

Cockburn 2 Combined Cycle Gas Turbine, Change to Environmental Conditions

Western Power Corporation

**Section 46 Report and Recommendations
of the Environmental Protection Authority**

**Environmental Protection Authority
Perth, Western Australia
Bulletin 1154
November 2004**

Environmental Impact Assessment Process Timelines

Date	Progress stages	Time (weeks)
12 Jul 04	Level of Assessment set	15.5 weeks
29 Oct 04	Final Proponent Document Submitted	
29 Nov 04	EPA report to the Minister for the Environment	4 weeks

ISBN. 0 7307 6795 7
ISSN. 1030 - 0120
Assessment No. 1530

Contents

Page

1. Introduction and background 1

2. The proposal 1

3. Environmental factors 2

4. Conditions and commitments..... 3

5. Other Advice 3

6. Conclusion..... 4

7. Recommendations 4

Tables

1. Summary of key proposed project extensions..... 2

Appendices

- 1. References
- 2. Statement of Environmental Conditions of Approval (23 June 2003)
- 3. Recommended Environmental Conditions and Proponent’s Consolidated Commitments

1. Introduction and background

The Minister for the Environment has requested the Environmental Protection Authority (EPA) to consider and provide advice under Section 46(3) of the *Environmental Protection Act 1986* (EP Act) on Western Power Corporation's (WPC) proposal to change the commitments made for the Cockburn 2 proposal.

Background

WPC referred the Cockburn 1 combined cycle plant to the EPA in February 2001. It was to be a replacement for Stage B at Kwinana Power Station (KPS) and all environmental impacts were improvements over Stage B. WPC made commitments to discontinue burning coal and oil once Cockburn 1 was commissioned and to decommission Stage B within 6 months of commissioning. The Level of Assessment (LOA) was set at "Informal Review – Public Advice Given" and Cockburn 1 was commissioned in October 2003. Oil firing capacity was subsequently removed from all units at KPS.

WPC referred the Cockburn 2 combined cycle plant to the EPA in October 2002 and the LOA was set at "Assessment on Referral Information". The EPA released its report and recommendations in January 2003 (EPA, 2003) and the Minister for the Environment issued a decision that the proposal may be implemented, with conditions, in Ministerial Statement 628 on 23 June 2003. The proponent's commitments were incorporated into these conditions and included commitments to discontinue coal firing by 30 June 2004 (delayed from the original commitment made for Cockburn 1) and to decommission Muja A/B in June 2006. Construction of Cockburn 2 has not yet commenced.

In June 2004, WPC advised the EPA that it would be unable to meet its commitments, particularly with regard to ceasing coal firing on 30 June 2004 but also with regard to the timing of decommissioning Stage B and Muja A/B. WPC also need to reintroduce oil firing at KPS.

The Minister for the Environment subsequently asked the EPA to report on the matter under Section 46 of the EP Act and issued interim conditions granting an extension to coal firing until 31 December 2004 to allow preparation of this proposal by WPC and consideration by the EPA.

References are listed in Appendix 1. Environmental Condition Statement 628, published on 23 June 2003, is presented in Appendix 2. The recommended conditions and procedures and proponent's commitments are provided in Appendix 3.

2. The proposal

Construction of Cockburn 2 has not commenced and may be further delayed. Notwithstanding this WPC has advised that:

- it will cease the use of coal at KPS when the Dampier to Bunbury Natural Gas Pipeline (DBNGP) has been expanded and can meet the natural gas requirements of KPS and other gas fired generation connected to the South West Interconnected System (SWIS) (requires change to Ministerial Statement 628);

- it will decommission Stage A/B at Muja Power Station in April 2007 subject to the construction and commissioning by that date of new generating capacity to replace it (requires change to Ministerial Statement 628);
- it will retire KPS Stage B in April 2008 subject to sufficient new generating capacity being available on the system by that time; and
- fuel oil will be used as a back-up fuel at KPS. The fuel to be used will be based on automotive distillate with a sulfur content not greater than 0.6%.

The EPA believes it is sensible to remove the commitments that do not relate to Cockburn 2 from Ministerial Statement 628 and to associate WPC's proposed operation and decommissioning timelines to the plant to which they apply via the applicable regulatory instrument i.e. the Department of Environment (DoE) Part V Licence. As such, the EPA will provide advice to the DoE and WPC as part of this report in Section 5 "Other Advice".

Table 1 summarises the key project characteristics of the approved project and proposed extension. A detailed description of the proposal is provided in the Section 46 referral document (WPC, 2004).

Table 1: Summary of proposed project extension.

Project characteristic	Current commitment	Proposed extension
Cessation of coal firing	30 June 2004	after expansion of the DBNGP
Decommissioning of Muja A/B	30 June 2006	30 April 2007
Retirement of KPS Stage B	April 2004	30 April 2008
Cessation of oil firing	October 2003	ongoing use as a back-up fuel

3. Environmental factors

3.1 Air emissions

Kwinana Power Station – The continuation of coal firing, the use of oil as a secondary fuel and the delayed retirement of Stage B will result in greater emissions (notably SO₂) and greater greenhouse gas intensity.

WPC has advised that the increased emissions would still be within their current licence limits. WPC has also undertaken air dispersion modelling and a Health Risk Assessment (HRA) which predicts compliance with both the Environmental Protection (Kwinana) (Atmospheric Wastes) Policy and the National Environment Protection Measure (NEPM) and negligible risk to human health (Environ, 2004).

The EPA's preference would be for the KPS to be operated solely on natural gas, however after considering the results of the air dispersion modelling and the HRA and recognising the constraints on gas availability in the short term, the EPA considers that the:

- continuation of coal firing at KPS until the DBNGP is expanded;
- reinstatement of oil firing as a backup fuel for the life of KPS; and
- delayed retirement of KPS Stage B until April 2008,

can be accommodated so as to not compromise the EPA's objectives.

Muja Power Station – Muja A/B is old plant with very high emissions (notably particulates and SO₂). The EPA's preference is for Muja A/B to be decommissioned as soon as possible, however, having regard to the results of WPC's ambient monitoring which shows that the NEPM is being met in the Collie town site and the results of air dispersion modelling which predicts compliance with the NEPM at the Collie town site (WPC, 2002), the EPA considers that the:

- delayed retirement of Muja A/B until April 2007,

can be accommodated so as to not seriously compromise the EPA's objectives.

4. Conditions and commitments

Section 46(3) of the EP Act requires the EPA to report to the Minister for the Environment on whether or not the proposed changes to conditions or procedures should be allowed. In addition, the EPA may make recommendations as it sees fit.

The EPA considers that the proposed changes to the timing of the commitments can be accommodated through the relevant DoE Licences. The EPA notes the conditions are recent and only minor changes are needed to bring them up to date.

As such, the EPA recommends that if the proposal by WPC is approved for implementation, the existing Ministerial Conditions applied to the project (Statement 628 published on 23 June 2003), be subject to modifications necessary to:

- delete the commitment to cease coal firing by 30 June 2004,
- delete the commitment to decommission Muja A/B by 30 June 2006.

The amended conditions and amended Consolidated Commitments statement are presented in Appendix 3.

5. Other Advice

As noted earlier, the EPA believes that the commitments in question should be associated with the generating plant to which they relate via the applicable DoE Licence. As such, the EPA provides the following advice to the DoE and to WPC.

Kwinana Power Station (DoE Part V Licence No. 5366/8)

- Cessation of coal firing at KPS – the EPA recommends that the DoE use Part V of the EP Act to address the removal of coal firing capability at KPS as soon as the DBNGP issues are resolved.
- Continuing use of oil as a back up fuel – the EPA recommends that the DoE amend the licence to include minimum fuel quality specifications, in particular the sulphur content should be limited to a maximum of 0.6%.
- Retirement of KPS Stage B – the EPA recommends that the DoE use Part V of the EP Act to address the retirement of KPS Stage B by April 2008.
- The EPA recommends WPC endeavour to minimise coal firing as much as practicable and use more efficient plant in preference to KPS Stage B whenever possible.

Muja Power Station (DoE Part V Licence No. 4706/9)

- Decommissioning of Muja A/B – the EPA recommends that the DoE use Part V of the EP Act to address the decommissioning of Muja A/B by April 2007. If WPC decide to operate Muja A/B past April 2007, the EPA recommends that the DoE require pollution control equipment to be retrofitted to control emissions of particulates and sulphur.
- The EPA recommends that WPC endeavour to use less polluting and more efficient plant in preference to Muja A/B whenever possible.

6. Conclusion

This report is the response of the EPA to the Minister for the Environment's request that the EPA inquire into WPC's proposed changes to the environmental conditions and report under Section 46 (3) of the EP Act.

