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SPECIAL

ELECTRICITY INDUSTRY ACT 1993

ORDER GRANTING MINING LICENCES

The Governor in Council under Section 47A of the Electricity Industry Act 1993, on recommendation of the Minister for Energy and Minerals,

1. Grants the Mining Licence Number 5003 attached hereto including the schedule of conditions attached thereto to Yallourn Energy Ltd.

2. Approves:

   (a) the authority to commence work set out in schedule A to this Order, and

   (b) the work plan (including a rehabilitation plan for the relevant land) set out in schedule B to this Order,

   which are included in and form part of this Order.

3. Specifies that:

   (a) the amount of the rehabilitation bond required to be entered into by Yallourn Energy Ltd be $15 million,

   (b) the rehabilitation bond be in the form ot a bank guarantee issued by a bank licensed under the Banking Act 1959 (Cth). and

   (c) The rehabilitation bond must be entered into upon Yallourn Energy Ltd ceasing to be owned by State Electricity Commission of Victoria and upon Yallourn Energy Ltd being directed to do so by the Minister for Energy and Minerals".

Date: 19 MAR 1996

Responsible Minister:
Hon S J Plowman, MP
Minister for Energy and Minerals

Clerk of the Executive Council

ELECTRICITY INDUSTRY ACT 1993

MINING LICENCE NO 5003

This mining licence is granted to **Yallourn Energy Ltd C/- PO Box 444 Moe 3825**. This licence is granted under section 47A of the Electricity Industry Act 1993, for a term of thirty years from the date of issuing this licence by the Governor in Council.

This licence is subject to the following Conditions and Schedule of Conditions attached:-

1. The authority given under this licence applies only within the land indicated on the attached plan and is subject to the depth restrictions, if any, indicated on that plan under Section 15(9) or 16(5) of the Mineral Resources Development Act 1990.

2. The licensee must keep a copy of -

   (a) this licence; and

   (b) any approved work or approved variation to a work plan; and

   (c) any registered authority to commence work at a location near the licensed area;

   so that an Inspector and any other authorised officer can readily inspect them.

3. On receiving a registered authority to commence work, the licensee must notify an Inspector of Mines and if required by that Inspector must arrange an on-site briefing for any people the Inspector may nominate.

4. On discovering additional economic deposits of minerals, the licensee must report the occurrence to the Minister giving the estimated size, grade, suitability for mining, and an estimate of value at the time of discovery.

5. Pursuant to Section 47A of the Electricity Industry Act 1993 the Work Plan. including the Rehabilitation Plan and the Authority to Commence Work are deemed to be registered from the date of issuing of this licence by the Governor in Council.

APPROVED
BY THE GOVERNOR IN COUNCIL
19 MAR 1996

CLERK OF THE EXECUTIVE COUNCIL

Department of Energy and Minerals

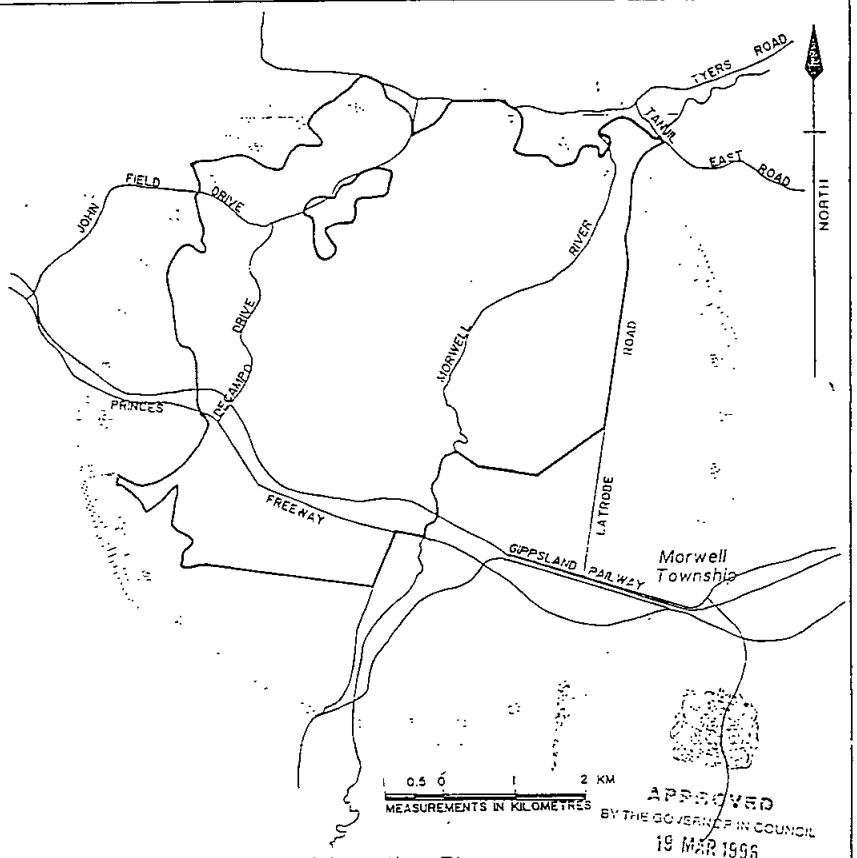
PLAN OF AREA

APPLIED FOR ON LICENCE
under Mineral Resources Development Act 1990

Mln. No. 5003

Name of Applicant Yallourn Energy Ltd.

SHIRE OF LATROBE	TOTAL AREA ±5361 Hectares
	NET AREA Hectares



APPROVED
BY THE GOVERNOR IN COUNCIL
19 MAR 1996
CLERK OF THE EXECUTIVE COUNCIL

* General Location Plan (Subject to survey)

* Land Ownership Detail Not Shown

* YALLOURN POWER STATION & INDUSTRIAL AREA NOT INCLUDED WITHIN THIS LICENCE
* PRIOR LICENCES ARE NOT INCLUDED WITHIN THIS LICENCE

Certified correct	Checked Christy Thiagarajah
Licensed Surveyor AS PER WORKING PLAN	Date 16 / 06 / 95
Date	Record plan

SCHEDULE OF CONDITIONS
MINING LICENCE NO. 5003

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) including without limitation variations to reflect plans for the development and operation of the Maryvale Field. Where any inconsistency occurs between the workplan and other licence conditions or regulations, the licence conditions and regulations have precedence.

1.2 The licensee shall, within 60 days of being requested by the Executive Director, Minerals and Petroleum of the Department of Agriculture, Energy and Minerals, submit a report on the status of work as per Schedule 14 of the MRD Act.

1.3 An Environmental Review Committee (ERC) shall be formed, comprising a representative of the Department of Agriculture, Energy and Minerals (DAEM), representatives of the licensee, the Environment Protection Authority, Department of Conservation and Natural Resources, the responsible water authority and a representative of the Minister responsible for the Water Act, 1989, the LaTrobe Council and any other relevant agency with an interest or control over the site or operations. The community shall also be represented, with nominations to come from the Latrobe Council. Up to two community representatives may be selected for renewable fixed terms. The ERC shall be convened at least once in every 6 months to review environmental effects of the project.

1.4 Results of environmental monitoring conducted under the Environmental Monitoring Program (EMP) shall be regularly reported to the ERC in a format agreed to by the Committee to enable it to assess environmental performance.

1.5 The ERC may from time to time recommend variations to the EMP and licence conditions where appropriate. Any variations to the EMP as accepted by the licensee and DAEM shall be registered as a variation to the Work Plan and shall be implemented.

2. FENCING AND SECURITY

2.1 Where public access is a safety hazard within the mining licence, the licensee must fence and signpost the area to ensure public safety is maintained.

2.2 When directed by an Inspector of Mines (hereinafter referred to as an Inspector), a fence or fences shall be erected around specified work site areas to a written specification which may include time limits. Gates of a similar standard shall be provided when directed. Gates and fences shall be maintained during the term of the licence to the satisfaction of an Inspector.

BY THE GOVERNOR IN COUNCIL
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3. ROADS

3.1 Internal roads additional to those shown in the working plan shall be sited as approved or directed by an Inspector after consultation with the Department of Conservation and Natural Resources in the case of Crown land.

3.2 Subject to the approval of the Mine Manager and appropriate site induction any such road may be used:

(a) by officers of, or persons authorised by the Department of Conservation and Natural Resources, officers of the DAEM or employees or persons engaged in fire control. (Mine Managers approval not required by authorised fire fighters in an emergency provided they are under the supervision of a mine employee).

(b) for the extraction of forest produce or for mining purposes by any other licensee under the MRD Act 1990 or Forests Act 1958 (or any successor legislation) under such conditions as may be determined by agreement between the parties concerned; and

(c) by the landowners or their agents where the licence covers private land.

3.3 The licensee shall ensure that all internal roads are properly formed, drained, surface treated and maintained to the satisfaction of an Inspector and that any dust nuisance originating from use of the roads by the licensee shall be controlled to the satisfaction of an Inspector.

4. SURFACE DISTURBANCE

4.1 The area of surface disturbance must be kept to a minimum.

4.2 Adequate provision shall be made for the separate stockpiling or immediate utilisation for rehabilitation of any soils. These materials, if stored, are to be stored in neat and tidy dumps not exceeding 2 metres in height and such dumps are to be protected from erosion.

4.3 No area shall be opened up for exploration, mining and ancillary operations, except where approved as part of the Approved Work Plan.

4.4 Where the licence covers Crown land, all surface activity may be subject to compliance with the Forests Act 1958 and Regulations.

4.5 Where the licence covers private land, such fire fighting equipment and appliances shall be kept on site in working order as may be required by the Country Fire Authority. With respect to public land, the Forest Fire Regulations 1992 require the provision of fire fighting equipment and the provision of spark arrestors on engine powered equipment.

4.6 Burning of any timber at the site shall be done in accordance with any requirements of the Local Municipality, Department of Conservation and Natural Resources and the Country Fire Authority.

BY THE GOVERNOR IN COUNCIL

5. DRAINAGE AND DISCHARGE CONTROL

5.1 Any discharges from the licence area shall be minimised and any water discharged must be as free as possible of pollutants, save as provided by any licence issued pursuant to the Environment Protection Act.

5.2 All discharges shall meet the standards required under the State Environment Protection Policies under the Environment Protection Act 1970.

5.3 Sediment retention structures, including dams, shall be constructed in accordance with the Approved Work Plan. An Inspector may also direct such works to be undertaken, where necessary, to control drainage from any disturbed area.

5.4 Rainfall and other natural waters shall be diverted away from works area so as to control erosion, pursuant to Condition 7. However, such works shall, as far as practicable, not cause undue alteration to the general drainage pattern beyond the licensed area.

6. TAILING DAMS

6.1 All proposed work associated with the construction of tailing dams or other tailing impoundment areas, shall be subject to written approval by the Chief Administrator (or his delegate) on the advice of the interdepartmental Mineral Treatment Committee or following certification by an approved geotechnical engineer.

7. GROUNDWATER

71. Any aquifer dewatering and/or depressurisation must be carried out in accordance with the conditions specified in the Groundwater Licence issued by the Minister responsible for the Water Act 1989.

7.2 A monitoring program consistent with the programs previously carried out by the State Electricity Commission of Victoria and Generation Victoria to determine the impacts of dewatering/depressurisation both on site and regionally must be maintained to the satisfaction of an Inspector and the responsible Minister under the Water Act 1989 or his delegate.

The licensee shall ensure that results of the monitoring program are reported to the responsible Minister under the Water Act 1989 or his delegate and the Environmental Review Committee annually and at whatever times required by the Groundwater Licence.

7.3 In the event that the monitoring program in 7.2 indicates material adverse impacts beyond those evident at the date of issue of the licence which are attributable to the dewatering/depressurisation by the licensee after the date of issuing of the licence then the licensee must institute such reasonable remedial action as may be required by the Inspector and the responsible Minister under the Water Act 1989 or his delegate to ameliorate these effects, proportionate to the licensee's contribution.

APPROVED
BY GOVERNOR IN COUNCIL

7.4 For the purposes of 7.3 material adverse impacts comprise effects on aquifers in the LaTrobe Valley such that the interests of other users are materially prejudiced or subsidence on a significant scale occurs as a direct result of ground water extraction which materially adversely affects private property or public lands.

7.5 Any remedial action under 7.3 must be to the satisfaction of the Inspector and the responsible Minister under the Water Act 1989 or his delegate.

8. EROSION

8.1 The licensee shall undertake all necessary works to ensure that the potential for erosion of land affected by mining is minimised.

8.2 Should erosion occur, the licensee shall take all practical steps to minimise the erosion to the satisfaction of an Inspector.

9. HYDROCARBONS

9.1. Storage of hydrocarbons shall be undertaken in general accordance with AS 1940. Bunding or other methods to the satisfaction of an Inspector, capable of containing 125% of the maximum volume stored, shall be constructed around all fuel and lubricant storage facilities.

9.2 Any drainage from an area that may be subject to hydrocarbon spillage, such as a machinery maintenance area, shall be free from hydrocarbon contamination and directed to a sump or interceptor trap.

10. DUST EMISSIONS

10.1 Dust control measures must be in place to minimise dust generation so that detriment is not caused to surrounding areas and residents.

10.2 Dust resulting from all operations including extraction, loading, transport and stockpiling shall be controlled to the satisfaction of an Inspector. The licensee must install any dust control measures to the satisfaction of an Inspector.

11. NOISE

11.1 Precautions to the satisfaction of an Inspector shall be taken to ensure that noise emissions comply with the provisions of any regulations under the MRD Act as they relate to noise exposure to workmen. Noise emissions measured at any residence within the vicinity of the licensed area shall comply with limits set using the procedures described in State Environment Protection Policy No. N1 (SEPPN-1) or any other limit set under the Environment Protection Act where SEPP N-1 is not applicable.

11.2 The mines are permitted to operate 24 hours per day 7 days per week.

APPROVED

12. PARKING AREAS

Parking areas are to be provided within the licensed area for all vehicles used in connection with the operation, including private vehicles used by employees and visitors.

13. DERELICT AND REDUNDANT PLANT

All derelict and redundant plant, vehicles, machinery and equipment shall be either:

- removed from the licensed area and deposited at an appropriate waste disposal site; or
- properly stored/stockpiled on the licensed area in a location and manner approved by an Inspector.

14. BUFFER ZONES AND VISUAL SCREENING

14.1 No excavation shall take place within 20 metres of the licence boundary, except that this requirement shall not apply with respect to any common licence boundary with an adjacent mining licence.

14.2 Existing vegetation outside of the area subject to surface disturbance shall be preserved and maintained provided due regard is taken of fire protection arrangements.

14.3 The licensee shall supplement existing vegetation by additional planting to provide a screen for mining and allied operations as required by the Rehabilitation Plan and any additional plantings as required by an Inspector. The fire protection at the site shall be considered.

14.4 Unless otherwise approved by an Inspector, the licensee shall take precautions to ensure that no species inconsistent with the surrounding vegetation are introduced to the area.

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.

BY THE GOVERNOR IN COUNCIL

10 MAR 1996

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.

17. HERITAGE SITES

17.1 Any significant historic sites or relics that are to be removed shall be accurately mapped and documented prior to the commencement of any mining or allied operations. Such documentation shall be made available to the Department of Conservation and Natural Resources.

17.2 Tenure of this licence does not exempt the holder from the following provisions of the Archaeological and Aboriginal Relics Preservation Act 1972:

Section 21(1) - "A person who wilfully or negligently defaces or damages or otherwise interferes with a relic or carries out an act likely to endanger a relic shall be guilty of an offence against this Act"; and

Section 23(1) - "A person who discovers a relic shall forthwith report the discovery .... unless he has reasonable grounds to believe that the relic is recorded in the register ....". Reports in compliance with Section 23(1) should be submitted to:

The Director
Aboriginal Affairs Victoria
Department of Health and Community Services
2nd Floor
115 Victoria Parade
FITZROY VIC 3065
(Telephone (03) 9412 7498)

18. BUILDINGS

18.1 No buildings shall be erected before any relevant building permits have been obtained.

18.2 All fixed plant and buildings shall be painted or surface treated in a colour to blend with the surroundings to the satisfaction of an Inspector in consultation with the local municipality and in the case of Crown land, Department of Conservation and Natural Resources.

19. ROYALTY

19.1 Each mining company must pay to the Minister for payment to the Consolidated Fund in each financial year an amount equal to the prescribed amount in respect of each gigajoule unit of coal produced from its brown coal workings in the State and used or sold by the company in the last preceding financial year.

19.2 For the purposes of 19.1, a gigajoule unit of coal is a quantity of coal which, when mined, has a net wet specific energy content of 1 gigajoule.

19.3 The net wet specific energy content of coal produced by a company from its brown coal workings and used or sold by the company in a financial year shall be calculated in such manner and in accordance with such method of sampling as is agreed to by the Minister and the company or as is, in default of the agreement, determined by the Governor in Council.

19.4 For the purposes of 19.1, the prescribed amount shall be the amount derived by multiplying $0.0239 by

$$\frac{A}{B}$$ where-

A is the consumer price index number in respect of the relevant quarter; and

B is the consumer price index in respect of the quarter ending on 30 June 1993.

19.5 The payment of the amount to the Minister under 19.1 shall be made in accordance with the Mineral Resources (Royalties) Regulations 1991.

19.6 In this section -

"consumer price index number" means the all groups consumer price index number for Melbourne published by the Commonwealth Statistician in respect of the quarter ending on 30 June in each year or, if that statistic is no longer calculated, the nearest substitute for it;

"relevant quarter" means the quarter ending on 30 June immediately preceding the financial year in relation to which the prescribed amount is being calculated.

20. REHABILITATION BOND

20.1 The licensee shall lodge with the DAEM 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 Energy and Minerals.

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.

Y THE GOVERNOR IN COUNCIL

AUTHORITY TO COMMENCE WORK
Sec 47A of the Electricity Industry Act 1993

MINING LICENCE NUMBER:	Mining Licence No 5003
NAME(S) OF LICENSEE(S):	Yallourn Energy Ltd
ADDRESS(S) OF LICENSEE(S):	P O Box 444 Moe Vic 3825
AREA TO WHICH AUTHORITY: TO COMMENCE WORK RELATES	As per Work Plan
LOCATION OF LICENCE:	La Trobe Valley
STRATUM OF LAND:	Not applicable

AN AUTHORITY TO COMMENCE WORK IS HEREBY GRANTED

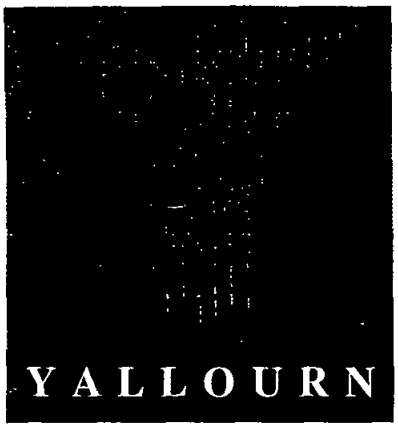
Date of Registration
____/____/____

Time of Registration
_____am/pm

MINING REGISTRAR
MRDA 1990

Our Ref: WORKAUTH.DOC/DS/ga

APPROVED
BY THE GOVERNOR IN COUNCIL
19 MAR 1996
CLERK OF THE EXECUTIVE COUNCIL



YALLOURN ENERGY Ltd.

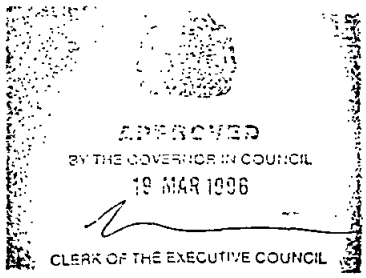
PIONEERS IN POWER

MINING LICENCE WORK PLAN

PART "A"

PART "B" on ENVIRONMENTAL MONITORING IS BOUND SEPARATELY

2 JUNE 1995



1 June 1995

Mr. Ken Gardner
General Manager Mineral Operations
Department of Agriculture, Energy & Minerals
PO Box 2145, MDC Fitzroy
VICTORIA 3065

Dear Ken,

YALLOURN ENERGY Ltd. WORK PLAN

Please find attatched the Yallourn Energy Ltd. Work Plan for our Mining Licence.

