

# **Expansion of Premier Coal Mine to include Premier Pit 4, Collie**

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**Western Collieries Ltd**

**Proposed changes to environmental conditions**

**Report and recommendations  
of the Environmental Protection Authority**

**Environmental Protection Authority  
Perth, Western Australia  
Bulletin 795  
November 1995**

670

## THE PURPOSE OF THIS REPORT

This report contains the Environmental Protection Authority's environmental assessment and recommendations to the Minister for the Environment on the environmental acceptability of the proposal.

Immediately following the release of the report there is a 14-day period when anyone may appeal to the Minister against the Environmental Protection Authority's report.

After the appeal period, and determination of any appeals, the Minister consults with the other relevant ministers and agencies and then issues his decision about whether the proposal may or may not proceed. The Minister also announces the legally binding environmental conditions which might apply to any approval.

## APPEALS

If you disagree with any of the contents of the assessment report or recommendations you may appeal in writing to the Minister for the Environment outlining the environmental reasons for your concern and enclosing the appeal fee of \$10.

It is important that you clearly indicate the part of the report you disagree with and the reasons for your concern so that the grounds of your appeal can be properly considered by the Minister for the Environment.

## ADDRESS

Hon Minister for the Environment  
12th Floor, Dumas House  
2 Havelock Street  
WEST PERTH WA 6005

## CLOSING DATE

Your appeal (with the \$10 fee) must reach the Minister's office no later than 5.00 pm on **15 December 1995**.

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# Contents

	<b>Page</b>
<b>Summary and recommendations</b>	<b>i</b>
<b>1. Introduction and background</b>	<b>1</b>
1.1 Background	1
<b>2. The proposal</b>	<b>4</b>
<b>3. Environmental impact assessment method</b>	<b>4</b>
<b>4. Evaluation</b>	<b>4</b>
4.1 Noise impacts on surrounding residents	5
4.1.1 Objective	5
4.1.2 Evaluation framework	5
4.1.3 Evaluation	9
<b>5. Changes to the current statements</b>	<b>9</b>
5.1 Objective	10
5.2 Changes to environmental conditions	10
5.3 Changes to proponent commitments	10
<b>6. Conclusions and recommended environmental conditions</b>	<b>12</b>
<b>7. References</b>	<b>19</b>

## Figures

1. Location of the Premier Coal Mine, Collie Basin	2
2. Location of Premier Pit 4, and the approved Premier Coal Mine	3

## Tables

1. Identification of issues requiring evaluation	6-7
2. Evaluation of audit requirements	11-12

## Appendices

1. Statement of Conditions of Approval (2 April 1992; 5 April 1993)	
2. Environmental Management Commitments	

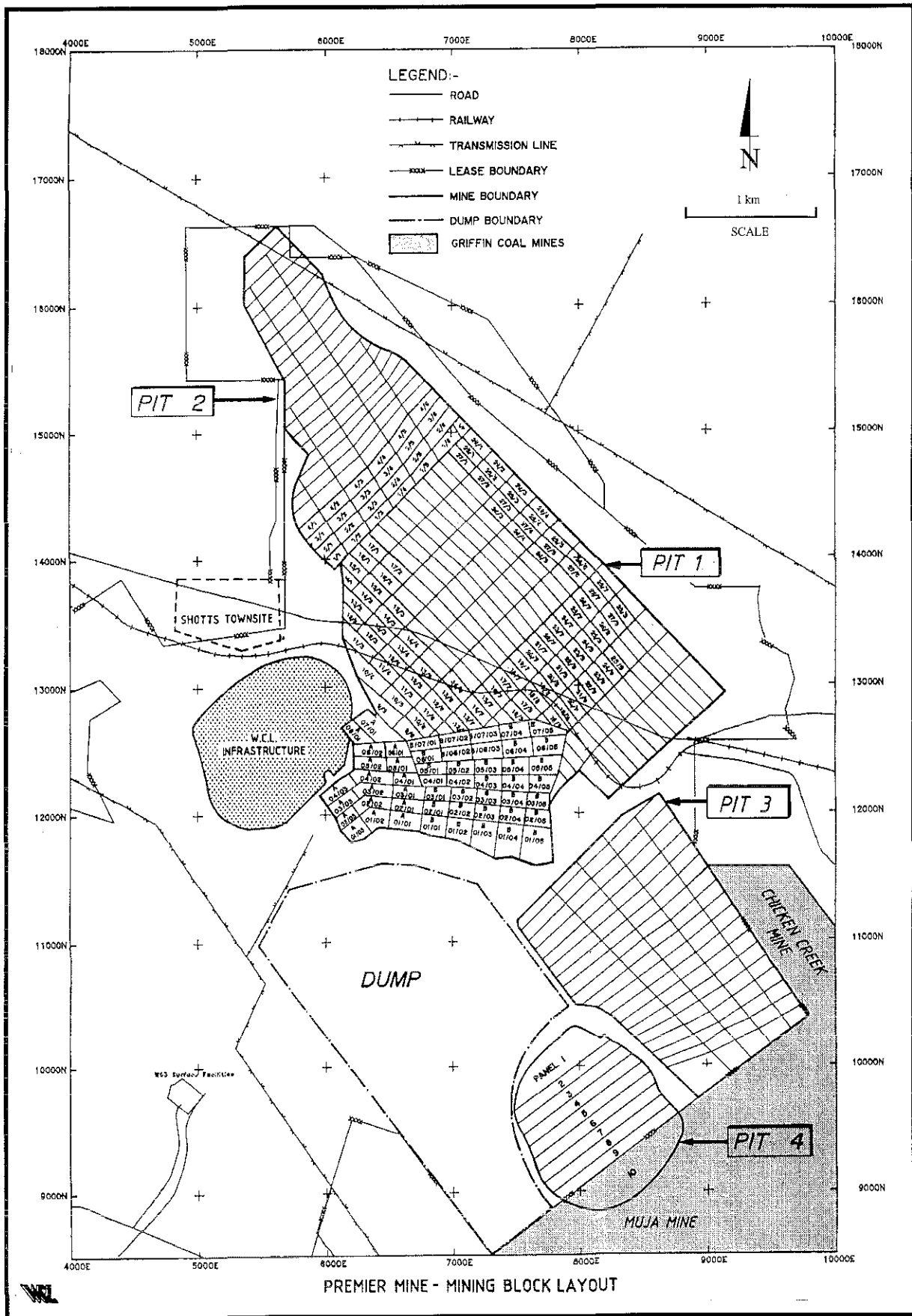


Figure 2. Location of Premier Pit 4 and the approved Premier Coal Mine.

## **2. The proposal**

The documentation submitted by WCL describes operations over the approved mine area of Premier Pit 1 in addition to those proposed for the development of Premier Pit 4. The development of Premier Pit 4 will mine Ate seam to Hebe seam of the Muja member in the northern extension of the Muja syncline. The Hebe seam is the deepest and thickest coal seam within the Muja syncline (WCL 1994a).

