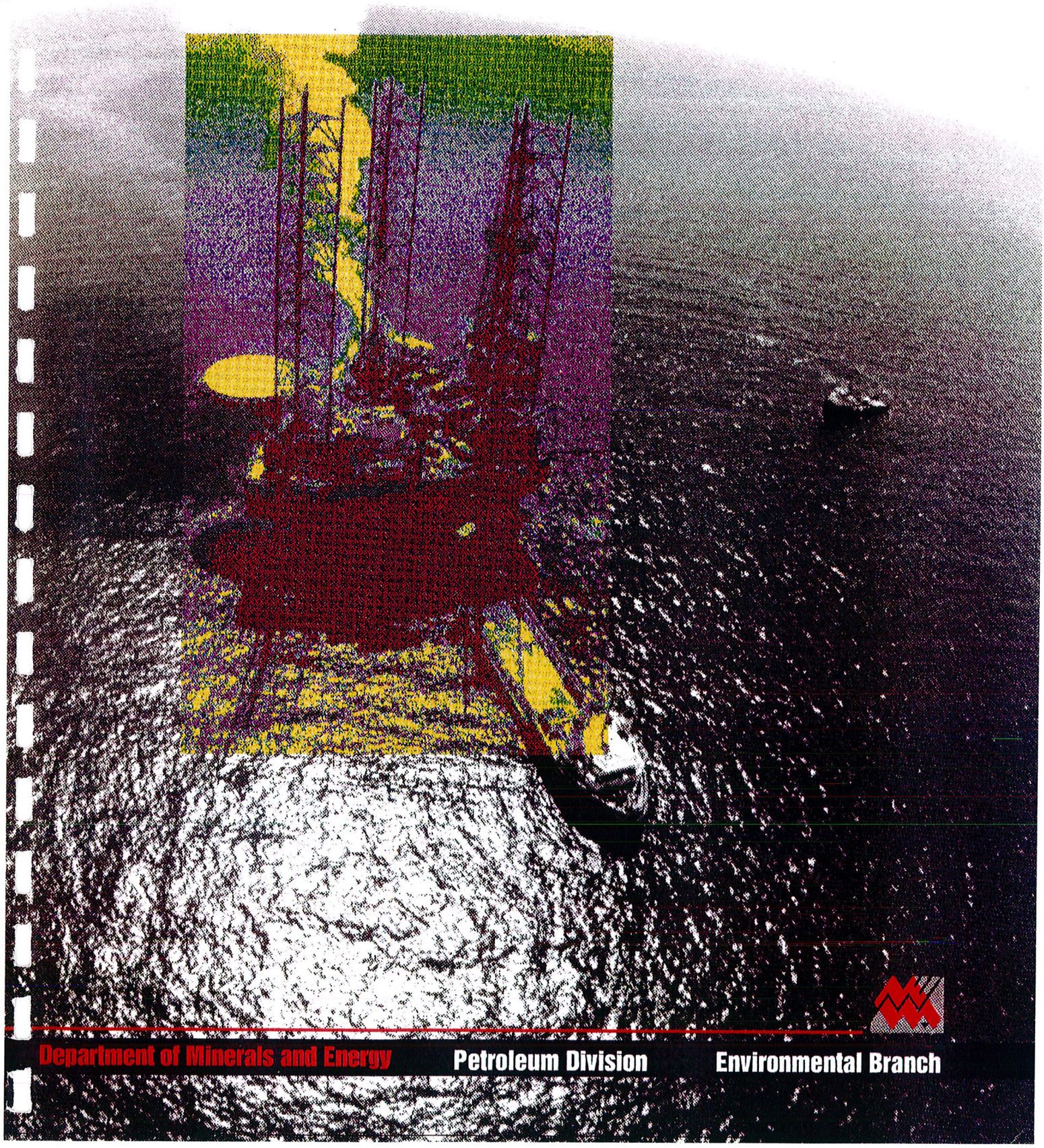
Environmental Information for Petroleum Operations



Department of Minerals and Energy Petroleum Division Environmental Branch

ENVIRONMENTAL APPROVAL INFORMATION FOR PETROLEUM OPERATIONS IN WESTERN AUSTRALIA

Prepared by Jimmy Seow, Senior Environmental Officer, Petroleum Division, Department of Minerals & Energy with contributions from Doug Betts, Senior Environmental Officer, Environmental Protection Authority, Frank Batini, Manager Environmental Protection Branch, Department of Conservation and Land Management and Department of Fisheries.

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CONTENT

INTRODUCTION

The lack of environmental approval information can often delay petroleum operations resulting in additional costs. It is for the above reason that this manual is prepared to assist petroleum exploration companies and contractors obtain environmental approvals for their petroleum operations in Western Australia.

The manual informs the user of:

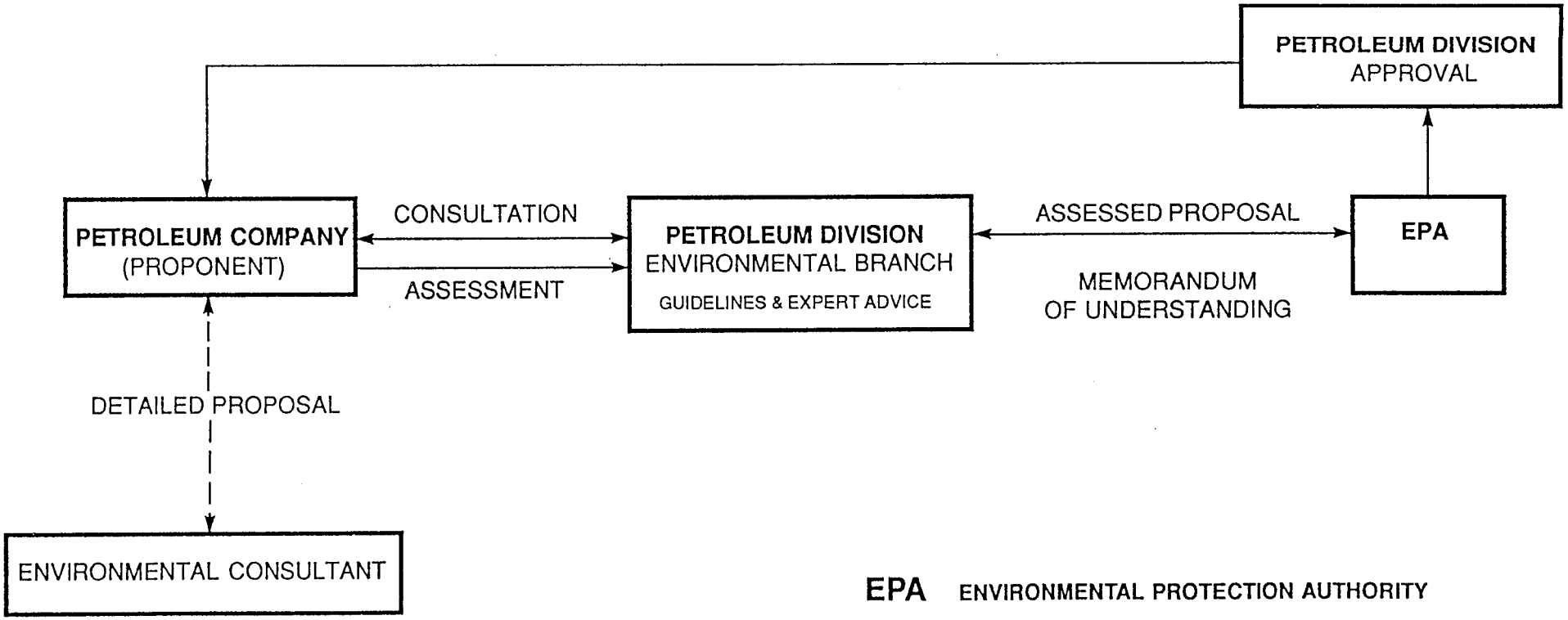
- key governmental and public bodies involved in environmental approvals,
- governmental requirements and regulations for environmental approvals, and
- the type of land categories in WA.

The user can also use the manual as a flagging document to plan their project and environmental management program.

The manual only provides general information and is not meant to be prescriptive in its approach.

DEPARTMENT OF
MINERALS AND ENERGY
WESTERN AUSTRALIA

FLOW PATH TO FACILITATE ENVIRONMENT ASSESSMENT OF OPERATIONAL ACTIVITIES



EPA ENVIRONMENTAL PROTECTION AUTHORITY

DEPARTMENT OF
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WESTERN AUSTRALIA

ENVIRONMENTAL APPROVAL FOR PETROLEUM OPERATIONS

THREE STAGES OF APPROVAL

1. PRE - APPLICATION ..... CONSULTATION & ADVICE
2. APPLICATION STAGE ..... ASSESSMENT & CO-ORDINATION
3. APPROVAL STAGE ..... CONDITION SETTING

DEPARTMENT OF
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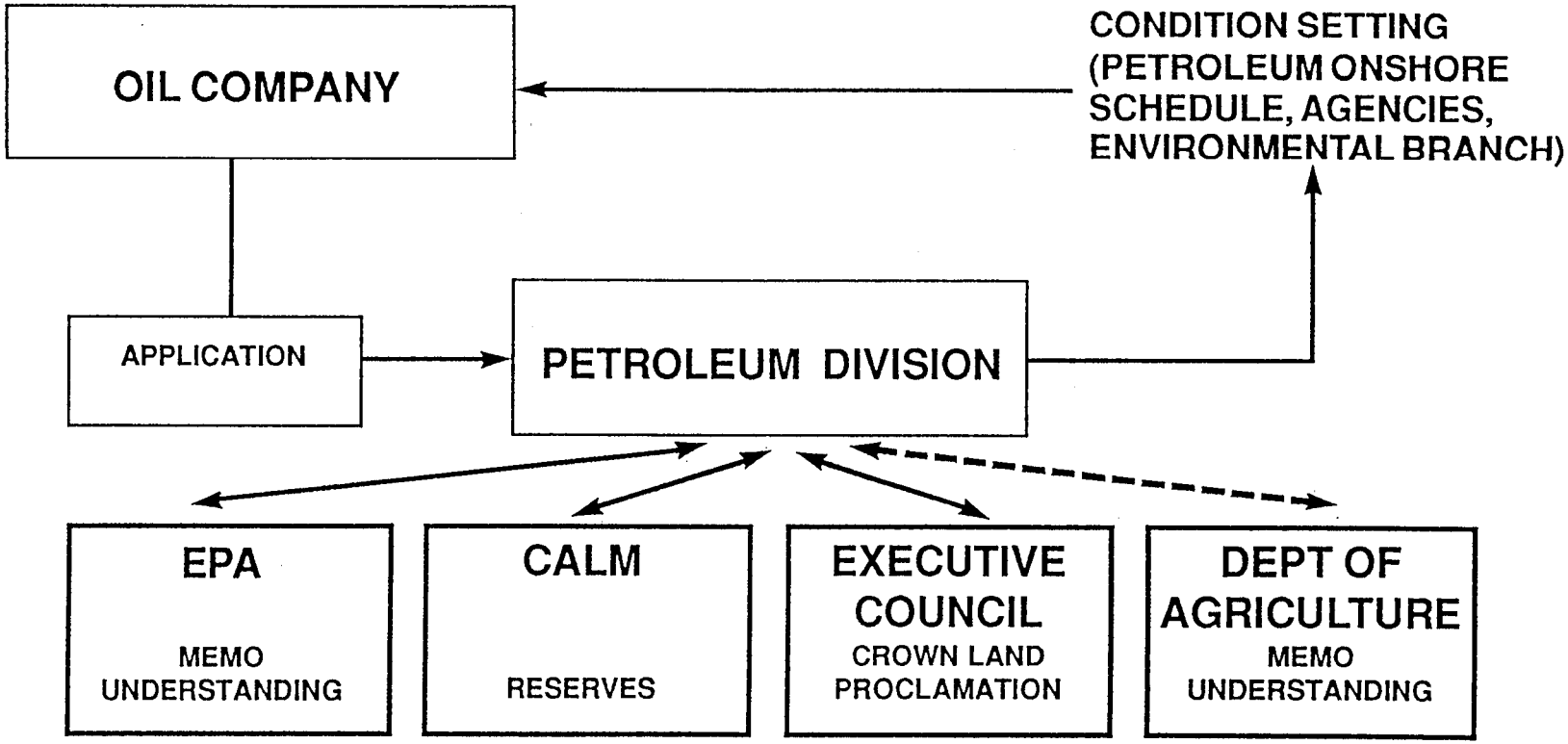
WESTERN AUSTRALIA