The EPA notes that the commitments to be changed would be better incorporated in the relevant DoE licences, and as such, has prepared draft environmental conditions and provided other advice to the DoE.

7. Recommendations

The EPA submits the following recommendations to the Minister for the Environment:

1. That the Minister notes that this report is pursuant to Section 46(3) of *the Environmental Protection Act 1986* and thus is limited to consideration of proposed changes to the original conditions.
2. The Minister notes that the proposed change is to remove commitments 3 and 4 from Ministerial Statement 628.
3. The EPA recommends that the Minister considers the report that the proposal raises no significant environmental factors as set out in Section 3.
4. That the Minister notes that the EPA has concluded that the modified proposal can be managed to meet the EPA's objectives, and thus not impose an unacceptable impact on the environment, provided there is satisfactory implementation by the proponent of the amended conditions, including the proponent's commitments, as set out in Section 4.
5. The Minister imposes the amended conditions, commitments and procedures recommended in Appendix 3 of this report.

Appendix 1

References

Environ (2004). *Atmospheric Emission Screening Assessment, use of Alternative Fuels at the Kwinana Power Station*, Environ Australia, October 2004.

EPA (2003). *Cockburn 2 Combined Cycle Gas Turbine, Assessment on Referral Information*, Bulletin 1086, Government of Western Australia, January 2003.

WPC (2002). *Collie Power Station Expansion – Strategic Environmental Review*, Western Power Corporation, June 2002.

WPC (2004). *Continued burning of coal at Kwinana Power Station and deferral of Muja Power Station A/B shutdown*, Western Power Corporation, September 2004.

Appendix 2

Statement of Environmental Conditions of Approval (23 June 2003)



Statement No.

MINISTER FOR THE ENVIRONMENT AND HERITAGE

000628

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

COCKBURN 2 COMBINED CYCLE POWER PLANT, KWINANA

Proposal: The construction, operation and maintenance of a nominal 240 megawatt combined cycle gas turbine power plant on a site located in Kwinana.

The proposal is documented in schedule 1 of this statement.

Proponent: Western Power Corporation

Proponent Address: GPO Box L921
PERTH WA 6001

Assessment Number: 1465

Report of the Environmental Protection Authority: Bulletin 1086

The proposal referred to above may be implemented subject to the following conditions and procedures:

Procedural conditions

1 Implementation and Changes

- 1-1 The proponent shall implement the proposal as documented in schedule 1 of this statement subject to the conditions of this statement.
- 1-2 Where the proponent seeks to change any aspect of the proposal as documented in schedule 1 of this statement in any way that the Minister for the Environment and Heritage determines, on advice of the Environmental Protection Authority, is substantial, the proponent shall refer the matter to the Environmental Protection Authority.

Published on

23 JUN 2003

- 1-3 Where the proponent seeks to change any aspect of the proposal as documented in schedule 1 of this statement in any way that the Minister for the Environment and Heritage determines, on advice of the Environmental Protection Authority, is not substantial, the proponent may implement those changes upon receipt of written advice.

2 Proponent Commitments

- 2-1 The proponent shall implement the environmental management commitments documented in schedule 2 of this statement.
- 2-2 The proponent shall implement subsequent environmental management commitments which the proponent makes as part of the fulfilment of the conditions in this statement.

3 Proponent Nomination and Contact Details

- 3-1 The proponent for the time being nominated by the Minister for the Environment and Heritage under section 38(6) or (7) of the *Environmental Protection Act 1986* is responsible for the implementation of the proposal until such time as the Minister for the Environment and Heritage has exercised the Minister's power under section 38(7) of the Act to revoke the nomination of that proponent and nominate another person as the proponent for the proposal.
- 3-2 If the proponent wishes to relinquish the nomination, the proponent shall apply for the transfer of proponent and provide a letter with a copy of this statement endorsed by the proposed replacement proponent that the proposal will be carried out in accordance with this statement. Contact details and appropriate documentation on the capability of the proposed replacement proponent to carry out the proposal shall also be provided.
- 3-3 The nominated proponent shall notify the Department of Environmental Protection of any change of contact name and address within 60 days of such change.

4 Commencement and Time Limit of Approval

- 4-1 The proponent shall provide evidence to the Minister for the Environment and Heritage within five years of the date of this statement that the proposal has been substantially commenced or the approval granted in this statement shall lapse and be void.

Note: The Minister for the Environment and Heritage will determine any dispute as to whether the proposal has been substantially commenced.

- 4-2 The proponent shall make application for any extension of approval for the substantial commencement of the proposal beyond five years from the date of this statement to the Minister for the Environment and Heritage, prior to the expiration of the five-year period referred to in condition 4-1.

The application shall demonstrate that:

- the environmental factors of the proposal have not changed significantly;
- new, significant, environmental issues have not arisen; and
- all relevant government authorities have been consulted.

Note: The Minister for the Environment and Heritage may consider the grant of an extension of the time limit of approval not exceeding five years for the substantial commencement of the proposal.

Environmental conditions

5 Compliance Audit and Performance Review

5-1 The proponent shall prepare an audit program in consultation with and submit compliance reports to the Department of Environmental Protection which address:

- the implementation of the proposal as defined in schedule 1 of this statement;
- evidence of compliance with the conditions and commitments; and
- the performance of the environmental management plans and programs.

Note: Under sections 48(1) and 47(2) of the *Environmental Protection Act 1986*, the Chief Executive Officer of the Department of Environmental Protection is empowered to audit the compliance of the proponent with the statement and should directly receive the compliance documentation, including environmental management plans, related to the conditions, procedures and commitments contained in this statement.

Usually, the Department of Environmental Protection prepares an audit table which can be utilised by the proponent, if required, to prepare an audit program to ensure that the proposal is implemented as required. The Chief Executive Officer is responsible for the preparation of written advice to the proponent, which is signed off by either the Minister or, under an endorsed condition clearance process, a delegate within the Environmental Protection Authority or the Department of Environmental Protection that the requirements have been met.

5-2 The proponent shall submit a performance review report every five years after the start of the operations phase, to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority, which addresses:

- the major environmental issues associated with the project; the targets for those issues; the methodologies used to achieve these; and the key indicators of environmental performance measured against those targets;
- the level of progress in the achievement of sound environmental performance, including industry benchmarking, and the use of best available technology where practicable;

- significant improvements gained in environmental management, including the use of external peer reviews;
- stakeholder and community consultation about environmental performance and the outcomes of that consultation, including a report of any on-going concerns being expressed; and
- the proposed environmental targets over the next five years, including improvements in technology and management processes.

6 Decommissioning

6-1 Prior to construction, the proponent shall prepare, and subsequently implement, a Preliminary Decommissioning Plan, which provides the framework to ensure that the site is left in an environmentally acceptable condition to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

The Preliminary Decommissioning Plan shall address:

- (1) rationale for the siting and design of plant and infrastructure as relevant to environmental protection, and conceptual plans for the removal or, if appropriate, retention of plant and infrastructure;
- (2) a conceptual rehabilitation plan for all disturbed areas and a description of a process to agree on the end land use(s) with all stakeholders;
- (3) a conceptual plan for a care and maintenance phase; and
- (4) management of noxious materials to avoid the creation of contaminated areas.

6-2 At least six months prior to the anticipated date of decommissioning, or at a time agreed with the Environmental Protection Authority, the proponent shall prepare a Final Decommissioning Plan designed to ensure that the site is left in an environmentally acceptable condition to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

The Final Decommissioning Plan shall address:

- (1) removal or, if appropriate, retention of plant and infrastructure in consultation with relevant stakeholders;
- (2) rehabilitation of all disturbed areas to a standard suitable for the agreed new land use(s); and
- (3) identification of contaminated areas, including provision of evidence of notification and proposed management measures to relevant statutory authorities.

- 6-3 The proponent shall implement the Final Decommissioning Plan required by condition 6-2 until such time as the Minister for the Environment and Heritage determines, on advice of the Environmental Protection Authority, that the proponent's decommissioning responsibilities have been fulfilled.
- 6-4 The proponent shall make the Final Decommissioning Plan required by condition 6-2 publicly available, to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

7 Greenhouse Gas Emissions

- 7-1 Prior to commencement of construction of the power plant, the proponent shall prepare a Greenhouse Gas Emissions Management Plan to:
- ensure that "greenhouse gas" emissions from the project are adequately addressed and best available efficient technologies are used to minimise total net "greenhouse gas" emissions and/or "greenhouse gas" emissions per unit of product; and
 - mitigate "greenhouse gas" emissions in accordance with the Framework Convention on Climate Change 1992, and consistent with the National Greenhouse Strategy;

to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

This Plan shall include:

- (1) calculation of the "greenhouse gas" emissions associated with the proposal, as indicated in *Minimising Greenhouse Gas Emissions, Guidance for the Assessment of Environmental Factors, No. 12* published by the Environmental Protection Authority;
- (2) specific measures to minimise the total net "greenhouse gas" emissions and/or the "greenhouse gas" emissions per unit of product associated with the proposal;
- (3) monitoring of "greenhouse gas" emissions;
- (4) estimation of the "greenhouse gas" efficiency of the project (per unit of product and/or other agreed performance indicators) and comparison with the efficiencies of other comparable projects producing a similar product;
- (5) analysis of the extent to which the proposal meets the requirements of the National Greenhouse Strategy using a combination of:
 - "no regrets" measures;
 - "beyond no regrets" measures;
 - land use change or forestry offsets; and
 - international flexibility mechanisms.