Mining is planned to be primarily by truck and shovel, utilising a large electric shovel, front-end loaders, hydraulic excavator and trucks of differing capacity as the main fleet. The support fleet would include track dozers, graders, water trucks, rubber-tyred dozers and overburden drills. The proposed mining method for Pit 4 involves the blocking out of the deposit into 100 metre panels with an overall batter angle of 35° down to the Hebe seam. Typically a number of panels would operate at any one time with one or two months production of uncovered coal maintained to ensure product continuity as well as quality through blending capacity (WCL 1994a).

The proponent would commence mining in the Pit 4 area in 1996 and mining is expected to be completed by the year 2010. This is approximately the same time that Griffin Coal is expected to be mining up to the lease boundary from the southern side.

The infrastructure and facilities developed for the approved Premier operation would support all mining activities conducted over the area of Pit 4. Coal would be distributed to customers from a new crushing, stockpiling and loading facility situated southeast of Shotts. Coal processing would consist of crushing and screening to a nominal topsize of 50 mm.

As the greater part of the Muja deposit is already being worked by Griffin Coal, mining of the area of Premier Pit 4 would require minimal pre-mining development. Due to dewatering activities in the adjacent Muja area and Premier Pit 1, dewatering for Pit 4 would not be required until the year 2000 (WCL 1994a).

## **3. Environmental impact assessment method**

Upon receiving WCL's request to amend the Premier Mine project, the Minister for the Environment requested the EPA to report to him on the effect of the proposed changes on the 1992 Statement of Conditions (as amended in 1993). The Department of Environmental Protection (DEP) conducted this review on behalf of the EPA.

The proposed change to the boundary of the Premier operation to incorporate Pit 4 is discussed in the Mine Proposal Update prepared by Western Collieries Ltd (WCL 1994c). Environmental issues involved with the expansion are outlined in that document.

The Mine Proposal Update was submitted to the Department of Resources Development (DRD) as a requirement of the Collie Coal (Western Collieries) Agreement Act, and was distributed to the Departments of Minerals and Energy (DME), Conservation and Land Management (CALM), and Agriculture WA, the Water Authority of Western Australia (WAWA), and the Shire of Collie for comment on the environmental issues involved.

Concerns raised by DME and DRD on the proposed volume of out of pit dumping during the development of Pit 4 led to additional work by an independent consultant (Mining & Resource Technology (MRT)) to determine possible options to increase opportunities for backfilling. Following the finalisation of that report (MRT 1995), WCL submitted an addendum to the Mine Proposal Update to the DEP on 19 October 1995.

## **4. Evaluation**

The EPA has considered the topics raised during the environmental impact assessment process including matters identified in submissions from other government agencies.

The principal topics of concern raised in submissions and identified by the DEP are:

- Out-of-pit dumping;
- End land use of Pit 4;
- Dust impacts on surrounding residents;
- Groundwater draw-down effects on surrounding residents; and
- Noise impacts on surrounding residents.

Table 1 summarises the topics raised, the characteristics of the proposal and the comments received in order to identify issues requiring evaluation.

The Environmental Protection Authority has evaluated the key environmental issue arising from this proposal, viz:

- noise impacts on surrounding residents.

In evaluating this issue, the EPA has also addressed the current administrative inconsistency between the noise limits placed on the operation through the environmental conditions, and the existing Noise Abatement (Neighbourhood Annoyance) Regulations, administered by the DEP.

## **4.1 Noise impacts on surrounding residents**

### **4.1.1 Objective**

To protect the amenity of surrounding residents from adverse noise impacts associated with mine development and operations, and to resolve the administrative inconsistency between the noise limits contained in the current environmental conditions, and the existing Noise Abatement (Neighbourhood Annoyance) Regulations.

### **4.1.2 Evaluation framework**

#### **Technical information**

##### Policy Framework

The control of noise in Western Australia is administered by the DEP under the Noise Abatement (Neighbourhood Annoyance) Regulations 1979.

Permissible noise levels under the Noise Abatement (Neighbourhood Annoyance) Regulations are determined by the types of land uses that are present within 200 metres of a particular noise-receiving site. Where commercial and industrial uses are present, higher noise levels are permitted.

Projects that have been formally assessed under the Environmental Protection Act may also have noise limits imposed through the environmental conditions issued by the Minister for the Environment. The environmental conditions should reflect the requirements of the regulations; or if the Minister deems different noise levels to be appropriate, these are established through a Ministerial exemption under Section 6 of the Environmental Protection Act.

In order to resolve a number of limitations and inequities in the current regulations, a revision of the noise regulations commenced in 1993.

**Table 1. Identification of issues requiring evaluation**

TOPICS	PROPOSAL CHARACTERISTICS	EPA OBJECTIVES	GOVERNMENT AGENCY'S COMMENTS	PROPONENT RESPONSE	OUTCOMES
<i>Biophysical</i>					
Disturbance to vegetation due to out-of-pit dumping.	Proposal involved 191 Mm <sup>3</sup> of spoil dumped out-of-pit. 105 Mm <sup>3</sup> from Pit 4.	To minimise the volume of out-of-pit dumping required, and thereby facilitate management of the final void.	The potential for waste material to be backfilled to the mined pit should be investigated more thoroughly by WCL (DME & DRD).  Consultants MRT commissioned by DRD to investigate options for cooperative waste dumping in the Collie Basin.	WCL has submitted an addendum to its original proposal, incorporating some of the backfilling strategies suggested in MRT's report.  WCL has revised its initial spoil estimates through yearly replanning, and the development of a cooperative agreement with Griffin for mining the lease boundary at Pit 4 (WCL 1995).	Revised estimate for out-of-pit dumping is now 63 Mm <sup>3</sup> , including 51 Mm <sup>3</sup> from Pit 4. DRD & DME have advised they are satisfied.  EPA notes WCL has better integrated spoil management with the mine plan.  The amended proposal achieves the objective of minimising out-of-pit dumping.  No further evaluation required.
End land use of Pit 4	Rehabilitation strategy presented to date is only of a very general nature.  No discussion of ensuring rehabilitation is compatible with that for the adjacent Muja pit.  Changes to landform are more significant when backfilling is not maximised.	To ensure that Pit 4 is rehabilitated to a sustainable stable form.	Consideration should be given to the development of the Pit 4 rehabilitation strategy in consultation with that for the Muja pit.	WCL and Griffin have had discussions to ensure a cooperative approach is taken. Both WCL and Griffin are concerned about final landform compatibility & minimisation of out-of-pit dumps & final voids.	Backfilling of the final void is addressed above.  EPA notes the role of the Collie Coal Mines Rehabilitation Committee (CCMRC) as a forum for industry & government to annually review rehabilitation issues.  The incorporation of Pit 4 within existing environmental conditions, particularly 4 (EMP) and 8 (decommissioning & final rehabilitation), and the CCMRC's annual review is adequate to address appropriate rehabilitation of Pit 4.  No further evaluation required.

