

40MW Biomass Power Plant, Manjimup

Western Australia Biomass Pty Ltd

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

**Environmental Protection Authority
Perth, Western Australia
Report 1294
July 2008**

Environmental Impact Assessment Process Timelines

Date	Progress stages	Time (weeks)
29/10/07	Level of Assessment set (following any appeals upheld)	--
28/01/08	Proponent Document Released for Public Comment	13
26/02/08	Public Comment Period Closed	4
26/05/08	Final Proponent response to the issues raised	13
07/07/08	EPA report to the Minister for the Environment	6

Report Released: 7/07/08

Appeals Close: 21/07/08

Assessment No. 1707

Summary and recommendations

This report provides the Environmental Protection Authority's (EPA's) advice and recommendations to the Minister for the Environment on the proposal by Western Australia (WA) Biomass Pty Ltd to construct and operate a 40MW (nominal) biomass power plant fuelled by up to 380,000 tonnes per annum of plantation waste. WA Biomass Pty Ltd is a joint venture company formed by Babcock and Brown and National Power.

Section 44 of the *Environmental Protection Act 1986* (EP Act) requires the EPA to report to the Minister for the Environment on the outcome of its assessment of a proposal. The report must set out:

- The key environmental factors identified in the course of the assessment; and
- The EPA's recommendations as to whether or not the proposal may be implemented, and, if the EPA recommends that implementation be allowed, the conditions and procedures to which implementation should be subject.

The EPA may include in the report any other advice and recommendations as it sees fit.

The EPA is also required to have regard for the principles set out in section 4A of the *Environmental Protection Act 1986*.

Key environmental factors and principles

The EPA decided that the following key environmental factors relevant to the proposal required detailed evaluation in the report:

- (a) Air quality; and
- (b) Ground and surface water quality.

There were a number of other factors which were very relevant to the proposal, but the EPA is of the view that the information set out in Appendix 3 provides sufficient evaluation.

The following principles were considered by the EPA in relation to the proposal:

- (a) The precautionary principle;
- (b) The principle of intergenerational equity;
- (c) The principle of the conservation of biological diversity and ecological integrity;
- (d) Principles relating to improved valuation, pricing and incentive mechanisms; and
- (e) The principle of waste minimisation.

Conclusion

The EPA has considered the proposal by WA Biomass Pty Ltd to construct and operate a 40MW (nominal) biomass power plant fuelled by up to 380,000 tonnes per annum of waste from *Eucalyptus Globus* (Bluegum) and *Pinus Radiata* (Pine) plantations.

The EPA recognises the environmental benefits of this proposal due to the greenhouse gas savings from using renewable fuel to generate electricity and the positive

contribution the proposal makes to achieving targets set out in *The Premier's Climate Change Action Statement* (May, 2007).

The EPA notes that the proposal would implement best practice technology, meet relevant air quality guidelines and pose low risks to public health, existing landuses and the surrounding ground and surface water. The EPA considers that the proposed management measures to manage impacts on air quality and ground and surface water would further minimise the risks to these environmental factors.

The EPA has therefore concluded that it is unlikely that the EPA's objectives would be compromised, provided there is satisfactory implementation by the proponent of their commitments and the recommended conditions set out in Appendix 4, and summarised in Section 4.

Recommendations

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

1. That the Minister notes that the proposal being assessed is for the construction and operation of a 40MW (nominal) biomass power plant;
2. That the Minister considers the report on the key environmental factors and principles as set out in Section 3;
3. That the Minister notes that the EPA has concluded that it is unlikely that the EPA's objectives would be compromised, provided there is satisfactory implementation by the proponent of the recommended conditions set out in Appendix 4, and summarised in Section 5, including the proponent's commitments; and
4. That the Minister imposes the conditions and procedures recommended in Appendix 4 of this report.

