

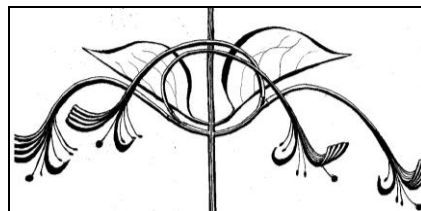
SUBMISSION TO:

HAZELWOOD MINE FIRE INQUIRY

REGARDING: MINE REHABILITATION

BY: DAVID LANGMORE

“The rehabilitation of the Latrobe Valley’s open cut brown coal mines is arguably the greatest environmental challenge confronting Victoria in the next couple of decades.”



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1. Background about the Submitter:

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Personal and Professional Planning Experience:-

I have lived in the Latrobe Valley for about 40 years. I am a retired town and regional planner with over 25 years experience working in various roles at senior levels with the Victorian Government on regional planning for the Latrobe Valley. From 1977 to 1984 I was the Regional Manager of the Town and Country Planning Board's Central Gippsland Regional Office. Between 1985 and 1995 I was employed by the Latrobe Regional Commission, initially as the Director of Planning and Environment and later as Manager, Infrastructure and Service Industries. For four years, from 1995 I was the Manager of the Gippsland office of the Department of Infrastructure (previously, Department of Planning). After retiring from the Victorian Public Service during 1999, I worked as an independent planning consultant on a range of planning projects in various parts of Gippsland for six years. A number of matters arising from my professional experience in the Latrobe Valley may have relevance to some aspects of this inquiry.

Authorship of "Planning Power":-

Towards the end of 2013, Australian Scholarly Publishing published a book which I had written entitled "**Planning Power: The uses and abuses of power in the planning of the Latrobe Valley**". This book reviewed the planning and development of the Latrobe Valley in the period from 1920 through to the early 1980's. There are several important matters dealt with in this book which are of considerable relevance to this inquiry.

2. Some Key Comments

The rehabilitation of the Latrobe Valley's brown coal open cut mines is arguably the greatest environmental challenge confronting Victoria in the next couple of decades.

Since commencing in 1920, the Latrobe Valley's major open cut mines have expanded continuously and now cover an immense area of over 50 square kms. (This is approximately the same area as Sydney Harbour, or, in Melbourne, the equivalent to an area encompassed by a line joining Flemington racecourse with Williamstown, Albert Park and Studley Park.)

After the alienation of huge swathes of valuable land during the past 95 years of open cut mining, not even a tiny section of the major mined areas in the Latrobe Valley have been fully and finally rehabilitated and returned to any form of productive use and public or private (non-mining company) ownership.

There are compelling environmental, economic, social, political and ethical reasons why all Latrobe Valley brown coal mines should be progressively rehabilitated so that when mining concludes the mines are made physically safe, environmentally acceptable, aesthetically attractive, and capable of being productively used for suitable, agreed beneficial uses.

Strong new measures and organisational arrangements combined with careful research, comprehensive planning and considerable financial expenditures will be necessary in order to achieve the best possible outcome of future rehabilitation works.

3. Latrobe Valley Mine Rehabilitation Planning and Development: Some Historical Perspectives

3.1 General Comments

3.1.1 From 1920 until the privatisation of the power industry in 1993, all mining in the Latrobe Valley's brown coal open cut mines was undertaken by a Victorian Government statutory corporation, the State Electricity Commission of Victoria. Consequently, most of the mining which has occurred in both the Yallourn and Morwell (Hazelwood) mines, and possibly also the Loy Yang mine, has been undertaken by the SECV, rather than by private companies. The SECV undertook all its operations in the Latrobe Valley directly on behalf of successive Victorian Governments.

3.1.2 Mine rehabilitation plans were not prepared prior to the commencement of the SECV's open cut coal mines at Yallourn in 1920, Morwell (Hazelwood) in 1958 or Loy Yang in 1984. Victorian Governments of the time did not require their preparation and the SECV itself did not prepare any such plans.

3.1.3 The SECV did not take a serious interest in the issue of mine rehabilitation for most of the period from 1920 until about the mid 1970's. It is virtually impossible to find a mention of the word "rehabilitation", let alone any serious consideration of rehabilitation as an issue, in any SECV document, from that period. Rehabilitation did not rate as an issue. There were undoubtedly a number of factors that contributed to this situation. The SECV was totally focussed on what it perceived were its primary responsibilities of coal winning, power generation and distribution. It was presumed that these functions would continue on indefinitely into the long-distant future. Furthermore any mines that had commenced were viewed as being capable of continuous, almost limitless expansion. As a consequence, the SECV viewed rehabilitation as a matter which would only need to be considered at some much later point of time in the dim, distant future. There seemed to be general presumption that any future mine rehabilitation would be achieved by allowing the open cuts areas to become flooded with water, possibly with the addition of a bit of "smoothing out" of banks around the edges. Through these measures it was envisaged, perhaps rather blandly, that eventually, a new, attractive system of Gippsland Lakes would be created.