**Table 1 cont. Identification of issues requiring evaluation**

TOPICS	PROPOSAL CHARACTERISTICS	EPA OBJECTIVES	GOVERNMENT AGENCY'S COMMENTS	PROPONENT RESPONSE	OUTCOMES
<i>Social surroundings</i>					
Dust impacts on surrounding residents	Pit 4 further from residents than the approved area of operation. Open cut truck & shovel mining.	To protect the amenity of surrounding residents from adverse dust impacts.	Potential dust impacts could be managed through existing environmental conditions.	WCL has committed to apply its commitments for the existing mine to Pit 4. These include developing & implementing dust monitoring & mitigation measures.	The incorporation of Pit 4 within the existing environmental conditions, particularly 4 (EMP) & 7 (dust limit) is adequate to manage potential impacts.  No further evaluation required.
Groundwater draw-down effects on surrounding residents	Pit 4 further from residents than the approved area of operation. Open cut truck & shovel mining. Dewatering only required from the year 2000.	To protect the amenity of surrounding residents from adverse groundwater impacts.	The development of Pit 4 could contribute to groundwater impacts on surrounding residents.	No known groundwater users are likely to be affected by Pit 4. Through EMP prepared for operational phase of approved Premier mine (which will also be applied to Pit 4), WCL is committed to provide an alternative supply if there is an adverse impact.	The incorporation of Pit 4 within the existing environmental conditions, particularly 4 (EMP) and 5 (groundwater management) is adequate to manage potential impacts on neighbouring land users.  No further evaluation required.
Noise impacts on surrounding residents	Pit 4 further from residents than the approved area of operation. Open cut truck & shovel mining.	To protect the amenity of surrounding residents from adverse noise impacts .	Proponent is currently complying with noise limits set in the existing environmental conditions.  There is an administrative inconsistency between those conditions and the Noise Abatement (Neighbourhood Annoyance) Regulations.	An EMP has been prepared for operational phase of the approved Premier mine, including a noise management strategy involving on-line monitoring. This will also be applied to Premier Pit 4.	Noise management strategy approved by Minister on 1/2/95.  The incorporation of Pit 4 within the existing conditions, particularly 3 (noise management strategy), 4 (EMP) and 6 (noise limits) is adequate to manage potential noise impacts.  WCL could be exempted from the existing Noise Abatement (Neighbourhood Annoyance) Regulations, and instead, noise limits be specified & retained in the environmental conditions.



The revised noise regulations (to be known as the Environmental Protection (Noise) Regulations) would base the determination of permissible noise levels on the relative proportion of different land use zonings present in close proximity to a noise-receiving site. The relative proportion of commercial and industrial land use zonings, together with the presence of any major roads, would then be used to determine the relevant increment in permitted noise levels from a base line figure.

In addition, the proposed regulations would allow for different permissible noise levels to be set for those instances where the calculated level cannot possibly be met. This is subject to the project being assessed under Part IV of the Environmental Protection Act.

The revised noise regulations are expected to be finalised next year.

### Noise Impacts

The assessment of the original Premier coal mine recognised the potential for noise impacts on surrounding residents as a result of mine development (EPA 1991a). As a condition of approval, WCL was required to prepare a noise management strategy to prevent unacceptable noise impacts on residents (environmental condition 3, see Appendix 1). Noise levels for the operation were also stated in environmental condition 6 (see Appendix 1).

If the proposed Pit 4 is approved for inclusion within the Premier mine, the management strategy would also apply to Pit 4 operations. Pit 4 is also the furthestmost part of the mine from residents at Shotts, South Shotts and Buckingham.

#### *The Approved Noise Management Strategy*

The noise management strategy developed by WCL for the existing mine involves: selecting equipment to a required performance standard; locating mobile equipment with consideration to prevailing meteorological conditions; establishing permanent noise monitoring stations linked to operations areas; and regular maintenance. WCL has accepted that the DEP defines compliance as achieving the desired levels 99.9% of the time, and has committed to achieving this.

The Minister for the Environment approved the noise management strategy developed for the existing Premier operation on 1 February 1995.

### Administering Compliance with Noise Levels

WCL is presently complying with the noise limits listed in the Statements for the existing Premier mine (environmental condition 6, shown in Appendix 1), and is required to ensure that surrounding residents are protected from unacceptable noise impacts (environmental condition 3, also shown in Appendix 1).

The noise limits included in the Statement of 5 April 1993 were written at the time that the Noise Abatement (Neighbourhood Annoyance) Regulations, administered by DEP, were being re-drafted. As the revised regulations were expected to be introduced imminently, the noise condition placed on the Premier operation was structured to reflect the proposed revisions rather than the established regulations. The revision of the noise regulations has taken longer than expected and is now not expected to be finalised before 1996.

As the noise condition was based on the proposed regulations, technically it is inconsistent with the established Noise Abatement (Neighbourhood Annoyance) Regulations. This inconsistency should be resolved through the use of Section 6 of the Environmental Protection Act. In terms of permissible noise levels, these differences do not exceed 5 dB. The inconsistency between the two, relates to the method used to derive these levels.

### **Comments from key government agencies**

The Collie Council expressed concerns about mining operations affecting residents through noise.

## **Proponent's response to issues raised**

In response, WCL has referred to the Environmental Management Programme (EMP) prepared for the operational phase. This document included WCL's commitment to research, monitoring and management of noise. The EMP and the noise management strategy, includes the establishment of on-line noise-monitoring equipment to regulate mining activities such that noise is minimised and kept within the limits.

### **4.1.3 Evaluation**

The results of noise modelling submitted to the DEP to date have demonstrated that the management strategy developed by WCL could achieve compliance with the noise limits established in environmental condition 6. As this noise management strategy would also apply to Premier Pit 4, if approved, and as Pit 4 is further removed from residents than the existing operation, the EPA concludes that the current environmental conditions are sufficient to manage noise impacts associated with the expanded proposal.

In considering the potential for noise from the operation to impact on surrounding residents, the EPA believes it is reasonable for the noise limits set on the operation to be specified and retained within the Minister for the Environment's environmental conditions. This provides certainty for the proponent, and resolves inconsistencies between the Noise Abatement (Neighbourhood Annoyance) Regulations and the environmental conditions.

Accordingly, the EPA concludes that the Premier operation should be exempted from the existing Noise Abatement (Neighbourhood Annoyance) Regulations, and that the noise limits should be imposed on the operation, through the environmental conditions. This approach is consistent with the current draft noise regulations. As stated in section 5.1, the retention of noise limits within the Minister for the Environment's Statement, facilitates compliance auditing of the operation by providing one comprehensive statement of the environmental responsibilities of the proponent.

The EPA concludes that WCL's proposal to modify the boundary of the Premier coal mine to incorporate Premier Pit 4 is environmentally acceptable subject to the existing environmental conditions and proponent commitments and the following recommendations. If Ministerial Approval is granted to the current proposal, these conditions would also apply to Premier Pit 4.