Conditions

Having considered the proponent's commitments and information provided in this report, the EPA has developed a set of conditions that the EPA recommends be imposed if the proposal by WA Biomass Pty Ltd to construct and operate a 40MW (nominal) biomass power plant fuelled by up to 380,000 tonnes per annum of plantation waste is approved for implementation. These conditions are presented in Appendix 4. Matters addressed in the conditions include the following:

- meet best practice stack emission limits;
- monitor and report ambient air quality;
- implement contingency measures if validation shows that ambient air quality exceeds relevant guidelines;
- monitor ground and surface water quality on and around the site;
- report monitoring results and submit contingency plans to the DEC;
- limit the quantity of ash stored on the site to 100 tonnes and store ash in fully enclosed containers or areas;
- dispose ash at appropriate licensed landfills unless approval for re-use is obtained; and
- only use wastes from Bluegum and Pine plantations as fuel.

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- 3. Summary of identification of key environmental factors
- 4. Recommended Environmental Conditions and Proponent's Consolidated Commitments
- 5. Summary of submissions and proponent's response to submissions (attached CD)

1. Introduction and background

This report provides the advice and recommendations of the Environmental Protection Authority (EPA) to the Minister for the Environment on the key environmental factors and principles for the proposal by WA Biomass Pty Ltd, to construct and operate a 40mega-Watt (MW) (nominal) biomass power plant fuelled by up to 380,000 tonnes per annum of waste from Bluegum and Pine plantations.

The plant is located on part of Forest Lease No. 1994/97 currently held by WA Pine Resources (WAPRES), which operates the Diamond Timber Mill (Figure 1).

The proposal was referred to the EPA in October 2007. The level of assessment was set at Public Environmental Review (PER) on 29 October 2007. The PER document was made available for a public review period of four weeks commencing on 28 January 2008, and ending on 26 February 2008.

Further details of the proposal are presented in Section 2 of this report. Section 3 discusses the key environmental factors and principles for the proposal. Section 4 provides Other Advice by the EPA. The Conditions to which the proposal should be subject, if the Minister determines that it may be implemented, are set out in Section 5. Section 6 presents the EPA's conclusions and Section 7, the EPA's Recommendations.

Appendix 5 contains a CD with a summary of submissions and the proponent's response to submissions and is included as a matter of information only and does not form part of the EPA's report and recommendations. Issues arising from this process, and which have been taken into account by the EPA, appear in the report itself.

2. The proposal

WA Biomass Pty Ltd proposes to develop a 40MW biomass power plant south of Manjimup, approximately 300km south of Perth and 85km south of Bunbury (Figure 2). The proposed site is part of a lease currently used for the WAPRES Diamond Timber Mill, located approximately 10km south of the Manjimup town site.

The proposed site is on State Forest reserve, vested in the WA Conservation Commission and managed by the Department of Environment and Conservation (DEC). A new regulation allowing a lease to be issued for the purpose of the biomass power plant would need to be introduced by the DEC.

The proposed biomass power plant would consist of a fluidised bed combustion (FBC) boiler connected to a conventional steam cycle plant generating approximately 322GWh(net) per annum of electricity to be supplied to the South West Interconnected System. Fuel source for the plant would be sourced from *Eucalyptus Globulus* (Bluegum) and *Pinus Radiata* (Pine) plantation wastes from a maximum radius of 100km from the plant.