The Work Plan has been arranged in two Parts and includes revisions following our meeting on 23/5/95 at Morwell Mine and subsequent discussion.

Part A - contains the general detail of the Work Plan including drawings.
Part B - contains the Environmental Monitoring program.

Details of the proposed rehabilitation bond estimation are covered in a separate letter.

Yours faithfully

CJ Fraser
General Manager Mining.

YALLOURN ENERGY Ltd. - MINING LICENCE WORK PLAN PART "A"

CONTENTS:

FIGURES:

1. HISTORY OF MINE OPERATIONS

Mining operations commenced at Yallourn in 1921 at Yallourn North mine and shortly after at Yallourn Open Cut with first coal production in 1924. The mine produced brown coal for power generation and briquette manufacturing.

Operations have been continuous at Yallourn Open Cut to the present day using the technologies of the time ranging initially from hand work, horse and cart, steam and electric locomotives, to present day bucket wheel excavators and conveyor systems. the internal overburden disposal area is located in the southern end of the mine. The Yallourn Open Cut was opened up near the now retired C, D & E Stations and excavation continued in a southerly direction then pivoting to turn the excavation west then north to eventually mine the Yallourn Township area. Overburden removal from the Township Field was completed in June 1992 and operations transferred to the East Field for first overburden removal in May 1993.

To 31 January 1995, 670 mt of coal had been excavated at the Yallourn Mine.

Approvals for the operation at Yallourn Mine have been made at government level in the SEC Act and project approval attachments to that Act. the most recent approval was for Yallourn W Stage 2 development. Currently, the Yallourn mine operates under the Electricity Industry Act 1993 which enables Yallourn Energy to mine and transport coal, and produce electricity. The mine is scheduled to come under the jurisdiction of the Mineral Resources Development Act by 30 June 1995.

1.1 Yallourn Energy Ltd.

Yallourn Energy Ltd. was created on 1 February 1995 and incorporates Yallourn Mine and Yallourn W Power. Yallourn Energy is a major electricity generating authority for the State of Victoria supplying 25% of the total Victorian market or about 30% of the state's base load generating capacity.

The coal supply arm of the Company is the Yallourn Mine which has two customers - Yallourn W Power and Energy Brix Australia Corporation (EBAC).

The power station is the major customer, utilising approximately 16 million tonnes of coal per year, while up to 2 million tonnes per annum are railed by an external contractor to the Energy Brix briquetting plant at Morwell.

The mine operates under a number of Acts which have a significant impact on the business. These include the EPA Act which regulates discharges to the environment and the Emergency Management Act with which our emergency procedures conform. The Planning Act covers the classification of land outside of the current project area. The mine has integrated procedures and works directed to minimising the impact of its activities on the environment.

1.2 Operations and Plant

The Mine is operated with 4 coal dredgers and an overburden dredger, all loading to 1.4 metre wide conveyor transport systems. Four of the dredgers are bucket wheel machines while Dredger 8 is a bucket ladder type. The two oldest machines are lower capacity and will be subject to business review in the coming year.

The conveyor systems in each Field deliver coal to a 35,000 tonne raw coal bunker located to the east of Yallourn W Power Station. The Mine has responsibility for the coal up to the point of delivery to the raw coal bunker. The Mine operates on 'just in time' production principles. With a capacity in the bunker of less than 12 hours; the "stockpile" is maintained at the coal face and is called "operational reserve". This is the actual coal amount exposed following the removal of overburden and which is available to be dug by the currently positioned operating systems.

Overburden is dumped internally within the southern area of the mine and land is rehabilitated following mining and overburden dumping. A fire mitigation program is implemented to manage the risks from bushfires.

(Figure 15 shows a schematic arrangement of major mine plant)

1.3 Planning Outlook

Coal reserves in the Township and East field are currently being worked and are sufficient to year 2008 at current generation levels. Increased generation levels, and planned extended operation of the power station to the year 2024, will require additional reserves to be mined. There are sufficient additional reserves in the Maryvale Field and mine plans will be developed to utilise that coal. Additional feasibility work may be undertaken to evaluate the utilisation of the Corridor Field which is south of the Princes Highway.

2. LOCATION PLANS

Figure 1 shows the locality plan of the Mining Licence Area set in the Yallourn area.

3. LAND OWNERSHIP PLAN

Figure 2 shows land ownership for the Mining Licence and the area up to 1 Km outside the Licence Area.

4. GENERAL GEOLOGICAL INFORMATION

Refer to (Figs. 3 & 4)

The Latrobe Valley brown coal deposits lie within the Latrobe Valley Depression, an on-shore extension of the Gippsland Basin. The deposits are of Tertiary age and the coal bearing sediments consist of clays, brown coal and semi-consolidated silts and sands. Generally, thick clay and sandy sediments separate the major coal seams. The regional coal measures are folded into an elongated syncline, dipping south west to north east. Overlying the coal measures is the Haunted Hill Formation, a relatively recent deposit of clays, silt and sands, which forms the overburden at the mines. Confined sand aquifers exist in the interseam sediments between the coal seams.

Yallourn Mine excavates the Yallourn Seam coal detailed in Figures 3 and 4. The Yallourn monocline/fault occurs along the western perimeter of the mine and is coincident with the subcrop of the Yallourn Seam. The other major geological structure in the area is the Yallourn syncline which is a very broad gentle syncline in Yallourn East Field. Coal mining is constrained on the northern and eastern boundaries by the La Trobe and Morwell Rivers, and to the south by the current location of the traffic corridor.

There are sufficient reserves of Yallourn Seam coal in the present operational areas to maintain supply to Yallourn Power Station only for some 12 years. Additional reserves exist in the Maryvale Field which ensure that the power station can be supplied at full demand for the life of the station to at least 2024.

Yallourn overburden consists of about 20m of sands, clays and gravels, the coal seam has been severely eroded to the east and south where it eventually wedges out. An interseam layer of sand, clay and silt of thickness 60m underlies the Yallourn Seam and it has therefore been uneconomic to mine the lower seams. The Yallourn Power Station boilers are designed for optimum operation with Yallourn Seam coal.

5. MINING PLANS FOR THE NEXT THREE YEARS

Refer to figures 5, 6, 7 and 8

Yallourn Mine prepares an annual 3 Year Mine Plan setting out the manner by which the mine will meet the coal supply requirements of each of its customers within the practices and policies established.

The current plan projects the following total coal demand:

	1995/96	96/97	97/98
Nominal Totals	17.5 Mt	18 Mt	18.5 Mt

The Mine development plan must achieve flexibility of operations and reliability of supply by balancing coal reserves in each mining cut at the same time as ensuring progressive relocation of plant from Township Field to East Field.

In Township Field, dredgers 7 and 8 excavate the coal from 3 and 4 cuts respectively. As well as supplying Yallourn W Power Station, these two cuts are the source of coal for briquetting at Energy Brix Australia. Township Field will be almost worked out during the three year period and some plant is likely to be retired as operations are concentrated in the East Field.

In East Field, Dredger 13 will be excavating an average of 3.5 million cubic metres of overburden per year, and is generally planned to complete a season of coal excavation during the winter months.

In addition to Dredger 13 operating in the East Field, Dredger 12 operates on 1 and 1A cuts and has also developed the site for the 3rd cut conveyor system. Dredger 6 is also used in the East Field as a reserve excavator.

An additional two coal conveyor systems in East Field will be installed during the period of the Mine Plan.

The development of the Mine is accompanied by a program of fire service and power reticulation installations ahead of the operations, with clean up behind. An extensive geotechnical monitoring program is on-going and particular attention is being devoted to the completion of batter stability works in the western area of the Township Field during this period. The Mine Infrastructure is shown on Figure 13.

The Western Batters Surcharge Dump is being constructed to balance potential destabilising forces at the edge of the coal seam. The Surcharge Dump, associated drainage and rehabilitation will maintain long term stability of the permanent batters.

In the East Field a ground control and monitoring system is being established to coincide with the deepening of the mine. An artesian depressurisation program is in progress with a second pumping bore planned for 1995/96.

Figure 8 shows the final excavation plan for the Township Field and East Field. The Southern Overburden dump development is shown on Figure 16.

6. ENVIRONMENT AND REHABILITATION

The mine's policy for land rehabilitation is to progressively and at the earliest opportunity appropriately shape, landscape, revegetate and return disturbed land to an appropriate agricultural or silvicultural use. Design is undertaken within the parameters of a rehabilitation master plan which has been presented to a consultative forum on rehabilitation.

The policy includes:

- Rehabilitation planning integral with the mine planning.
- Public consultation.
- Compliance with the guideleines of relevant GenVic manuals, Government department guideline documents and legislation.

6.1 Land Rehabilitation Program

Refer to (Figs. 9,10,11 & 12)

The policy is implemented through a works program integrated with the mine plan. The program is developed on a 5 year rolling program and in line with a long term master rehabilitation program which is being supported by community input.

The annual works program incorporates both new construction of disturbed land and maintenance programs. Funds are allocated annually for new works, land maintenance and provision for final works.

The land rehabilitation master plan vision involves an option for final flooding to form a deep lake covering both the Township and East Fields, to a level equivalent to the adjacent Morwell River level with flow connections to both the Morwell and Latrobe Rivers. This is equivalent to about top of coal in the Township Field and top of overburden in the East Field.

Planning for development and mining of the Maryvale Field has just commenced. Rehabilitation planning will be integrated into this work.

Given that the master plan is a vision of what we see as the most practical and economic long term result, rehabilitation planning must remain flexible keep a view forward for the possible range of works required for the final result.

Details of the mine rehabilitation plan for the next 3 years are given on Figure 9. The preferred long-term option for rehabilitation of the mine is flooding to river level. This is detailed in Figure 10 and the necessary rehabilitation works to achieve this goal is shown on Figure 11.

Details of the environmental and monitoring points are shown on Figures 12.

6.2 Land rehabilitation cost model

A financial model has been developed which requires an annual provision in the Profit and Loss statement, for the allocation of funds for both progressive and final land rehabilitation of Yallourn Mine. This is integrated into the Mine Business Plan and is reviewed annually. A proportion of the estimated amount is spent progressively each year and the remainder is placed in the balance sheet for works when mining ceases.

The Land Rehabilitation Bond is to be lodged with the Department of Agriculture, Energy and Minerals (DAEM), and is based on the cost of works required at Mine closure.

The model currently projects a total cost (in 1995 $) of $16.5 million, made up of two components :

* Progressive works to be completed over the remaining 29 year Mine life as completed mining areas become available at a total cost of $9.5 million.

* Works required at Mine closure to complete land rehabilitation and remove infrastructure at a total cost of $7.0 million.

It is proposed that the rehabilitation bond is to be based on the $7.0 million final cost with a condition that the annual works and expenses are committed.

Although the projected works and costs are a long way into the future, the Mine's financial model is updated annually to reflect the latest planning and cost information.

Through our 3 Year Business Plan and 5 yr rolling Rehabiliation Plan the Mine will continue to set a prudent rehabiliation program which demonstrates control of the long term liability.

6.3 Mine Devatering

The Mine is responsible for the collection, treatment and discharge of all excess surface water from the Yallourn Energy site. All site runoff is collected in a dirty water storage (Fire Service Pond) and used for Mine fire protection, dust suppression and washdown requirements. The major contributors to the dirty water storage are the mine (2500 Ha) and industrial area surface runoff together with Power Station washdown and rainwater drainage. Minor contributions are made from treated liquid from the site sewerage treatment station, groundwater seepage from the overburden and artesian water from the deeper aquifers.

The discharge of excess water from the site is subject to EPA Licence No. LX13/6, which specifies quality, monitoring and reporting requirements. The Mine treats and discharges approximately 18,000 Ml annually to the Morwell River. Water treatment is controlled with an automatic dosing station and a dedicated settling pond. The mine maintains a testing and monitoring regime on discharge water quality. This comprises :

. Testing conducted to NATA standards on a Weekly basis for routine parameters and a Quarterly basis (predominantly due diligence) for background parameters.

. Daily testing conducted for the check of dosing station control.

The Mine also maintains a quality and quantity database which supports :

. Availability of records for EPA inspection.

. Reporting to the EPA on an annual and exception basis.

. Internal business reporting.

6.4 Power Station Ash

The Yallourn W Power Station ash disposal system, return water system and saline waste water system are located at Yallourn North Open Cut (YNOC) (approximate area 155 Ha). The site has been used for ash disposal since 1973. A "Twin Ash Pond" settling system was commissioned in 1987. The Twin Ponds operate on a cyclical basis - while one pond is filling the second is being excavated and the residual ash used as landfill in the western dump area of the YNOC site.

The capacity of the YNOC dumping areas is sufficient for operations until 2012, after which a new disposal area to the north of the East Field rising conveyor embankment is planned within the Yallourn Open Cut.

The ash disposal operation is subject to EPA licence LS48/2 (ref. Fig.12). This licence requires the following reporting:

. Groundwater quality, by analysis of bore samples
. Quantities of ash disposed to the dump
. Any ash water spillage via the overflow line to Yallourn Mine
. Quantity of saline water disposed of via the Saline Waste Outfall Pipeline (this pipeline is managed by others).

6.5 Asbestos Disposal

Asbestos Dump No.3 at Yallourn North Open Cut is operated to EPA Licence LS249/3, requires annual reporting of the volume dumped split into quantities of hard and soft asbestos.

There is little or no free asbestos used in the mine. The source of material for the dump is the power stations.

6.6 Hard Rubbish Disposal

A hard rubbish dump is also located within the the YNOC site.

The annual reporting of volumes of hard rubbish disposed of into the YNOC dump is a new requirement and is in accordance with EPA Licence No. LS62/8. The quantity is determined by annual survey.

6.5 Air Quality

Yallourn Energy's flue discharge is subject to EPA licence No. LS 001/3. The Power Station site is not covered by the Mining Licence.

The Mine's dust suppression practice is linked to the fire mitigation program. Adverse weather projections are monitored by the Fire Service Office and Control Centre. As risk days approach the Fire Service begins wetting down an evening in advance. Moisture coverage over batters, benches and access roads is maintained throughout the dry/windy conditions to reduce the risk of fire in the interests of safety and asset protection. The wetting down using the fire service system is the major means of dust suppression. Mobile plant haul routes are also wetted with tanker trucks.

Regional dust levels are monitored and reported via the Latrobe Valley Air Shed monitoring program.

6.8 Environmental Monitoring Program.

The detailed environmental monitoring program is bound as Part B of the Work Plan and details the program for monitoring issues discussed above.

7. MINE BATTER STABILITY

Yallourn Mine is influenced by several geotechnical constraints which are of considerable significance to the stability of the excavation. The two rivers, Morwell and Latrobe border the mine to the East and North and are a source of water ingress into the overburden of East Field. The Western Batters excavation of Township Field runs roughly parallel to a fault and the coal floor here rises into the hillside and overlies a low strength clay footwall. Beneath and between the coal seams are aquifers under pressure which can have an effect on batter stability as coal is removed from above. The coal itself has jointing families, the majority of which run approximately N-S and dip near vertical. As mining progresses the joints appear with the relief of normal pressures in the ground and minor block failures in the coal faces can result. The following points address these issues.

7.1 Western Batter Design

Current Yallourn Mine coal excavation in the Township Field is being undertaken in an area immediately adjacent to the Yallourn Monocline/Fault where geotechnical factors critically affect operations. This operational area is known as the Western Batters and a comprehensive stability monitoring program has been implemented at this site.

Operations are proceeding to a design and program developed in the early 1980's as the Mine excavated through the Hernes Oak area. The batter crest is now within 100m of the Fault line and major stabilisation works and associated drainage is required.

Stabilisation of the batter has involved the removal of 7 Mm3 of soil between the batter and the fault to form a stabilising embankment of similar volume near the toe of the batter during on-going mining operations. A total of 1.3 Million m3 of material at the top of the batter remains to be excavated over the next 3 years.

The design maximises coal recovery, minimises batter stabilisation costs and maintains safety of the operations within prescribed geotechnical limits.

The characteristics of the accepted excavation scheme are:

1 The overburden and top three cuts are excavated as near as practicable to the normal open cut boundary.

2 Only partial excavation of the bottom coal cut.

3 Placement of an uncompacted earthfill stabilising embankment on the coal level left behind prior to excavation of the bottom cut.

For a typical view of the Western Batters Project, see (Fig 14)

7.1 Western Batter Design cont:

In the Western Batters the maintenance of low groundwater pressures is critical to the stability of the permanent batters. Water seeping out of the 3 Cut coal is able to flow through a geocomposite drainage "blanket" installed against the coal face before the surcharge dump is placed. The water flows down behind the stabilising embankment, preventing saturation of the embankment itself, and enters agricultural under drains constructed at an interval of about 50m to take the water away.
In addition, horizontal drains are bored into the coal batters to intersect coal joints and facilitate drainage.

Three main types of batter monitoring are carried out on the Western Batters:

- Monitoring of groundwater and pore pressure levels in the batters.
- Monitoring of batter surface movements.
- Monitoring of sub-surface movements along the failure plane.

Every three months and annually in a comprehensive manner, all the data compiled for the Western Batters is reviewed to determine how the batters are performing and if any area contains unacceptably high water pressures or is moving at a higher than expected rate.

The results of the monitoring program are reported relative to the design movement predicted.

Monitoring of groundwater and pore pressure levels is carried out using a system of 78 bores that have been progressively installed since 1984. Data from the monitoring is assessed either fortnightly or monthly and entered into databases. The data is used to assess the current stability of critical sections of the batters.

Horizontal and vertical batter movements are monitored using survey pinlines. The Western Batters pinline system consists of 178 individual pins arranged on 12 pinlines. Critical pinlines are located at the crest of the batters.

A major pinline survey and assessment, covering most of the installed pins, is carried out in August of each year. Two other smaller pinline surveys are carried out in December and April of each year.

Surface movements across the Yallourn Monocline are monitored by instrumentation anchored across the fault zone.

Subsurface movement along the coal/interseam interface is monitored using a system of bore mounted inclinometers and vertical Resistance Wire Extensometers.

7.2 Deep Aquifer Depressurisation & Overburden Aquifer Dewatering

Deep aquifer depressurisation is necessary in the East Field to prevent flooding and heave in the base of the Mine. At present there is one artesian bore. Others are planned. Pressures in the Township are sufficiently low and do not require depressurisation works.

Dewatering of the sands in the overburden of the East Field to improve material handling, avoid face slumping and improve overburden dump stability is required. Trials are in progress to finalise the best method to achieve these objectives by either pumping the water from submersible borehole pumps or by excavating gullets in the overburden face to accelerate drainage from the more sandy areas.

7.3 East Field flood protection - The Morwell River Diversion

The Morwell River Diversion was completed in May 1987 for flood protection and to allow the excavation of the East Field which is developed through the old Morwell River Flood Plain. The Morwell River flows through a 3m diameter pipe buried underneath a flood channel located on the south side of the East Field and behind a levee bank. The channel discharges into the Latrobe River flood plain. The flood channel is managed by the Mine on behalf of the DCNR and is fenced off from the public.

The main features of the diversion work included:

- Excavation of 4.2 km of main channel requiring 5.5 Mm3 of earthmoving.
- Construction of concrete inlet and outlet structures.
- Installation of 3.6 km of 3 meter diameter concrete pipeline
- Installation of a cutoff clay-fill barrier to prevent seapage into the Southern Batters of East Field.
- Levee bank construction
- Construction of the East Field conveyor embankment with compacted fill for connection of East Field with the Raw Coal Bunker.
- Construction of the ICR railway embankment around East Field and the flood protection levee.

