

OFFICE OF THE ADMINISTRATOR



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**MORWELL OPEN CUT FIRE
4, 5 & 6 NOVEMBER 1977**

FINAL REPORT

BY

REVIEW COMMITTEE

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FINAL REPORT BY REVIEW COMMITTEE

Subsequent to the report submitted on 18 November 1977, the Morwell Open Cut Fire Review Committee herewith submits its final report dated 29 June 1978, describing action taken or proposed on each of the recommendations made in the initial report.

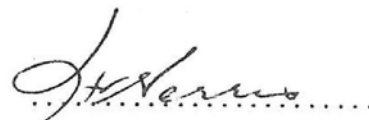
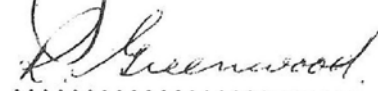
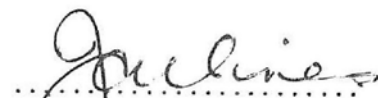
The Review Committee considers that the descriptions, observations and recommendations in the initial report do not require any modification or qualification and that the initial report and this final report of the Review Committee together form an adequate record of the fire and the subsequent action taken.

However, as these reports have attempted to define in detail all relevant background information on which recommendations for subsequent action could be based, the Review Committee has also produced a Summary Report consolidating the major aspects of the fire and the subsequent action. The Review Committee considers that this Summary Report dated 30 June 1978, is suitable and pertinent for general distribution on request to interested parties, including organisations external to the Commission, involved in fire prevention/fire fighting activities.

Mr J A Vines (Chairman)
MANAGER, COAL PRODUCTION

Mr R M Greenwood
MANAGER, ENGINEERING SERVICES

Mr H V Norris
MANAGER, SUPPLIES & GENERAL SERVICES



29 June 1978

OUTCOME OF RECOMMENDATIONS FROM INITIAL REPORT

RECOMMENDATION NO 1

"That the Review Committee continue in existence to oversight progress of action arising out of this report, and that a follow-up report be submitted to the Assistant General Manager (Ops), not later than June 1978".

The Review Committee met at monthly intervals commencing in December 1977, and set up various inter-departmental sub-committees and action groups to pursue various matters arising from the initial recommendations. The Review Committee terminated its role in June 1978. Those matters still being followed up by normal departmental responsibilities are nominated in the following text.

RECOMMENDATION NO 2

"That an inter-departmental committee review present Latrobe Valley radio facilities and recommend the changes which should be made so as to provide more effective service for operational requirements which can be readily adapted to emergencies such as an open cut fire. The recommendations are to include the special equipment which should be provided for such emergencies to equip control offices, monitoring points, personnel, switchboards, etc".

This recommendation was implemented through special meetings of an inter-departmental committee called the Latrobe Valley Communications Planning Committee which gives consideration on a continuing basis to the requirements in the Latrobe Valley for radio and telephone communications. By 23 December 1977, additional telephones and radio equipment had been installed in each open cut fire service office, additional mobile radios had been provided for use by open cut fire service personnel, and additional facilities for interconnection between mobile radio units had been achieved.

Subsequently, additional tanker vehicles were fitted with radios, old model portable radios were replaced with newer equipment and additional sets monitoring the CFA and Forests Commission radio network were installed. This installation met the immediate requirements considered necessary by the Morwell Open Cut Fire Review Committee.

Proposals were then investigated concerning the longer term requirements within the Latrobe Valley, taking into account the expansion at Loy Yang. In view of the Telecom restrictions on the availability of additional VHF radio bands, recommendations are now proceeding through normal inter-departmental arrangements for adoption of UHF radios with the facility for 10 channels to meet foreseeable Latrobe Valley requirements over the next 10 years. This arrangement will reduce the communication traffic on any one channel under normal circumstances while providing the facility for dedication of individual channels for specific purposes.

RECOMMENDATION NO 2 (Cont'd)

The conversion from the existing VHF arrangements to the ultimate UHF system will be progressive over approximately a four-year period. It is proposed to establish, as an interim measure, an additional network on a separate channel in the low VHF band to provide separation of emergency traffic from the security and general traffic by November 1978.

