

Ord River Dam hydro power project

Ord Hydro Consortium

**An addendum to proposed changes to environmental
conditions**

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

**Environmental Protection Authority
Perth, Western Australia
Bulletin 759
October 1994**

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 recommendations.

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 assessment report 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 10 November, 1994.

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Summary

In April 1992, the Minister for the Environment issued a statement that a proposal to build a hydro-electric power station on the Lake Argyle Main Dam of the Ord River and transmission line could proceed subject to a number of environmental conditions and commitments. The proponent for this proposal, Argyle Diamond Mines (ADM) decided not to proceed with the proposal at that time. In 1994, the proposal was taken up and modified by the Ord Hydro Consortium, and the proposed changes were referred to the Minister for the Environment. In February 1994, the Minister for the Environment requested the Environmental Protection Authority to initiate investigations and provide a report to him under Section 46 of the Environmental Protection Act. The EPA has reported to the Minister (Bulletin 756) and environmental conditions are being finalised.

On 13 October 1994, the Minister for the Environment requested that the EPA further advise on an addendum to the proposed changes to environmental conditions relating to the proposed power line route to Kununurra and also the powerline to the Argyle Diamond Mine.

These alternate routes (see Figure 1) are:

- Route R (Ord Dam to Kununurra along Lake Argyle Road and Victoria Highway);
- Route P (a shoreline route from the Ord Hydro Power Station to the Argyle Diamond Mine); and
- Route Q (an inland route from the Ord Hydro Power Station to the Argyle Diamond Mine).

The EPA has recently reported (Bulletin 756) on another transmission line route to Kununurra (a relatively direct route from the power station over Duracks Folly and Maxwell Plain) and this will not be considered in this report.

The Authority has assessed the three alternative routes on the basis of the following issues:

- impact on the proposed Carr Boyd Range National Park;
- visual impact;
- service access requirements; and
- flora and fauna.

Route R is an alternative to the relatively direct route from the power station to Kununurra. This route is longer in length (25km) and follows Lake Argyle Road and Victoria Highway. The key environmental concern with this route is visual amenity.

Route P represents an alternative route from the Ord Dam to the Argyle Diamond Mine and basically follows the shoreline of Lake Argyle. The principal environmental concerns relating to this route focus on the impact of the transmission line on the proposed Carr Boyd National Park and visual amenity.

Route Q is the alternative inland route from the Ord Dam to the Argyle Diamond Mine. This route traverses rugged terrain and hence the key environmental concerns relate to the protection of the proposed Carr Boyd National Park from physical incursions and degradation, as well as protection of flora and fauna, wilderness aspects and visual amenity. The Authority does not consider this route to be environmentally acceptable.

The Environmental Protection Authority recommends that Options R and P for this proposal be found environmentally acceptable subject to the proponent's commitments and the EPA's recommendations in this assessment report.

	Summary of Recommendations
1	Powerline route options R and P are environmentally acceptable subject to conditions and commitments
2	Power line route option Q is environmentally unacceptable

1. Introduction

1.1 Background

The Environmental Protection Authority (EPA) has been requested by the Minister for the Environment under Section 46 of the *Environmental Protection Act 1986*, to report on alternatives to the approved and proposed transmission line alignments as an addendum to the EPA's Bulletin 756. This report, contains the EPA's advice and recommendations to the Minister for the Environment, who will decide on any modifications to the conditions set on 29 April 1992 and subsequent conditions arising from the review of September 1994.

In 1994, the Ord Hydro Consortium (which took over the project approved for ADM) sought to modify the project by:

1. Reducing the size of the power station from 40MW to 30MW.
2. Changing the location of a switching station from adjacent to the power station itself to an abandoned gravel pit north of the Argyle Tourist Village, to allow the use of a single line from the power station to the switching station, and from the switching station to the ADM minesite and to Kununurra.
3. Adding a 132kV transmission line of approximately 45km to Kununurra.
4. Constructing a 132/22kV substation in Kununurra, within the existing SECWA lease, and connecting directly with the commission's existing plant.

The environmental conditions pertaining to this Section 46 assessment have yet to be set by the Minister for the Environment.

This addendum has been sought by Ord Hydro Consortium as they have recently become aware that the existing approved and proposed transmission line routes, as described in Bulletin 615 and Bulletin 756, cross areas of heritage significant to the local Aboriginal groups. To avoid these areas, the consortium has identified three alternative transmission alignments. The addendum does not affect items 1, 2 and 4 above.

1.2 Summary description of proposal

The Ord Hydro Consortium has put forward three alternative routes which are the subject of this Section 46 addendum. The alignment options (shown in Figure 1) include:

1. Alternative Kununurra Route (Option R).
2. Power Station to ADM - Shoreline Route (Option P).
3. Power Station to ADM - Inland Route (Option Q).

2. Environmental Impact Assessment method

The environmental impact assessment for this proposal followed the *Environmental impact assessment administrative procedures 1993*. In addition to following the administrative procedures, Department of Environmental Protection (DEP) officers also undertook discussions with relevant government agencies.

In view of the critical time limit on this proposal, each group which submitted comments on the Section 46 document was given a copy of the addendum, with the opportunity to make further comment.

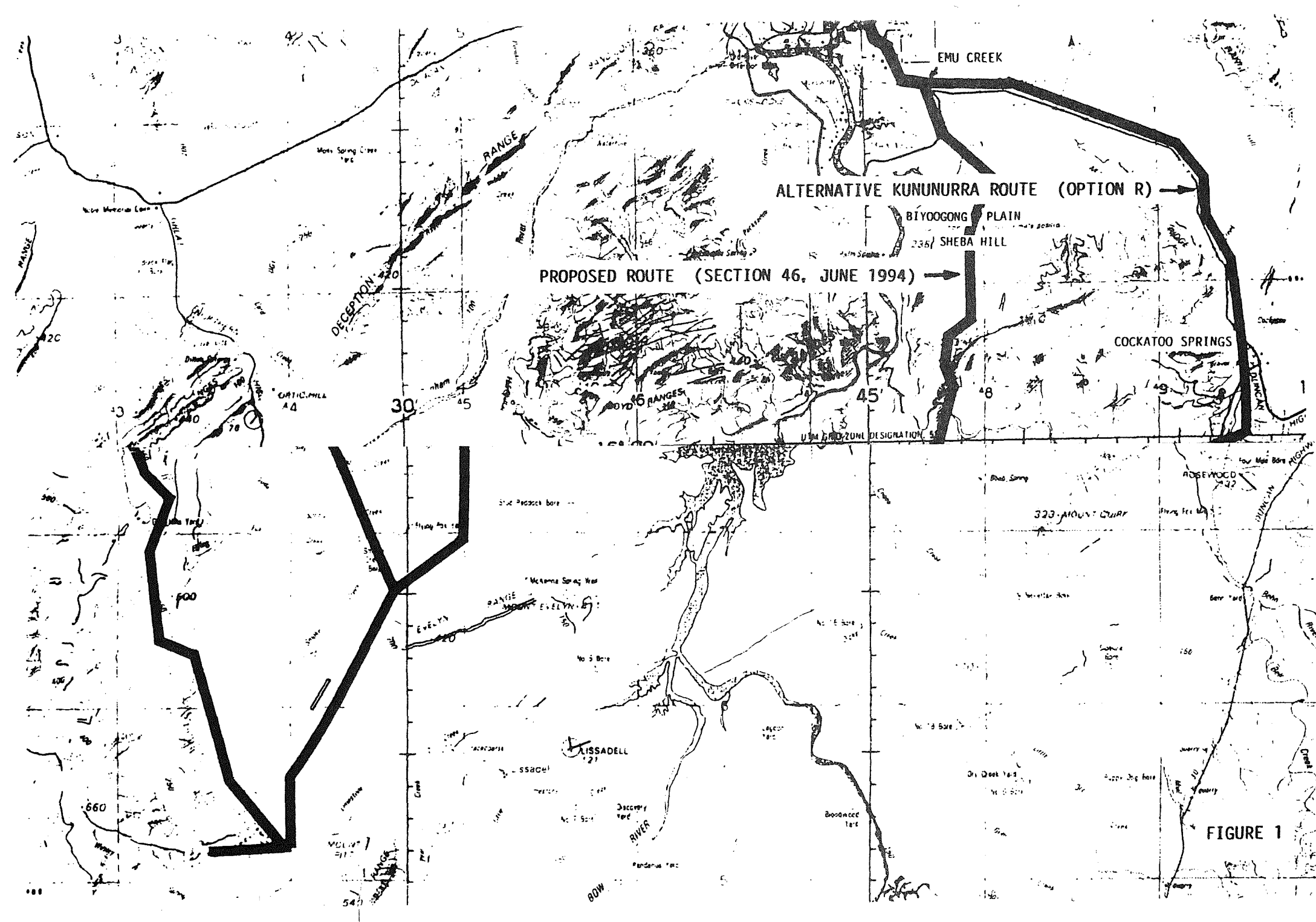


FIGURE 1

The statement which was issued in April 1992 is shown in Appendix 1. The summary of submissions and the proponent's response to those submissions appears in Appendix 2. As part of the recent Section 46 (Bulletin 756), DEP officers undertook a reappraisal of conditions and commitments set in 1992.