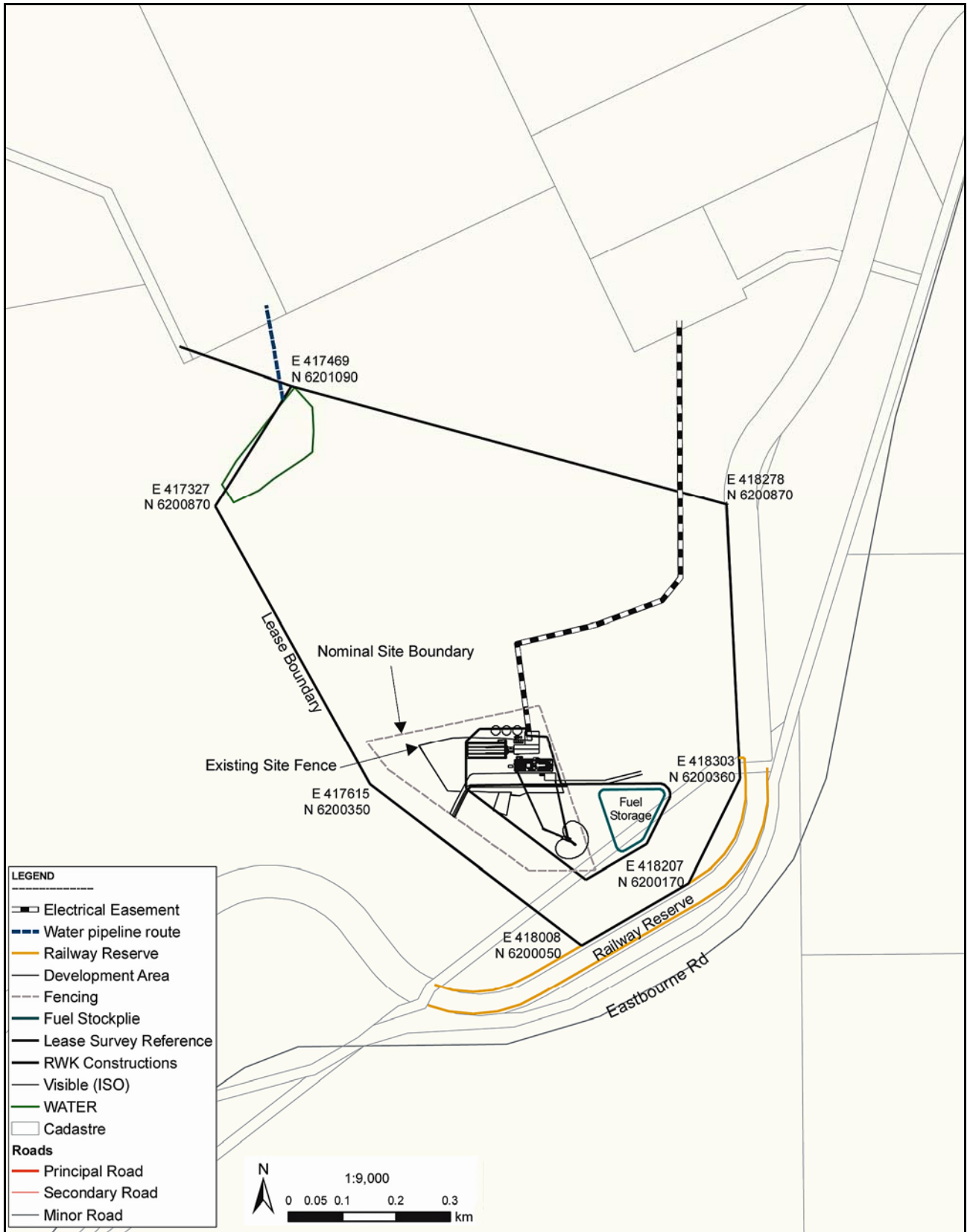


Figure 1: Proposal footprint

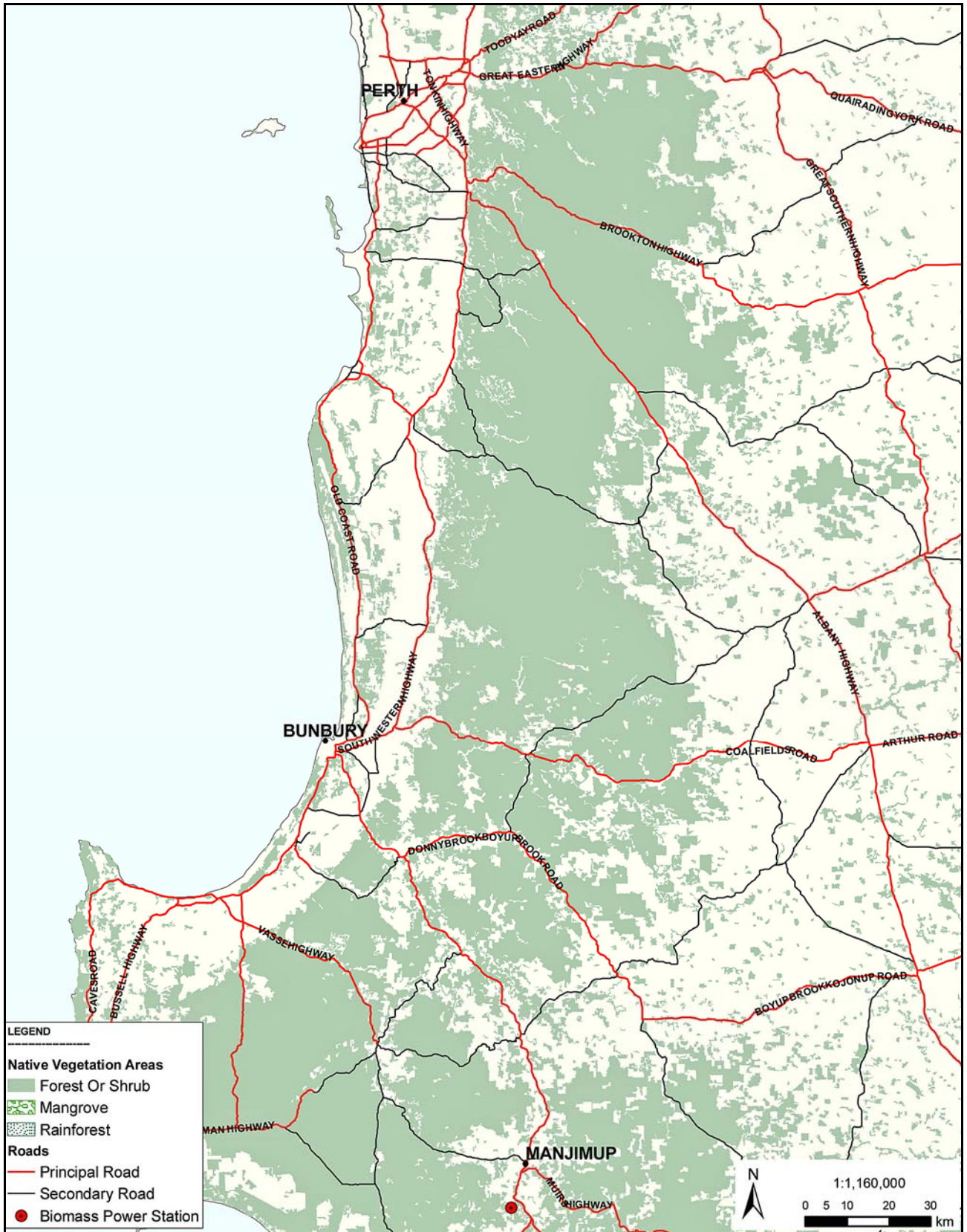


Figure 2: Regional location of the Biomass Power Plant

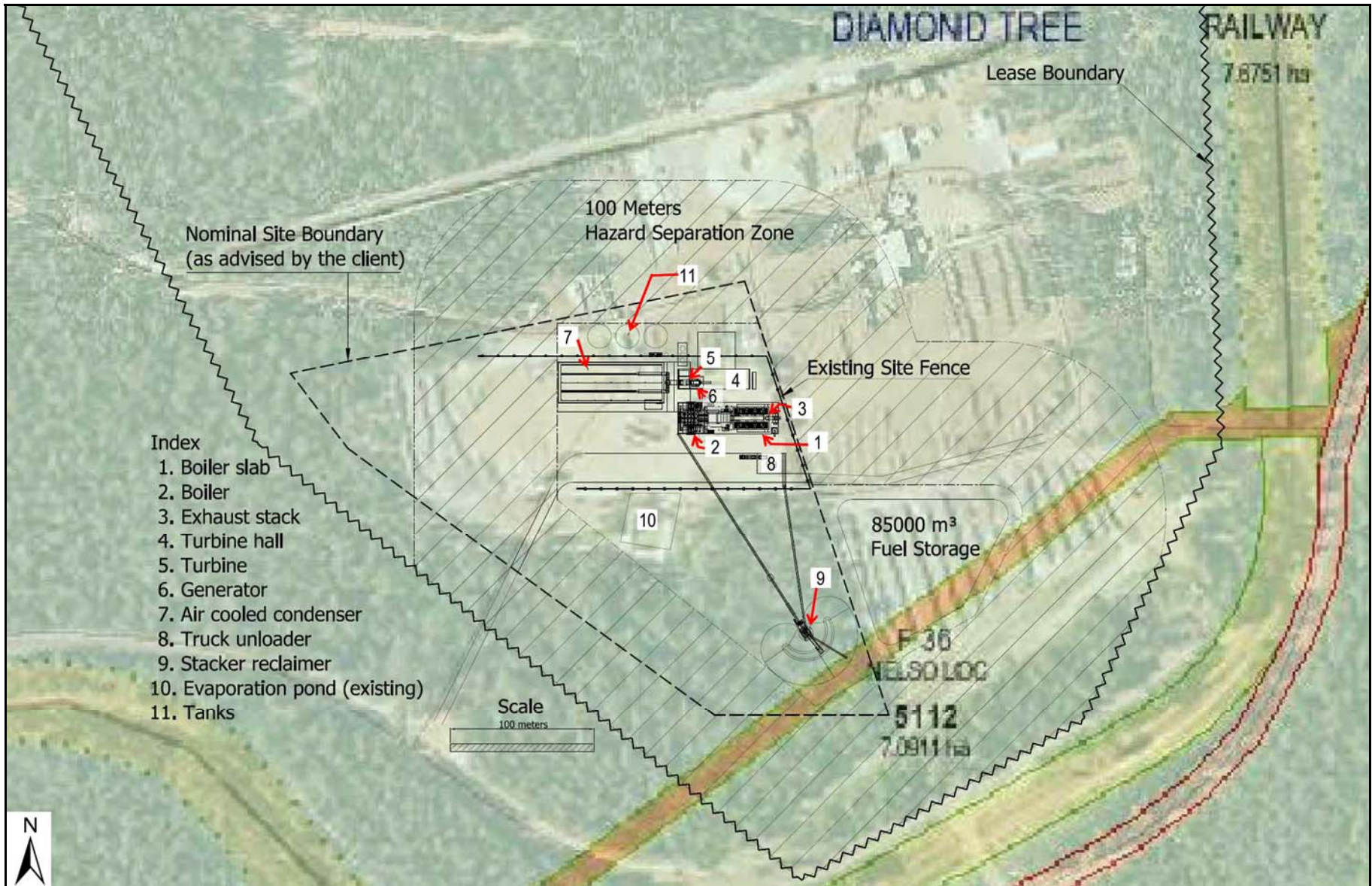


Figure 3: Layout of the plant

The main components of the proposal includes the:

- Fluidised bed combustion boiler;
- Steam cycle plant;
- Generating plant and power lines connecting the power plant to a substation (Figure 1);
- Bag house filtration system;
- Air-cooled condenser;
- Water facilities, including a demineralisation treatment plant, evaporation ponds and supply pipeline (Figure 1);
- Ash wetting and disposal system; and
- Fuel storage, handling and supply system.

The layout of the proposal is shown in Figure 3.

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

