A CO-OPERATIVE APPROACH TO ENVIRONMENTAL ASSESSMENT, REGULATION AND MANAGEMENT FOR MINING OPERATIONS IN WESTERN AUSTRALIA[1]

by

Keith Lindbeck[2]

&

Colin Murray[3]

ABSTRACT

Western Australia encompasses one third of Australia (ie. equivalent to the western third of the USA) in which about 650 mining operations are active. With limited assessment (permitting) and regulatory staff available in the Environmental Protection Authority (EPA) and the Department of Minerals and Energy (DOME) a co-operative approach, backed by legislative support, has enabled improved efficiency and effectiveness in environmental management at mining operations.

The EPA receives annually over 1,000 referrals for all classes of development projects in Western Australia (WA). The DOME receives on average 240 notices of intent (NOI) for mining proposals. By co-operation, the EPA now reviews less than 20 mining proposals annually with the remaining 220 assessed and regulated by DOME staff.

By use of memoranda of understanding and gazettal of exemptions, the EPA conditions for operations imposed on documents such as Works Approval and Pollution Licences now are imposed as mining tenement conditions by DOME. However, environmental protection provisions of the Environmental Protection Act can still be used if necessary.

This paper reviews the operations and relevant regulations for each authority and describes the shared role of each organisation.

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[2] Keith Lindbeck, Manager, Environment Section, Department of Minerals and Energy, Perth, Western Australia 6004

[3] Colin Murray, Acting Manager, Resource Development, Environmental Protection Authority, Perth, Western Australia 6000

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INTRODUCTION

This paper is intended to give the reader an understanding of Environmental Protection systems in Western Australia and the manner by which Environmental Regulation has developed particularly as it affects the Environmental Protection Authority (EPA) the Department of Minerals & Energy (DOME), and the minerals and resource industries.

In Western Australia the minerals belong to the Crown with the holder of an exploration title having the right to explore for the minerals. A lease holder has the right to mine the Crown minerals and pays a royalty to the Crown on all minerals except gold. In all but an extremely small number of cases, minerals under private (alienated) land title also belong to the Crown and require a mineral title to exploit them.

BACKGROUND

The Western Australian Mining Industry originally took off in the late 1890's with the development of the gold mining industry, and this particularly influenced the framing of the state's original Mining Act in 1904. That Act was directed towards the individual "digger" and sought to define a method of dispute resolution and mineral title administration. The 1904 Mining Act remained current through to the late 1970's.

A review of the 1904 Mining Act lead to the enactment of a new Mining Act in 1978 but because of controversy over access to freehold land, the new Act did not come into operation until 1982.

The State first introduced a specific Environmental Protection (EP) Act in 1971. This established, amongst other things, the opportunity for environmental assessment of development proposals and a new Department of Conservation and Environment was established to administer this Act.

In 1986 the state overhauled its environmental protection procedures, introducing a revised Environmental Protection Act and gave the Minister for the Environment power to set legally binding conditions on proponents. Like its predecessor, the 1986 Act was given precedence over all other legislation, with the exception of a few State Agreement Acts which predated the 1971 Environmental Protection Act.

At the time of enactment of the 1986 EP Act, a commitment was made to review the Act after five years. This process is currently underway.

CO-OPERATION IN ENVIRONMENTAL MANAGEMENT

This paper has been structured to give the legislative background to environmental assessment, regulation and management and to explain how the two agencies associated with the majority of resource developments in Western Australia interact. This interaction is heavily dependent on the co-operation of these agencies and especially of individuals within the agencies. However as you will appreciate, with responsibility for separate pieces of legislation, each agency approaches a particular issue from a different perspective. Notwithstanding this, it is important that the agencies maintain contact with each other to ensure that the best environmental solution is achieved in all cases.

THE ENVIRONMENTAL PROTECTION AUTHORITY - AN INDEPENDENT ADVISER

Because of the statutory independence of its advisory role, the Western Australian EPA is unique in Australia, (though several other State's recently have established or are investigating the establishment of similar bodies).

The EPA has the job of "ensuring that the environment stays good or gets better", and it does this through three main functions:

1. Recommending to Government, statutory policies for the protection of the environment.

2. Assessing new proposals which if implemented would have the potential to significantly affect the environment, and advising Government on the environmental acceptability of the proposals.

3. Controlling existing activities that have a potential to cause pollution.

The legislation under which the EPA operates is just under six years old, so it has the advantage of having learnt from older legislation. The disadvantage of a few teething problems can be expected to be resolved with the progress of this current first review.

