or N) | Quantity | Unit           | Default Unit Rate | Alternative Unit Rate | Total Cost            | Additional Info. | Description / Notes:  |
|--|--|---------------------|----------|----------------|-------------------|-----------------------|-----------------------|------------------|---|
| Unshaped Waste Rock Dumps<br><i>(minor reshaping required)</i>         | Minor pushing, final trim, rock rake & deep rip (minor shaping and landscaping)  | N                   |          | Ha             | \$1,100.00        | \$1,200.00            |                       |                  | This item includes the <b>area</b> requiring minor reshaping, rock raking and deep ripping to enhance revegetation program.   |
|  | Source local material, cart and spread suitable material to cap the waste rock dump (cap thickness determined by approval/licence) | N                   |          | m <sup>3</sup> | Select from List  |                       |                       |                  | This includes sourcing, carting and spreading of a suitable <b>volume</b> material to cap the waste rock dump. The material must have appropriate chemical & physical properties.   |
|  |  |                     |          |                |                   |                       | <b>\$0.00</b>         |                  |   |
| Unshaped Waste Rock Dumps<br><i>(major reshaping required)</i>         | Major bulk pushing to achieve grades nominated in the approval/permit (i.e. < 18o)   | N                   |          | m <sup>2</sup> | \$1.30            | \$1.00                |                       |                  | This item includes the <b>volume</b> requiring major reshaping, rock raking and deep ripping (only as required) to enhance revegetation program. The rate increases the longer the push length due to losses in dozer productivity.   |
|  | Source local material, cart and spread suitable material to cap the waste rock dump (cap thickness determined by approval/licence) | N                   |          | m <sup>3</sup> | Select from List  | \$3.00                |                       |                  | This includes sourcing, carting and spreading of a suitable <b>volume</b> material to cap the waste rock dump. The material must have appropriate chemical & physical properties.   |
|  |  |                     |          |                |                   |                       | <b>\$0.00</b>         |                  |   |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       |                       |                  |   |
|  |  |                     |          |                |                   |                       | <b>\$0.00</b>         |                  |   |
| Landscaping, minor earthworks and revegetation throughout domain area. | Shaping or leveling of minor excavations, batters and stockpiles, final trim, rock rake and deep rip                               | Y                   | 407.5    | Ha             | \$1,100.00        |                       | \$448,250.00          |                  | This item includes the <b>area</b> requiring minor reshaping, rock raking and deep ripping to enhance revegetation program. It will generally include doing minor reshaping works to tidy up the site.  |
|  | Structural water management works, banks, drains, rock lined waterways, sediment dams  | Y                   | 407.5    | Ha             | \$1,400.00        |                       | \$570,500.00          |                  | This item includes the catchment area requiring earthworks (banks, & drains, etc) to manage all surface water within the disturbance footprint. This rate is based on an average per hectare cost to install all required soil conservation earthworks.   |
|  | Reshape, deep rip and ameliorate sealed/unsealed roads   |                     |          | Ha             | \$2,500.00        |                       |                       |                  | Enter the total <b>area</b> of the road footprint requiring reshaping and deep ripping.<br><b>Include all roads, carparks and hardstand in "Access and Haul Roads"</b>  |
|  | Maintenance of the rehabilitated areas that are intended to be part of the ongoing closure of the site.                            | Y                   | 407.5    | Ha             | \$650.00          |                       | \$264,875.00          |                  | This item includes the ongoing maintenance of the rehabilitation (ie. repairing banks/drains and application of fertiliser. It assumes application twice during the first five (5) years after establishment.   |
|  | Construct a standard stock fence around the site   |                     |          | m              | \$8.50            |                       |                       |                  | This item include the construction of a standard stock fence around the site to prevent stock and unauthorized person entering the site while it is being rehabilitated.  |
|  | Source, cart, spread and rip topsoil   | Y                   | 407500   | m <sup>3</sup> | Select from List  | \$3.00                | \$1,222,500.00        |                  | This includes sourcing, carting and spreading of a suitable <b>volume</b> of topsoil to cover the entire disturbance footprint.   |
|  | Soil amelioration (adding gypsum, lime, etc)   | Y                   | 407.5    | Ha             | \$500.00          |                       | \$203,750.00          |                  | This includes adding a soil ameliorant prior to preparation of seed bed for rehabilitation or assist stabilising dispersive soils (eg lime or gypsum).  |
|  | Direct seeding (native tree species OR using native grasses)   | N                   |          | Ha             | \$2,000.00        | \$300.00              |                       |                  | This rate includes acquiring a diverse mix of native tree & shrub species appropriate for the area (including understorey), mixing and treating the seed (ie smoke and heat) and applying the seed by hand at a rate between 4 - 10kg/ha (as applicable). This rate also includes undertaken soil sampling ahead of the rehabilitation program. |
|  | Direct seeding (pasture grass species)   | Y                   | 407.5    | Ha             | \$800.00          |                       | \$326,000.00          |                  | This includes direct seeding of non native pasture grass species with the principal aim of return the land to a stable, sustainable grazing land use. It is different to using pasture grasses in for temporary erosion and sediment control. This rate also includes undertaking soil sampling ahead of the rehabilitation program.            |
|  | Single application of fertiliser (trees)   | N                   |          | Ha             | \$140.00          |                       |                       |                  | This item includes a single application of fertiliser during the initial seeding program.   |
|  | Single application of fertiliser (pasture)   | Y                   | 407.5    | Ha             | \$300.00          |                       | \$122,250.00          |                  | This item includes a single application of fertiliser during the initial seeding program.   |
|  | Planting tubestock (< 15cm)  | Y                   |          | @              | \$5.00            |                       | \$0.00                |                  | This includes the seedling, fertiliser tablet, weed mat and guard - small tubestock.  |
|  | Hydro-seeding with straw mulching and bitumen tack.  | N                   |          | m <sup>2</sup> | \$0.95            | \$0.03                |                       |                  | This item has been included to capture the cost of any hydro seeding that may be required on the site.  |
|  |  |                     |          |                |                   |                       | <b>\$3,158,125.00</b> |                  |   |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       |                       |                  |   |
| Water Dams   | Clean water dams to be retained after mine closure - make safe and minor earthworks to stabilise the water management structure.   |                     |          | @              | \$2,000.00        |                       |                       |                  | This item includes making the dam spillway, and walls stable to ensure the integrity of the dam walls so they can remain after the closure of the project.  |
|  | OR Backfill and reinstate dam to natural surface.  |                     |          | m <sup>3</sup> | Select from List  |                       |                       |                  | Dam to be backfilled (ie. reinstate the dam to be consistent with the natural surface). Some minor earthworks may be required.  |
|  |  |                     |          |                |                   |                       | <b>\$0.00</b>         |                  |   |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       |                       |                  |   |
| Other  | Plantation Establishment   |                     |          | Ha             |                   | \$100.00              | \$0.00                |                  | Preparation for plantation establishment  |
|  | Other 2 <insert>   |                     |          |                |                   |                       | \$0.00                |                  | This item includes <to be added by the operator>>   |
|  | Other 3 <insert>   |                     |          |                |                   |                       | \$0.00                |                  | This item includes <to be added by the operator>>   |
|  |  |                     |          |                |                   |                       | <b>\$0.00</b>         |                  |   |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       |                       |                  |   |
|  |  |                     |          |                |                   |                       | <b>\$0.00</b>         |                  |   |

**Total Rehabilitation Liability for the "Domain"**

**\$3,158,125.00**

**Open Cut Coal Mine Operations:**

**Domain 4: Pits (1)**

Detail of person filling out the Worksheet:

|            |  |
|------------|--|
| Name       |  |
| Position   |  |
| Department |  |
| Date       |  |

Legend:

|   |   |
|---|---|
| <span style="background-color: #d9ead3; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> | Item fixed no entry required                        |
| <span style="background-color: #fff2cc; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> | Input from site optional (if information available) |
| <span style="background-color: #d9ead3; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> | Input mandatory                                     |
| <span style="background-color: #f4cccc; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> | Default Rate where an alternative is not provided   |

PIT: Earthwork Details (optional)

| Face | Activity | Height | Length | Quantity (e.g m <sup>3</sup> ) |
|------|----------|--------|--------|--------------------------------|
|      |          |        |        |                                |
|      |          |        |        |                                |
|      |          |        |        |                                |
|      |          |        |        |                                |
|      |          |        |        |                                |
|      |          |        |        |                                |
|      |          |        |        |                                |
|      |          |        |        |                                |
|      |          |        |        |                                |

| Management Precinct  | Activity / Description  | Applicable (Y or N) | Quantity       | Unit           | Default Unit Rate | Alternative Unit Rate | Total Cost            | Additional Info.  | Description / Notes:  |
|--|---|---------------------|----------------|----------------|-------------------|-----------------------|-----------------------|---|---|
| Active Mining Pit or other Voids (including the voids and any internal benches or mine strips) | Drill & Blast faces to make safe.   | N                   |                | m <sup>3</sup> | \$0.70            |                       |                       |   | This item includes the total amount of material in the open cut walls (face) to be blasted to reduce the angle to make it safe.   |
|  | Major bulk pushing (Sand Batter) to achieve grades nominated in the approval/permit (i.e. < 18o)  | N                   |                | m <sup>3</sup> | Select from List  |                       |                       |   | This item includes the volume of material requiring major reshaping using a dozer to make safe an area and enable the establishment of rehabilitation.  |
|  | Major bulk pushing (Clay Batter) to achieve grades nominated in the approval/permit (i.e. < 18o)  | Y                   | 767000         | m <sup>3</sup> | \$1.35            |                       | \$1,035,450.00        | > 50-100m   | This item includes the volume of material requiring major reshaping using a dozer to make safe an area and enable the establishment of rehabilitation.  |
|  | Major bulk pushing (Stiff Clay or Soft Rock with ripping) to achieve grades nominated in the approval/permit (i.e. < 18o)                                 | Y                   |                | m <sup>3</sup> | \$1.70            |                       | \$0.00                | > 50-100m   | This item includes the volume of material requiring major reshaping using a dozer to make safe an area and enable the establishment of rehabilitation. Dozer down above RL50 - 230ha (60m/m = 1.3M m3)  |
|  | Construct safety berm, catch bench and barrier around the pit perimeter (required where final pit will include steep faces).                              | N                   |                | m              | \$57.50           |                       |                       |   | Where steep faces will remain (i.e. greater than 18o) a safety berm and drop bench area required to be constructed around the perimeter of the void to restrict access.   |
|  | Erect a 6' chain mesh security fence around the top face where the final pit will include steep faces   | N                   |                | m              | \$50.00           |                       |                       |   | Where steep faces will remain a 6' chain mesh fence needs to be constructed around the perimeter of the void to restrict access to the site.  |
|  | Backfilling faces and benches as specified in the work plan   |                     |                | m <sup>3</sup> | Select from List  |                       |                       |   | This item includes the volume of material that is to be hauled to backfill against the faces in the final void (where applicable).  |
|  | Engineering treatment to stabilise the faces on the benches (compaction of the backfill)  |                     |                | m <sup>3</sup> | \$1.25            |                       |                       |   | This item includes the volume of material that is to be compacted against the faces in the final void (where applicable).   |
|  | Construction of an access and egress ramp in the voids that will be left post mine closure.   | N                   |                | m <sup>3</sup> | Select from List  |                       |                       |   | This item includes calculating the volume of material will need to be pushed down to create an access and egress ramp into the final void. The rate increases the longer the push length due to losses in dozer productivity.   |
| Construct a standard stock fence around the site   | N   |                     | m              | \$8.50         |                   |                       |                       | This item include the construction of a standard stock fence around the site to prevent stock and unauthorized persons entering the site while it is being rehabilitated. |   |
| <b>Precinct Rehabilitation Liability</b>   |   |                     |                |                |                   |                       | <b>\$1,035,450.00</b> |   |   |
| Water Dams   | Clean water dams (include all structures) to be retained after mine closure - make safe and minor earthworks to stabilise the water management structure. |                     |                | @              | \$2,000.00        |                       |                       |   | This item includes making the dam spillway, and walls stable to ensure the integrity of the dam walls so they can remain after the closure of the project.  |
|  | OR Backfill and reinstated dam to natural surface.  |                     |                | m <sup>3</sup> | Select from List  |                       |                       |   | Dam to be backfilled (ie. reinstated the dam to be consistent with the natural surface). Some minor earthworks may be required.   |
| <b>Precinct Rehabilitation Liability</b>   |   |                     |                |                |                   |                       | <b>\$0.00</b>         |   |   |
| River & Creek Diversions   | Long term maintenance of Creek diversion - Channel constructed through backfilled material  |                     |                | m              | \$330.00          |                       |                       |   | This item includes the length (m) requiring ongoing maintenance of diversions constructed through unconsolidated overburden. This will include earthworks repairs and stabilisation following flow events. It assumes a suitably qualified engineer has designed and signed off on construction of the diversion.                               |
|  | Long term maintenance of Creek diversion - Channel constructed through competent material   |                     |                | m              | \$165.00          |                       |                       |   | This item includes the length (m) requiring ongoing maintenance of diversions constructed through competent ground. This will include earthworks repairs and stabilisation following flow events. It assumes a suitably qualified engineer has designed and signed off on construction of the diversion.  |
|  | Creek diversion - Vegetation maintenance  |                     |                | m <sup>2</sup> | \$0.30            |                       |                       |   | This item includes the ongoing maintenance of vegetation within the diversion channel & batters.  |
| <b>Precinct Rehabilitation Liability</b>   |   |                     |                |                |                   |                       | <b>\$0.00</b>         |   |   |
| Landscaping, minor earthworks and revegetation throughout domain area.                         | Shaping or levelling of minor excavations, batters and stockpiles, final trim, rock rake and deep rip   |                     |                | Ha             | \$1,100.00        |                       |                       |   | This item includes the area requiring minor reshaping, rock raking and deep ripping to enhance revegetation program. It will generally include doing minor reshaping works to tidy up the site.   |
|  | Structural water management works, banks, drains, rock lined waterways, sediment dams   | Y                   | 120.5          | Ha             | \$1,400.00        |                       | \$168,700.00          |   | This item includes the catchment area requiring earthworks (banks, & drains, etc) to manage all surface water within the disturbance footprint. This rate is based on an average per hectare cost to install all required soil conservation earthworks.   |
|  | Reshape, deep rip and ameliorate sealed unsealed roads  |                     |                | Ha             | \$2,500.00        |                       |                       | Include all roads, carparks and hardstand in "Access and Haul Roads"  | Enter the total area of the road footprint requiring reshaping and deep ripping.  |
|  | Maintenance of the rehabilitated areas that are intended to be part of the ongoing closure of the site.   | Y                   | 120.5          | Ha             | \$650.00          |                       | \$78,325.00           |   | This item includes the ongoing maintenance of the rehabilitation (ie. repairing banks/drains and application of fertiliser. It assumes application twice during the first five (5) years after establishment.   |
|  | Construct a standard stock fence around the site  |                     |                | m              | \$8.50            |                       |                       |   | This item include the construction of a standard stock fence around the site to prevent stock and unauthorized person entering the site while it is being rehabilitated.  |
|  | Source, cart, spread and rip topsoil  | Y                   | 120500         | m <sup>3</sup> | Select from List  | \$3.00                | \$361,500.00          |   | This includes sourcing, carting and spreading of a suitable volume of topsoil to cover the entire disturbance footprint.  |
|  | Soil amelioration (adding gypsum, lime, etc)  | Y                   | 120.5          | Ha             | \$500.00          |                       | \$60,250.00           |   | This includes adding a soil ameliorant prior to preparation of seed bed for rehabilitation or assist stabilising dispersive soils (eg lime or gypsum).  |
|  | Direct seeding (native tree species OR using native grasses)  |                     |                | Ha             | \$2,000.00        |                       |                       |   | This rate includes acquiring a diverse mix of native tree & shrub species appropriate for the area (including understorey), mixing and treating the seed (ie smoke and heat) and applying the seed by hand at a rate between 4 - 10kg/ha (as applicable). This rate also includes undertaken soil sampling ahead of the rehabilitation program. |
|  | Direct seeding (pasture grass species)  | Y                   | 120.5          | Ha             | \$800.00          |                       | \$96,400.00           |   | This includes direct seeding of non native pasture grass species with the principal aim of return the land to a stable, sustainable grazing land use. It is different to using pasture grasses in for temporary erosion and sediment control. This rate also includes undertaking soil sampling ahead of the rehabilitation program.            |
|  | Single application of fertiliser (trees)  |                     |                | Ha             | \$140.00          |                       |                       |   | This item includes a single application of fertiliser during the initial seeding program.   |
| Single application of fertiliser (pasture)   | Y   | 120.5               | Ha             | \$300.00       |                   | \$36,150.00           |                       | This item includes a single application of fertiliser during the initial seeding program.   |   |
| Planting tubestock (< 15cm)  |   |                     | @              | \$5.00         |                   |                       |                       | This includes the seeding, fertiliser tablet, weed mat and guard - small tubestock.   |   |
| Hydro-seeding with straw mulching and bitumen tack.  |   |                     | m <sup>2</sup> | \$0.95         |                   |                       |                       | This item has been included to capture the cost of any hydro seeding that may be required on the site.  |   |
| <b>Precinct Rehabilitation Liability</b>   |   |                     |                |                |                   |                       | <b>\$801,325.00</b>   |   |   |
| Other  | Rock Beaching (Wave action Protection)  |                     | 2000           | m              |                   | \$250.00              | \$500,000.00          |   | This item includes <<to be added by the operator>>  |
|  | Other 2 <-insert>   |                     |                |                |                   |                       | \$0.00                |   | This item includes <<to be added by the operator>>  |
|  | Other 3 <-insert>   |                     |                |                |                   |                       | \$0.00                |   | This item includes <<to be added by the operator>>  |
| <b>Precinct Rehabilitation Liability</b>   |   |                     |                |                |                   |                       | <b>\$500,000.00</b>   |   |   |
| <b>Total Rehabilitation Liability for the "Domain"</b>   |   |                     |                |                |                   |                       | <b>\$2,336,775.00</b> |   |   |