The provision of one or two mobile (caravan-type) communications units fully equipped to monitor a wide range of radio communication bands and capable of connection into telephone circuits has been considered. Requirements are being evaluated by the Latrobe Valley Communications Planning Committee in conjunction with the development of an Area Emergency Mobilisation Plan with the objective of provision of these mobile resources during the 1978/79 year.

The Morwell Open Cut Fire Review Committee endorses these proposals which should continue to be co-ordinated by the Chief Engineer, Transmission Operations.

RECOMMENDATION NO 3

"Develop and implement an Area Emergency Mobilisation Plan. It is envisaged that such a plan would be designed to cover any major emergency and would prescribe co-ordinative measures and responsibilities for the effective marshalling and deployment of front-line and support resources and for the associated welfare of personnel. It would be expected that overall control of the emergency situation would rest with the Department in which the emergency arises".

A committee of representatives from departments in the Latrobe Valley was set up to develop and implement an area mobilisation plan under terms of reference approved by the Acting Assistant General Manager (Ops). These terms of reference covered provision for emergencies or destructive events which could possibly incapacitate or damage Commission plant or equipment or threaten the safety or welfare of its employees.

Consideration of the measures to be adopted in providing assistance to organisations external to the Commission is also being undertaken by this committee.

This inter-departmental "Emergency Control Planning Committee" has had discussions with external organisations, has visited and given consideration to the "Altona Petro/Chemical Inter-company Emergency Mutual Aid Organisation" and is continuing to evaluate Latrobe Valley requirements.

The Morwell Open Cut Fire Review Committee recommends that the Emergency Control Plan should continue to be developed in this way for submission by the Manager, Area Administration and approval by the Assistant General Manager (Ops) prior to the next fire service season.

RECOMMENDATIONS NOS 4 & 5

"Improved design of modified exhaust systems to be investigated and developed."

"Criteria for entry to open cuts to be reviewed and an assessment made of any additional Latrobe Valley vehicles which may require the fitment of modified exhaust systems."

For many years, vehicles which are in use regularly in open cuts have been equipped with specially modified exhaust systems. Nevertheless, it has been demonstrated that such vehicles travelling at speed through wetted coal can cause a coal "splash" which, under some circumstances, can lodge on the exhaust system and ignite. The hot particles may then fall on to a dry coal surface in a different part of the open cut and cause a fire. As was indicated in our initial report, this is believed to be the cause of the November 1977 fire. For various reasons, including varying combustion characteristics of coal, this problem is significantly greater in Morwell Open Cut than in other Latrobe Valley Open Cuts.

Following extensive investigations and numerous experiments, one particular type of vehicle has been completely banned from Morwell Open Cut, and exhaust modifications on a number of other vehicle types have been upgraded to reduce the probability of coal "splash" depositing coal on hot metal parts.

These measures will not completely eliminate the problem; accordingly, they will be complemented by the introduction, by the Manager, Coal Production, of revised criteria governing the entry of vehicles and their operation in open cuts. Approved exhaust systems and knapsack sprays will be mandatory, strict speed limits will be applied and entry on "fire alert" or "total fire ban" days will be restricted to essential vehicles and controlled by a permit system. Special attention will also be given to maintenance of vehicle access routes and associated drainage on coal levels.

The effectiveness of these measures will be monitored during the next fire season, and the Manager, Coal Production, has initiated a review for May 1979 and, thereafter, at least at annual intervals. The Manager, Engineering Services and Manager, Supplies and General Services, will participate in these reviews.

With regard to exhaust system modifications, it should be noted that an alternative proposition involving substantial re-working of engine and exhaust components to provide water cooling and/or high level exhaust exit, possibly through body panels or headlight apertures, has been considered.

Apart from high cost, the nature of these modifications would probably limit the range of vehicles available for open cut use and may contravene statutory requirements, thus making the vehicles ineligible for registration. Also, adoption of a "full-life" policy (10 years' average) would almost certainly be necessary, as opposed to the current "change-over" policy (two years' maximum).