3.1.4 During most of this period, overburden was viewed as a "waste material" which had to be removed and disposed of as cheaply and conveniently as possible. It had to be cleared away from above the thick seams of coal and then "dumped" somewhere reasonably close to the open cut (in order to minimise handling costs) but also in a location where it would not prejudice possible future coal winning operations. As a result, huge overburden dumps were established next to both the Morwell (Hazelwood) and Loy Yang open cuts. During most of the period from the 1950's through to the mid 1980's, the SECV was not inclined to place any overburden back into the voids of the open cut, as it was considered that this could prejudice possible future coal winning activities, including the possibility of mining deeper seams of

coal located below those which were being mined. (See Chapter 8 of SECV report “Long Term Development of Coal Resources” prepared by Kinhill Pty. Ltd. in 1982)

3.1.5 The SECV was never required to lodge any form of “rehabilitation bond” with the Victorian Government, either prior to the commencement of any of the open cut mines nor at any stage during the whole of the SECV’s existence. There was probably a generally accepted, but unstated, assumption that the SECV, being a public, State Government instrumentality, would naturally be expected to act responsibly. This would include a general expectation that the SECV would undertake any future rehabilitation works as and when that might be required. Furthermore, there was probably also a vague, unstated, expectation that the SECV would, somehow or other, cover the cost of undertaking any future rehabilitation works, through its own budget, at no direct cost to the Victorian Government or the Victorian taxpayers.

3.1.6 The SECV first started to take an active interest in rehabilitation as an issue in the late 1970’s and the 1980’s. This was, to a significant extent at least, due to pressure from outside the organisation itself. As a result of strong advocacy from the Ministry for Conservation, the Victorian Government’s Statement of Planning Policy No. 9 “Central Gippsland: Brown Coal Deposits in the Context of Overall Resources” which was issued in 1975 contained the following statement:-

“2.5 Brown coal excavation and overburden dumps shall be planned and rehabilitated to the highest practicable environmental condition consistent with their potential future use.”

3.1.7 On September 13 1976, the Ministry for Conservation sent a letter to the SECV that stated inter alia that:-

“Assuming that rehabilitation is for conservation and recreation purposes, it is essential to investigate and plan now, if open cuts and the surrounding lands are to attain anything like their full potential as public areas. As a basis for effective planning, it will be necessary to extend the existing experimental investigations aimed at determining what will grow, and what biological and engineering treatments is best for the cut face.

It is considered that discussions on rehabilitation of the brown coal areas should begin and that an advisory committee be established with this in mind.”

Although a meeting was held between SECV and Ministry for Conservation representatives, no formal advisory committee was established after this letter.

3.1.8 In 1985, the SECV produced its first public document about rehabilitation issues “Discussion Paper on Draft SECV Rehabilitation Policy for Open Cuts and Overburden Disposal Areas”. This was not a rehabilitation plan or set of plans. Rather it was a document outlining a program to prepare rehabilitation plans over a 4 year period to 1989.

3.1.9 In 1993 when the SECV was being wound up, there was no pool of money anywhere within the Victorian Government system set-aside to assist with meeting

any future State Government liabilities for brown coal open cut rehabilitation responsibilities. At that time the SECV had only undertaken limited amounts of mine rehabilitation work. No significant mine rehabilitation had commenced at either the Loy Yang or Morwell (Hazelwood) mines. However, substantial amounts of overburden had been back filled into the Yallourn open cut and some significant rehabilitation work had been undertaken at the small Yallourn North Open Cut.

3.1.10 Private power companies took over the brown coal mining and power generating operations in the Latrobe Valley from the SECV in 1993. Under the State Government orders granting mining licence conditions to each of the private power companies, mine rehabilitation plans and rehabilitation bond requirements were specified. The rehabilitation bonds were all set at \$15m. for each of the 3 major mines. It would seem that in this process, the private companies assumed full responsibility for all future progressive and final mine rehabilitation works.