**Total Rehabilitation Liability for the "Domain"**

**\$2,336,775.00**

**Open Cut Coal Mine Operations:**

**Domain 5: Other Management Issues**

Detail of person filling out the Worksheet:

|            |  |
|------------|--|
| Name       |  |
| Position   |  |
| Department |  |
| Date       |  |

Legend:

|  |   |
|--|---|
|  | Item fixed no entry required                        |
|  | Input from site optional (if information available) |
|  | Input mandatory                                     |
|  | Default Rate where an alternative is not provided   |

| Management Precinct                      | Activity / Description  | Applicable (Y or N) | Quantity | Unit | Default Unit Rate | Alternative Unit Rate | Total Cost          | Additional Info. | Description / Notes:   |
|--|---|---------------------|----------|------|-------------------|-----------------------|---------------------|------------------|--|
| Other Management Issues                  | The restoration, care and maintenance of items that have historical significance and that are to be retained after the cessation of mining or quarrying |                     |          | item | \$0.00            |                       |                     |                  | This item includes ensuring that sufficient resources are made available to restore items of heritage significance and also provide a budget to enable the ongoing care and maintenance of the structure (if not the responsibility of any another stakeholder i.e. council, historical society) |
|  | Removal of powerlines (this includes disconnection, rolling up the wires and removing the poles). It does not include the removal of substations.       | Y                   | 30       | km   | \$12,000.00       |                       | \$360,000.00        |                  | This rate includes the dismantling and removal of powerlines and poles from the site. It does not include the removal of substations.  |
|  | Fill and cap exploration bores  |                     |          | @    | \$250.00          |                       |                     |                  | This rate includes grouting, capping and sealing all uncapped exploration holes around the site.   |
|  | Pest and Weed Management  |                     |          | @    | \$2,500.00        |                       |                     |                  | This item covers the costs associated with the management of pests and weeds on the site. It includes spraying in in autumn and spring.  |
|  |   |                     |          |      |                   |                       | \$0.00              |                  | Bore Sealing rates (2008)  |
|  | Traralgon Aquifer   |                     | 3        | item |                   | \$29,000.00           | \$87,000.00         |                  |  |
|  | M2C Aquifer   |                     | 10       | item |                   | \$20,000.00           | \$200,000.00        |                  |  |
|  | M2B Aquifer   |                     | 15       | item |                   | \$12,000.00           | \$180,000.00        |                  |  |
|  | Traralgon Aquifer Standpipes  |                     |          | item |                   |                       | \$0.00              |                  |  |
|  | Drainholes  |                     |          | item |                   |                       | \$0.00              |                  |  |
| <b>Precinct Rehabilitation Liability</b> |   |                     |          |      |                   |                       | <b>\$827,000.00</b> |                  |  |

**Total Rehabilitation Liability for the "Domain"      \$827,000.00**

**Open Cut Coal Mine Operations:**

**Third Party Project Management & Contingencies**

Detail of person filling out the Worksheet:

|            |  |
|------------|--|
| Name       |  |
| Position   |  |
| Department |  |
| Date       |  |

Legend:

|  |   |
|--|---|
|  | Item fixed no entry required                        |
|  | Input from site optional (if information available) |
|  | Input mandatory                                     |
|  | Default Rate where an alternative is not provided   |

**Sub Total of all Domain Areas** **\$24,397,890.00**

| Item                                     | Activity / Description   | Applicable (Y or N) | Quantity | Unit | Default Unit Rate                     | Alternative Unit Rate | Total Cost            | Additional Info.   | Description / Notes:  |
|--|--|---------------------|----------|------|---------------------------------------|-----------------------|-----------------------|--|---|
| Sundry Items                             | Mobilisation & Demobilisation (third party contractor rates apply).  | Y                   | 1        | %    | Select from List                      |                       |                       | Select Distance  | This is to cover the cost of the "third party" contractor bringing equipment to the site to undertake the rehabilitation works. It needs to reflect the true costs of getting the equipment to and from the site. |
|  | Post closure environmental monitoring requirements   | Y                   | 5%       | %    | This has deliberately been left blank |                       | \$1,219,894.50        |  | This item is to cover any monitoring and measurement requirements that may be needed following the closure of the project.  |
|  | Project Management & Surveying (this includes preparing any documentation and well as engineering and design changes that may be needed during closure). | Y                   | 10%      | %    |                                       | \$2,439,789.00        |                       | This is to cover any Project Management or Surveying costs that may be required during the closure of the mine. It also covers the preparation of tender documents and any cost for engineering and re-design that may be required during the closure of the mine. |   |
|  | Contingency  | Y                   | 10%      | %    |                                       | \$2,439,789.00        |                       |  |   |
| <b>Precinct Rehabilitation Liability</b> |  |                     |          |      |                                       |                       | <b>\$6,099,472.50</b> |  |   |

**Total Rehabilitation Liability for "Management & Contingencies"** **\$6,099,472.50**



Appendix B

## Rehabilitation Liability Calculation 2008

Loy Yang Mine 2008



## Summary Report of Rehabilitation Liability Calculation

|                            |  |   |  |
|----------------------------|--|---|--|
| <b>Site Name:</b>          | <input style="width: 95%;" type="text" value="Loy Yang Power"/>  |   |  |
| <b>Tenement number(s):</b> | <input style="width: 95%;" type="text" value="MIN5189"/>   |   |  |
| <b>Site Owner:</b>         | <input style="width: 95%;" type="text" value="Great Energy Alliance Corporation (GEAC)"/>                          |   |  |
| <b>Site Operator:</b>      | <input style="width: 95%;" type="text" value="Loy Yang Power"/>  |   |  |
| <b>Current Bond:</b>       | <input style="width: 15%;" type="text" value="\$"/> <input style="width: 30%;" type="text" value="15,000,000.00"/> | <b>Date of Last Rehabilitation Bond Review:</b>                               | <input style="width: 25%;" type="text" value="35556"/> |
| <b>Site Contact:</b>       | <input style="width: 45%;" type="text" value="Michael Laird"/>   | <input style="width: 45%;" type="text" value="Jon Missen"/>                   |  |
| <b>Position:</b>           | <input style="width: 45%;" type="text" value="General Manager Mine"/>  | <input style="width: 45%;" type="text" value="Environment and Land Manager"/> |  |
| <b>Address:</b>            | <input style="width: 95%;" type="text" value="Loy Yang Power"/>  |   |  |
|                            | <input style="width: 95%;" type="text" value="PO Box 1799"/>   |   |  |
|                            | <input style="width: 95%;" type="text" value="Traralgon VIC 3844"/>  |   |  |
| <b>Phone:</b>              | <input style="width: 30%;" type="text"/>   | <b>email:</b>   | <input style="width: 60%;" type="text"/>               |

| Domain   | Rehabilitation Liability |
|--|--------------------------|
| Domain 1: Infrastructure Areas                             | \$19,069,240.00          |
| Domain 2: Tailings & Coarse Rejects Storage Facilities (1) | \$0.00                   |
| Domain 2: Tailings & Coarse Rejects Storage Facilities (2) | \$0.00                   |
| Domain 2: Tailings & Coarse Rejects Storage Facilities (3) | \$0.00                   |
| Domain 3: Overburden & Waste Dumps                         | \$2,993,050.00           |
| Domain 4: Pits (1)   | \$4,478,070.00           |
| Domain 4: Pits (2)   | \$0.00                   |
| Domain 4: Pits (3)   | \$0.00                   |
| Domain 5: Other Management Issues                          | \$1,014,000.00           |
|  |                          |
| <b>Sub-Total</b>   | <b>\$27,554,360.00</b>   |
| Third Party Project Management & Contingencies             | \$6,888,590.00           |
| <b>Total Rehabilitation Liability for the Operation</b>    | <b>\$34,442,950.00</b>   |

This rehabilitation liability calculation has estimated using the best available information at the time it is a true and accurate reflection of the total rehabilitation bond required to be lodged by this mine

-----  
**Site Manager**

-----  
**Date:**

**Open Cut Coal Mine Operations:**

**Domain 1: Infrastructure Areas**

Detail of person filling out the Worksheet:

|            |                             |
|------------|-----------------------------|
| Name       | Nicole Anderson             |
| Position   | GHD-Environmental Scientist |
| Department | Civil and Environment       |
| Date       | 6/02/08                     |