### **Recommendation 1**

**The proposal by Western Collieries Ltd to mine Premier Pit 4 is environmentally acceptable and the Environmental Protection Authority recommends that it could proceed subject to the same Environmental Conditions and Commitments as for the previously approved Premier mining operation and recommendations 2 and 3.**

### **Recommendation 2**

**The Environmental Protection Authority recommends that the Premier operation (including Premier Pit 4) be exempted from the existing Noise Abatement (Neighbourhood Annoyance) Regulations under Section 6 of the Environmental Protection Act, and the imposition of noise limits be specified and retained within the Statement of Environmental Conditions. These limits should be those contained in the existing Statement, as amended 5 April 1993.**

## **5. Changes to the current statements**

WCL has two statements applying to the Premier operation: the original one issued on 2 April 1992; and the statement for the amendment to environmental condition 6, issued on 5 April

1993. In conducting this assessment of the proposed changes to the Premier Mine, the Environmental Protection Authority recommends taking the opportunity to update the Minister's Statement to reflect recent methods of structuring statements, wording environmental conditions and assigning auditing responsibility. This would involve:

- amalgamation of the current statements;
- changes to the current conditions to incorporate Pit 4; and
- changes to the current statements to reflect the separation of the DEP from the EPA and to incorporate procedures that are now standard.

### **Recommendation 3**

**The Environmental Protection Authority recommends that a new Statement of Environmental Conditions for the Premier coal mine be drafted to incorporate Premier Pit 4 as well as the amendment of 5 April 1993, and structured to reflect contemporary format.**

The following sections set out the recommended changes to the Statement of Approval as a consequence of Recommendation 3.

#### **5.1 Objective**

The objective of reviewing environmental conditions and proponent commitments is to achieve one environmental statement that provides for adequate protection of the environment and for effective auditing of compliance criteria. A comprehensive statement would assist in easily identifying the environmental requirements associated with the Premier coal mine.

#### **5.2 Changes to environmental conditions**

The opportunity has been taken to review the existing environmental conditions placed on the project as originally assessed. All existing environmental conditions are still relevant and appropriate for the expanded operations, and should therefore be retained. Existing environmental conditions 1 and 4 have been amended to also include the area of Pit 4. Environmental condition 4 has been partially cleared for the existing operation but remains to be fulfilled for Premier Pit 4 construction and subsequent phases.

Two procedures have also been recommended as amendments to the Statement; these are now standard where applicable. The procedures clarify the DEP's auditing role and include a dispute resolution mechanism.

Minor changes have been made to some other conditions to reflect the separation of the DEP from the EPA.

#### **5.3 Changes to proponent commitments**

The proponent has made the same commitments for Pit 4 as for the existing Premier mine. The DEP has taken this opportunity to review and consolidate existing environmental commitments, including the non-listing of commitments which duplicate existing statutory requirements. The list of environmental commitments proposed for inclusion as part of the DEP's compliance auditing programme, is included as a schedule of the Recommended Environmental Conditions in Section 6. The complete list of all environmental management commitments made by WCL is included as Appendix 2. Table 2 summarises the consolidation of proponent commitments for environmental auditing purposes.

**Table 2. Evaluation of audit requirements**

Original Proponent commitment Number	Requirements (summarised)	Evaluation	Number in schedule of auditable commitments (see Section 6)
1.1 - 1	Prepare & implement a dewatering & monitoring programme.	Retained.	1
1.1 - 2	Monitor groundwater, dewatering & associated impacts.	Retained.	2
1.1 - 3	Liase with WAWA regarding regional groundwater effects.	Retained.	3
1.1 - 4	Manage areas of subsidence due to dewatering on the Premier lease.	Retained.	4
1.2 - 1	During dewatering monitor abstraction rates & water quality.	Retained.	5
1.2 - 2	Determine the draw down effect of the dewatering operation.	Retained.	6
1.3 - 1	Provide all water produced to the power station as a priority.	Addressed in environmental condition 5.	Not subject to audit by DEP.
1.3 - 2	Obtain approval for discharge of groundwater to the natural surface drainage systems leading off the lease area. (WAWA)	Regulated through existing licences or other statutory mechanisms.	Not subject to audit by DEP.
1.3 - 3	Comply with discharge criteria set in the licence(s) issued under the Environmental Protection Act.	Regulated through existing licences or other statutory mechanisms.	Not subject to audit by DEP.
2	Implement measures to minimise impacts on natural surface drainage systems affected by the project.	Retained.	7
3.1	Clearing - Apply for clearing permits from CALM at least 12 months in advance of large scale clearing (> 10 ha).	The application itself is not directly relevant to environmental protection.	Not subject to audit by DEP.
3.2	Clearing - Apply for clearing permits from CALM at least 6 months in advance of small scale clearing (< 10 ha).	The application itself is not directly relevant to environmental protection.	Not subject to audit by DEP.
4.1	Dieback - Cooperate with CALM to minimise further distribution of dieback in the area.	Retained.	8
4.2	Dieback - implement dieback management measures.	Addressed in environmental condition 4.	Not subject to audit by DEP.

5.1	Blasting - determine pre-blasting property condition of surrounding properties.	Retained.	9
5.2	Blasting - rectify damage proven to be a result of blasting.	Retained.	10
6.1 - 1	Noise - conduct noise monitoring studies for critical locations around the mine site.	Retained.	11
6.1 - 2	Noise - develop & implement a noise monitoring programme.	Addressed in environmental condition 4.	Audited as a condition.
7.1	Dust - develop & implement a dust monitoring programme.	Addressed in environmental condition 4.	Audited as a condition.
7.2	Dust - implement dust mitigation measures to achieve recommended goals.	Addressed in environmental conditions 4 and 7.	Audited as a condition.
8	Property valuation - determine property values of surrounding area.	Retained.	12
9	Final Void - Design to facilitate its use in accordance with approved guidelines.	Retained.	13
10	Traffic - limit mine traffic through Shotts.	Retained.	14
11.1	Road/rail - minimise impact of new road and rail alignment.	Retained.	15
11.2	Road/rail - maintain access to properties.	Retained.	16
12	Minimise interference to communications.	Retained.	17
13	Control weed invasion in rehabilitated areas.	Retained.	18

## 6. Conclusions and recommended environmental conditions

The mining of Premier Pit 4 is environmentally acceptable and could proceed subject to similar Environmental Conditions as the existing Premier coal mine, and the recommendations contained in this report. The EPA recommends that the current Statement of Approval for Premier be amended to incorporate Pit 4, and structured to reflect the contemporary format.

The recommended changes to the Minister for the Environment's statement as a result of this assessment are detailed below. The changes to the original conditions are shown in italics for easy reference. If the changes are agreed to by the Minister for the Environment, in agreement with the other decision making authorities for this proposal, this statement would replace the previous statement of approval, and would be legally binding on the proponent.