The consequential loss of fleet flexibility, lower overall standard of vehicle condition and increasing maintenance problems are seen as significant practical disadvantages and, at this stage, the Committee does

RECOMMENDATIONS NOS 4 & 5 (Cont'd)

not favour entering into a programme for such radical conversion. Nevertheless, approval has been given for work to proceed on the development of a prototype vehicle, so that appropriate experience may be gained in case the preferred measures, outlined above, prove inadequate. This developmental project will be undertaken by the Manager, Supplies and General Services in consultation with the Manager, Coal Production and Manager, Engineering Services.

While the foregoing comments have been confined to motor vehicles, it is recognised that a fire risk also exists where mobile plant is operating on coal surfaces. For a number of reasons, this risk is not as high as with motor vehicles, but a detailed survey has been initiated to identify the areas of hazard so that corrective measures may be examined. In this regard, it is pertinent to note that there is more opportunity for effective modification of exhaust systems on mobile plant than is the case with motor vehicles. The abovementioned criteria for entry and operation in open cuts will apply equally to mobile plant, and performance will be monitored and reviewed annually in the same manner as for motor vehicles.

The Morwell Open Cut Fire Review Committee recommends that the Manager, Coal Production, should co-ordinate continuing action in conjunction with the Manager, Supplies and General Services and Manager, Engineering Services.

RECOMMENDATION NO 6

"Investigate the feasibility of providing a nucleus of specialised fire vehicles with a dual capacity of fighting high-rise industrial and coal batter fires."

Investigation by the Manager, Engineering Services of various types of aerial fire fighting devices confirmed the view that a specialised fire fighting device capable of delivery of water in jet or spray form at heights up to 30 metres would greatly increase our capability for fighting industrial and coal fires.

A specification for such a machine has been prepared in conjunction with local departments and the Manager, Supplies and General Services. Budgetary approval has been received for purchase in the 1978/79 budget and procurement action is being initiated, however, it is not expected to be available for the next fire season.

The advantages to the local community have not been overlooked and it is intended that the machine would be made available if required by emergency service groups. As a result, the local Country Fire Authority officers have been kept informed of our intentions and their comments sought on the specification prepared.

The Morwell Open Cut Fire Review Committee endorses the early procurement of this vehicle by the Manager, Engineering Services, who should undertake a continuing assessment of the need for such vehicles in other Latrobe Valley installations.

RECOMMENDATION NO 7

"Investigate feasibility of employing Elevating Platform Vehicles more effectively by providing hose control brackets for attachment to buckets and by operating these units in tandem with two-stage pumps."

Investigation and field trials have confirmed the effectiveness of Elevating Platform Vehicles as fire fighting units. There are strict safety limits, however, on the loading which can be applied to the bucket and boom and the weights of hoses and operators combined with the nozzle reaction must not exceed these limits.

Further development is being undertaken by the Manager, Supplies and General Services to refine the methods of distributing the hose weights along the boom and to reduce bucket loading. However, the principle of using EPVs with a reticulated or pumped water supply has been established and it is expected that an acceptable method of operation will be developed and crews trained before the advent of the next fire season. As a preference, every effort is being made to avoid permanent modification to the EPVs, and kits of hoses and nozzles will be made up and held at Yallourn and Morwell Fire Offices for issue to EPV crews as they are marshalled in any future emergency.

The Morwell Open Cut Fire Review Committee recommends that the Manager, Engineering Services co-ordinates the procurement of equipment and the appropriate training of EPV crews.

RECOMMENDATION NO 8

"Implement an immediate programme for the inspection of all 'slip-on' vehicles, tanks, pumps and ancillary equipment for serviceability and recommend any necessary replacement or upgrading."

The Morwell Open Cut fire provided the opportunity to compare the effectiveness of the Commission's 'slip-on' tanks with the units provided by APM, RAAF and the CFA. As a result, a thorough re-appraisal of the philosophy of using 'slip-on' tanks instead of developing a fleet of dedicated fire tenders has been undertaken.