The subsurface cut-off barrier is a 2m thick layer of compacted clay inside the levee bank. It is beneath the flood channel and is keyed into the top of coal.

The purpose of the barrier is to stop recharge from the higher level alluvial terraces in the overburden to the south of the River Diversion Channel and prevent the flow from entering the East Field open cut overburden gravels and the coal batters.

The effectiveness of the barrier will require close monitoring during the development of the Southern Batters of the East Field.

Horizontal drains are to be installed in the Southern Batter to relieve the expected high water flows. A series of observation bores are to be installed along the southern batters to monitor water levels in both overburden and coal. Further, more detailed seepage modelling is to be undertaken to assess the impact of constant recharge from the overburden on the stability of the Southern Batters.

8. MAINTENANCE PROCEDURES

Maintenance of the mine's plant and equipment is carried out by in-house maintenance crews and contractors. The maintenance works are planned by the mine as part of the life maintenance plans for the plant, condition monitoring program and breakdowns.

8.1 In-house Maintenance Resources

The in-house maintenance crews maintain the plant and essentially keep it running between planned overhauls.

Each production shift has two fitters and two electricians for minor breakdowns and routine maintenance, operating on a 24 hours per day, 7 days a week basis. The two fire service crews also each have two fitters and two boilermakers for the maintenance of the fire service system.

In addition to the above, there are two maintenance crews for routines and major breakdowns. These crews work a 7 day, day/shift roster. They include several fitters, electricians, riggers and other support personnel. Cranes used by the crew are supplied by a contractor.

8.2 Contracts for Maintenance

The mine relies on contract support for delivery of a number of major maintenance activities. Contracts are in place for external provision of mechanical, electrical and transport workshop services and a wide range of other support. Most of the contracts are of a partnering type where both parties rely on the performance of each other.

The major overhauls and modifications on the mine plant are carried out by a contractor. This contractor operates from a fully equipped workshop on site. He is capable of the constructing and modifying the plant required for new development in the mine.

Another contractor is engaged to carry out the maintenance and repairs on conveyor belt installed in the mine. This is also a partnering contract.

8.3 Maintenance Plan

The Mine maintenence philosophy is based on "whole of life" maintenence principles. Maintenance plans are developed on two levels. The major maintenance or "overhaul program" is developed each year from the individual plant life maintenance plans, in conjunction with the mine's production plan.

The second level of maintenance derives from the routine inspection plans carried out by the Mine's in-house maintenance and production employees. These inspections lead to work that is either programmed into the next scheduled overhaul or programmed separately as minor works by the in-house maintenance crews. The routine inspection program also includes the lubrication systems and other specialist items.

8.3 Maintenance Plan cont:

A plant maintenance management system (PASSPORT) is used to keep the plant histories and to schedule the works into either overhauls or minor works activities. The annual overhaul program is periodically reviewed to accommodate changes to the production plan and plant condition. These changes are controlled and presented to a "change board" for approval.

Breakdowns are handled on shift when minor, or moved into the planned programs when major. These works are done by either the maintenance contractor or the in-house maintenance crews. On occasions both groups work on the same item of plant together.

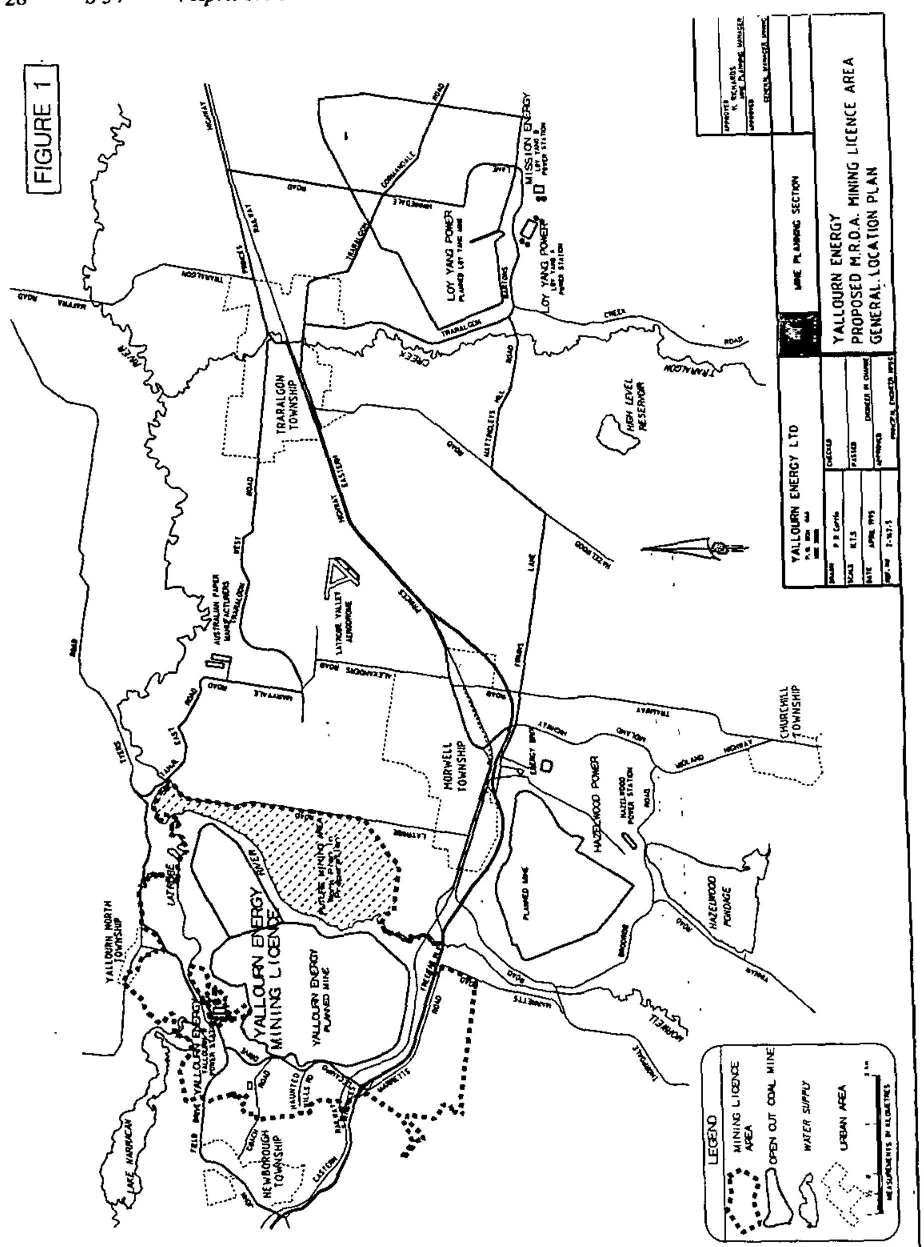

YALLOURN ENERGY LTD
MINE PLANNING SECTION
YALLOURN ENERGY
PROPOSED M.R.D.A. MINING LICENCE AREA
GENERAL LOCATION PLAN
TRARALGON TOWNSHIP
MORWELL TOWNSHIP
CHURCHILL TOWNSHIP
NEWBOROUGH TOWNSHIP
YALLOURN NORTH TOWNSHIP
LOY YANG POWER
MISSION ENERGY
HAZELWOOD POWER
HAZELWOOD PONDAGE
HIGH LEVEL RESERVOIR
LATROBE VALLEY AERODROME
AUSTRALIAN PAPER MANUFACTURERS
YALLOURN ENERGY MINING LICENCE
YALLOURN ENERGY PLANNED MINE
PLANNED MINE
LAKE NARRACAN
LATROBE RIVER
TRARALGON CREEK
LEGEND
MINING LICENCE AREA
OPEN CUT COAL MINE
WATER SUPPLY
URBAN AREA

FIGURE 1

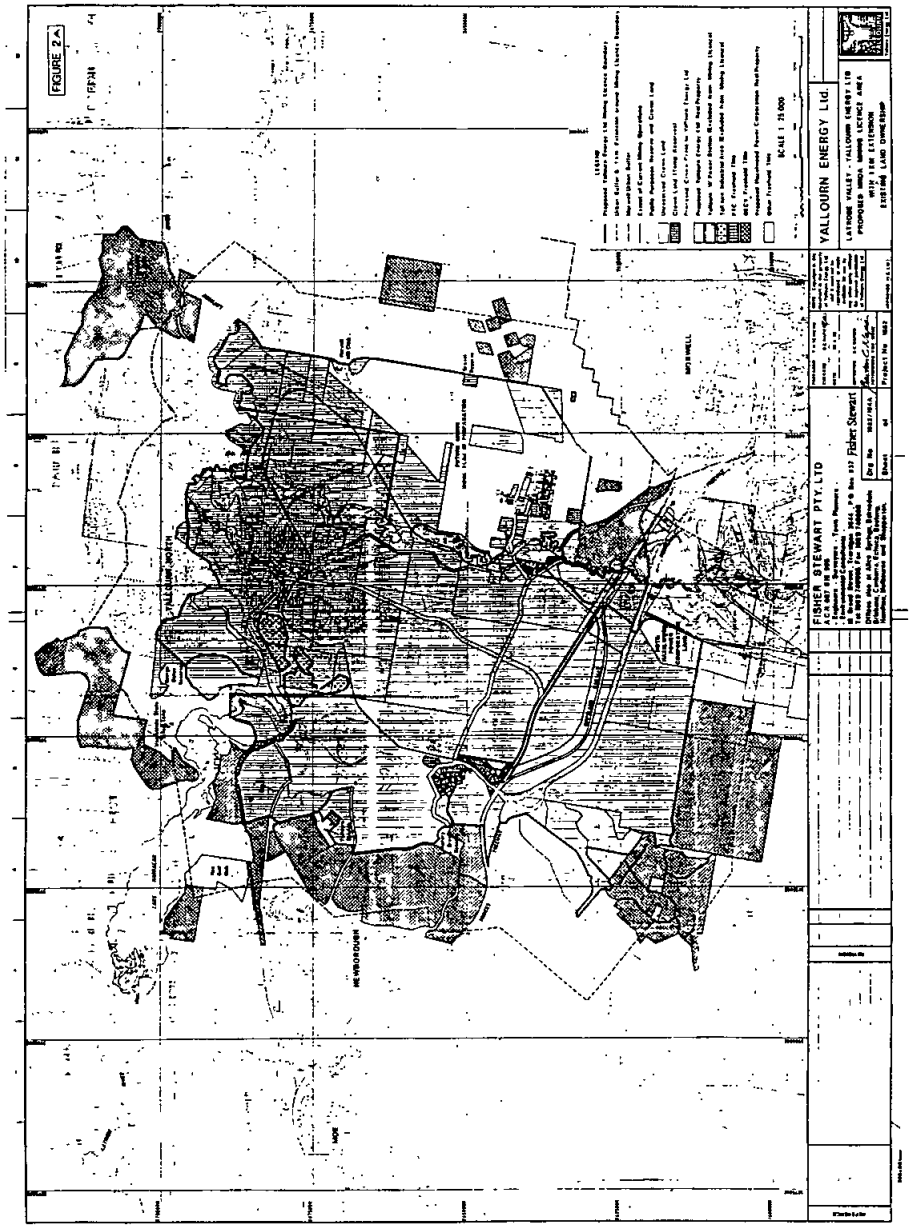


FIGURE 2-A
YALLOURN ENERGY Ltd.
FISHER STEWART PTY. LTD.
Fisher Stewart

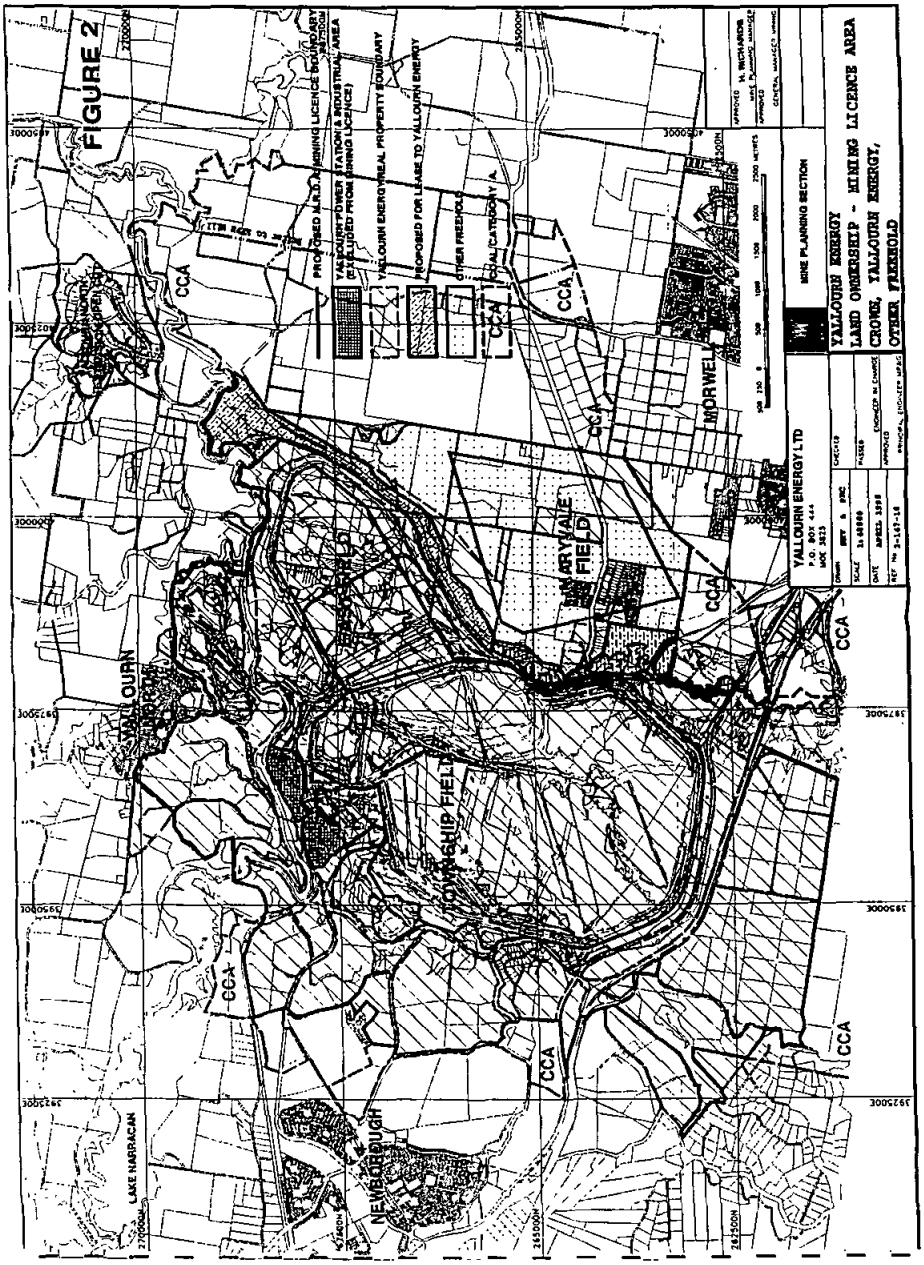


FIGURE 2
PROPOSED LAND SUBJECT TO MINING LICENCE BOUNDARY
EXCLUDED FROM MINING LICENCE)
EXCLUDED FROM MINING LICENCE)
YALLOURN ENERGY MINERAL PROPERTY BOUNDARY
PROPOSED FOR LEASE TO YALLOURN ENERGY
OTHER FREEHOLD
CCA CATEGORY A
CCA
MORWELL
MARYVALE FIELD
YALLOURN
YALLOURN ENERGY LTD
P.O. BOX 444
VIC 3823
MINE PLANNING SECTION
YALLOURN ENERGY
LAND OWNERSHIP - MINING LICENCE AREA
CROWN, YALLOURN ENERGY,
OTHER FREEHOLD
LAKE NARRACAN
NEWBOROUGH
CCA
CCA
CCA
CCA
CCA
CCA

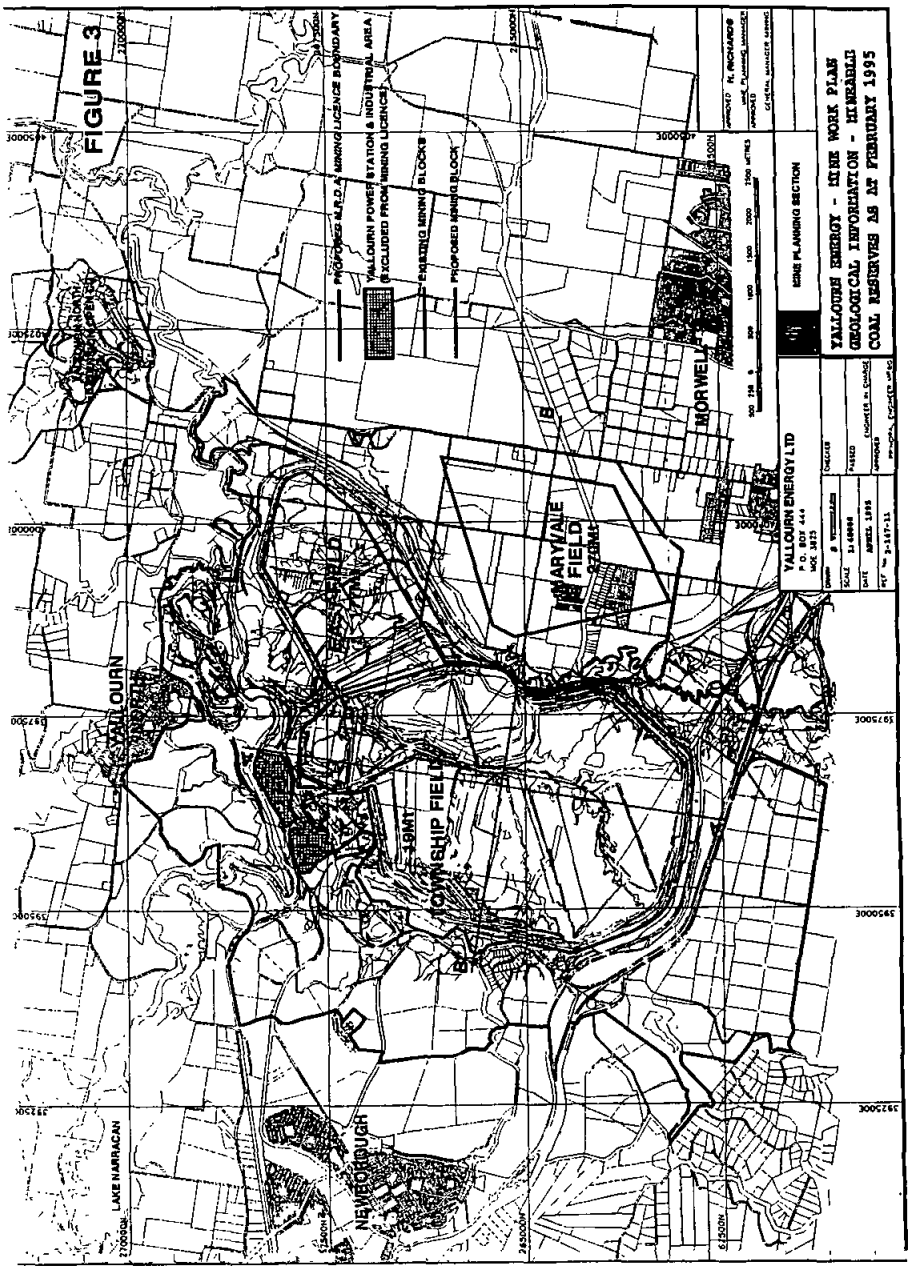


FIGURE 3
YALLOURN ENERGY - MINE WORK PLAN
GEOLOGICAL INFORMATION - MINERABLE
COAL RESERVES AS AT FEBRUARY 1995
YALLOURN ENERGY LTD
MINE PLANNING SECTION
YALLOURN
MORWELL
MARYVALE FIELD
TOWNSHIP FIELD
NEWBOROUGH
LAKE NARRACAN
PROPOSED M.R.S.A. MINING LICENCE BOUNDARY
YALLOURN POWER STATION & INDUSTRIAL AREA
(EXCLUDED FROM MINING LICENCE)
EXISTING MINING BLOCKS
PROPOSED MINING BLOCK