- (6) a target set by the proponent for the reduction of total net "greenhouse gas" emissions and/or "greenhouse gas" emissions per unit of product over time, and annual reporting of progress made in achieving this target.

Note: In part 5 above, the following definitions apply:

- (1) "no regrets" measures are those that can be implemented by a proponent which are effectively cost-neutral and provide the proponent with returns in savings which offset the initial capital expenditure that may be incurred; and
 - (2) "beyond no regrets" measures are those that can be implemented by a proponent which involve some additional cost that is not expected to be recovered.
- 7-2 The proponent shall implement the Greenhouse Gas Emissions Management Plan required by condition 7-1 to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.
- 7-3 The proponent shall make the Greenhouse Gas Emissions Management Plan required by condition 7-1 publicly available, to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

Procedures

- 1 Where a condition states "to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority", the Chief Executive Officer of the Department of Environmental Protection will obtain that advice for the preparation of written advice to the proponent.
- 2 The Environmental Protection Authority may seek advice from other agencies, as required, in order to provide its advice to the Chief Executive Officer of the Department of Environmental Protection.

Notes

- 1 The Minister for the Environment and Heritage will determine any dispute between the proponent and the Environmental Protection Authority or the Department of Environmental Protection over the fulfilment of the requirements of the conditions.
- 2 The proponent is required to apply for a Works Approval and Licence for this project under the provisions of Part V of the *Environmental Protection Act 1986*.

Dr Judy Edwards MLA
MINISTER FOR THE ENVIRONMENT AND HERITAGE

23 JUN 2003

Schedule 1

The Proposal (Assessment No. 1465)

The proposal is to construct, operate and maintain a second 240 megawatt combined cycle gas turbine unit adjacent to and to the south of Cockburn 1 which is currently under construction to form 'Cockburn Power Station'. This combined cycle gas turbine unit (Cockburn 2) will allow for the decreased usage of Kwinana Power Station Stage A; the accelerated shutdown of Stage A/B units at Muja Power Station, Collie; and the cessation of coal burning at Kwinana Power Station.

The main components of the plant are:

- one natural gas fired 160 megawatt generator unit;
- heat recovery steam generator;
- one 80 megawatt steam turbine and generator unit;
- water treatment plant to produce demineralised water;
- cooling water outfall with sub-sea diffuser; and
- administration, control room and workshop buildings.

The main characteristics of the proposal are summarised in the Table 1 below.

Table 1 - Key Proposal Characteristics

Element	Description
Project purpose	To construct, operate and maintain a natural gas fired combined cycle gas turbine plant of nominal 240 Megawatt capacity to supply electricity to customers on the South West Interconnected System grid.
Life of the Project	25 years
Power Generating Capacity	240 megawatt (nominal)
Facility "footprint"	2 hectares
Site area	9.4 hectares
Fuel	Natural gas
Natural gas supply: Source	Dampier to Bunbury Natural Gas Pipeline, via the Epic Energy gate station at the corner of Leath and Barter Roads, Naval Base. Cockburn 2 will utilise gas supply facilities constructed as part of the Cockburn 1 development.
Plant facilities: No. and size of gas turbines	1 x Alstom GT13E2 gas turbine unit of 160MW nominal generating capacity fitted with dry low NO _x burners. A gas bypass system and bypass stack may be fitted.
No. and size of steam turbines	1 x Alstom single shaft, axial exhaust steam turbine of 80 MW nominal generating capacity.
Heat Recovery Steam Generator (HRSG)	Alstom dual pressure HRSG with horizontal gas path.
No. of stacks	One heat recovery steam generator stack and one bypass stack (optional).
Height of HRSG stack	60m
Height of bypass stack (optional)	45m
No. of cooling towers	nil
No. of liquid fuel tanks	nil
Sub-sea diffuser and associated pipeline	1 of 180m length

Element	Description
Plant operation	Baseload/Mid Merit
Evaporation ponds	Excess wastewater which is not suitable for recycling will be discharged to the evaporation pond constructed as part of the Cockburn 1 development.
Construction period	27 months
Operating Hours	24 hours a day, 365 days a year.
INPUTS	
Natural gas	39 Terajoules per day
Cooling water	Seawater (5 m ³ /s)
Process water	Groundwater from the Perron Quarry Ash Disposal Facility
OUTPUTS	
Wastewater	Cooling water – 5 m ³ /s Process waters – minimal to evaporation pond
Air emissions:	
Oxides of nitrogen (NO _x)	830 tpa, (26.5 g/s) (less than 34 ppmv, dry, 15% O ₂)
Sulphur dioxide (SO ₂)	2.1 tpa, (0.07 g/s)
Carbon dioxide (CO ₂)(equiv)	838 000 tpa (maximum at 100% load) 629 000 tpa (based on projected usage, at 75% load)
Carbon monoxide (CO)	154.5 tpa
Non-methane volatile organic compounds (NMVOCs)	51 tpa

Abbreviations for Table 1:

DBNGP	Dampier to Bunbury Natural Gas Pipeline
g/s	grams per second
L	litres
m	metres
m ³ /yr	cubic metres per year
mm	millimetres
MW	megawatts
ppmv	parts per million by volume
SWIS	South West Interconnected System
tpa	tonnes per annum

Figures (attached)

Figure 1 - Regional location;
Figure 2 - Location Plan; and
Figure 3 - Power plant layout.