3.1.11 By 2010, there had been rehabilitation of some, but not most, of the mined areas. The then mine operators claimed that a total area of 17 sq. kms (or 34% of the then mined area) had had significant or substantial rehabilitation work undertaken on it. (See “Planning Power” p.366) However an evaluation of the basis and accuracy of that information was not able to be undertaken. Nevertheless, this information was sufficient to provide a clear indication that most of the mined areas had not been rehabilitated. It is particularly important to note, moreover, that no significant area of any of the major open cuts has been fully rehabilitated and then, subsequently, returned to the ownership of any non-mining organisation.

3.2 Yallourn North Mine

3.2.1 The Yallourn North Open Cut Mine was opened in 1887. It was then known as the Great Morwell Brown Coal Mine. It operated as a relatively small-scale open cut brown coal mine through most of the period until mining finally ceased in 1963.

3.2.2 The Yallourn North Open Cut Mine is located just to the north of the Latrobe River and the northern lip of the mined area is located only about 50 metres south of the southern edge of Yallourn North, a town with a population in the order of 1,500 people.

3.2.3 Jack Vines made the following comments about what happened to the mine after the cessation of mining:-

“For fifteen years or so after the cessation of coal excavation at YNOC, extensive rehabilitation of the worked out batter systems with terracing of some batters and revegetation with commercial pine plantations was undertaken. Pondages were maintained in the east and west of the open cut, partly to achieve fire protection and partly for aesthetic value. The central area in the open cut was used as a Yallourn Works Area hard rubbish dump. In the mid 1980’s, a twin pondage arrangement was established in the central area of the YNOC to receive ash hydraulically from the Yallourn W Power Station. Each pond was operated alternatively for air drying of

the ash before its excavation for disposal in the western area of the worked out open cut.” (See Vines p.212)

3.2.4 Despite some significant rehabilitation work which was undertaken many years ago at the Yallourn North Open Area, no public access or use has ever been permitted in any part of the old open cut area.

3.2.5 It seems absolutely ludicrous that, over 50 years after mining ceased at the Yallourn North open cut, no public access or use is permitted in any part of that area. This situation is particularly unsatisfactory given the immediate proximity of the area to a significant town. Surely, it should be possible for the on-going ash pondage arrangements to be relocated to another suitable site, probably within the bounds of the mined-out area of the Yallourn Open Cut. If this was done, and if further major rehabilitation works were undertaken, it should be possible for all, or most, of the site to be made available and accessible for an appropriate range of public uses within a few years.

3.2.6 The Yallourn North Open Cut area would seem to have great potential to be a pilot or model rehabilitation project which could be used to demonstrate some of the options for successful rehabilitation of the Latrobe Valley’s much larger open cut mine areas.

3.3 Yallourn Mine

3.3.1 The Yallourn Open Cut Mine was commenced in 1924.

3.3.2 Internal dumping of overburden back into the Yallourn Open Cut commenced in 1940 i.e. 26 years after the commencement of mining. (See Vines, page 219).

3.3.3 Yallourn is the only major Latrobe Valley open cut mine in which substantial, large scale rehabilitation has occurred. This is primarily the result of the internal dumping of overburden into the mine over a period of 75 years. However, it is also the result of some careful, professional programs on soil preparation and conditioning, grass and tree planting which commenced under the SECV in the 1980’s.

3.3.4 In many regards, the rehabilitation work in the Yallourn Open Cut is both substantial and impressive. However, there may be a need for review of some of the rehabilitation strategies and also scope for performance improvement in some areas. For example, it may be timely to review the appropriateness of facilitating significant amounts of tree growth having regard to the importance of local and regional fire hazard reduction and fire control programs. Similarly, assumptions about some long term flooding probably warrant being carefully reviewed.

3.3.5 In 2010, it was stated that the mining in the Yallourn Open Cut area had covered a total area of 25 sq. kms. Of this area, it was claimed that 7.5 sq kms of the mined area had been substantially rehabilitated.

3.4 Morwell (Hazelwood) Mine

3.4.1 During the late 1940's and early 1950's, the SECV, with the sanction of the Victorian Government, planned for a separation distance of only 400 metres between the southern edge of the already existing town of Morwell and a proposed new Morwell Open Cut. For reasons which are outlined in Chapters 8 and 12 of "Planning Power", this was a completely irresponsible proposal.