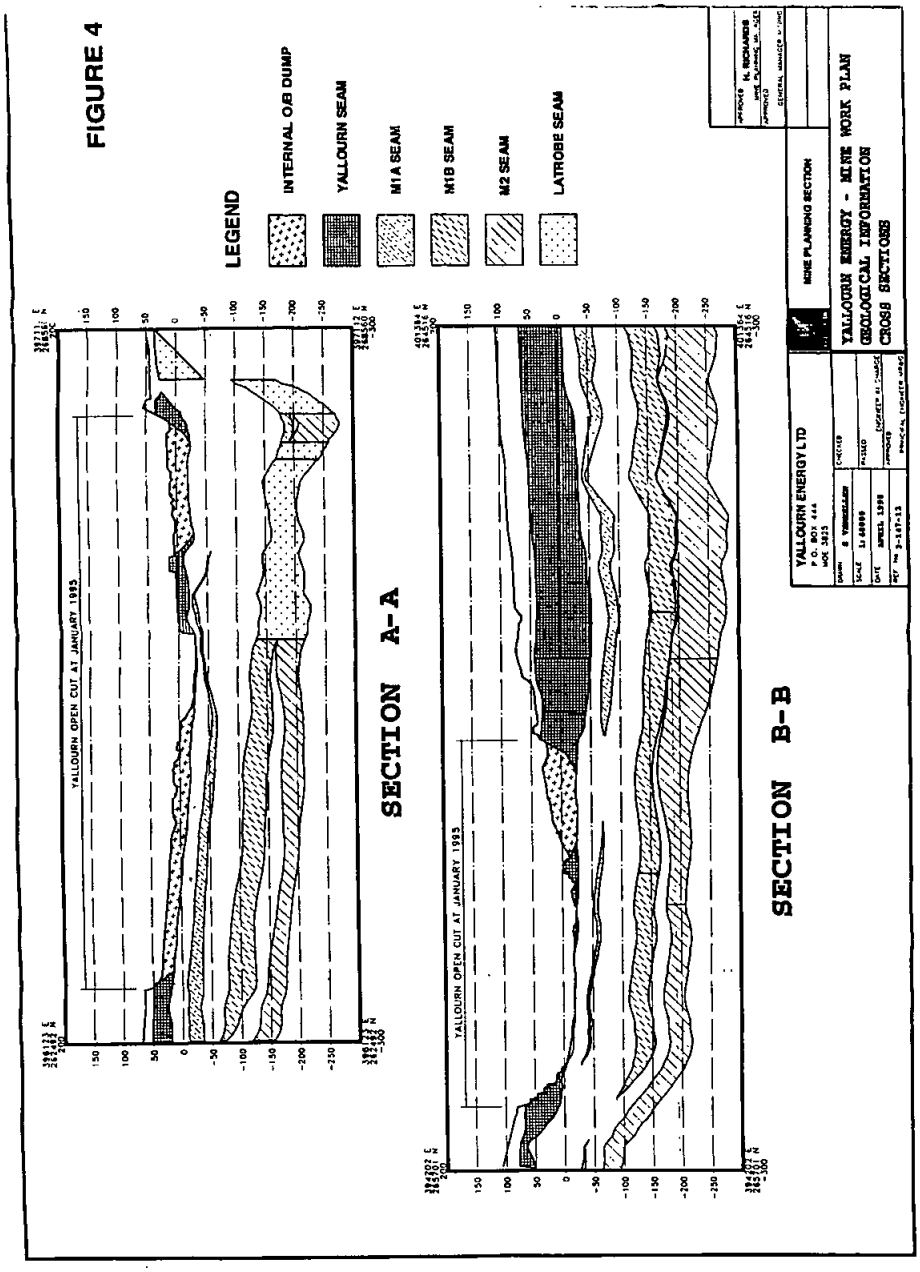


FIGURE 4
LEGEND
INTERNAL O/B DUMP
YALLOURN SEAM
M1A SEAM
M1B SEAM
M2 SEAM
LATROBE SEAM
SECTION A-A
SECTION B-B
YALLOURN OPEN CUT AT JANUARY 1995
YALLOURN OPEN CUT AT JANUARY 1993
YALLOURN ENERGY LTD
MINE PLANNING SECTION
YALLOURN ENERGY - MINE WORK PLAN
GEOLOGICAL INFORMATION
CROSS SECTIONS

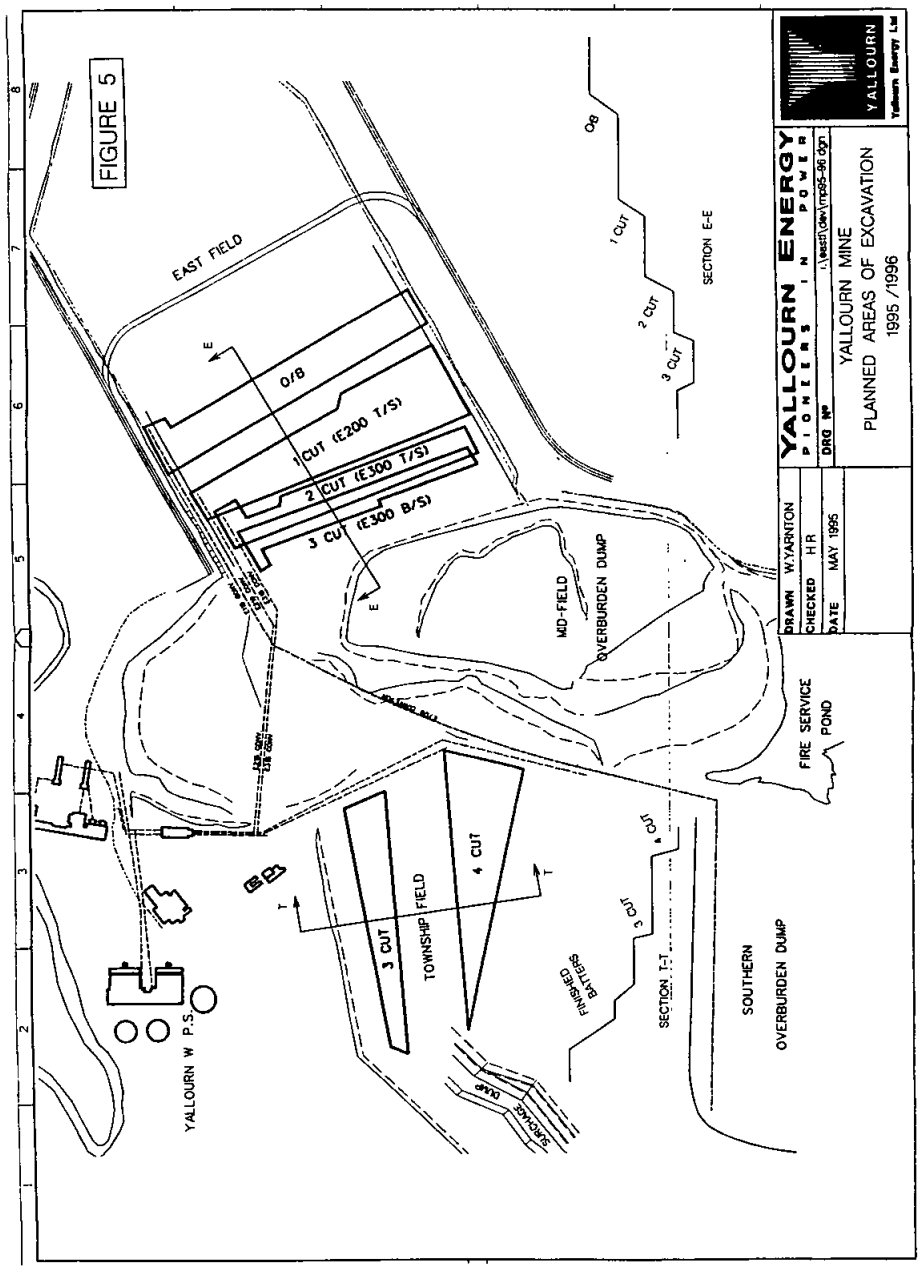


FIGURE 5
EAST FIELD
O/B
1 CUT (E200 T/S)
2 CUT (E300 T/S)
3 CUT (E300 B/S)
MID-FIELD
OVERBURDEN DUMP
FIRE SERVICE POND
SECTION E-E
O/B
1 CUT
2 CUT
3 CUT
TOWNSHIP FIELD
3 CUT
4 CUT
FINISHED BATTERS
SECTION T-T
SOUTHERN
OVERBURDEN DUMP
YALLOURN W P.S.
YALLOURN ENERGY
PIONEERS IN POWER
DRAWN W.YARNTON
CHECKED H.R
DATE MAY 1995
DRG No
YALLOURN MINE
PLANNED AREAS OF EXCAVATION
1995 /1996
YALLOURN

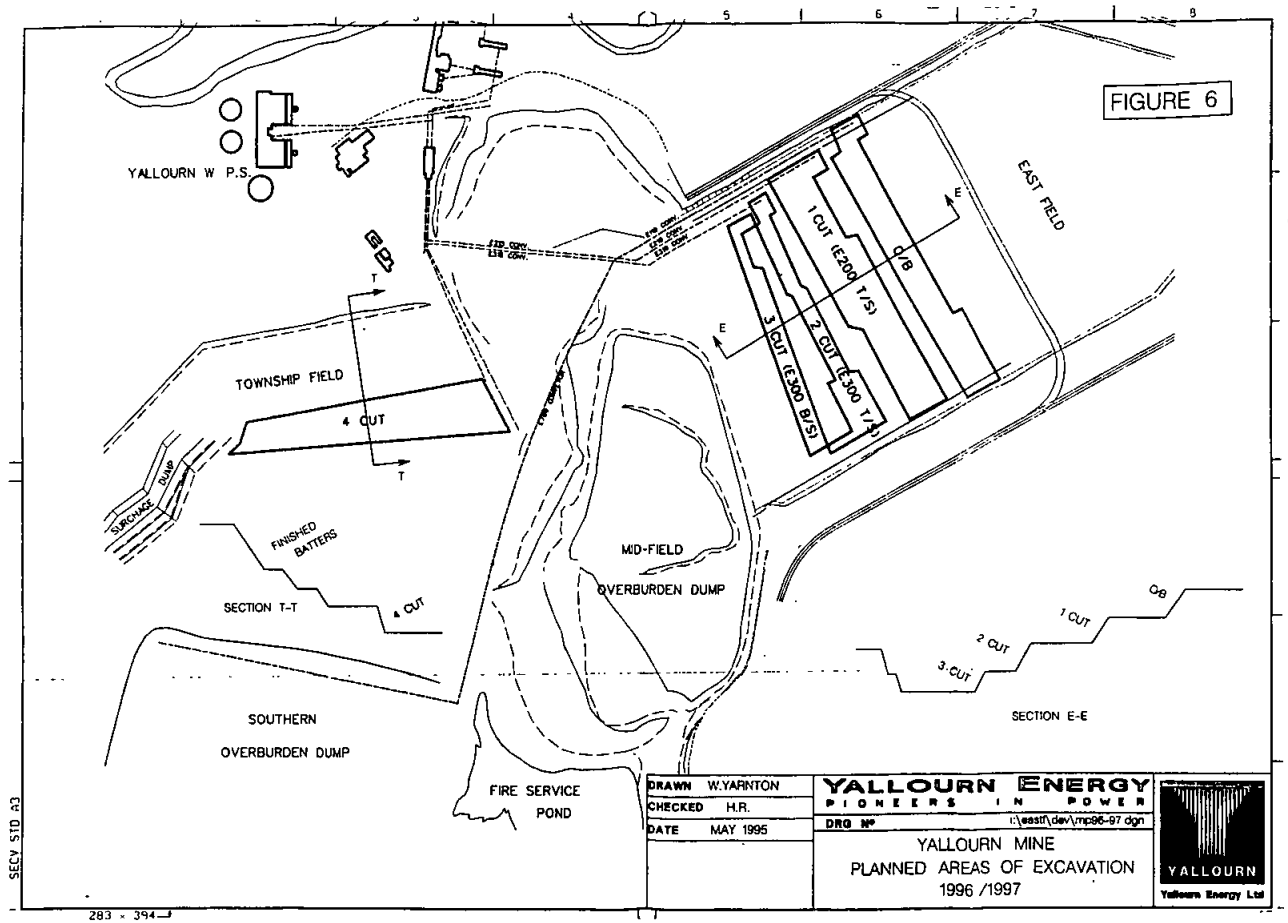


FIGURE 6
YALLOURN W P.S.
TOWNSHIP FIELD
4 CUT
SURCHARGE DUMP
FINISHED BATTERS
SECTION T-T
4 CUT
SOUTHERN OVERBURDEN DUMP
FIRE SERVICE POND
MID-FIELD OVERBURDEN DUMP
EAST FIELD
1 CUT (E200 T/S)
2 CUT (E300 T/S)
3 CUT (E300 B/S)
O/B
SECTION E-E
1 CUT
2 CUT
3 CUT
O/B
DRAWN W.YARNTON
CHECKED H.R.
DATE MAY 1995
YALLOURN ENERGY
PIONEERS IN POWER
DRG Nº i:\east\dev\mp96-97.dgn
YALLOURN MINE
PLANNED AREAS OF EXCAVATION
1996 /1997
YALLOURN
Yallourn Energy Ltd
SECY S10 A3
283 x 394

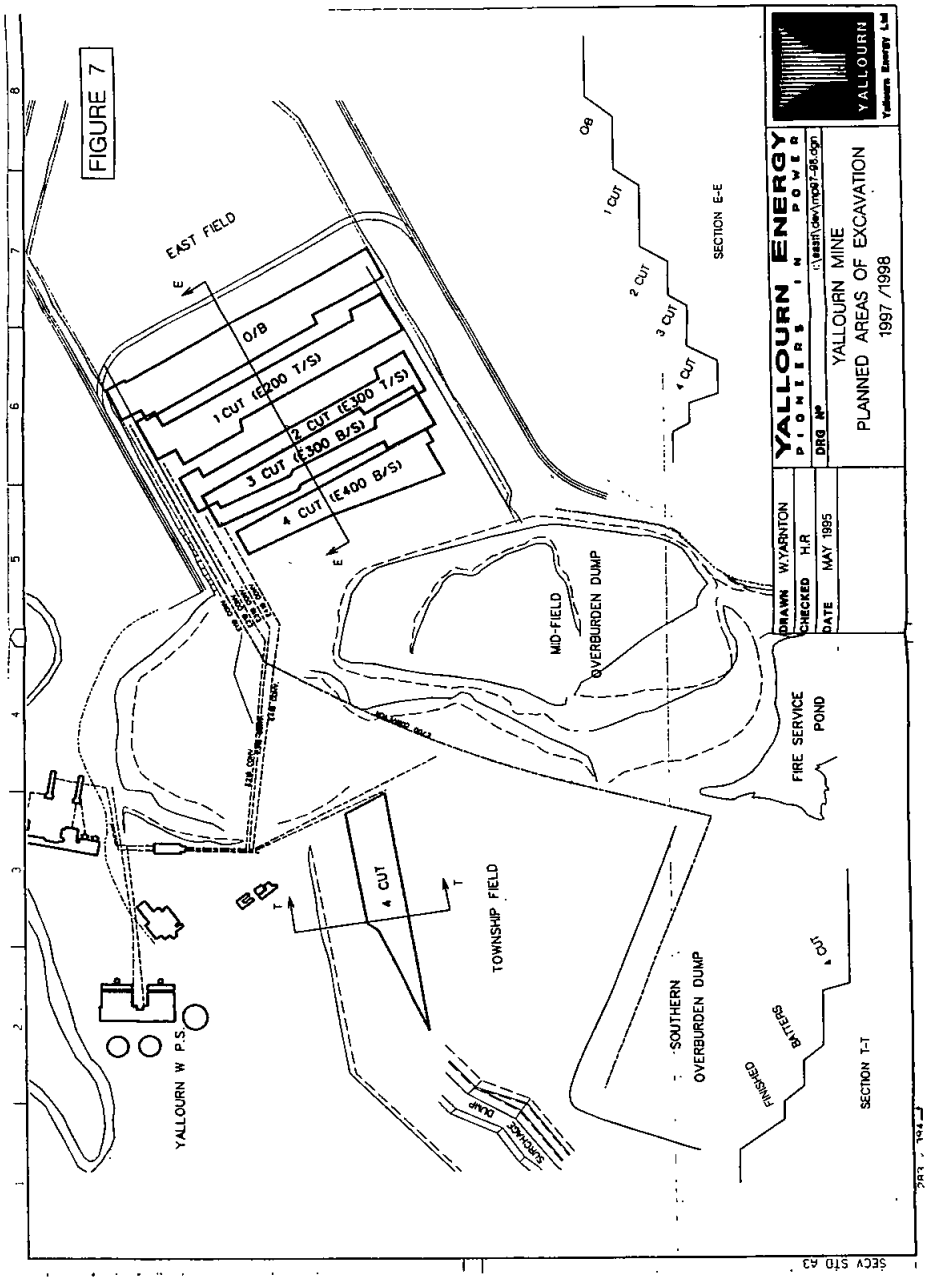


FIGURE 7
EAST FIELD
O/B
1 CUT (E200 T/S)
2 CUT (E300 T/S)
3 CUT (E300 B/S)
4 CUT (E400 B/S)
SECTION E-E
MID-FIELD OVERBURDEN DUMP
FIRE SERVICE POND
YALLOURN W P.S.
TOWNSHIP FIELD
SOUTHERN OVERBURDEN DUMP
SECTION T-T
YALLOURN ENERGY
POWER
YALLOURN MINE
PLANNED AREAS OF EXCAVATION
1997 /1998
DRAWN W.YARNTON
CHECKED H.R
DATE MAY 1995