Statutory Policy Advisers

The Act provides for the development of Environmental Protection Policies (EPP) to protect specific parts of the environment or control special pollutants. The EPA is only just starting to use this part of the Act. For example there are EPP's in place to control atmospheric sulphur dioxide levels, to control CFC's (and encourage their recycling), another is being developed to control the levels of sulphide dioxide and particulates at an industrial area near Perth and also others are in preparation to protect the wetlands and groundwater of the coastal plain north and south of the City of Perth.

Independent Proposal Assessor and Adviser

The EPA receives new development proposals for assessment, reviews them and advises government of their acceptability. The EPA is required to assess all proposals which may have a significant effect on the environment and has powers to call them in if necessary. Further, any other Minister or approving agency (like DOME) is required to refer all such proposals to the EPA for consideration. The Minister for the Environment can also require the EPA to assess proposals. In fact anyone can refer a proposal to the EPA.

Where projects require statutory (formal) assessment, there are three levels that this may encompass: a Consultative Environmental Review (CER); a Public Environmental Review (PER); and an Environmental Review and Management Programme (ERMP).

The EPA determines the level of assessment. Anyone who disagrees with the EPA's decision about the level of assessment can appeal to the Minister for the Environment, but the Minister is empowered only to increase the level of assessment or leave it at the nominated level. He does not have the power to decrease the level or direct that a proposal not be assessed.

A CER is used for proposals with environmental impacts which are relatively easily managed and of mainly local interest. The review period for CER is usually four weeks. Public input is sought at the local level and through groups known to have an interest in the proposal, as well as interested government agencies, neighbours and the local government authority.

Larger projects that have the potential to impact on neighbouring communities are subject to a PER. Here the proposal is advertised widely and input is sought from the general community as well as agencies directly affected. The review period for a PER is eight weeks. For major projects with a significant impact on the environment, the level of assessment is an ERMP. This requires preparation of a detailed document with baseline data collection, modelling of impacts and detailed site selection analyses. This could take up to twelve months

to prepare and an ERMP has a ten week public review period.

The method of referral in Western Australia leads to a much greater number of proposals being referred to the EPA (around 1,000 per year) than in other jurisdictions in Australia. In practice, 10% of these require formal assessment and most of those that are formally assessed are at the lowest level of assessment (for simple projects). Nevertheless, the rapid processing of so many referrals is an ongoing challenge and new and better ways of doing things are continuing to be considered.

Most of the 90%, while not "significant" enough to need "formal assessment", e.g. CER, PER or ERMP, have associated environmental implications and on these the EPA provides informal advice at officer level.

In some instances, the decision to not assess is based on a special understanding. A good example is the processing of exploration licence applications which impinge upon environmentally sensitive areas. Licence applications may sometimes be just a real estate exercise and in any event relatively few lead to ground-disturbing exploration and subsequent mining.

The elements of formal environmental assessment in Western Australia are similar to those elsewhere:

* Identification of the environmental issues and issuing of guidelines;
* preparation by the proponent of a document for review;
* public review of the document and receipt of submissions by the EPA;
* a written, public response by the proponent to submissions; and
* advice from the EPA to the Minister for the Environment in a public report.

Pollution Policemen

The role of environmental policemen is not unusual. The EPA has a system of prescribed premises which must be licensed. Construction of prescribed premises requires a Works Approval and the operation of the premises requires a Licence.

Both these approvals can have specific, binding performance conditions attached and those conditions can protect the environment and the licence holder, since emission within limits set by the licence do not constitute an offence.

Prescribed premises include a whole range of industries large and small and some parts of the mining industry. The EPA and DOME have recently reached a memorandum of understanding which transfers most of the day-to-day control of the mining industry to DOME, with the EPA retaining an auditing and if necessary, referral role. This aspect is highlighted later in the paper.

Helping the Developer to Protect the Environment

One of the most important aspects of the EPA's activities is the philosophy by which it operates. Clearly its task is to protect the environment, but the EPA is not looking to say "no" to development. Obviously, the EPA does sometimes say "no" but in these instances every effort is made to convey that message early in the assessment to avoid wasting everyone's time and money.

But that is not what environmental assessment is about. Rather the EPA views the assessment process as one in which EPA requires and assists the proponent to shape the development of the proposal so that the environment is protected.

THE DEPARTMENT OF MINERALS AND ENERGY

When a mining lease or a general purpose lease is granted under the Mining Act 1978 the lessee is required, under a condition on the lease, to forward a plan of operations and a programme to safeguard the environment (commonly called a Notice of Intent or NOI) to the State Mining Engineer (SME) for his assessment and approval to proceed.