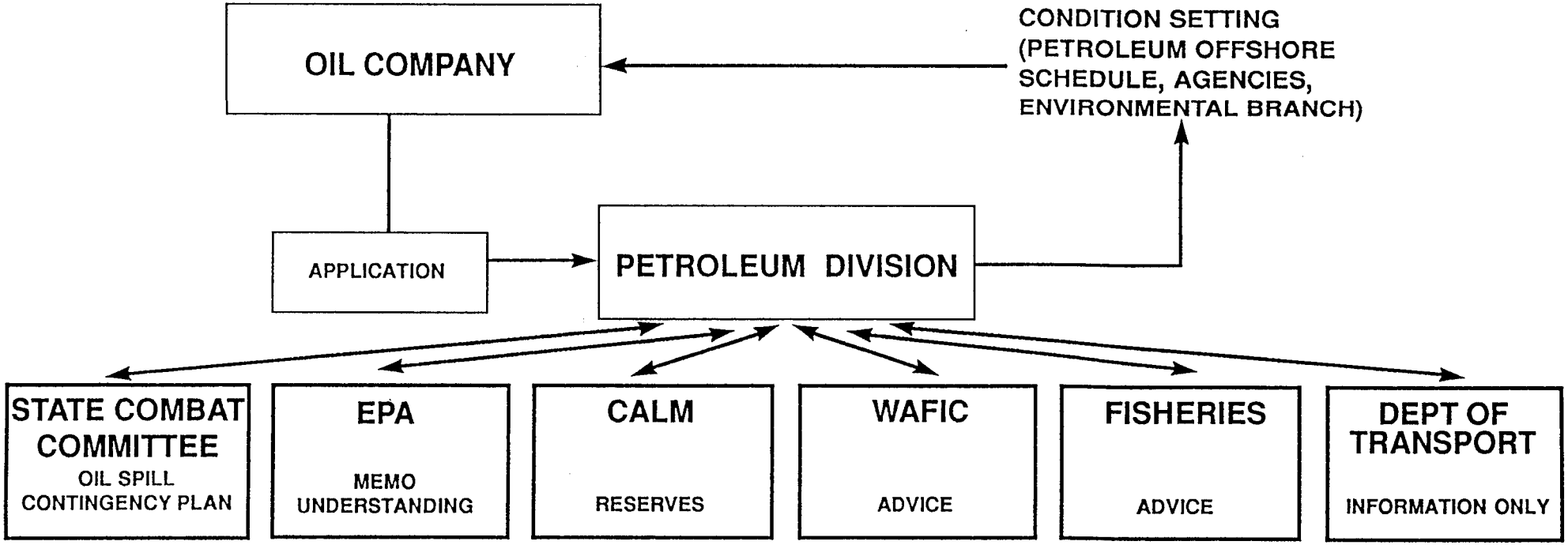
ENVIRONMENTAL APPROVAL PATHWAY FOR ONSHORE OPERATIONS IN STATE AREAS



EPA ENVIRONMENTAL PROTECTION AUTHORITY
CALM DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

DEPARTMENT OF
MINERALS AND ENERGY
WESTERN AUSTRALIA

ENVIRONMENTAL APPROVAL PATHWAY FOR OFFSHORE OPERATIONS IN STATE AREAS



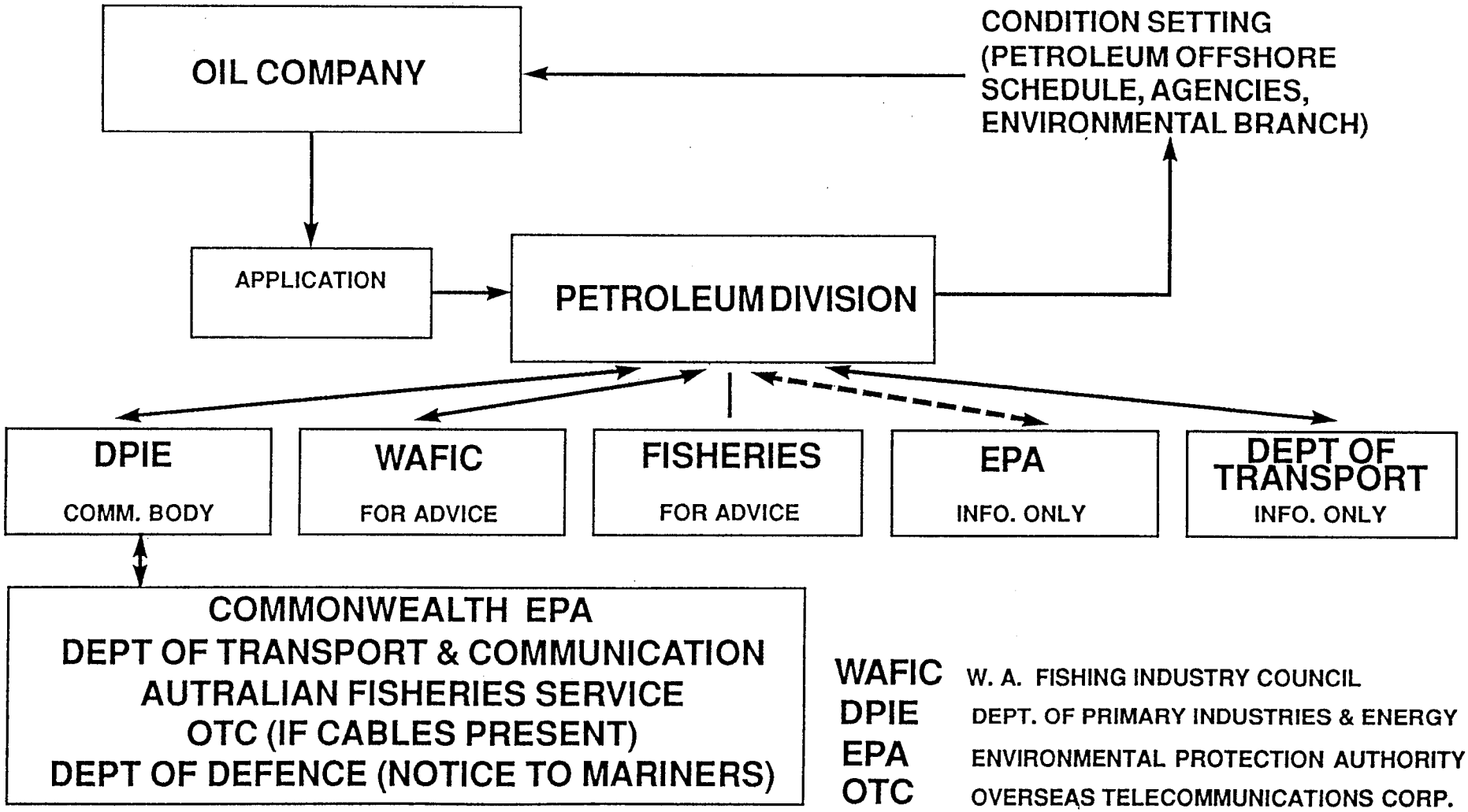
EPA Environmental Protection Authority

CALM Department of Conservation and Land Management

WAFIC WA Fishing Industry Council

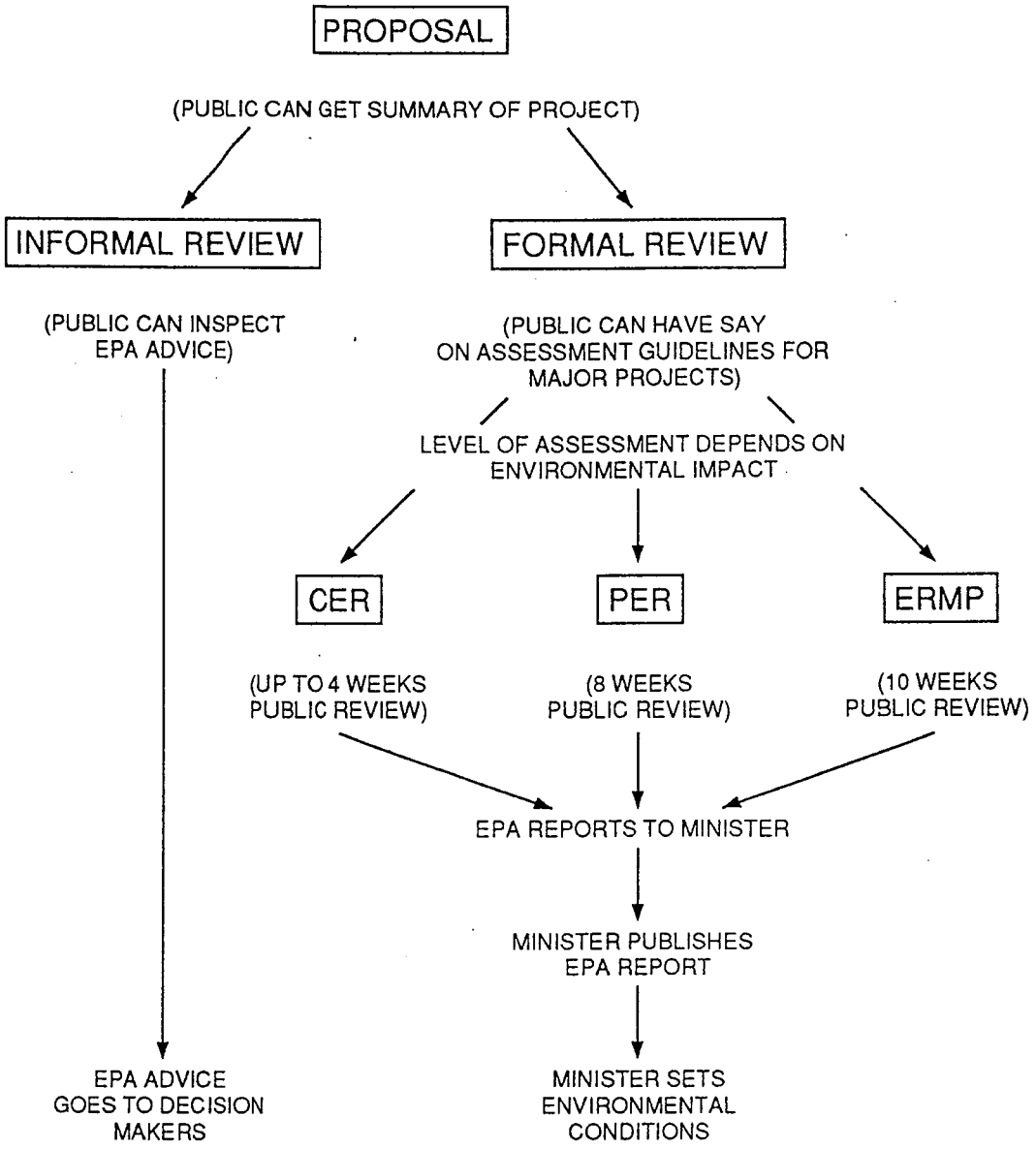
DEPARTMENT OF
MINERALS AND ENERGY
WESTERN AUSTRALIA

ENVIRONMENTAL APPROVAL PATHWAY FOR OPERATIONS IN COMMONWEALTH AREAS



WAFIC	W. A. FISHING INDUSTRY COUNCIL
DPIE	DEPT. OF PRIMARY INDUSTRIES & ENERGY
EPA	ENVIRONMENTAL PROTECTION AUTHORITY
OTC	OVERSEAS TELECOMMUNICATIONS CORP.