Legend:

|  |   |
|--|---|
|  | Item fixed no entry required                        |
|  | Input from site optional (if information available) |
|  | Input mandatory (where applicable)                  |
|  | Default Rate where an alternative is not provided   |

| Management Precinct  | Activity / Description  | Applicable (Y or N) | Quantity | Unit           | Default Unit Rate | Alternative Unit Rate | Total Cost            | Additional Info.   | Description / Notes:   |
|--|---|---------------------|----------|----------------|-------------------|-----------------------|-----------------------|--|--|
| Coal Handling and Preparation Plant (CHPP)   | Disconnect and terminate services   | Y                   | 1        | item           | \$5,000.00        |                       | \$5,000.00            |  | This item includes disconnecting and terminating all services such as power, water and sewer. It is a "one off" cost for the administration area.  |
|  | Demolish and remove small buildings / tanks   | Y                   | 1440     | m <sup>2</sup> | \$70.00           |                       | \$100,800.00          |  | Enter the total area of small buildings and offices in the admin area. It should not include demountables which can be removed from site. It does not include workshops.   |
|  | Demolish and remove industrial buildings such as workshops and large sheds  |                     |          | m <sup>2</sup> | \$160.00          |                       |                       |  | Enter the total area of workshop facilities in the admin area.   |
|  | Remove Bitumen sealed areas (car park, etc). Includes disposal of waste bitumen material off site at an appropriate landfill facility.  |                     |          | m <sup>2</sup> | \$12.00           |                       |                       | Include all roads, carparks and hardstand in "Access and Haul Roads" | Enter the total area of any bitumen car parks (or similar).  |
|  | Remove Concrete pads & footings (< 300mm thickness).  |                     |          | m <sup>2</sup> | \$10.00           |                       |                       |  | Enter the total area the workshops and buildings where concrete footings are estimated to be <300mm thick.   |
|  | Remove Concrete pads, footings and foundations (> 300mm thickness)  |                     |          | m <sup>2</sup> | \$30.00           |                       |                       |  | Enter the total area the workshops and buildings where concrete footings are estimated to be >300mm thick.   |
|  | Remove carbonaceous material (spillage or otherwise) from footprint of the Coal Handling Preparation Plant (CHPP), Run of Mine (ROM) & Product stockpiles.                            |                     |          | m <sup>3</sup> | Select from List  |                       |                       |  | Enter the total volume (ie. area x depth of material) to be scalped off for disposal.  |
| <b>Precinct Rehabilitation Liability</b>   |   |                     |          |                |                   |                       | <b>\$105,800.00</b>   |  |  |
| Main Work Shop and Stores Area (Heavy Industrial Area).  | Disconnect and terminate services   | Y                   | 1        | item           | \$5,000.00        |                       | \$5,000.00            |  | This item includes disconnecting and terminating all services such as power, water and sewer. It is a "one off" cost for the area.   |
|  | Demolish and remove small buildings / tanks   | Y                   | 250      | m <sup>2</sup> | \$70.00           |                       | \$17,500.00           |  | Enter the total area of small buildings and offices in the admin area. It should not include demountables which can be removed from site. It does not include workshops.   |
|  | Demolish and remove industrial buildings such as workshops and large sheds  | Y                   | 5550     | m <sup>2</sup> | \$160.00          |                       | \$888,000.00          |  | Enter the total area of workshop facilities in the admin area.   |
|  | Remove Bitumen sealed areas (car park, etc). Includes disposal of waste bitumen material off site at an appropriate landfill facility.  | Y                   | 0        | m <sup>2</sup> | \$12.00           |                       | \$0.00                | Include all roads, carparks and hardstand in "Access and Haul Roads" | Enter the total area of any bitumen car parks (or similar).  |
|  | Remove Concrete pads & footings (< 300mm thickness).  | Y                   | 105000   | m <sup>2</sup> | \$10.00           |                       | \$1,050,000.00        |  | Enter the total area the workshops and buildings where concrete footings are estimated to be <300mm thick. The broken up concrete will be buried in the pit.   |
|  | Remove Concrete pads, footings and foundations (> 300mm thickness)  | Y                   | 46000    | m <sup>2</sup> | \$30.00           |                       | \$1,380,000.00        |  | Enter the total area the workshops and buildings where concrete footings are estimated to be >300mm thick. The broken up concrete will be buried in the pit.   |
|  | Demolish / relocate FIXED process infrastructure (ie. crushers, screening plants, pug mills and wet mix plants)   | N                   |          | m <sup>2</sup> | \$160.00          |                       |                       |  | This includes the cost to dismantle the crusher and relocate from the site.  |
|  | Remove all mobile plant and equipment from the site   |                     |          | @              | \$2,000.00        |                       |                       |  | This item includes removing all mobile plant and equipment from the site.  |
|  | Removal of general rubbish from the site to a licensed landfill facility  | Y                   | 1        | @              | \$650.00          |                       | \$650.00              |  | This rate includes the hire/lease and service charges for a 10m <sup>3</sup> skip bin for a period of 5 weeks as well as removal of the bin to the nearest licensed landfill area.   |
|  | Demolish and remove overland conveyors, transfer stations & gantries (scrapping only - does not include dismantling for re-use at another site).                                      | Y                   | 24190    | m              | \$100.00          |                       | \$2,419,000.00        |  | Enter the sum of the total length of overland conveyor and gantries.   |
|  | Demolish and remove overhead conveyors, transfer stations & gantries (scrapping only - does not include dismantling for re-use at another site)                                       | Y                   | 5880     | m              | \$250.00          |                       | \$1,470,000.00        |  | Enter the sum of the total length of overhead conveyor and gantries.   |
|  | Demolish thickener tanks or flocc tanks (variable rate for small, medium and large structures).   | N                   |          | @              | N                 |                       |                       |  | This includes removing all thickener or flocc tanks from the site including an associated pipework and pumps, etc.   |
| <b>Precinct Rehabilitation Liability</b>   |   |                     |          |                |                   |                       | <b>\$7,230,150.00</b> |  |  |
| Removal and disposal of contaminated materials (for further information see Classification of Wastes. Pub 448.3, May 2007. Environment Protection Authority, Victoria) | Has a Contaminated Site Assessment been undertaken for the site? If not this item applies   |                     |          | item           | \$3,500.00        |                       |                       |  | Assessment required where it has been identified that there is significant potential of contaminated land.   |
|  | Removal and disposal of oil contaminated water from bunded areas and sumps.   | Y                   | 5000     | Lt             | \$0.25            |                       | \$1,250.00            |  | This includes the removal of contaminated water from bunded areas and sump using a vacuum truck and disposing of the water to a licensed facility. Need to add \$2.50 /km for out of metro areas.  |
|  | Load, cart and dispose of low-level contaminated soil off site to a licensed landfill. Assumes cartage to a local landfill. Add \$50/m <sup>3</sup> for cartage to regional landfill. | N                   |          | m <sup>3</sup> | \$390.00          |                       |                       |  | Allows for disposal fee of \$100 per tonne and cartage of \$30/tonne (assume local landfill).  |
|  | Load, cart and dispose of low-level contaminated soil off site to a licensed landfill. Assumes cartage to a local landfill. Add \$50/m <sup>3</sup> for cartage to regional landfill. | N                   |          | m <sup>3</sup> | \$390.00          |                       |                       |  | Allows for disposal fee of \$200 per tonne and cartage of \$50/tonne.  |
|  | Onsite remediation of hydrocarbon contaminated soils  | Y                   | 500      | m <sup>3</sup> | \$30.00           |                       | \$15,000.00           | > 500m <sup>3</sup>  | Where an assessment has been made to confirm that bioremediation is possible the total volume of material can be included for onsite land farming.   |
|  | Removal of underground fuel storage tank (UST) up to 5,000L capacity (include all site facilities and is to include pipes, bunds, etc)  |                     |          | @              | \$21,000.00       |                       |                       |  | Includes removal and disposal of tank; taking of validation samples and analysis; removal and off site landfill disposal of all back fill sand only. Assumes 30 tonnes of low level and 30 tonnes of high level contaminated back fill with rates to cart and dispose of \$130 and \$230 respectively.   |
|  | Removal of underground fuel storage tank (UST) above 5,000L and below 15,000L capacity (include all site facilities and is to include pipes, bunds, etc)                              | Y                   | 5        | @              | \$48,000.00       |                       | \$240,000.00          |  | Includes removal and disposal of tank; taking of validation samples and analysis; removal and off site landfill disposal of all back fill sand only. Assumes 100 tonnes of low level and 100 tonnes of high level contaminated back fill with rates to cart and dispose of \$130 and \$230 respectively. |
| <b>Precinct Rehabilitation Liability</b>   |   |                     |          |                |                   |                       | <b>\$256,250.00</b>   |  |  |



| Management Precinct  | Activity / Description   | Applicable (Y or N) | Quantity | Unit           | Default Unit Rate | Alternative Unit Rate | Total Cost             | Additional Info.  | Description / Notes:  |
|--|--|---------------------|----------|----------------|-------------------|-----------------------|------------------------|---|---|
| Administration Offices/Buildings                                       | Disconnect and terminate services  |                     | 1        | item           | \$5,000.00        |                       |                        |   | This item includes disconnecting and terminating all services such as power, water and sewer. It is a "one off" cost for the administration area.   |
|  | Demolish and remove small buildings / tanks  |                     |          | m <sup>2</sup> | \$70.00           |                       |                        |   | Enter the total area of small buildings and offices in the admin area. It should not include demountables which can be removed from site. It does not include workshops.  |
|  | Demolish and remove industrial buildings such as workshops and large sheds   |                     |          | m <sup>2</sup> | \$160.00          |                       |                        |   | Enter the total area of workshop facilities in the admin area.  |
|  | Remove Bitumen sealed areas (car park, etc). Includes disposal of waste bitumen material off site at an appropriate landfill facility. |                     |          | m <sup>2</sup> | \$12.00           |                       |                        | Include all roads, car parks and hardstand in "Access and Haul Roads" | Enter the total area of any bitumen car parks (or similar).   |
|  | Remove Concrete pads & footings (< 300mm thickness).   |                     |          | m <sup>2</sup> | \$10.00           |                       |                        |   | Enter the total area the workshops and buildings where concrete footings are estimated to be <300mm thick.  |
|  | Remove Concrete pads, footings and foundations (> 300mm thickness)   |                     |          | m <sup>2</sup> | \$30.00           |                       |                        |   | Enter the total area the workshops and buildings where concrete footings are estimated to be >300mm thick.  |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       | <b>\$0.00</b>          |   |   |
| Sewerage / Water Treatment Plant                                       | Disconnect and terminate services  |                     | 1        | item           | \$5,000.00        |                       |                        |   | This item includes disconnecting and terminating all services such as power, water and sewer. It is a "one off" cost for the administration area.   |
|  | Demolish and remove small buildings / tanks  | N                   |          | m <sup>2</sup> | \$70.00           |                       |                        |   | Enter the total area of small buildings and tanks.  |
|  | Load, cart and dispose of contaminated soil (ie. chemical spillage in / around storage sheds) off site to a licensed landfill          | N                   |          | m <sup>3</sup> | \$675.00          |                       |                        |   | Allows for disposal fee of \$200 per tonne and cartage of \$50/tonne.   |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       | <b>\$0.00</b>          |   |   |
| Access & Haul Roads  | Remove carbonaceous material from roadways (coal / rejects spillage)   |                     |          | m <sup>3</sup> | Select from List  |                       |                        |   | Enter the total volume (ie. area x depth of material) to be scalped off for burial in the pit.  |
|  | Remove Bitumen sealed areas (car park, etc). Includes disposal of waste bitumen material off site at an appropriate landfill facility. | Y                   | 164120   | m <sup>2</sup> | \$12.00           |                       | \$1,969,440.00         |   | Enter the total area of any bitumen car parks (or similar).   |
|  | Reshape, deep rip and ameliorate sealed unsealed roads   | Y                   | 96.2     | Ha             | \$2,500.00        |                       | \$240,500.00           |   | Enter the total area of the road footprint requiring reshaping and deep ripping.  |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       | <b>\$2,209,940.00</b>  |   |   |
| Landscaping, minor earthworks and revegetation throughout domain area. | Shaping or levelling of minor excavations, batters and stockpiles, final trim, rock rake and deep rip                                  | Y                   | 84       | Ha             | \$1,100.00        |                       | \$92,400.00            |   | This item includes the area requiring minor reshaping, rock raking and deep ripping to enhance revegetation program. It will generally include doing minor reshaping works to tidy up the site.   |
|  | Structural water management works, banks, drains, rock lined waterways, sediment dams  | Y                   | 84       | Ha             | \$1,400.00        |                       | \$117,600.00           |   | This item includes the catchment area requiring earthworks (banks, & drains, etc) to manage all surface water within the disturbance footprint. This rate is based on an average per hectare cost to install all required soil conservation earthworks.   |
|  | Rip hardstand areas  | N                   |          | Ha             | \$500.00          |                       |                        | Include all roads, car parks and hardstand in "Access and Haul Roads" | Includes any areas of compacted ground such as around and beneath plant and buildings   |
|  | Maintenance of the rehabilitated areas that are intended to be part of the ongoing closure of the site.                                | Y                   | 84       | Ha             | \$650.00          |                       | \$54,600.00            |   | This item includes the ongoing maintenance of the rehabilitation (ie. repairing banks/drains and application of fertiliser. It assumes application twice during the first five (5) years after establishment.   |
|  | Construct a standard stock fence around the site   |                     |          | m              | \$8.50            |                       |                        |   | This item include the construction of a standard stock fence around the site to prevent stock and unauthorized person entering the site while it is being rehabilitated.  |
|  | Source, cart, spread and rip topsoil   | Y                   | 84000    | m <sup>3</sup> | \$3.40            |                       | \$285,600.00           | haul distance > 5km   | This includes sourcing, carting and spreading of a suitable volume of topsoil to cover the entire disturbance footprint.  |
|  | Soil amelioration (adding gypsum, lime, etc)   | Y                   | 84       | Ha             | \$500.00          |                       | \$42,000.00            |   | This includes adding a soil ameliorant prior to preparation of seed bed for rehabilitation or assist stabilising dispersive soils (eg lime or gypsum).  |
|  | Direct seeding (native tree species OR using native grasses)   | Y                   | 5        | Ha             | \$2,000.00        |                       | \$10,000.00            |   | This rate includes acquiring a diverse mix of native tree & shrub species appropriate for the area (including understorey), mixing and treating the seed (ie smoke and heat) and applying the seed by hand at a rate between 4 - 10kg/ha (as applicable). This rate also includes undertaken soil sampling ahead of the rehabilitation program. |
|  | Direct seeding (pasture grass species)   | Y                   | 84       | Ha             | \$800.00          |                       | \$67,200.00            |   | This includes direct seeding of non native pasture grass species with the principal aim of return the land to a stable, sustainable grazing land use. It is different to using pasture grasses in for temporary erosion and sediment control. This rate also includes undertaking soil sampling ahead of the rehabilitation program.            |
|  | Single application of fertiliser (trees)   | Y                   | 5        | Ha             | \$140.00          |                       | \$700.00               |   | This item includes a single application of fertiliser during the initial seeding program.   |
|  | Single application of fertiliser (pasture)   | Y                   | 84       | Ha             | \$300.00          |                       | \$25,200.00            |   | This item includes a single application of fertiliser during the initial seeding program.   |
|  | Planting tubestock (< 15cm)  | Y                   | 1000     | @              | \$5.00            |                       | \$5,000.00             |   | This includes the seedling, fertiliser tablet, weed mat and guard - small tubestock.  |
|  | Hydro-seeding with straw mulching and bitumen tack.  |                     |          | m <sup>2</sup> | \$0.95            |                       |                        |   | This item has been included to capture the cost of any hydro seeding that may be required on the site.  |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       | <b>\$700,300.00</b>    |   |   |
| Water Dams   | Clean water dams to be retained after mine closure - make safe and minor earthworks to stabilise the water management structure.       |                     |          | @              | \$2,000.00        |                       |                        |   | This item includes making the dam spillway, and walls stable to ensure the integrity of the dam walls so they can remain after the closure of the project.  |
|  | OR Backfill and reinstate dam to natural surface.  |                     |          | m <sup>3</sup> | Select from List  |                       |                        |   | Dam to be backfilled (ie. reinstate the dam to be consistent with the natural surface). Some minor earthworks may be required.  |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       | <b>\$0.00</b>          |   |   |
| Other  | Demolish and remove Bucket wheel excavators/Stackers   |                     | 6        | item           | \$50,000.00       |                       | \$300,000.00           |   | This item includes <<to be added by the operator>>  |
|  | Demolish and remove Bunker drive tower   |                     | 1        | item           | \$1,790,000.00    |                       | \$1,790,000.00         |   |   |
|  | Raw Coal Bunker  |                     | 1        | item           | \$4,100,000.00    |                       | \$4,100,000.00         |   |   |
|  | Crusher house  |                     | 1        | item           | \$1,790,000.00    |                       | \$1,790,000.00         |   |   |
|  | Remove pipe work   |                     | 60000    | m              | \$5.00            |                       | \$300,000.00           |   |   |
|  | Fire Service Reservoir   |                     | 1        | item           | \$286,800.00      |                       | \$286,800.00           |   | This item includes <<to be added by the operator>>  |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       | <b>\$8,566,800.00</b>  |   |   |
| <b>Total Rehabilitation Liability for the "Domain"</b>                 |  |                     |          |                |                   |                       | <b>\$19,069,240.00</b> |   |   |