This has confirmed the view that for our purposes, the 'slip-on' tank system provides the best utilisation of vehicles, coupled with the facility to rapidly mobilise a fleet of general purpose fire fighting units. However, the size and number of tanks will need constant review to match the available truck fleet.

Immediately after the Morwell Open Cut fire, and again at the end of the 1977/78 fire season, a detailed examination of all tanks and ancillary equipment was undertaken. As a result, three new 3600-litre tanks are being constructed (raising the area complement to 23) and these will incorporate several modifications which can be assessed during the 1978/79 fire season. In addition, eight new pump units have been ordered and will replace pumps on existing 'slip-on' tanks before the next fire season.

RECOMMENDATION NO 8 (Cont'd)

A programme of replacement and upgrading of all 'slip-on' tank units will then be implemented over the next few years. The aim of this programme will be to maintain the equivalent capability of twenty-three 3600-litre tanks while taking advantage of increased truck capacities. All units will also be progressively updated to include refinements to the layout of equipment, better illumination and communication and other improvements.

The Morwell Open Cut Fire Review Committee endorses the above action being undertaken by the Manager, Engineering Services.

RECOMMENDATION NO 9

"Allocate a ready-loaded 'slip-on' tanker to Fire Service Officer, Coal Production."

Immediately after the Morwell Open Cut fire, one 'slip-on' tank was transferred to Morwell Open Cut, from Engineering Services Department and loaded on a vehicle provided by Coal Production Department.

A new tip truck has been obtained and as soon as its exhaust system has been modified, a second tank unit will be transferred. Thus, by the beginning of the 1978/79 fire season, two dedicated 'slip-on' tank units will be located permanently in Morwell Open Cut, similar to that currently existing in Yallourn Open Cut.

The Morwell Open Cut Fire Review Committee endorses the view point of the Manager, Coal Production that the two tanker units in each major open cut, supported by the Engineering Services Department's tanker fleet, provides an adequate level of protection for normal fire protection activities.

RECOMMENDATION NO 10

"Review and recommend mobile floodlighting facilities necessary to provide essential lighting suitable for normal and emergency operations".

A committee has reviewed departmental floodlighting needs and recommended the numbers and types of mobile floodlighting and small generating sets that should be available. Three large mobile floodlighting units are being procured, one for each open cut and one for general area use which will also serve as a spare unit, together with four portable generators to augment existing units.

The Morwell Open Cut Fire Review Committee considers that this fulfils the objective of this recommendation.

RECOMMENDATION NO 11

"As the planning for a second stage development of Morwell Open Cut Fire and Dewatering Installations is scheduled to commence in 1978, it is recommended that the concept and application of Report DD49 be reviewed at this stage with the aim of simplifying the system and reducing the dependence on artesian bores as a major source of water in a fire emergency."

This recommendation is commented upon in two parts -

PART 1 : BUCKLEY'S HILL SUPPLY

At the time of the Morwell Open Cut fire, although the method of supplementing our fire fighting water supply directly from the Latrobe Valley Water and Sewerage Board supply from Buckley's Hill Reservoir was fully appreciated, there was a reluctance to use this connection. This arose from a concern that the Commission's fire service pumps may force "dirty water" from our own fire system into the Board's reservoir.

Subsequent to the fire, the use of this supply has been re-examined and we are now confident that there is very little risk of such a feedback. To further reduce such a possibility, a non-return valve installed to safeguard against this event will be replaced with an improved type. Procedures for operation, maintenance and periodic testing of valves concerned have been developed and the Latrobe Valley Water and Sewerage Board has agreed to allow Commission officers to establish this connection quickly in the event of future emergencies.

In addition to this supplementary supply, other proposals being investigated include the use of the Latrobe Valley Water and Sewerage Board's emergency storage at Hazelwood or a tapping of the Latrobe Valley Water and Sewerage Board's water supply lines to Hazelwood Power Station.

The Morwell Open Cut Fire Review Committee endorses the action taken and recommends that the Manager, Engineering Services, continues to oversight these other proposals to extend the use of the Latrobe Valley Water and Sewerage Board's supplies to augment existing water supplies to the open cut.