**STATEMENT TO AMEND CONDITIONS APPLYING TO A PROPOSAL  
(PURSUANT TO THE PROVISIONS OF SECTION 46 OF THE  
ENVIRONMENTAL PROTECTION ACT 1986)**

PROPOSAL: PREMIER COAL MINE EXPANSION, COLLIE  
(601/743/907)  
CURRENT PROPONENT: WESTERN COLLIERIES LTD  
CONDITIONS SET ON: 2 APRIL 1992  
CONDITIONS AMENDED ON: 5 APRIL 1993

The implementation of this proposal is now subject to the following conditions which replace all previous conditions:

**1 Proponent Commitments**

The proponent has made a number of environmental management commitments in order to protect the environment.

- 1-1 In implementing the proposal, *including the expanded area of Premier Pit 4, the proponent shall fulfil the relevant environmental management commitments made in the Consultative Environmental Review (1991), the Response to Issues (Appendix 1 in Environmental Protection Authority Bulletin 601) and in the "Premier Mine Development - Mine Proposal Update" (November 1994) and addendum, reported on in Environmental Protection Authority Bulletin 795 provided that the commitments are not inconsistent with the conditions or procedures contained in this statement.*

*A schedule of those environmental management commitments which will be audited by the Department of Environmental Protection was published in Environmental Protection Authority Bulletin 795 and a copy is attached.*

**2 Implementation**

Changes to the proposal which are not substantial may be carried out with the approval of the Minister for the Environment.

- 2-1 Subject to these conditions, the manner of detailed implementation of the proposal shall conform in substance with that set out in any designs, specifications, plans or other technical material submitted by the proponent to the Environmental Protection Authority with the proposal.
- 2-2 Where, in the course of *the* detailed implementation referred to in condition 2-1, the proponent seeks to change *the* designs, specifications, plans or other technical material submitted to the Environmental Protection Authority in any way that the Minister for the Environment determines, on the advice of the Environmental Protection Authority, is not substantial, those changes may be effected.

**3 Impacts On Residents**

Predicted dust and noise impacts on residents surrounding the mining operation, particularly at Shotts from the crusher facility, are unacceptable and require a management strategy for resolution before development for coal mining commences.

- 3-1 Prior to coal mining operations the proponent shall prepare a management strategy, in consultation with the surrounding residents, which details strategies for either relocating residents who would be affected by unacceptable noise, dust and risk impacts from the mining operation or for modifying the mining operations, to the *requirements* of the Minister for the Environment on advice of the Environmental Protection Authority.

- 3-2 Should the strategy prepared in accordance with condition 3-1 be one of modifying mining operations rather than relocation of residents, this shall be implemented *by the proponent* through the Environmental Management Programme required by condition 4-1.
- 3-3 Should the strategy prepared in accordance with condition 3-1 be one of relocation of residents, this shall be implemented *by the proponent* to the *requirements* of the Minister for the Environment.

#### **4 Environmental Management Programme**

In order to plan for such a large earthmoving operation with large-scale environmental impacts, an Environmental Management Programme is required.

- 4-1 Prior to each major phase of the mining operation *including Pit 4*, the proponent shall prepare an Environmental Management Programme to plan for and monitor the effects of that phase of the proposal and to provide appropriate management strategies based on the monitoring results, to the *requirements* of the *Department of Environmental Protection*. The Environmental Management Programme must be consistent with the provisions of Clause 7 of the Collie Coal (Western Collieries) Agreement Act.

This Programme shall address, but not necessarily be limited to, the management, monitoring, auditing and reporting requirements of the following issues:

1. noise, dust and risk impacts on surrounding residents;
  2. impacts from the mine dewatering operation;
  3. impact on the conservation values and area of the State Forest;
  4. dieback disease management; and
  5. rehabilitation to an acceptable final land use.
- 4-2 The proponent shall implement the Environmental Management Programme required by condition 4-1 to the *requirements* of the *Department of Environmental Protection*.

#### **5 Mine Dewatering Impacts**

The proponent is responsible for managing the impacts of the mine dewatering.

- 5-1 The proponent shall prepare a water supply plan, as part of the Environmental Management Programme (required by condition 4), which describes measures to ensure adequate domestic and stock water supplies for any existing private users of the groundwater resource affected by the dewatering operation, to the *requirements* of the Minister for the Environment on advice of the *Department of Environmental Protection* and the Water Authority of Western Australia.
- 5-2 The proponent shall implement the plan required by condition 5-1 to the *requirements* of the *Department of Environmental Protection* on advice of the Water Authority of Western Australia.
- 5-3 The proponent shall utilise and/or dispose of any water occurring in or collecting on the Mining Lease (including water pumped or drawn from mines) in accordance with a water management plan which will deal with the supply of water to power stations and other utilities and the disposal of water in an acceptable manner. The development of this plan, which will be consistent with the provisions of relevant State Agreement Acts, is the responsibility of the Water Authority of Western Australia.

#### **6 Noise Limits**

The proponent should conduct operations so that noise emissions do not unreasonably impact on the surroundings.

6-1 The proponent shall ensure that noise emissions do not exceed:

- 40 dB  $L_{A10\%$  1 hour slow and 50 dB  $L_{Amax}$  slow between 2200 hours and 0700 hours on any day when measured on any noise-sensitive premises;
- 45 dB  $L_{A10\%$  1 hour slow and 55 dB  $L_{Amax}$  slow between 1900 hours and 2200 hours on any day, and between 0700 hours and 1900 hours on Sundays and gazetted public holidays, when measured on any noise-sensitive premises;
- 50 dB  $L_{A10\%$  1 hour slow and 70 dB  $L_{Amax}$  slow between 0700 hours and 1900 hours on Monday to Saturday inclusive, when measured on any noise-sensitive premises; and
- 65 dB  $L_A$  slow when measured at or near the boundary of premises that are not noise-sensitive premises (other industries);

where such emissions would result in the noise level present at the affected premises exceeding the ambient noise level present at any time by more than 5 dB  $L_A$  slow.

6-2 The proponent shall ensure that noise emissions from those activities which are of concern to occupiers of noise-sensitive premises do not exhibit tones, amplitude and frequency modulation, and impulsiveness of a nature which increases the intrusiveness of the noise.

6-3 The proponent shall conduct noise surveys and assessments in consultation with the *Department of Environmental Protection*.

## **7 Dust Limit**

The dust generated by the proposal should be kept within environmentally acceptable limits.

7-1 The proponent shall not cause dust at residential premises surrounding the mine to exceed 1000 micrograms per cubic metre ( $\mu\text{g}/\text{m}^3$ ), measured continuously over 15 minutes.

## **8 Decommissioning**

8-1 The proponent shall achieve the satisfactory decommissioning of the project, removal of the plant and installations and rehabilitation of the site and its environs.

8-2 At least six months prior to decommissioning, the proponent shall prepare a decommissioning and final rehabilitation plan to achieve the objectives of condition 8-1.

8-3 The proponent shall implement the plan required by condition 8-2.

## **9 Proponent**

*These conditions legally apply to the nominated proponent.*

9-1 No transfer of ownership, control or management of the project which would give rise to a need for the replacement of the proponent shall take place until the Minister for the Environment has advised the proponent that approval has been given for the nomination of a replacement proponent. Any request for the exercise of that power of the Minister shall be accompanied by a copy of this statement endorsed with an undertaking by the proposed replacement proponent to carry out the project in accordance with the conditions and procedures set out in the statement.