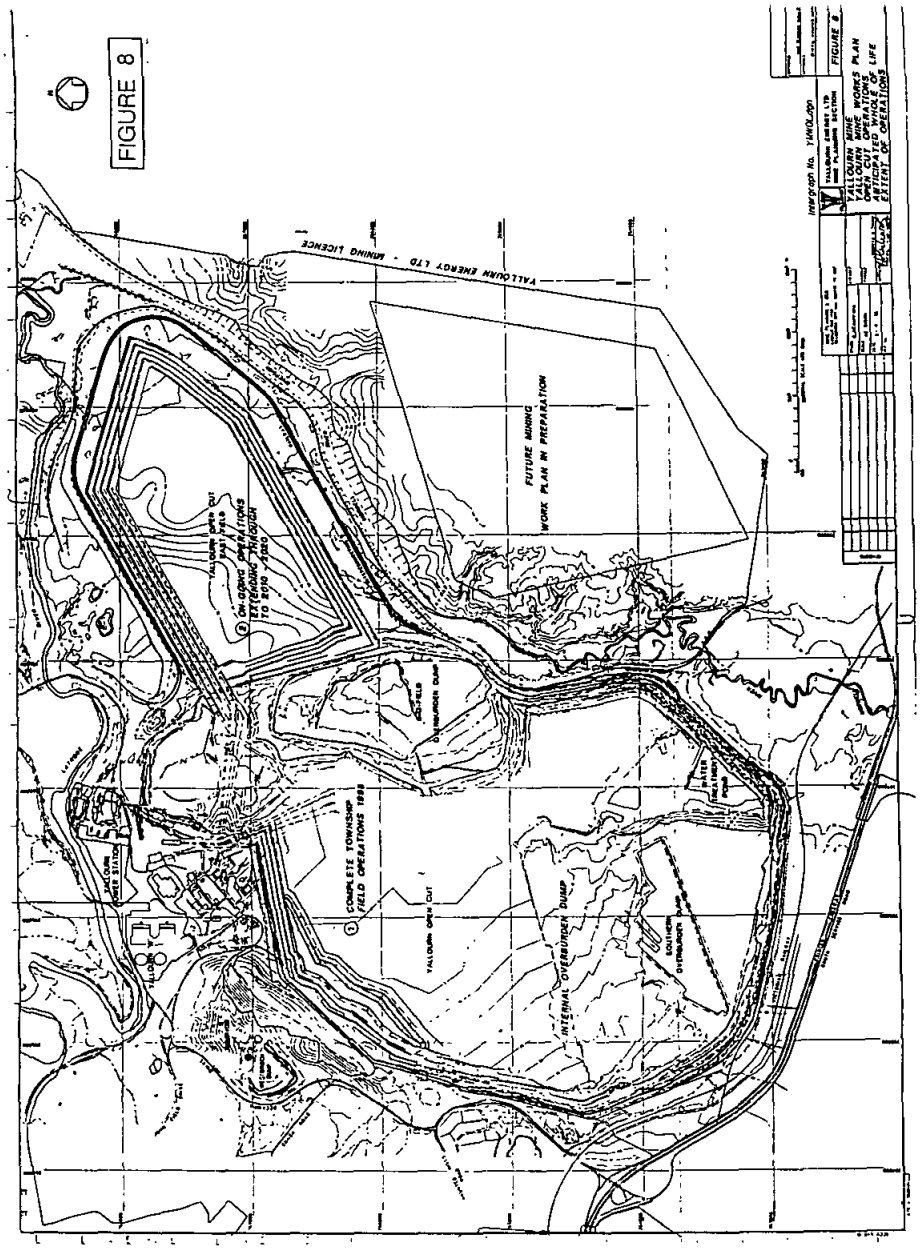


FIGURE 8
FUTURE MINING
WORK PLAN IN PREPARATION
COMPLETE TOWNSHIP
FIELD OPERATIONS 1998
INTERNAL OVERBURDEN DUMP
FALLOUN MINE WORKS PLAN
FALLOUN MINE
OPEN CUT OPERATIONS
ANTICIPATED WHOLE OF
EXTENT OF OPERATIONS
FIGURE 8

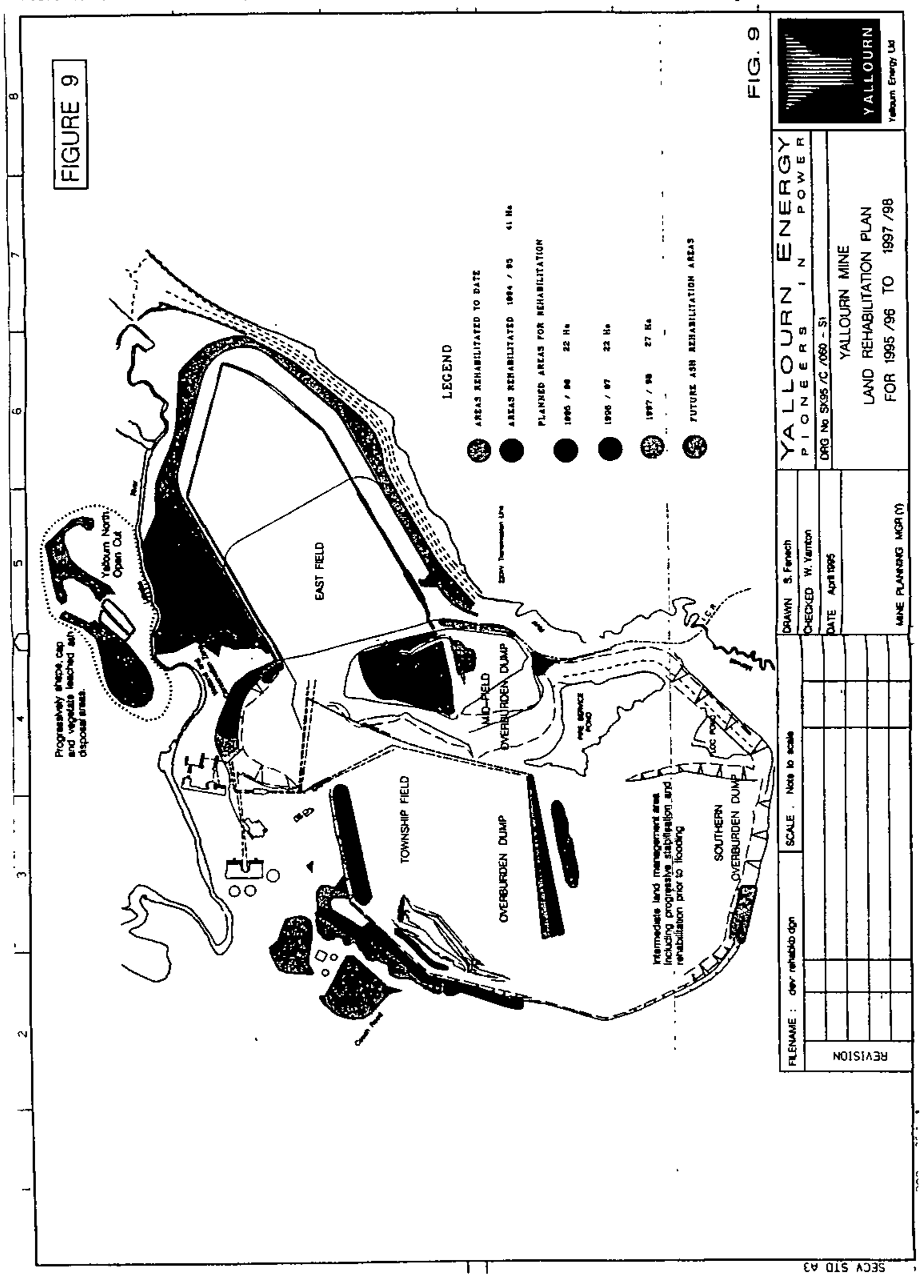


FIGURE 9
FIG. 9
Progressively shape, cap and vegetate leached ash disposal areas.
Yallourn North Open Cut
EAST FIELD
MID-FIELD
OVERBURDEN DUMP
TOWNSHIP FIELD
OVERBURDEN DUMP
SOUTHERN
OVERBURDEN DUMP
FIRE SERVICE POND
Intermediate land management area including progressive stabilisation and rehabilitation prior to flooding
LEGEND
AREAS REHABILITATED TO DATE
AREAS REHABILITATED 1994 / 95 41 Ha
PLANNED AREAS FOR REHABILITATION
1995 / 96 22 Ha
1996 / 97 22 Ha
1997 / 98 27 Ha
FUTURE ASH REHABILITATION AREAS
YALLOURN ENERGY
PIONEERS IN POWER
YALLOURN
Yallourn Energy Ltd
DRG No SK95 /C /060 - S1
YALLOURN MINE
LAND REHABILITATION PLAN
FOR 1995 /96 TO 1997 /98
DRAWN S. Fensch
CHECKED W. Yarrton
DATE April 1995
MINE PLANNING MGR (Y)
FILENAME : dev rehab.dgn
SCALE : Not to scale
REVISION
SECV STD A3

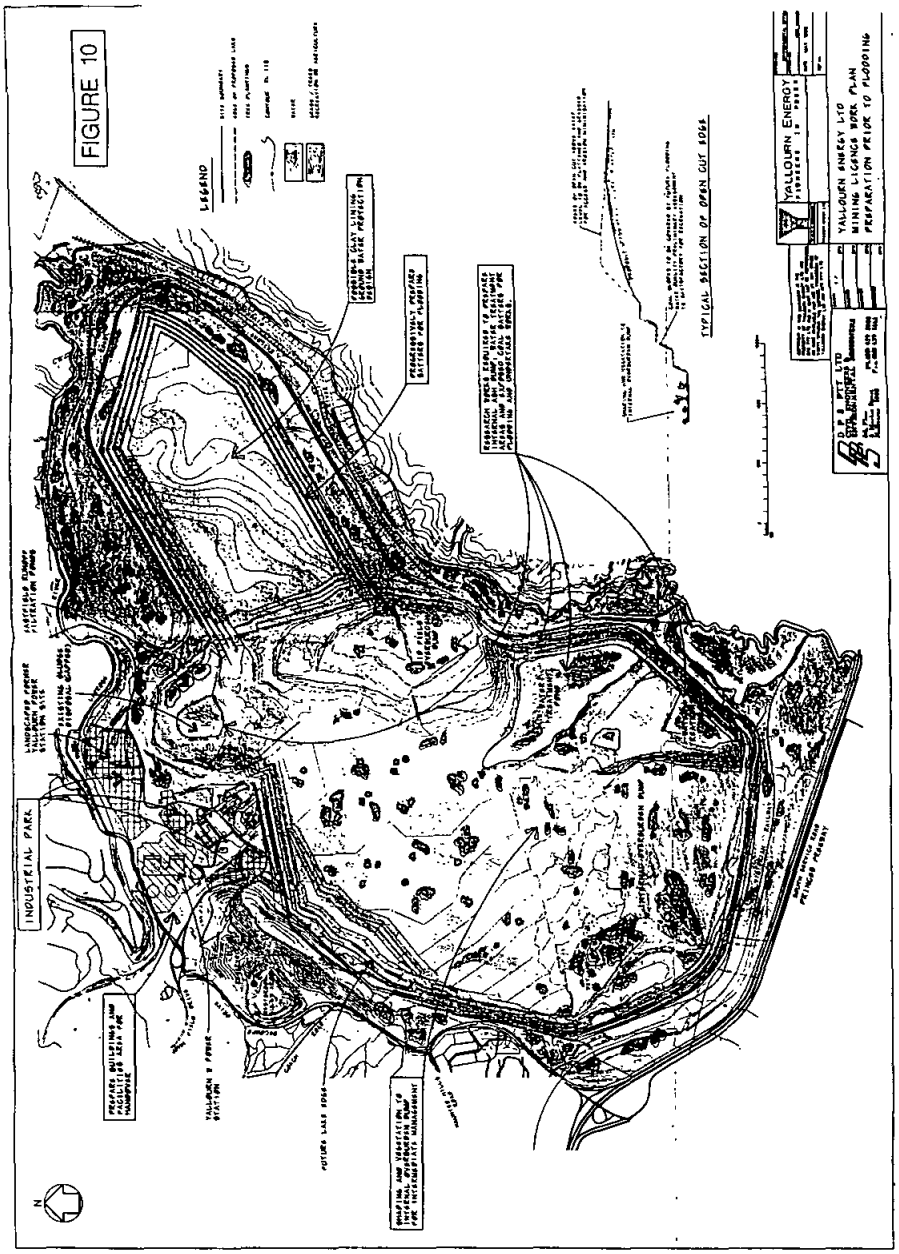


FIGURE 10
LEGEND
INDUSTRIAL PARK
YALLOURN ENERGY
YALLOURN ENERGY LTD
MINING LICENCE WORK PLAN
PREPARATION PRIOR TO FLOODING
TYPICAL SECTION OF OPEN CUT VOID
D.P.I. PTY LTD
N

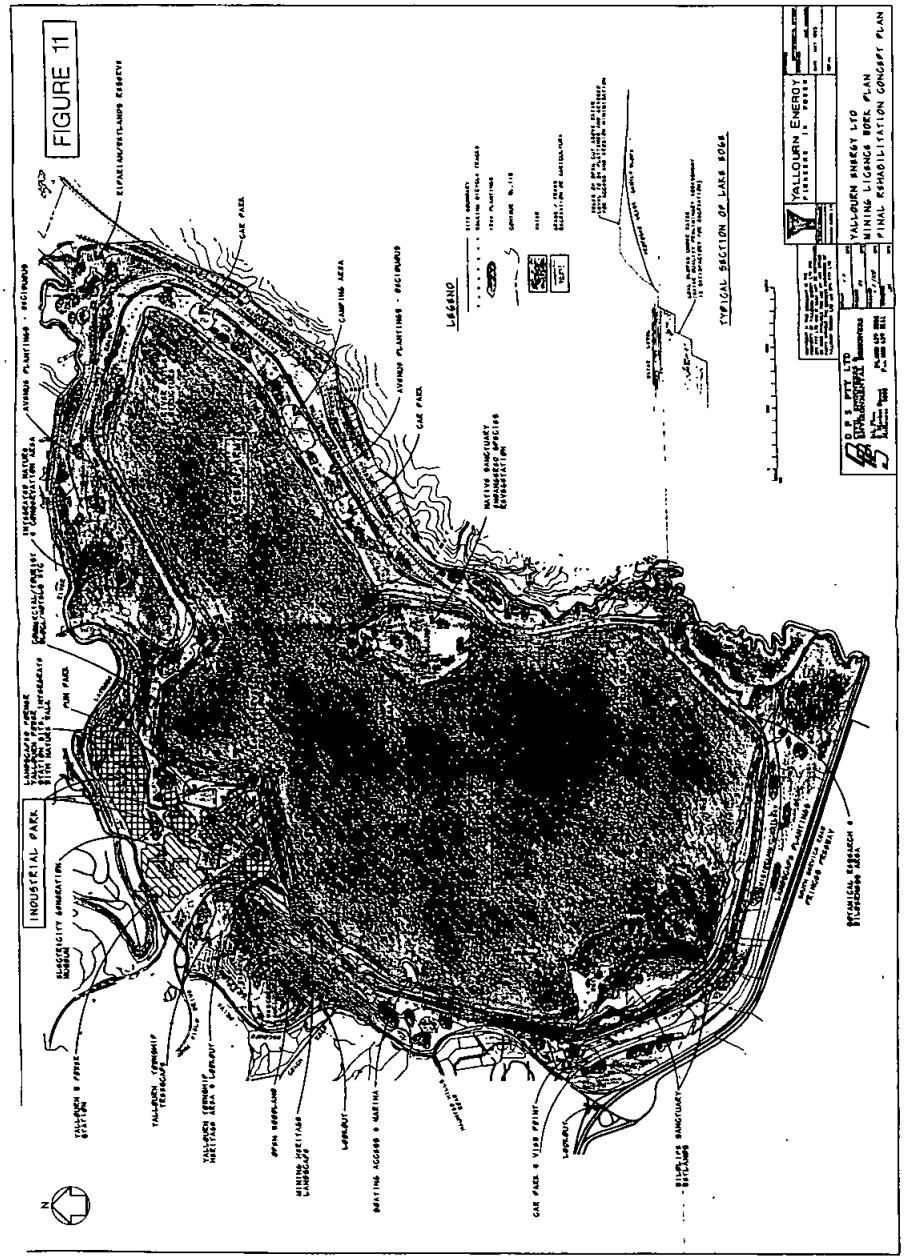
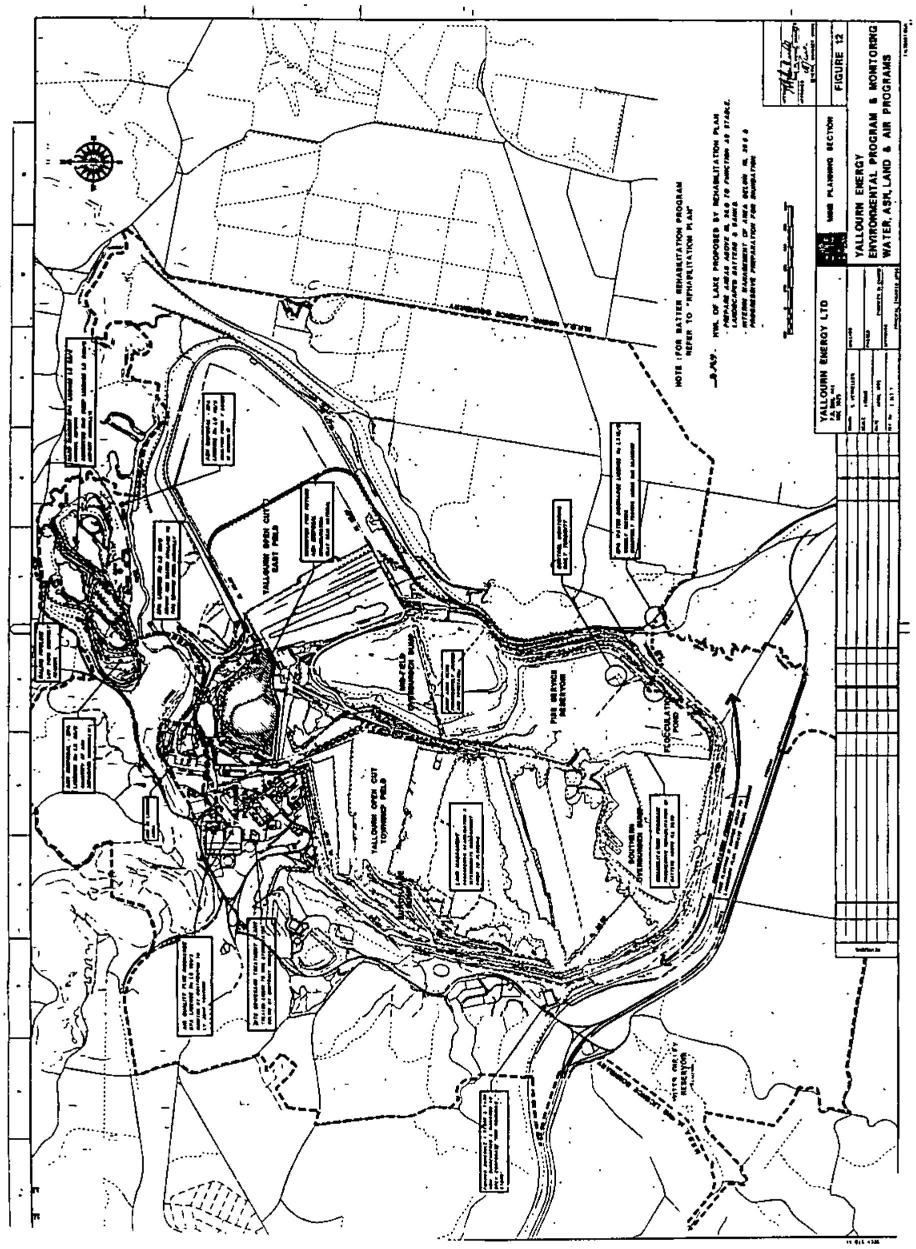
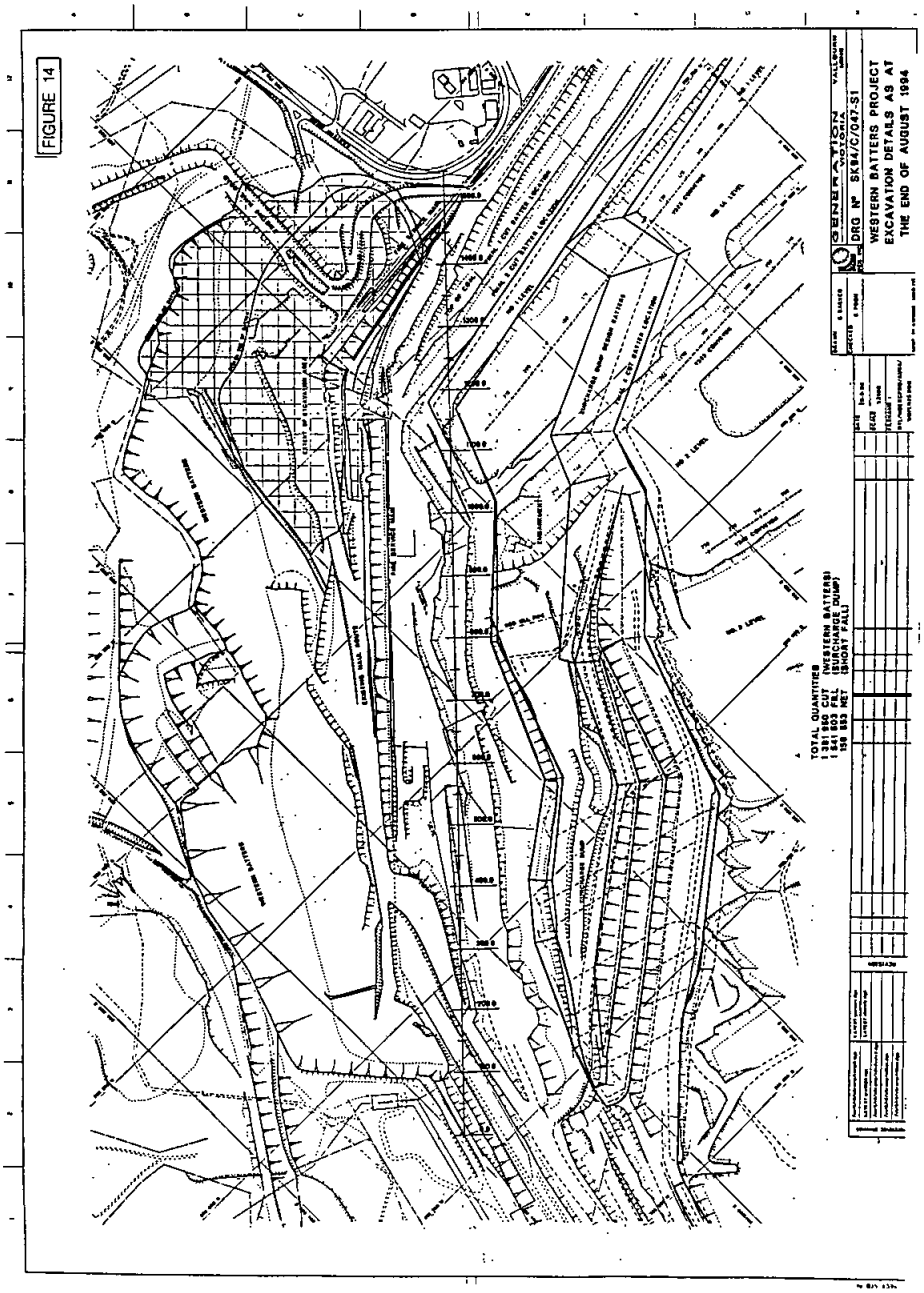