Limitation

This evaluation has been undertaken using information currently available. The information has been provided by the proponent through preparation of the Environmental Review document (in response to guidelines issued by the DEP), by DEP officers utilising their own expertise and reference material, by utilising expertise and information from other State Government agencies, and by contributions from EPA members.

The EPA recognises that further studies and research may affect the conclusions. Accordingly, the EPA considers that if the proposal has not been substantially commenced within five years of the date of this report, then such approval should lapse. After that time, further consideration of the proposal should occur only following a new referral to the EPA.

3. Evaluation

3.1 Alternative Kununurra Route (Option R)

3.1.1 Objective

To protect the environment from unacceptable changes arising from the proposal. In particular, to determine whether the proposed alignment is environmentally acceptable.

3.1.2 Evaluation framework

3.1.2.1 Background

Description

As indicated in the Section 46 addendum this alignment is an alternative to the relatively direct route from the power station over Duracks Folly and Maxwell Plain to Kununurra which was the subject of the Section 46 application of June 1994.

Option R picks up the route previously proposed as far as Spillway Bridge. At that point it follows Lake Argyle Road until just short of the junction with Victoria Highway (2km). Before reaching the road junction the line turns north to meet and follow Victoria Highway at Cockatoo Springs.

Visual impact

The section from Spillway Bridge to Victoria Highway exhibits panoramic views to the north and high ground to the south. Some degree of screening is therefore offered if the transmission line is located on the southern side of Lake Argyle Road. Following Victoria Highway to Kununurra, both sides of the road are consistently but not thickly timbered. Clearing will be required (10m) for construction and to avoid clashing with line conductors. This route is to be sited within 500m of the Victoria Highway and Lake Argyle Access Road (Blandford & Associates, 1994 b).

Impact on existing and proposed reserves

The route does not impact on any gazetted parks or resources being in close to the road reserves of the Victoria Highway and Lake Argyle Access Road. There is also no impact on the proposed Carr Boyd National Park.

It is noted that the route crosses Government Reserve PT31165 which is leased by the Dingo Springs Aboriginal Community for pastoral purposes. It is understood that portion of Reserve 31165 of King Location has been cancelled as a Reserve, and is to be leased to the Gardungarll Community. This community is part of the Miriuwunga Gajerronga Ninguwung Yawurrung Aboriginal community with whom the consortium has ongoing negotiations towards a land use agreement.

Service access requirements

The route is easily accessible due to the proximity of existing road infrastructure.

Flora and fauna

No animal plant species, listed as rare or endangered were recorded during the current survey conducted by the proponent (Blandford & Associates, 1994 b).

3.1.3 Views of relevant agencies

The Main Roads Department, in its submission, did not raise any objections to the construction of a transmission line adjacent to Lake Argyle Road as proposed. Main Roads raise no objection to the construction of a transmission line adjacent to Victoria Highway, but would like to see the new line and existing line from Kununurra to the Emu Community put onto the same towers. Main Roads also consider that the offset from the edge of the seal of Victoria Highway and the centreline of the transmission line should be no less than 20m, which is the current offset for the SECWA line between Kununurra and Emu Creek.

3.1.4 Proponent's response to submissions

In response, the proponent indicated that they would maintain at least 20m clearance from the edge of the sealed carriageway. The proponent also indicated that SECWA initially stated that it would not allow joint construction of a line on common poles, but that recently, SECWA had asked the proponent to reconsider joint construction from Lily Creek into the power station.

3.1.5 Evaluation

The key environmental concern with regard to this proposed transmission route is visual amenity. The transmission line is likely be visible by those using the two roads and impact adversely on views of the surrounding countryside and perceived naturalness and tranquillity of the area. The route has the advantage that it is easily accessible given the existing road infrastructure.

The Authority considers that this route would be environmentally acceptable subject to compliance with commitments and environmental conditions.

3.2 Power station to ADM - Shoreline route (Option P)

3.2.1 Objective

To protect the environment from unacceptable changes arising from the proposal. In particular, to determine whether the proposed alignment is environmentally acceptable.

3.2.2 Evaluation framework

3.2.2.1 Background

Description

The shoreline route crosses the Ord River approx 2km north of the dam wall at a different point previously proposed and then crosses two valleys until access is given to the northern shore of Lake Argyle. The line then follows the escarpment of the Carr Boyd Range, traversing a series of relatively low hills.

At the western end of Pint Pot Bay the line traverses open and low lying land to cross a creek before climbing a saddle which gives way on the south side to a large open valley falling to Revolver Creek. From Revolver Creek the route turns south east for 6km along the shoreline of Lake Argyle and then proceeds across flat terrain to pass close to Flying Fox Yard, passing to the east of and parallel with the ADM airstrip. The line then picks up the alignment of an existing 33kV line which supplies ADM's water pumps north east of Stud Paddock bore (Blandford & Associates, 1994 b).

Visual impact

The addendum document advises that where the route crosses the Ord River and the two valleys, the line utilises high ground on either side of the river to attain a large span and thereby avoid deeply eroded alluvial soils. During the crossing of the Ord River and between the two valleys to the northern shore of Lake Argyle, the transmission line will be visible from the river but backed by rising ground. Visibility from the river will be restricted by fringing trees. Once the line leaves the lake shore and follows the Carr Boyd Range escarpment, a series of relatively low hills will screen the line from direct view.

Around Pint Pot Bay, the line is set back against the escarpment which is up to 150m high. The line consists of 26 metre poles with a natural rust surface, which are spaced up to approximately 350 metres. Furthermore, the line will be set back approximately 1km from navigable water and is screened by small hills near to the water. From Revolver Creek the route turns south east and the line can be seen from the lake shore for 5km. The line however, is backed by high ground.

Impact on proposed Carr Boyd Range National Park

This alternative shoreline route predominantly follows the eastern boundary of the proposed Carr-Boyd National Park for approximately 50km (Blandford & Associates, 1994). The proposed Lake Argyle and Carr Boyd Range National Park which was recommended by the EPA in 1980 as part of its System 7 report (EPA, 1980) is shown in Figure 2 (CALM, 1991).

Service access requirements

Some sections of the route pose access difficulties, as some parts can only be accessed using helicopter assisted construction (Blandford & Associates, 1994 b). An access track would need to be developed for construction of the transmission line.

Flora and fauna

No animal plant species, listed as rare or endangered were recorded during the current survey conducted by the proponent (Blandford & Associates, 1994 b).

3.2.3 Views of relevant agencies

The Department of Conservation and Land Management (CALM) in its submission (Appendix 4) advised that the shoreline route (Option P) is preferable to the inland route because it has less visual impact problems. Visibility from Lake Argyle will be limited because of screening topography and the mountainous backdrop.

The National Parks and Nature Conservation Authority (NPNCA) in its submission concurred with CALM's view and considered the shoreline option to be better than the approved route (Bulletin 615). NPNCA considered that when all the issues were taken into account, the shoreline option had the least impact spatially and visually (See Appendix 5).

CALM recommended that the final alignment of the powerline within the selected corridor would need to take account of significant landscape, vegetation and flora, visual impacts and erosion hazards. CALM further recommended that they be consulted on the final alignment and that this will require the involvement of experienced CALM professionals (including landscape architects) at the proponent's expense.