3.4.2 The Morwell Open Cut Mine was commenced in 1955.

3.4.3 The implementation of only a 400 metre separation distance between the open cut and Morwell has caused, as was totally predictable, an array of very deleterious environmental problems and risks. In addition, it has also created diabolical problems for future rehabilitation of the critical north face of the open cut. Rehabilitation of the north face will now be infinitely more problematic, difficult and costly than it would have been if a proper buffer of 1 km to 1.5 kms width had been provided for, as had been the case with Yallourn township back in 1921. The Victorian Government should be expected to make a generous financial contribution to this rehabilitation process, having regard to the corporate negligence of the SECV on this matter.

3.4.4 In an internal SECV memo, dated 20th September 1974, signed by the then Chief Engineer (Fuel), relating to discussions about the proposed wording for Statement of Planning Policy No.9, it was stated that:-

"The notes,,..., refer to minor matters except for one aspect concerning the dumping of overburden in the Morwell open cut. Present planning envisages this will be undertaken in the mid-1980's. A final decision does not have to be made for some years yet by which time the future use of brown coal should be clearer...."

3.4.5 In 1985, the SECV proposed the addition of a further level of overburden on top of the Morwell Overburden dump resulting in its height being increased from 20 metres up to 40 metres. At the same time the SECV also flagged their intention to eventually add a third level of overburden which would have increased the total height of the overburden dump to 60 metres. (By way of comparison, the height of the dome of Melbourne's Exhibition Building is 68 metres). The Latrobe Regional Commission challenged these SECV proposals and suggested that the additional overburden should be required to be placed within the void of the Morwell Open Cut. The SECV strongly resisted this suggestion. The SECV claimed that the overburden operations could not be relocated in less than 4 -5 years.

3.4.6 In April 1986, the SECV produced a report "Site Selection for the Future Overburden Disposal Area to Serve the Morwell Open Cut". This report recommended the addition of a second level to the Morwell Overburden Dump over a period of 8 to 10 years, and then, after that, the commencement of the internal dumping of overburden into the Morwell (Hazelwood) Open Cut (rather than the SECV's previous proposal of adding a 3rd level to the Morwell Overburden Dump).

3.4.7 It is understood that internal dumping of overburden in the Morwell Open Cut must have commenced in approximately 1998. In his book “Coal Mining Heritage Study”, Jack Vines states that:-

“In April 2001, the first level of the internal dump for overburden disposal was completed after some three years of operation covering about 54 hectares to a depth of up to 28 metres.”

Thus, internal dumping of overburden into the void of the Morwell Open Cut did not commence until about 43 years after the initial commencement of the open cut.

3.4.8 The completed Morwell Overburden Dump is a huge 40 metre high hill, situated on originally flat land, covering an area of 3.30 sq. kms. and containing approximately 80 million cubic metres of overburden material. (See SECV “Site Selection for Future Overburden Disposal area to serve Morwell Open Cut” 1986 pp.3 & 4)

3.4.9 In 1996, the Work Plan for the Hazelwood Mining Licence Application was placed in the Victorian Government Gazette. This contained a Final Rehabilitation Concept Plan the main feature of which was a very large “Proposed Lake”. In Section 8 of the plan it is stated inter alia:-

“It may be necessary with some aspects of rehabilitation during the ongoing design and implementation process for further studies to provide all the information to make appropriate decisions. One example of this is the flooding option for the open cut to form a lake.

The formation of a lake in the open Cut is the preferred option for ultimate rehabilitation, however further investigation of the potential effects of flooding the Mine would be required prior to implementation. Areas which will require further study on potential flooding option impacts are:

- *Methods, costing and timing of flooding the mine;*
- *Stability of the mine batters;*
- *Earthmovement impacts, both local and regional;*
- *Water quality ramifications, both local and regional;*
- *Groundwater impacts, both local and regional;*
- *Micro-climate impacts.”*

3.4.10 In 2010, it was stated that the mining in the Morwell (Hazelwood) Open Cut area had covered a total area of 15 sq. kms. Of this area, it was claimed that 5 sq kms of the mined area had been substantially rehabilitated. It is hard to envisage what areas were being claimed to have been “fully rehabilitated”.

3.5 Loy Yang Mine

3.5.1 In 1974 and 1975, SECV reports prepared for the planning and approval of the Loy Yang project stated that internal dumping of overburden into the Loy Yang open cut would commence by the year 2000. (See SECV report “Loy Yang Project: Evidence for Submission to the Parliamentary Public Works Committee Inquiry”, Figure 22 and SECV Loy Yang Project Environmental Impact Statement, prepared by Burmont Australia Pty. Ltd. 1975, page 2.4)

3.5.2 Overburden removal at the Loy Yang Open Cut Mine commenced in 1982 and coal winning commenced in 1984.

3.5.3 In 1997, the Victorian Government gazetted a Work Plan Submission by Loy Yang Power which included an Overburden Dump Disposal Strategy which provided for continual dumping of overburden on the external overburden dump until 2028. The strategy made no provision for any internal dumping of overburden into the void of the open cut. No reference was made in this document to the SECV’s original plans for internal dumping to commence in 2000 which had been the basis of original government approval of the project. The same document contains a Rehabilitation Concept Plan, with only one major feature - a huge “Possible Lake”.