## **10 Time Limit on Approval**

The environmental approval for the proposal is limited.

10-1 If the proponent has not substantially commenced the *expansion of the project to include Pit 4* within five years of the date of this statement, then the approval to implement the



modified proposal shall lapse and be void. The Minister for the Environment shall determine any question as to whether the *modified* project has been substantially commenced.

Any application to extend the period of five years referred to in this condition shall be made before the expiration of that period to the Minister for the Environment.

*Where the proponent demonstrates to the requirements of the Minister for the Environment on advice of the Department of Environmental Protection that the environmental parameters of the proposal have not changed significantly, then the Minister may grant an extension not exceeding five years.*

## **11 Compliance Auditing**

*To help determine environmental performance, periodic reports on progress in implementation of the proposal are required.*

- 11-1 *The proponent shall submit periodic Progress and Compliance Reports, in accordance with an audit programme prepared by the Department of Environmental Protection in consultation with the proponent.*

### **Procedure**

1. *Unless otherwise specified, the Department of Environmental Protection is responsible for assessing compliance with the conditions contained in this statement and for issuing formal clearance of conditions.*
2. *Where compliance with any condition is in dispute, the matter will be determined by the Minister for the Environment.*

### **Note:**

The reporting requirements for these conditions may be effected through the reporting requirements of the State Agreement Act, subject to meeting the timing requirements of the conditions.

## **Schedule of Environmental Management Commitments to be audited by the Department of Environmental Protection**

### Groundwater Production

1. WCL will prepare and subsequently implement a groundwater dewatering and monitoring programme.
2. WCL will monitor the groundwater abstraction, water quality and the regional draw down effects from the mine dewatering on other existing licensed groundwater users.
3. WCL will liaise with the Water Authority of WA regarding regional effects.
4. WCL will implement remedial action, where necessary for safety reasons, of any areas of subsidence on the Premier mining lease due to the dewatering for the mining operation.

### Groundwater Monitoring

5. During the dewatering operation, WCL will monitor the bores to determine abstraction rates and the quality of the water.
6. During the mining operation, WCL will establish a piezometer bore monitoring programme, in conjunction with the monitoring of other regional bores, to determine the draw down effect of the dewatering operation. Monitoring results will be submitted annually to the Water Authority of WA.

### Surface water

7. WCL will implement measures, such as settling ponds, silt traps and biological filtration systems, to ensure that the natural drainage systems affected by the mining operation are not significantly adversely affected. Where possible, all drainage systems off rehabilitated areas would be diverted into recognised discharge points.

### Dieback

8. WCL will cooperate with the Department of Conservation and Land Management regarding dieback mapping, access restrictions and hygiene controls in State Forest areas within the lease.

### Blasting

9. WCL will arrange for those living or owning property close to the mine to have a property condition survey prior to mining commencing. The survey will be conducted by an independent third party at WCL's expense.
10. Any damage proven to be due to WCL's negligence will be rectified by WCL within three months to the original survey or other acceptable standard.

### Noise

11. WCL will conduct noise modelling studies for critical locations surrounding the mine site.

### Dust

12. WCL will implement reasonable dust mitigation measures to achieve dust levels to the recommended goals of  $4\text{g}/\text{m}^2/\text{month}$  for total particulates and  $260\ \mu\text{g}/\text{m}^3$  for a 24 hour maximum and  $90\ \mu\text{g}/\text{m}^3$  for the annual mean.

### Final Void

13. WCL will design the final void to facilitate its use in accordance with guidelines approved by the relevant authorities at the time.

### Transport

14. WCL will ensure that, except for WCL employees, no WCL mine related traffic will travel through Shotts.
15. WCL will ensure that the realignment of the road and the railway will not bring it any closer to the gazetted Shotts townsite.
16. WCL will provide an access route to the existing standard to all properties affected by the road/rail realignment.

### Other

17. WCL will rectify, if technically feasible, any interference to the communications systems of surrounding residents due to the mining operation.
18. WCL will liaise with the Department of Conservation and Land Management and the Agriculture Protection Board regarding the control of weed species on the lease area. Control measures such as hand removal and selective herbicides would be used to control weed species which are affecting the success of the rehabilitation programme as deemed necessary.

## 8. References

- Environmental Protection Authority, 1991a. Premier coal mine expansion, Collie. Report and Recommendations of the Environmental Protection Authority. Bulletin 601. Environmental Protection Authority, Perth.
- Environmental Protection Authority, 1992. Premier coal mine expansion, Collie - Proposed changes to Environmental Conditions. Bulletin 666. Environmental Protection Authority, Perth.
- Mining & Resource Technology, 1995. Cooperative Waste Dumping Options in the Collie Coal Basin. A report for the Department of Resources Development.
- Western Collieries Ltd, 1991. Consultative Environmental Review - Premier Mine Expansion.
- Western Collieries Ltd, 1994a. Premier Mine Development - Environmental Management Programme. Development Stage. WCL Report Number 193.
- Western Collieries Ltd, 1994b. Premier Mine Development - Environmental Management Programme. Development Stage - Groundwater Management. WCL Report Number 194.
- Western Collieries Ltd, 1994c. Premier Mine Development - Mine Proposal Update. WCL Report Number 199.
- Western Collieries Ltd, 1994d. Premier Mine Development - Environmental Management Programme. Operational Stage. WCL Report Number 198.
- Western Collieries Ltd, 1995. Addendum to Mine Proposal Update Development Stage, Premier Dumping Strategy.

## **Appendix 1**

**Statement of Conditions of Approval (2 April 1992; 5 April 1993)**



WESTERN AUSTRALIA  
MINISTER FOR THE ENVIRONMENT

**STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED (PURSUANT  
TO THE PROVISIONS OF THE ENVIRONMENTAL PROTECTION ACT  
1986)**

PREMIER COAL MINE EXPANSION, COLLIE (601)

WESTERN COLLIERIES LTD

This proposal may be implemented subject to the following conditions:

**1. Proponent commitments**

The proponent has made a number of environmental management commitments in order to protect the environment.

- In implementing the proposal, the proponent shall fulfil the commitments (which are not inconsistent with the conditions or procedures contained in this statement) made in the Consultative Environmental Review and in Response to Issues (Appendix 1 in Environmental Protection Authority Bulletin 601). (A copy of the commitments is attached).

**2. Detailed implementation**

Changes to the coal mining proposal, as described in the Consultative Environmental Review and Response to Issues documents, which are not substantial, may be carried out with the approval of the Minister for the Environment.

- Subject to these conditions, the manner of detailed implementation of the proposal shall conform in substance with that set out in any designs, specifications, plans or other technical material submitted by the proponent to the Environmental Protection Authority with the proposal. Where, in the course of that detailed implementation, the proponent seeks to change those designs, specifications, plans or other technical material in any way that the Minister for the Environment determines is not substantial, on the advice of the Environmental Protection Authority, those changes may be effected.