PART 2 : REVIEW OF EXISTING FIRE SERVICE RETICULATION SYSTEM

The existing Morwell Open Cut fire protection system has considerable flexibility in that water is available from the Latrobe Valley Water and Sewerage Board supply, the Hazelwood Cooling Pond water storage, the continuous artesian water pump discharge and the stored run-off water supply in the base of the open cut. All these sources of water can be utilised in various modes of operation by automatic, motorised or manual operation of valves. The great flexibility, however, also involves considerable complexity in the reticulation system and the consequences of any major valve operation needs to be fully appreciated before such operation is initiated. An inter-departmental committee has reviewed the current method of operation of the system. Their proposals include -

RECOMMENDATION NO 11 (Cont'd)

- a Display of the operating situation of critical valves (i.e. open/closed) at the Open Cut Control Centre and at the Fire Service Control Centres.
- b Remote control and/or motorised operation of additional critical valves.
- c The greater use of Hazelwood Cooling Pond as a source of fire service supply to reduce the extent of dependency on the artesian water supply system.
- d Retention of the existing interconnected reticulation system for at least the next four years until the expansion of the open cut requires relocation of dirty water pumping stations in the base of the open cut, and the relocation of major pipelines associated with this. The timing of this relocation is also associated with the commencement of disposal of overburden within the open cut. Any major re-arrangement of fire service mains prior to these events is considered not to be warranted.

The Morwell Open Cut Fire Review Committee endorses the proposals in (a) and (b) above for implementation by the Manager, Coal Production, and accepts that long term consideration needs to be given to (c) and (d) above. The Fire Review Committee recommends that the inter-departmental committee continue its investigations into the operational aspects of the current fire service reticulation system and report thereon to the Chief Engineer, Fuel and Manager, Coal Production, for appropriate approval and implementation.

The longer term re-arrangement of fire service facilities in the Morwell Open Cut (previously defined in Fuel Department Report DD49) will be undertaken as a normal Fuel Department responsibility, involving Coal Production Department in its preparation, and requiring Assistant General Manager approval before implementation.

RECOMMENDATIONS NOS 12 & 19

"That the HV distribution system adopted be reviewed with a view to minimising the extent of plant de-energised by faults and to providing duplicate or more secure supplies to vital pumps and plant. Where duplicate or stand-by supplies are provided, consideration should be given to the use of automatic change-over switching."

"Examine the feasibility of providing more substantial and permanent protection for essential power lines."

The immediate action taken to improve the protection of power lines is commented upon under Recommendation No 18.

A review of pertinent aspects of electrical supply security, reliability and maintenance was carried out by an inter-departmental committee.

RECOMMENDATIONS NOS 12 & 19 (Cont'd)

The inter-departmental committee carrying out this review has completed its task and submitted a summary report restating guidelines for planning, design, installation and maintenance of power supply to critical open cut installations.

Significant aspects of this review have included -

- 1 Restatement of the level of reliability for specific plant items or plant groups.
- 2 Consideration of specific dedication, duplication and geographic separation of supplies.
- 3 Nomination of additional equipment requirements for automatic change-over of supplies to selected plant, and the indication and automatic isolation of faults on selected plant.
- 4 Restatement on policies with respect to detailed location of poles, cables, overhead lines and the protection of such routes and installations to provide greater security of supply during a fire or other danger.

Some of the requirements arising from this review can be implemented in the short term, but the Fire Review Committee recognises that considerable design work is involved before others can be implemented. Also, the Fire Review Committee is of the view that in existing open cuts, extensive re-arrangements and relocation of supply routes are not warranted immediately. The principles as defined should be applied in all future open cut installations or re-arrangements in existing open cuts.

The Morwell Open Cut Fire Review Committee considers that the above action fulfils the objective of the recommendations and considers the appropriate implementation and future detailed investigations nominated in the inter-departmental report should be now executed via normal departmental responsibilities. The departments concerned are - Fuel, Coal Production and Transmission Operations Departments.

RECOMMENDATION NO 13

"That the methods of planning and executing work concerned with extensions to the fire system be reviewed, if necessary allocating specific resources to this work."