A public submission also shared the view that visual amenity would be impacted on as the transmission line would run along much of the western shoreline of the Lake and would pass directly over the backwaters of Pint Pot Bay, Ulysees Bay (Revolver Creek), Hole in the Wall and Kangaroo Creek.

The WAWA in its submission indicated that where Route P follows Lake Argyle, the line would be situated with the poles at about RL 100 with the power lines having ground clearance above this level. The WAWA considers that as water levels reach the RL 100 mark with an annual frequency of less than 0.01, the proponent would need to assess the impact of this frequency of flooding on the performance of the transmission line. The WAWA also considers that for any such development close to the water line, assurances would need to be sought from the proponent regarding management of route access, erosion and similar issues which have the potential to impact the reservoir.

3.2.4 Proponent's response to submissions

In response the proponent indicated that CALM's and the NPNCA's submissions focussed on spatial and visual intrusion into the proposed National Park (see Appendix 2).

The proponent considered that erosion along the lake shore could be a greater source of visual depletion than inland, but that all reasonable steps would be taken to avoid the creation of erosive water courses. The proponent also pointed out that the engineering constraints posed by the shoreline route would reduce flexibility in detailed design and pole positioning, but that the participation of landscape professionals from CALM would be welcomed to minimise visual impact as far as possible on either route.

The proponent also indicated that the water line view of the power line from Pint Pot Bay would be heavily impeded by fringing vegetation, dead trees in the water and the surrounding hillocks and ridges. The proponent further indicated that the line crossing of the backwaters of Ulysees Bay (Revolver Creek) is well away from navigable waters and is hidden by two groups of ridges which run towards Revolver Creek. At Hole in the Wall and Kangaroo Creek careful siting of poles will minimise the impact, however, along this area the line is exposed to the lakeshore. The proponent has indicated that further detailed mapping may reveal small route changes which can mitigate these impacts.

The proponent in response to the WAWA, confirmed its intention to situate poles at about 100 AHD or higher and accepted responsibility for performance of the transmission line. The proponent also indicated that they would continue close consultation with the WAWA on design, construction and access issues.

3.2.5 Evaluation

The principal matter of environmental concern is that this proposed transmission route will traverse the proposed Carr Boyd National Park. This raises issues of protection of the park from physical incursions and degradation, as well as protection of flora and fauna, the wilderness aspects and the visual amenity. The route also has the potential to impinge on tourist operations.

The EPA notes that the consortium has made a commitment to rehabilitate areas disturbed during project construction to include soil erosion control, surface re-shaping, drainage control surface stabilisation and habitat restoration.

The EPA also notes that this route has been suggested by Aboriginal groups to avoid areas of heritage value.

The Authority considers that this route would be environmentally acceptable subject to compliance with commitments and environmental conditions.

3.3 Power station to ADM — Inland route (Option Q)

3.3.1 Objective

To protect the environment from unacceptable changes arising from the proposal. In particular, to determine whether the proposed alignment is environmentally acceptable.

3.3.2 Evaluation framework

3.3.2.1 Background

Description

The following description of Option Q is derived from the addendum document.

The inland route is identical to the shoreline option as far as the western end of Pint Pot Bay. The line then continues for about 2km west rising through a saddle into a short valley running north/south and giving on to a broad plateau. On the western edge of the plateau is another valley opening onto Revolver Creek from which point the line would essentially follow an existing graded track onto the plain between Carr-Boyd Range and Ragged Ranges.

The route would cross Flying Fox Creek in the vicinity of Smoke Creek Bore and then pick up the alignment previously described south of Flying Fox Yard.

Visual impact

As stated in the addendum document, as the route crosses the Ord River and crosses the two valleys, the line utilises high ground on either side of the river to attain a large span and thereby avoid deeply eroded alluvial soils. During the crossing of the Ord River and progress between the two valleys to the northern shore of Lake Argyle, the transmission line will be visible from the river but backed by rising ground. Visibility from the river will be restricted by fringing trees. Once the line leaves the lake shore and follows Carr-Boyd Range escarpment, it would not be visible from the lake.

Impact on proposed Carr Boyd Range National Park

This alternative shoreline route passes through the proposed Carr-Boyd National Park for approximately 30km (Blandford & Associates, 1994 b).

Service access requirements

There is an existing graded track developed by the Aboriginal community to afford access for mustering cattle in the Revolver Creek area. It is understood that an agreement exists between the community and CALM that use of the track will be discontinued. However, Ord Hydro has indicated in the addendum that use of this track would minimise the need for a new construction access, which may cause further degradation.

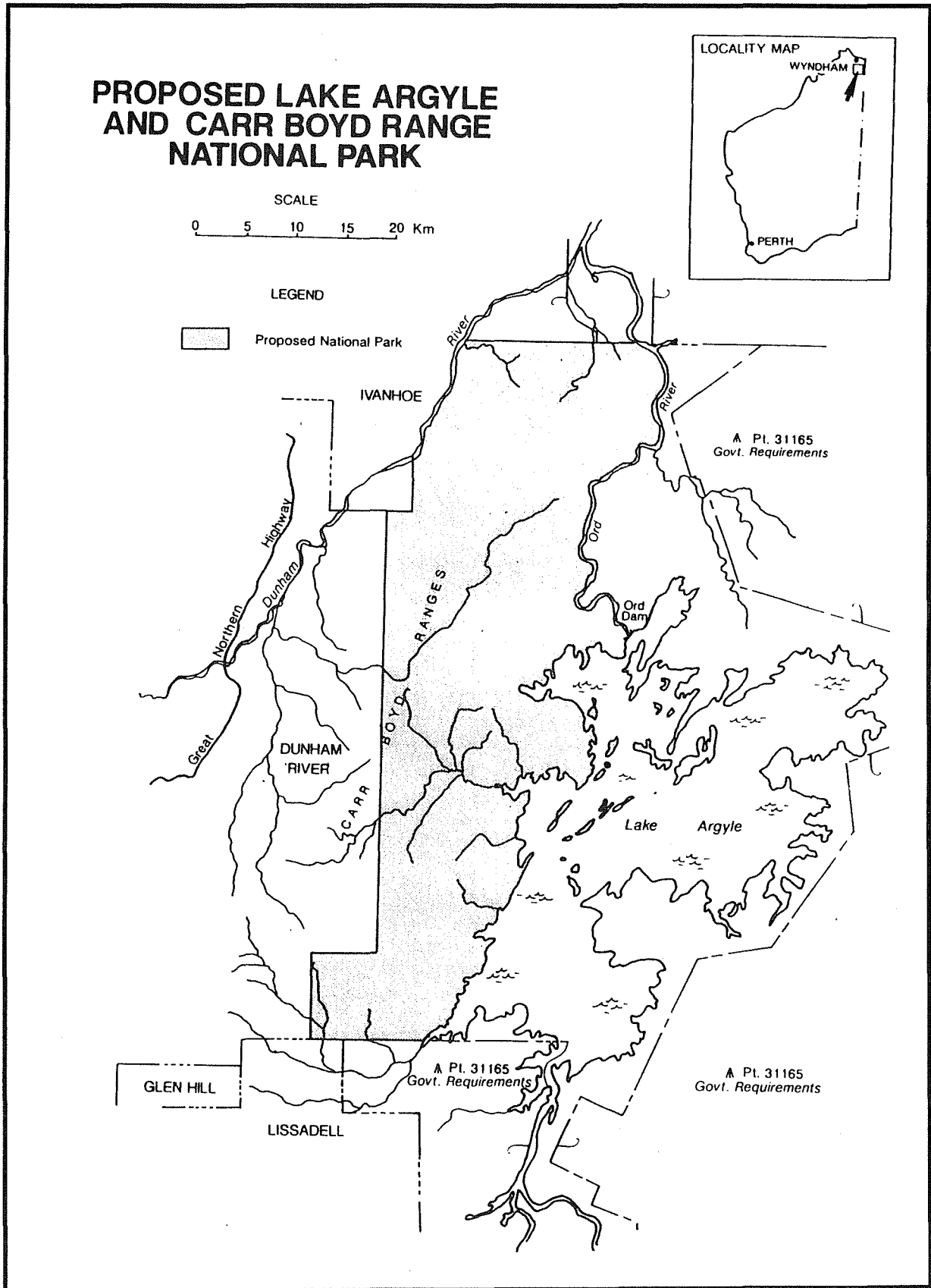


Figure 2: Proposed Lake Argyle and Carr Boyd Range National Park

Flora and fauna

No animal plant species, listed as rare or endangered were recorded during the current survey (Blandford & Associates, 1994 b).

