

IN THE MATTER OF THE BOARD OF INQUIRY INTO THE HAZELWOOD MINE FIRE
SUBMISSION OF GDF SUEZ AUSTRALIAN ENERGY
TERMS OF REFERENCE 8, 9, 10 (MINE REHABILITATION)

1. This Submission is made by GDF SUEZ Australian Energy (**GDFSAE**), and is in relation to paragraphs 8, 9 and 10 of the terms of reference as set out in the Order appointing the Board dated 26 May 2015 and published in the Victorian Government Gazette on that date (No. S 123) (**Terms of Reference**).
2. Paragraphs 8, 9 and 10 of the Terms of Reference require the Board to inquire into, and report on:
 - (a) short, medium and long term options to rehabilitate land on which work has been, is being or may lawfully be done in accordance with a Work Plan approved for the Hazelwood Mine, the Yallourn Mine, and the Loy Yang Mine, and land in relation to which an application for a variation of the Work Plan is under consideration;
 - (b) various matters in respect of each option;
 - (c) having regard to the rehabilitation liability assessment to be reported in 2015 by the operators of each of the Hazelwood Mine, the Yallourn Mine, and the Loy Yang Mine, and to the outcome of the Rehabilitation Bond Review Project:
 - (i) whether the rehabilitation liability assessment is adequate;
 - (ii) whether the rehabilitation bond system is or is likely to be effective for each of the Hazelwood Mine, the Yallourn Mine and the Loy Yang Mine; and
 - (iii) any practical, sustainable, efficient and effective alternative mechanisms to ensure rehabilitation of the mines as required by the Mineral Resources (Sustainable Development) Act 1990 (**MRSD Act**).
3. The Hazelwood Mine and the Hazelwood Power Station are owned and operated by the Hazelwood Power Partnership (**HPP**) and Hazelwood Power Corporation Pty Ltd (**HPC**), which are part of the GDFSAE group of companies.
4. GDFSAE confines its comments in this Submission to paragraphs 8, 9 and 10 of the Terms of Reference insofar as they relate to the Hazelwood Mine.
5. GDFSAE further notes that for the purposes of the first Hazelwood Mine Fire Inquiry, it provided extensive documentation, submissions and evidence to the Board in relation to the operation and rehabilitation of the Hazelwood Mine. The evidence included the witness statements of James

Faithful, Technical Services Manager – Mine, Robert Dugan, Mine Production Manager and Steven Harkins, Director of People, Culture and Environment. Pursuant to paragraph 13(c) of the Terms of Reference, the Board is entitled to have regard to this material for the purposes of the present further Inquiry. The following submission is in addition to that material.

THE HAZELWOOD MINE

6. The Hazelwood Mine is a substantial open cut brown coal mine located in the Latrobe Valley.
7. The Mine was established by the SECV in 1949, and mining operations commenced in about 1955.
8. Mining operations initially were in the area known as the East Field, and then expanded to the South-West, the South East and, most recently, to the West (**the West Field Mine Development**).
9. The West Field Mine development at the Hazelwood Mine is scheduled to be the subject of coal mining operations until mid-2017, at which time mining operations are then scheduled to move into the coal reserves in the North Field of the Mine (that is, mining will proceed to the North of the current West Field Northern batters). Mining activities are scheduled to continue in the North Field until the end of the current Mining Licence.
10. The Hazelwood Mine produces about 18 million tonnes of brown coal annually using dredgers which are capable of digging about 55,000 tonnes of coal per day. The coal is provided to the Hazelwood Power Station, which consists of 8 generating units. The Hazelwood Power Station generates about 11 TWh of electricity per year, and the supply of up to 25% of Victoria's electricity and 5.6% of the National Energy Market.
11. The Hazelwood Mine operates 24 hours a day, 7 days a week. Currently, there are 495 direct employees, and on average there are approximately 300 contractors that work at the Hazelwood Mine and the Hazelwood Power Station.
12. The open cut area of the Hazelwood Mine comprises approximately 1260 hectares, 836 hectares of which comprise the Mine floor. The floor of the Mine includes the dirty water ponds, the internal overburden dump, the Hazelwood Ash Retention Embankment (**HARE**) and the Hazelwood Ash Retention Area (**HARA**). The perimeter of the Mine is about 16.4 kilometres in total, and there are about 24 kilometres of coal conveyors and about 100 kilometres of roads in the Mine.
13. Due to the depth of the M1 coal seam in the Latrobe Valley, the Hazelwood Mine is characterised by steep, multi-levelled batters which, in the operating phase, are typically at a slope of about 1H:1V. The Mine walls typically consist of 6 - 7 levels, approximately 100 - 120m high from their base (the floor of the Mine), to their peak (surface or "grass" level). Each level typically comprises a flat section known as a bench or berm, and a steep sloping section known as a "batter".

14. Taking the example of the Northern Mine wall at the Hazelwood Mine, which is in the part of the Mine closest to the Morwell township, the entire wall is commonly referred to as the "Northern batters" with smaller individual sections of the wall named according to the stage of the mine field development in which they were created: i.e. East Field Northern batters, South West Field Northern batters.
15. The M1 coal seam is approximately 80 – 100 m deep, and the overlying overburden is approximately 15 – 25 m thick. The overall ratio of coal to overburden (known as the "strip ratio") at the Hazelwood Mine therefore is approximately 4:1. This is much greater than is the case for some other open cut coal mines (for example, the Anglesea Mine, where the strip ratio is about 1:1 to 1:2).
16. The composition of the overburden that is generated at the Hazelwood Mine from mining activities is such that a significant amount of the overburden is not suitable for use in connection with the rehabilitation of batters at the Mine. This is due to the properties of the overburden.
17. Stability is a key consideration with respect to the floor and batters of the Hazelwood Mine, including batters in worked out areas (such as the Northern batters of the Mine).
18. These characteristics of the Hazelwood Mine are of fundamental importance to any assessment of options for rehabilitation of land on which work has been, is being or will be done pursuant to any Work Plan for the Mine.