FIGURE 11
INDUSTRIAL PARK
LEGEND
TYPICAL SECTION OF LAKE EDGE
YALLOURN ENERGY
YALLOURN ENERGY LTD
MINING LICENCE BOREL PLAN
FINAL REHABILITATION CONCEPT PLAN


YALLOURN ENERGY LTD
FIGURE 12
YALLOURN ENERGY
ENVIRONMENTAL PROGRAM & MONITORING
WATER, ASH, LAND & AIR PROGRAMS
YALLOURN OPEN CUT EAST FIELD
YALLOURN OPEN CUT TOWNSHIP FIELD
SOUTHERN OVERBURDEN DUMP
FLOCCULATION POND


LEGEND
YALLOURN ENERGY LTD
MINE PLANNING SECTION
FIGURE 13
YALLOURN ENERGY
SITE PLAN
INFRASTRUCTURE AND SERVICES

FIGURE 14


GENERATION
DRG Nº SK94/C/047-S1
WESTERN BATTERS PROJECT
EXCAVATION DETAILS AS AT
THE END OF AUGUST 1994
TOTAL QUANTITIES
1 391 590 CUT (WESTERN BATTERS)
1 541 603 FILL (DISCHARGE DUMP)
150 013 NET (SHORT FALL)

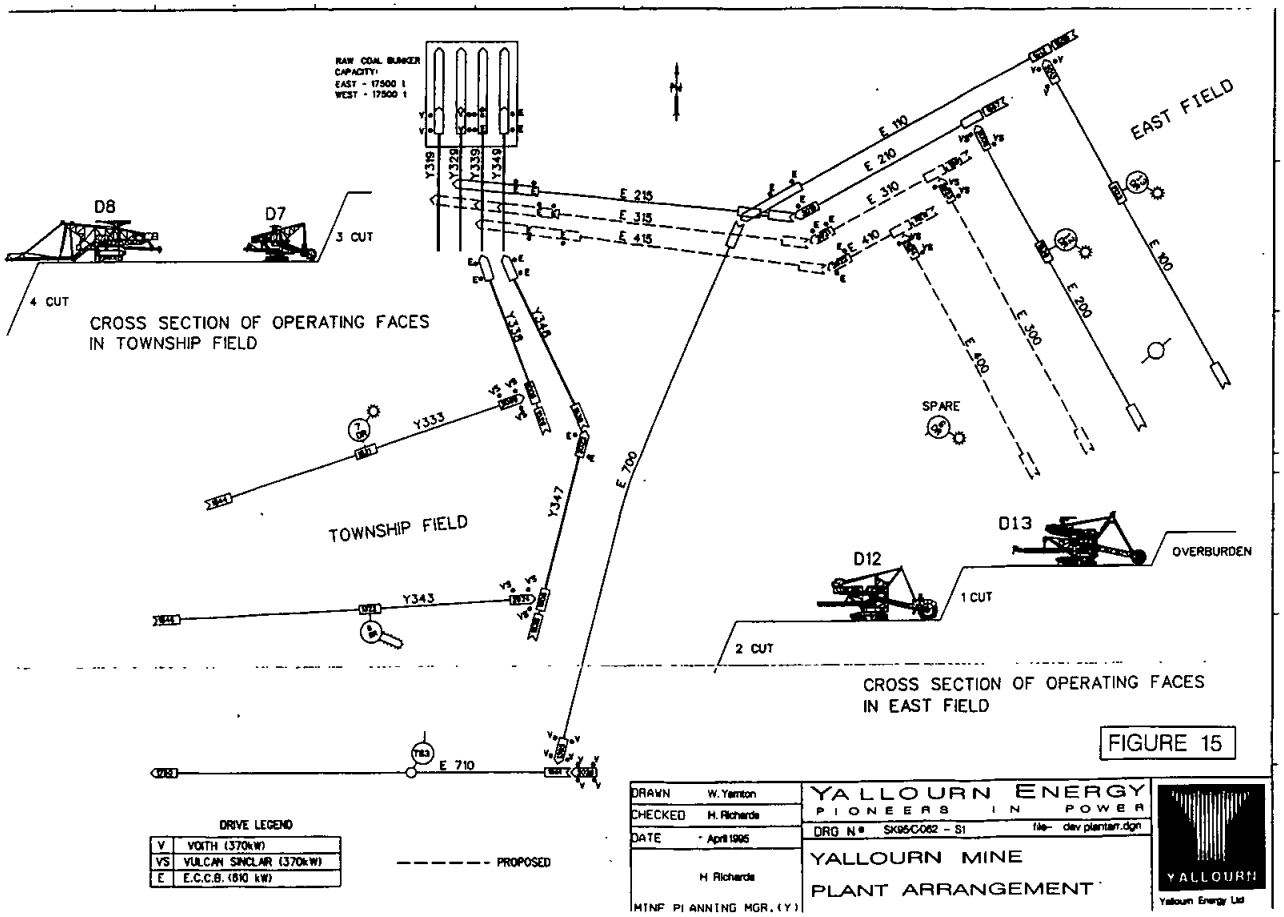

RAW COAL BUNKER
CAPACITY:
EAST - 17500 t
WEST - 17500 t
D8
D7
3 CUT
4 CUT
CROSS SECTION OF OPERATING FACES
IN TOWNSHIP FIELD
Y319
Y329
Y339
Y349
E 215
E 315
E 415
E 110
E 210
E 310
E 410
EAST FIELD
E 100
E 200
E 300
E 400
SPARE
Y348
Y338
Y333
Y347
TOWNSHIP FIELD
Y343
E 700
D13
D12
OVERBURDEN
1 CUT
2 CUT
CROSS SECTION OF OPERATING FACES
IN EAST FIELD
E 710
DRIVE LEGEND
V VOITH (370kW)
VS VULCAN SINCLAIR (370kW)
E E.C.C.B. (510 kW)
PROPOSED
DRAWN W.Yarnton
CHECKED H.Richards
DATE April 1996
H Richards
MINE PLANNING MGR.(Y)
YALLOURN ENERGY
PIONEERS IN POWER
DRG N° SK95C082 - S1
file- dev plantarr.dgn
YALLOURN MINE
PLANT ARRANGEMENT
YALLOURN
Yallourn Energy Ltd

FIGURE 15

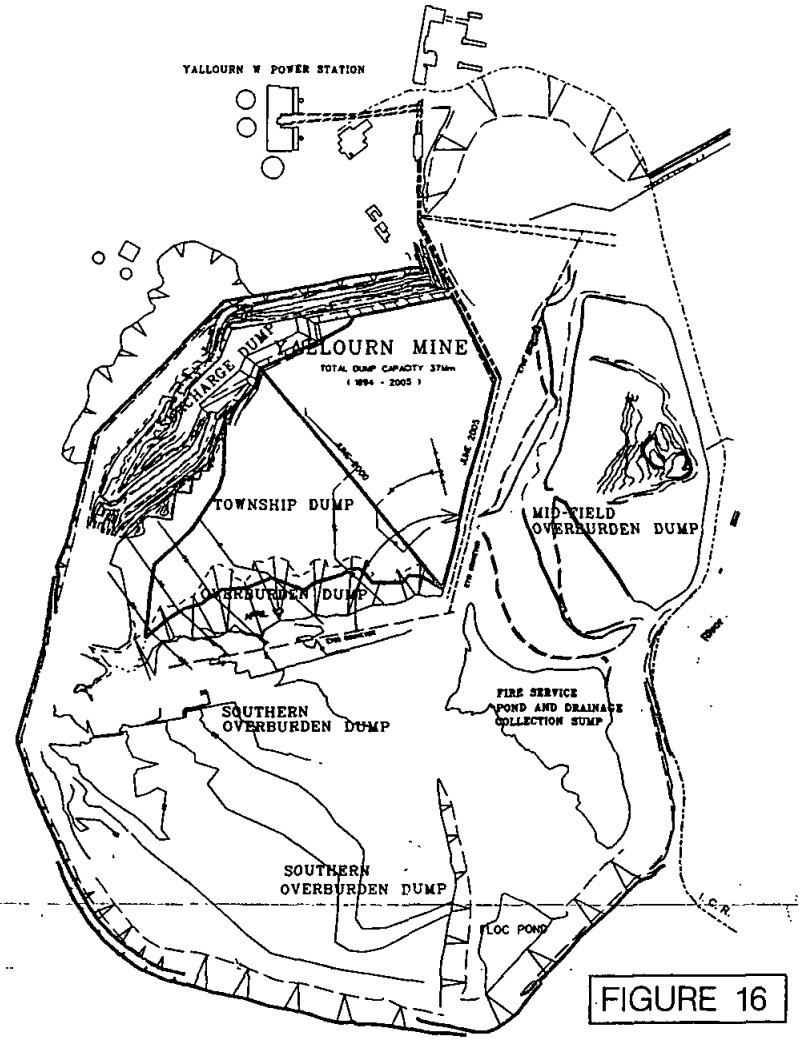


FIGURE 16

DRAWN	S. Fenech	YALLOURN ENERGY PIONEERS IN POWER	YALLOURN Yallourn Energy Ltd
CHECKED	W.Yarnton		
DATE	April 1995	DRG Nº	
FILENAME :	\jobreq\wkplan.dgn	MINE WORK PLAN DEVELOPMENT OF OVERBURDEN DUMP APRIL 1995	
	H. Richards		
MINE PLANNING MGR.(Y)			

200 x 283mm

YALLOURN

YALLOURN ENERGY Ltd.

PIONEERS IN POWER

MINING LICENCE WORK PLAN

PART "B"

ENVIRONMENTAL MONITORING PROGRAM

2 JUNE 1995

APPROVED
BY THE GOVERNOR IN COUNCIL
19 MAR 1996
CLERK OF THE EXECUTIVE COUNCIL

YALLOURN ENERGY LTD. - MINING LICENCE WORK PLAN - PART B
ENVIRONMENTAL MONITORING - YALLOURN MINE

CONTENTS:

The Environmental Monitoring Program is divided into two sections:

. ABOVE GROUND ENVIRONMENT relates to above ground issues land, water, ash, asbestos, hard rubbish and air quality.
. EARTH MOVEMENT relates to monitoring of batter movement and ground water.

This document is to assist the routine inspection and auditing of the environmental monitoring at Yallourn Energy Ltd. It forms the second part of the Work Plan.

Refer (Fig 12) "Environmental Program and Monitoring."

Yallourn Mine Work Plan, Part B (Environmental Monitoring). 2/6/95

1.1 LAND REHABILITATION

Planning.

Land rehabilitation is implemented through a works program integrated with the Mine Plan. Rehabilitation of disturbed mine land is planned 3 years in advance and in accord with the long term Rehabilitation Master Plan. The annual works program includes rehabilitation construction of disturbed land and land maintenance.

Monitoring.		Responsible Officer
Monthly:	Inspect new works during first 6 months after construction to determine maintenance requirements.	EPEYM
6 Monthly:	Inspect all rehabilitated lands to determine maintenance requirements.	EPEYM

Reporting		
	Report annual performance against Plan.	EPEYM
	Report progress of seasonal works program.	EPEYM
	Update Land Rehabilitation Cost Model to reflect Business liability.	EPEYM/FMYM

References:

Land Rehabilitation Practices Manual.
Generation Victoria Rehabilitation Policy.

Legend: EPEYM - Environmental Planning Engineer Yallourn Mine
FMYM - Finance Manager Yallourn Mine

Yallourn Mine Work Plan, Part B (Environmental Monitoring). 2/6/95

1.2 MINE DEWATERING

The Mine collects, treats and discharges excess water from the whole Yallourn Energy site. Waste water collects in the Fire Service Pond and is used for fire protection, dust suppression and washdown. Excess water is chemically treated and discharged in accord with the EPA Licence No. LX13/6, which specifies quality, quantity, monitoring and reporting requirements. Approximately 17,000 Ml annually is discharged to the Morwell River. Water treatment is by an automatic dosing station and a dedicated settling pond. Details of this licence are as follows:

Licence Conditions

1. Discharge quantity:	Maximum discharge rate	104 Ml/day
	Annual Mean	50 Ml/day

2. Quality limits:	Maximum	Annual Median
Total Dissolved Solids	700 mg/l	450 mg/l
Colour	70 Pt-Co	50 Pt-Co
Suspended Solids	50 mg/l	20 mg/l
Turbidity	60 NTU	25 NTU
pH range 6 to 8.5		

Monitoring		Responsible Officer
	. Discharge flow rate is measured and recorded. . Sampling and analysis program for discharge water, upstream and downstream to NATA standards.	
	As required alert performance problems. Conduct repairs/checks to treatment system.	Mine Fire Service Mine Technical Officer
	Written report of exceedances on NATA testing to EPA and maintain hardcopy and electronic database.	EPEYM
Daily:	Operate pumps and water treatment plant to control and treat excess dirty water.	F/S
	Sample and arrange for daily discharge quality tests, and monitor results against Licence requirements.	F/S
Weekly:	Analysis of TDS, Colour, Suspended Solids, Turbidity and pH. Sample and analyse discharge for routine parameters.	NATA Lab
	Monitor and file all NATA analyses.	EPEYM
Monthly:	Report Licence exceedances and system performance	EPEYM
Quarterly:		
	Sample and analyse discharge for background parameters, predominantly for due diligence.	NATA Lab
	Analysis for sulphate and nitrate	

Yallourn Mine Work Plan, Part B (Environmental Monitoring). 2/6/95

1.2 MINE DEWATERING CONT:

Reporting

licencee to keep written records of analyses.
exceedance reporting to epa.
annual written report to epa and daem (by exception)
report annual performance against plan. EPEYM

Legend: EPEYM - Environmental Planning Engineer Yallourn Mine
Mine Fire Service - Mine Personnel Operators
NATA Lab - Laboratory registered by the National Association of Testing Authorities, Australia.

1.3 POWER STATION ASH

The Yallourn W Power Station ash disposal system, return water system and saline waste water system are located at the Yallourn North Open Cut. The twin pond system operates on a cyclical basis - while one pond is filling the second is being excavated - and the residual ash used as landfill in the Western dump area of the site. The excess saline water is collected via reservoirs (Western, Central and Eastern Basins) before being pumped into the Saline Waste Outfall Pipeline. The pipeline is managed by others.

The ash disposal operation is subject to EPA licence No. LS254/2 issued on 22 February 1995, which permits the deposit of waste at premises "Yallourn North Open Cut".

Monitoring requirements

All sampling and analysis is to be carried out by or under the supervision of NATA registered person in accordance with EPA publication "A guide to the sampling and analysis of water and wastewater."

In at least the months of April & November each year samples of groundwater are to be obtained from each of the specified monitoring bores for analysis for electrical conductivity, Ph and sulphate. Static water levels in each bore are also measured.

During discharge to the Twin Ash Ponds the water level is to be recorded every 24 hours and those records maintained for not less than 12 months.

Reporting requirements

1. Results, observations and measurements are to be accurately recorded in writing, date and time stamped, be under NATA endorsement and signed by the responsible officer.

2. Results are to be made available to an authorised officer upon request and submitted in an annual return to the EPA's Gippsland Office in April of each year.

3. Overflow is to be reported annually with the total volume and duration of each discharge by month of any waste discharged to the Yallourn Fire Service Pond during the previous year. Records are to be kept for at least 2 years after initial entry.

4. Immediate notification is to be made to the EPA Gippsland Office of any overflow, discharge or loss of saline water which:

- is in excess of 1 m^3/hr or 30m^3/event, or
- which may be potentially detrimental to the environment.

This applies for any pipeline or scour valve between the Twin Ash Ponds at Yallourn North Open Cut and the Firmin's Lane pumping station.

5. Annual reporting in April of total volume of ash deposited into the Yallourn North Open Cut ash dump during the year.

Yallourn Mine Work Plan, Part B (Environmental Monitoring). 2/6/95

1.3 **POWER STATION ASH** cont:

Licence limits

1 Saline water discharge from the Yallourn W Power Station ash pits to the Fire Service Pond shall not exceed 20 hours per month, nor exceed 10 megalitres per month.

2 The Twin Ash Ponds shall be operated so that a minimum freeboard of 0.5 metres is maintained at all times.

3 The Yallourn Eastern Basin shall be operated so that the level does not exceed 36.0 metres RL.

Operating conditions

1 **Preventative Maintenance Program** - the licenceholder is to prepare and make available to the EPA Gippsland Office a copy of the preventative maintenance program for the ashing system.

2 **Points of discharge** shall be only into the Twin Ash Ponds, Eastern Basin and onto the Western Basin and Central Basin ash dump.

3 The **types of waste** deposited to the above sites is limited to those specified.

4 **Seepage** from Yallourn North Open Cut - the operations shall be conducted so that no seepage occurs which would adversely affect the environment.

5 **Soil erosion** - the licence holder will ensure minimisation of soil erosion and prevent pollution of the Latrobe River and Andersons's Creek. sediment traps are to be installed and maintained on all drainage lines from Yallourn North Open Cut.

Site restoration

Compacted earth to a minimum depth of 0.5m shall be placed over the area specified and the final surface of the ash dump covered and revegetated.

Yallourn Mine Work Plan, Part B (Environmental Monitoring). 2/6/95

1.4 ASBESTOS DISPOSAL

Asbestos Dump No.3 at Yallourn North Open Cut is operated to EPA Licence LS249/3, and requires annual reporting of the volume dumped split into quantities of hard and soft asbestos. The licence was issued on 19 May 1989 and amended on 14 January 1993 and is currently issued to the SECV but will shortly be transferred to Yallourn Energy Ltd. The responsible officer is the Environmental Manager Yallourn Power Station and the managing contractor appointed is ADI-BAINES HARDING JV.