**3. Impacts on residents**

Predicted dust and noise impacts on residents surrounding the mining operation, particularly at Shotts from the crusher facility, are unacceptable and require a management strategy for resolution before development for coal mining commences.

- 3-1 Prior to coal mining operations the proponent shall prepare a management strategy, in consultation with the surrounding residents, which details strategies for either relocating residents who would be affected by unacceptable noise, dust and risk impacts from the mining operation or for modifying the mining operations, to the satisfaction of the Minister for the Environment on advice of the Environmental Protection Authority.
- 3-2 Should the approved strategy prepared in accordance with condition 3-1 be one of modifying mining operations rather than relocation of residents, this shall be implemented through the Environmental Management Programme required by condition 4-1.

Published on

2 APR 1992

3-3 Should the approved strategy prepared in accordance with condition 3-1 be one of relocation of residents, this shall be implemented to the satisfaction of the Minister for the Environment.

#### **4. Environmental Management Programme**

In order to plan for such a large earthmoving operation with large-scale environmental impacts, an Environmental Management Programme is required.

4-1 Prior to each major phase of the mining operation, the proponent shall prepare an Environmental Management Programme to plan for and monitor the effects of that phase of the proposal and to provide appropriate management strategies based on the monitoring results, to the satisfaction of the Environmental Protection Authority. The Environmental Management Programme must be consistent with the provisions of Clause 7 of the Collie Coal (Western Collieries) Agreement Act.

This Programme shall address, but not necessarily be limited to, the management, monitoring, auditing and reporting requirements of the following issues:

1. noise, dust and risk impacts on surrounding residents;
2. impacts from the mine dewatering operation;
3. impact on the conservation values and area of the State Forest;
4. dieback disease management; and
5. rehabilitation to an acceptable final land use.

4-2 The proponent shall implement the Environmental Management Programme required by condition 4-1 to the satisfaction of the Environmental Protection Authority.

#### **5. Mine dewatering impacts**

The proponent is responsible for managing the impacts of the mine dewatering.

5-1 The proponent shall prepare a water supply plan, as part of the Environmental Management Programme (condition 4), which describes measures to ensure adequate domestic and stock water supplies for any existing private users of the groundwater resource affected by the dewatering operation, to the satisfaction of the Minister for the Environment on advice of the Environmental Protection Authority and the Water Authority of Western Australia.

5-2 The proponent shall implement the plan required by condition 5-1 to the satisfaction of the Environmental Protection Authority on advice of the Water Authority of Western Australia.

5-3 The proponent shall utilise and/or dispose of any water occurring in or collecting on the Mining Lease (including water pumped or drawn from mines) in accordance with a water management plan which will deal with the supply of water to power stations and other utilities and the disposal of water in an acceptable manner. The development of this plan, which will be consistent with the provisions of relevant State Agreement Acts, is the responsibility of the Water Authority of Western Australia.

#### **6. Noise limits**

The noise generated by the coal mining operation should be kept within environmentally acceptable levels.

6-1 The proponent shall ensure that the noise emissions from the project do not cause or contribute to noise levels in excess of:

- 50db(A) slow from 7am to 7pm Monday to Saturday inclusive, but excluding gazetted public holidays;

- 40db(A) slow from 10pm to midnight and from midnight to 7am every day; and
  - 45db(A) slow at all other times;
- when measured:
- (1) at any point on or adjacent to other premises not occupied by the proponent and used for residential or other noise-sensitive purposes; and
  - (2) at a height between 1.2 and 1.5 metres above ground level and at a distance greater than 3.5 metres from any reflecting surface other than the ground.

6-2 Where the combined level of the noise emissions from the project and the normal ambient noise exceeds the levels specified in condition 6-1, this condition shall be considered to be contravened only when the following criteria are also met at the measurement point:

- the noise emissions from the premises are considered by the Environmental Protection Authority to be audible and contributing significantly to the measured noise levels; and
- the noise emissions from the premises are identifiable by the Environmental Protection Authority as emanating from the project.

6-3 Noise emissions shall not include tonal or impulsive components or other characteristics which make the noise more annoying than it would be in their absence. These characteristics will be assessed by the Environmental Protection Authority.

6-4 The proponent shall conduct noise surveys to the satisfaction of the Environmental Protection Authority.

## **7. Dust limit**

The dust generated by the coal mining operation should be kept within environmentally acceptable levels.

- The proponent shall not cause dust at residential premises surrounding the mine to exceed 1000 microgrammes per cubic metre ( $\mu\text{g}/\text{m}^3$ ), measured continuously over 15 minutes.

## **8. Decommissioning**

The satisfactory decommissioning of the project and removal of the plant and installations is the responsibility of the proponent.

8-1 At least six months prior to decommissioning, the proponent shall prepare a decommissioning plan, to the satisfaction of the Environmental Protection Authority.

8-2 The proponent shall implement the plan required by condition 8-1 to the satisfaction of the Environmental Protection Authority.

## **9. Proponent**

The ministerial conditions legally apply to the nominated proponent.

- No transfer of ownership, control or management of the project which would give rise to a need for the replacement of the proponent shall take place until the Minister for the Environment has advised the proponent that approval has been given for the nomination of a replacement proponent. Any request for the exercise of that power of the Minister shall be accompanied by a copy of this statement endorsed with an undertaking by the proposed replacement proponent to carry out the project in accordance with the conditions and procedures set out in the statement.

## **10. Time limit on approval**

The environmental approval of the proposal is limited.



- If the proponent has not substantially commenced the project within five years of the date of this statement, then the approval to implement the proposal as granted in this statement shall lapse and be void. The Minister for the Environment shall determine any question as to whether the project has been substantially commenced. Any application to extend the period of five years referred to in this condition shall be made before the expiration of that period, to the Minister for the Environment by way of a request for a change in the condition under Section 46 of the Environmental Protection Act. (On expiration of the five year period, further consideration of the proposal can only occur following a new referral to the Environmental Protection Authority).

## **11. Compliance Auditing**

In order to ensure that environmental conditions and commitments are met, an audit system is required.

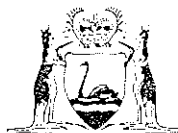
- 11-1 The proponent shall prepare an "Audit Programme", which includes requirements for the preparation of periodic "Compliance Reports", in consultation with and to the satisfaction of the Environmental Protection Authority.
- 11-2 Subsequent to condition 11-1, the proponent shall implement the approved Audit Programme to the satisfaction of the Environmental Protection Authority.

### **NOTE:**

The reporting requirements for these conditions may be effected through the reporting requirements of the State Agreement Act, subject to meeting the timing requirements of the conditions.