REGULATORY REQUIREMENTS REGARDING REHABILITATION

(a) Mining Licence

19. The Hazelwood Mine is operated under mining licence MIN 5004 issued to HPC by Order in Council under s47A of the *Electricity Industry Act 1993* (Vic) on 10 September 1996 (the **Mining Licence**).
20. The Mining Licence is for a term of 30 years.
21. The Mining Licence as granted contained:
 - (a) a Schedule of Conditions;
 - (b) an Authority to Commence Work, being Schedule A to the Order;
 - (c) a document entitled '*Mining Licence Application: Work Plan Submission*' dated 1 June 1995 (**Initial Work Plan**), including:
 - (i) a document entitled '*5 Year Rolling Mine Rehabilitation Plans: Summer - Autumn 1996*', being Schedule B to the Order and Annexure 1 to the Work

Plan;

- (ii) a document entitled '*Report to Generation Victoria Morwell Mine: Morwell Mine Rehabilitation Concept Master Plan*' dated December 1994, being Annexure 2 to the Work Plan;
- (iii) a document entitled '*Land Capability Analysis: Hazelwood Power Corporation Mine and Environs*' dated May 1995, being Annexure 3 to the Work Plan;
- (iv) a series of figures and site plans, being Section 10 of the Work Plan; and
- (v) a document entitled '*Regional Monitoring Program: Latrobe Valley Open Cut Coal Mines*' which formed part of the Work Plan.

22. The Mining Licence has been varied since its grant, including in order to:

- (a) amalgamate and incorporate into the Mining Licence additional mining licences MIN 5449, MIN 5450, MIN 5451 and MIN 5452 granted in relation to the West Field extension of the Mine, on 11 July 2006; and
- (b) impose additional conditions with respect to Risk Management, on 20 January 2015.

23. The boundaries of the Mining Licence exclude the Hazelwood Power Station, and the Hazelwood Cooling Pond.

24. The Schedule of Conditions for the Mining Licence includes the following conditions as regards rehabilitation and rehabilitation bonds (and more generally, compliance with Work Plans and Regulations):

1. WORK PLANS & ENVIRONMENTAL MANAGEMENT

1.1 Work shall be carried out in accordance with the approved work plan (incorporating a rehabilitation plan) as amended from time to time in accordance with the Mineral Resources Development Act 1990 (MRD Act). Where any inconsistency occurs between the work plan and other licence conditions or regulations, the licence conditions and regulations have precedence.

...

15. PROGRESSIVE REHABILITATION

15.1 Progressive reclamation will be conducted as per the rehabilitation plan. In addition, any further rehabilitation work will be carried out at the direction of

an Inspector.

- 15.2 As and when directed by an Inspector of Mines, despite any compensation agreements between the licensee and the owner of any private land in the licence, the licensee shall undertake progressive reclamation of land on the area subject to surface disturbance.

16. FINAL REHABILITATION

- 16.1 Final reclamation will be in accordance with the rehabilitation plan and any additional requirements as directed by an Inspector.
- 16.2 Failure to complete works in accordance with the rehabilitation plan or in accordance with the directions of an Inspector, shall constitute grounds upon which the rehabilitation bond may be forfeited either in whole or in part in accordance with Section 83 of the MRD Act.

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20. REHABILITATION BOND

- 20.1 The licensee shall lodge with the DNRE a rehabilitation bond as described in Section 80(1) of the Act when required in accordance with these conditions. The bond must be lodged in the form of a bank guarantee issued by a bank licensed under the *Banking Act 1959* (Cth).
- 20.2 The licensee shall be required to lodge that bond upon the licensee ceasing to be a State Owned Corporation and upon being directed to do so by the Minister for Agriculture and Resources.
- 20.3 The level of this bond has initially been assessed at \$15 million.

21. APPLICATION OF REGULATIONS

- 21.1 The *Mineral Resources (Health and Safety for Large Open Cut Mines) Regulations 1995* will apply to the licensee.
- 21.2 Any subsequent Regulations issued under the act will also apply.

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(b) Initial Work Plan and Work Plan Variation

25. As noted above, the Initial Work Plan (incorporating a rehabilitation plan) was approved for the Hazelwood Mine in September 1996.

26. The Initial Work Plan has been revised on a number of occasions. These revisions include the variation to address the West Field Development of the Hazelwood Mine, which was approved in May 2009 (**Work Plan Variation**).
27. The Work Plan Variation states as follows in relation to final (end-of Mine life) rehabilitation plans for the Hazelwood Mine:

6.4 Mine Closure Concept

The constraints arising from issues, described in section 6.3, particularly timely access to coal batters and benches, limit opportunity timely access to coal batters and benches, limit opportunities for progressive rehabilitation.

The following mine closure concept is considered the base case as it is unreasonable to prejudge community aspirations that may prevail at the time of closure.

Base Case

The main features of the conceptual mine closure and rehabilitation plan for the Hazelwood Mine are:

- **Pit void:** the pit will be allowed to fill with water creating a lake. This will initially take place by continuing aquifer depressurisation pumping, until the weight is enough to stabilise the batters (currently estimated to be RL – 22m). The pit lake will then fill slowly over a period of decades or more to its hydrological equilibrium (currently estimated at RL + 8m);
- **High-magnesium ash:** the power station coal ash is environmentally relatively benign as will be placed at the Eastern end of the void, in the Hazelwood Ash Retention Area (**HARA**). It is separated from the lake by the Hazelwood Ash Retention Embankment (**HARE**);
- **Overburden batters:** overburden batters will be reshaped to no steeper than 3H:1V with safety berms introduced where the vertical distance exceeds 20 m, topsoiled and seeded;
- **Coal batters:** new permanent coal batter faces will be shaped to no steeper than 2.5H:1V and preferably 3H:1V. Non-permanent coal batters will be maintained as they are until they are dug as permanent coal batters. Existing batters and benches carrying critical conveying infrastructure are considered non-permanent batters as the digging program has been revised to allow a final retreat digging pass that will convert them to permanent batters, i.e. no steeper than 2H:1V and preferably 3H:1V. Once the bench has been

completed, exposed coal will be progressively covered with overburden from the working face of the mine and revegetated on decommissioning;

- **Mining infrastructure:** this infrastructure will be decommissioned and removed;
- **Public access:** these are matters to be discussed closer to the time of closure, although the intent is to ensure a site that provides safe access if that is deemed to be a requirement at the time;
- **Ecological function:** revegetation options are constrained by a shortage of topsoil. IPRH has developed a site-specific species planting guide.