3.3.3 Views of relevant agencies

CALM has indicated in its submission that Option Q is the least desirable option. The visual impacts of a powerline, associated swathe and track (which could be continually assessed by recreational 4WD's despite best efforts) located diagonally across the proposed Carr Boyd Range National Park would not be welcome as it would compromise a large area with high quality wilderness values.

The DEP raised the issue that this route was also identified in the original Public Environmental Review (PER) document (September 1991) by Argyle Diamond Mines, as the most direct route to the ADM. In this document it is stated that the extremely rugged nature of the northern part of the Carr Boyd Ranges has suffered little disturbance by grazing and this makes the route undesirable because of the potential environmental impact. This route would require a semi-permanent access track to be constructed in an identifiable wilderness area. The document went on further to say that the elevated location would increase the risk of lightning strikes and because of the increased vegetation as a result of minimal grazing, there would be an adverse impact from increased incidence of fires (PER, 1991).

3.3.4 Proponent's response to submissions

The proponent considered that as there is very little vegetation on the inland route, no swathe will be created in the sense that it has occurred elsewhere. The proponent indicated that there will inevitably be disturbance to the ground along any route but an examination of, for example, the Dampier-Tom Price-Paraburdoo transmission line will illustrate how effectively natural revegetation occurs.

The proponent further considered that a significant increase in public access would be questionable as access to the line route from the north is barred by the Carr Boyd Range itself and on the west side is totally screened by the Ragged Range. The exception is the Glen Hill-Revolver Creek track which already exists and can be effectively blocked after construction.

The proponent in response to the issue raised by the DEP concluded that while the route had been identified by a consortium member in 1986, it had not been appropriate to comment on it given the consortium's initial decision to stay with the previously "approved" route. However, as other routes are now under consideration the proponent indicates that there is evidence of cattle grazing, particularly around Revolver Creek and that a major track has been graded into the area by the Glen Hills community to muster and transport cattle.

With regards to lightning, the proponent considers that vulnerability to lightning may increase on the routes proposed, but that lightning is dependent on isoceraunic level (number of thunder days/year, exposure (by virtue of height without screening), soil resistivity and length of line. The proponent, also points out that both the "inland" and "shoreline" routes are shorter than the approved route to the ADM which will reduce the number of lightning strikes per year.

3.3.5 Evaluation

As with Option P, the principal matter of environmental concern is that this proposed transmission route will traverse the proposed Carr Boyd National Park. This raises issues of protection of the park from physical incursions and degradation, as well as protection of flora and fauna, the wilderness aspects and the visual amenity. Other issues of concern to the Authority include access difficulties given sections of rugged terrain and the fact that detailed investigation of the route has not been undertaken.

The Authority also notes that there are Aboriginal heritage sites in the valley along Flying Fox Creek and that this alternative route for the transmission line has not been discussed with the Aboriginal people.

The Authority does not consider this route to be environmentally acceptable.

3.4 Other issues

3.4.1 Aboriginal issues

The alternative routes subject to this amendment are currently being surveyed to obtain heritage site avoidance. Completion of this report is anticipated before the end of October.

Commitments given by the proponent include undertakings to liaise with Aboriginal communities, and to comply with obligations under the Western Australian Aboriginal Heritage Act 1972-1980 (Commitment 4).

3.5 Changes to commitments

In Bulletin 756, the proponent's commitments were revised and expanded as a consequence of a new proponent, amendments to the Environmental Protection Act and changes to the proposal. Commitment 15 has been modified as a consequence of this Section 46 addendum and relates to the proponent consulting with CALM in the final route selection through the proposed Carr Boyd National Park. The revised commitments are presented in Appendix 3 for ease of reference.

4. Discussion and synthesis

The majority of issues which need to be addressed have not changed since the previous assessment (Bulletins 615 and 756).

Based on limited information available to the Authority, Option R and P have been found to be environmentally acceptable. The final acceptability of Option P, however, will rely on the final alignment being determined in consultation with CALM. The Authority also considers that Options P and R can be properly managed during construction to minimise adverse environmental impact.

Based on limited information, Option Q has been found to be environmentally unacceptable. This is primarily based on the impact the transmission line will have on the proposed National Park, visual amenity and wilderness reasons.

5. Conclusions and recommendations

The Environmental Protection Authority has examined the proposal and the commitments to environmental management of the proponent and has sought advice from relevant governmental and private agencies. It is satisfied that, using information currently available, the following recommendation may be made to the Minister for the Environment.

The Environmental Protection Authority concludes that the proposed transmission lines Options R, P to be environmentally acceptable, however, the final alignment of P will be undertaken in consultation with CALM. The EPA further concludes that Option Q, based on available information, is not environmentally acceptable.

The EPA recommends that the Environmental Statement for the proposal 29 April 1992 should be updated to reflect changes and to include standard conditions to more effective project

management. The proponent should fulfil the commitments made and implement the environmental management measures as updated through this re-assessment of the proposal.

Recommendation 1

The Environmental Protection Authority concludes that the proposal by Ord Hydro Consortium for Options R and P of the Proposed Changes to Environmental Conditions to the Ord River Dam Hydro Power Project are environmentally acceptable.

In reaching this conclusion the Environmental Protection Authority identified the main environmental factors requiring detailed consideration as:

- **the impact of the transmission line of the proposed Carr Boyd National Park;**
- **visual amenity;**
- **service access requirements;**
- **flora and fauna; and**
- **Aboriginal issues.**

The EPA concludes that the environmental factors mentioned above have been addressed adequately by either environmental management commitments given by the proponent or by the EPA's recommendations in this report.

Accordingly, the EPA recommends that the proposal could proceed subject to:

- **the EPA's recommendations in this assessment report; and**
- **the proponent's commitments.**

Recommendation 2

The Environmental Protection Authority concludes that the proposal by Ord Hydro Consortium for Option Q of the Proposed Changes to Environmental Conditions to the Ord River Dam Hydro Power Project is environmentally unacceptable and should not proceed.

The Authority has established an implementation and auditing system which requires the proponent to advise the Authority on how it would meet the requirements of the environmental conditions and commitments of the project. The proponent would be required to develop a Progress and Compliance Report for this project as a section of the recommended audit programmes.

The Authority's experience is that it is common for details of the proposal to alter through the detailed design and construction phase. In many cases alterations are not environmentally significant or have positive effects on the environmental performance of the project. The Authority believes that such non-substantial changes, and especially those which improve the environmental performance and protection, should be provided for.

The Authority believes that any approval for the proposal based on this assessment should be limited to five years. Accordingly, if the proposal has not been substantially commenced within five years of the date of this report, then such approval should lapse. After that time, further consideration of the proposal should occur only following a new referral to the Authority.

6. Recommended environmental conditions

Based on its assessment of this proposal and recommendations in this report, the Environmental Protection Authority considers that the following Recommended Environmental Conditions are appropriate.

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

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 additional power line routes to Kununurra and Argyle Diamond Mine, but excluding Option Route Q (Power Station to Argyle Diamond Mine Inland Route) described in the proponent's documents of June 1994 and October 1994, the proponent shall fulfil the commitments made in the proponent's document of June 1994 and in response to issues raised following public submissions and the commitments published in Environmental Protection Authority Bulletin 615 as modified and published in Bulletin 756 and modified and published in Bulletin 759; provided that the commitments are not inconsistent with the conditions or procedures contained in this statement. These commitments are consolidated in Environmental Protection Authority Bulletin 756 as Appendix 4. (A copy of the modified commitments of 1994 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. 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 on the advice of the Environmental Protection Authority, is not substantial, those changes may be effected.

3 Weed Control

- 3-1 Prior to construction of the transmission line, the proponent shall ensure that appropriate plans are developed and implemented to ensure that operations do not introduce potentially harmful species, including contamination by water-borne declared plant seeds, to meet the requirements of the Department of Environmental Protection on advice of the Agriculture Protection Board.