Table 1: Summary of key proposal characteristics

Element	Description
General	
Life of project	Approximately 25 years
Generation capacity	Approximately 40 megawatts
Vegetation clearing	Not more than 5 hectares for proposal site, easement for power line and easement for water pipeline.
Water requirement	Not more than 25 mega litres per year
Fuel	
Fuel quantity	Not more than 380,000 tonnes per annum
Fuel type	Waste from <i>Eucalyptus Globulus</i> (Bluegum) and <i>Pinus Radiata</i> (Pine) plantations
Fuel storage	Not more than 30 days of supply
Main plant equipment	
Combustion system	Fluidised bed combustion boiler with flue gas recirculation and over fire air systems
Particulate emission control system	Eight baghouses fitted with fabric bags
Stack height	Not more than 40 metres
Cooling system	Air-cooled condenser
Misc	
Ash storage	Maximum of 100 tonnes on site stored in enclosed containers or areas.

The fuel supply specifications that have been incorporated into the fuel supply contracts are shown in Table 2.

Table 2: Fuel Specifications

Parameter	Approximate composition
Moisture content	43% by weight
Ash content	1% by weight
Carbon	28% by weight

Parameter	Approximate composition
Hydrogen	3% by weight
Oxygen	25% by weight
Nitrogen	0.1% by weight
Sulphur	0.05% by weight
Gross Calorific Value	11.0 mega Joules per kilogram
Bulk Density	400 kilograms per cubic metres

A detailed description of the proposal, potential impacts of the proposal and their proposed management are provided the PER (Connell Wagner, January 2008) and Response to Submissions (Connell Wagner, 21 May 2008) documents.