EPA PROJECT ASSESSMENT



(EXTRACTED FROM EPA "ENVIRONMENTAL IMPACT ASSESSMENT" BROCHURE)

JS8

ENVIRONMENTAL MANAGEMENT

The following checklists are designed to assist petroleum exploration companies; environmental consultants and contractors plan their EIA or environmental management programme.

The checklists serve as a flag in EIA document or environmental management programme preparation. Therefore it can be used to avoid unnecessarily assessment and approval delays. Each individual EIA or environmental management programme may require adjustments of these suggested checklists.

Environmental Impact Assessment (EIA)

Environmental impact assessment (EIA) is a process of determining, addressing, and communicating the most significant consequences of development activities on the environment. It consists of the following:

Impact Identification

Early problem and/or issue identification - identification of stakeholders, compilation of the project description and baseline biophysical information, and summarization of the broad range of real or perceived potential environmental issues.

Impact Assessment

Elimination of non significant impacts and concentration on important impacts. Organisation of impacts into hypotheses that include impact statements and pathways diagrams as well as the validation and determination of importance of the impacts.

Impact Management Planning

Plan for the monitoring and mitigation of key impacts is described and communicated to decision making authorities, stakeholders and the public.

The EIA process needs to address the following key issues:

- Timing of the proposal - Schedule and duration.
- Operational details - Project description and mode of operation.
- Evaluation of alternatives - Reason for choice of proposal.
- Existing environment - Description of bio-physical and social environment.
- Environmental impact - Potential extent, duration and magnitude of project impact under the worst-case scenario.
- Environmental management - Monitoring, mitigation, evaluation and residual impact following impact.

ONSHORE PETROLEUM ENVIRONMENTAL IMPACT ASSESSMENT CHECKLIST

NAME OF PROJECT

NAME OF OPERATOR

ENVIRONMENTAL CONSULTANT

GEOPHYSICAL CONSULTANT

DRILLING CONTRACTOR

OTHER CONSULTANT/CONTRACTOR

TYPE OF RIG

LOCATION OF PROJECT

START OF OPERATION

DURATION OF OPERATION

DATE

REMARK

1. LEGISLATIVE REQUIREMENTS

The project may be sited on the following:

- Crown Land
- Commonwealth Land
- National Park
- Nature Reserves
- Conservation Park
- State Forest
- Timber Reserves
- Aboriginal Reserve/Lease
- Pastoral lease
- Proposed (Red Book) areas
- Wildlife Sanctuary
- Scenic Reserves
- Flora and Fauna Reserves
- Wetlands
- Recreation Reserves
- Shire Reserves
- Catchment Reserves
- Restricted areas (Defence)
- Mining Lease
- Private Land (agreement with landowner/occupier required)
- Other Reserves

2. OPERATIONAL PLANNING AND MANAGEMENT

- Liaison and consultation may be required with the following:
    - Petroleum Division
    - Environmental Protection Authority (EPA)
    - Department of Conservation and Land Management CALM
    - WA Museum (aboriginal, heritage sites)
    - Department of Agriculture
    - Department of Land and Administration
    - Local Shires
    - Local Conservation District Committee
    - State Electricity Commission WA (SECWA, cables, gas pipeline, etc.)
    - WA Water Authority (water pipeline, etc.)
    - WA Aviation Authority
    - Conservation Groups
    - Commonwealth Department of Defence
    - Commonwealth Department of Arts, Science, Environment and the Territories (DASET)
    - Others
- Incident Contingency Planning (readiness, equipment and personnel resource, etc)
- Does the company have an Environmental Policy?
- Has a formal application being submitted to the Department of Minerals and Energy?
- Is access authority or special prospecting authority required?
- Are there any contentious Issues?
- Public Relations
- Emergency and evacuation procedures

3. ENVIRONMENT

(Conservation and Land Management Act 1984; Soil and Land Conservation Act 1945-1988; Environmental Protection Act, 1986)

A. PHYSICAL

- Impact upon the physical environment may be due to the following:
    - Wind erosion (blow out, etc)
    - Water erosion (rills, gullies, sheet flow, etc)
    - Soil compaction and disturbance
    - Sedimentation (turbidity, amount, extent, etc)
    - Perched groundwater disturbance
    - Drainage Alteration (eg. effect of windrow on surface runoff, flooding, etc)
    - Surface seepage, drainage lines and creeks disturbance
- Disturbance of sensitive areas eg.
    - Silcrete
    - Gibber plains
    - Salt flats and lakes
    - Clay pans
    - Dunes
    - Flood plains/alluvial plains
    - Wetlands
    - Coasts
    - Fragile/sensitive soils

- Seismic Surveying Operations:

    - Energy source
    - Line of sight and orientation
    - Width of line
    - Velocity shot holes (location, depth, etc.)
    - Access tracks
    - Equipment used for line construction (dozer, slasher, etc)

- Drilling Operations:

    - Drilling fluid (type, toxicity, disposal, etc)
    - Drill cutting (amount, disposal, etc)
    - Produced water (amount, salinity, oil in water, etc)
    - Underground injection (fluid composition, amount, etc)
    - Well treatment and simulation fluid
    - Sumps/ponds (size, siting, lining, restoration)
    - Flare pits (size, siting, firebreaks, etc)

B. <u>BIOLOGICAL</u> (Wildlife Conservation Act 1952-80)

- Impact upon the biological environment may be due to the following:

- Fauna disturbance:

    - Breeding seasons
    - Migration path
    - Noise/light effects

- Disturbance of gazetted rare and endangered flora and faunal
- Vegetation disturbance?
- Introduction of noxious weeds and vermin, exotic species, plant diseases (Agricultural and Related Resources Protection Act 1976) - dieback fungi, animal diseases (TB, domestic animals), etc
- Encroachment into quarantine areas (eg. Kimberley region)
- Outbreak of fire

C. <u>SOCIAL</u>

- Impact upon the social environment may be due to the following:

    - Aboriginal sacred sites disturbance (Aboriginal Heritage Act 1972-80)
    - Heritage sites disturbance
    - Archaeological sites disturbance
    - Scientific sites disturbance
    - Disruption to local industry
    - Tourist recreation sites disturbance
    - Public Disruption (Rights in Water and Irrigation Act 1914)
    - Pastoral/Farming disturbance(lambing, calving, mustering seasons)
    - Horticulture disturbance
    - Visual impact
    - Third party access denial

4. WASTE MANAGEMENT AND POLLUTION CONTROL (Environmental Protection Act 1986)

- Waste and pollution may be caused by the following:
    - Noise (level, type, duration)
    - Hazardous chemicals (quantity, place, manner and rate of discharge, etc)
    - Oil base drilling mud (quantity, place, manner and rate of discharge, etc)
    - Drill cuttings (quantity, place, manner and rate of discharge, etc)
    - Drilling fluid (quantity, place, manner and rate of discharge, etc)
    - Air emissions (eg. NOx, SO_2, volatile organic carbon, hydrous sulphide, etc)
    - Tank bottoms from facilities holding products and exempt wastes
    - Gas plant dehydration wastes
    - Pigging wastes from gathering lines
    - Hydrocarbon-bearing soil
    - Cooling tower blowdown
    - Waste crude oil from primary field operations
    - Industrial and hotel wastes (pallets, packaging, fabrics, plastics, paper, galley, scraps, etc)
    - Weather runoff and machinery deck drainage
    - Rig floor, pipe rack, and mud processing deck drainage
    - Pump and pit drainage
    - Rewash
    - Sanitary waste
    - Heat pollution
    - Water pollution (water supply pollution, cooling waters, etc)
- Area of waste coverage
- Waste management (minimizing or reducing the volume, storage, transportation, recycling, and the use of private or public disposal locations)
- Waste minimization (drilling program, drill site construction, drilling and completion operations and cleanup operations)
- Cumulative effects of waste and pollutants

5. METEOROLOGY

- The project may be affected by the following:
    - Cyclones (season)
    - Rain (season)
    - Drought (season)
    - Temperature (range)
    - Wind (speed, direction, stress)

6. EDUCATION

- Is there any induction and training programme for environmental awareness?
- Does the company have compliance clause in their contracts?

7. SAFETY AND OCCUPATIONAL HEALTH

- Work site safety (powerlines, airport/helideck location, communication/navigational instruments and structures location, etc)

- Camp site management:

    - Proximity to water courses, watering points, etc.
    - Sewage/rubbish pits above water table?
    - Manner of removal of wastes, rubbish and equipment?

- Personal safety/hygiene
- Fire fighting facility/equipment (Bush Fires Act 1954)
- Prohibition of firearms (Explosives and Dangerous Goods Act 1961)

8. DECOMMISSIONING

- Seismic operation:

    - Stakes, markers, materials and equipment removed?
    - Revegetation and rehabilitation undertaken?
    - Compacted areas ripped?
    - Access tracks limited and restored?
    - Site inspection, photographs taken and report submitted to decision-making authorities?

- Drilling operation:

    - Wells cased, plugged and marked?
    - Waste, rubbish, materials removed?
    - Revegetation and rehabilitation undertaken?
    - Compacted area ripped?
    - Sumps and mud pits filled in and dewatered?
    - Drilling mud/oil base mud disposed?
    - Rig/platform removed?
    - Site inspection, photographs taken and report submitted to decision-making authorities?

- Campsite/worksite:

    - Rubbish, materials and equipment removed?
    - Rubbish pits, sewage pits, etc. filled in and restored?
    - Compacted areas ripped?
    - Sewage, brine from reservoir, fire hydrant water, bunded water, swimming pool water, other waste and equipment disposed?
    - Rehabilitation and revegetation completed?
    - Landowner advised of project completion

9. MONITORING

- Is monitoring conducted in-house or by consultant?
- Duration of monitoring
- Frequency of monitoring
- Residual impact
- Rehabilitation report submitted to decision-making authorities?