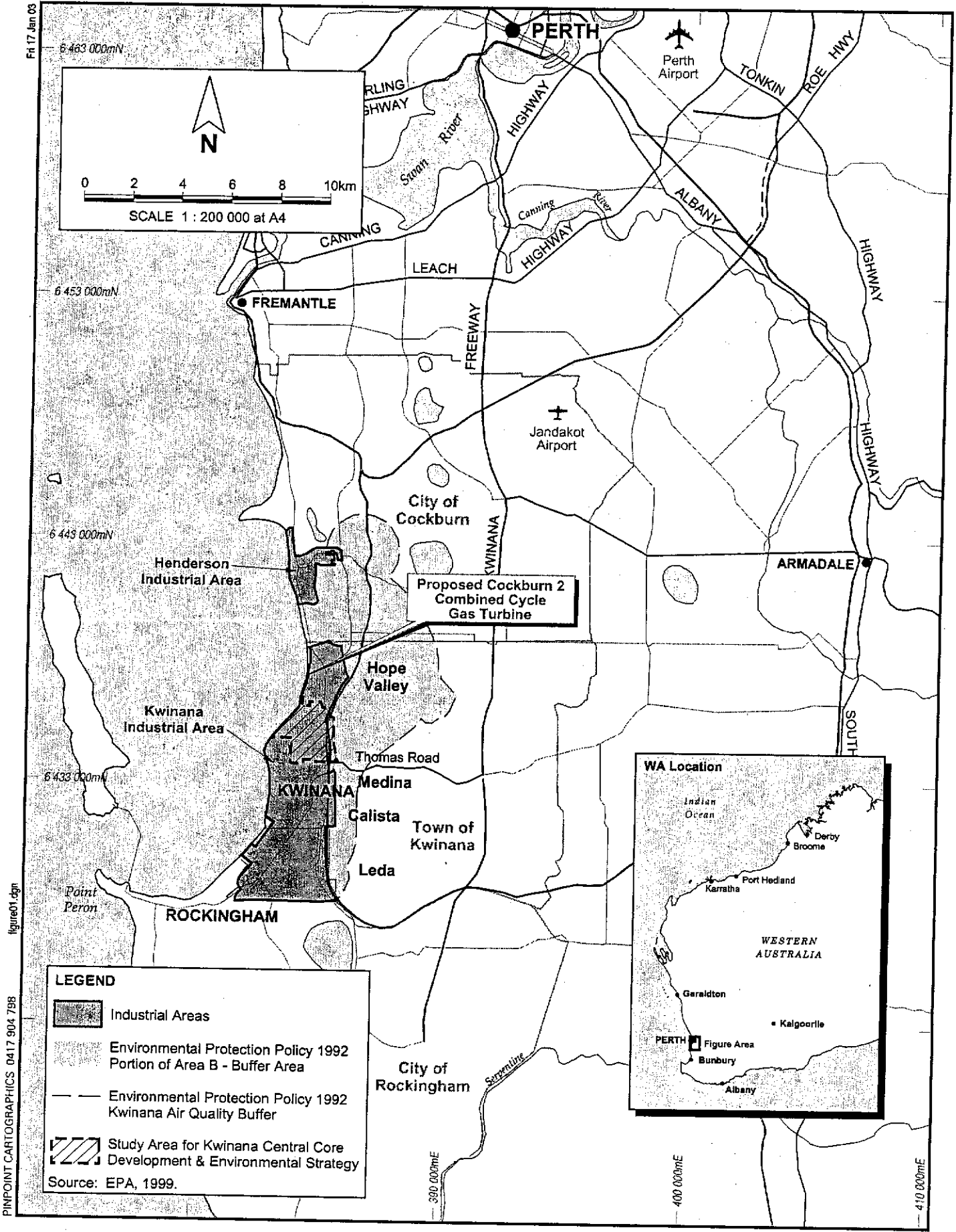


Figure 1: Regional location

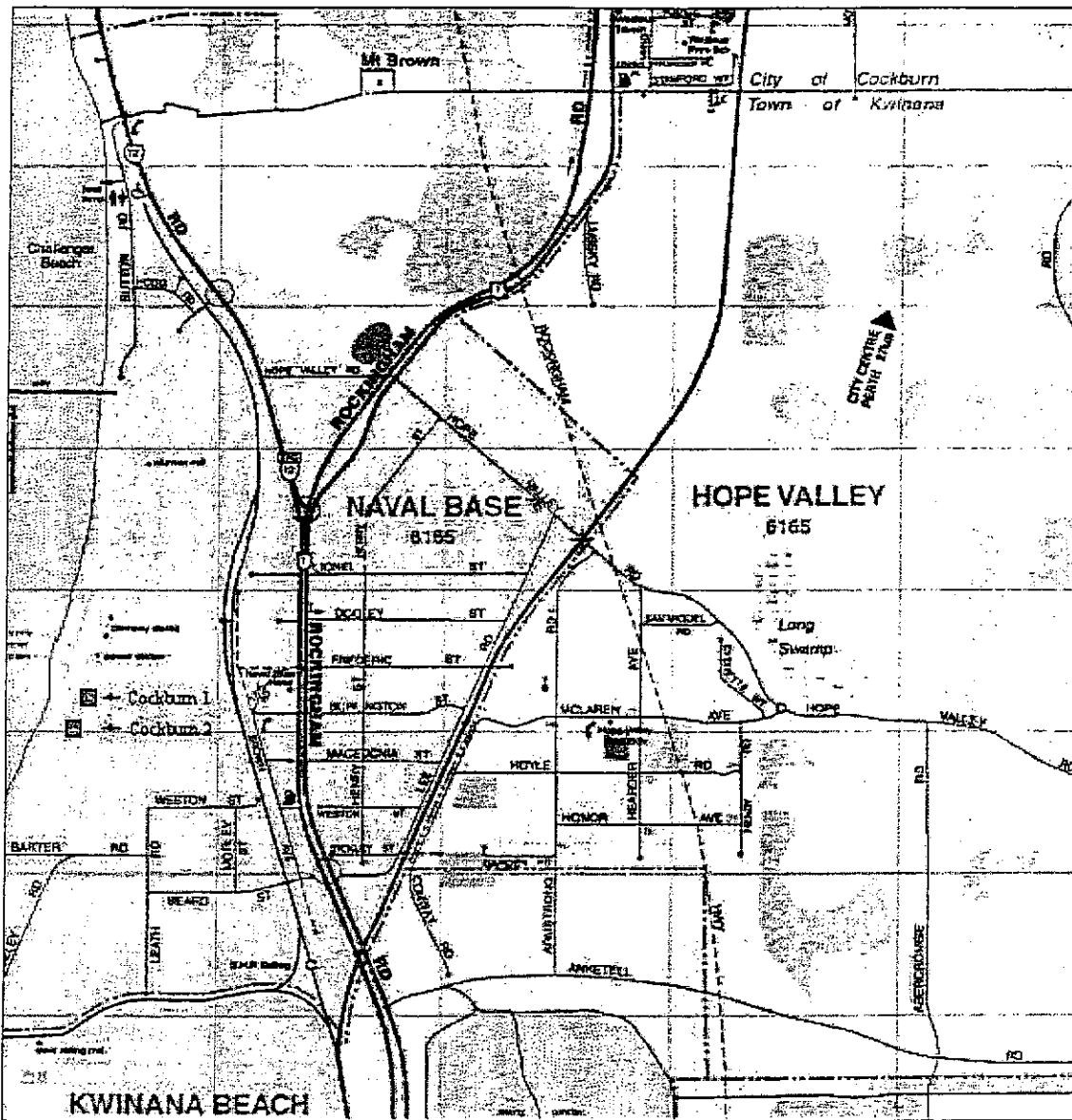


Figure 2: Location plan

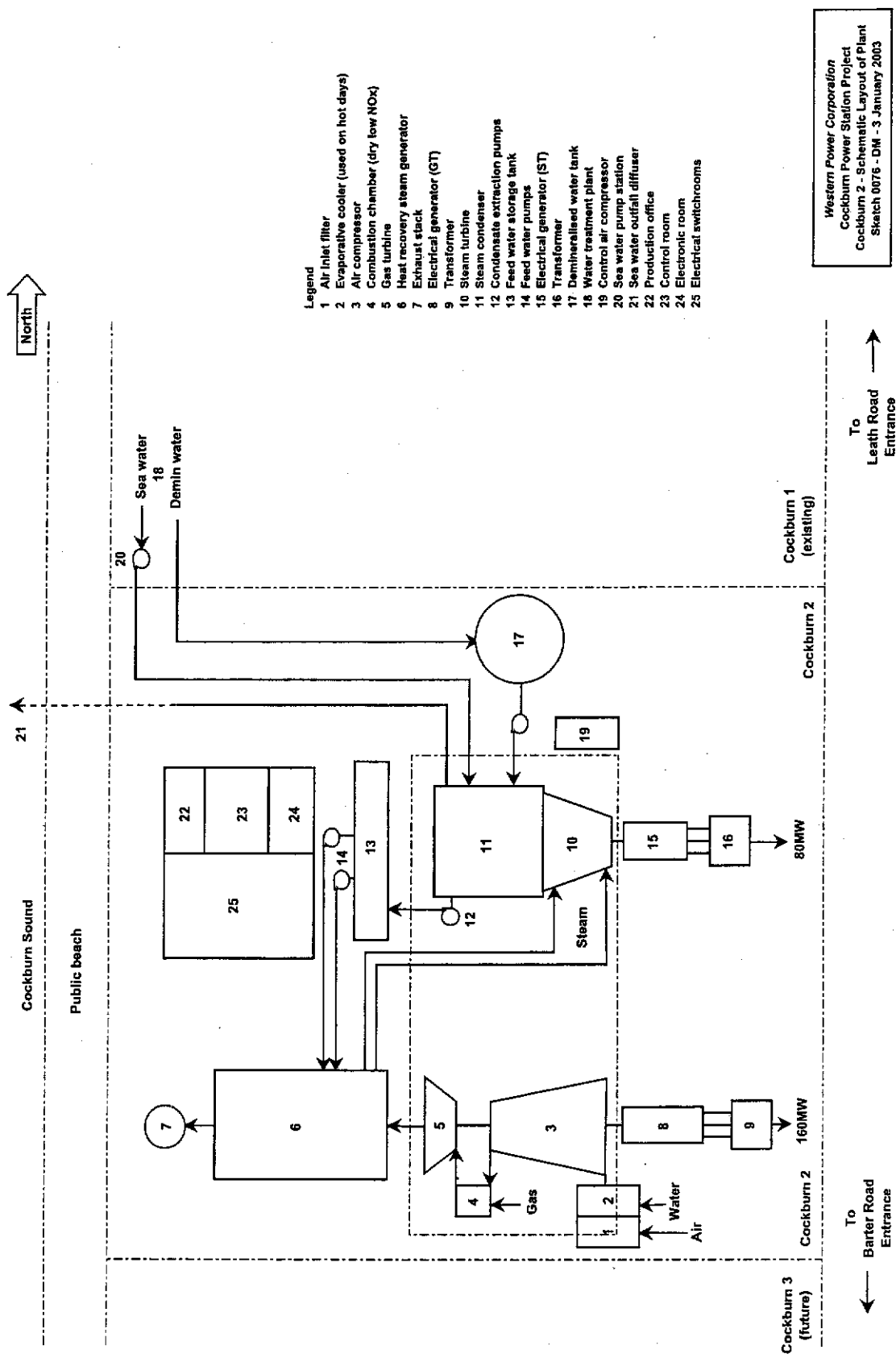


Figure 3: Proposed power plant layout

Proponent's Environmental Management Commitments

January 2003

**COCKBURN 2 COMBINED CYCLE
POWER PLANT, KWINANA**

(Assessment No. 1465)

Western Power Corporation

Proponent's Consolidated Environmental Management Commitments

Cockburn 2 Combined Cycle Power Plant (Assessment No. 1465)

Note: The term "commitment" as used in this schedule includes the entire row of the table and its five separate parts as follows:

- a commitment topic;
- the "action" to be undertaken by the proponent;
- the objective of the commitment;
- the timing requirements of the commitment; and
- the body/agency to provide technical advice to the Department of Environmental Protection.