Required practice

1 The wastes must consist only of asbestos, asbestos products and material contaminated with asbestos and all waste must be deposited into the trenches.

3 The licence must contain separate trenches for light asbestos and heavy asbestos waste so that the pvc bags enclosing any light asbestos are not subject to damage.

4 Any ruptured PVC bag containing light asbestos must be covered with at least 150mm of inert material immediately upon deposition into the trench.

5 When each trench is filled it must be compacted and covered with at least 500mm of inert material and that cover material then compacted.

6 The final surface of the site must be restored by grading and draining to prevent ponding and revegetated to minimise erosion.

Site management

1 The site is to be fenced and access restricted.

2 Surface drainage must be diverted away from the premises.

3 Any run-off from a vehicle must be directed to and contained within an asbestos disposal trench.

4 The licencee must ensure that all personnel responsible for the operation of the site are familiar with the conditions of this licence.

Reporting

By 14 March each year to report to the Gippsland Office of the EPA on tne previous years operation, as follows:

1 the source of the waste deposited,
2 the estimated volume of the waste,
3 the number and location of the trenches filled and covered.

1.5 HARD RUBBISH DISPOSAL

Annual reporting of volumes of hard rubbish disposed of into the Yallourn Open Cut Tip (Hard Rubbish Dump), is a new requirement and is in accordance with EPA Licence No. LS62/8. The licence was issued 9 January 1974 and amended 30 June 1994

This licence is currently issued to Generation Victoria but will shortly be transferred to Yallourn Energy Ltd. The responsible officer is the Environmental Manager Yallourn Power Station and the managing contractor appointed is ADI-BAINES HARDING JV.

Conditions of Licence

The waste must:

1 be discharged only onto or into the premises delineated;

2 consist only of inert solid waste or synthetic mineral fibre;

3 only be that which has originated from the Yallourn Works Area;

4 not include prescribed waste, putrescible waste or liquid waste.

5 if Synthetic mineral fibre must deposited in the manner specified;

6 not be burnt at the premises.

7 Site restoration is to be by grading, draining and revegetation.

Site Management

1 Prompt action must be taken to extinguish fire outbreaks;

2 Suitable signs must be prominently displayed to advise permitted wastes and where they may be deposited;

3 All surface run-off must be diverted away from land-fill areas which have been or are being used for dumping. All drainage from the landfill area must be managed so as not to adversely affect any waters.

4 All users of the premises are to be made aware of this licence and its conditions;

5 The site management plan must be submitted to the EPA for approval[1].

Note: [1] the submission date requirement has been deferred by agreement from that set out in the licence to enable the more substantial requirements of the Yallourn Demolition Project to be incorporated in the Site Plan.

Reporting

By 5 January each year, the licensee must provide to the EPA an estimate of the volume of waste deposited at the premises for the previous calendar year.

Yallourn Mine Work Plan, Part B (Environmental Monitoring). 2/6/95

1.6 AIR QUALITY

Dust suppression in the mine is linked to the fire mitigation program. Adverse weather projections are monitored by the Fire Service Office and Control Centre. On dry windy high fire risk days the Mine Fire Service wets down coal surfaces to reduce the risk of fire. The wetting down using the fire service system is also the major means of dust suppression. Mobile plant haul routes are also wetted with tanker trucks.

In October/November each year a full fire service test is conducted to determine the effectiveness of the spray cover. Aerial photographs are taken of the test and deficiencies identified and remedied.

2. EARTH MOVEMENT

2.1 General stability practice

Jointing of coal, orientation of batters, width of benches, height of faces, ground water in batters, etc.. are considered when determining safe batter slopes in coal. Operational activities such as diverting runoff away from coal joints, and installation of horizontal bores to relieve water pressure in coal joints are undertaken to maintain batter stability.

Bench and face geometry, and material quality are considered when determining safe batter slopes. Where weak saturated overburden material occurs, prestripping is usually carried out to minimise the face length requiring flatter batters for stability.

Operational procedures are in place that require daily batter inspections ahead of the digging face.

Batters in overburden dump areas are designed considering material quality and drainage criteria. Permanent batters are typically at 1 in 10 which also suits the visual requirements for rehabilitation in dump areas. The design maximises coal recovery, minimises batter stabilisation costs and maintains safety of the operations within prescribed geotechnical limits.

2.2 Geotechnical Monitoring - Western Batters

Three main types of batter monitoring are carried out:

- Monitoring of groundwater and pore pressure levels in the batters.
- Monitoring of batter surface movements.
- Monitoring of sub-surface movements along the base of the coal seam.

Three monthly and annually in a comprehensive manner, all the data compiled for the Western Batters is reviewed to determine how the batters are performing and if any area contains unacceptably high water pressures or is moving at a higher than expected rate. The results of the monitoring program are reported relative to the design movement predicted.

Monitoring of groundwater and pore pressure levels is carried out using a system of 78 bores that have been progressively installed since 1984. Data from the monitoring is assessed either fortnightly or monthly and entered into databases. The data is used to assess the current stability of critical sections of the batters.

Horizontal and vertical batter movements are monitored using survey pinlines. The Western Batters pinline system consists of 178 individual pins arranged on 12 pinlines. Critical pinlines are located at the crest of the batters.

Annual major pinline survey assessments covering most of the installed pins, are carried out in August. Other smaller pinline surveys are carried out in December and April.

Surface movements across the Yallourn Monocline are monitored by instrumentation anchored across the fault zone.

Subsurface movement along the coal/interseam interface is monitored using bore mounted inclinometers and vertical Resistance Wire Extensometers.

Yallourn Mine Work Plan, Part B (Environmental Monitoring). 2/6/95

2.2 cont: **SUMMARY OF GEOTECHNICAL MONITORING PROGRAM.**

Daily:	Inspect surcharge dump and coal levels by Operations.	PMYM
Fortnightly:	Inspect dump placement by Mine Planning, with a brief note to PMYM on status and recommendations.	MPMYM
Monthly:	Monitoring of groundwater and pore pressure levels is carried out using a system of 78 bores that have been progressively installed since 1984 and data entered into databases.	Consultant
Bi Monthly:	YM Geotechnical meeting to cover all geotechnical issues of mine stability (including East Field)	MPMYM
3 monthly:	Survey of excavation and surcharge dump areas	PMYM
3 Monthly:	Brief review from consultant following the survey. Review of movement of batters and if any unacceptably high water pressures exist.	MPMYM
6 Monthly:	Dec., April. Limited survey of pin lines to check for movement.	Consultant
Annual:	A major pinline survey and assessment, covering the 178 installed pins, is carried out in August of each year.	Consultant
Annual:	Detailed report from consultant in second quarter of financial year.	MPMYM
Annual:	Updated program, providing projections for excavation and surcharge dump construction by end of April. . 12 month program by months . 3 year program by years	MPMYM

Legend: PMYM Production Manager, Yallourn Mine
MPMYM Mine Planning Manager, Yallourn Mine

2.3 Deep Aquifer Depressurisation

As the mine deepens deep aquifer depressurisation will become necessary in the East Field to prevent flooding and heave in the base of the Mine. Pressures in the Township Field were sufficiently low and did not require depressurisation works. The current devatering rate from East field is 410 Ml per annum from one bore, and this is anticipated to increase to 1450 Ml per annum over the next 4-5 years as further bores are installed. This water is collected in the base of the Mine for use in the fire service.

Aquifer depressurisation rates are determined by hydrogeological modelling. The predicted geometry of the mine at one year intervals, together with known information about the location and properties of the coal seams, aquifers, and other strata is used in the model to determine the pumping required to achieve acceptable aquifer pressures.

Within the perimeter of the Mine observation bores in the aquifer have been installed to monitor the aquifer. Piezometric levels are measured routinely and the data recorded in a database.

The Mine has engaged the services of Consultants to advise on the management and control of geotechnical and depressurisation programs. Monthly and quarterly reports on Aquifer Depressurisation are provided by the Consultants.

2.4 Regional subsidence.

Regional subsidence is monitored to determine the impact of mining. Regional groundwater monitoring and Australian Benchmark monitoring is done by consultants, and the analysis is provided to each mine.

In a regional sense the drawdown of aquifer pressures for mine stability extends for some kilometres from the mine area. This has resulted in subsidence of the region which is monitored on a regular basis. The subsidence is relatively uniform, reducing with distance from the mine.

Reference:

"Groundwater Management Plan for Latrobe Valley Mines - January 1994"

2.5 Overburden Aquifer Dewatering

Dewatering of the sands in the overburden of the East Field to improve material handling, avoid face slumping and improve overburden dump stability is carried out. Trials are in progress to finalise the best method to achieve these objectives by either pumping the water from submersible borehole pumps or by excavating gullets in the overburden face to accelerate drainage from the more sandy areas. A trial pump is operating at a flow rate of 127 Ml per annum and this is anticipated to increase to 500 Ml per annum over the next 4-5 years. The water is collected at the base of the mine for use in the fire service.

2.6 East Field flood protection - The Morwell River Diversion

The East Field is currently being developed and is only 20m below the top of coal at present. Within the 3 year planning period, the development will have reached 75m below top of coal at the Southern Batters. Progressively as the mine deepens, horizontal bores, water level observation bores and batter movement monitoring systems will be installed to control the water table and monitor batter stability.

The inflow of water from the coal batters and from the overburden gravels and sands is also monitored to assess the effectiveness of the cut-off barrier beneath the Morwell River Diversion.

A 300m buffer zone exists between the diversion cut-off barrier and the crest of the Southern Batters to limit ground movement and to maintain batter stability.

REGIONAL MONITORING PROGRAM
LATROBE VALLEY OPEN CUT COAL MINES

PREAMBLE

These requirements are to form part of the Approved Work Plan for each of the three open cut coal mines at Morwell, Yallourn and Loy Yang under the provisions of the Mineral Resources Development Act 1990. They outline the obligations and requirements in respect to monitoring and predicting changes in regional groundwater levels and land levels associated with groundwater extraction from the mines.

Over the past 20 or so years the SECV has undertaken an extensive range of groundwater studies and investigations in the Latrobe Valley. Most importantly the work includes a regional groundwater monitoring network, regional land level surveys, and modelling to predict future changes in both groundwater levels and land levels as a result of mining operations. These programs continue to be, carried out by Yallourn Energy Ltd., Hazelwood Power Corporation Ltd. and Loy Yang Power Ltd. The purpose of this attachment is to ensure the continuation of these regional monitoring and assessment programs.

The requirements specified in this attachment are directed at:

- maintaining an appropriate regional monitoring and assessment program;
- providing a mechanism to cooperatively adjust and refine the regional program to take account of:
  - results generated by the program;
  - changes in mining and depressurising activity;
  - emerging regional issues associated with depressurising activities;
  - advances in technology; and
- maintaining a cost effective program.

REGIONAL MONITORING PROGRAM

1. A regional monitoring program will be undertaken to record and predict changes in groundwater levels and land levels. The program shall include:-
   - Groundwater Monitoring;
   - Groundwater Modelling;
   - Land Level Surveying; and
   - Land Level Modelling.
2. For the purposes of this attachment, the region that shall be observed comprises the area bounded by the coordinates (AMG 436000E, 5742000N and 4250000E, 5754000N and 447000E, 5785500N and 521000E, 5801000N and 521000E, 5766000N and 476000E, 5754000N and 450000E, 5753000N) as shown in the attached plan.

Groundwater Monitoring

3. A groundwater monitoring network will be maintained in the region. Sufficient data will be collected to reliably monitor and predict regional groundwater levels and trends. Databases will be maintained to store and retrieve data related to these activities.

4. The bores included in the regional groundwater monitoring network together with the monitoring frequency are listed in Table A.

5. Standing water levels shall be measured according to standard operating procedures.

6. All data shall be verified before submitting for storage. Measurements shall be checked against previous measurements for that bore to detect anomalies such as:

   - incorrect recording of data;
   - the casing has collapsed or become perforated;
   - the screen or slots have become blocked.

7. The occurrence and cause of data anomalies shall be recorded and procedures instituted to prevent their recurrence.

8. Preventative maintenance shall be carried out to all surface fittings, bores shall be kept secure from illegal use, vandalism or contamination.

9. The structural condition of the bores shall be verified to ascertain if:-

   - the casing has collapsed or become perforated;
   - the screen or slots have become blocked.

10. All damaged or malfunctioning bores shall be repaired, substituted or replaced.

11. All unwanted damaged or failed bores shall be decommissioned.

Groundwater Modelling

12. Groundwater modelling of the region shall be performed to assist in predicting the effects of mine depressurising on regional groundwater levels.

13. Reports and results of modelling runs shall contain the predictions, previous predictions and actual values for groundwater extractions and potentiometric levels of groundwater.

Land Level Surveying

14. Land Level Surveys of the region shall be undertaken to determine the extent of land subsidence associated with mine depressurising.

15. Survey intervals and reports of survey results shall be carried out at no greater than 5 year intervals and more frequently where significant subsidence is being recorded. The next program will be

completed by the year 1996.

16. Surveys will undertaken to not less than third order accuracy.

Land Level Modelling

17. Land level modelling of the region shall be performed to assist in predicting the effects of groundwater depressurisation on land subsidence.

ARRANGEMENTS FOR MANAGING THE PROGRAM

18. The conduct of the monitoring, modelling and reporting is to be reviewed by the Regional Monitoring Committee having representatives of Yallourn Energy Pty Ltd, Hazelwood Power Corporation, Loy Yang Power, Department of Agriculture, Energy and Minerals and the Minister responsible for the *Water Act* or his delegate. The Committee may make recommendations to the Minister responsible for the *Water Act* or his delegate to amend the regional program in order to:

    . maintain and/or enhance the regional monitoring and assessment program; and

    . to adjust and refine the regional program to take account of:

        - results generated by the program;
        - changes in mining and depressurising activity;
        - emerging regional issues associated with depressurising activities; and
        - advances in technology.

    . maintain a cost effective program.

19. The program shall be consistent with the programs previously carried out by the State Electricity Commission of Victoria to determine the impacts of dewatering/depressurisation both on site and regionally must be maintained to the satisfaction of the Inspector and the Minister responsible for the *Water Act* or his delegate.

REPORTING

20. The licensee shall ensure that results of the regional monitoring program are reported to the Minister responsible for the *Water Act* or his delegate and the Environmental Review Committee annually and at whatever times required by the Groundwater Licence.

21. An annual report shall be prepared each year by September detailing:

    a. the monitoring activity undertaken in the past year
    b. any amendments to the monitoring network
    c. any issues arising from the monitoring results including significant variations to predicted trends

22. The annual report shall be made available to members of the public upon request.

23. A comprehensive review shall occur at not less than at 5 yearly intervals, or more frequently if circumstances change or as deemed necessary by the Regional Monitoring Committee.

24. The comprehensive review shall include:

    a. detailed analysis of measured regional groundwater levels and trends;
    b. detailed analysis of measured regional land subsidence and trends;
    c. contour maps of regional potentiometric surface levels for the main aquifers;
    d. contour maps of regional land subsidence;
    e. results from groundwater and land subsidence models;
    f. based on the modelling, detailed predictions of future regional groundwater and land level trends;
    g. any issues arising from the monitoring results including significant variations to previously predicted trends;
    h. recommendations to amend and enhance the regional monitoring program;
    i. where necessary, recommendations to manage regional issues resulting from mine depressurisation.

25. The licensee shall ensure that results of the comprehensive review are reported to the Minister responsible for the *Water Act* or his delegate.

26. The next review will be completed in 1996/97.

Yallourn Mine Work Plan, Part B (Environmental Monitoring)
ATTACHMENT A

TABLE A

SEC Bore_Id	Inter Seam-Id	Seam-Id	Aquifer	Easting	Northing	Transducer (m)	Monitored Interval from	Screen To (m)	Readings per year
51967	s01		Traralgon	470938	5770583		569.5	591.5	3
51979	s01		Traralgon	471063	5770578				3
52179	s02	bst	Basalt	459746	5760120		204	231	6
52204	s01	s219	Traralgon	465327	5762997		357	360	3
52310	s01		Morwell	469683	5772517		320	333	3
52472	s01		Morwell	466958	5769637		466.1	479	3
52477	s01		Traralgon	460442	5763006		171	177	3
52594	s01	s207	Traralgon	462932	5760496		110 7	123.8	3
52676	s01	s207	Traralgon	464241	5773325		672.5	692	3
52678	s01	s000	Basement	469681	5772509		694	694	3
52809	v01		Morwell	471137	5770563	449.8			3
52809	v02		Morwell	471137	5770563	430			3
52809	v03		Morwell	471137	5770563	405.3			3
52809	v04		Morwell	471137	5770563	392.6			3
52809	v05		Morwell	471137	5770563	350.1			3
52809	v06		Morwell	471137	5770563	319.9			3
52809	v07		Morwell	471137	5770563	289 7			3
52809	v08		Morwell	471137	5770563	255 7			3
52809	v09		Morwell	471137	5770563	245			3
52809	v10		Morwell	471137	5770563	230 8			3
52809	v11		Morwell	471137	5770563	205.1			3
52809	v12		Morwell	471137	5770563	180.1			3
52809	v13		Morwell	471137	5770563	149.9			3
52809	v14		Morwell	471137	5770563	125 2			3
52810	v04		Morwell	471153	5770560	595 3			3
52810	v05		Morwell	471153	5770560	587.3			3
52810	v06		Morwell	471153	5770560	580.3			3
52810	v07		Morwell	471153	5770560	543.8			3
52810	v08		Morwell	471153	5770560	507.8			3
52810	v09		Morwell	471153	5770560	480 3			3
52810	v10		Morwell	471153	5770560	458.3			3
52883	v01	s1000	Overburden	471070	5770575	69 8			3
52883	v02	s1000	Overburden	471070	5770575	36			3
52984	s01	s207	Traralgon	466677	5767549		350	353	3
52985	s01	s602	Morwell	466670	5767552		98	101	3
53038	s03	s304	Morwell	462234	5769287		327 2	0	3
53038	v01	s219	Traralgon	462234	5769287	414			3
53038	v02	s301s	Morwell	462234	5769287	387			3
53055	s01	s304	Morwell				384 5	387.5	3
53075	v01	s304	Morwell	463193	5768355	227 8			3
53075	v02	s408	Morwell	463193	5768355	177 8			3
53118	v01	s214	Traralgon	462399	5770406	542.6			3
53118	v02	s219	Traralgon	462399	5770406	523			3
53118	v03	s219	Traralgon	462399	5770406	508.7			3
53118	v04	s219	Traralgon	462399	5770406	499			3
53118	v05	s304	Morwell	462399	5770406	438 2			3
53118	v06	s306	Morwell	462399	5770406	434.4			3
53118	v07	s306	Morwell	462399	5770406	429 6			3
53118	v08	s402	Morwell	462399	5770406	413.3			3
53118	v09	s407	Morwell	462399	5770406	407.1			3
53118	v10	s500	Morwell	462399	5770406	399 6			3
53118	v11	s501	Morwell	462399	5770406	378.8			3
53118	v12	s600u	Morwell	462399	5770406	348.4			3
53118	v13	s700	Morwell	462399	5770406	336 7			3
53118	v14	s700	Morwell	462399	5770406	329			3
53118	v15	s700	Morwell	462399	5770406	303 2			3
53118	v16	s700	Morwell	462399	5770406	289			3
53118	v17	s701	Morwell	462399	5770406	263.1			3
53118	v18	s701	Morwell	462399	5770406	229.2			3
53118	v19	s800	Morwell	462399	5770406	208 4			3
53118	v20	s800	Morwell	462399	5770406	179			3
53119	v01	s801	Morwell	462411	5770403	136			3
53119	v02	s801	Morwell	462411	5770403	121 6			3