OFFSHORE ENVIRONMENTAL IMPACT ASSESSMENT CHECKLIST

OWNERSHIP/OPERATOR

ENVIRONMENTAL CONSULTANT

GEOPHYSICAL CONSULTANT

DRILLING CONTRACTOR

OTHER CONSULTANT/CONTRACTOR

TYPE OF RIG

LOCATION OF PROJECT

START OF OPERATION

DURATION OF OPERATION

DATE

REMARK

1. LEGISLATIVE REQUIREMENTS

- The project may be sited on the following:

    - Marine Parks
    - Marine Nature Reserves
    - Conservation Parks (islands)
    - Nature Reserves (islands)
    - Proposed reserves
    - Environmental Sensitive Locality

        - Outer Special Conditions Zone (SCZ)
        - Inner Special Conditions Zone (SCZ)
        - Immediate Protection Zone (IPZ)
        - Environmentally Sensitive Locality (ESL)
        - Special Protection Locality (SPL)

2. OPERATIONAL PLANNING AND MANAGEMENT

- Liaison and consultation may be required with the following:

    - Petroleum Division
    - EPA
    - Fisheries Department
    - WAFIC
    - CALM
    - Marine and Harbour Authority
    - Department of Land and Administration
    - SECWA (eg. cables, gas pipeline, etc.)
    - Aviation Authority
    - Conservation Group
    - Defence Department
    - Commonwealth Departments (eg. DASET)
    - Others

- Emergency and oil spill contingency planning (readiness, equipment •and personnel resource, etc)
- Does the company have an Environmental Policy?
- Has a formal application being submitted to the Department of Minerals and Energy?
- Is access authority or special prospecting authority required?
- Are there any contentious Issues?
- Public Relations
- Emergency and evacuation procedures
- Third part insurance and compensation arrangement

3. ENVIRONMENT

(Conservation and Land Management Act 1984; Environmental Protection Act, 1986)

A. PHYSICAL

- Impact upon the physical environment may be due to the following:

    - Sedimentation (extent, turbidity, rate, etc)
    - Marine erosion (scouring of seabed, etc)

- Disturbance of sensitive areas eg

    - Migration path (eg whales, birds)
    - Beaches (eg nearshore dunes)
    - Wildlife sanctuaries
    - Bird rookeries
    - Turtle nesting areas
    - Feeding sites
    - Lagoons
    - Stromatolites
    - Coquina beds
    - Others

- Noise/light effects
- Submarine cables, pipelines
- Fouling potential (barnacles on rig legs)

- Drilling Operations:

    - Drilling fluid (type, toxicity, disposal, etc)
    - Drill cutting (amount, disposal, etc)
    - Produced water (amount, salinity, oil in water, etc)
    - Underground injection (fluid composition, amount, etc)
    - Well treatment and simulation fluid

B. BIOLOGICAL

- Impact upon the biological environment may be due to the following:

- Disturbance of:

    - Coral reefs/atolls (eg spawning period)
    - Mangroves
    - Seagrass beds/seaweeds
    - Algal mats
    - Faunal habitat (eg. dugongs, turtles, seals, etc.)
    - Gazetted rare and endangered flora and faunal species

C. SOCIAL

- Impact upon on the social environment may be due to the following:

- Disturbance of:

    - Heritage sites on offshore islands
    - Archaeological sites (eg. shipwreck, WA Maritime Act 1973)
    - Scientific sites
    - Tourist recreation sites
    - Marinas/anchorages/ports
    - Restricted areas (Defence)

- Disruption of:

    - Public inconvenience (eg. recreational fishing, camping, etc.)
    - Faunal habitat, migration, life-cycle, nursery
    - Subsistence aboriginal fisheries
    - Industry (eg. areas, season)
        - Fin fishing
        - Prawning (eg spawning areas/period)
        - Pearl
        - Lobster
        - Shellfish

4. **WASTE MANAGEMENT AND POLLUTION CONTROL (Environmental Protection Act 1986)**

- Waste and pollution may be caused by the following:

    - Noise (level, type, duration)
    - Hazardous chemicals (quantity, place, manner and rate of discharge, etc)
    - Oil base drilling mud (quantity, place, manner and rate of discharge, etc)

- Drill cuttings (quantity, place, manner and rate of discharge, etc)
- Drilling fluid (quantity, place, manner and rate of discharge, etc)
- Air emissions (eg. NOx, SO_2, volatile organic carbon, hydrous sulphide, etc)
- Tank bottoms from facilities holding products and exempt wastes
- Gas plant dehydration wastes
- Pigging wastes from gathering lines
- Hydrocarbon-bearing soil
- Cooling tower blowdown
- Waste crude oil from primary field operations
- Industrial and hotel wastes (pallets, packaging, fabrics, plastics, paper, galley, scraps, etc)
- Weather runoff and machinery deck drainage
- Rig floor, pipe rack, and mud processing deck drainage
- Pump and pit drainage
- Rewash
- Sanitary waste
- Heat pollution
- Water pollution (water supply pollution, cooling waters, etc)

- Area of waste coverage
- Waste management (minimising or reducing the volume, storage, transportation, recycling, and the use of private or public disposal locations)
- Waste minimisation (drilling program, drill site construction, drilling and completion operations and cleanup operations)
- Cumulative effects of waste and pollutants

5. METEOROLOGY AND OCEANOGRAPHY

- Cyclones
- Rainy season
- Temperature (eg. range)
- Wind vector (eg. speed, direction, stress)

Oceanography Information

- Waves characteristics
- Currents (eg. direction, velocity)
- Tides (eg. range, direction)
- Stratification

6. EDUCATION

- Is there any induction and training program for environmental awareness?
- Does the company have compliance clause in their contracts?

7. SAFETY AND OCCUPATIONAL HEALTH

- Work site safety (powerlines, airport/helideck location, communication/navigational instruments and structures location, etc)

- Camp site management:

  - Proximity to water courses, watering points, etc.
  - Sewage/rubbish pits above water table?

- Manner of removal of wastes, rubbish and equipment?

- Personal safety/hygiene
- Fire fighting facility/equipment (Bush Fires Act 1954)
- Prohibition of firearms (Explosives and Dangerous Goods Act 1961)

8. DECOMMISSIONING

- Remove marine seismic survey materials and equipment.

- Drilling operation:

  - Wells cased, plugged and marked?
  - Waste, rubbish, materials removed?
  - Drilling mud/oil base mud disposed?
  - Rig/platform removed?
  - Site inspection, photographs taken and report submitted to decision-making authorities?

- Campsite/worksite:

  - Rubbish, materials and equipment removed?
  - Rubbish pits, sewage pits, etc. filled in and restored?
  - Compacted areas ripped?
  - Sewage, brine from reservoir, fire hydrant water, bunded water, swimming pool water, other waste and equipment disposed?
  - Rehabilitation and revegetation completed?

9. MONITORING

- Is monitoring conducted in-house or by consultant?
- Duration of monitoring
- Frequency of monitoring
- Residual impact
- Rehabilitation report submitted to decision-making authorities?

GUIDELINES FOR ONSHORE PETROLEUM GEOPHYSICAL SURVEYING

1. INTRODUCTION

The following guidelines are designed to help petroleum exploration companies and contractors maintain suitable standards that minimise environmental damage. The guidelines define the consultation that is required to enable exploration to be undertaken while, at the same time, accommodating the needs of conservation and other land use issues. Adherence to the guidelines would also ensure:

(i) that disturbed tracts are constructed and rehabilitated in a manner which will encourage regeneration as soon as practicable after completion of operations;

(ii) compliance with all relevant requirements for those Acts listed hereunder and any rules, regulations, by-laws or directions applicable to Shires or Districts in which operations are to be performed; and

(iii) operations are organised and conducted with due regard to good oil field and exploration practice thus minimising any disturbance to wildlife, livestock, flora and sites of natural, historical and cultural significance.

The guidelines are for exploration work and are not intended to cover feasibility or developmental stages of resource projects.

2. LEGISLATIVE REQUIREMENTS

Onshore exploration for petroleum in Western Australia is only permitted by way of a title or authority issued under the Petroleum Act 1967.

While the title or authority remains in force it authorises the permittee, subject to any conditions imposed, to carry out all operations necessary to search for petroleum on Crown Land and private land within the relevant area.

Most petroleum exploration work is conducted under an exploration permit in accordance with the specified conditions. The permittee must apply in an approved form for approval to conduct each specific exploration operation.

2.1 Crown Land

Crown Land is all land other than private land, which has not been reserved or leased (except that pastoral and timber leases are regarded as Crown Land).

2.2 Reserved Land

Provision exists for reserved land to be declared as Crown Land for the purposes of the Petroleum Act. The decision to proclaim the reserve as Crown Land for the purposes of the Petroleum Act rests with the Governor in Executive Council.

If an explorer's operations require entry onto reserved land (which has not previously been proclaimed as Crown Land), the proponent must, prior to 30 days before wishing to enter the reserve, apply to the Department of Mines to have the area declared Crown Land.

2.3 Private Land

There is provision for private land owners/occupiers to seek compensation for loss of earnings and fire damage to the surface or to any improvements on private land. Similarly compensation is payable to pastoral lessees for loss of earnings, damages to improvements and consequential damage.

Approved operations shall not be conducted on private or occupied Crown land until agreement has been reached with the land owner/occupier with regard to compensation (if any). If agreement cannot be reached, either party may apply to have the matter determined in the Local Court. The title holder must give the land owner and occupier three (3) months notice that the title holder intends to commence operations on the private land.

2.4 Other Land Uses

Some of the legislation related to other land uses which could impact on petroleum operations includes:

- Aboriginal Heritage Act 1972;
- Aboriginal Affairs Planning Authority Act 1972;
- Aboriginal Communities Act 1979;
- Agricultural and Related Resources Protection Act 1976;
- Bush Fires Act 1954.
- Conservation and Land Management Act 1984;
- Environmental Protection Act 1986;
- Explosives and Dangerous Goods Act 1961;
- Mining Act 1978;
- Petroleum Act 1967-81;
- Petroleum Pipelines Act 1969;
- Rights in Water and Irrigation Act 1914;
- Soil and Land Conservation Act 1945 - 1988;
- Wildlife Conservation Act 1950.

It needs to be appreciated that petroleum explorers are only one of the bodies which may have authority to utilise the land. At times competing and conflicting interests may occur and it is the explorers' responsibility to conduct their operations in a manner which will not prejudice their future interests and that of others.

A positive way in which to help overcome problems of competing interests is to improve communication and allow sufficient time for problems to be resolved. In this regard applications for operations should be made in a timely manner. An application for a seismic survey affecting reserved land should be made at least three months prior to the commencement date and in areas of largely Crown Land at least two months prior to commencement.

3. OPERATIONAL PLANNING AND MANAGEMENT

The first step in operational planning is to initiate and maintain liaison with all land holders and through the Department of Mines, with regional land management authorities affected by the exploration activities. Such Authorities include the Department of Conservation and Land Management, the Department of Agriculture, Local Shires and Land Conservation District Committees. The scope of the exploration plan should be discussed with them using line location maps and/or air photographs or field visits. These discussions should take place prior to detailed planning to identify potential problem areas.

The possibility of requiring expert environmental advice should be anticipated early in the planning process.

The design of seismic grids, access roads, campsites and airstrips should include measures that minimise adverse effects to the environment. Environmental constraints should be considered and included in specifications for survey contracts.

3.1 The exploration programme should incorporate methods that minimise adverse effects to the environment and ensure no long-lasting evidence of activities. Particular attention should be given to:

- reference to topographic and survey maps, air photographs and literature relevant to the region's ecological system;
- incorporation of a programme of environmental protection and restoration.