Topic	Action	Objective	Timing	Advice
Environmental management approach	1 Operate plant under existing Western Power Environmental Management System which meets the requirements of AS/NZS ISO 14001:1996.	To ensure construction, operation and decommissioning phases of the Project are managed to minimise environmental impacts.	1 Design, operation and closure.	
Community consultation	2 Continue with the Consultation Program.	Keep the local community and other interested stakeholders well informed of the development and operation of the Project.	2 Throughout the life of the Project.	Relevant local authorities & community groups.
Decommissioning of existing Plant	3 Cease using coal at Kwinana Power Station 4 Decommission Muja Power Station Stage A/B.	To reduce emissions to the environment from old inefficient plant	3 30 June 2004 4 30 June 2006	
Air emissions	5 Incorporate dry low NO _x burners into the plant design which are capable of consistently achieving NO _x emission concentrations of 34 ppmv or below. 6 Sample, analyse and report on relevant stack emissions (including NO _x) on a six-monthly basis until performance is established and thereafter annually.	Ensure that air emissions (including NO _x) meet statutory requirements, and meet acceptable standards.	5 Design. 6 During operations, 6 monthly and then annually thereafter.	

Topic	Action	Objective	Timing	Advice
Water quality	7 Prepare Water Management Plan to address: <ul style="list-style-type: none"> • stormwater management; • contaminated runoff from site; • groundwater monitoring program; and • emergency response for spillages. 8 Implement the Water Management Plan	To maintain the quality of surface and groundwater and the waters of Cockburn Sound so that existing and potential environmental values, including ecosystem maintenance, are protected.	7 Design 8 Operation	WRC WRC
	9 Prepare a Marine Protection Management Plan to address: <ul style="list-style-type: none"> • a program to monitor available chlorine levels • a program to monitor thermal discharge from the diffuser and the temperature elevation field in Cockburn Sound; and • contingency plans to address exceedences in Environmental Quality Objectives. 10 Implement the Marine Protection Management Plan.	To maintain the quality of the Cockburn Sound so that environmental values are protected. To ensure that the Environmental Quality Objectives of the Cockburn Sound Environmental Protection Policy are met.	9 Prior to operation 10 Operation	
Noise	11 Prepare a Construction Noise Management Plan to address the requirements of the <i>Environmental (Noise) Regulations 1997</i> (Regulation 13). 12 Implement Construction Noise Management Plan. 13 Prepare an Operational Noise Management Plan to address: <ul style="list-style-type: none"> • noise attenuation packages incorporated into the plant to ensure compliance with the SVT Engineering Consultants Environmental Noise Review (2002) and the Alstom Overall Noise Protection Concept (2002); • a noise monitoring program to verify compliance with noise control requirements for the plant equipment and buildings and to verify predictive modelling; • provision of noise modelling information to Kwinana Industries Council to update their cumulative noise model. 14 Implement the Operational Noise Management Plan.	To protect the amenity of nearby residents from noise impacts resulting from activities associated with the proposal by ensuring the noise levels meet the statutory requirements and acceptable standards.	11 Design. 12 Construction. 13 Design. 14 Operation	

Topic	Action	Objective	Timing	Advice
Construction of the Cooling Water Discharge Pipeline	15 Prepare a Pre-construction Management Plan to address: <ul style="list-style-type: none"> • sediment sampling to include testing for organochlorine, pesticides and nutrient release potential; and • geotechnical characterisation to determine the need for specialised dredging/blasting. 16 Implement the Pre-construction Management Plan 17 Prepare a Construction Management Plan to address: <ul style="list-style-type: none"> • dredging plume monitoring; • dredging plume reporting; and • contingency plans for plume management and for specialised dredging or blasting if required. 18 Implement the Construction Management Plan.	To determine the quality of material to be excavated and to characterise the proposed pipeline route. To ensure that site construction activities are undertaken in a manner that minimises or removes any environmental impact.	15 Design 16 Design 17 Design 18 Construction	
Risk and hazards	19 Prepare a Site Safety Management Plan to address: <ul style="list-style-type: none"> • emergency response procedures as part of the overall Emergency Response Plan. 20 Implement the Site Safety Management Plan	To ensure that at all stages of the plant's life it is managed and operated to minimise risk.	19 Design 20 Operation.	Fire and Emergency Services Authority and the Kwinana Industries Mutual Aid Group.

Abbreviations

AS/NZS = Australian Standard/New Zealand Standard

WRC = Water and Rivers Commission

Appendix 3

Recommended Environmental Conditions and Proponent's Consolidated Commitments

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

COCKBURN 2 COMBINED CYCLE POWER PLANT, KWINANA

Proposal: The construction, operation and maintenance of a nominal 240 megawatt combined cycle gas turbine power plant on a site located in Kwinana.

The proposal is documented in schedule 1 of this statement.

Proponent: Western Power Corporation

Proponent Address: GPO Box L921
PERTH WA 6001

Assessment Number: 1530

Previous Assessment Number: 1465

Previous Statement Numbers: 628 (published on 23 June 2003), and
656 (interim conditions published on 12 July 2004).

Report of the Environmental Protection Authority: Bulletin 1154

Previous Report of the Environmental Protection Authority: Bulletin 1086

The implementation of the proposal to which the above reports of the Environmental Protection Authority relate is subject to the following conditions and procedures, which replace all previous conditions and procedures (See Note 3 at the foot of this Statement):

1 Implementation

1-1 The proponent shall implement the proposal as documented in schedule 1 of this statement subject to the conditions of this statement.

2 Proponent Commitments

2-1 The proponent shall implement the revised environmental management commitments documented in schedule 2 of this statement, to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

3 Proponent Nomination and Contact Details

3-1 The proponent for the time being nominated by the Minister for the Environment under section 38(6) or (7) of the *Environmental Protection Act 1986* is responsible for the implementation of the proposal until such time as the Minister for the Environment has

exercised the Minister's power under section 38(7) of the Act to revoke the nomination of that proponent and nominate another person as the proponent for the proposal.

- 3-2 If the proponent wishes to relinquish the nomination, the proponent shall apply for the transfer of proponent and provide a letter with a copy of this statement endorsed by the proposed replacement proponent that the proposal will be carried out in accordance with this statement. Contact details and appropriate documentation on the capability of the proposed replacement proponent to carry out the proposal shall also be provided.
- 3-3 The nominated proponent shall notify the Department of Environment of any change of contact name and address within 60 days of such change.

4 Commencement and Time Limit of Approval

- 4-1 The proponent shall provide evidence to the Minister for the Environment within five years of 23 June 2003 that the proposal has been substantially commenced or the approval granted in the statement of 23 June 2003 shall lapse and be void.

Note: The Minister for the Environment will determine any dispute as to whether the proposal has been substantially commenced.

- 4-2 The proponent shall make application for any extension of approval for the substantial commencement of the proposal beyond 23 June 2008 to the Minister for the Environment, prior to the expiration of the five-year period referred to in condition 4-1.

The application shall demonstrate that:

- 1 the environmental factors of the proposal have not changed significantly;
- 2 new, significant, environmental issues have not arisen; and
- 3 all relevant government authorities have been consulted.

Note: The Minister for the Environment may consider the grant of an extension of the time limit of approval not exceeding five years for the substantial commencement of the proposal.

5 Compliance Audit and Performance Review

- 5-1 The proponent shall prepare an audit program and submit compliance reports to the Department of Environment which address:
- 1 the status of the implementation of the proposal as defined in schedule 1 of this statement;
 - 2 evidence of compliance with the conditions and commitments; and
 - 3 the performance of the environmental management plans and programs.

Note: Under sections 48(1) and 47(2) of the *Environmental Protection Act 1986*, the Chief Executive Officer of the Department of Environment is empowered to monitor the compliance of the proponent with the statement and should directly receive the compliance documentation, including environmental management plans, related to the conditions, procedures and commitments contained in this statement.