6.7.2 Further Work – Mine Closure Investigations

Further investigations to provide data for mine-closure planning may be required to address the complex issues associated with, in particular, long-term stability of the mine. These investigations include a review of previous studies to establish whether the results of those studies hold for expected changes in external influences.

28. There are currently no Work Plan variation applications for the Hazelwood Mine before the Department of Economic Development, Jobs, Transport and Resources (**DEDJTR**). An application lodged in 2013 for a further variation of the Work Plan, which was the subject of evidence before the first Hazelwood Mine Fire Inquiry in 2014, was withdrawn by GDFSAE in May 2015.

(c) Ground Control Management Plan

29. As a “prescribed mine”, pursuant to regulation 45 and Part 2 of Schedule 15 of the *Mineral Resources (Sustainable Development)(Mineral Industries) Regulations 2013* (Vic), HPP is required to have a Ground Control Management Plan (**GCMP**) for the Hazelwood Mine.

30. The GCMP outlines the processes and techniques employed at the Hazelwood Mine to manage (amongst other things) groundwater levels/dewatering, and batter stability.

31. These processes and techniques are relevant in the context of planning, conducting and monitoring rehabilitation of the Hazelwood Mine.

(d) MRSD Act obligations

32. Under section 81 of the MRSD Act, the obligations of mining licence holders with respect to mine rehabilitation, are as follows:

81. Rehabilitation

- (1) The authority holder must rehabilitate land in the course of doing work under the authority and must, as far as practicable, complete the rehabilitation of the land before the authority or any renewed authority ceases to apply to that land.
- (2) If the rehabilitation has not been completed before the authority or renewed authority ceases to apply to the land the former authority holder must complete it as expeditiously as possible.
- (3) While the rehabilitation is being completed, a former authority holder must continue the appointment of:
 - (a) in the case of a former licensee, a manager to control and manage the former licence worksite; and
 - (b) in the case of a former extractive industry work authority holder, a quarry manager or person to manage the site where the extractive industry operation was carried out.

REHABILITATION OF THE HAZELWOOD MINE

(a) Concepts in relation to Mine rehabilitation

33. The Mining Licence operates by reference to two broad concepts of rehabilitation:

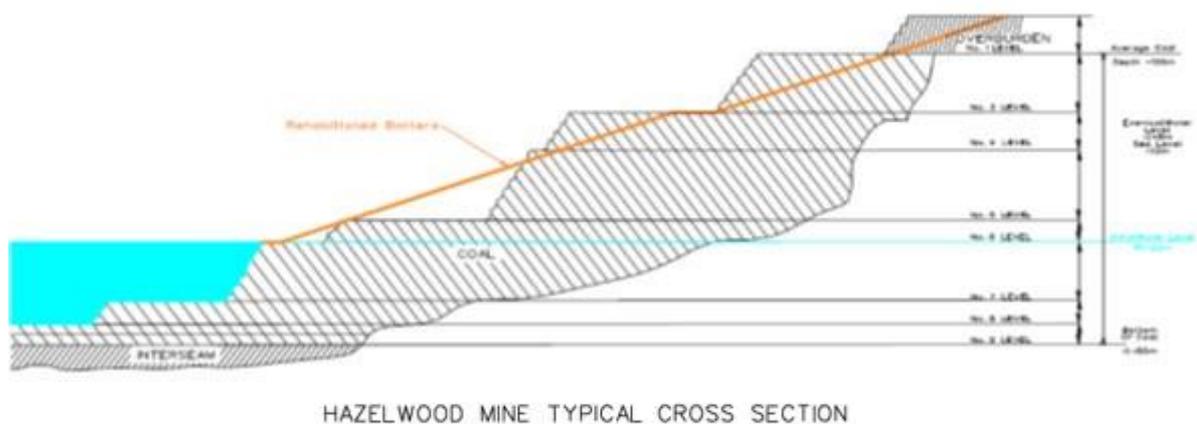
- (a) progressive rehabilitation, which is to be undertaken during the life of the Hazelwood Mine; and
- (b) final rehabilitation, which is to be achieved at the end of the life of the Hazelwood Mine once coal production ceases.

34. As indicated in the Work Plan Variation at 6.1, the goal of rehabilitation is to “*provide a technically feasible, safe, stable and sustainable landscape that reflects the aspirations of stakeholders within the practical constraints of rehabilitation of the mine*”.

35. The final rehabilitation concept for the Hazelwood Mine, outlined in the rehabilitation reports associated with the initial grant of the Mining Licence, is that the open cut pit will be partially flooded to form a lake. This goal is also set out in the Work Plan Variation at 6.4.

36. As the lower coal levels within the Hazelwood Mine will be submerged by the future lake, it is only the exposed coal levels above the future water level that will require rehabilitation by steps including reshaping the batters, the placement of overburden, and revegetation.