3.2 **Plans should be made to:**

- minimise vegetation and topsoil disturbance;
- avoid wind and water erosion;
- avoid alteration to drainage;
- minimise interference to existing land use;
- prevent undesirable third party access;
- limit disturbance to native fauna and flora, especially Gazetted rare species.
- prevent the spread of noxious weeds and plant diseases such as dieback;
- prevent pollution; and
- avoid sites of Aboriginal historical and heritage significance.

3.3 It is important during planning that a full appreciation of any contentious issue is conveyed in writing and acknowledged by the parties involved. A well prepared survey layout and a description of environmental practices will assist in ensuring that good practices will be employed.

3.4 Subsequent to the completion of the survey a final inspection should be made with the land holder or managing authority of all roads, gates, fencelines, campsites and operational sites to ensure that they have been left in an acceptable condition.

4. MANAGEMENT OF IMPACTS

Seismic line construction has the most obvious impact on the landscape. Before construction the operator must check with power, water and pipeline authorities, land holders and representatives of land management authorities to ascertain the presence of features requiring special consideration. Habitats such as flat sand plains and spinifex may present few problems whereas Permian outcrops in the Kimberley, Minilya and Gascoyne areas are extremely friable and erode with little disturbance.

Seismic operators should, wherever practicable, adopt the following practices and standards:

4.1 Line Orientation

- While line orientation is a function of subsurface geology, line layout should be designed to avoid erosion and interference to natural drainage patterns.

- Bladed lines should be avoided wherever possible. In particular they should avoid salt lakes, salt flats, clay pans and adjacent dunes as regeneration is slow.

- Oblique traversing of sand dunes, steep cutting and filling that may cause landslides, erosion or slump problems should be avoided, ie. dunes should be approached at right angles and interdunal corridors should be used wherever possible. Dune crests should be cut at an angle to prevent deep cuts.

- Where practical, interruptions to the line of sight should be planned to reduce the visual impact of seismic lines.

- Springs and surface seepage, and associated vegetation should be avoided.

4.2 Line Construction

- Lines should be constructed to encourage rapid natural regeneration. Care should be taken not to plug drainage ways or culverts with earth fill. Existing drainage patterns should be maintained and clearance of vegetation along stream banks or deep gullies should be avoided. Windrows should be avoided, however, where they do occur windrows obstructing sheet flows in arid environments should be removed.

- All seismic traverses and access routes should be designed to minimise the removal of soil and vegetation. Preference should be given to using equipment which leaves root stock intact. Whenever practical the vegetation should be rolled flat without disturbing the soil.

- Towed rollers and/or stick rakes should be used where practical and blading with heavy earth moving equipment such as bulldozers avoided particularly on silcrete, gibber plain and claypans.

- The maximum width of a seismic line must not exceed six metres. However, a single track with passing points is preferable. Where blading is necessary, the bladed width should be minimised.

- If soaks and drainage lines cannot be avoided disturbance should be minimised.

- In prescribed environmentally sensitive areas, the formation of windrows should be avoided. Where they occur they should be levelled by back-grading onto the cleared line taking care to preserve survey markers.

- Windrows should be broken at approximately 100 metre intervals in flat country and more frequently in hills or undulating terrain to prevent concentration of runoff.

- To prevent erosion of the soil on slopes, construction of check banks and spur drains may need to be undertaken.

- Isolated trees and significant stands of vegetation should be left undisturbed wherever possible, especially in the vicinity of drainage channels.

4.3 REHABILITATION

- Borrow pits no longer in use should be left in a neat condition, with sides battered to a slope of no more than 1 in 5 to allow regrowth and prevent entrapment of stock and wildlife.

- Topsoil must be stripped, retained and finally respread over borrow pits or other excavated areas.

- Vegetation cleared prior to excavation for borrow pits should be returned as brush to the surface of the excavated area after topsoiling.

- To avoid importing soil from a different environment, soil to be used as fill should be taken from an area close to the operation where practicable.

- Tracks, lines and ramped dunes no longer required for access and to which a clay surface added should be rehabilitated to re-establish drainage and encourage restoration of the topography. Ripping should be carried out parallel to topographic contours. Deep cuts in dunes should first have their sides battered and brushed to minimise wind-scour and capped dune crests should have drainage bars with spur drains to prevent gully erosion.

- Expert advice should be sought to determine whether compacted soil should be ripped to provide seed and water catchment for native vegetation.

- All areas affected by the operation should restored as near as possible to their natural state. Unless specifically requested, seismic lines should not be left for the land holder to use as fence lines or future tracks, nor should campsite pads be left for future shed pads.

4.4 Access Tracks

- Lines should be concealed and rendered inaccessible from public lands. A dog-leg in the line where it crosses roads or tracks is practical and any vegetation removed should be pushed back to screen the dog-leg on completion of the work. Dog-legs should be clearly pegged and taped to prevent equipment operators accidentally ignoring the dog-leg. Blading should not be used adjacent to any public access. Line of sight should be broken when in public view, eg. on dune crests.

- Site access roads should by-pass or minimise traversing long slopes.

- Traffic in dune fields, the margins of drainage ways, around salt lakes and in wetlands should be restricted.

- Vehicular traffic should be confined to marked roadways, firebreaks around fence lines or to existing seismic lines. The disturbance of windward dune slopes and the removal of vegetation should be kept to a minimum.

4.5 Fire Control

- In periods where fire danger is high a water truck with a 2,000 litre tank, plus fire fighting equipment should be with the crew at all times. Also, each 4-wheel drive vehicle should carry a knapsack spray unit, shovel, axe and rake. All conditions of the Bush Fires Act must be complied with.

- Ensure equipment is adequately cleaned prior to deployment to prevent the introduction of noxious weeds or pathogens.

4.6 Disease and Weed Control

- Where required by the Agricultural Protection Board, all equipment and vehicles should be washed down to the satisfaction of an Agricultural Protection Board officer prior to leaving the area. The officer will then issue a signed APB1 12 form "Quarantine -Authority to Move".

- When operating in the Perth Basin current information should be obtained from CALM in order to limit the spread of dieback pathogens.

4.7 General

- Litter, fuel, oil drums, used grease cartridges, detonator wires, explosives cases and reels should be removed.

- Where possible, colour photographs should be taken before and after the seismic operation. These photographs should be properly identified and catalogued.

- Care must be taken when preparing seismic lines where there are power lines, coaxial cables, pipelines and other surface and sub-surface conduits.

- Any damage to land improvements should be reported promptly to the land manager, both verbally and in writing. Repairs should be effected without delay.

5. SHOTHOLES AND ENERGY SOURCE

- Vibrators will not be allowed to work within 20m of any gas, oil or water pipeline, electric cable or other utilities or installations.

- All operations involving the use of explosives shall be in accordance with the Explosives and Dangerous Goods Act 1961-1984 and Explosives Regulations 1963.

- All shotholes must be drilled off the cleared part of the seismic line.

- A shothole cap must be placed immediately above the highest explosive charge and the shothole backfilled and tamped to surface.

- The Department of Mines is to be notified immediately of any petroleum or artesian water resulting from shothole drilling or the use of explosives.
- Prior to shooting in areas where there are gas or water pipelines, the pipeline owner should be advised.

- Above ground blasting shall not be conducted within 150m of any perennial surface water, residence, well, bore or spring development and in the absence of specific instructions from a utility the following charge-distance chart shall apply:

SUGGESTED MINIMUM DISTANCES FROM FIXED IMPROVEMENT TO EXPLOSIVE SOURCE

BURIED* EXPLOSIVE ENERGY SOURCE
(Charge per shot shown in kilograms)

Fixed Improvement	Under 2.0Kg	2.0 to 3.9Kg	4.0 to 8.0Kg	8.0 to 15.0Kg	16.0 to 37.0Kg
Pipeline (less than 15cm dia.)	60m	75m	90m	120m	180m
Pipeline (15 - 30cm dia)	90m	120m	150m	180m	240m
Pipeline (greater than 30cm dia.)	120m	150m	180m	240m	300m
Telephone Line	12m	17m	23m	29m	35m
Rail Line or Main Paved Highway	45m	65m	85m	107m	130m
Electric Power Power Line	90m	90m	90m	90m	90m
Water Well, Buildings	180m	210m	240m	270m	300m

* Standards have not been established for explosions on the surface.

** This distance may increase to 120 metres when Primacord used to detonate the charge.

Source: G.S.I. Field Safety Handbook

- Wherever practical shotholes should be sited away from caves, breakaways and other sensitive environments.
- Shot-holes, cave-ins and damage caused by explosives must be suitably plugged with dry, unconsolidated fill and the disturbed area restored as near as possible to its original state. Particular attention should be paid to areas frequented by livestock.
- Groundwater encountered must be protected from contamination or waste by adequate down-hole cementing.

6. CAMPSITES

- Campsites should be located well away from major water courses, creeks, mound springs, wells and pastoral property infrastructure (such as bores, dams and homesteads).
- Disposal pits will be constructed above water table level, away from water courses, creeks and waterholes and will be of an adequate size to contain all of the waste and to allow for deep burial.
- Kitchen and ablution waters must empty into earth drains that allow rapid infiltration, prevent discharge to creeks and surface waters and be of an

adequate size to ensure that water is directed away from areas frequented by camp personnel and vehicles.

- Adequate and properly maintained fire fighting equipment will be present at the campsite and all fires and ignition sources will be controlled to prevent bushfire.

- Litter, rubbish and other wastes that have not been buried must be removed from campsites within one week of abandonment and the sites put in such a condition as to encourage rapid rehabilitation.

- Rubbish dumps, sewage drains, etc shall be filled to ensure a minimum cover of 1 metre, in such a manner as to restore the land surface and to avoid surface contamination and disturbance by animals. During construction topsoil should be stockpiled and returned after filling to encourage regeneration.

- There should be no burial of sensitive areas. All rubbish should be removed and disposed of in a satisfactory manner.

BIBLIOGRAPHY

AMERICAN PETROLEUM INSTITUTE 1975. API Recommended Land Drilling Operating Practices for Protection of the Environment. API Division of Production, PR52.

AUSTRALIAN PETROLEUM EXPLORATION ASSOCIATION 1977. APEA Code of Environmental Practice. APEA Ltd, Sydney.

AUSTRALIAN PETROLEUM EXPLORATION ASSOCIATION 1983. (Revised 1988) APEA Code of Environmental Practice: Onshore and Offshore. APEA Ltd, Sydney.

CHAMBER OF MINES OF WESTERN AUSTRALIA n.d. Exploration Guidelines for Field Personnel. Pocketbook Brochure, 10 pp.

DELHI PETROLEUM PTY LTD, SANTOS LTD, SOUTH AUSTRALIAN DEPARTMENT OF MINES AND ENERGY 1984. Code of Environmental Practice Regulating Petroleum, Seismic and Drilling Operations in PELs 5 and 6, South Australia.

KLEPACKI, N.M., BLACK, S.J. and MARCHANT, M.H. 1985. Impact of Petroleum Exploration Activity on Range Resources and Pastoral Pursuits in the West Kimberley. W.A. Dept. Agric., Division of Resources Management. Tech. report 41, 72 pp.

GEOPHYSICAL SERVICES INCORPORATED FIELD SAFETY HANDBOOK.

SANTOS LTD 1988. Environmental guidelines for line clearing - Dozer Manual.