On average the DOME received 160 proposals for mining operations or expansions to operations each year over the last 5 years but this has been increasing and is now running at around 300 annually. Where DOME considers a project has the potential for "a significant effect on the environment" it is forwarded to the EPA for assessment. In the financial year 1991-92, 213 proposals for mining were received varying from large open cut mines to small gold prospecting operations. Of these, approximately 70 were forwarded to the EPA, where eight were deemed to be of such significance that formal assessment under the EP Act was required.

The figures indicate that a large number of mining proposals in Western Australia are handled internally by DOME. This Department now has an Environment and Rehabilitation Section numbering ten staff. The group comprises two Environmental Officers stationed in each of three regional Inspectorate offices. The four remaining officers are located in Head Office in Perth. With Western Australia being 2.5 million square kilometres (965,250 square miles) in area, the three regional inspectorates cover enormous tracts of land and the staff travel great distances.

Co-operation in Environmental Assessment

Early in 1991 it was recognised by the EPA that DOME had made a significant improvement in environmental assessment capability by employing experienced staff to review, assess and regulate mining projects in the State. At that time the EPA was attempting to handle over 1,000 development projects on an annual basis and was gradually being overcome by the sheer numbers of projects being submitted. Liaison between the two organisations resulted in a memorandum of understanding (MOU) transferring the responsibility for the assessment of certain classes of projects to DOME. The memorandum of understanding is outlined in Appendix 1.

The MOU does not prevent DOME referring any project to the EPA for assessment or comment nor does it prevent the EPA requesting referral of any particular project to them for assessment.

The arrangements as set out in Appendix 1 did not greatly change the number of projects referred to the EPA. However it did enable the two authorities to set down clear parameters for the type of areas or project sizes which were of concern to the EPA.

Environmental Assessment under the Mining Act 1978

During the preparation of the NOI, the lessee is required to consult with the local pastoralist, if the lease is located on a pastoral station, the local Shire Council and any other authority or person directly affected by the proposed project. DOME prefers that negotiations with the pastoralist or Shire take place as early as possible or at least in advance of the final NOI being produced.

When the NOI is received by the Department it is reviewed by the Environmental Officer and the District Inspector of Mines who recommend environmental and rehabilitation conditions appropriate to the specific project, having taken all factors, such as mining method, location, climate, etc, into account.

Section 84 of the Mining Act allows the Minister for Mines to impose reasonable conditions, designed to protect the environment, on a mineral title at any time. The owner of the title is then legally bound by those conditions. As a consequence, it is normal practice for the conditions recommended by the inspector and the environmental officer, along with certain standard conditions, to be imposed by the Minister.

Of particular note are four "standard" conditions. The first ensures that the commitments made in the NOI become conditions on the lease. The second is a clause requiring any expansion or alterations to the operation to be approved by the SME prior to work commencing. The third requires a submission of an Unconditional Performance Bond by the proponent to ensure that money is available to repair any environmental degradation or to complete commitments made in the NOI. The bond is utilised if the lessee fails to undertake obligations on completion of the project or on abandonment of the site. The fourth requires submission of an annual environmental and rehabilitation report.

To ensure that the commitments made in the NOI by the little holder are adequate and appropriate to protect the environment, the Departmental officers have adopted the practice of calling for a draft document which is studied and then discussed with the holder. A document is not accepted as a final document until the Departmental officers are fully satisfied with its contents. There is no statutory time frame in which the Department must review a document.

It should be noted that failure to comply with conditions on the lease (which may mean failure to comply with commitments in the NOI) could result in forfeiture of that lease by the Minister for Mines.

Co-operation in Regulatory Functions

Early in 1992 the EPA recognised that it would be unable to monitor and regulate all the "prescribed premises" which are licensed under the EP Act and therefore under direct control of the EPA. Negotiations commenced between the two authorities with a view to reaching a memorandum of understanding for licensing to be transferred from the EPA to DOME but with EPA still having that overall monitoring role to ensure that the environment is being protected.

Following the completion of successful negotiation, an exemption to licensing for certain classes of gold operations was agreed to by the Minister for the Environment and published as required in the Western Australian Government Gazette. The Order came into force on 1 October 1992.

Three schedules were developed covering tailings dam/heap leach/vat leach, mining dewatering, and plant sites. These schedules are contained in Appendices 2(a),(b) and (c).

The result of the exemption, which has been granted at this time only for gold treatment plants, is that where the operations fall outside the classes listed in the schedules, DOME will place conditions on the mineral title similar to those originally placed on the operations under the pollution licence issued by the EPA. These conditions include control of dust, water pollution, tailings dams operations, monitoring etc.