A small work force specifically and continuously allocated to the maintenance and relocation of fire service installations has been arranged in Morwell Open Cut. A similar arrangement exists in Yallourn Open Cut. An Engineering Services Department field team is also available for scheduled installations of fire service mains to meet established work programmes. This arrangement is considered to be satisfactory, but depends for its success on advance ordering of pipes and associated fittings in sufficient time to take account of long manufacturing lead times and, in some cases, overseas procurement and delivery.

RECOMMENDATION NO 13 (Cont'd)

The Morwell Open Cut Fire Review Committee considers that the lag in the installations and connections of pipelines at the time of the Morwell Open Cut fire, 4 to 7 November 1977, was predominantly due to the effects of overtime bans and prolonged strike by metal trades' workers between June and October of 1977. This situation was rectified by late December 1977. Pipeline installations and connections are currently in line with open cut fire protection policy and progressive development plans.

The Morwell Open Cut Fire Review Committee considers that the above organisational arrangements are satisfactory and that the objectives of the recommendation have been fulfilled.

RECOMMENDATIONS NOS 14 & 15

"Review location of existing Fire Service Office in the light of recent fire experience and planned development of the open cut. Allocate a new location if appropriate."

"Design and erect new Fire Service Office with adequate and separate facilities for fire control co-ordination, communications and team briefing. Specific provision should be available for group leaders of internal and external fire fighting and emergency service groups. Consideration should be given to a demountable, modular type structure which can be relocated, if necessary, as the cut develops."

Coal Production Department has prepared proposals for the progressive relocation of the existing fire service office, the establishment of an additional fire service office and the upgrading of associated facilities. In the Morwell Open Cut, these proposals involve relocation of the existing facilities at the northern side of the open cut in 1979 to a new location adjacent to the top of a new series of vehicle access ramps which will be closer to the operating faces as the open cut expands. This site would probably be retained for say, a 10-year period, before further relocation. A new fire service office and associated facilities have also been proposed for the new southern pivot area at Morwell Open Cut to be established in the 1978/79 year as the main fire service control centre. This site would be suitable for retention for approximately 15 years before further relocation. A small, one-man fire spotting and communications post is also proposed for the eastern batters. This location would probably be maintained for the life of the open cut as an observation point close to the major conveyor transfer area at the south-east outlet of the open cut. Provision for expenditure on these items has been made in the 1978/79 budget.

The Morwell Open Cut Fire Review Committee endorses these proposals which should now be co-ordinated by the Manager, Coal Production, and implemented through normal inter-departmental channels.

RECOMMENDATION NO 16

"Establish two tanker stand-pipes on each major operating level of the cut (one each, north and south sides) and additional stand-pipes with drive-through facilities at a suitable point near the Fire Service Office."

Locations for the installation of stand-pipes in each major open cut have been determined and approximately half of these were installed by the end of June. It is anticipated that the remainder will be achieved by November 1978.

The Morwell Open Cut Fire Review Committee considers that this arrangement fulfils the requirements of this recommendation.

RECOMMENDATION NO 17

"Develop and implement a system of open cut sign-posting."

Several prototype sign posts were erected at strategic points within Morwell Open Cut and assessed over a period by members of various departments having access to the Open Cut. Further modifications to the locations and information on these directional signs are in progress. It is anticipated that substantial implementation of this requirement will be achieved by November 1978.

Sign-posting in Yallourn Open Cut has also been upgraded and is currently at an acceptable standard.

The Morwell Open Cut Fire Review Committee recommends that the Manager, Coal Production, continue to implement as a long term requirement, the progressive relocation and updating of directional signs in each open cut.

RECOMMENDATION NO 18

"As an immediate measure, ensure that the mine power cables are provided with adequate sand or clay protection wherever practicable and that poles as approved for open cut installation are protected at their bases by a covering of clay or sand of a minimum diameter of 10 metres. Implement a programme of inspection to ensure maintenance of this protection."

Substantial achievement in the application of clay protection for power poles and fixed mine power cables has been reached in all open cuts.