OIL SPILL CONTINGENCY PLAN GUIDELINES

The Oil Spill Contingency Plan document should contain the following key information:

1. INTRODUCTION

- Background regarding the plan and the permit area.
- Permit area of the oil spill plan.
- Objective of the oil spill plan.
- Environmental sensitive areas in the permit area.
- Structure and Format of the oil spill document.

- Locality map.

2. OIL SPILL ACTION PLAN

- Action plan flow chart
- Properties of oil.
- Action plan for different phases of oil spill and quantify amount of oil spill separating the phases.
- Classification of oil spill eg. sheen, etc.
- Oil spill trajectory analysis and chart.
- Oil spill decision making chart.
- Policy for using oil dispersants.

3. NOTIFICATION PROCEDURES AND INDIVIDUAL RESPONSIBILITIES

- Notification procedures should an oil spill occur.

3.1 Reporting

- Report/Notification flow path.

3.2 Directory

- Directory to include the following:

- Key company personnel.
- Other key oilfield operators.
- State Committee for Combating Marine Oil Pollution.
- Key State Departments.
- MOSAP.
- Key Commonwealth Departments.
- Local Governments.
- Key volunteer groups assisting oil spills (optional).

- Regional emergency numbers.
- Other relevant authorities.

4. ENVIRONMENTAL CHARACTERISTICS OF PROJECT/PERMIT AREA

- Identify local marine resources at risk should an oil occur eg. coral reefs, algal meadows and seagrass beds, mangroves, turtles, mammals, seabirds, dugongs, other faunal and flora.
- List areas prioritized for protection.

- Map showing regional environmentally sensitive areas.
- Map showing specific/local environmentally sensitive areas.
- Table listing the faunal and flora in the permit area.
- Table listing the oil spill effects on tropical marine habitats and populations.
- Table listing the oil spill effects on the shorelines.

- Oil spill containment methods in environmentally sensitive areas.

5. CONTROL METHOD AND CLEAN-UP PROCEDURES SHOULD OIL SPILL OCCUR

- Marine oil spill control and removal procedures eg deployment of offshore booms, skimmers, shore booms, etc; use of dispersants, agitation, etc.
- Give an indication of response time and readiness to carry out the oil spill plan.
- Oil spill exercise must be carried out once a year.

- Map showing areas where dispersants may be used.
- Map showing distance to project area from shore base.
- Table listing disposal sites for oily waste.
- Survey Data Sheet for Surface Water Tracking (optional).
- Sample collection method sheet (optional).

6. METEOROLOGICAL AND OCEANOGRAPHIC CHARACTERISTICS

- Wind pattern
- Rainfall pattern (optional).
- Physical oceanography (optional).

- Map showing offshore wind roses.

7. EXTERNAL RESOURCES AVAILABLE FOR COMBATING LARGE MARINE OIL SPILLS

- Indicate familiarity with the following:

    - MOSAP (Marine Oil Spill Action Plan).
    - WASCP (The West Australian State Counter Disaster Plan - Pollution of the Sea and Inland Waters - need to insert Annexes A, C, D, E, H & I only).
    - NATPLAN (National Plan to Combat Pollution of the Sea By Oil).

    - NB: Insert only information which is relevant to your plan.

8. LOCALLY AVAILABLE OIL SPILL EQUIPMENT AND DISPERSANTS

- Inventory of oil spill equipment and dispersants.
- Identify your company's facilities and equipment.
- Identify other companies' facilities and equipment.
- Indicate the adequacy of oil spill facilities and equipment available.

9. ADDITIONAL EQUIPMENT AND DISPERSANTS HELD AT REGIONAL AND NATIONAL CENTRES

- Identify location and availability of additional oil spill containment equipment eg. barges, tugs, launches, trailer, aircraft, pumps, earthmoving equipment, diving/salvage services, dispersants, NATPLAN equipment, etc.

10. Plan Format

- Each section should be separated by a page divider and clearly labelled.
- Oil Spill Plan should be dated.
- Oil Spill Plan should be clear, concise and user friendly (the design is entirely left to the company).

GUIDELINES FOR SEISMIC SURVEYS IN WESTERN AUSTRALIAN ROCK LOBSTER FISHING GROUNDS

Department of Fisheries

I. INTRODUCTION

The following guidelines have been prepared in order to minimise areas of conflict between the fishing industry and the oil exploration industry during seismic survey operations in Western Australian waters.

The guidelines have been prepared in collaboration with the Australian Fishing Industry Council (W.A Branch) and the Australian Petroleum Exploration Association Ltd on the basis that wherever feasible seismic surveys will be undertaken outside the rock lobster fishing period. Oil Company Operators should note that final approval for seismic survey work in the areas referred to in these guidelines will only be granted in instances where these guidelines have generally been followed.

II. AUTHORITY

For the purpose of these guidelines and particularly for the various agreements mentioned herein, the oil exploration permit holder involved shall be bound by the agreements reached by a representative of the company (or companies) duly authorised for that purpose and the fisherman shall be bound by the agreements reached by the Executive of the appropriate Professional Fishermen's Association.

The Executive Officer of the Australian Fishing Industry Council (W.A Branch) is to be consulted in determining the appropriate Professional Fishermen's Association and should be kept informed of the progress of negotiations.

III. DESIGNATED AREA

The area to which these guidelines apply has been divided into three sub-areas according to the degree of sensitivity of the area and the amount of fishing carried out. The areas are as follows:-

Area A.

This area incorporates the major rock lobster fishing areas of the Western Australian coast and, accordingly, is the area where maximum consultation should take place between the fishing industry and the oil exploration industry. The area encompasses all Western Australian waters less than 100 fathoms in depth lying between 25° south latitude and 33° 25' south latitude.

Area B.

This area incorporates the northern and southern outer limits of the rock lobster limited entry fishery and encompasses all Western Australian waters less than 100 fathoms in depth lying between;

- 25° south latitude and the northern limit of the limited entry fishery which is 21° 44' south latitude; and
- 33° 25' south latitude and the southern limit of the limited entry fishery which is 34° 24' south latitude.

Abrolhos Islands Area

This area incorporates the waters less than 100 fathoms surrounding the Abrolhos Islands and within the external boundaries, as shown on the plan marked Appendix II.

IV. PROCEDURES

1. Seismic Surveys During Period Closed to Rock Lobster Fishing

Whenever possible, seismic surveys will be conducted in AREAS A and/or B during the period July 1 to November 8 of each year and from July 1 to the following March 8 for the ABROLHOS ISLANDS AREA. These periods are the time the areas are closed to rock lobster fishing but also recognise the times immediately prior to the opening of the fishing seasons when large numbers of pots are put in the water to soak.

2. Seismic Surveys During Rock Lobster Fishing Period

2.1 If a Permittee cannot, as a result of contractual arrangements, permit conditions, technological reasons or other cause, reasonably conduct seismic surveys in AREAS A, B and the ABROLHOS ISLANDS AREA during the periods referred to in 1. above he may apply for permission to conduct such surveys during the rock lobster season.

2.2 Such application would need to be two months in advance of the requested commencement date.

2.3 On receipt of an application, the Department of Minerals and Energy will liaise immediately with the Department of Fisheries and Wildlife and preliminary clearance may be granted subject to agreement being reached between the Oil Company Operator and the appropriate Professional Fishermen's Association in accordance with these guidelines. Upon the granting of preliminary clearance, the Department of Minerals and Energy shall forward forthwith, a copy of the application to the appropriate Professional Fishermen's Association.

2.4 In general, however, such preliminary clearance will not be granted unless the Permittee can amply demonstrate the desirability (from either a technological, financial or logistic aspect) of conducting seismic surveys during the rock lobster season.

2.5 Only under exceptional circumstances as defined in Clause VI will preliminary clearance for seismic survey be given for the period November 9 to the following January 15 each year (ie. during the "whites" fishery) for AREA A or March 9 to April 30 each year (ie. during the "reds" fishery) for AREA A and the ABROLHOS AREA.

2.6 If preliminary clearance to conduct the seismic survey during the rock lobster season is granted, the oil company operator together with the seismic contractor shall, through the Executive Officer of the Australian Fishing Industry Council (W.A Branch), arrange to meet with the executive of the appropriate Professional Fishermen's Association with a view to discussing methods by which the seismic survey may be facilitated.

2.7 Such a meeting should be held at least six weeks prior to the proposed commencement date of the survey.

2.8 In general, the method of operation of seismic surveys during the rock lobster season will include all of the actions outlined in Appendix 1 unless agreement is reached

between the Oil Company Operator and the executive of the appropriate Professional Fishermen's Association to vary those actions.

2.9 The Hon. Minister for Minerals & Energy may grant final approval for a seismic survey operation to be undertaken during the rock lobster season and in doing so shall take into account the agreements reached and/or submissions made by the Oil Company Operator and the appropriate Professional Fishermen's Association.

2.10 In the event agreement under Clause IV cannot be reached between the Oil Company Operator and the appropriate Professional Fishermen's Association, the Appeal Provisions under Clause V shall apply.

3. Surveys at Short Notice

3.1 It is recognised that while most seismic surveys in the rock lobster fishing period will have been planned some time in advance and the appropriate period for application observed, there may be situations when it is not possible to provide the required notice.

3.2 Permission may be granted to conduct the surveys during the rock lobster fishing period provided that prior agreement is reached between the Oil Company and the seismic contractor on the one hand and the appropriate Professional Fishermen's Association on the other hand as to the mode of operation of the survey vessel. Such agreement may not necessarily include the actions generally applicable to surveys within the fishing season as outlined in Appendix 1. Notification in writing of such agreement should be lodged with the WA Department of Mines and will be a pre-requisite for the granting of final permission to conduct the survey.

3.3 Only under the exceptional circumstances defined in Clause VI will approval be given for seismic surveys to be conducted during the period November 9 to the following January 15 (ie during the whites fishery) for AREA A or March 9 to April 30 each year (ie during the reds fishery) for AREA A and the ABROLHOS AREA.

V. APPEAL PROVISION

1. In the event agreement between the Oil Company Operator and the appropriate Professional Fishermen's Association cannot be reached, the Oil Company Operator shall write to the Hon. Minster for Minerals and Energy to advise of actions taken pursuant to Clause IV, that agreement has not been reached and submit a request to invoke the Appeal Provision.

2. The Hon. Minister for Mines, upon being satisfied that the Oil Company Operator has taken all reasonable steps under Clause VI, shall request that a meeting be held in the district of the appropriate Professional Fishermen's Association to be chaired by an officer of the Department of Minerals and Energy and by invitation, to be attended by the executive of the Professional Fishermen's Association, the Executive Officer of the Australian Fishing Industry Council (W.A Branch), a representative from the Department of Fisheries and Wildlife and the Oil Company Operator.

3. The Chairman shall discuss any grievances at this meeting and attempt to reach agreement on all unresolved matters between the Oil Company Operator and Professional Fishermen's Association. Where agreement is reached, the Chairman shall advise the Hon Minister for Mines of the terms and conditions thereto. Where agreement cannot be reached, the Chairman and the representative from the Department of Fisheries and Wildlife, shall report separately to the Hon Minster for Mines on the meeting and factors to be taken into account in the consideration of the appeal.

4. The Hon Minister for Minerals & Energy upon considering the report of the Chairman and when applicable, the report of the representative from the Department of Fisheries and Wildlife, shall approve or not approve the undertaking of the seismic survey by the Oil Company Operator within the area of the rock lobster fishing grounds.