37. There are a number of different options for flooding the pit, including gradually allowing the aquifer levels to rise to their natural levels (subject to managing stability issues impacting the Mine).
38. As noted above, the Hazelwood Mine is about 100 - 120 metres deep. Current plans exist for the water level in the Mine to initially reach (within 6 years of closure) RL -22 ("RL" meaning "relative level" to sea level), which is 22 metres below sea level. The Mine will subsequently fill with water from natural sources and reach an eventual estimated water level of RL +8.
39. The crest of the Hazelwood Mine on grass level is approximately 60 metres above sea level, which means that the water level will be approximately 80 metres below grass level, leaving approximately 60 metres of exposed coal batters requiring rehabilitation. A simple visual depiction of this is set out below:



40. As the long term plan for the end of the life of the Hazelwood Mine is that the pit of the Mine will become a lake (approximately 38 metres deep), rehabilitation plans generally are not focussed on rehabilitating the lower level batters above the floor of the Mine. As detailed above, it is intended that the lake in the pit of the Mine will come up to 22 metres below sea level and that rehabilitation works will be undertaken on the parts of the pit which remain "exposed" above the future water line.
41. Reshaping the batters means laying back and re-sloping the batters from about the anticipated water line. As noted above, working coal batters at the Hazelwood Mine are typically at a slope of about 1H:1V. During rehabilitation, batters are progressively laid back to a slope of no steeper than 2.5H:1V (and where possible, 3H:1V).
42. Reshaping of batters for the purpose of rehabilitation is for several reasons, including to:
- (a) ensure the stability of soil placed on the batters;
 - (b) enable revegetation;
 - (c) make the area visually compatible with surrounding land; and

(d) make the areas capable of being used by the public or for other purposes post closure.

43. Broadly speaking, the steps involved in relation to rehabilitation of the batters of the Hazelwood Mine include the following:

- (a) First, stability assessments are required. This step is crucial and would likely take at least 6 to 12 months for an area of the Mine such as the Northern batters, which is in close proximity to the Princes Freeway, the Morwell township and other infrastructure. Stability assessments take the current known stability of the batters and then model the stability level after the proposed rehabilitation is completed. A range of variables including batter profiles, groundwater levels, seismic events, and weather events are simulated to determine how the rehabilitated batters would perform under varying load conditions. Once that assessment is undertaken, controls are then simulated to ensure that the resulting batter safety factors are not compromised. Such controls include horizontal bores, open drains and vertical pumping bores.
- (b) Secondly, planning is undertaken for the rehabilitation works. Based on the desired batter profile (or 'steepness'), the extent to which the existing batters need to be laid back has to be determined.
- (c) Thirdly, the mining infrastructure situated in the vicinity of the batters that will need to be removed is identified and, depending on what the infrastructure is, and what stage of the mining sequence has been reached, infrastructure which is required for the ongoing operation of the Mine needs to be rebuilt in a different location.
- (d) Once the necessary relocated infrastructure is rebuilt, the coal and overburden can be removed, and the batters are laid back to the desired profile. This work is completed using a method called "*truck and shovel*". Excavators (shovels) are used to progressively remove the coal and the overburden from each of the levels and this material is carted away in trucks. This process is the most complex process. In the Latrobe Valley, the "earthworks" season is generally from Melbourne Cup Day to Anzac Day each year. The weather outside of this period is generally wetter and unsuitable for major earthworks of this nature. Weather conditions within this period can vary significantly, so that the "earthworks season" is not immune from weather-related obstacles to progress.
- (e) Once the necessary coal is removed, overburden is then used to cover the newly profiled batters. The layer of overburden is typically about 1 metre deep.
- (f) After the batters are laid back and re-sloped and covered in suitable overburden, topsoil is spread on the batters so that the area can be revegetated, and any necessary geotechnical equipment (e.g. horizontal bores, standpipes, inclinometers, extensometers) is installed.

44. Batter rehabilitation requires extensive planning, and involves significant resources including plant, equipment, labour and in certain cases, engagement of external consultants (e.g. to assist in geotechnical and stability assessments). There are a number of constraints, which are discussed further below.

(b) Rehabilitation program for the Mine

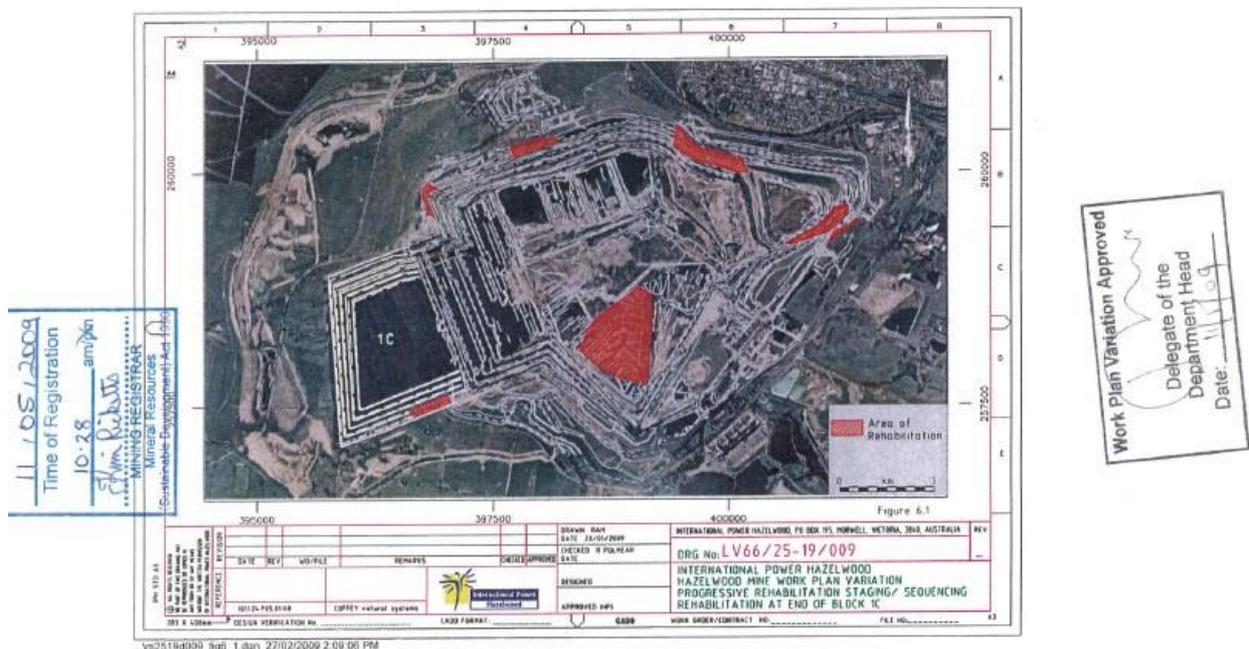
45. Under the Work Plan Variation, the progressive rehabilitation program for Hazelwood is tied to the nature of the overburden that becomes available from the mining operations in the various fields of the Mine.