This exemption system does not preclude DOME adding additional conditions requiring geotechnical studies, stability analyses and monitoring of groundwater, etc, requested independently of the EPA to ensure that the environment is protected and there is a long term stability of the structures at the site.

It is anticipated that under this new system less than 20 gold treatment operations will require licensing by the EPA in the foreseeable future on an annual basis.

By having the change from a pollution licence to conditions on the mineral title, enforcement of the conditions is undertaken by the DOME Environmental Officer and if a breach of any of those conditions occur, the title can be forfeited. This is a much stronger penalty than the maximum $50,000 fine which can be imposed currently by the EPA.

At the time of writing this paper the industry has seen the advantage of having a "one-stop shop" approach to environmental assessment and regulation for mining operations and have guardedly accepted the current approach.

Co-operation on management

As stated earlier, the EPA and DOME consult regularly on matters affecting both parties. The reaching of an agreement for the MOU and the sharing of regulatory functions have improved the potential for management of operations by the two authorities but does not prevent either authority acting independently. It also means that where an operator may be slow in effecting remedial action, both authorities can utilise their powers to ensure that the remedial action is undertaken efficiently and expeditiously.

Because of our regional structure management of the environment may only result in familiarity with mining activities in a particular area. To overcome this, DOME have initiated a number of development committees in regional areas throughout Western Australia which meet on an regular basis and the industry, government, local government and local land owners are able to explain their current operations and express their concerns and recommendations for improved management of the environment. These groups have proven to be a good facilitator for improved liaison, co-operation and knowledge of activities in the mining industry throughout the State.

Environmental Inspectors

Under the current Mining Act an Environmental Officer is unable to enforce rapid rectification following a breach of title conditions, such as a leaking tailings dam. The Environmental Officer is required to warn the lessee that forfeiture proceedings may commence if a rectification programme is not undertaken . If further action does not occur, the Department must apply to the Minister for Mines for forfeiture of the lease. This is a Draconian measure and has never been enforced on an operating minesite.

The industry and DOME have agreed that the Act should be amended to empower Environmental Inspectors to enter onto a mineral title and if a breach of conditions is observed, issue the lessee with a default notice. This default notice would require stated rectification works within a particular timeframe, for example 24 hours, 7 days or 1 month, depending on the severity and nature of the breach.

If on further inspection (at the end of the default time period), the fault has not been remedied, the Inspector will be able to request a Senior Environmental Inspector to issue a stop work order. This stop work order could for instance, close down a tailings dam and therefore result in closure of the plant itself.

The industry bodies in Western Australia have requested that appeal provisions be provided within the legislation.

At the time of preparing this paper the legislation was expected to be forwarded to the legislature for consideration and to be passed by the legislature prior to the end of the current session.

Unconditional Performance Bonds

As a means of protecting the State from rehabilitation costs resulting from companies going into liquidation or abandoning mines prior to rehabilitation being completed, the DOME introduced Unconditional Performance Bonds (UPB). Prior to 1986 a system of personal guarantees was in force. It was found that personal guarantees were not binding on the proponent or the financial institution which wrote the guarantee. An alternative system utilising UPB's was instigated. The UPB is an agreement between a financial institution and the Minister for Mines and guarantees that on default by a little holder, the financial institution will provide the funds to the Minister on his written request.

At the end of December 1992, $20,600,000 was guaranteed by financial institutions in the form of UPB's. Last financial year 1991-92, two UPB's were called in by the Minister and utilised to rehabilitate abandoned minesites. The industry now knows that DOME is serious about the utilisation of those bonds.

CONCLUSION

For the mining industry the protection of the environment is a co-operative approach between the EPA, DOME, the industry and generally the local community. By keeping all parties informed and aware of the current situation relating to the rules pertaining to the development of projects, development should proceed with the environment protected.

If the opposite approach is taken then there is a tendency for discontent to occur, especially within the community, in that they are not kept informed and have worries about what may happen rather than what is happening.

The agreements reached between EPA and DOME have resulted in speeding up the approvals process, enabling both authorities to examine in detail those projects requiring detailed assessment.

REFERENCES

1. Clarke J and Bradley A (1987): "Mining and Environment Protection Legislation and Practice in Western Australia". Proceedings of the 1987 Environmental Workshop Australian Mining Industry Council, Hobart, 1987, pp 232-242.

2. Malcolm J, Lindbeck K and Gardner, D (1991): "Environmental Assessment and Approvals in Western Australia". Proceedings of the 1991 Environmental Workshop, Australian Mining Industry Council, Perth, October 1991, Vol II pp 46-55.