5. The Hon Minister for Minerals & Energy shall advise in writing forthwith his decision as to allowing the survey or not, to all appropriate parties specifying the conditions which shall apply for the undertaking of the proposed seismic survey if approved.

6. The rights of the Appeal Provision provided by this Clause shall not extend to any applicant Oil Company intending to undertake a seismic survey of the rock lobster fishery in designated AREA A during the period November 9 to the following January 15 each year or March 9 to April 30 each year, or in the ABROLHOS ISLANDS AREA during the period March 9 to April 30 each year.

VI. MEANING OF EXCEPTIONAL CIRCUMSTANCES

The exceptional circumstances shall only be those defined below:

(i) Where the seismic survey is of limited duration (one or two days) and being conducted in an area of the fishery where pots are small in number (eg in deep water at the commencement of the "white" fishery).

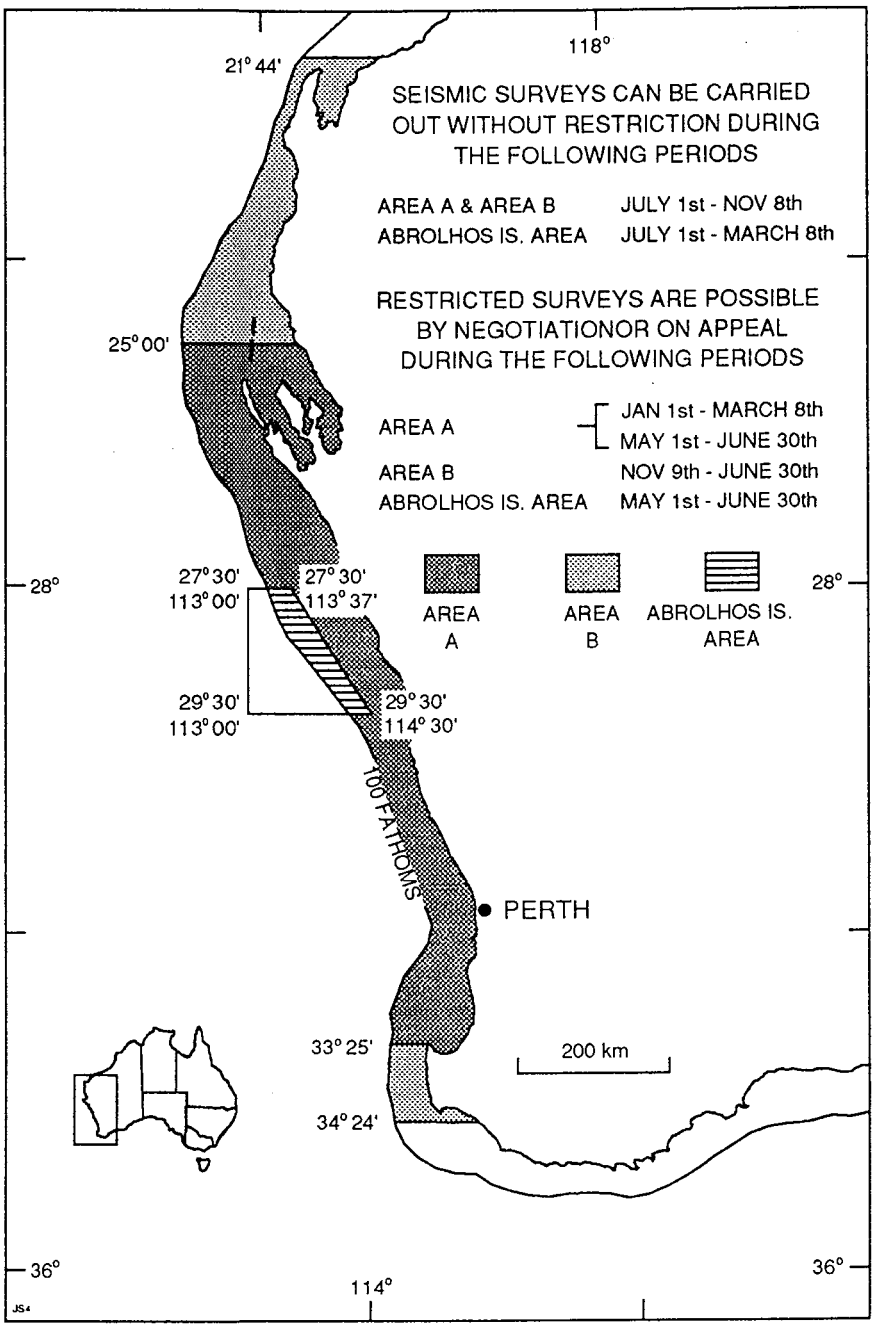
(ii) Where the seismic survey consists of a single line from shallow water to deep water.

APPENDIX I

General Method of operation for seismic surveys conducted during the rock lobster season.

	ACTION	AREAS TO WHICH APPLICABLE
(a)	The survey grid pattern to be followed will be supplied to the appropriate Professional Fishermen's Association at least six weeks prior to the proposed commencement date of the survey. Regular subsequent updating of information on the survey track will also be supplied.	A, B and the Abrolhos Islands Area
(b)	A representative of the seismic survey company will be stationed onshore during the survey operation with radio equipment so that constant contact can be kept with the survey vessel and the fishermen be informed accordingly of the vessel's present position and immediate movements.	A and the Abrolhos Islands Area
(c)	A representative of the Professional Fishermen's Association concerned will be provided with suitable charts showing the proposed survey grid and the route to be followed. These should be supplied in adequate time for fishermen to move posts etc.	A and the Abrolhos Islands Area
(d)	When final approval is granted for continuous seismic operations, the Operator will use its best endeavours to conduct the survey in sensitive areas during daylight hours. Such final approval for continuous operations will only be granted subject to agreement being reached between the Oil Company Operator and the appropriate Professional Fishermen's Association.	A and the Abrolhos Islands Area

	ACTION	AREAS TO WHICH APPLICABLE
(e)	Fishermen will be appropriately recompensed for any damage to or loss of posts, ropes and floats as a result of the activities of the survey vessel during the period seismic surveys are being undertaken.	A, B and the Abrolhos Islands Area
(f)	If approval is granted for seismic surveys to be conducted during the rock lobster season, all practical measures are to be taken to avoid contact with or damage to pots, ropes and floats set in the area. Experience has shown that such measures as scouting a line with a navigation controlled boat a few hours before shooting the line is quite effective.	A, B and the Abrolhos Islands Area
(g)	Movements of pots by scouting vessels operating ahead of the seismic survey vessel will only be permitted where the appropriate Professional Fishermen's Association agree to such action being undertaken by a vessel of that Association's choice.	A, B and the Abrolhos Islands Area


118°
21° 44'
SEISMIC SURVEYS CAN BE CARRIED OUT WITHOUT RESTRICTION DURING THE FOLLOWING PERIODS
AREA A & AREA B JULY 1st - NOV 8th
ABROLHOS IS. AREA JULY 1st - MARCH 8th
RESTRICTED SURVEYS ARE POSSIBLE BY NEGOTIATIONOR ON APPEAL DURING THE FOLLOWING PERIODS
AREA A JAN 1st - MARCH 8th
MAY 1st - JUNE 30th
AREA B NOV 9th - JUNE 30th
ABROLHOS IS. AREA MAY 1st - JUNE 30th
25° 00'
28°
27° 30'
113° 00'
27° 30'
113° 37'
AREA A
AREA B
ABROLHOS IS. AREA
28°
29° 30'
113° 00'
29° 30'
114° 30'
100 FATHOMS
PERTH
33° 25'
200 km
34° 24'
36°
114°
36°
JS4

The report should provide the following key information:

1. The degree of impact eg erosion, biological and physical disturbance, soil compaction, etc.

2. The rehabilitation status for the following:

   - Seismic lines
   - Drilling sites
   - Campsites
   - Other sites or access tracks used in the operations

3. Where appropriate, the extent to which the seismic lines and access tracks are disguised to deter casual public access.

4. the method of waste disposal.

5. the frequency and duration of monitoring.

6. The person responsible for the monitoring and report writing.

7. Date of field inspection and report.

GOVERNMENT LEGISLATION

Legislation which could impact on petroleum operations include the following:

Onshore

Petroleum Act 1967
Schedule of Onshore Petroleum and Production Requirements - 1991
Petroleum Pipelines Act 1969-1981
Environmental Protection Act 1986
Conservation and Land Management Act 1984
Soil and Land Conservation Act 1945-1988
Wildlife Conservation Act 1950
Aboriginal Heritage Act 1972-1980
Aboriginal Affairs Planning Authority Act 1972
Aboriginal Communities Act 1979
Agricultural and Related Resources Protection Act 1976
Bush Fires Act 1954
Mining Act 1978
Land Act 1933
Local Government Act 1960
Rights in Water and Irrigation Act 1914
Explosives and Dangerous Goods Act 1961

Offshore

Commonwealth Petroleum (Submerged Lands) Act 1967
Petroleum Act 1967
Petroleum (Submerged Lands) Act 1982
Schedule Specific Requirements As to Offshore Petroleum Exploration and Production - 1990
Petroleum Pipelines Act 1969-1981
Environmental Protection Act 1986
Conservation and Land Management Act 1984
Wildlife Conservation Act 1950-1980
Fisheries Act 1905
Prevention of Pollution of Waters by Oil 1960
Pollution of Waters by Oil and Noxious Substances Act 1987
Shipping and Pilotage Act 1967
WA Marine (Sea Dumping) Act 1981
Marine and Harbours Act 1981
WA Marine Act 1982
Marine Archaeology Act 1973
Marine Navigation Aid Act 1973
Explosives and Dangerous Goods Act 1961

CATEGORIES OF LAND IN WESTERN AUSTRALIA MANAGED BY THE DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT (CALM)

"Land Tenure" is the term used to describe the form of right, or title to land. The two broad classes of land tenure are private property and Crown Land. Crown lands managed by CALM can be reserved under the Land or the Conservation and Land Management (CALM) Act.

National parks, conservation parks, nature reserves, marine parks and marine nature reserves are vested in the National Parks and Nature Conservation Authority (NPNCA). State forests and timber reserves are vested in the Lands and Forest Commission (LFC). Miscellaneous reserves created as Section 5g land may be vested in either body.

Section 5 of the Conservation and Land Management (CALM) Act 1984 lists eight categories of land to which the CALM Act applies.

Category	*Enabling Act*	*Vesting*
State forest	CALM	LFC
Timber Reserve	CALM or Land	LFC
National Park	Land	NPNCA
Conservation Park	Land	NPNCA
Nature Reserve	Land	NPNCA
Marine Park	CALM and Land	NPNCA
Marine Nature Reserve	CALM and Land	NPNCA
Any other land vested in the Commission or the Authority		
Section 5g (Miscellaneous Reserves)	Land	LFC or NPNCA

In addition, CALM manages land vested in the Executive Director or held freehold in the name of the Executive Director and sections of private land under pine and eucalypt sharefarming agreements. Also private land may be managed by CALM by an agreement made under Section 16 of the CALM Act.

In Western Australia, the security of tenure and purpose of Crown land reserved under the Land Act 1933 varies, depending upon whether the reserve is Class A, B or C.

A Class reserve - tenure and purpose can be changed only by agreement of both Houses of the WA Parliament.
B Class reserve - tenure and purpose can be changed by the Governor of Western Australia without approval by Parliament. However, the reasons for any change must be reported to Parliament by the Minister for Lands.
C Class reserve - tenure and purpose can be changed by the Governor, without reference to Parliament. However, any changes must be published in the Government Gazette.