46. In the context of the Work Plan Variation, references to:

- (a) “overburden mining” means the removal of the soil/clay material overlying the coal; and
- (b) “coal mining” means the mining operations in relation to the on average 100 metre thick coal seam underlying the overburden.

47. Given the unsuitability of the overburden material in fields 1A, 1B and 1C for placement on batters, under the Work Plan Variation, progressive rehabilitation of several areas of the Mine will be undertaken at the conclusion of Block 1C mining, at which time the red shaded areas are proposed to be rehabilitated:

Figure 6.1 Progressive rehabilitation staging / sequencing – Rehabilitation at end of Block 1C



48. As noted above, Block 1C is still being mined. Under the Work Plan Variation, the expected dates for completion of mining of Block 1C are as follows:

- **Overburden mining** – (2010 – 2015); and

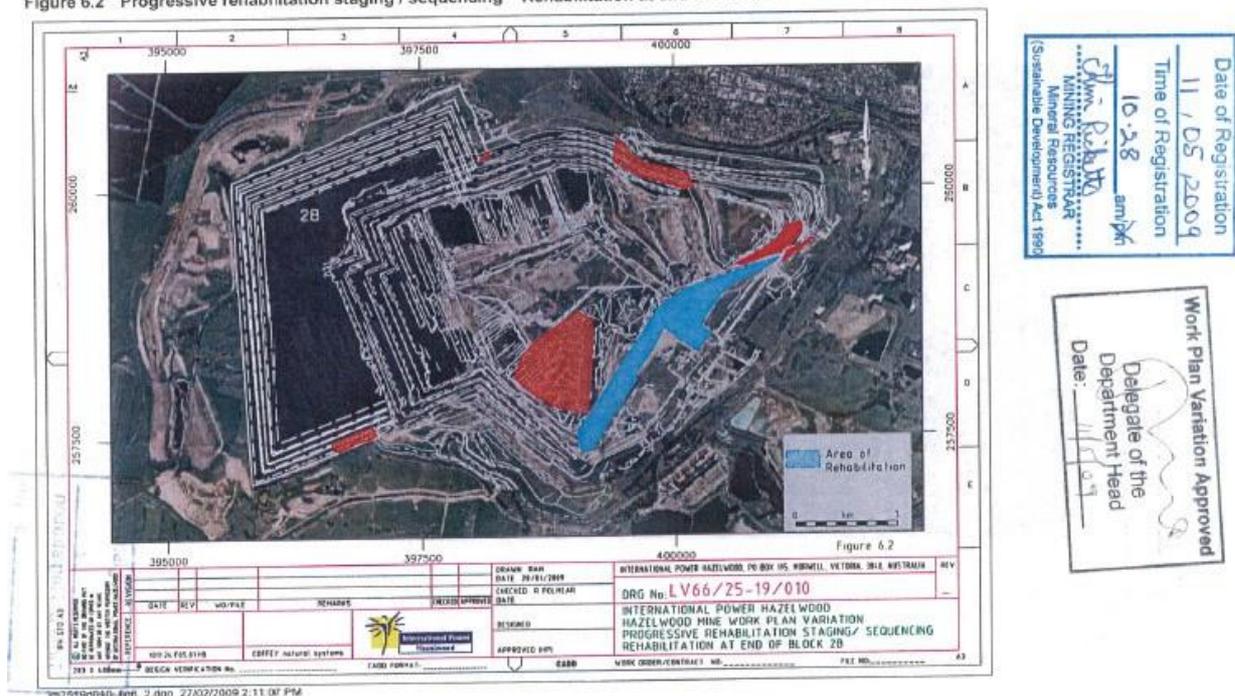
- **Coal mining – (2011 – 2019).**

49. During hearings in the first Mine Fire Inquiry, there was a difference of opinion between GDFSAE and Kylie White, Executive Director, Earth Resources Regulation Branch of the then- Department of State Development, Business and Innovation (**DSDBI**) as to whether the rehabilitation shaded in red on the plan above was due to *commence* by 2019 (GDFSAE's understanding), or whether it had to be *completed* by 2019 (DSDBI's view). Certain of the rehabilitation shaded in red in the above figure had already been undertaken at the time of the first Mine Fire Inquiry in any event.

50. Following consultations, DEDJTR has indicated that it would expect the rehabilitation shaded in red above to commence, and to be completed as rapidly as is practicable, upon overburden from Blocks 2A and 2B mining operations becoming available (currently scheduled for 2016 and 2017-2018 respectively).

51. Overburden materials from Block 2A and 2B mining operations are inherently more stable materials and have been scheduled for use in rehabilitation works on permanent Eastern and Southern batters of the Mine, as follows (blue shaded areas):

Figure 6.2 Progressive rehabilitation staging / sequencing – Rehabilitation at end of Block 2B



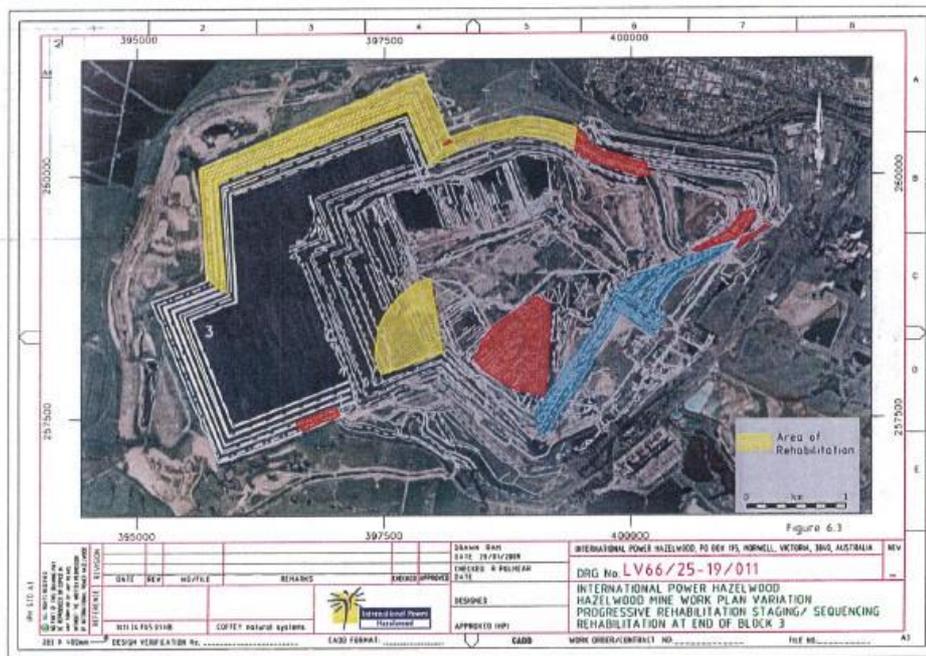
52. Under the Work Plan, the expected dates for mining of Block 2B are as follows:

- Overburden 2018 – 2025; and
- Coal 2019 – 2028.

53. Overburden materials from Block 3 and 4 mining operations are also inherently more stable

materials and have been scheduled for use in rehabilitation works on the Northern and Southern batters, as follows (yellow and green shaded areas respectively). The rehabilitation planned at the end of Blocks 3 and 4 respectively is as follows:

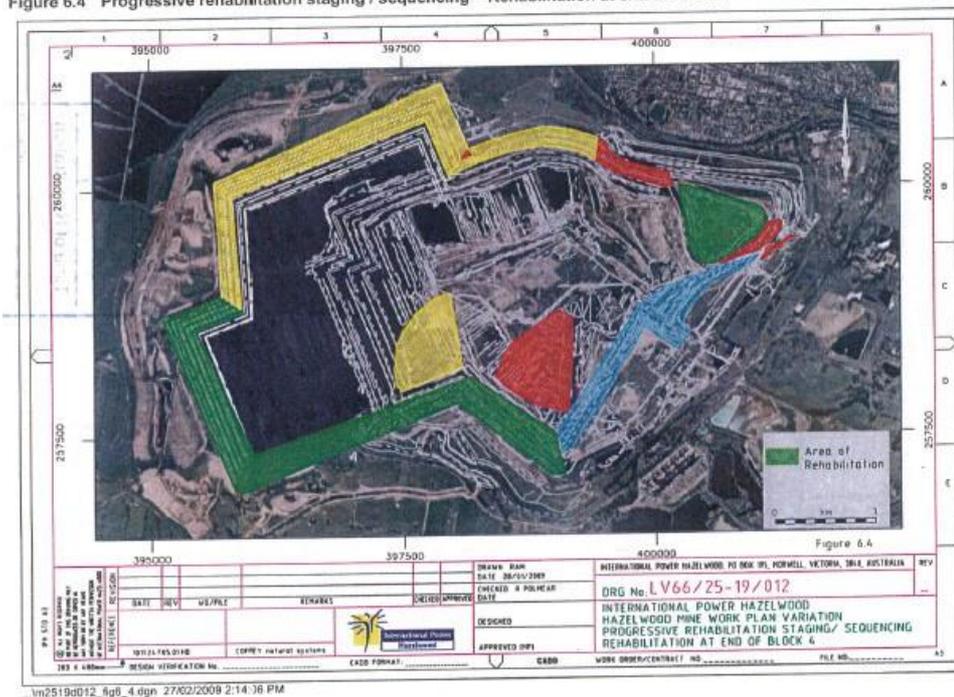
Figure 6.3 Progressive rehabilitation staging / sequencing – Rehabilitation at end of Block 3



Work Plan Variation Approved
 Delegate of the
 Department Head
 Date: 11/05/09

Date of Registration
 11/05/2009
 Time of Registration
 10:28 am/AM
 MPP REGISTRAR
 MINING REGISTRAR
 Mineral Resources
 (Sustainable Development) Act 1991

Figure 6.4 Progressive rehabilitation staging / sequencing – Rehabilitation at end of Block 4



Date of Registration
 11/05/2009
 Time of Registration
 10:28 am/AM
 MPP REGISTRAR
 MINING REGISTRAR
 Mineral Resources
 (Sustainable Development) Act 1991

Work Plan Variation Approved
 Delegate of the
 Department Head
 Date: 11/05/09

54. Under the Work Plan, the expected dates for mining of Block 3 are as follows:

- Overburden: 2026 to 2028; and

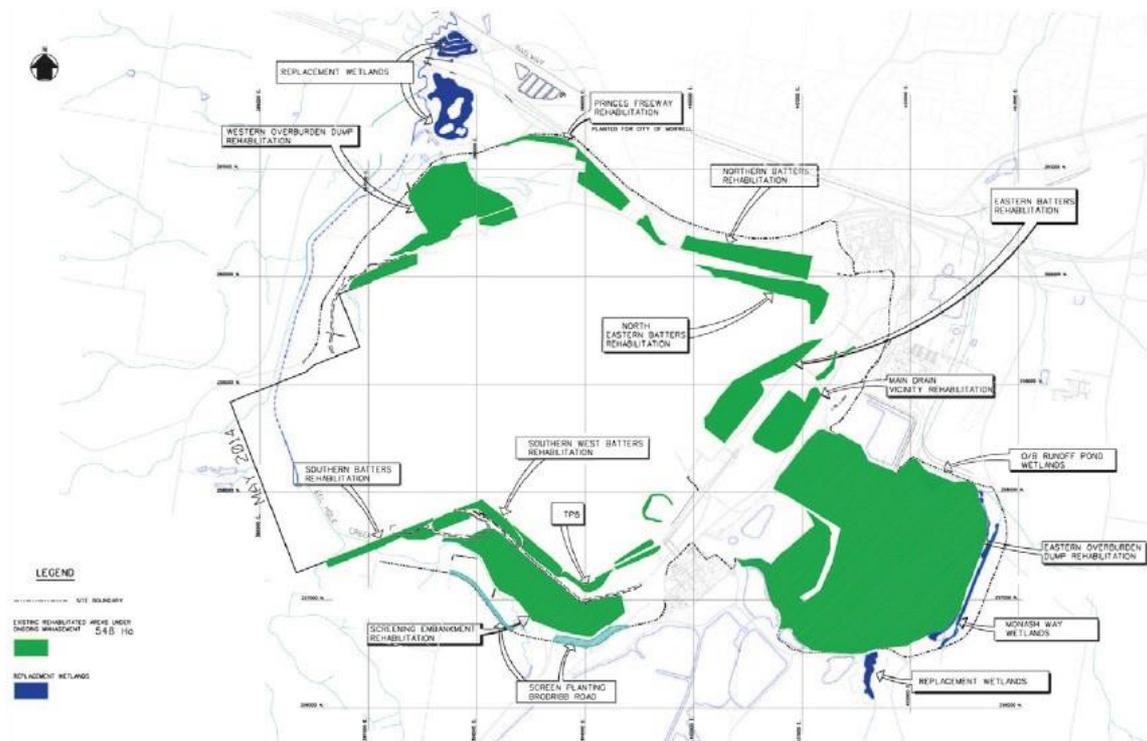
- Coal: 2027 to 2031.