3. Key environmental factors and principles

Section 44 of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on the environmental factors relevant to the proposal and the conditions and procedures, if any, to which the proposal should be subject. In addition, the EPA may make recommendations as it sees fit.

The identification process for the key factors selected for detailed evaluation in this report is summarised in Appendix 3. The reader is referred to Appendix 3 for the evaluation of factors not discussed below. A number of these factors, such as biodiversity, noise and transport, are very relevant to the proposal, but the EPA is of the view that the information set out in Appendix 3 provides sufficient evaluation.

It is the EPA's opinion that the following key environmental factors for the proposal require detailed evaluation in this report:

- (a) Air quality; and
- (b) Ground and surface water quality.

The above key factors were identified from the EPA's consideration and review of all environmental factors generated from the PER document and the submissions received, in conjunction with the proposal characteristics.

Details on the key environmental factors and their assessment are contained in Sections 3.1 to 3.2. The description of each factor shows why it is relevant to the proposal and how it will be affected by the proposal. The assessment of each factor is where the EPA decides whether or not a proposal meets the environmental objective set for that factor.

The following principles were considered by the EPA in relation to the proposal:

- (a) The precautionary principle;
- (b) The principle of intergenerational equity;
- (c) The principle of the conservation of biological diversity and ecological integrity;
- (d) Principles relating to improved valuation, pricing and incentive mechanisms; and
- (e) The principle of waste minimisation.

3.1 Air Quality

Description

The principal source of air emissions from the biomass power plant is stack emissions from the combustion of plantation waste. The main air emissions are oxides of nitrogen (NO_x) and particulate matter (PM). Trace amounts of sulphur dioxide (SO₂), volatile organic hydrocarbons (VOCs), polycyclic aromatic hydrocarbons (PAHs) and polychlorinated dioxins and furans would also be emitted. Carbon dioxide emissions have been examined in Chapter 10: Greenhouse Gas Emissions of the PER document.

The proposed combustion equipment includes a fluidised bed combustion (FBC) boiler with flue gas recirculation and an over fire air system. Eight baghouses fitted with fabric filters would be installed to control PM.

The Air Pollution Model (TAPM), developed by the Commonwealth Scientific and Industrial Research Organisation (CSIRO), was used to predict ground level concentrations (GLCs) of nitrogen dioxide (NO₂), SO₂, PM less than 10µm in diameter (PM₁₀) and PM less than 2.5µm in diameter (PM_{2.5}). Other pollutants, including lead, VOCs, PAHs, dioxins and furans, were calculated pro-rata based on the predicted GLCs of NO₂ and PM₁₀.

Submissions

The Department of Health (DoH) and the Shire of Manjimup were concerned with the methods used in modelling the cumulative air quality impacts. The DoH also stated that a health risk assessment (HRA) was required.

Most public submitters were concerned with the potential impacts of the emissions on public health, surrounding vegetation and existing landuses such as agriculture and viticulture. Issues related to modelling methodology, pollution control technology and monitoring, management and contingency measures were also raised.

Assessment

The EPA's environmental objective for this factor is to ensure that:

- gaseous emissions both individually and cumulatively, meet appropriate ambient air criteria at sensitive receptors and do not cause an environmental or human health problem; and
- all reasonable and practicable measures are used to minimise the discharge of gaseous emissions.

Design and Technology Used – The EPA notes that the European Commission's (EC's) Integrated Pollution Prevention and Control (IPPC) *Reference Document on Best Available Techniques for Large Combustion Plants* (July, 2006) states that the best available technology for biomass combustion is an FBC boiler and the best available technology for pollution control is flue-gas recirculation and baghouses fitted with fabric filters.

The EC's Directive 2001/80/EC specifies emission limits for NO_x, SO₂ and PM as shown in Table 3.