In some locations where power poles are at the base of coal batters, fretting of coal from these batters tends to obviate this protection by spilling onto this clay cover. In the short term, power pole locations cannot immediately be changed to overcome this problem and protection in these locations will

RECOMMENDATION NO 18 (Cont'd)

be dependent upon frequent clearing at the base of poles and/or water protection for the base of such poles. In the longer term, relocation of poles away from the base of batters will be adopted as a general policy. Where this is not achievable, special measures will continue to be required. Responsibility for the maintenance of this protection is accepted by Coal Production Department and delegated to the Fire Service Officers in each open cut.

Where mine cables or flexible trailing cables are in relatively fixed locations on steep coal batters, a pipe support system has been developed such that the cable is supported out of contact with the coal and protected from the spread of fire along the steep coal batters by means of water sprays. Experimental installations of this protection have been initiated and modified such that a progressive programme of installation can now proceed over the next 12 to 18 months.

No fully effective protection of trailing power cables supplying power to excavating machines, movable conveyors and relocatable pumps has been devised. In general, these cables will continue to be laid on coal surfaces and relocated continuously as operating plant is moved. Basic protection of these cables from fire will continue to be dependent on routine water spraying and specialised attention by fire fighting personnel on the occasion of a fire in the vicinity.

The Morwell Open Cut Fire Review Committee endorses the above action initiated by the Manager, Coal Production, as fulfilling the objective of this recommendation.

RECOMMENDATION NO 20

"Review and implement as found necessary -

- . types, or mix of types, of hoses and associated fittings best suited to open cut operations,*
- . number and location of such hoses and fittings required to be located in the open cut fire-line attack."*

As a result of the review undertaken after the Morwell Open Cut fire, additional 40 mm hoses considered to be more suitable for one-man operation, and 90 mm hose for connection to plant have been provided in addition to the normal 65 mm hose standard supplies. While normal fire fighting hose stocks were reasonably adequate during the Morwell Open Cut fire, additional stocks of couplings, branches, breachings and spray nozzles have been purchased to provide greater flexibility.

It has been arranged for a Standing Committee of Fire Service Officers of Latrobe Valley Departments, liaising with the appropriate SEC Materials Standardisation Committee, to maintain standardisation and interchangeability of equipment between various sections of the SEC and the CFA.

The Morwell Open Cut Fire Review Committee endorses the above action as fulfilling the requirements of this recommendation.

RECOMMENDATION NO 21

"Establish an inter-departmental working group to critically examine and report on -

complement and location of back-up reserves (of fire hoses and fittings), bearing in mind the need for dedicated facilities in production areas."

An inter-departmental group has been formed. Implementation of this recommendation necessarily had to follow action arising from Recommendations Nos 7, 8 and 20. Considerable action has occurred on a departmental basis to replenish and augment reserves of fire fighting equipment, both immediately after the Morwell Open Cut fire and at the end of the 1977/78 fire season.

The task of the working group is straightforward and its work will be completed and the necessary reserves established before the commencement of the next fire season.

The Morwell Open Cut Fire Review Committee recommends that the Manager, Engineering Services continue to oversight this group with the objective of establishing adequate reserves of fire hoses and fittings before the next fire season.

RECOMMENDATION NO 22

"The present investigation of fire service installation on dredgers to be expedited."

Investigations and field tests are proceeding into three aspects of proposed fire protection at dredgers -

- a Increased diameter of flexible hose connections.
- b Reduced pressure loss in valves on supply line to dredgers.
- c Installation of pressure pumps on or adjacent to dredgers.

Item (a) is being adopted as an interim step but it is probable that some combination of features in (a), (b) and (c) above will be necessary to achieve substantial improvement in dredger protection.

The Morwell Open Cut Fire Review Committee recommends that the Manager, Coal Production continues with these investigations with the objective of at least partial implementation prior to the next fire season.

RECOMMENDATION NO 23

"As an immediate measure, the installation of additional hydrant manifolds on operation levels in the Morwell Open Cut should be considered."