55. Under the Work Plan, the expected dates for mining of Block 4 are as follows:

- Overburden: 2028; and
- Coal: 2027 to 2031.

(c) Rehabilitation to date

56. The areas within the Hazelwood Mine that have been rehabilitated to May 2014 are depicted as follows:



57. Since 1996/1997, about 460 hectares of land have been rehabilitated within the Mining Licence boundary. However, the hectare figures do not paint the full picture.

58. Some areas within the Mining Licence boundary were rehabilitated prior to privatisation. However, the majority of the rehabilitation works carried out prior to privatisation were “easy wins” –e.g. rehabilitation of external waste dumps, where all that was required was grading the overburden material (which was already relatively flat), and topsoiling and re-vegetating the area.

59. No rehabilitation works were undertaken within the pit of the Hazelwood Mine prior to privatisation, including in relation to any of the Mine’s batters. Since 2009, however, 50 hectares of the Mine have been rehabilitated, including 30 hectares of batters.

60. Hazelwood has undertaken rehabilitation ahead of schedule in the Northern batters of the Mine, being the area closest to the township of Morwell. Much of this work had been undertaken prior to the 2014 Mine Fire, with a further:

- (a) 10 hectares completed in late 2014/ early 2015; and
- (b) 14 hectares of rehabilitation works planned along the Northern batters, moving further to the West, in the earthworks season later this year and into early next year.

61. Further:

- (a) a large part of the floor of the Hazelwood Mine (about 396 hectares) has been successfully covered by the construction of the HARA (ash being an inert material), the HARE, and the dumping of overburden from Blocks 1B and 1C (due to its unsuitability for placement on batters) into the internal overburden dump on the floor of the Mine; and
- (b) 225 hectares of the floor of the Hazelwood Mine are covered by the dirty water ponds.

(d) Reporting on rehabilitation works

62. Progressive rehabilitation works undertaken within the Hazelwood Mine are regularly reported in Environmental Review Committee (**ERC**) reports produced under the Mining Licence.

63. The ERC consists of representatives from:

- DEDJTR;
- the Department of Environment, Land, Water and Planning (**DELWP**);
- the West Gippsland Catchment Management Authority (**WGCA**);
- Latrobe City Council (**LCC**);
- the local community;
- Victorian Farmers Federation (**VFF**); and
- Environment Protection Authority (**EPA**).

64. The ERC meets on a quarterly basis. Meeting minutes are taken.

65. Officers from DEDJTR and its predecessor agencies regularly view rehabilitation works within the Mine, as part of their routine inspections of the Hazelwood Mine.

66. Hazelwood also reports upon the extent of rehabilitation undertaken, and on rehabilitation liabilities, on an annual basis pursuant to Schedule 19 of the *Mineral Resources (Sustainable*

67. There is no suggestion that the obligations under the approved rehabilitation plan for the Hazelwood Mine are not being complied with.

CONSIDERATIONS IN RELATION TO REHABILITATION

68. There are a number of matters which are relevant to and impact upon rehabilitation works in relation to the Hazelwood Mine. These matters include:

- (a) **availability of suitable overburden:** the extent to which suitable overburden for use in batter rehabilitation work is or will be available. A fundamental difference between the Latrobe Valley mines and the Anglesea Mine is the volume of overburden that becomes available from the mining operations due to the different strip ratios that apply. Further, not all overburden which becomes available from the mining operations at the Hazelwood Mine is suitable for placement on batters as part of rehabilitation works, due to the properties of the overburden;
- (b) **construction constraints:** typically, given the ground conditions at the Mine, earthworks projects such as rehabilitating batters can only be carried out between November and April due to difficulties with the wet weather outside of this period;
- (c) **infrastructure positioned on or beneath the batters:** important infrastructure is situated on or beneath the Mine batters which may need to be removed or relocated in order for the rehabilitation works to be completed. Taking the example of the northern batters, such infrastructure includes:
 - (i) **mine power lines** – including power lines which run up the Northern batters and supply power to important Mine infrastructure situated on the floor of the Mine beneath the Northern batters such as pump stations servicing the Mine's operations, including the fire services network;
 - (ii) **fire services mains pipes** - including additional pipework installed in response to the Mine Fire;
 - (iii) **pumps situated on the floor of the Mine just beneath the batters** e.g. ground water control pump;
 - (iv) **ponds and groynes;**
 - (v) **roads, ramps and benches** – most of which are required as part of the Mine's operations (for example, for access to various parts of the Mine for operation and maintenance requirements). Alternative access arrangements would need to be arranged, prior to such infrastructure being removed;