**Open Cut Coal Mine Operations:**

**Domain 3: Overburden & Waste Dumps**

Detail of person filling out the Worksheet:

|            |                             |
|------------|-----------------------------|
| Name       | Nicole Anderson             |
| Position   | GHD Environmental Scientist |
| Department | Civil and Environment       |
| Date       | 6/02/08                     |

Legend:

|  |   |
|--|---|
|  | Item fixed no entry required                        |
|  | Input from site optional (if information available) |
|  | Input mandatory                                     |
|  | Default Rate where an alternative is not provided   |

| Management Precinct  | Activity / Description   | Applicable (Y or N) | Quantity | Unit           | Default Unit Rate | Alternative Unit Rate | Total Cost            | Additional Info. | Description / Notes:  |
|--|--|---------------------|----------|----------------|-------------------|-----------------------|-----------------------|------------------|---|
| Unshaped Waste Rock Dumps<br><i>(minor reshaping required)</i>         | Minor pushing, final trim, rock rake & deep rip (minor shaping and landscaping)  | N                   |          | Ha             | \$1,100.00        | \$1,200.00            |                       |                  | This item includes the <b>area</b> requiring minor reshaping, rock raking and deep ripping to enhance revegetation program.   |
|  | Source local material, cart and spread suitable material to cap the waste rock dump (cap thickness determined by approval/licence) | N                   |          | m <sup>3</sup> | Select from List  |                       |                       |                  | This includes sourcing, carting and spreading of a suitable <b>volume</b> material to cap the waste rock dump. The material must have appropriate chemical & physical properties.   |
|  |  |                     |          |                |                   |                       | <b>\$0.00</b>         |                  |   |
| Unshaped Waste Rock Dumps<br><i>(major reshaping required)</i>         | Major bulk pushing to achieve grades nominated in the approval/permit (i.e. < 180)   | N                   |          | m <sup>2</sup> | \$1.30            | \$1.00                |                       |                  | This item includes the <b>volume</b> requiring major reshaping, rock raking and deep ripping (only as required) to enhance revegetation program. The rate increases the longer the push length due to losses in dozer productivity.   |
|  | Source local material, cart and spread suitable material to cap the waste rock dump (cap thickness determined by approval/licence) | N                   |          | m <sup>3</sup> | Select from List  | \$3.00                |                       |                  | This includes sourcing, carting and spreading of a suitable <b>volume</b> material to cap the waste rock dump. The material must have appropriate chemical & physical properties.   |
|  |  |                     |          |                |                   |                       | <b>\$0.00</b>         |                  |   |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       |                       |                  |   |
|  |  |                     |          |                |                   |                       | <b>\$0.00</b>         |                  |   |
| Landscaping, minor earthworks and revegetation throughout domain area. | Shaping or leveling of minor excavations, batters and stockpiles, final trim, rock rake and deep rip                               | Y                   | 386.2    | Ha             | \$1,100.00        |                       | \$424,820.00          |                  | This item includes the <b>area</b> requiring minor reshaping, rock raking and deep ripping to enhance revegetation program. It will generally include doing minor reshaping works to tidy up the site.  |
|  | Structural water management works, banks, drains, rock lined waterways, sediment dams  | Y                   | 386.2    | Ha             | \$1,400.00        |                       | \$540,680.00          |                  | This item includes the catchment area requiring earthworks (banks, & drains, etc) to manage all surface water within the disturbance footprint. This rate is based on an average per hectare cost to install all required soil conservation earthworks.   |
|  | Reshape, deep rip and ameliorate sealed unsealed roads   |                     |          | Ha             | \$2,500.00        |                       |                       |                  | Enter the total <b>area</b> of the road footprint requiring reshaping and deep ripping. Include all roads, carparks and hardstand in "Access and Haul Roads"  |
|  | Maintenance of the rehabilitated areas that are intended to be part of the ongoing closure of the site.                            | Y                   | 386.2    | Ha             | \$650.00          |                       | \$251,030.00          |                  | This item includes the ongoing maintenance of the rehabilitation (ie. repairing banks/drains and application of fertiliser. It assumes application twice during the first five (5) years after establishment.   |
|  | Construct a standard stock fence around the site   |                     |          | m              | \$8.50            |                       |                       |                  | This item include the construction of a standard stock fence around the site to prevent stock and unauthorized person entering the site while it is being rehabilitated.  |
|  | Source, cart, spread and rip topsoil   | Y                   | 386200   | m <sup>3</sup> | Select from List  | \$3.00                | \$1,158,600.00        |                  | This includes sourcing, carting and spreading of a suitable <b>volume</b> of topsoil to cover the entire disturbance footprint.   |
|  | Soil amelioration (adding gypsum, lime, etc)   | Y                   | 386.2    | Ha             | \$500.00          |                       | \$193,100.00          |                  | This includes adding a soil ameliorant prior to preparation of seed bed for rehabilitation or assist stabilising dispersive soils (eg lime or gypsum).  |
|  | Direct seeding (native tree species OR using native grasses)   | Y                   |          | Ha             | \$2,000.00        | \$300.00              | \$0.00                |                  | This rate includes acquiring a diverse mix of native tree & shrub species appropriate for the area (including understorey), mixing and treating the seed (ie smoke and heat) and applying the seed by hand at a rate between 4 - 10kg/ha (as applicable). This rate also includes undertaken soil sampling ahead of the rehabilitation program. |
|  | Direct seeding (pasture grass species)   | Y                   | 386.2    | Ha             | \$800.00          |                       | \$308,960.00          |                  | This includes direct seeding of non native pasture grass species with the principal aim of return the land to a stable, sustainable grazing land use. It is different to using pasture grasses in for temporary erosion and sediment control. This rate also includes undertaking soil sampling ahead of the rehabilitation program.            |
|  | Single application of fertiliser (trees)   |                     |          | Ha             | \$140.00          |                       |                       |                  | This item includes a single application of fertiliser during the initial seeding program.   |
|  | Single application of fertiliser (pasture)   | Y                   | 386.2    | Ha             | \$300.00          |                       | \$115,860.00          |                  | This item includes a single application of fertiliser during the initial seeding program.   |
|  | Planting tubestock (< 15cm)  | Y                   |          | @              | \$5.00            |                       | \$0.00                |                  | This includes the seedling, fertiliser tablet, weed mat and guard - small tubestock.  |
|  | Hydro-seeding with straw mulching and bitumen tack.  |                     |          | m <sup>2</sup> | \$0.95            | \$0.03                |                       |                  | This item has been included to capture the cost of any hydro seeding that may be required on the site.  |
|  |  |                     |          |                |                   |                       | <b>\$2,993,050.00</b> |                  |   |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       |                       |                  |   |
| Water Dams   | Clean water dams to be retained after mine closure - make safe and minor earthworks to stabilise the water management structure.   |                     |          | @              | \$2,000.00        |                       |                       |                  | This item includes making the dam spillway, and walls stable to ensure the integrity of the dam walls so they can remain after the closure of the project.  |
|  | OR Backfill and reinstate dam to natural surface.  |                     |          | m <sup>3</sup> | Select from List  |                       |                       |                  | Dam to be backfilled (ie. reinstate the dam to be consistent with the natural surface). Some minor earthworks may be required.  |
|  |  |                     |          |                |                   |                       | <b>\$0.00</b>         |                  |   |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       |                       |                  |   |
| Other  | Plantation Establishment   |                     |          | Ha             |                   | \$100.00              | \$0.00                |                  | Preparation for plantation establishment  |
|  | Other 2 <insert>   |                     |          |                |                   |                       | \$0.00                |                  | This item includes <to be added by the operator>  |
|  | Other 3 <insert>   |                     |          |                |                   |                       | \$0.00                |                  | This item includes <to be added by the operator>  |
|  |  |                     |          |                |                   |                       | <b>\$0.00</b>         |                  |   |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       |                       |                  |   |
|  |  |                     |          |                |                   |                       | <b>\$0.00</b>         |                  |   |

**Total Rehabilitation Liability for the "Domain"**

**\$2,993,050.00**

**Open Cut Coal Mine Operations:**

**Domain 4: Pits (1)**

Detail of person filling out the Worksheet:

Name \_\_\_\_\_  
 Position \_\_\_\_\_  
 Department \_\_\_\_\_  
 Date \_\_\_\_\_

Legend:

|  |   |
|--|---|
|  | Item fixed no entry required                        |
|  | Input from site optional (if information available) |
|  | Input mandatory                                     |
|  | Default Rate where an alternative is not provided   |

PIT: Earthwork Details (optional)

| Face | Activity | Height | Length | Quantity (e.g m <sup>3</sup> ) |
|------|----------|--------|--------|--------------------------------|
|      |          |        |        |                                |
|      |          |        |        |                                |
|      |          |        |        |                                |
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|      |          |        |        |                                |
|      |          |        |        |                                |
|      |          |        |        |                                |
|      |          |        |        |                                |