5-2 The proponent shall submit a performance review report every five years after the start of operations, to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority, which addresses:

- 1 the major environmental issues associated with the project; the targets for those issues; the methodologies used to achieve these; and the key indicators of environmental performance measured against those targets;
- 2 the level of progress in the achievement of sound environmental performance, including industry benchmarking, and the use of best available technology where practicable;
- 3 significant improvements gained in environmental management, including the use of external peer reviews;
- 4 stakeholder and community consultation about environmental performance and the outcomes of that consultation, including a report of any on-going concerns being expressed; and
- 5 the proposed environmental targets over the next five years, including improvements in technology and management processes.

6 Decommissioning

6-1 Prior to construction, the proponent shall prepare a Preliminary Decommissioning Plan, which provides the framework to ensure that the site is left in an environmentally acceptable condition to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

The Preliminary Decommissioning Plan shall address:

- (1) rationale for the siting and design of plant and infrastructure as relevant to environmental protection, and conceptual plans for the removal or, if appropriate, retention of plant and infrastructure;
- (2) a conceptual rehabilitation plan for all disturbed areas and a description of a process to agree on the end land use(s) with all stakeholders;
- (3) a conceptual plan for a care and maintenance phase; and
- (4) management of noxious materials to avoid the creation of contaminated areas.

6-2 At least six months prior to the anticipated date of decommissioning, or at a time agreed with the Environmental Protection Authority, the proponent shall prepare a Final Decommissioning Plan designed to ensure that the site is left in an environmentally acceptable condition to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

The Final Decommissioning Plan shall address:

- (1) removal or, if appropriate, retention of plant and infrastructure in consultation with relevant stakeholders;
- (2) rehabilitation of all disturbed areas to a standard suitable for the agreed new land use(s); and
- (3) identification of contaminated areas, including provision of evidence of notification and proposed management measures to relevant statutory authorities.

6-3 The proponent shall implement the Final Decommissioning Plan required by condition 6-2 until such time as the Minister for the Environment determines, on advice of the Environmental Protection Authority, that the proponent's decommissioning responsibilities have been fulfilled.

6-4 The proponent shall make the Final Decommissioning Plan required by condition 6-2 publicly available, to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

7 Greenhouse Gas Emissions

7-1 Prior to construction, the proponent shall prepare a Greenhouse Gas Emissions Management Plan to:

- ensure that through the use of best practice, the total net “greenhouse gas” emissions and/or “greenhouse gas” emissions per unit of product from the project are minimised; and
- manage “greenhouse gas” emissions in accordance with the *Framework Convention on Climate Change 1992*, and consistent with the National Greenhouse Strategy;

to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

This Plan shall include:

1. calculation of the “greenhouse gas” emissions associated with the proposal, as advised by the Environmental Protection Authority;

Note: The current requirements of the Environmental Protection Authority are set out in: *Minimising Greenhouse Gas Emissions, Guidance for the Assessment of Environmental Factors, No. 12* published by the Environmental Protection Authority (October 2002). This document may be updated or replaced from time to time.

2. specific measures to minimise the total net “greenhouse gas” emissions and/or the “greenhouse gas” emissions per unit of product associated with the proposal using a combination of “no regrets” and “beyond no regrets” measures;

3. estimation of the “greenhouse gas” efficiency of the project (per unit of product and/or other agreed performance indicators) and comparison with the efficiencies of other comparable projects producing a similar product, both within Australia and overseas;
4. actions for the monitoring and annual reporting of “greenhouse gas” emissions and emission reduction strategies;
5. a target set by the proponent for the reduction of total net "greenhouse gas" emissions and/or "greenhouse gas" emissions per unit of product and as a percentage of total emissions over time, and annual reporting of progress made in achieving this target. Consideration should be given to the use of renewable energy sources such as solar, wind or hydro power; and
6. consideration by the proponent of entry (whether on a project-specific basis, company-wide arrangement or within an industrial grouping, as appropriate) into the Commonwealth Government’s “Greenhouse Challenge” voluntary cooperative agreement program. Components of the agreement program include:
 1. an inventory of emissions;
 2. opportunities for abating “greenhouse gas” emissions in the organisation;
 3. a “greenhouse gas” mitigation action plan;
 4. regular monitoring and reporting of performance; and
 5. independent performance verification.

Note: In (2) above, the following definitions apply:

1. “no regrets” measures are those which can be implemented by a proponent and which are effectively cost-neutral; and
2. “beyond no regrets” measures are those which can be implemented by a proponent and which involve additional costs that are not expected to be recovered.

7-2 The proponent shall implement the Greenhouse Gas Emissions Management Plan required by condition 7-1, to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

7-3 Prior to construction, the proponent shall make the Greenhouse Gas Emissions Management Plan required by condition 7-1 publicly available, to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

Procedures

- 1 Where a condition states "to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority", the Environmental Protection Authority will provide that advice to the Department of Environment for the preparation of written notice to the proponent.

- 2 The Environmental Protection Authority may seek advice from other agencies or organisations, as required, in order to provide its advice to the Department of Environment.
- 3 Where a condition lists advisory bodies, it is expected that the proponent will obtain the advice of those listed as part of its compliance reporting to the Department of Environment.

Notes

- 1 The Minister for the Environment will determine any dispute between the proponent and the Environmental Protection Authority or the Department of Environment over the fulfilment of the requirements of the conditions.
- 2 The proponent is required to apply for a Works Approval and Licence for this project under the provisions of Part V of the *Environmental Protection Act 1986*.
- 3 Interim conditions pursuant to Section 46A of the *Environmental Protection Act 1986* were published in Statement No. 656 on 12 July 2004.

Schedule 1

The Proposal (Assessment Nos. 1465 and 1530)

The proposal is to construct, operate and maintain a second 240 megawatt combined cycle gas turbine unit adjacent to and to the south of Cockburn 1 which is currently under construction to form 'Cockburn Power Station'. This combined cycle gas turbine unit (Cockburn 2) will allow for the decreased usage of Kwinana Power Station Stage A.

The main components of the plant are:

- one natural gas fired 160 megawatt generator unit;
- heat recovery steam generator;
- one 80 megawatt steam turbine and generator unit;
- water treatment plant to produce demineralised water;
- cooling water outfall with sub-sea diffuser; and
- administration, control room and workshop buildings.

The main characteristics of the proposal are summarised in the Table 1 below.

Table 1 - Key Proposal Characteristics

Element	Description
Project purpose	To construct, operate and maintain a natural gas fired combined cycle gas turbine plant of nominal 240 Megawatt capacity to supply electricity to customers on the South West Interconnected System grid.
Life of the Project	25 years
Power Generating Capacity	240 megawatt (nominal)
Facility "footprint"	2 hectares
Site area	9.4 hectares
Fuel	Natural gas
Natural gas supply: Source	Dampier to Bunbury Natural Gas Pipeline, via the Epic Energy gate station at the corner of Leath and Barter Roads, Naval Base. Cockburn 2 will utilise gas supply facilities constructed as part of the Cockburn 1 development.
Plant facilities: No. and size of gas turbines	1 x Alstrom GT13E2 gas turbine unit of 160MW nominal generating capacity fitted with dry low NO _x burners. A gas bypass system and bypass stack may be fitted.
No. and size of steam turbines	1 x Alstom single shaft, axial exhaust steam turbine of 80 MW nominal generating capacity.
Heat Recovery Steam Generator (HRSG)	Alstom dual pressure HRSG with horizontal gas path.
No. of stacks	One heat recovery steam generator stack and one bypass stack (optional).
Height of HRSG stack	60m
Height of bypass stack (optional)	45m
No. of cooling towers	nil
No. of liquid fuel tanks	nil
Sub-sea diffuser and associated pipeline	1 of 180m length
Plant operation	Baseload/Mid Merit
Evaporation ponds	Excess wastewater which is not suitable for recycling will be

Element	Description
	discharged to the evaporation pond constructed as part of the Cockburn 1 development.
Construction period	27 months
Operating Hours	24 hours a day, 365 days a year.
INPUTS	
Natural gas	39 Terajoules per day
Cooling water	Seawater (5 m ³ /s)
Process water	Groundwater from the Perron Quarry Ash Disposal Facility
OUTPUTS	
Wastewater	Cooling water – 5 m ³ /s Process waters – minimal to evaporation pond
Air emissions: Oxides of nitroren (NO _x) Sulphur dioxide (SO ₂) Carbon dioxide (CO ₂)(equiv) Carbon monoxide (CO) Non-methane volatile organic compounds (NMVOCs)	830 tpa, (26.5 g/s) (less than 34 ppmv, dry, 15% O ₂) 2.1 tpa, (0.07 g/s) 838 000 tpa (maximum at 100% load) 629 000 tpa (based on projected usage, at 75% load) 154.5 tpa 51 tpa

Abbreviations for Table 1:

DBNGP	Dampier to Bunbury Natural Gas Pipeline
g/s	grams per second
L	litres
m	metres
m ³ /yr	cubic metres per year
mm	millimetres
MW	megawatts
ppmv	parts per million by volume
SWIS	South West Interconnected System
tpa	tonnes per annum

Figures (attached)

Figure 1 - Regional location;
Figure 2 - Location Plan; and
Figure 3 - Power plant layout.