3.5.4 To date, no significant dumping of overburden into the void of the Loy Yang open cut has occurred, apart from a couple of very small areas,

3.5.5 AGL, the operators of Loy Yang mine, have stated this year that internal dumping of overburden into Loy Yang Open Cut will commence in 2017. This would be 35 years after the commencement of overburden removal and 17 years after the SECV had originally indicated that internal dumping would have commenced. As a result, 17 years supply of overburden which could have been contributing to the progressive long term rehabilitation of the Loy Yang mine has been unproductively placed on the external overburden dump.

3.5.6 In 2010, it was stated that the mining in the Loy Yang Open Cut area had covered a total area of 11 sq. kms. Of this area, it was claimed that 4.4 sq kms of the mined area had been substantially rehabilitated. Again, as with the Morwell Open Cut, it is very hard to envisage what areas were being claimed to have been “fully rehabilitated”.

4. Future Possibilities and Proposals

4.1 Goals and Potential of Mine Rehabilitation

4.1.1 All Latrobe Valley brown coal mines should be progressively rehabilitated so that whenever mining eventually ceases the open cuts are left in manner which will be environmentally safe, aesthetically attractive and capable of being used productively for suitable, agreed purpose/s.

4.1.2 It will never be possible to fill more than a relatively small proportion of the open cuts through the back-filling of overburden, due to the very low ratio of overburden to coal in all the Latrobe Valley brown coal mines. Consequently, it will not generally be possible to rehabilitate most of the open cut areas to an arrangement similar to their pre-mining condition.

4.2 Is Flooding Possible and Appropriate?

4.2.1 Allowing flooding with water is one of the most commonly suggested approaches to filling mine voids and achieving a satisfactory final state of rehabilitation. This rehabilitation approach option has been seen to provide an attractive, almost alluring, combination of benefits: relative cheapness; easy achievability; have conservation value; create community recreation opportunities and enhance regional landscapes. It would also be seen to have the advantage for operating companies of allowing postponement of most rehabilitation work until after all mining had ceased.

4.2.2 Unfortunately, however, flooding the open cut voids with water may not be so easy, achievable or satisfactory as has been widely assumed for a long period of time. (See GHD, p.33) Apparently, it may not be possible to ever even fill more than a very small proportion of the voids with water. This is because the rates of evaporation might exceed water inflow rates and also due to the effects of the huge lowering of water tables due to mining operations. Water which has been in contact with brown coal is likely to be somewhat acidic and may also be quite heavily coloured. As a result, water in mine voids might not be suitable for recreation purposes, environmentally acceptable, nor be visually attractive. There also could be significant uncertainties about the effects of mine flooding on local and regional land stability and subsidence patterns. As a result, it must be presumed, at this stage, that it will not be possible to view flooding as a viable rehabilitation option. Careful research and investigation on all these matters is essential before any firm decisions should be made about mine flooding proposals as part of any rehabilitation program.

4.2.3 All the private power companies proposed major lakes as the major features of their gazetted 1996 rehabilitation plans. It would not be unreasonable to expect that each of the companies should now be asked to provide detailed accounts about what research and investigation each of them has undertaken in the past 19 years into all the issues associated with the flooding of mines as a rehabilitation approach. If detailed accounts of relevant research cannot be provided then some tough questions should be asked. Assuming that flooding is not an option, radically different

rehabilitation options will now need to be planned for both Morwell and Hazelwood mines.

4.3 Maximising the Value of Overburden

4.3.1 Most, if not all, rehabilitation scenarios are likely to require the covering of most coal batter faces with material which will reduce or eliminate fire risks.

4.3.2 The steepness of the slopes of the batters of the open cuts are likely to be required to be substantially reduced in rehabilitation arrangements in order to achieve long-term land stability and to improve the scope for safe and convenient public accessibility to rehabilitated areas.

4.3.3 Overburden material is probably the most obvious and appropriate material for covering exposed coal faces and also for reducing the steepness of the mine side slopes.