  
Bob Pearce, MLA  
MINISTER FOR THE ENVIRONMENT

2 APR 1992



WESTERN AUSTRALIA

MINISTER FOR THE ENVIRONMENT

STATEMENT TO AMEND CONDITIONS APPLYING TO A PROPOSAL  
(PURSUANT TO THE PROVISIONS OF SECTION 46 OF THE  
ENVIRONMENTAL PROTECTION ACT 1986)

PROPOSAL: PREMIER COAL MINE EXPANSION, COLLIE (601/743)  
CURRENT PROPONENT: WESTERN COLLIERIES LTD  
CONDITIONS SET ON: 2 APRIL 1992

Condition 6 is amended to read as follows:

**6 Noise Limits**

The proponent should conduct operations so that noise emissions do not unreasonably impact on the surroundings.

6-1 The proponent shall ensure that noise emissions do not exceed:

- 40 dB  $L_{A10\%}$  1 hour slow and 50 dB  $L_A$  max slow between 2200 hours and 0700 hours on any day when measured on any noise-sensitive premises;
- 45 dB  $L_{A10\%}$  1 hour slow and 55 dB  $L_A$  max slow between 1900 hours and 2200 hours on any day, and between 0700 hours and 1900 hours on Sundays and gazetted public holidays, when measured on any noise-sensitive premises;
- 50 dB  $L_{A10\%}$  1 hour slow and 70 dB  $L_A$  max slow between 0700 hours and 1900 hours on Monday to Saturday inclusive, when measured on any noise-sensitive premises; and
- 65 dB  $L_A$  slow when measured at or near the boundary of premises that are not noise-sensitive premises (other industries);

where such emissions would result in the noise level present at the affected premises exceeding the ambient noise level present at any time by more than 5 dB  $L_A$  slow.

- 6-2 The proponent shall ensure that noise emissions from those activities which are of concern to occupiers of noise-sensitive premises do not exhibit tones, amplitude and frequency modulation, and impulsiveness of a nature which increases the intrusiveness of the noise.
- 6-3 The proponent shall conduct noise surveys and assessments in consultation with the Environmental Protection Authority.

Published on

6 APR 1993

The following procedure is inserted following condition 11:

**Procedure**

The Environmental Protection Authority is responsible for verifying compliance with the conditions contained in this statement, with the exception of conditions stating that the proponent shall meet the requirements of either the Minister for the Environment or any other government agency.

If the Environmental Protection Authority, other government agency or proponent is in dispute concerning compliance with the conditions contained in this statement, that dispute will be determined by the Minister for the Environment.

A handwritten signature in cursive script, appearing to read "K. J. Mihson".

Kevin Mihson MLA  
MINISTER FOR THE ENVIRONMENT

- 5 APR 1993

## **Appendix 2**

### **Environmental Management Commitments**

The following environmental management commitments were made by Western Collieries Ltd for the Premier operation. The proponent has reiterated these commitments for the expansion of the proposal to include Premier Pit 4.

## **1. Groundwater**

### **1.1 Production**

- WCL will prepare and subsequently implement a groundwater dewatering and monitoring programme.
- WCL will monitor the groundwater abstraction, water quality and the regional draw down effects from the mine dewatering on other existing licensed groundwater users.
- WCL will liaise with the Water Authority of WA regarding regional effects.
- WCL will implement remedial action, where necessary for safety reasons, of any areas of subsidence on the Premier mining lease due to the dewatering for the mining operation.

### **1.2 Monitoring**

- During the dewatering operation, WCL will monitor the bores to determine abstraction rates and the quality of the water.
- During the mining operation, WCL will establish a piezometer bore monitoring programme, in conjunction with the monitoring of other regional bores, to determine the draw down effect of the dewatering operation. Monitoring results will be submitted annually to the Water Authority of WA.

### **1.3 Discharge**

- WCL will provide all water produced by the dewatering operation to the power stations as a priority.
- Prior to the discharge of any water to the natural surface drainage systems leading off the lease area, WCL will obtain the written approval of the Water Authority of WA.
- If it is necessary to discharge water from the dewatering operation into the natural drainage systems, WCL will comply with discharge criteria set in the licence(s) issued under the Environmental Protection Act, 1986.

## **2. Surface water**

- WCL will implement measures, such as settling ponds, silt traps and biological filtration systems, to ensure that the natural drainage systems affected by the mining operation are not significantly adversely affected. Where possible, all drainage systems off rehabilitated areas would be diverted into recognised discharge points.

## **3. Forest Products**

### **3.1 Large-scale clearing**

- WCL will apply for clearing permits from the Department of Conservation and Land Management at least 12 months in advance of large-scale (> 10 ha) clearing of State Forest areas.

### **3.2 Small-scale clearing**

- WCL will apply for clearing permits from the Department of Conservation and Land Management at least 6 months in advance of small-scale (< 10 ha) clearing.

## **4. Dieback**

### 4.1 Mapping

- WCL will cooperate with the Department of Conservation and Land Management regarding dieback mapping, access restrictions and hygiene controls in State Forest areas within the lease.

### 4.2 Management

- WCL will implement dieback management measures within the lease area to minimise the spread of dieback disease pathogens, particularly into currently dieback free areas.

## **5. Blasting**

### 5.1 Blasting damage

- WCL will arrange for those living or owning property close to the mine to have a property condition survey prior to mining commencing. The survey will be conducted by an independent third party at WCL's expense.

### 5.2 Damage repair

- Any damage proven to be due to WCL's negligence will be rectified by WCL within three months to the original survey or other acceptable standard.

## **6. Noise**

### 6.1 Monitoring

- WCL will conduct noise modelling studies for critical locations surrounding the mine site.
- WCL will develop and implement a noise monitoring programme immediately prior to the commencement of mining.

## **7. Dust**

### 7.1 Monitoring

- WCL will develop and implement a dust monitoring programme for dust levels at critical locations (nearest inhabited residences) surrounding the mine site immediately prior to the commencement of mining.

### 7.2 Mitigation measures

- WCL will implement reasonable dust mitigation measures to achieve dust levels to the recommended goals of 4g/m<sup>2</sup>/month for total particulates and 260 µg/m<sup>3</sup> for a 24 hour maximum and 90 µg/m<sup>3</sup> for the annual mean.

## **8. Property valuation**

- WCL will undertake an independent property valuation of the relevant properties in Shotts and other surrounding areas within 2 km of the nearest proposed blasting in the pre-development stage before the commencement of mining.

## **9. Final void**

- WCL will design the final void to facilitate the its use in accordance with guidelines approved by the relevant authorities at the time.

## **10. Mine related traffic**

- WCL will ensure that, except for WCL employees, no WCL mine related traffic will travel through Shotts.

## **11. Road/rail realignment**

### **11.1 Alignment**

- WCL will ensure that the realignment of the road and the railway will not bring it any closer to the gazetted Shotts townsite.

### **11.2 Access**

- WCL will provide an access route to the existing standard to all properties affected by the road/rail realignment.

## **12. Interference with communications**

- WCL will rectify, if technically feasible, any interference to the communications systems of surrounding residents due to the mining operation.

## **13. Weed control**

- WCL will liaise with the Department of Conservation and Land Management and the Agriculture Protection Board regarding the control of weed species on the lease area. Control measures such as hand removal and selective herbicides would be used to control weed species which are affecting the success of the rehabilitation programme as deemed necessary.