Spacing of hydrant manifolds in each open cut has been reviewed by the Manager, Coal Production, and the location and spacing of additional manifolds specified. The required level of installation has been achieved in Yallourn Open Cut and will be achieved well in advance of the 1978/79 fire season in Morwell Open Cut.

The Morwell Open Cut Fire Review Committee considers that this action by the Manager, Coal Production fulfils this recommendation.

RECOMMENDATION NO 24

"Establish and implement a specific policy for the clay covering of dormant batters and levels. In developing this policy, consideration should be given to the operational feasibility and economics of batter redesign to facilitate the application of clay cover."

Immediately after the Morwell Open Cut fire, an accelerated programme of covering dormant levels and ramps within the Morwell Open Cut was implemented and achieved during the summer period. Additional clay covering and water pondages at the exposed base of the coal seam will be continued on an annual basis keeping pace with the progressive expansion of the open cut and is considered by the Manager, Coal Production, to be an economical subsidiary means of fire protection.

However, on batter systems, the cost of providing a stable clay covering in the worked-out open cut area has been assessed at about \$8M for clay excavation, transport and placing, plus some \$5M-\$10M for relocation of existing pipelines, power lines, road access, drainage and bore holes. Investigations are proceeding on means of flattening existing coal batters and placing a thin stable clay covering over such batters. Field trials will be implemented during 1978/79, but no extensive programme of clay covering of batters is anticipated during the next 12 months pending evaluation of such field trials and an assessment of the overall justification for such covering. This justification would also need to take into account the long term restoration obligations for the Morwell Open Cut.

The Morwell Open Cut Fire Review Committee recognises the long term aspect of the clay covering procedures and endorses the above action. It recommends that the Manager, Coal Production and Chief Engineer, Fuel continue the current investigations.

RECOMMENDATION NO 25

"While the substance of these reports (Morwell and Yallourn Open Cut Fire Protection 1964) still appear valid, they are now 13 years old, and should be reviewed in detail, updated and repromulgated in the light of more recent experiences and related recommendations contained in the report."

A review of the reports is in progress and it is anticipated that a draft of this review will be submitted to the Manager, Coal Production and Chief Engineer, Fuel, by July 1978. In the meantime, existing policies are being maintained or upgraded where seen necessary in view of the Morwell Open Cut fire experience.

The Morwell Open Cut Fire Review Committee acknowledges the progress of this committee and anticipates that these reviews will be complete and ready for adoption by the Manager, Coal Production and Chief Engineer, Fuel, in the 1978/79 year.

RECOMMENDATION NO 26

"The fire fighting instruction classes in all Latrobe Valley-based Departments include at least a brief coverage of the techniques to be used in fighting coal fires and that the more experienced personnel be trained to be able to assume command and instruction of a crew of inexperienced personnel."

The appropriate instructions have been prepared in a form acceptable to all Latrobe Valley Departments and will form part of all future training sessions. As recommended, they are in two parts -

- . General instructions in fighting coal fires, suitable for all personnel.
- . Specific instructions for assuming command of a team of inexperienced fire fighters, suitable for more experienced personnel.

The Morwell Open Cut Fire Review Committee endorses the above instructions as fulfilling the recommendation.

RECOMMENDATION NO 27

"Review the roles of each of the departmental fire protection services and develop a statement defining area protection philosophy and the inter-relationship of departmental fire protection services."

An inter-departmental committee has been formed and work on this recommendation is progressing. While the statement of responsibilities is most necessary and a review is timely, in the short term, the absence of such a

RECOMMENDATION NO 27 (Cont'd)

statement does not detract from our fire fighting capability. Nevertheless, it is expected that the committee convened for this purpose will have prepared a document for managerial approval within the next few months.

The Morwell Open Cut Fire Review Committee recommends that the Manager, Engineering Services, continue to oversight the preparation of the statement defining area protection philosophy and the inter-relationship of departmental fire protection services for approval by the Assistant General Manager (Ops), in association with the Area Mobilisation Plan referred to in Recommendation No 3.

RECOMMENDATION NO 28

"The Committee, or an individual member of the Committee, as appropriate, is to ensure that participants in the various investigations are properly briefed."

This recommendation has been fulfilled.