APPENDIX 1

CLASSES FOR REFERRAL TO THE EPA UNDER PART IV OF THE ENVIRONMENTAL PROTECTION ACT 1986

1. Statutory referrals under Section 25 of the Mining Act 1978.

2. Wholly or partly within a declared occupied townsite or within 2 km of the boundary of an occupied townsite.

3. Wholly or partly or within 2 km of a boundary of a National Park, Marine Park, conservation reserve, State Forest, CTRC Red Book area or A, B, or C Class Reserve.

4. Wholly or partly or within 1 km of any other environmentally sensitive reserve (with the exception of Mining Reserves) e.g. Timber Reserves, Recreation Reserves.

5. Wholly or partly located within a declared water supply catchment or groundwater protection area.

6. Wholly or partly within 2 km of the coast, or an estuary.

7. Likely to have a direct effect upon an important wetland.

8. Within 250m of any historical, archaeological or ethnographic site.

9. Extracting from an open pit or underground operation in excess of 2,000,000 tonnes of ore per annum.

10. Any project which may result in a gaseous discharge to the environment e.g. smelters, roasters, etc.

APPENDIX 2

CLASSES EXEMPT FROM WORKS APPROVAL AND LICENCING (PART V OF THE ENVIRONMENTAL PROTECTION ACT 1986)

(a)

CONDITIONS FOR PREMISES CONTAINING A TAILINGS DAM, HEAP LEACH OR VAT LEACH

The premises or any part of the premises containing the tailings dam, heap leach or vat leach must not be located -

(a) in, or within 2 kilometres of the boundary of, an occupied townsite;

(b) in, or within 2 kilometres of the boundary of a national park, marine park, State forest, or A, B, or C Class Reserve;

(c) in, or within 1 kilometre of the boundary of, a timber reserve;

(d) in, or within 2 kilometres of the boundary of, an area that has been recommended for reservation in any of the following publications -

  (i) "Conservation Reserves for Western Australia as recommended by the Environmental Protection Authority 1975 (systems 4, 8, 9, 10, 11, 12)";

  (ii) "Conservation Reserves for Western Australia as recommended by the Environmental Protection Authority 1976 (systems 1, 2, 3, 5)";

  (iii) "Conservation Reserves for Western Australia as recommended by the Environmental Protection Authority 1980 (system 7)"; or

  (iv) "Conservation Reserves for Western Australia as recommended by the Environmental Protection Authority 1983 (system 6)";

(e) in a water catchment area, water reserve, or underground water pollution control area;

(f) within 2 kilometres of any surface waters that are used, whether at that point or any other point downstream, for human or stock consumption or irrigation of vegetation;

(g) within 2 kilometres of the ocean or an estuary;

(h) in an area where the groundwater has a natural salinity level (expressed as total dissolved solids) of less than 15,000 milligrams per litre; or

(i) in an area of land referred to in the Third Schedule to the *Mining Act 1978*.

APPENDIX 2(b)

CONDITIONS FOR PREMISES HAVING ANY MINE DE-WATERING DISCHARGE

Mine de-watering discharge from the premises must not -

(a) enter any permanent or perennial stream, lake, wetland, estuary, or other significant natural surface water body;

(b) enter, or adversely affect, any waters use for recreational activities;

(c) enter, or adversely affect, any potable waters used, or capable or being used, for human drinking water supplies;

(d) where it affects, or is likely to affect, water that is used for watering stock or irrigation purposes, exceed the relevant limits or ranges set out in the Table to this Schedule;

(e) threaten any significant natural fauna or flora in the environment;

(f) interfere with any lawful activity conducted by a government agency.

TABLE

Parameter	Limit or range Livestock* Drinking Supply (mg/Litre)	Limit or range Irrigation Waters (mg/Litre)
pH	6 - 9	4.5 - 9
Total Dissolved Solids (Salinity	5 000	1 500
Arsenic	0.5	0.1
Cadmium	0.01	0.01
Chromium	1.0	0.1
Copper	2.0	0.2
Cyanide - Weak Acid Dissociable	0.1	-
Lead	0.5	5.0
Mercury	0.002	0.002
Nickel	5.0	0.2
Selenium	0.02	0.02
Zinc	20.0	2.0

*Does not include Poultry and Pigs.

APPENDIX 2(c)

CONDITION FOR PREMISES CONTAINING GRINDING AND MILLING WORKS OR SCREENING WORKS

The premises or any part of the premises containing the grinding and milling works or screening works must not be located within 3 kilometres of any other premises that are used as a residence, guesthouse, hotel, motel, school, church, hospital, or for any other similar purpose.