| Management Precinct  | Activity / Description  | Applicable (Y or N) | Quantity       | Unit           | Default Unit Rate | Alternative Unit Rate | Total Cost            | Additional Info.  | Description / Notes:  |
|--|---|---------------------|----------------|----------------|-------------------|-----------------------|-----------------------|---|---|
| Active Mining Pit or other Voids (including the voids and any internal benches or mine strips) | Drill & Blast faces to make safe.   | N                   |                | m <sup>3</sup> | \$0.70            |                       |                       |   | This item includes the total amount of material in the open cut walls (face) to be blasted to reduce the angle to make it safe.   |
|  | Major bulk pushing (Sand Batter) to achieve grades nominated in the approval/permit (i.e. < 18o)  | N                   |                | m <sup>3</sup> | Select from List  |                       |                       |   | This item includes the volume of material requiring major reshaping using a dozer to make safe an area and enable the establishment of rehabilitation.  |
|  | Major bulk pushing (Clay Batter) to achieve grades nominated in the approval/permit (i.e. < 18o)  | Y                   | 1022000        | m <sup>3</sup> | \$1.35            |                       | \$1,379,700.00        | > 50-100m   | This item includes the volume of material requiring major reshaping using a dozer to make safe an area and enable the establishment of rehabilitation.  |
|  | Major bulk pushing (Stiff Clay or Soft Rock with ripping) to achieve grades nominated in the approval/permit (i.e. < 18o)                                 | Y                   |                | m <sup>3</sup> | \$1.70            |                       | \$0.00                | > 50-100m   | This item includes the volume of material requiring major reshaping using a dozer to make safe an area and enable the establishment of rehabilitation. Dozer down above RL50 - 230ha (60m/m = 1.3M m3)  |
|  | Construct safety berm, catch bench and barrier around the pit perimeter (required where final pit will include steep faces).                              | N                   |                | m              | \$57.50           |                       |                       |   | Where steep faces will remain (i.e. greater than 18o) a safety berm and drop bench area required to be constructed around the perimeter of the void to restrict access.   |
|  | Erect a 6' chain mesh security fence around the top face where the final pit will include steep faces   | N                   |                | m              | \$50.00           |                       |                       |   | Where steep faces will remain a 6' chain mesh fence needs to be constructed around the perimeter of the void to restrict access to the site.  |
|  | Backfilling faces and benches as specified in the work plan   |                     |                | m <sup>3</sup> | Select from List  |                       |                       |   | This item includes the volume of material that is to be hauled to backfill against the faces in the final void (where applicable).  |
|  | Engineering treatment to stabilise the faces on the benches (compaction of the backfill)  |                     |                | m <sup>3</sup> | \$1.25            |                       |                       |   | This item includes the volume of material that is to be compacted against the faces in the final void (where applicable).   |
|  | Construction of an access and egress ramp in the voids that will be left post mine closure.   | N                   |                | m <sup>3</sup> | Select from List  |                       |                       |   | This item includes calculating the volume of material will need to be pushed down to create an access and egress ramp into the final void. The rate increases the longer the push length due to losses in dozer productivity.   |
| Construct a standard stock fence around the site   | N   |                     | m              | \$8.50         |                   |                       |                       | This item include the construction of a standard stock fence around the site to prevent stock and unauthorized persons entering the site while it is being rehabilitated. |   |
| <b>Precinct Rehabilitation Liability</b>   |   |                     |                |                |                   |                       | <b>\$1,379,700.00</b> |   |   |
| Water Dams   | Clean water dams (include all structures) to be retained after mine closure - make safe and minor earthworks to stabilise the water management structure. |                     |                | @              | \$2,000.00        |                       |                       |   | This item includes making the dam spillway, and walls stable to ensure the integrity of the dam walls so they can remain after the closure of the project.  |
|  | OR Backfill and reinstate dam to natural surface.   |                     |                | m <sup>3</sup> | Select from List  |                       |                       |   | Dam to be backfilled (ie. reinstate the dam to be consistent with the natural surface). Some minor earthworks may be required.  |
| <b>Precinct Rehabilitation Liability</b>   |   |                     |                |                |                   |                       | <b>\$0.00</b>         |   |   |
| River & Creek Diversions   | Long term maintenance of Creek diversion - Channel constructed through backfilled material  |                     |                | m              | \$330.00          |                       |                       |   | This item includes the length (m) requiring ongoing maintenance of diversions constructed through unconsolidated overburden. This will include earthworks repairs and stabilisation following flow events. It assumes a suitably qualified engineer has designed and signed off on construction of the diversion.                               |
|  | Long term maintenance of Creek diversion - Channel constructed through competent material   |                     |                | m              | \$165.00          |                       |                       |   | This item includes the length (m) requiring ongoing maintenance of diversions constructed through competent ground. This will include earthworks repairs and stabilisation following flow events. It assumes a suitably qualified engineer has designed and signed off on construction of the diversion.  |
|  | Creek diversion - Vegetation maintenance  |                     |                | m <sup>2</sup> | \$0.30            |                       |                       |   | This item includes the ongoing maintenance of vegetation within the diversion channel & batters.  |
| <b>Precinct Rehabilitation Liability</b>   |   |                     |                |                |                   |                       | <b>\$0.00</b>         |   |   |
| Landscaping, minor earthworks and revegetation throughout domain area.                         | Shaping or levelling of minor excavations, batters and stockpiles, final trim, rock rake and deep rip   | Y                   | 135.8          | Ha             | \$1,100.00        |                       | \$149,380.00          |   | This item includes the area requiring minor reshaping, rock raking and deep ripping to enhance revegetation program. It will generally include doing minor reshaping works to tidy up the site.   |
|  | Structural water management works, banks, drains, rock lined waterways, sediment dams   |                     |                | Ha             | \$1,400.00        |                       |                       |   | This item includes the catchment area requiring earthworks (banks, & drains, etc) to manage all surface water within the disturbance footprint. This rate is based on an average per hectare cost to install all required soil conservation earthworks.   |
|  | Reshape, deep rip and ameliorate sealed unsealed roads  |                     |                | Ha             | \$2,500.00        |                       |                       | Include all roads, carparks and hardstand in "Access and Haul Roads"  | Enter the total area of the road footprint requiring reshaping and deep ripping.  |
|  | Maintenance of the rehabilitated areas that are intended to be part of the ongoing closure of the site.   | Y                   | 135.8          | Ha             | \$650.00          |                       | \$88,270.00           |   | This item includes the ongoing maintenance of the rehabilitation (ie. repairing banks/drains and application of fertiliser. It assumes application twice during the first five (5) years after establishment.   |
|  | Construct a standard stock fence around the site  |                     |                | m              | \$8.50            |                       |                       |   | This item include the construction of a standard stock fence around the site to prevent stock and unauthorized person entering the site while it is being rehabilitated.  |
|  | Source, cart, spread and rip topsoil  | Y                   | 135800         | m <sup>3</sup> | \$2.04            |                       | \$277,032.00          | haul distance > 1km -2km  | This includes sourcing, carting and spreading of a suitable volume of topsoil to cover the entire disturbance footprint.  |
|  | Soil amelioration (adding gypsum, lime, etc)  | Y                   | 303            | Ha             | \$500.00          |                       | \$151,500.00          |   | This includes adding a soil ameliorant prior to preparation of seed bed for rehabilitation or assist stabilising dispersive soils (eg lime or gypsum).  |
|  | Direct seeding (native tree species OR using native grasses)  | Y                   | 167.2          | Ha             | \$2,000.00        |                       | \$334,400.00          |   | This rate includes acquiring a diverse mix of native tree & shrub species appropriate for the area (including understorey), mixing and treating the seed (ie smoke and heat) and applying the seed by hand at a rate between 4 - 10kg/ha (as applicable). This rate also includes undertaken soil sampling ahead of the rehabilitation program. |
|  | Direct seeding (pasture grass species)  | Y                   | 135.8          | Ha             | \$800.00          |                       | \$108,640.00          |   | This includes direct seeding of non native pasture grass species with the principal aim of return the land to a stable, sustainable grazing land use. It is different to using pasture grasses in for temporary erosion and sediment control. This rate also includes undertaking soil sampling ahead of the rehabilitation program.            |
|  | Single application of fertiliser (trees)  | Y                   | 167.2          | Ha             | \$140.00          |                       | \$23,408.00           |   | This item includes a single application of fertiliser during the initial seeding program.   |
|  | Single application of fertiliser (pasture)  | Y                   | 135.8          | Ha             | \$300.00          |                       | \$40,740.00           |   | This item includes a single application of fertiliser during the initial seeding program.   |
|  | Planting tubestock (< 15cm)   |                     |                | @              | \$5.00            |                       |                       |   | This includes the seeding, fertiliser tablet, weed mat and guard - small tubestock.   |
| Hydro-seeding with straw mulching and bitumen tack.  |   |                     | m <sup>2</sup> | \$0.95         |                   |                       |                       | This item has been included to capture the cost of any hydro seeding that may be required on the site.  |   |
| <b>Precinct Rehabilitation Liability</b>   |   |                     |                |                |                   |                       | <b>\$1,173,370.00</b> |   |   |
| Other  | Rock Beaching (Wave action Protection)  |                     | 7700           | m              |                   | \$250.00              | \$1,925,000.00        |   | This item includes <<to be added by the operator>>  |
|  | Other 2 <-insert>   |                     |                |                |                   |                       | \$0.00                |   | This item includes <<to be added by the operator>>  |
|  | Other 3 <-insert>   |                     |                |                |                   |                       | \$0.00                |   | This item includes <<to be added by the operator>>  |
| <b>Precinct Rehabilitation Liability</b>   |   |                     |                |                |                   |                       | <b>\$1,925,000.00</b> |   |   |
| <b>Total Rehabilitation Liability for the "Domain"</b>   |   |                     |                |                |                   |                       | <b>\$4,478,070.00</b> |   |   |

**Total Rehabilitation Liability for the "Domain"**

**\$4,478,070.00**

**Open Cut Coal Mine Operations:**

**Domain 5: Other Management Issues**

Detail of person filling out the Worksheet:

|            |  |
|------------|--|
| Name       |  |
| Position   |  |
| Department |  |
| Date       |  |

Legend:

|  |   |
|--|---|
|  | Item fixed no entry required                        |
|  | Input from site optional (if information available) |
|  | Input mandatory                                     |
|  | Default Rate where an alternative is not provided   |

| Management Precinct                      | Activity / Description  | Applicable (Y or N) | Quantity | Unit | Default Unit Rate | Alternative Unit Rate | Total Cost            | Additional Info. | Description / Notes:   |
|--|---|---------------------|----------|------|-------------------|-----------------------|-----------------------|------------------|--|
| Other Management Issues                  | The restoration, care and maintenance of items that have historical significance and that are to be retained after the cessation of mining or quarrying |                     |          | item | \$0.00            |                       |                       |                  | This item includes ensuring that sufficient resources are made available to restore items of heritage significance and also provide a budget to enable the ongoing care and maintenance of the structure (if not the responsibility of any another stakeholder i.e. council, historical society) |
|  | Removal of powerlines (this includes disconnection, rolling up the wires and removing the poles). It does not include the removal of substations.       | Y                   | 40       | km   | \$12,000.00       |                       | \$480,000.00          |                  | This rate includes the dismantling and removal of powerlines and poles from the site. It does not include the removal of substations.  |
|  | Fill and cap exploration bores  |                     |          | @    | \$250.00          |                       |                       |                  | This rate includes grouting, capping and sealing all uncapped exploration holes around the site.   |
|  | Pest and Weed Management  |                     |          | @    | \$2,500.00        |                       |                       |                  | This item covers the costs associated with the management of pests and weeds on the site. It includes spraying in in autumn and spring.  |
|  |   |                     |          |      |                   |                       | \$0.00                |                  | Bore Sealing rates (2008)  |
|  | Traralgon Aquifer   |                     | 6        | item |                   | \$29,000.00           | \$174,000.00          |                  |  |
|  | M2C Aquifer   |                     | 12       | item |                   | \$20,000.00           | \$240,000.00          |                  |  |
|  | M2B Aquifer   |                     | 10       | item |                   | \$12,000.00           | \$120,000.00          |                  |  |
|  | Traralgon Aquifer Standpipes  |                     |          | item |                   |                       | \$0.00                |                  |  |
|  | Drainholes  |                     |          | item |                   |                       | \$0.00                |                  |  |
| <b>Precinct Rehabilitation Liability</b> |   |                     |          |      |                   |                       | <b>\$1,014,000.00</b> |                  |  |

**Total Rehabilitation Liability for the "Domain"      \$1,014,000.00**

**Open Cut Coal Mine Operations:**

**Third Party Project Management & Contingencies**

Detail of person filling out the Worksheet:

|            |  |
|------------|--|
| Name       |  |
| Position   |  |
| Department |  |
| Date       |  |

Legend:

|  |   |
|--|---|
|  | Item fixed no entry required                        |
|  | Input from site optional (if information available) |
|  | Input mandatory                                     |
|  | Default Rate where an alternative is not provided   |

**Sub Total of all Domain Areas** **\$27,554,360.00**

| Item                                     | Activity / Description   | Applicable (Y or N) | Quantity | Unit | Default Unit Rate                     | Alternative Unit Rate | Total Cost            | Additional Info.   | Description / Notes:  |
|--|--|---------------------|----------|------|---------------------------------------|-----------------------|-----------------------|--|---|
| Sundry Items                             | Mobilisation & Demobilisation (third party contractor rates apply).  | Y                   | 1        | %    | Select from List                      |                       |                       | Select Distance  | This is to cover the cost of the "third party" contractor bringing equipment to the site to undertake the rehabilitation works. It needs to reflect the true costs of getting the equipment to and from the site. |
|  | Post closure environmental monitoring requirements   | Y                   | 5%       | %    | This has deliberately been left blank |                       | \$1,377,718.00        |  | This item is to cover any monitoring and measurement requirements that may be needed following the closure of the project.  |
|  | Project Management & Surveying (this includes preparing any documentation and well as engineering and design changes that may be needed during closure). | Y                   | 10%      | %    |                                       | \$2,755,436.00        |                       | This is to cover any Project Management or Surveying costs that may be required during the closure of the mine. It also covers the preparation of tender documents and any cost for engineering and re-design that may be required during the closure of the mine. |   |
|  | Contingency  | Y                   | 10%      | %    |                                       | \$2,755,436.00        |                       |  |   |
| <b>Precinct Rehabilitation Liability</b> |  |                     |          |      |                                       |                       | <b>\$6,888,590.00</b> |  |   |

**Total Rehabilitation Liability for "Management & Contingencies"** **\$6,888,590.00**



Appendix C

## Rehabilitation Liability Calculation 2018

Loy Yang Mine 2008



## Summary Report of Rehabilitation Liability Calculation

|                            |  |   |  |
|----------------------------|--|---|--|
| <b>Site Name:</b>          | <input style="width: 95%;" type="text" value="Loy Yang Power"/>  |   |  |
| <b>Tenement number(s):</b> | <input style="width: 95%;" type="text" value="MIN5189"/>   |   |  |
| <b>Site Owner:</b>         | <input style="width: 95%;" type="text" value="Great Energy Alliance Corporation (GEAC)"/>                          |   |  |
| <b>Site Operator:</b>      | <input style="width: 95%;" type="text" value="Loy Yang Power"/>  |   |  |
| <b>Current Bond:</b>       | <input style="width: 15%;" type="text" value="\$"/> <input style="width: 30%;" type="text" value="15,000,000.00"/> | <b>Date of Last Rehabilitation Bond Review:</b>                               | <input style="width: 25%;" type="text" value="35556"/> |
| <b>Site Contact:</b>       | <input style="width: 45%;" type="text" value="Michael Laird"/>   | <input style="width: 45%;" type="text" value="Jon Missen"/>                   |  |
| <b>Position:</b>           | <input style="width: 45%;" type="text" value="General Manager Mine"/>  | <input style="width: 45%;" type="text" value="Environment and Land Manager"/> |  |
| <b>Address:</b>            | <input style="width: 95%;" type="text" value="Loy Yang Power"/>  |   |  |
|                            | <input style="width: 95%;" type="text" value="PO Box 1799"/>   |   |  |
|                            | <input style="width: 95%;" type="text" value="Traralgon VIC 3844"/>  |   |  |
| <b>Phone:</b>              | <input style="width: 30%;" type="text"/>   | <b>email:</b>   | <input style="width: 60%;" type="text"/>               |

| Domain   | Rehabilitation Liability |
|--|--------------------------|
| Domain 1: Infrastructure Areas                             | \$19,859,240.00          |
| Domain 2: Tailings & Coarse Rejects Storage Facilities (1) | \$0.00                   |
| Domain 2: Tailings & Coarse Rejects Storage Facilities (2) | \$0.00                   |
| Domain 2: Tailings & Coarse Rejects Storage Facilities (3) | \$0.00                   |
| Domain 3: Overburden & Waste Dumps                         | \$2,304,075.00           |
| Domain 4: Pits (1)   | \$5,019,394.00           |
| Domain 4: Pits (2)   | \$0.00                   |
| Domain 4: Pits (3)   | \$0.00                   |
| Domain 5: Other Management Issues                          | \$1,211,000.00           |
|  |                          |
| <b>Sub-Total</b>   | <b>\$28,393,709.00</b>   |
| Third Party Project Management & Contingencies             | \$7,098,427.25           |
| <b>Total Rehabilitation Liability for the Operation</b>    | <b>\$35,492,136.25</b>   |

This rehabilitation liability calculation has estimated using the best available information at the time it is a true and accurate reflection of the total rehabilitation bond required to be lodged by this mine