- 3-2 In addition to the requirements of condition 3-1, where operations may affect the proposed National Park, the proponent shall ensure that plans are developed and implemented to ensure that operations do not introduce potentially harmful species, including contamination by water-borne declared plant seeds, to meet the requirements of the Department of Environmental Protection on advice of the Department of Conservation and Land Management.

4 Borrow pits and quarries

- 4-1 Prior to the commencement of earthworks at each proposed borrow pit or quarry site, the proponent shall obtain approval from the Water Authority of Western Australia, the Western Australian Department of Minerals and Energy and the Shire of Wyndham - East Kimberley for their locations.
- 4-2 In addition to the requirements of condition 4-1, where operations may affect the proposed National Park, the proponent shall obtain the approval of the Department of Conservation and Land Management for the location of borrow pits or quarry sites.

5 Future use of transmission line

- 5-1 Not less than six months before the closure of the mine, the proponent shall refer to the Environmental Protection Authority a programme to remove the transmission line and rehabilitate the transmission line easement, or alternative proposals for its further use.

6 Proponent

These conditions legally apply to the nominated proponent.

- 6-1 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.

7 Time limit on approval

The environmental approval for the proposal is limited.

- 7-1 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 the statement of 29 April 1992 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.)

8 Compliance auditing

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

- 8-1 The proponent, in consultation with the Department of Environmental Protection, shall prepare an Audit Programme, which includes requirements for the preparation of periodic Compliance Reports.
- 8-2 The proponent shall subsequently implement the Audit Programme required by condition 8-1.

The proponent may include the compliance reporting as part of the environmental reporting obligations pursuant to the Ord River Hydro Energy Agreement.

9 Decommissioning

The satisfactory decommissioning of the project, removal of the plant and installations and rehabilitation of the site and its environs is the responsibility of the proponent.

9-1 At least six months prior to decommissioning, the proponent shall prepare a decommissioning and rehabilitation plan.

9-2 The proponent shall implement the plan required by condition 9-1.

Procedure

- 1 The Department of Environmental Protection 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.
- 2 If the Department of Environmental Protection, 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.

8. References

Argyle Diamond Mines Joint Venture, September 1991, *Ord River Hydro-Electric Project, Public Environmental Review*.

Blandford D.C & Associates Pty Ltd, 1994 (a), *Ord River Dam Hydro Power Project, Addendum To Proposed Changes To Environmental Conditions (Including Powerline To Kununurra)*.

Blandford D.C & Associates Pty Ltd, 1994 (b), *Ord River Dam Hydro Power Project, Proposed Changes to Environmental Conditions (Including Power Line To Kununurra)*.

Environmental Protection Authority, 1992, *Ord River Hydro-electric Project, Report and Recommendations of the Environmental Protection Authority, Bulletin 615*, EPA, Perth, Western Australia.

Environmental Protection Authority, 1980, *Conservation Reserves For Western Australia, System 7*, EPA, Perth, Western Australia.

Environmental Protection Authority, 1994, *Ord River Dam Hydro Power Project, Proposed Changes to Environmental Conditions, Report and Recommendations of the Environmental Protection Authority, Bulletin 756*, EPA, Perth, Western Australia.

Appendix 1

Environmental Statement - April 1992



WESTERN AUSTRALIA
MINISTER FOR THE ENVIRONMENT

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

ORD RIVER HYDRO-ELECTRIC PROJECT (390)

ARGYLE DIAMOND MINES PTY LIMITED

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.

- 1-1 In implementing the proposal, the proponent shall fulfil the commitments (which are not inconsistent with the conditions or procedures contained in this statement) made and included in Environmental Protection Authority Bulletin 615. (A copy of the commitments is attached.)

2 Detailed 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. 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 on the advice of the Environmental Protection Authority, is not substantial, those changes may be effected.

3 Weed Control

- 3-1 Prior to construction of the transmission line, the proponent shall ensure that appropriate plans are developed and implemented to ensure that operations do not introduce potentially harmful species, including contamination by water-borne declared plant seeds, to the satisfaction of the Agriculture Protection Board.
- 3-2 In addition to the requirements of condition 3-1, where operations may affect the proposed National Park, the proponent shall ensure that plans are developed and implemented to ensure that operations do not introduce potentially harmful species, including contamination by water-borne declared plant seeds, to the satisfaction of the Department of Conservation and Land Management.

Published on
29 APR 1992

4 Borrow Pits and Quarries

- 4-1 Prior to the commencement of earthworks at each proposed borrow pit or quarry site, the proponent shall obtain approval from the Water Authority of Western Australia, the Western Australian Department of Mines and the Shire of Wyndham - East Kimberley for their locations.
- 4-2 In addition to the requirements of condition 4-1, where operations may affect the proposed National Park, the proponent shall obtain the approval of the Department of Conservation and Land Management for the location of borrow pits or quarry sites.

5 Future Use of Transmission Line

Not less than six months before the closure of the mine, the proponent shall refer to the Environmental Protection Authority a programme to remove the transmission line and rehabilitate the transmission line easement, or alternative proposals for its further use.

6 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.

7 Time Limit on Approval

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.)

8 Compliance Auditing

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

- 8-1 The proponent shall prepare periodic "Compliance Reports" to help verify the environmental performance or otherwise of this project, in consultation with and to the satisfaction of the Environmental Protection Authority. The proponent may include the compliance reporting as part of its environmental reporting obligations pursuant to the Diamonds (Argyle Diamond Mines Joint Venture) Agreement Act.

Procedure

The conditions contained in this statement are to be complied with to the satisfaction of the Environmental Protection Authority except where they are required to be carried out to the satisfaction of either the Minister for the Environment or any other government agency.

Should the Environmental Protection Authority, other government agency and/or proponent be unable to resolve any dispute that occurs concerning these conditions and commitments, that dispute will be determined by the Minister for the Environment.



Bob Pearce, MLA
MINISTER FOR THE ENVIRONMENT
29 APR 1992

Appendix 2

Summary of submissions and proponents response

Summary of submissions

Department of Conservation and Land Management

CALM in its submission indicated that Option Q is the least desirable option. The visual impacts of a powerline, associated swathe and track (which could be continually assessed by recreational 4WDs despite best efforts) located diagonally across the proposed Carr Boyd Range National Park would not be welcome as it would compromise a large area with high quality wilderness values.

CALM advised that the shoreline route (Option P) is preferable to the inland route because it has less visual impact problems. Visibility from Lake Argyle will be limited because of screening topography and the mountainous backdrop.

CALM recommended:

1. Of the two alternative routes the shoreline route is far the preferred route in terms of impact on the visual resources of the PCBRNP.
2. The final alignment of the power line within the selected corridor needs to take account of significant landscape, vegetation and flora, visual impacts and erosion hazards.
3. CALM needs to be included in discussions on the final alignment. This will require the involvement of experienced CALM professionals (including landscape architects) at the proponent's expense.
4. If the Glen Hill to Lake Argyle track is utilised for access for transmission line construction, there needs to be strict requirements for rehabilitation to a standard that encourages rapid regeneration and does not allow subsequent traffic to use it.

Department of Land Administration

DOLA, in its submission raised no objection to any of the alternative transmission line routes.

Main Roads Department

The Main Roads Department in its submission, did not raise any objections to the construction of a transmission line adjacent to Lake Argyle Road as proposed. Main Roads raise no objection to the construction of a transmission line adjacent to Victoria Highway, but would like to see the new line and existing line from Kununurra to the Emu Community put onto the same towers. Main Roads also consider that the offset from the edge of the seal of Victoria Highway and the centreline of the transmission line should be no less than 20m, which is the current offset for the SECWA line between Kununurra and Emu Creek.

National Parks and Nature Conservation Authority

The NPNCA in its submission concluded:

1. the feasibility of locating the powerline under water should be given consideration as an alternative
2. The lakeside route is the preferred route of this Authority from a landscape perspective and for the potential to minimise disturbance of biological values of the area. The NPNCA considers that the other two alignments would diminish the wilderness, biological and landscape values of the proposed Carr Boyd Range National Park. Should either of these latter two routes be selected then this Authority and CALM should be further consulted on the alignment.
3. Experienced landscape professionals should be consulted, at the proponents expense, in order to ensure the integration of the line into the natural environment with minimal visual intrusion.