4.3.4 Overburden is a valuable commodity which is only available in relatively limited quantities (relative to the amounts of coal which are excavated) and it should not be viewed as just being a waste product to be “got rid of” as cheaply as possible.

4.3.5 All new overburden which is removed above new mining areas should be required to be disposed of within the voids of the open cuts in a manner which will contribute most beneficially toward final mine rehabilitation arrangements.

4.3.6 Overburden in the existing overburden dumps is effectively being “wasted”. These mammoth artificial hills do not serve any productive short-term purpose nor are they likely to be able to serve any very productive long term purpose.

4.3.7 Overburden from both the Morwell and the Loy Yang Overburden Dumps should be transferred back into the voids of the neighbouring open cuts, in order to provide substantial amounts of additional overburden which can be used to contribute to the effective achievement of the most satisfactory rehabilitation arrangements.

4.3.8 A mandatory requirement should be introduced for over burden which was dumped on external overburden dumps (but which should have been dumped internally) to now be transferred back into the mine voids (See for Hazelwood: Sections 3.4.5; 3.4.6 & 3.4.7. See for Loy Yang: Sections 3.5.1 & 3.5.5). This mandatory requirement would ensure that incorrect or inappropriate past dumping arrangements are rectified and not rewarded. It would also ensure the provision of a much larger supply of overburden for internal mine rehabilitation work.

4.3.9 The complete, or substantial, removal of the Morwell and Loy Yang overburden dumps would enable the areas covered by those dumps to be effectively rehabilitated themselves. These areas would be capable of being returned to their original land surface level and to something like their pre-mining landscape form and uses or possibly used for some other type of productive purpose/s.

4.4 “Sunken Landscape” Possibilities

4.4.1 If disused mines are not able to be filled with a combination of overburden placement and/or flooding with water, then it would be likely that some type of “sunken landscapes” will have to be a major feature of some areas in rehabilitation plans.

4.4.2 Rehabilitated, sunken landscape areas could be used for a variety of uses or combination of uses. These could include various forms of agriculture; forestry; recreated “bushland” conservation areas; active and passive recreational activities. Active recreational facilities that could possibly be considered might include: sports fields; playgrounds; adventure parks; walking and cycling trails; golf courses; arts performance spaces, including amphitheatres; race courses; speed ways etc.. Passive recreation options that could be considered could include: parks; gardens; botanic gardens, lakes; restaurants or kiosks etc.. The relative suitability of these, and other options, would need to be carefully assessed having careful regard to achievable rehabilitation outcomes; land stability; geographic location (including relative proximity to urban areas and transport facilities); environmental impacts; community interest and support; regional and potential tourist market demand.

4.4.3 All possible use options would be likely to require careful financial and environmental cost/ benefit analysis, planning and development. Suitable access arrangements, including for vehicles, bicycles and pedestrians, would need to be provided from normal ground level down to the sunken landscape level. This would require the development of very gentle slopes down from the edges of the disused open cuts.

4.5 Rehabilitation Costs?

4.5.1 No person, no organisation, no system is probably in a position to provide accurate estimates of the likely costs of rehabilitating any one, let alone all, of the major open cuts in the Latrobe Valley. This is partly because the conceptual rehabilitation plans that have been prepared to date have been so rudimentary. Key elements of these conceptual plans are based on major assumptions which have probably not been adequately investigated and researched so far.

4.5.2 Estimating rehabilitation costs are also complicated by the difficulties of distinguishing between ordinary operating costs and what should reasonably be viewed as rehabilitation costs. For example, should the cost of internal placement of overburden, which must be positioned somewhere or other during the course of normal operational arrangements, be classified as being a normal operational cost or as being a mine rehabilitation cost.

4.5.3 Despite all the uncertainties and definitional difficulties, it seems very likely that the cost of complete, final and acceptable rehabilitation of each of the individual, major open cuts in the Latrobe Valley could well be in the order of hundreds of millions of dollars. The total cost of ultimate rehabilitation of all the Latrobe Valley's open cuts could be in the order of many hundreds of millions of dollars or even in excess of a billion dollars.

4.6 Rehabilitation Bonds

4.6.2 Having regard to these prospective rehabilitation costs, the rehabilitation bonds being required to be paid by the private power companies are ludicrously small. The rehabilitation bonds are so small that they almost provide an incentive for large, private power companies to "walk away" from their rehabilitation responsibilities. The financial value of the rehabilitation bonds will need to be massively increased if they are to achieve their purpose of "locking in" private companies to full completion of agreed rehabilitation plans, particularly for work which will be required to be undertaken long after all coal mining operations, and associated cash-flow, have ceased.