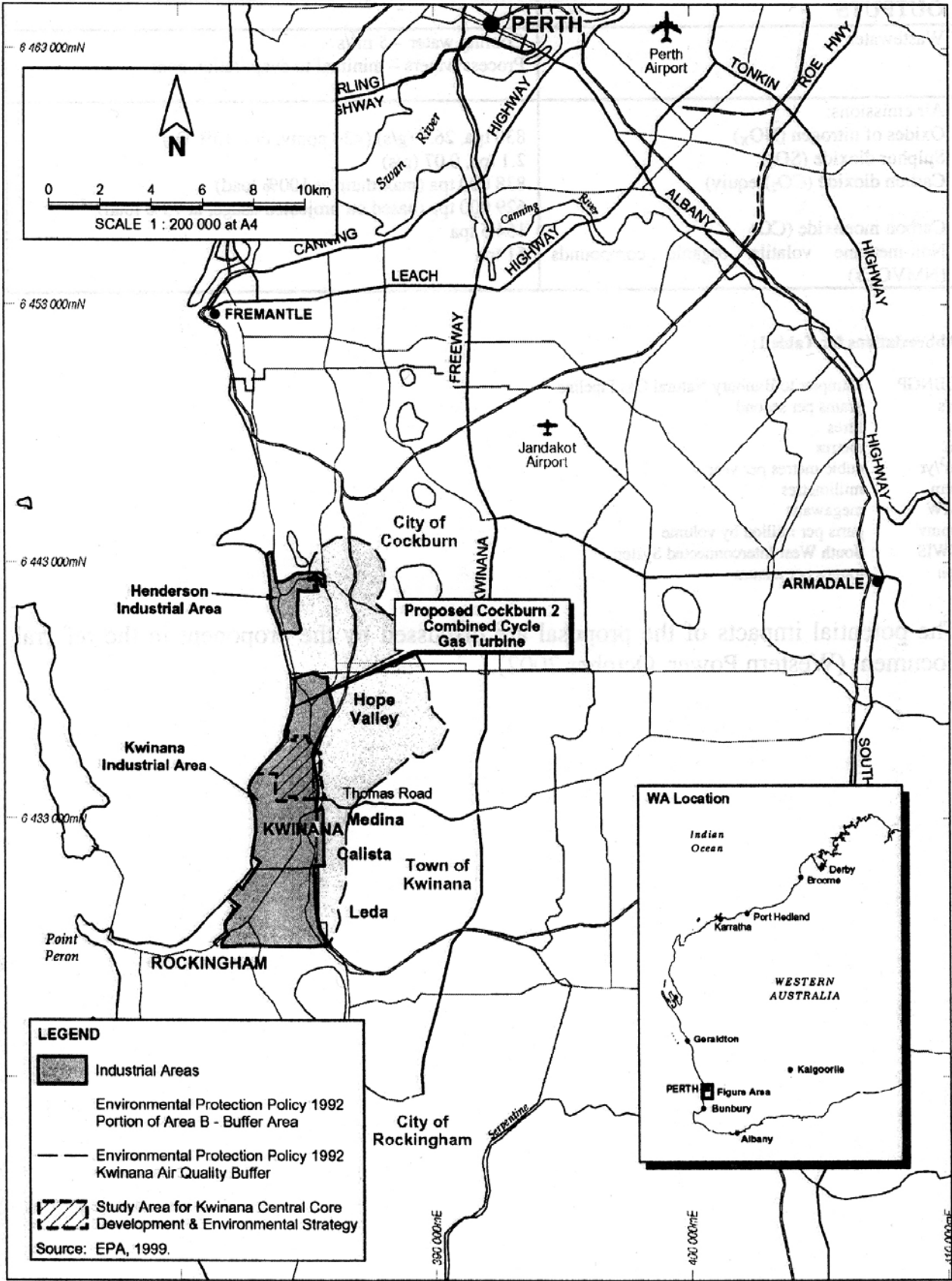


Figure 1: Regional location plan

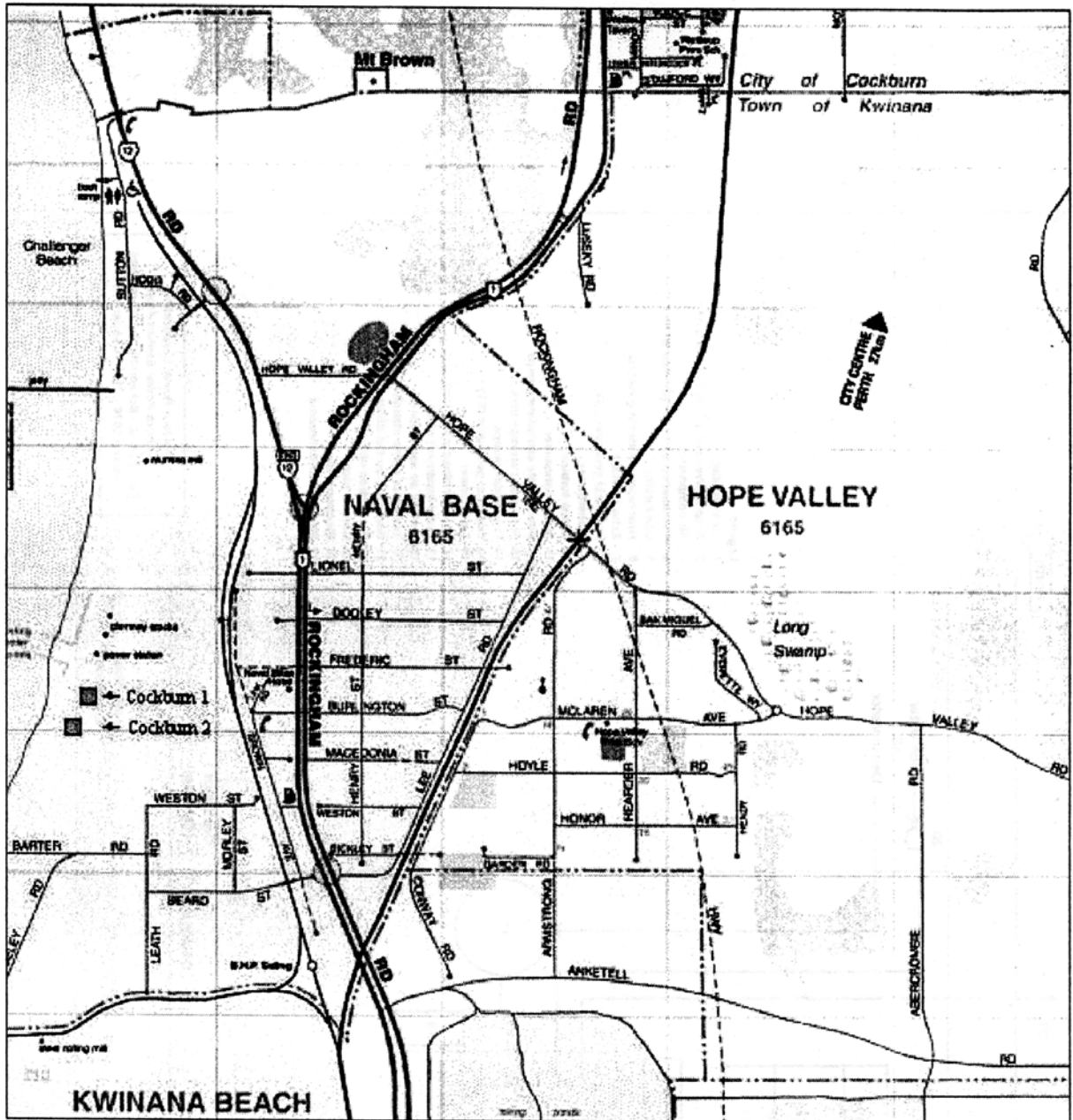


Figure 2: Location plan

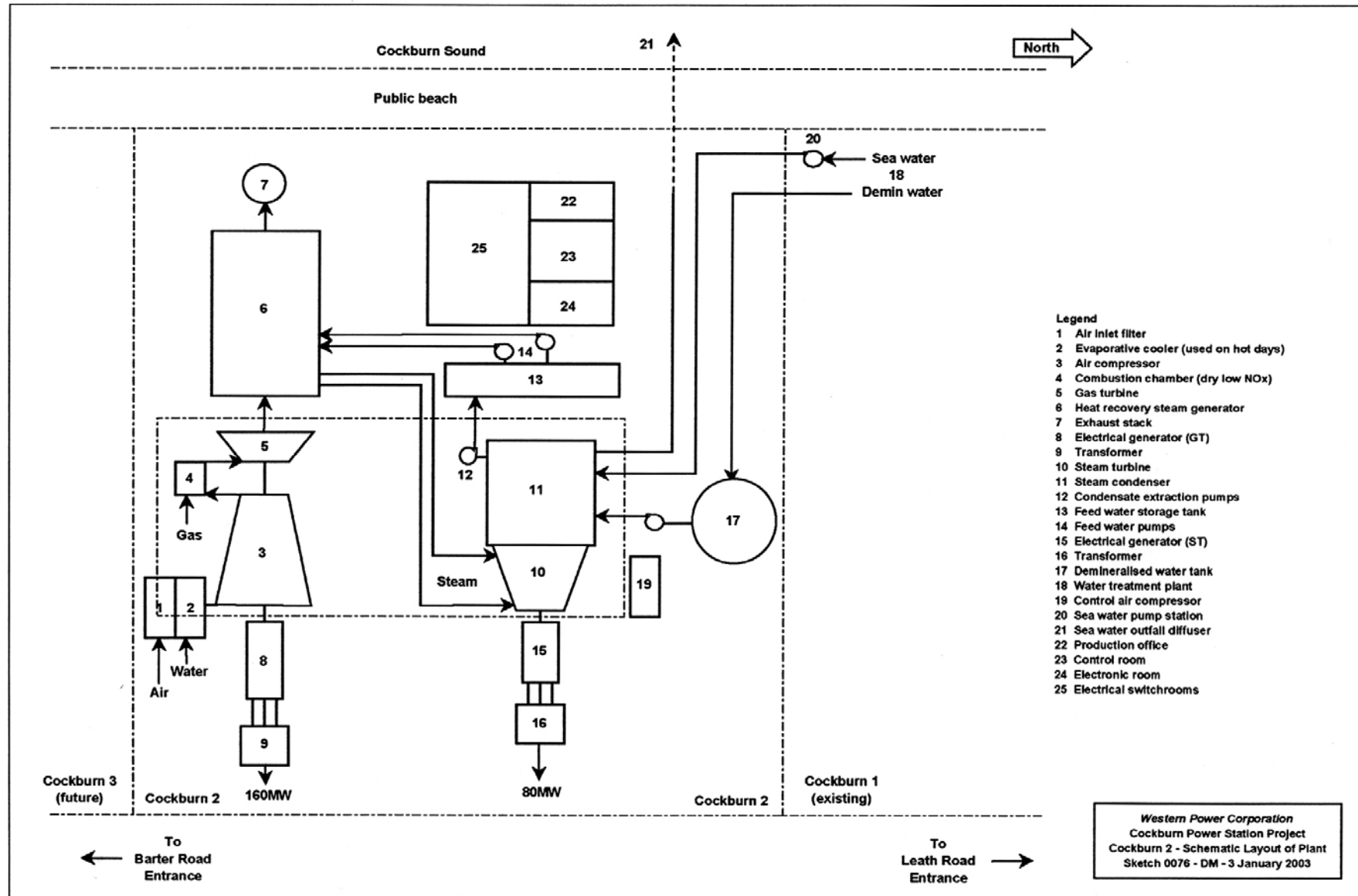


Figure 3: Proposed power plant layout

Proponent's Environmental Management Commitments

(Revised November 2004)

COCKBURN 2 COMBINED CYCLE POWER PLANT, KWINANA

(Assessment Nos. 1465/1530)

Western Power Corporation

Schedule 2

Proponent's Consolidated Environmental Management Commitments

Cockburn 2 Combined Cycle Power Plant (Assessment Nos. 1465/1530) – November 2004

Note: The term “commitment” as used in this schedule includes the entire row of the table and its five separate parts as follows:

- a commitment topic;
- the “action” to be undertaken by the proponent;
- the objective of the commitment;
- the timing requirements of the commitment; and
- the body/agency to provide technical advice to the Department of Environment.

Topic	Action	Objective	Timing	Advice
Environmental management approach	1 Operate plant under the existing Western Power Environmental Management System which meets the requirements of AS/NZS ISO 14001:1996.	To ensure construction, operation and decommissioning phases of the Project are managed to minimise environmental impacts.	1 Design, operation and closure.	
Community consultation	2 Continue with the Consultation Program.	Keep the local community and other interested stakeholders well informed of the development and operation of the Project.	2 Throughout the life of the Project.	Relevant local authorities and community groups.
Air emissions	3 Incorporate dry low NO _x burners into the plant design which are capable of consistently achieving NO _x emission concentrations of 34 ppmv or below. 4 Sample, analyse and report on relevant stack emissions (including NO _x) on a six-monthly basis until performance is established and thereafter annually.	Ensure that air emissions (including NO _x) meet statutory requirements, and meet acceptable standards.	3 Design. 4 During operations, 6 monthly and then annually thereafter.	

Topic	Action	Objective	Timing	Advice
Water quality	5 Prepare a Water Management Plan to address: <ul style="list-style-type: none"> • stormwater management; • contaminated runoff from site; • groundwater monitoring program; and • emergency response for spillages. 6 Implement the Water Management Plan.	To maintain the quality of surface and groundwater and the waters of Cockburn Sound so that existing and potential environmental values, including ecosystem maintenance, are protected.	5 Design 6 Operation	WRC WRC
	7 Prepare a Marine Protection Management Plan to address: <ul style="list-style-type: none"> • a program to monitor available chlorine levels; • a program to monitor thermal discharge from the diffuser and the temperature elevation field in Cockburn Sound; and • contingency plans to address exceedences in Environmental Quality Objectives. 8 Implement the Marine Protection Management Plan.	To maintain the quality of the Cockburn Sound so that environmental values are protected. To ensure that the Environmental Quality Objectives of the Cockburn Sound Environmental Protection Policy are met.	7 Prior to operation 8 Operation	