4. the proponents should be required to rehabilitate the area after completion of the operations to an acceptable standard and to ensure that no public traffic access is possible.

State Energy Commission of Western Australia

SECWA in its submission concurred with the discussion on route options and the specific commitments

Shire of Wyndham and East Kimberley

The Shire in its submission raised no objection to any of the alternative transmission line routes.

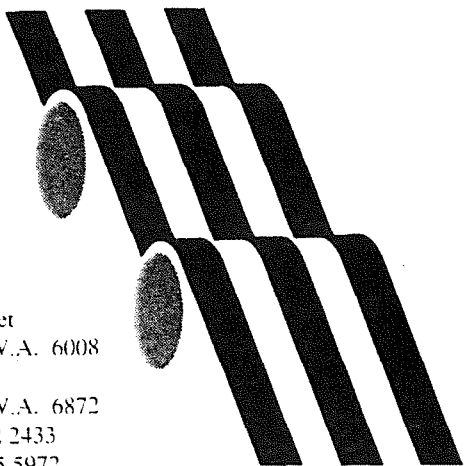
Water Authority of Western Australia

The WAWA in its submission indicated that where Route P follows Lake Argyle, the line would be situated with the poles at about RL 100 with the power lines having ground clearance above this level. The WAWA considers that as water levels reach the RL 100 mark with an annual frequency of less than 0.01, the proponent would need to assess the impact of this frequency of flooding on the performance of the transmission line. The WAWA also considers that for any such development close to the water line, assurances would need to be sought from the proponent regarding management of route access, erosion and similar issues which have the potential to impact the reservoir.

Public

Lake Argyle is becoming increasingly popular as a tourist attraction because of its spectacular scenery and abundance of wildlife. Some of the boat cruises run to the backwaters of the western shoreline to view the scenery and wildlife, especially Revolver Creek. Future development of tourism on the lake will mean more visitors viewing these areas. Option P means that transmission lines will run along much of the western shoreline of the Lake and will pass directly over the backwaters of Pint Pot Bay, Ulysees Bay (Revolver Creek), Hole in the Wall and Kangaroo Creek. The transmission line will impact on the visual amenity, particularly in these backwater areas.

ORD HYDRO CONSORTIUM



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Pacific Hydro Limited
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RAS:JAG:1260:02:57:3

24 October 1994

Department of Environmental Protection
Westralia Square
141 St George's Terrace
PERTH WA 6000

Attention: Mr Colin Murray/Ms Juliet Cole

Dear Sir/Madam

ORD RIVER DAM HYDRO PROJECT OCTOBER ADDENDUM TO SECTION 46 APPLICATION

The following addresses the submissions received following issue of the addendum on Monday 17 October.

Main Roads Dept

The concept of an alignment following Lake Argyle Road has been discussed with the Shire Clerk who advised that although the matter had not at that time been placed before Council, there were very unlikely to be any objections.

We appreciate MRD agreement to an alignment alongside the highway and will maintain at least 20m clearance from the edge of the sealed carriageway. Despite initial favourable indications, SECWA have stated that they would not allow joint construction of their line and ours on common poles. However, in recent weeks they have asked us to reconsider joint construction from Lily Creek into the power station as a low cost alternative to other measures being considered by them.

Between Lily Creek and Emu Springs there appears to be no reason why we cannot construct a separate 132kV line and still remain 20m or more from the seal. The Commission have said that if there are areas where this cannot be achieved they will move their line to allow the clearance to be maintained.

Department of Environmental Protection

The PER submitted by Argyle Diamond Mines states that the route option through the Carr Boyd Ranges (previously identified by SECWA) was not pursued because

- the northern part is little affected by grazing and is therefore an identifiable wilderness
- the elevated location would increase the risk of lightning strikes

This route was in fact identified by a Consortium member in 1986 but it has been inappropriate to comment on it since the Consortium's initial decision to stay with the previously "approved" route. Now that other routes to the diamond mine are under consideration we comment as follows:

- within the constraints of limited feedstuff, there is evidence of cattle grazing. There is ample evidence around Revolver Creek and no physical barriers exist to cattle movements up into the valleys to its north.
A major track has been graded into the area by the Glen Hills community to muster and transport cattle.
- vulnerability to lightning strikes is dependent upon a number of factors, of which those naturally occurring and relevant to this system are
 - isoceraunic level
 - exposure (by virtue of height without screening)
 - soil resistivity
 - length of line

Isoceraunic level is a regional phenomenon and can be considered constant throughout the area around the dam and to the west. Exposure and soil resistivity are both likely to be less favourable on the alternative routes but we believe that exposure will be more pronounced on the shoreline route than on what we have termed the "inland" route which crosses the Range. In short we agree that vulnerability to lightning may increase on the routes we are now having to investigate, and the result will probably be an increase in the cost of line construction to offset it and maintain forecast levels of reliability. This additional expenditure will be smaller if the "inland" route can be negotiated.

Both in "inland" and "shoreline" routes are shorter than the approved route to the Argyle diamond mine which will reduce the number of lightning strikes per year.

National Parks and Nature Conservation Authority
Department of Conservation & Land Management

These responses focus on spatial and visual intrusion into the proposed National Park, citing an associated swathe and access track as contributory elements.

There is very little vegetation on the inland routes, therefore no swathe will be created in the sense that it has occurred elsewhere. There will inevitably be disturbance to the ground along any route but an examination of, for example, the Dampier-Tom Price-Paraburdoo transmission line will illustrate how effectively natural revegetation occurs.

We would query whether, even in the short term, the transmission line will increase public access significantly. Access to the line route from the north is barred by the Carr Boyd Range itself and on the west side is totally screened by the Ragged Range. The exception is the Glen Hill-Revolver Creek track which already exists and can be effectively blocked after construction.

It also seems to be a matter of conjecture whether the increased public enjoyment of the area will arise from access by boat from the lake or by four wheel drive.

Erosion along the lake shore could well be a greater source of visual depletion than inland, but whichever route is adopted all reasonable steps will be taken to avoid the creation of erosive water

courses. The engineering constraints posed by the shoreline route will reduce our flexibility in detailed line design and pole positioning, compared with that which would be available to us on the inland route. However the participation of landscape professionals from CALM will be welcomed to minimise visual impact as far as possible on either route.

The location of the power line under water was considered in the 1991 PER and rejected as being uneconomic and environmentally unacceptable. These conditions still apply.

State Energy Commission

No comment required.

Lake Argyle Cruises

The water line view of the power line from Pint Pot Bay will be heavily impeded by fringing vegetation, dead trees in the water and the surrounding hillocks and ridges which will screen the line. Furthermore the line will be against a backdrop of a 100 metre high escarpment and being of similar colour will be barely visible.

The line crossing of the backwaters of Ulysses Bay (Revolver Creek) is again well away from navigable waters and is hidden by two groups of ridges which run down towards Revolver Creek. It is expected that the visual impact will be small.

The attached Plates 11 and 12 show the terrain crossing Revolver Creek in more detail with the proposed line route sketched in. It should be noted that the Lake level is currently at about 87 metres which is the long term average level.

At Hole-in-the-Wall and Kangaroo Creek careful siting of poles will minimise the impact however along this area the line is exposed to the lakeshore. Further detailed mapping may reveal small route changes which can mitigate these impacts.

The Consortium has undertaken to design for minimum visual effect and to consult with CALM regarding these aspects.

Water Authority of Western Australia

The Consortium confirms its intention to situate poles at about 100AHD or higher and accepts responsibility for performance of the transmission line.

The Consortium will continue close consultation with the Water Authority on design, construction and access issues.

Our addendum document sets out the reasons for requiring alternative routes in order to maintain flexibility in dealing with Aboriginal Heritage issues. We would again stress the need for gaining approval for both the shoreline and inland routes as the Heritage survey of the shoreline route is not expected to be complete until the end of October.