4.6.3 If rehabilitation bond arrangements are not successful in achieving their objective, then either:-

(1) Victorian Governments are going to be faced with a massive, uncoded, financial bill for assuming direct responsibility for completing rehabilitation work, or

(2) rehabilitation programs will not be satisfactorily completed and huge environmental, economic and social problems will be created which will leave an appalling legacy for Victoria's future and be a permanent disaster for the Latrobe Valley.

This is a high risk situation. Consequently it is extremely important that rehabilitation bond arrangements are adjusted to appropriate levels.

5. Review

5.1 Introductory Comments

The history of brown coal open cut rehabilitation planning and development in the Latrobe Valley has been marked by a number of major problems. Each of these problems has been serious in its own right, but their cumulative effect has been totally unsatisfactory. These problems can be characterised as: lack of interest; lack of progress; lack of commitment; lack of research and investigation; lack of finance; lack of organisation. Each of these inter-related problems will be briefly reviewed in turn.

5.2 Lack of Interest:

Rehabilitation is a bit of many organisations interests, but it seems to be no organisation's particular interest. None of the organisations with responsibilities with regard to rehabilitation have seen rehabilitation as being a primary focus of their activities and interests.

The SECV never did. For many decades they took no serious interest. Later it was seen to be a minor, peripheral activity to their primary responsibilities of seeking to mine brown coal, generate and distribute power to Victoria as cheaply as possible.

Since taking over power generation, the private power companies have been primarily concerned to concentrate on their income earning streams and to limiting non-income earning costs. For them rehabilitation has been something that they may need to pay sufficient attention to in order to maintain their mining licences. Improvements in rehabilitation efforts or focus is something they have usually had to be shamed into by public exposure e.g. the Hazelwood Fire Mine Inquiry.

The community of Latrobe City has a huge, long-term stake in the satisfactory rehabilitation of the region's open cuts. However, Latrobe City Council is, in some ways at least, quite understandably mostly pre-occupied with the shorter-term matters which it is directly obligated to take responsibility for.

It would seem that Victorian Government agencies generally do not have a significant interest in rehabilitation. It would seem that there is no Victorian Government agency which has rehabilitation of the Latrobe Valley's open cuts as one of its major tasks. There is certainly no agency with well qualified staff in the Latrobe Valley which are providing oversight, vision, research and investigation coordination, planning, monitoring, regulation, public information and consultation, on rehabilitation.

5.3 Lack of Progress:

Progress on the rehabilitation of the open cuts of the Latrobe Valley is decades behind where it could reasonably have been expected to be at, at this stage. Why? What fundamental progress has been achieved in rehabilitation planning and strategies since this matter was highlighted by the Ministry for Conservation and incorporated in SPP

No.9 back in 1975? A number of the reasons for this have been identified in earlier sections of this report. (See particularly Sections 3.1.3; 3.1.4 & 3.1.5.)

The lack of progress is most clearly demonstrated through the huge, unwarranted delays in the commencement of internal placement of overburden into the Morwell and Loy Yang open cuts. Without these delays, nearly 20 years of additional overburden could already have been placed into those open cuts.

5.4 Lack of Commitment:

There seems to be a recurrent pattern for progress on rehabilitation to mostly be achieved when external pressures force their occurrence. Sometimes these come from conscientious individuals, professionals or organisations or sometimes they arise because some sort of disaster prompts the need for change. This means that rehabilitation progress is very chancy. As matters are at present, the general public should not feel re-assured that rehabilitation issues are being, or will be, properly addressed.

5.5 Lack of Research and Investigation

It would seem that there may be potential “fatal flaws” in the assumptions about major features of the rehabilitation concept plans that have been prepared and agreed to so far. These questions mostly relate to the feasibility and suitability of flooding the majority of the mine voids. Given the fundamental importance of these matters, they should have been subject to intensive research and investigation 20 or 30 years ago. Have they been? If not, it is extremely urgent that that they should be researched as soon as possible. If widespread flooding is not a realistic or satisfactory option in rehabilitation arrangements, then totally different rehabilitation strategies will need to be considered and planned for.

5.7 Lack of Organisation

Rehabilitation is too important an issue for the long term interests of state and regional communities, as well as for environmental and economic reasons for rehabilitation policy, strategies, and coordination to be primarily left to the fragmented activities of private companies or the diverse responsibilities of a range of existing State Government agencies.