- (vi) **horizontal bores** – which help control water levels within the batter, in order to ensure stability;
 - (vii) **vertical bores** - which provide for the monitoring and management of aquifer levels beneath the Mine;
 - (viii) **other geotechnical equipment positioned on the batters** – which monitors conditions relevant to batter stability – e.g. piezometers, extensometers, inclinometers and survey prisms; and
 - (ix) **roadside / underground drains** - which drain water way from the batter, in order to manage stability.
- (d) **infrastructure positioned above the batters** - in order to reduce the grade of the batter and allow for future land use, an area of land at the top of the batter would need to be removed. Mine infrastructure such as roads and power lines are likely to be affected by such works. Further, potential impacts of Mine rehabilitation works on third party infrastructure would need to be assessed and managed. In the case of the Northern batters, relevant third party infrastructure includes:
- (i) Ausnet Services' high voltage power lines which service other Gippsland towns such as Leongatha, Yallourn and Morwell as well as the Hazelwood Mine and Power Station;
 - (ii) the Princes Freeway; and
 - (iii) the Morwell Main Drain.
- (e) **future mining direction** - as noted above, mining operations will move into the North Field of the Mine (and proceed further to the North, of the current West Field Northern batters). The current West Field Northern batters are temporary batters, which will be directly mined through. Any overburden placed over the top of these batters as part of rehabilitation works would need to be later removed.

69. Further, certain infrastructure within the Hazelwood Mine is critical, and cannot feasibly be relocated or replaced during the life of the Mine. For example:

- (a) the coal conveyors along the Southern and South Eastern batters of the Mine which supply the Power Station and Energy Brix; and
- (b) certain horizontal bores in the Northern batters of the Mine.

70. Critically, a large component of the cost of rehabilitation works on mine batters is the transportation of the overburden, including the distances involved. It is for this reason that the

current rehabilitation program for the Mine under the approved Work Plan Variation is tied to the **sequence** of the mining operations, both from the perspective of the nature of the overburden materials in each mine field, and the location of the mining operations relative to the areas to be rehabilitated. Varying the sequence or schedule of progressive rehabilitation works can have a dramatic impact upon the cost, viability and practicality of such works.

REHABILITATION TERMS OF REFERENCE

71. The Terms of Reference for the second Mine Fire Inquiry require the Board to consider short, medium and long term options to rehabilitate land on which work has been, is being or may lawfully be done in accordance with a Work Plan approved for the Hazelwood Mine.
72. Mine rehabilitation works are distinct from works which might be undertaken in order to reduce or mitigate the risk of fire within the Mine, for example, the application of a clay/cement coating to exposed coal batters - a suggestion raised during the first Inquiry by expert witnesses Professor David Cliff and Mr Roderic Incoll. Such steps do not involve rehabilitation of the relevant land. Further, as mentioned by other witnesses in the first Mine Fire Inquiry, including Kylie White, Executive Director, Earth Resources Regulation Branch, DSDBI, and James Faithful, Technical Services Manager – Mine, GDFSAE, any such proposals would need to be assessed in reference to a range of technical and feasibility considerations.
73. As regards “*short, medium or long term options*” to rehabilitate land on which work has been, is being or may lawfully be done in accordance with a Work Plan approved for the Hazelwood Mine, GDFSAE is happy to assist the Board in its consideration of what such options might be.
74. Any proposed “*short, medium or long term option*” to rehabilitate land at the Hazelwood Mine must be assessed having regard to the various factors referred to in paragraph 9 of the Terms of Reference, and take account of the matters referred to in paragraphs 68 – 70 above. Technical and commercial viability are of critical importance in relation to any rehabilitation options that might be identified.

REHABILITATION BOND

75. Paragraph 10 of the Terms of Reference for the Inquiry requires the Board to inquire into and report on:
- (a) whether the rehabilitation liability assessment of each of the Hazelwood Mine, Yallourn Mine and Loy Yang Mine are adequate;
 - (b) whether the current rehabilitation bond system is, or is likely to be, effective for the Mines;
- and

- (c) any practical, sustainable, efficient and effective alternative mechanisms to ensure rehabilitation of the mines as required by the MRSD Act,

having regard to:

- (d) whether the rehabilitation liability assessments to be reported in 2015 by the operators of each of the Mine, the Yallourn Mine, and the Loy Yang Mine; and
- (e) the outcome of the Rehabilitation Bond Review Project.

76. The Rehabilitation Bond Review Project referred to in Paragraph 10 of the Terms of Reference is incomplete, and there is no outcome as yet. In these circumstances, it is not possible for GDFSAE to make informed comment or submissions in relation to paragraph 10 of the Terms of Reference at this time. GDFSAE will provide further written submissions on paragraph 10 of the Terms of Reference (and will seek any leave that is necessary to do so), once the Rehabilitation Bond Review Project is completed and the outcome is known.

77. In the meantime, GDFSAE submits that when addressing paragraph 10 of the Terms of Reference, and in particular, the effectiveness of the current rehabilitation bond system, the Board will need to consider a range of factors, including the following:

- (a) GDFSAE's full compliance with the progressive rehabilitation requirements for the Hazelwood Mine outlined in the Work Plan Variation;
- (b) the terms of the Mining Licence, which empower the Inspector of Mines to direct that further rehabilitation be undertaken;
- (c) the following provisions within the MRSD Act:
 - (i) section 78, which imposes an obligation on mining licence holders to rehabilitate land in accordance with conditions in the licence and in accordance with any rehabilitation plan entered into with the Department;
 - (ii) section 81, which provides that licence holders must rehabilitate land in the course of doing work pursuant to their licence, and must "as far as practicable" complete the rehabilitation before the authority to work (or any renewed authority) ceases to apply to that land, and which imposes a penalty for non-compliance; and
 - (iii) section 83, which provides that the Minister may request a licence holder to rehabilitate land. If the licence holder fails to do so (within a reasonable time after the request), the Minister may take any action necessary to rehabilitate the land, and recover as a debt the cost of undertaking the work where it exceeds the amount of the rehabilitation bond;

- (d) the financial implications to the licence holders of any change or amendment to the current rehabilitation bond system; and
- (e) the proper purpose of the rehabilitation bond system.

Dated: 25 August 2015