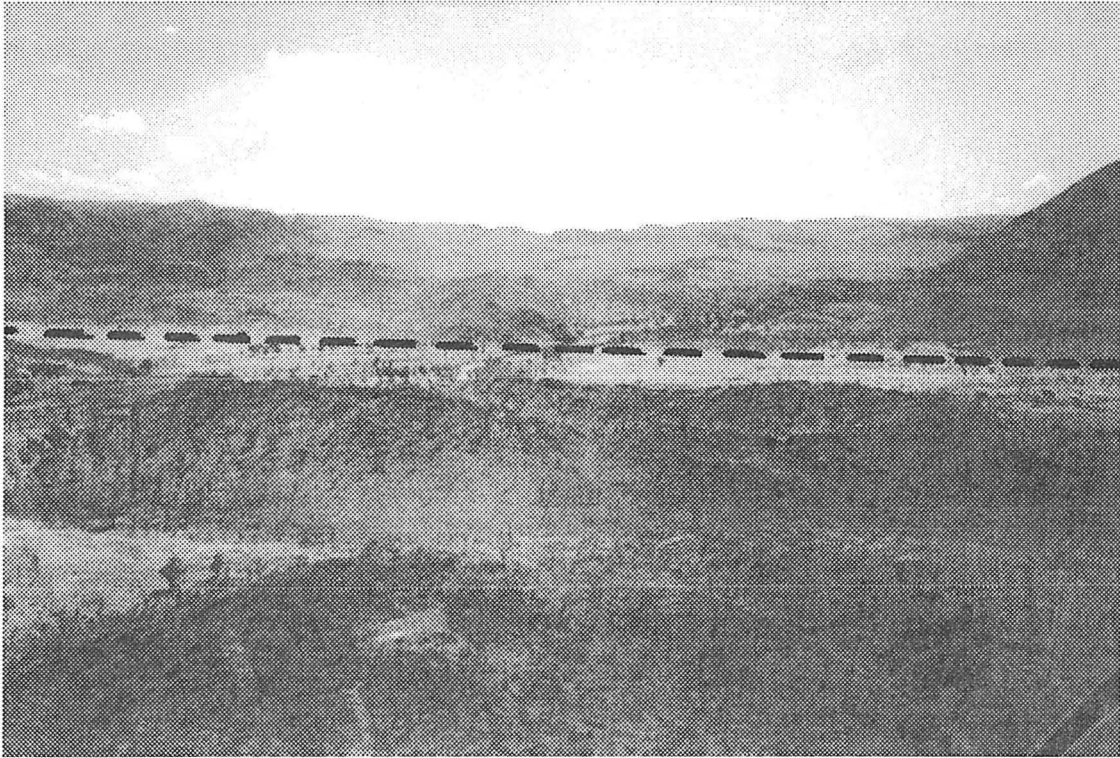
Thank you for your prompt attention to these matters.

Yours faithfully

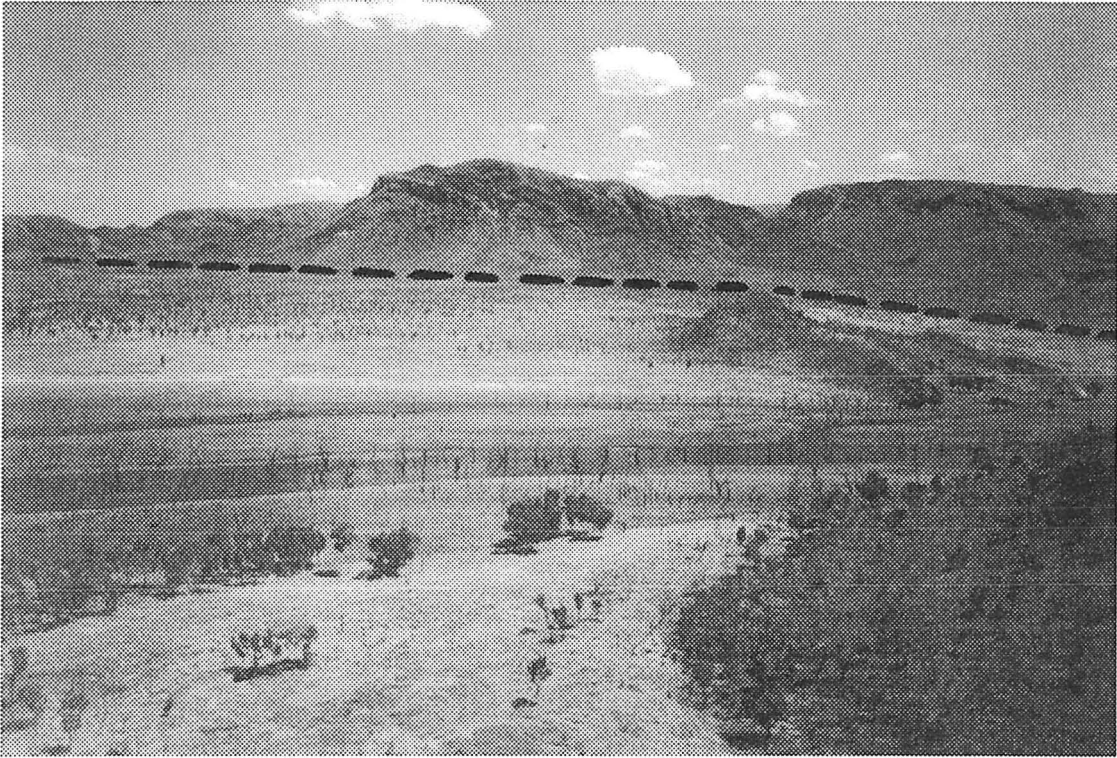


R A Steele
for ORD HYDRO CONSORTIUM

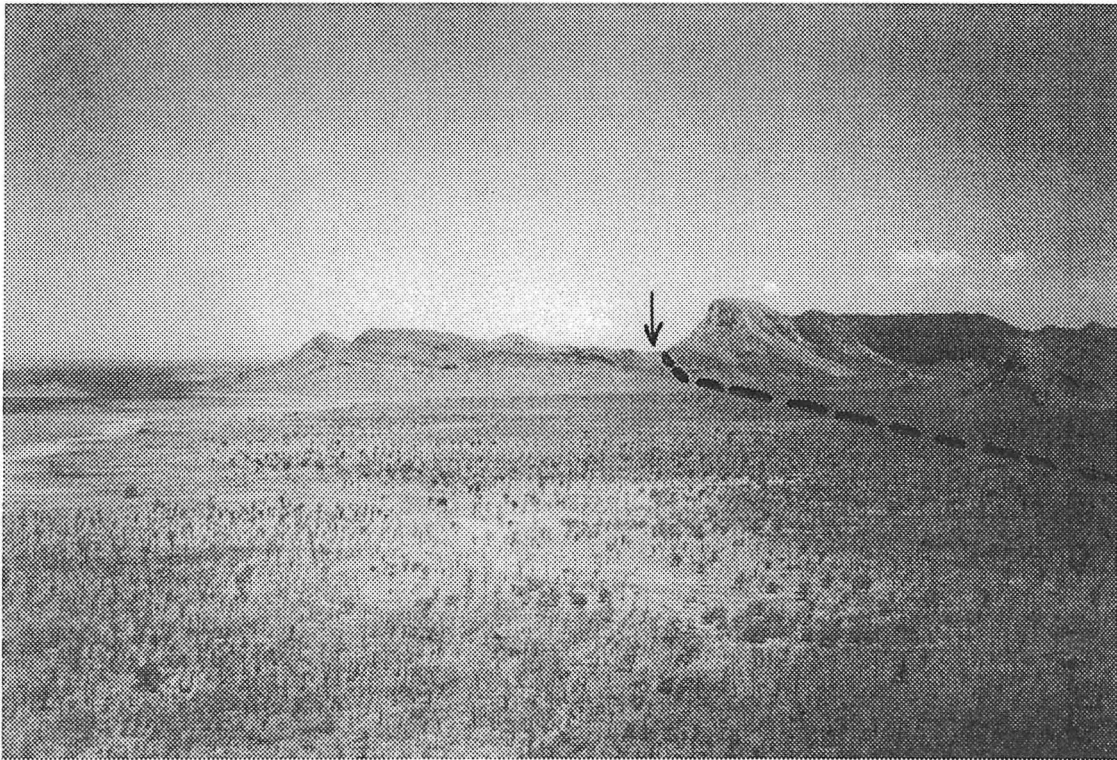
Atts.