Yallourn Mine Work Plan, Part B (Environmental Monitoring)
ATTACHMENT A

TABLE A

SEC Bore_id	Inter Seam-id	Seam-id	Aquifer	Easting	Northing	Transducer (m)	Monitored Interval from	Screen To (m)	Readings per year
53119	v03	s900	Morwell	462411	5770403	118.4			3
53119	v04	s900i	Morwell	462411	5770403	110.7			3
53119	v05	s900	Morwell	462411	5770403	90			3
53298	v01	s000	Basement	459683	5761763	224 8			3
53298	v02	s000	Basement	459683	5761763	184.4			3
53298	v03	s120	Basalt	459683	5761763	170 1			3
53298	v04	s120	Basalt	459683	5761763	138.2			3
53299	v01	s120	Basalt	459684	5761767	110			3
53299	v02	s207	Traralgon	459684	5761767	79 7			3
53299	v03	s207	Traralgon	459684	5761767	52 3			3
53299	v04	s1000	Overburden	459684	5761767	27.5			3
53352	v01	s000	Basement	460222	5764647	417.5			3
53352	v02	s000	Basement	460222	5764647	382.5			3
53353	s09	s500	Morwell	460216	5764636		40.2	43.2	3
53353	v01	s120	Basalt	460216	5764636	317.9			3
53353	v02	s120	Basalt	460216	5764636	280			3
53353	v03	s213	Traralgon	460216	5764636	236			3
53353	v04	s219	Traralgon	460216	5764636	213 7			3
53353	v05	s301s	Morwell	460216	5764636	181.4			3
53353	v06	s304	Morwell	460216	5764636	138.2			3
53353	v07	s306	Morwell	460216	5764636	87.2			3
53353	v08	s403	Morwell	460216	5764636	70			3
80445	v01	s304	Morwell	458006	5769795	579.9			3
80445	v02	s408	Morwell	458006	5769795	549 7			3
80445	v03	s500	Morwell	458006	5769795	525			3
80489	t01	s214	Traralgon	457978	5766531	589.5			3
80489	v02	s214	Traralgon	457978	5766531	589 5			3
80489	v03	s216	Traralgon	457978	5766531	576 6			3
80489	v04	s219	Traralgon	457978	5766531	568			3
80489	v05	s301s	Morwell	457978	5766531	532			3
80489	v06	s301s	Morwell	457978	5766531	517.7			3
80490	t02	s216	Traralgon	458524	5766257	329 7			3
80490	v01	s214	Traralgon	458524	5766257	341.4			3
80490	v03	s216	Traralgon	458524	5766257	329.7			3
80490	v04	s219	Traralgon	458524	5766257	320.9			3
80490	v05	s301s	Morwell	458524	5766257	287.1			3
80490	v06	s303s	Morwell	458524	5766257	256.6			3
80490	v07	s306	Morwell	458524	5766257	229.3			3
80490	v08	s306	Morwell	458524	5766257	214.6			3
80490	v09	s413	Morwell	458524	5766257	189.2			3
80491	t01	s207	Traralgon	460202	5768587	524 4			3
80491	v02	s207	Traralgon	460202	5768587	524 4			3
80491	v03	s214	Traralgon	460202	5768587	500 6			3
80491	v04	s215	Traralgon	460202	5768587	484 3			3
80491	v05	s219	Traralgon	460202	5768587	470			3
80491	v06	s306	Morwell	460202	5768587	416.6			3
80491	v07	s409	Morwell	460202	5768587	399 2			3
80491	v08	s501	Morwell	460202	5768587	365.3			3
80491	v09	s601	Morwell	460202	5768587	311 8			3
80491	v10	s701	Morwell	460202	5768587	225 6			3
80491	v11	s801	Morwell	460202	5768587	124 3			3
80491	v12	s900	Morwell	460202	5768587	81.8			3
80495	s01	s120	Basalt	458454	5761926		236	239	3
80496	s06	s1000	Overburden	458455	5761927		4 5	6	3
80496	v01	s207	Traralgon	458455	5761927	132 8			3
80496	v02	s219	Traralgon	458455	5761927	110			3
80496	v03	s301s	Morwell	458455	5761927	82.6			3
80496	v04	s1000	Overburden	458455	5761927	52.1			3
80496	v05	s1000	Overburden	458455	5761927	26.5			3
90323	s01	m2	Morwell	485442	5772772		211	214	6
90324	s01	m1b	Morwell	476082	5775537		377	384	6
90325	s01	m1b	Morwell	485681	5776745		344 5	351	6
90330	s01	m2c	Morwell	471964	5767940		478	481	6
90335	s01	m1b	Morwell	480370	5775990		398	401	6
90335	s02	m1b	Morwell	480370	5775990		385	388	6
90339	s01	t2	Traralgon	475590	5772706		632.5	652	6

Yallourn Mine Work Plan, Part B (Environmental Monitoring)
ATTACHMENT A

TABLE A

SEC Bore_id	Inter Seam-id	Seam-id	Aquifer	Easting	Northing	Transducer (m)	Monitored Interval from	Screen To (m)	Readings per year
90340	v01	m2bco	Morwell	476111	5775526	545 4			6
90340	v03	m2c	Morwell	476111	5775526	496 4			6
90340	v04	m2a	Morwell	476111	5775526	475.7			6
90340	v05	m2co	Morwell	476111	5775526	451			6
90340	v06	m2co	Morwell	476111	5775526	443 3			6
90340	v07	m2co	Morwell	476111	5775526	429 1			6
90340	v08	m2co	Morwell	476111	5775526	405.4			6
90340	v09	m1bco	Morwell	476111	5775526	365			6
90340	v10	m1bintr	Morwell	476111	5775526	350.8			6
90340	v11	m1bintr	Morwell	476111	5775526	336.6			6
90340	v12	m1bco	Morwell	476111	5775526	300 3			6
90340	v13	m1a	Morwell	476111	5775526	275 6			6
90340	v14	m1aco	Morwell	476111	5775526	245.4			6
90340	v16	m1aco	Morwell	476111	5775526	184.4			6
90340	v17	ycn	Yallourn	476111	5775526	144.1			6
90340	v18	ycn	Yallourn	476111	5775526	129.9			6
90343	s01	m2	Morwell	480772	5770910		322	325	6
100093	s01	t2	Traralgon	496899	5770187		116	122 5	6
100094	s01	t2	Traralgon	498392	5768601		210 5	211.5	6
100094	s02	t2	Traralgon	498392	5768601		196 5	197.5	6
100096	s01	t2	Traralgon	498379	5768515		196.5	202.5	6
100097	s01	t2	Traralgon	496354	5766284		228	234	6
110032	s01	m1b	Morwell	463793	5781840		413	419	6
110034	s01	m2c	Morwell	468243	5784230		398	404 5	6
110036	s01	t2	Traralgon	471558	5778928		724 3	727.6	6
110037	s01	m2	Morwell	457565	5776816		574.5	578	6
110037	s02	m2	Morwell	457565	5776816		559	564 2	6
110038	s01	m2	Morwell	462310	5778090		529 5	533	6
110038	s02	m2c	Morwell	462310	5778090		500	506 5	6
110040	s01	m1b	Morwell	460886	5777315		317	323 5	6
110042	s01	t2	Traralgon	465399	5778355		585.5	595	6
110043	s01	hhf	Overburden	472688	5781606		604	617	6
130165	s01	m2a	Morwell	470581	5766114		254.2	257.2	6
130167	s01	t2	Traralgon	470769	5760829		172	173.9	6
130176	s01	t2	Traralgon	470515	5766073		516	517	6
130176	s02	t1	Traralgon	470515	5766073		502.5	503.5	6
130183	s01	t2	Traralgon	467810	5763371		457.5	463 5	6
130183	s02	t1	Traralgon	467810	5763371		420	423	6
130198	s01	m2c	Morwell	470132	5764486		70	73	6
130205	s01	t1	Traralgon	470056	5764145		158 5	170 5	6
130212	s01	t2	Traralgon	468075	5760566		157	163	6
180177	s01	t2	Traralgon	492005	5771760		172.5	179	6
180188	s01	t2	Traralgon	492016	5771729		196 9	199.1	6
180189	s01	t2	Traralgon	492019	5771710		196	202	6
180196	s01	t2	Traralgon	489766	5769550		312.5	319	6
180204	s01	m1a	Morwell	489982	5775902		298	304.5	6
180207	s01	t2	Traralgon	487808	5768055		351 4	354.5	6
180220	s01	t2	Traralgon	491927	5774950		218	301.5	6
180221	s01	t2	Traralgon	489043	5769555		301	311	6
190046	s01	t2	Traralgon	508376	5771796		190.2	196 2	6
210051	s01	t2	Traralgon	488413	5759579	329 4	335.2	6	
220196	s01	t2	Traralgon	479470	5765095		349.6	369.4	6
220197	s01	t2	Traralgon	479488	5765101		352	355	6
220197	s02	t2	Traralgon	479488	5765101		339	340.5	6
220197	s03	t2	Traralgon	479488	5765101		330.5	332 5	6
220197	s04	t2	Traralgon	479488	5765101		326	327 5	6
220197	s05	t2	Traralgon	479488	5765101		321	323.5	6
240047	s01	m1buntr	Morwell	478998	5778765		426	439	6
240052	s01	m2a	Morwell	482842	5786326		568.8	577 8	6
440056	s01	m1bs	Morwell	486646	5780346		398	401 5	6
440056	s02	m1bs	Morwell	486646	5780346		392	395	6
440058	s01	m2cs	Morwell	484085	5779315		526	535	6
440341	s01	t1	Traralgon	490285	5787763		660	666	6
530024	s01	m2co	Morwell	471409	5792603		234	240	6
530025	s01	m2d	Morwell	467784	5787307		407	413	6
920007	s01	t2	Traralgon	508727	5764044		725	737	6

Yallourn Mine Work Plan, Part B (Environmental Monitoring)
ATTACHMENT A

TABLE A

SEC Bore_id	Inter Seam-id	Seam-id	Aquifer	Easting	Northing	Transducer (m)	Monitored Interval from	Screen To (m)	Readings per year
40195	s01	m2s	Morwell	453719	5776453		456	459	12
40195	s02	m2s	Morwell	453719	5776453		449.5	452.5	12
40196	s01	m1b	Morwell	455344	5775761		331	334	12
40196	s02	m1b	Morwell	455344	5775761		309	315	12
10942	s01	m2	Morwell	451332	5773687				12
12034	s01	m2	Morwell	444974	5767679		297	301.9	3
12758	s01	m1b	Morwell	445713	5769485		250.5	263.5	12
13054	s01	m1b	Morwell	451007	5774117		324.5	344	12
13101	s01	m1a	Morwell	450630	5767792		606	613	12
13190	v01	m1b	Morwell	452103	5771191	460.4			12
13190	v02	m1b	Morwell	452103	5771191	439.6			12
13190	v03	m1b	Morwell	452103	5771191	412.3			12
13190	v04	m1a	Morwell	452103	5771191	385			12
13190	v05	m1aco	Morwell	452103	5771191	370.8			12
13190	v06	m1aco	Morwell	452103	5771191	358.2			12
13190	v07	m1aint	Morwell	452103	5771191	345.5			12
13190	v08	m1aint	Morwell	452103	5771191	327.2			12
13190	v09	m1aco	Morwell	452103	5771191	310			12
13282	v01	m1b	Morwell	448077	5769985	248.7			12
13282	v02	m1b	Morwell	448077	5769985	244.2			12
13282	v03	m1b	Morwell	448077	5769985	225.2			12
13282	v04	m1bco	Morwell	448077	5769985	210.2			12
13282	v05	m1bco	Morwell	448077	5769985	180.7			12
13282	v06		Morwell	448077	5769985	166.2			12
13282	v07	m1a	Morwell	448077	5769985	151.7			12
13282	v08		Morwell	448077	5769985	130.8			12
13282	v09	m1aco	Morwell	448077	5769985	109.7			12
13282	v10	yc	Yallourn	448077	5769985	84.7			12
22491	s01	m1s	Morwell	442511	5764494		87.5	89	12
23263	s01	m1a3	Morwell	441274	5764838		94.2	93.9	12
23263	s02	m1u2	Morwell	441274	5764838		91.1	91.4	12
23263	s03	m1a1	Morwell	441274	5764838		84.6	85.6	12
23270	s01	m1a3	Morwell	440655	5764395		45.7	46.3	12
23288	s01	m1a1	Morwell	440736	5763142		46.9	48.5	12
23369	s01	m1a1	Morwell	441501	5767590		143	144	12
23567	s01	a	Morwell	439942	5767338		124	120	12
23570	s01	bas	Basement	441817	5763673		181	187	12
23607	s01	m2a	Morwell	439335	5766552		83.6	90.1	12
23615	s01	a	Morwell	439463	5764961		59.1	66.1	12
23694	s01	m2a	Morwell	440805	5763059		65.6	66.6	12
23780	s01	m2a	Morwell	441500	5767578		187.5	194	12
24558	s01	m1a	Morwell	441178	5768165		164	170	12
24651	s01	b	Morwell	441440	5767969		170	173	12
24652	s01	a	Morwell	441526	5768866		192.5	195.5	12
61095	s01	m2	Morwell	443589	5763301		99.6	100.8	12
61320	s01	a	Morwell	446532	5761057		427.9	434	12
61333	s01	tl	Traralgon	450387	5764284		587.3	593.6	12
61348	s01	tl	Traralgon	449953	5762271		550.4	557.4	12
61502	s01	m1a	Morwell	443795	5759833		339	345	12
61502	s02	m1a	Morwell	443795	5759833		339	340.4	12
61631	v01	m1bco	Morwell	450379	5764307	294.4			12
61631	v02	m1bco	Morwell	450379	5764307	281.7			12
61631	v03	m1a	Morwell	450379	5764307	272.4			12
61631	v04	m1a	Morwell	450379	5764307	262.2			12
61631	v05	m1a	Morwell	450379	5764307	252			12
61631	v06	m1aco	Morwell	450379	5764307	234.8			12
61632	s01	t	Traralgon	450378	5764292		635.5	647.5	12
61691	v02		Morwell	447142	5758626	386.4			12
61691	v03	m2	Morwell	447142	5758626	361.7			12
61691	v04	m1	Morwell	447142	5758626	301.6			12
61691	v05		Overburden	447142	5758626	222.1			12
61719	s01	m2s	Morwell	449912	5759871		309	306	12
61726	s01	m2s	Morwell	448784	5757198		321	347	12
120122	s01	m2A	Morwell	442762	5756708		291	297.5	12
120122	s02	m2A	Morwell	442762	5756708		280	287	12
120135	s01	m2A	Morwell	440668	5756479		320	323	12

Yallourn Mine Work Plan, Part B (Environmental Monitoring)
ATTACHMENT A

TABLE A

SEC Bore_Id	Inter Seam-Id	Seam-Id	Aquifer	Easting	Northing	Transducer (m)	Monitored Interval Screen from	Monitored Interval Screen To (m)	Readings per year
120141	p01	ob	Overburden	442169	5756799				12
120141	p02	ys	Yallourn	442169	5756799				12
120141	p03	ys	Yallourn	442169	5756799				12
120141	p04	m1bco	Morwell	442169	5756799				12
120141	p05	m1bco	Morwell	442169	5756799				12
120141	p06	m1a	Morwell	442169	5756799				12
120152	s01		Traralgon	000000			32.4	638.4	12
23726	s01	m2	Morwell	438701	5773468		85	194	12
23787	s01	m1a3	Morwell	438151	5773869		09 1	215.1	12
23788	s01	m2	Morwell	436100	5775669		96.5	98	12
23789	s01	m2	Morwell	437084	5774827		158.5	164.5	12
23799	s01	u	Morwell	439674	5772504		211.5	214.5	12
230034	s01	m2	Morwell	433329	5777233		52	55	12
230043	s01	m2	Morwell	430147	5776203		144	156	12
230049	s01	m2	Morwell				210	219	12
230055	s01	m2	Morwell				176	180	12

R Nott, D Baker 28 December, 1995
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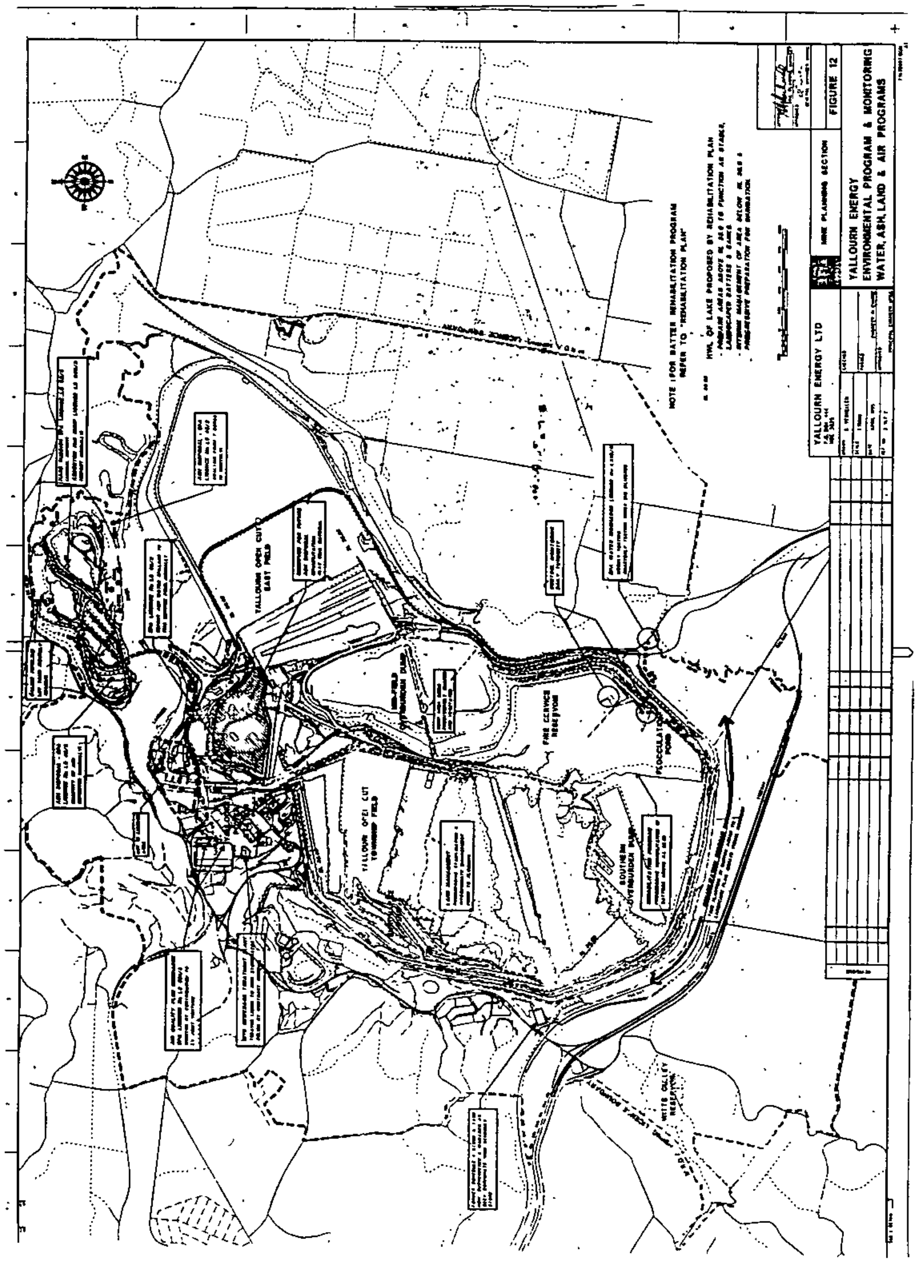
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MINE PLANNING SECTION
FIGURE 12
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ENVIRONMENTAL PROGRAM & MONITORING
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YALLOURN OPEN CUT EAST FIELD
YALLOURN OPEN CUT TOWNSHIP FIELD
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FLOCCULATION POND
SOUTHERN OVERBURDEN DUMP
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