This system therefore determines the degree of difficulty involved in changing the tenure or purpose of Crown land.

Most national parks and many nature reserves are A Class reserves. However, some parks and nature reserves were given B or C Class status when they were created many years ago. Such status has been reviewed using criteria for evaluation based on conservation values, petroleum and mineral resources. Many B and C Class reserves are in the process of being upgraded to A Class following mineral and petroleum and biological assessment and consultation with local communities.

The security of tenure of State forest is similar to that of an A Class reserve. Security of Timber Reserves (CALM Act or Land Act) is similar to C Class. State forest is not a "reserve", and therefore is not classed A, B or C. However, any change to the tenure or purpose of a State forest requires either an Act or the agreement of both houses of Parliament. Under Section 5 of the Petroleum Act, 1967, State forest and timber reserves are defined as Crown Land.

LAND MANAGED BY CALM

There is a variety of purposes for which lands vested in the NPNCA or the LFC are managed. Different categories of land have different purposes, such as conservation, production or recreation.

The land categories have the following vesting, classification and purpose.

NATURE RESERVES - LAND AND MARINE

Vesting: National Parks and Nature Conservation Authority.

Classification: A Class (B and C Class reserves are being reviewed and changed to A Class where there is no conflict with mineral values and conservation values warrant).

Purpose: Wildlife and landscape conservation, scientific study and preservation of features of archaeological, historic or scientific interest.

Comment: Nature reserves may be terrestrial or marine. These are areas in which wildlife values may not be commercially exploited except under conditions stated in the CALM Act and where no recreation which damages natural ecosystems is normally allowed. Marine nature reserves may be declared under Section 13 of the CALM Act or for land areas to the low water mark, Part III of the Land Act.

NATIONAL PARK

Vesting: National Parks and Nature Conservation Authority.

Classification: A Class (B and C Class parks are being reviewed and changed to A Class where there is no conflict with mineral values and conservation values warrant). Under Section 31A of the Land Act, National parks may not be abolished or their area reduced without the approval of Parliament. This affords all National parks the equivalent of Class A classification.

Purpose: Wildlife and landscape conservation, scientific study, preservation of features of archaeological, historic or scientific interest, together with recreational enjoyment by the public.

Comment: National Parks are all terrestrial. Commercial exploitation of flora and fauna is not permitted except under conditions stated in the CALM Act. Only those recreational pursuits which do not adversely affect ecosystems and landscapes are permitted. The classification of national park applies to areas which have national or international significance for scenic, cultural or biological values.

CONSERVATION PARK

Vesting: National Parks and Nature Conservation Authority.

Classification: A, B or C Class. Under Section 31A of the Land Act, conservation parks may not be abolished or their area reduced without the approval of Parliament - affords equivalent of A Class classification.

Purpose: Identical to national park.

Comment: Conservation parks differ from national parks only in their significance, size or condition. They are managed as if they were national parks. The differences are that these areas do not have major national or international significance, are relatively small in size or the landscape or biota has been affected by past land use. Conservation parks in forest areas will not include zones for commercial timber production.

MARINE PARK

Vesting: National Parks and Nature Conservation Authority.

Classification: A Class.

Purpose: Marine conservation and recreation. Areas may be zoned for commercial fishing, alternatively sanctuary zones (no fishing) can be created.

Comment: This classification is generally in accord with the internationally accepted concept of a managed resource area. It allows for management for conservation and recreation, together with fishing in accord with the Fisheries Act. Marine parks may be declared under Section 13 of the CALM Act or for land areas to low water mark, Part III of the Land Act.

STATE FOREST

Vesting: Lands and Forest Commission.

Classification: Identical to A Class, in that either an Act or the agreement of both Houses of Parliament is required before tenure or purpose can be changed.

Purpose: For indigenous State forest, multiple use of one or more of the following: conservation; recreation; timber production on a sustained yield basis; water catchment protection; or any other purpose prescribed by the regulations.

For exotic State forest, to achieve the optimum yield in production consistent with long term social and economic needs.

Comment: The major uses of State forest are for water supplies, recreation, sustainable timber production and for wildlife conservation. State forests also provide for public utilities and mineral production, where these activities are required under Government policy.

TIMBER RESERVE

Vesting: Lands and Forest Commission

Classification: C Class

Purpose: Identical to State forest

Comment: Timber reserve is a transitional classification. As timber reserves are evaluated, they will be reclassified as State forest, nature reserve or conservation park as appropriate.

SECTION 5g MISCELLANEOUS RESERVES ("OTHER LAND")

Vesting: Lands and Forest Commission or National Parks and Nature Conservation Authority.

Classification: A, B or C Class determined on a case by case basis.

Purpose: These reserves have a wide variety of purposes, but normally are related to recreation, wildlife conservation and historical features. Appropriate uses will be determined by the purpose of each reserve. As with timber reserves, this classification is often transitional and on further evaluation the classification can be changed to a more appropriate one.

Comment: Section "5g" miscellaneous reserves are often considered where CALM wishes to manage the biological values of areas which have high mineral resource potential.

RELATIONSHIP BETWEEN CALM ACT AND PETROLEUM LEGISLATION

Section 4(1) of the CALM Act states that nothing in the Act shall derogate from the operation of the Petroleum Act 1967, the Petroleum (Submerged Lands) Act 1982, and any other act relating to minerals or petroleum, or any Government agreement. Section 15 of the Petroleum Act 1967 allows for the proclamation of reserves or any land dedicated to public purpose as "Crown Land" for the purpose of petroleum operations, subject to conditions required under Section 152 of the Petroleum Act.

NOTES:

- Unvested Timber Reserves are managed by DOLA not CALM.
- Section 6 of the CALM Act allows some areas of land (eg: shorelines, islands) to be reserved as marine nature reserves or marine parks.

Reserve Categories	*Example*	*Purpose*	*Petroleum Operations*	*Need to Declare as Crown Land*
LAND				
National Park	Cape Range	Nature and cultural conservation, scientific studies, public enjoyment.	Not excluded	Yes
Nature Reserve	Varanus Island Class C Reserve Barrow Island Class A Reserve	Nature conservation and scientific studies	Not excluded	Yes
Conservation Park	Montebello Islands	Nature and cultural conservation, scientific studies, public enjoyment.	Not excluded	Yes
State forest, Timber Reserve		Multiple use - timber production, conservation, catchment protection, public enjoyment	Not excluded	No
MARINE				
Marine Nature Reserve	Hamelin Pool	Nature conservation and scientific studies	Excluded	Yes
Marine Park	Ningaloo	Multiple use - nature and cultural conservation, scientific studies, public enjoyment	Excluded	Yes

NOTE: The Marine Parks Policy bans drilling and the production of minerals and petroleum in Marine Parks and Marine Nature Reserves and proposed parks and reserves which have been fully endorsed by Cabinet, other than on pre-existing tenements or from land areas in Marine Parks. Directional drilling beneath Marine Parks is permitted after environmental clearance.

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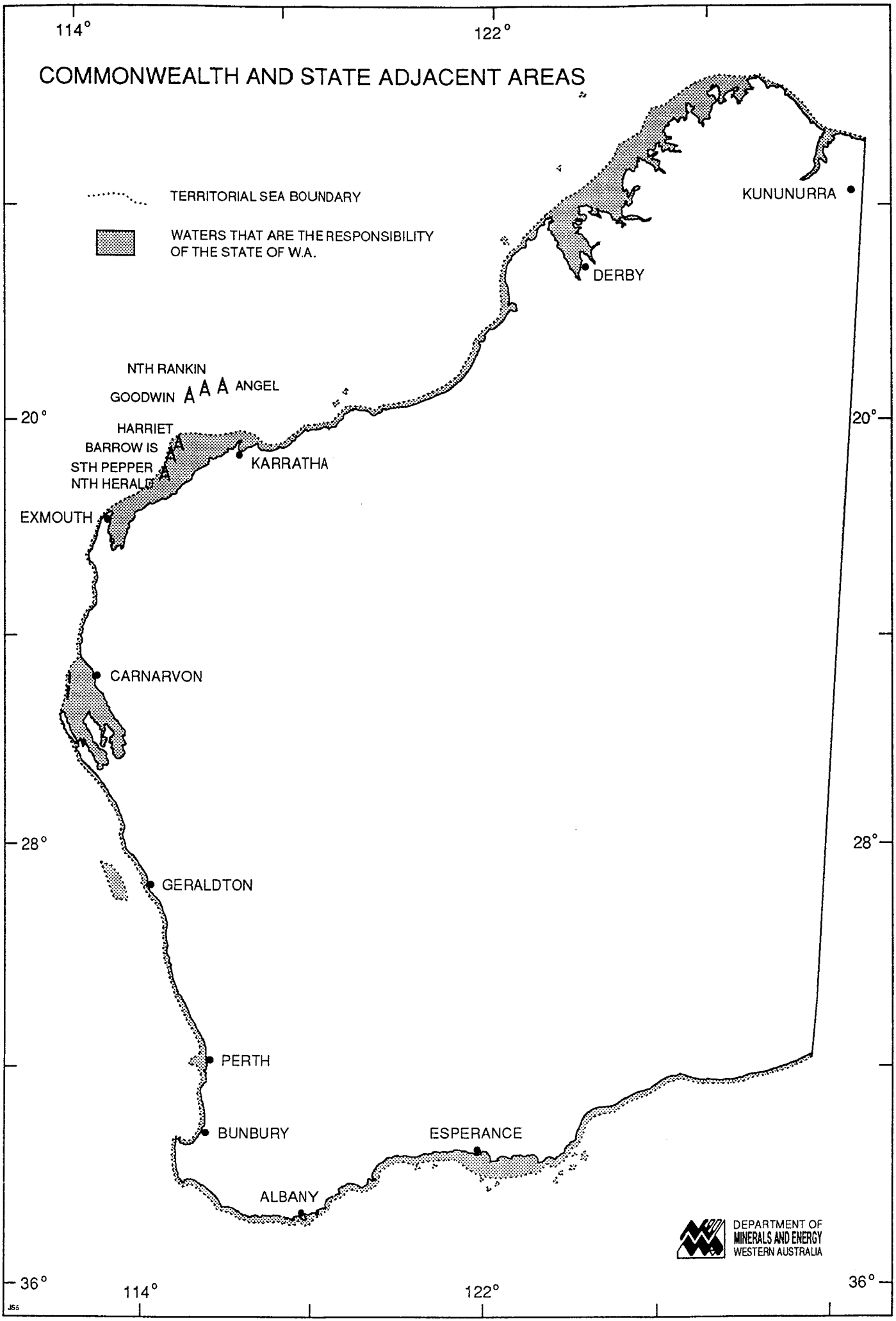
COMMONWEALTH AND STATE ADJACENT AREAS
114°
122°
20°
28°
36°
TERRITORIAL SEA BOUNDARY
WATERS THAT ARE THE RESPONSIBILITY OF THE STATE OF W.A.
KUNUNURRA
DERBY
NTH RANKIN
GOODWIN
ANGEL
HARRIET
BARROW IS
STH PEPPER
NTH HERALD
KARRATHA
EXMOUTH
CARNARVON
GERALDTON
PERTH
BUNBURY
ESPERANCE
ALBANY
DEPARTMENT OF MINERALS AND ENERGY WESTERN AUSTRALIA
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