-----  
**Site Manager**

-----  
**Date:**

**Open Cut Coal Mine Operations:**

**Domain 1: Infrastructure Areas**

Detail of person filling out the Worksheet:

|            |                             |
|------------|-----------------------------|
| Name       | Nicole Anderson             |
| Position   | GHD-Environmental Scientist |
| Department | Civil and Environment       |
| Date       | 6/02/08                     |

Legend:

|  |   |
|--|---|
|  | Item fixed no entry required                        |
|  | Input from site optional (if information available) |
|  | Input mandatory (where applicable)                  |
|  | Default Rate where an alternative is not provided   |

| Management Precinct  | Activity / Description  | Applicable (Y or N) | Quantity | Unit           | Default Unit Rate | Alternative Unit Rate | Total Cost            | Additional Info.   | Description / Notes:   |
|--|---|---------------------|----------|----------------|-------------------|-----------------------|-----------------------|--|--|
| Coal Handling and Preparation Plant (CHPP)   | Disconnect and terminate services   | Y                   | 1        | item           | \$5,000.00        |                       | \$5,000.00            |  | This item includes disconnecting and terminating all services such as power, water and sewer. It is a "one off" cost for the administration area.  |
|  | Demolish and remove small buildings / tanks   | Y                   | 1440     | m <sup>2</sup> | \$70.00           |                       | \$100,800.00          |  | Enter the total area of small buildings and offices in the admin area. It should not include demountables which can be removed from site. It does not include workshops.   |
|  | Demolish and remove industrial buildings such as workshops and large sheds  |                     |          | m <sup>2</sup> | \$160.00          |                       |                       |  | Enter the total area of workshop facilities in the admin area.   |
|  | Remove Bitumen sealed areas (car park, etc). Includes disposal of waste bitumen material off site at an appropriate landfill facility.  |                     |          | m <sup>2</sup> | \$12.00           |                       |                       | Include all roads, carparks and hardstand in "Access and Haul Roads" | Enter the total area of any bitumen car parks (or similar).  |
|  | Remove Concrete pads & footings (< 300mm thickness).  |                     |          | m <sup>2</sup> | \$10.00           |                       |                       |  | Enter the total area the workshops and buildings where concrete footings are estimated to be <300mm thick.   |
|  | Remove Concrete pads, footings and foundations (> 300mm thickness)  |                     |          | m <sup>2</sup> | \$30.00           |                       |                       |  | Enter the total area the workshops and buildings where concrete footings are estimated to be >300mm thick.   |
|  | Remove carbonaceous material (spillage or otherwise) from footprint of the Coal Handling Preparation Plant (CHPP), Run of Mine (ROM) & Product stockpiles.                            |                     |          | m <sup>3</sup> | Select from List  |                       |                       |  | Enter the total volume (ie. area x depth of material) to be scalped off for disposal.  |
| <b>Precinct Rehabilitation Liability</b>   |   |                     |          |                |                   |                       | <b>\$105,800.00</b>   |  |  |
| Main Work Shop and Stores Area (Heavy Industrial Area).  | Disconnect and terminate services   | Y                   | 1        | item           | \$5,000.00        |                       | \$5,000.00            |  | This item includes disconnecting and terminating all services such as power, water and sewer. It is a "one off" cost for the area.   |
|  | Demolish and remove small buildings / tanks   | Y                   | 250      | m <sup>2</sup> | \$70.00           |                       | \$17,500.00           |  | Enter the total area of small buildings and offices in the admin area. It should not include demountables which can be removed from site. It does not include workshops.   |
|  | Demolish and remove industrial buildings such as workshops and large sheds  | Y                   | 5550     | m <sup>2</sup> | \$160.00          |                       | \$888,000.00          |  | Enter the total area of workshop facilities in the admin area.   |
|  | Remove Bitumen sealed areas (car park, etc). Includes disposal of waste bitumen material off site at an appropriate landfill facility.  | Y                   | 0        | m <sup>2</sup> | \$12.00           |                       | \$0.00                | Include all roads, carparks and hardstand in "Access and Haul Roads" | Enter the total area of any bitumen car parks (or similar).  |
|  | Remove Concrete pads & footings (< 300mm thickness).  | Y                   | 109000   | m <sup>2</sup> | \$10.00           |                       | \$1,090,000.00        |  | Enter the total area the workshops and buildings where concrete footings are estimated to be <300mm thick. The broken up concrete will be buried in the pit.   |
|  | Remove Concrete pads, footings and foundations (> 300mm thickness)  | Y                   | 48000    | m <sup>2</sup> | \$30.00           |                       | \$1,440,000.00        |  | Enter the total area the workshops and buildings where concrete footings are estimated to be >300mm thick. The broken up concrete will be buried in the pit.   |
|  | Demolish / relocate FIXED process infrastructure (ie. crushers, screening plants, pug mills and wet mix plants)   | N                   |          | m <sup>2</sup> | \$160.00          |                       |                       |  | This includes the cost to dismantle the crusher and relocate from the site.  |
|  | Remove all mobile plant and equipment from the site   |                     |          | @              | \$2,000.00        |                       |                       |  | This item includes removing all mobile plant and equipment from the site.  |
|  | Removal of general rubbish from the site to a licensed landfill facility  | Y                   | 1        | @              | \$650.00          |                       | \$650.00              |  | This rate includes the hire/lease and service charges for a 10m <sup>3</sup> skip bin for a period of 5 weeks as well as removal of the bin to the nearest licensed landfill area.   |
|  | Demolish and remove overland conveyors, transfer stations & gantries (scrapping only - does not include dismantling for re-use at another site).                                      | Y                   | 30190    | m              | \$100.00          |                       | \$3,019,000.00        |  | Enter the sum of the total length of overland conveyor and gantries.   |
|  | Demolish and remove overhead conveyors, transfer stations & gantries (scrapping only - does not include dismantling for re-use at another site)                                       | Y                   | 5880     | m              | \$250.00          |                       | \$1,470,000.00        |  | Enter the sum of the total length of overhead conveyor and gantries.   |
|  | Demolish thickener tanks or flocc tanks (variable rate for small, medium and large structures).   | N                   |          | @              | N                 |                       |                       |  | This includes removing all thickener or flocc tanks from the site including an associated pipework and pumps, etc.   |
| <b>Precinct Rehabilitation Liability</b>   |   |                     |          |                |                   |                       | <b>\$7,930,150.00</b> |  |  |
| Removal and disposal of contaminated materials (for further information see Classification of Wastes. Pub 448.3, May 2007. Environment Protection Authority, Victoria) | Has a Contaminated Site Assessment been undertaken for the site? If not this item applies   |                     |          | item           | \$3,500.00        |                       |                       |  | Assessment required where it has been identified that there is significant potential of contaminated land.   |
|  | Removal and disposal of oil contaminated water from bunded areas and sumps.   | Y                   | 5000     | Lt             | \$0.25            |                       | \$1,250.00            |  | This includes the removal of contaminated water from bunded areas and sump using a vacuum truck and disposing of the water to a licensed facility. Need to add \$2.50 /km for out of metro areas.  |
|  | Load, cart and dispose of low-level contaminated soil off site to a licensed landfill. Assumes cartage to a local landfill. Add \$50/m <sup>3</sup> for cartage to regional landfill. | N                   |          | m <sup>3</sup> | \$390.00          |                       |                       |  | Allows for disposal fee of \$100 per tonne and cartage of \$30/tonne (assume local landfill).  |
|  | Load, cart and dispose of low-level contaminated soil off site to a licensed landfill. Assumes cartage to a local landfill. Add \$50/m <sup>3</sup> for cartage to regional landfill. | N                   |          | m <sup>3</sup> | \$390.00          |                       |                       |  | Allows for disposal fee of \$200 per tonne and cartage of \$50/tonne.  |
|  | Onsite remediation of hydrocarbon contaminated soils  | Y                   | 500      | m <sup>3</sup> | \$30.00           |                       | \$15,000.00           | > 500m <sup>3</sup>  | Where an assessment has been made to confirm that bioremediation is possible the total volume of material can be included for onsite land farming.   |
|  | Removal of underground fuel storage tank (UST) up to 5,000L capacity (include all site facilities and is to include pipes, bunds, etc)  |                     |          | @              | \$21,000.00       |                       |                       |  | Includes removal and disposal of tank; taking of validation samples and analysis; removal and off site landfill disposal of all back fill sand only. Assumes 30 tonnes of low level and 30 tonnes of high level contaminated back fill with rates to cart and dispose of \$130 and \$230 respectively.   |
|  | Removal of underground fuel storage tank (UST) above 5,000L and below 15,000L capacity (include all site facilities and is to include pipes, bunds, etc)                              | Y                   | 5        | @              | \$48,000.00       |                       | \$240,000.00          |  | Includes removal and disposal of tank; taking of validation samples and analysis; removal and off site landfill disposal of all back fill sand only. Assumes 100 tonnes of low level and 100 tonnes of high level contaminated back fill with rates to cart and dispose of \$130 and \$230 respectively. |
| <b>Precinct Rehabilitation Liability</b>   |   |                     |          |                |                   |                       | <b>\$256,250.00</b>   |  |  |



| Management Precinct  | Activity / Description   | Applicable (Y or N) | Quantity | Unit           | Default Unit Rate | Alternative Unit Rate | Total Cost             | Additional Info.  | Description / Notes:  |
|--|--|---------------------|----------|----------------|-------------------|-----------------------|------------------------|---|---|
| Administration Offices/Buildings                                       | Disconnect and terminate services  |                     | 1        | item           | \$5,000.00        |                       |                        |   | This item includes disconnecting and terminating all services such as power, water and sewer. It is a "one off" cost for the administration area.   |
|  | Demolish and remove small buildings / tanks  |                     |          | m <sup>2</sup> | \$70.00           |                       |                        |   | Enter the total area of small buildings and offices in the admin area. It should not include demountables which can be removed from site. It does not include workshops.  |
|  | Demolish and remove industrial buildings such as workshops and large sheds   |                     |          | m <sup>2</sup> | \$160.00          |                       |                        |   | Enter the total area of workshop facilities in the admin area.  |
|  | Remove Bitumen sealed areas (car park, etc). Includes disposal of waste bitumen material off site at an appropriate landfill facility. |                     |          | m <sup>2</sup> | \$12.00           |                       |                        | Include all roads, car parks and hardstand in "Access and Haul Roads" | Enter the total area of any bitumen car parks (or similar).   |
|  | Remove Concrete pads & footings (< 300mm thickness).   |                     |          | m <sup>2</sup> | \$10.00           |                       |                        |   | Enter the total area the workshops and buildings where concrete footings are estimated to be <300mm thick.  |
|  | Remove Concrete pads, footings and foundations (> 300mm thickness)   |                     |          | m <sup>2</sup> | \$30.00           |                       |                        |   | Enter the total area the workshops and buildings where concrete footings are estimated to be >300mm thick.  |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       | <b>\$0.00</b>          |   |   |
| Sewerage / Water Treatment Plant                                       | Disconnect and terminate services  |                     | 1        | item           | \$5,000.00        |                       |                        |   | This item includes disconnecting and terminating all services such as power, water and sewer. It is a "one off" cost for the administration area.   |
|  | Demolish and remove small buildings / tanks  | N                   |          | m <sup>2</sup> | \$70.00           |                       |                        |   | Enter the total area of small buildings and tanks.  |
|  | Load, cart and dispose of contaminated soil (ie. chemical spillage in / around storage sheds) off site to a licensed landfill          | N                   |          | m <sup>3</sup> | \$675.00          |                       |                        |   | Allows for disposal fee of \$200 per tonne and cartage of \$50/tonne.   |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       | <b>\$0.00</b>          |   |   |
| Access & Haul Roads  | Remove carbonaceous material from roadways (coal / rejects spillage)   |                     |          | m <sup>3</sup> | Select from List  |                       |                        |   | Enter the total volume (ie. area x depth of material) to be scalped off for burial in the pit.  |
|  | Remove Bitumen sealed areas (car park, etc). Includes disposal of waste bitumen material off site at an appropriate landfill facility. | Y                   | 164120   | m <sup>2</sup> | \$12.00           |                       | \$1,969,440.00         |   | Enter the total area of any bitumen car parks (or similar).   |
|  | Reshape, deep rip and ameliorate sealed unsealed roads   | Y                   | 108.2    | Ha             | \$2,500.00        |                       | \$270,500.00           |   | Enter the total area of the road footprint requiring reshaping and deep ripping.  |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       | <b>\$2,239,940.00</b>  |   |   |
| Landscaping, minor earthworks and revegetation throughout domain area. | Shaping or levelling of minor excavations, batters and stockpiles, final trim, rock rake and deep rip                                  | Y                   | 84       | Ha             | \$1,100.00        |                       | \$92,400.00            |   | This item includes the area requiring minor reshaping, rock raking and deep ripping to enhance revegetation program. It will generally include doing minor reshaping works to tidy up the site.   |
|  | Structural water management works, banks, drains, rock lined waterways, sediment dams  | Y                   | 84       | Ha             | \$1,400.00        |                       | \$117,600.00           |   | This item includes the catchment area requiring earthworks (banks, & drains, etc) to manage all surface water within the disturbance footprint. This rate is based on an average per hectare cost to install all required soil conservation earthworks.   |
|  | Rip hardstand areas  | N                   |          | Ha             | \$500.00          |                       |                        | Include all roads, car parks and hardstand in "Access and Haul Roads" | Includes any areas of compacted ground such as around and beneath plant and buildings   |
|  | Maintenance of the rehabilitated areas that are intended to be part of the ongoing closure of the site.                                | Y                   | 84       | Ha             | \$650.00          |                       | \$54,600.00            |   | This item includes the ongoing maintenance of the rehabilitation (ie. repairing banks/drains and application of fertiliser. It assumes application twice during the first five (5) years after establishment.   |
|  | Construct a standard stock fence around the site   |                     |          | m              | \$8.50            |                       |                        |   | This item include the construction of a standard stock fence around the site to prevent stock and unauthorized person entering the site while it is being rehabilitated.  |
|  | Source, cart, spread and rip topsoil   | Y                   | 84000    | m <sup>3</sup> | \$3.40            |                       | \$285,600.00           | haul distance > 5km   | This includes sourcing, carting and spreading of a suitable volume of topsoil to cover the entire disturbance footprint.  |
|  | Soil amelioration (adding gypsum, lime, etc)   | Y                   | 84       | Ha             | \$500.00          |                       | \$42,000.00            |   | This includes adding a soil ameliorant prior to preparation of seed bed for rehabilitation or assist stabilising dispersive soils (eg lime or gypsum).  |
|  | Direct seeding (native tree species OR using native grasses)   | Y                   | 5        | Ha             | \$2,000.00        |                       | \$10,000.00            |   | This rate includes acquiring a diverse mix of native tree & shrub species appropriate for the area (including understorey), mixing and treating the seed (ie smoke and heat) and applying the seed by hand at a rate between 4 - 10kg/ha (as applicable). This rate also includes undertaken soil sampling ahead of the rehabilitation program. |
|  | Direct seeding (pasture grass species)   | Y                   | 84       | Ha             | \$800.00          |                       | \$67,200.00            |   | This includes direct seeding of non native pasture grass species with the principal aim of return the land to a stable, sustainable grazing land use. It is different to using pasture grasses in for temporary erosion and sediment control. This rate also includes undertaking soil sampling ahead of the rehabilitation program.            |
|  | Single application of fertiliser (trees)   | Y                   | 5        | Ha             | \$140.00          |                       | \$700.00               |   | This item includes a single application of fertiliser during the initial seeding program.   |
|  | Single application of fertiliser (pasture)   | Y                   | 84       | Ha             | \$300.00          |                       | \$25,200.00            |   | This item includes a single application of fertiliser during the initial seeding program.   |
|  | Planting tubestock (< 15cm)  | Y                   | 1000     | @              | \$5.00            |                       | \$5,000.00             |   | This includes the seedling, fertiliser tablet, weed mat and guard - small tubestock.  |
|  | Hydro-seeding with straw mulching and bitumen tack.  |                     |          | m <sup>2</sup> | \$0.95            |                       |                        |   | This item has been included to capture the cost of any hydro seeding that may be required on the site.  |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       | <b>\$700,300.00</b>    |   |   |
| Water Dams   | Clean water dams to be retained after mine closure - make safe and minor earthworks to stabilise the water management structure.       |                     |          | @              | \$2,000.00        |                       |                        |   | This item includes making the dam spillway, and walls stable to ensure the integrity of the dam walls so they can remain after the closure of the project.  |
|  | OR Backfill and reinstate dam to natural surface.  |                     |          | m <sup>3</sup> | Select from List  |                       |                        |   | Dam to be backfilled (ie. reinstate the dam to be consistent with the natural surface). Some minor earthworks may be required.  |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       | <b>\$0.00</b>          |   |   |
| Other  | Demolish and remove Bucket wheel excavators/Stackers   |                     | 6        | item           | \$50,000.00       |                       | \$300,000.00           |   | This item includes <<to be added by the operator>>  |
|  | Demolish and remove Bunker drive tower   |                     | 1        | item           | \$1,790,000.00    |                       | \$1,790,000.00         |   |   |
|  | Raw Coal Bunker  |                     | 1        | item           | \$4,100,000.00    |                       | \$4,100,000.00         |   |   |
|  | Crusher house  |                     | 1        | item           | \$1,790,000.00    |                       | \$1,790,000.00         |   |   |
|  | Remove pipe work   |                     | 72000    | m              | \$5.00            |                       | \$360,000.00           |   |   |
|  | Fire Service Reservoir   |                     | 1        | item           | \$286,800.00      |                       | \$286,800.00           |   | This item includes <<to be added by the operator>>  |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       | <b>\$8,626,800.00</b>  |   |   |
| <b>Total Rehabilitation Liability for the "Domain"</b>                 |  |                     |          |                |                   |                       | <b>\$19,859,240.00</b> |   |   |