Revolver Creek crossing



View south from Revolver Creek crossing



View south from Revolver Creek.
Power line crosses saddle indicated by arrow

Appendix 3

Commitments

1994 Commitments

The Ord Hydro Consortium is committed to a programme of environmental management and protection. Specific commitments to environmental management and protection are as follows:

1. The environmental management programme and associated works will be carried out to the satisfaction of the DEP on advice from WAWA and SECWA and in accordance with practices relevant at the time
2. The consortium is committed to a programme of rehabilitation of areas disturbed during project construction. Rehabilitation works will be designed on a site-specific basis and will generally include, where appropriate, soil erosion control works, surface re-shaping, drainage control, surface stabilisation, and habitat restoration.
3. The switching station will be located in an abandoned borrow pit, and any additional disturbance will be subject to a site-specific rehabilitation programme.
4. A continual programme of liaison and consultation will be carried out with the Doon Doon, Glen Hill and other relevant local communities during the construction phase of the project. In addition to this liaison programme, the proponent has established a consultation process with the Kununurra region Aboriginal communities via the Aboriginal Legal Service. The consortium will control the movement of the workforce on pastoral leases and the use of off-road vehicles by project personnel for recreational purposes will not be permitted during construction of the power line. Contractors will be advised of their obligations under the *Western Australian Aboriginal Heritage Act 1972-1980*
5. Blasting, when necessary, will be restricted to daylight hours.
6. The construction site will be cleaned up by the contractor prior to leaving the site. All construction and industrial waste will be removed to a waste disposal site that will be selected, designed, and operated in accordance with standard waste disposal practices.
7. The consortium will require all contractors to comply with statutory regulations for the control of noise in the workplace.
8. During the construction period, there will be periods of heavy traffic use on various sections of roads in and around the dam and spillway area. Traffic management and control will be undertaken at all times during these periods by the project managers
9. All vehicles used in construction of the transmission line will be equipped with fire extinguishers and knap-sack sprays in case of accidental fire.
10. Explosives will only be used for foundation preparation where ground conditions do not permit drilling or augering
11. All foundation holes will be kept covered prior to pole erection to prevent injury to stock or native fauna.
12. Sites for laydown areas will be selected so that disturbance to the environment is minimised.
13. Each construction camp for the transmission line will be sited to ensure that there will be no impacts on ground or surface water resources.
14. Construction camp sites along the route north to Kununurra will be located in areas of prior disturbance where possible, or in areas subject to contemporary land degradation such as sheet erosion. Each camp site will be subject to closely controlled environmental management guidelines.
15. The Department of Conservation and Land Management will be consulted in the final route selection through the proposed Lake Argyle Carr Boyd Range National Park. In addition, the consortium is committed to sound construction management principles for the powerline, which, together with design, will minimise visual impacts. The consortium will discuss with station managers, the aspect of transmission line visibility in relation to aerial mustering.

16. At an appropriate time, the consortium will liaise with SECWA and WAWA on relative alternative uses for the power and associated infrastructure. In addition, the consortium will advise the DEP of ongoing uses for the power line.

17. An induction programme will be conducted during construction and operation to promote environmental awareness amongst employees and contractors.

18. An Environmental Management Programme containing these commitments and the works detailed in Section 8 of Bulletin 756, will be designed and carried out by the proponent in consultation with, and to the satisfaction of, the DEP.

19. The operators of the power line will be made aware of the requirements of the Land and Soil Conservation Act 1983 with regard to access tracks.

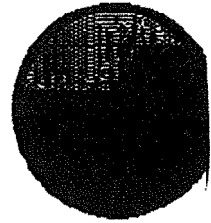
Appendix 4

Advice from the Department of Conservation and Land Management

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

HEAD OFFICE
HACKETT DRIVE CRAWLEY
WESTERN AUSTRALIA
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STATE OPERATIONS HEADQUARTERS
60 HAYMAN ROAD COMO
WESTERN AUSTRALIA
Phone (09) 334 0333
Facsimile (09) 334 0400



Please address all correspondence to Executive Director, P.O. Box 104, COMO W.A. 6162

Your Ref:

Our Ref: 013089F2305

Enquiries: Mr N Caporn

Phone: 334 0388

[Chief Executive Officer
Department of Environmental Protection
Westralia Square
141 St George's Tce
L PERTH WA 6000]

Attention: Juliet Cole

ORD HYDRO PROJECT - ADDITIONAL ROUTE PROPOSAL

I refer to the document titled "*Addendum to Proposed Changes to Environmental Conditions (Including Power Line to Kununurra)*" tabled at the meeting at DEP on Monday 17 October.

Given the time constraints, CALM's assessment of impacts on these additional routes was limited to a fly over by the Regional Manager and review of the information supplied in the above document.

Accordingly this response is confined to general comment on the relative merits of each route and procedures which may be required to mitigate impacts on the selected route.

Impacts on visual resources

CALM is primarily concerned with the impacts on the high scenic/wilderness values of the proposed Carr Boyd Range National Park (PCBRNP). PCBRNP will be a valuable tourism resource and impacts on these values need to be carefully considered. As the life of the Argyle Diamond Mine (ADM) is limited to approximately seven years, alternative resources for the region's economic future, such as PCBRNP, need to be considered.

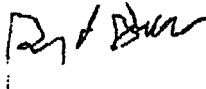
CALM accepted the original route on the basis that it has the least impact on the PCBRNP both spatially and visually. However, given the objections by the traditional Aboriginal owners to this route on cultural grounds, CALM understands the need to identify an alternative route.

Of the two alternative routes through PCBRNP the inland route is by far the least desirable. The visual impacts of a powerline, associated swathe and track (which could be continually accessed by recreational 4WD's despite best efforts) located diagonally across the PCBRNP would not be welcome as it would compromise a large area with high quality wilderness values.

The shoreline route is preferable to the inland route because it has less visual impact problems. Visibility from Lake Argyle will be limited because of screening topography and the mountainous backdrop.

Recommendations

1. Of the two alternative routes the shoreline route is by far the preferred route in terms of impact on the visual resources of the PCBRNP.
2. The final alignment of the power line within the selected corridor needs to take account of significant landscape, vegetation and flora, visual impacts and erosion hazards.
3. CALM needs to be included in discussions on the final alignment. This will require the involvement of experienced CALM professionals (including landscape architects) at the proponent's expense.
4. If the Glen Hill to Lake Argyle track is utilised for access for transmission line construction, there needs to be strict requirements for rehabilitation to a standard that encourages rapid regeneration and does not allow subsequent traffic to use it.



Syd Shea
EXECUTIVE DIRECTOR

21 October 1994

Appendix 5

Advice from the National Parks and Nature Conservation Authority



National Parks and
Nature Conservation Authority

Chairman
Environmental Protection Authority
Westralia Square
141 St George's Terrace
PERTH WA 6001

Attention: Juliet Cole

Dear Sir

ORD RIVER HYDRO ENERGY PROJECT - PROPOSED CHANGES TO ENVIRONMENTAL CONDITIONS

I refer to the meeting held at the Department of Environmental Protection on Monday 17 October attended by Mrs Marion Blackwell of this Authority in relation to the re-routing of the proposed transmission line to Kununurra. The document provided at that meeting - '*Addendum to Proposed Changes to Environmental Conditions, Including Power Line to Kununurra*' has been reviewed in the time constraints imposed for comment. The National Parks and Nature Conservation Authority (NPNCA) submits the following in relation to the report and the proposed alignments contained therein:

1. The feasibility of locating the powerline under water should be given consideration as an alternative.
2. The lakeside route is the preferred route of this Authority from a landscape perspective and for the potential to minimise disturbance of biological values of the area. The NPNCA considers that the other two alignments would diminish the wilderness, biological and landscape values of the proposed Carr Boyd National Park. Should either of these latter two routes be selected then this Authority and CALM should be further consulted on the alignment.
3. Experienced landscape professionals should be consulted, at the proponents expense, in order to ensure the integration of the line into the natural environment with minimal visual obstruction. CALM has experienced landscape professionals on their staff who should be involved in this regard.
4. The proponents should be required to rehabilitate the area after completion of the operations to an acceptable standard and to ensure that no public traffic access is possible.

Yours sincerely

Tom Day
ACTING CHAIRMAN