Topic	Action	Objective	Timing	Advice
Noise	<p>9 Prepare a Construction Noise Management Plan to address the requirements of the <i>Environmental (Noise) Regulations 1997</i> (Regulation 13).</p> <p>10 Implement the Construction Noise Management Plan.</p> <p>11 Prepare an Operational Noise Management Plan to address:</p> <ul style="list-style-type: none"> • noise attenuation packages incorporated into the plant to ensure compliance with the SVT Engineering Consultants Environmental Noise Review (2002) and the Alstom Overall Noise Protection Concept (2002); • a noise monitoring program to verify compliance with noise control requirements for the plant equipment and buildings and to verify predictive modelling; • provision of noise modelling information to Kwinana Industries Council to update their cumulative noise model. <p>12 Implement the Operational Noise Management Plan.</p>	To protect the amenity of nearby residents from noise impacts resulting from activities associated with the proposal by ensuring the noise levels meet the statutory requirements and acceptable standards.	<p>9 Design.</p> <p>10 Construction.</p> <p>11 Design.</p> <p>12 Operation</p>	

Topic	Action	Objective	Timing	Advice
Construction of the Cooling Water Discharge Pipeline	<p>13 Prepare a Pre-construction Management Plan to address:</p> <ul style="list-style-type: none"> • sediment sampling to include testing for organochlorine, pesticides and nutrient release potential; and • geotechnical characterisation to determine the need for specialised dredging/blasting. <p>14 Implement the Pre-construction Management Plan .</p> <p>15 Prepare a Construction Management Plan to address:</p> <ul style="list-style-type: none"> • dredging plume monitoring; • dredging plume reporting; and • contingency plans for plume management and for specialised dredging or blasting if required. <p>16 Implement the Construction Management Plan.</p>	<p>To determine the quality of material to be excavated and to characterise the proposed pipeline route.</p> <p>To ensure that site construction activities are undertaken in a manner that minimises or removes any environmental impact.</p>	<p>13 Design</p> <p>14 Design</p> <p>15 Design</p> <p>16 Construction</p>	
Risk and hazards	<p>17 Prepare a Site Safety Management Plan to address:</p> <ul style="list-style-type: none"> • emergency response procedures as part of the overall Emergency Response Plan. <p>18 Implement the Site Safety Management Plan</p>	<p>To ensure that at all stages of the plant's life it is managed and operated to minimise risk.</p>	<p>17 Design</p> <p>18 Operation.</p>	<p>Fire and Emergency Services Authority and the Kwinana Industries Mutual Aid Group.</p>

Abbreviations

AS/NZS = Australian Standard/New Zealand Standard

WRC = Water and Rivers Commission