**Open Cut Coal Mine Operations:**

**Domain 3: Overburden & Waste Dumps**

Detail of person filling out the Worksheet:

|            |                             |
|------------|-----------------------------|
| Name       | Nicole Anderson             |
| Position   | GHD Environmental Scientist |
| Department | Civil and Environment       |
| Date       | 6/02/08                     |

Legend:

|  |   |
|--|---|
|  | Item fixed no entry required                        |
|  | Input from site optional (if information available) |
|  | Input mandatory                                     |
|  | Default Rate where an alternative is not provided   |

| Management Precinct  | Activity / Description   | Applicable (Y or N) | Quantity | Unit           | Default Unit Rate | Alternative Unit Rate | Total Cost            | Additional Info. | Description / Notes:  |
|--|--|---------------------|----------|----------------|-------------------|-----------------------|-----------------------|------------------|---|
| Unshaped Waste Rock Dumps<br><i>(minor reshaping required)</i>         | Minor pushing, final trim, rock rake & deep rip (minor shaping and landscaping)  | N                   |          | Ha             | \$1,100.00        | \$1,200.00            |                       |                  | This item includes the <b>area</b> requiring minor reshaping, rock raking and deep ripping to enhance revegetation program.   |
|  | Source local material, cart and spread suitable material to cap the waste rock dump (cap thickness determined by approval/licence) | N                   |          | m <sup>3</sup> | Select from List  |                       |                       |                  | This includes sourcing, carting and spreading of a suitable <b>volume</b> material to cap the waste rock dump. The material must have appropriate chemical & physical properties.   |
|  |  |                     |          |                |                   |                       | <b>\$0.00</b>         |                  |   |
| Unshaped Waste Rock Dumps<br><i>(major reshaping required)</i>         | Major bulk pushing to achieve grades nominated in the approval/permit (i.e. < 18o)   | N                   |          | m <sup>2</sup> | \$1.30            | \$1.00                |                       |                  | This item includes the <b>volume</b> requiring major reshaping, rock raking and deep ripping (only as required) to enhance revegetation program. The rate increases the longer the push length due to losses in dozer productivity.   |
|  | Source local material, cart and spread suitable material to cap the waste rock dump (cap thickness determined by approval/licence) | N                   |          | m <sup>3</sup> | Select from List  | \$3.00                |                       |                  | This includes sourcing, carting and spreading of a suitable <b>volume</b> material to cap the waste rock dump. The material must have appropriate chemical & physical properties.   |
|  |  |                     |          |                |                   |                       | <b>\$0.00</b>         |                  |   |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       |                       |                  |   |
|  |  |                     |          |                |                   |                       | <b>\$0.00</b>         |                  |   |
| Landscaping, minor earthworks and revegetation throughout domain area. | Shaping or leveling of minor excavations, batters and stockpiles, final trim, rock rake and deep rip                               | Y                   | 297.3    | Ha             | \$1,100.00        |                       | \$327,030.00          |                  | This item includes the <b>area</b> requiring minor reshaping, rock raking and deep ripping to enhance revegetation program. It will generally include doing minor reshaping works to tidy up the site.  |
|  | Structural water management works, banks, drains, rock lined waterways, sediment dams  | Y                   | 297.3    | Ha             | \$1,400.00        |                       | \$416,220.00          |                  | This item includes the catchment area requiring earthworks (banks, & drains, etc) to manage all surface water within the disturbance footprint. This rate is based on an average per hectare cost to install all required soil conservation earthworks.   |
|  | Reshape, deep rip and ameliorate sealed unsealed roads   |                     |          | Ha             | \$2,500.00        |                       |                       |                  | Enter the total <b>area</b> of the road footprint requiring reshaping and deep ripping.<br><b>Include all roads, carparks and hardstand in "Access and Haul Roads"</b>  |
|  | Maintenance of the rehabilitated areas that are intended to be part of the ongoing closure of the site.                            | Y                   | 297.3    | Ha             | \$650.00          |                       | \$193,245.00          |                  | This item includes the ongoing maintenance of the rehabilitation (ie. repairing banks/drains and application of fertiliser. It assumes application twice during the first five (5) years after establishment.   |
|  | Construct a standard stock fence around the site   |                     |          | m              | \$8.50            |                       |                       |                  | This item include the construction of a standard stock fence around the site to prevent stock and unauthorized person entering the site while it is being rehabilitated.  |
|  | Source, cart, spread and rip topsoil   | Y                   | 297300   | m <sup>3</sup> | Select from List  | \$3.00                | \$891,900.00          |                  | This includes sourcing, carting and spreading of a suitable <b>volume</b> of topsoil to cover the entire disturbance footprint.   |
|  | Soil amelioration (adding gypsum, lime, etc)   | Y                   | 297.3    | Ha             | \$500.00          |                       | \$148,650.00          |                  | This includes adding a soil ameliorant prior to preparation of seed bed for rehabilitation or assist stabilising dispersive soils (eg lime or gypsum).  |
|  | Direct seeding (native tree species OR using native grasses)   | Y                   |          | Ha             | \$2,000.00        | \$300.00              | \$0.00                |                  | This rate includes acquiring a diverse mix of native tree & shrub species appropriate for the area (including understorey), mixing and treating the seed (ie smoke and heat) and applying the seed by hand at a rate between 4 - 10kg/ha (as applicable). This rate also includes undertaken soil sampling ahead of the rehabilitation program. |
|  | Direct seeding (pasture grass species)   | Y                   | 297.3    | Ha             | \$800.00          |                       | \$237,840.00          |                  | This includes direct seeding of non native pasture grass species with the principal aim of return the land to a stable, sustainable grazing land use. It is different to using pasture grasses in for temporary erosion and sediment control. This rate also includes undertaking soil sampling ahead of the rehabilitation program.            |
|  | Single application of fertiliser (trees)   |                     |          | Ha             | \$140.00          |                       |                       |                  | This item includes a single application of fertiliser during the initial seeding program.   |
|  | Single application of fertiliser (pasture)   | Y                   | 297.3    | Ha             | \$300.00          |                       | \$89,190.00           |                  | This item includes a single application of fertiliser during the initial seeding program.   |
|  | Planting tubestock (< 15cm)  | Y                   |          | @              | \$5.00            |                       | \$0.00                |                  | This includes the seedling, fertiliser tablet, weed mat and guard - small tubestock.  |
|  | Hydro-seeding with straw mulching and bitumen tack.  |                     |          | m <sup>2</sup> | \$0.95            | \$0.03                |                       |                  | This item has been included to capture the cost of any hydro seeding that may be required on the site.  |
|  |  |                     |          |                |                   |                       | <b>\$2,304,075.00</b> |                  |   |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       |                       |                  |   |
| Water Dams   | Clean water dams to be retained after mine closure - make safe and minor earthworks to stabilise the water management structure.   |                     |          | @              | \$2,000.00        |                       |                       |                  | This item includes making the dam spillway, and walls stable to ensure the integrity of the dam walls so they can remain after the closure of the project.  |
|  | OR Backfill and reinstate dam to natural surface.  |                     |          | m <sup>3</sup> | Select from List  |                       |                       |                  | Dam to be backfilled (ie. reinstate the dam to be consistent with the natural surface). Some minor earthworks may be required.  |
|  |  |                     |          |                |                   |                       | <b>\$0.00</b>         |                  |   |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       |                       |                  |   |
| Other  | Plantation Establishment   |                     |          | Ha             |                   | \$100.00              | \$0.00                |                  | Preparation for plantation establishment  |
|  | Other 2 <insert>   |                     |          |                |                   |                       | \$0.00                |                  | This item includes <to be added by the operator>>   |
|  | Other 3 <insert>   |                     |          |                |                   |                       | \$0.00                |                  | This item includes <to be added by the operator>>   |
|  |  |                     |          |                |                   |                       | <b>\$0.00</b>         |                  |   |
| <b>Precinct Rehabilitation Liability</b>                               |  |                     |          |                |                   |                       |                       |                  |   |
|  |  |                     |          |                |                   |                       | <b>\$0.00</b>         |                  |   |

**Total Rehabilitation Liability for the "Domain"**

**\$2,304,075.00**

**Open Cut Coal Mine Operations:**

**Domain 4: Pits (1)**

Detail of person filling out the Worksheet:

|            |  |
|------------|--|
| Name       |  |
| Position   |  |
| Department |  |
| Date       |  |

Legend:

|  |   |
|--|---|
|  | Item fixed no entry required                        |
|  | Input from site optional (if information available) |
|  | Input mandatory                                     |
|  | Default Rate where an alternative is not provided   |