There seems to be a critical need for a special purpose state government agency, headquartered in the Latrobe Valley, drawing on relevant expertise from wherever and inter-acting with the community to spearhead the planning and regulation of the rehabilitation of the Latrobe Valley open cut mines. This agency could be referred to by a title such as the Victorian Open Cut Planning and Rehabilitation Authority.

5.7 Lack of Finance:

The need for greater efforts and expenditures on rehabilitation have been outlined earlier in this report. The importance of massively increasing the “rehabilitation bonds” has already been highlighted.

Part of the cost of financing the Victorian Open Cut Planning and Rehabilitation Authority, as suggested earlier, could be provided by an appropriate levy on all future brown coal won from Latrobe Valley Open Cuts.

It is considered that the Victorian Government should be expected to make some direct, even if limited, contribution to the planning, coordination and regulation of the rehabilitation of the open cuts. This is because these roles are rightly the proper functions of government. Further justification is provided for Victorian Government financial contributions due to some of the problems inherited due to the inadequacy and delays of rehabilitation planning, regulation and implementation inherited from the period of the SECV’s period.

6. Recommendations

6.1 Research and Investigations

Programs to research and investigate issues of concern associated with rehabilitation should be initiated and/or coordinated by an appropriate agency as soon as possible. Evaluation of the feasibility and appropriateness of flooding mine voids should be among the early matters to be investigated.

6.2 Replacement of Rehabilitation Flooding Options

Completely new rehabilitation plans should be required to be prepared for both Hazelwood and Loy Yang mines to replace earlier rehabilitation proposals which were dependent upon flooding of the mine voids.

6.3 Internal Placement of all new Overburden

That, as a matter of policy, all new overburden taken from Latrobe Valley coal mines should be required to be placed back in the mine from which it was taken.

6.4 Transfer of Overburden from External Dumps into Mine Voids

All overburden which has been placed on to external overburden dumps should be viewed as being available to be used for rehabilitation work within the open cuts.

At the very least, overburden which should have been placed back in the open cuts, but which, contrary to reasonable expectations, was dumped on external dumps, should be required to be transferred back into the open cuts, as part of rehabilitation arrangements. This would be the equivalent of transferring at least 15 years of overburden production at Loy Yang and about 13 years of overburden production at Morwell (Hazelwood) back into those respective open cuts.

6.5 Yallourn North Open Cut

The Yallourn North Open Cut Mine should be made available for permanent rehabilitation within a short period of time. The Yallourn North Open Cut Mine and the Anglesea Open Cut Mine should be used as models for demonstrating potentially suitable permanent rehabilitation strategies for Latrobe Valley brown coal open cuts in mines.

6.6 North Face of the Morwell (Hazelwood) Open Cut

The Victorian Government should make a generous financial contribution to the difficult task of rehabilitating the north face of the Morwell (Hazelwood) Open Cut, as a partial compensation for the irresponsible actions of a Victorian Government agency, the SECV, in providing a grossly inadequate distance separation of the open cut from the town of Morwell.

6.7 Loy Yang Overburden Placement

Within 6 months, all overburden taken from the Loy Yang mine should be required to be placed back in the void of the Loy Yang mine.

6.8 Rehabilitation Bonds

The size of the “rehabilitation bonds” paid by the power companies in the Latrobe Valley should be massively increased.

6.9 Establishment of a “Victorian Open Cut Planning and Rehabilitation Authority”:

A special purpose agency, entitled something like a “Victorian Open Cut Planning and Rehabilitation Authority” should be established. Its functions should include the coordination of the planning and development of open cuts and their rehabilitation; research and investigation coordination; oversight of the preparation of strategies; monitoring; regulation; public information and consultation. The authority should be headquartered in the Latrobe Valley. When relevant it should draw on appropriate external expertise.

The authority should be well resourced and financed. It should be financed by a combination of:-

- a) Victorian Government annual grants, and
- b) A levy on all future brown coal mined in the Latrobe Valley.

7. A Concluding Comment

I concluded my book, "Planning Power" by quoting by a couple of sentences from one of the books by the famous Latrobe Valley naturalist, Jean Galbraith. In this quote, Jean was commenting about a small, local valley near her home in Tyers. However, I considered that these words could just as appropriately be applied to the whole of the Latrobe Valley. I also consider that these comments are particularly pertinent to the matters being addressed at this Inquiry, and so I will quote those words yet again:-

"Our valley is not perfect; its beauty is in transition and much rests with us, since beauty must grow with the years if it is not to die. We look to the future and the work of our hands to establish it. Much has been taken, much must be given in return."

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