PIT: Earthwork Details (optional)

| Face | Activity | Height | Length | Quantity (e.g m <sup>3</sup> ) |
|------|----------|--------|--------|--------------------------------|
|      |          |        |        |                                |
|      |          |        |        |                                |
|      |          |        |        |                                |
|      |          |        |        |                                |
|      |          |        |        |                                |
|      |          |        |        |                                |
|      |          |        |        |                                |
|      |          |        |        |                                |
|      |          |        |        |                                |
|      |          |        |        |                                |
|      |          |        |        |                                |

| Management Precinct  | Activity / Description  | Applicable (Y or N) | Quantity       | Unit             | Default Unit Rate | Alternative Unit Rate | Total Cost            | Additional Info.  | Description / Notes:  |
|--|---|---------------------|----------------|------------------|-------------------|-----------------------|-----------------------|---|---|
| Active Mining Pit or other Voids (including the voids and any internal benches or mine strips) | Drill & Blast faces to make safe.   | N                   |                | m <sup>3</sup>   | \$0.70            |                       |                       |   | This item includes the total amount of material in the open cut walls (face) to be blasted to reduce the angle to make it safe.   |
|  | Major bulk pushing (Sand Batter) to achieve grades nominated in the approval/permit (i.e. < 18o)  | N                   |                | m <sup>3</sup>   | Select from List  |                       |                       |   | This item includes the <b>volume</b> of material requiring major reshaping using a dozer to make safe an area and enable the establishment of rehabilitation.   |
|  | Major bulk pushing (Clay Batter) to achieve grades nominated in the approval/permit (i.e. < 18o)  | Y                   | 1307000        | m <sup>3</sup>   | \$1.35            |                       | \$1,764,450.00        | > 50-100m   | This item includes the <b>volume</b> of material requiring major reshaping using a dozer to make safe an area and enable the establishment of rehabilitation.   |
|  | Major bulk pushing (Stiff Clay or Soft Rock with ripping) to achieve grades nominated in the approval/permit (i.e. < 18o)                                 | Y                   |                | m <sup>3</sup>   | \$1.70            |                       | \$0.00                | > 50-100m   | This item includes the <b>volume</b> of material requiring major reshaping using a dozer to make safe an area and enable the establishment of rehabilitation. Dozer down above RL50 - 230ha (60m/m = 1.3M m3)   |
|  | Construct safety berm, catch bench and barrier around the pit perimeter (required where final pit will include steep faces).                              | N                   |                | m                | \$57.50           |                       |                       |   | Where steep faces will remain (i.e. greater than 18o) a safety berm and drop bench area required to be constructed around the perimeter of the void to restrict access.   |
|  | Erect a 6' chain mesh security fence around the top face where the final pit will include steep faces   | N                   |                | m                | \$50.00           |                       |                       |   | Where steep faces will remain a 6' chain mesh fence needs to be constructed around the perimeter of the void to restrict access to the site.  |
|  | Backfilling faces and benches as specified in the work plan   |                     |                | m <sup>3</sup>   | Select from List  |                       |                       |   | This item includes the <b>volume</b> of material that is to be hauled to backfill against the faces in the final void (where applicable).   |
|  | Engineering treatment to stabilise the faces on the benches (compaction of the backfill)  |                     |                | m <sup>3</sup>   | \$1.25            |                       |                       |   | This item includes the <b>volume</b> of material that is to be compacted against the faces in the final void (where applicable).  |
| Construction of an access and egress ramp in the voids that will be left post mine closure.    | N   |                     | m <sup>3</sup> | Select from List |                   |                       |                       | This item includes calculating the volume of material will need to be pushed down to create an access and egress ramp into the final void. The rate increases the longer the push length due to losses in dozer productivity. |   |
| Construct a standard stock fence around the site   | N   |                     | m              | \$8.50           |                   |                       |                       | This item includes the construction of a standard stock fence around the site to prevent stock and unauthorized persons entering the site while it is being rehabilitated.  |   |
| <b>Precinct Rehabilitation Liability</b>   |   |                     |                |                  |                   |                       | <b>\$1,764,450.00</b> |   |   |
| Water Dams   | Clean water dams (include all structures) to be retained after mine closure - make safe and minor earthworks to stabilise the water management structure. |                     |                | @                | \$2,000.00        |                       |                       |   | This item includes making the dam spillway, and walls stable to ensure the integrity of the dam walls so they can remain after the closure of the project.  |
|  | OR Backfill and reinstated dam to natural surface.  |                     |                | m <sup>3</sup>   | Select from List  |                       |                       |   | Dam to be backfilled (ie. reinstated the dam to be consistent with the natural surface). Some minor earthworks may be required.   |
| <b>Precinct Rehabilitation Liability</b>   |   |                     |                |                  |                   |                       | <b>\$0.00</b>         |   |   |
| River & Creek Diversions   | Long term maintenance of Creek diversion - Channel constructed through backfilled material  |                     |                | m                | \$330.00          |                       |                       |   | This item includes the <b>length (m)</b> requiring ongoing maintenance of diversions constructed through unconsolidated overburden. This will include earthworks repairs and stabilisation following flow events. It assumes a suitably qualified engineer has designed and signed off on construction of the diversion.                        |
|  | Long term maintenance of Creek diversion - Channel constructed through competent material   |                     |                | m                | \$165.00          |                       |                       |   | This item includes the <b>length (m)</b> requiring ongoing maintenance of diversions constructed through competent ground. This will include earthworks repairs and stabilisation following flow events. It assumes a suitably qualified engineer has designed and signed off on construction of the diversion.                                 |
|  | Creek diversion - Vegetation maintenance  |                     |                | m <sup>2</sup>   | \$0.30            |                       |                       |   | This item includes the ongoing maintenance of vegetation within the diversion channel & batters.  |
| <b>Precinct Rehabilitation Liability</b>   |   |                     |                |                  |                   |                       | <b>\$0.00</b>         |   |   |
| Landscaping, minor earthworks and revegetation throughout domain area.                         | Shaping or levelling of minor excavations, batters and stockpiles, final trim, rock rake and deep rip   | Y                   | 152.8          | Ha               | \$1,100.00        |                       | \$168,080.00          |   | This item includes the <b>area</b> requiring minor reshaping, rock raking and deep ripping to enhance revegetation program. It will generally include doing minor reshaping works to tidy up the site.  |
|  | Structural water management works, banks, drains, rock lined waterways, sediment dams   |                     |                | Ha               | \$1,400.00        |                       |                       |   | This item includes the catchment area requiring earthworks (banks, & drains, etc) to manage all surface water within the disturbance footprint. This rate is based on an average per hectare cost to install all required soil conservation earthworks.   |
|  | Reshape, deep rip and ameliorate sealed unsealed roads  |                     |                | Ha               | \$2,500.00        |                       |                       | Include all roads, carparks and hardstand in "Access and Haul Roads"  | Enter the total <b>area</b> of the road footprint requiring reshaping and deep ripping.   |
|  | Maintenance of the rehabilitated areas that are intended to be part of the ongoing closure of the site.   | Y                   | 152.8          | Ha               | \$650.00          |                       | \$99,320.00           |   | This item includes the ongoing maintenance of the rehabilitation (ie. repairing banks/drains and application of fertiliser. It assumes application twice during the first five (5) years after establishment.   |
|  | Construct a standard stock fence around the site  |                     |                | m                | \$8.50            |                       |                       |   | This item includes the construction of a standard stock fence around the site to prevent stock and unauthorized person entering the site while it is being rehabilitated.   |
|  | Source, cart, spread and rip topsoil  | Y                   | 152800         | m <sup>3</sup>   | \$2.04            |                       | \$311,712.00          | haul distance > 1km -2km  | This includes sourcing, carting and spreading of a suitable <b>volume</b> of topsoil to cover the entire disturbance footprint.   |
|  | Soil amelioration (adding gypsum, lime, etc)  | Y                   | 344.6          | Ha               | \$500.00          |                       | \$172,300.00          |   | This includes adding a soil ameliorant prior to preparation of seed bed for rehabilitation or assist stabilising dispersive soils (eg lime or gypsum).  |
|  | Direct seeding (native tree species OR using native grasses)  | Y                   | 191.8          | Ha               | \$2,000.00        |                       | \$383,600.00          |   | This rate includes acquiring a diverse mix of native tree & shrub species appropriate for the area (including understorey), mixing and treating the seed (ie smoke and heat) and applying the seed by hand at a rate between 4 - 10kg/ha (as applicable). This rate also includes undertaken soil sampling ahead of the rehabilitation program. |
|  | Direct seeding (pasture grass species)  | Y                   | 152.8          | Ha               | \$800.00          |                       | \$122,240.00          |   | This includes direct seeding of non native pasture grass species with the principal aim of return the land to a stable, sustainable grazing land use. It is different to using pasture grasses in for temporary erosion and sediment control. This rate also includes undertaking soil sampling ahead of the rehabilitation program.            |
|  | Single application of fertiliser (trees)  | Y                   | 191.8          | Ha               | \$140.00          |                       | \$26,852.00           |   | This item includes a single application of fertiliser during the initial seeding program.   |
|  | Single application of fertiliser (pasture)  | Y                   | 152.8          | Ha               | \$300.00          |                       | \$45,840.00           |   | This item includes a single application of fertiliser during the initial seeding program.   |
|  | Planting tubestock (< 15cm)   |                     |                | @                | \$5.00            |                       |                       |   | This includes the seeding, fertiliser tablet, weed mat and guard - small tubestock.   |
| Hydro-seeding with straw mulching and bitumen tack.  |   |                     | m <sup>2</sup> | \$0.95           |                   |                       |                       | This item has been included to capture the cost of any hydro seeding that may be required on the site.  |   |
| <b>Precinct Rehabilitation Liability</b>   |   |                     |                |                  |                   |                       | <b>\$1,329,944.00</b> |   |   |
| Other  | Rock Beaching (Wave action Protection)  |                     | 7700           | m                |                   | \$250.00              | \$1,925,000.00        |   | This item includes <<to be added by the operator>>  |
|  | Other 2 <-insert>   |                     |                |                  |                   |                       | \$0.00                |   | This item includes <<to be added by the operator>>  |
|  | Other 3 <-insert>   |                     |                |                  |                   |                       | \$0.00                |   | This item includes <<to be added by the operator>>  |
| <b>Precinct Rehabilitation Liability</b>   |   |                     |                |                  |                   |                       | <b>\$1,925,000.00</b> |   |   |
| <b>Total Rehabilitation Liability for the "Domain"</b>   |   |                     |                |                  |                   |                       | <b>\$5,019,394.00</b> |   |   |

**Open Cut Coal Mine Operations:**

**Domain 5: Other Management Issues**

Detail of person filling out the Worksheet:

|            |  |
|------------|--|
| Name       |  |
| Position   |  |
| Department |  |
| Date       |  |

Legend:

|  |   |
|--|---|
|  | Item fixed no entry required                        |
|  | Input from site optional (if information available) |
|  | Input mandatory                                     |
|  | Default Rate where an alternative is not provided   |

| Management Precinct                      | Activity / Description  | Applicable (Y or N) | Quantity | Unit | Default Unit Rate | Alternative Unit Rate | Total Cost            | Additional Info. | Description / Notes:   |
|--|---|---------------------|----------|------|-------------------|-----------------------|-----------------------|------------------|--|
| Other Management Issues                  | The restoration, care and maintenance of items that have historical significance and that are to be retained after the cessation of mining or quarrying |                     |          | item | \$0.00            |                       |                       |                  | This item includes ensuring that sufficient resources are made available to restore items of heritage significance and also provide a budget to enable the ongoing care and maintenance of the structure (if not the responsibility of any another stakeholder i.e. council, historical society) |
|  | Removal of powerlines (this includes disconnection, rolling up the wires and removing the poles). It does not include the removal of substations.       | Y                   | 49       | km   | \$12,000.00       |                       | \$588,000.00          |                  | This rate includes the dismantling and removal of powerlines and poles from the site. It does not include the removal of substations.  |
|  | Fill and cap exploration bores  |                     |          | @    | \$250.00          |                       |                       |                  | This rate includes grouting, capping and sealing all uncapped exploration holes around the site.   |
|  | Pest and Weed Management  |                     |          | @    | \$2,500.00        |                       |                       |                  | This item covers the costs associated with the management of pests and weeds on the site. It includes spraying in in autumn and spring.  |
|  |   |                     |          |      |                   |                       | \$0.00                |                  | Bore Sealing rates (2008)  |
|  | Traralgon Aquifer   |                     | 7        | item |                   | \$29,000.00           | \$203,000.00          |                  |  |
|  | M2C Aquifer   |                     | 15       | item |                   | \$20,000.00           | \$300,000.00          |                  |  |
|  | M2B Aquifer   |                     | 10       | item |                   | \$12,000.00           | \$120,000.00          |                  |  |
|  | Traralgon Aquifer Standpipes  |                     |          | item |                   |                       | \$0.00                |                  |  |
|  | Drainholes  |                     |          | item |                   |                       | \$0.00                |                  |  |
| <b>Precinct Rehabilitation Liability</b> |   |                     |          |      |                   |                       | <b>\$1,211,000.00</b> |                  |  |

**Total Rehabilitation Liability for the "Domain"      \$1,211,000.00**

**Open Cut Coal Mine Operations:**

**Third Party Project Management & Contingencies**

Detail of person filling out the Worksheet:

|            |  |
|------------|--|
| Name       |  |
| Position   |  |
| Department |  |
| Date       |  |

Legend:

|  |   |
|--|---|
|  | Item fixed no entry required                        |
|  | Input from site optional (if information available) |
|  | Input mandatory                                     |
|  | Default Rate where an alternative is not provided   |

**Sub Total of all Domain Areas** **\$28,393,709.00**

| Item                                     | Activity / Description   | Applicable (Y or N) | Quantity | Unit | Default Unit Rate                     | Alternative Unit Rate | Total Cost            | Additional Info.   | Description / Notes:  |
|--|--|---------------------|----------|------|---------------------------------------|-----------------------|-----------------------|--|---|
| Sundry Items                             | Mobilisation & Demobilisation (third party contractor rates apply).  | Y                   | 1        | %    | Select from List                      |                       |                       | Select Distance  | This is to cover the cost of the "third party" contractor bringing equipment to the site to undertake the rehabilitation works. It needs to reflect the true costs of getting the equipment to and from the site. |
|  | Post closure environmental monitoring requirements   | Y                   | 5%       | %    | This has deliberately been left blank |                       | \$1,419,685.45        |  | This item is to cover any monitoring and measurement requirements that may be needed following the closure of the project.  |
|  | Project Management & Surveying (this includes preparing any documentation and well as engineering and design changes that may be needed during closure). | Y                   | 10%      | %    |                                       | \$2,839,370.90        |                       | This is to cover any Project Management or Surveying costs that may be required during the closure of the mine. It also covers the preparation of tender documents and any cost for engineering and re-design that may be required during the closure of the mine. |   |
|  | Contingency  | Y                   | 10%      | %    |                                       | \$2,839,370.90        |                       |  |   |
| <b>Precinct Rehabilitation Liability</b> |  |                     |          |      |                                       |                       | <b>\$7,098,427.25</b> |  |   |

**Total Rehabilitation Liability for "Management & Contingencies"** **\$7,098,427.25**



## GHD

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### Document Status

| Rev No. | Author      | Reviewer    |   | Approved for Issue |   |          |
|---------|-------------|-------------|---|--------------------|---|----------|
|         |             | Name        | Signature   | Name               | Signature   | Date     |
| A       |             |             |   |                    |   | 05/12/08 |
| 0       | V. Sedunary | E. Waghorne |  | E. Waghorne        |  | 23/12/08 |
|         |             |             |   |                    |   |          |
|         |             |             |   |                    |   |          |