Table 3: Emission Limits as specified in Directive 2001/80/EC

Particulate emissions	Not more than 30mg/Nm ³ of dry gas at 0 ⁰ C, 101.3kPa and 6% O ₂ conditions
Nitrogen dioxide	Not more than 300mg/Nm ³ of dry gas at 0 ⁰ C, 101.3kPa and 6% O ₂ conditions
Sulphur dioxide	Not more than 200mg/Nm ³ of dry gas at 0 ⁰ C, 101.3kPa and 6% O ₂ conditions

The EPA notes that the proposed design of the power plant incorporates a FBC boiler, flue gas recirculation and eight baghouses fitted with fabric filters, and considers this to be best practice for efficiency and pollution control. The EPA also considers that the emission limits specified in EC's Directive 2001/80/EC are appropriate for this proposal along with the best practice emission limit for dioxins/furans of 0.1ng toxic equivalent (TEQ) per m³. The EPA recommends that the DEC adopt these limits in the Part V licence.

Air Quality Modelling – Following release of the PER, the proponent undertook a revised air quality assessment, which is included as Appendix E in the Response to Submissions document. Cumulative GLCs for NO₂ were predicted using 4 different model scenarios in TAPM, while cumulative GLCs for PM₁₀ and PM_{2.5} were predicted by adding Manjimup background data to TAPM predictions. Maximum cumulative GLCs of SO₂ were also modelled using TAPM.

The DEC advised that TAPM is an appropriate model for this proposal and an independent peer review of the revised air quality modelling by Katestone Environmental concluded that:

“Overall, the dispersion modelling has been conducted in a competent manner and the results should provide a reasonable basis for decision-making.”

The EPA concurs with the conclusion of Katestone Environmental.

The EPA notes that the air quality modelling predicts that worst case cumulative GLCs for pollutants emitted from the proposal would meet the National Environment Protection Measure (NEPM) for ambient air quality (Table 4) and other relevant air quality guidelines.

Table 4: Maximum cumulative predicted ground-level concentrations for criteria pollutants in comparison with the NEPM and other relevant national guidelines

Pollutants of significance	Power plant emissions		Cumulative emissions	
	Maximum predicted GLC	Percentage of standard/guideline	Maximum predicted GLC	Percentage of standard/guideline
NO ₂ (1-hour average)	Not applicable	Not applicable	34.3ppb	28.6% ¹
SO ₂ (1 hour average)	25.1ppb	12.6% ¹	27.8ppb	13.9% ¹

Pollutants of significance	Power plant emissions		Cumulative emissions	
	Maximum predicted GLC	Percentage of standard/guideline	Maximum predicted GLC	Percentage of standard/guideline
PM ₁₀ (24-hour average)	3.2µg/m ³	6.4% ¹	23.5µg/m ³	47% ¹
PM _{2.5} (24-hour average)	3.2µg/m ³	12.8% ¹	23.2µg/m ³	94% ¹
CO (8-hour average)	29.6ppb	0.33% ¹	-	-
Lead (Annual average)	1.3 x 10 ⁻⁵ µg/m ³	0.0026% ¹	-	-
Benzo(a)pyrene as a marker for PAHs (annual average)	2.0 x 10 ⁻⁷ µg/m ³	0.067% ²	-	-
Benzene (annual average)	3.0 x 10 ⁻² µg/m ³	0.3% ²	-	-
Toluene (annual average)	2.6 x 10 ⁻² µg/m ³	0.0069% ²	-	-

¹ Ambient Air Quality NEPM (PM_{2.5} is advisory only)

² Air Toxics NEPM used as guideline

Currently, the plantation waste is burnt in the open. The EPA notes that the controlled combustion of this waste in an FBC boiler would produce significantly less emissions when compared to open burning, and would thus decrease the pollutant load emitted to the region's airshed.

Potential Impacts on Health – The DEC advised that emissions from the proposed biomass power plant in isolation are not expected to present a significant impact on air quality.

Following the release of the PER, Toxikos Pty Ltd (Toxikos, 2008) undertook a health risk assessment (HRA) which concluded that direct health risks from primary and secondary exposure to emissions, including NO₂, PM₁₀, PM_{2.5}, PAH and dioxins, are low. The DoH advised that it agrees with this conclusion provided that the proponent satisfactorily implements management measures set out in the PER and Response to Submissions.

The EPA notes the DoH and DEC advice and has recommended conditions specifying emission limits, monitoring and management measures.

Potential Impacts on Existing Landuses – The CSIRO has reviewed the potential impacts of emissions from the proposal on plants and agricultural crops in the area surrounding the biomass power plant (CSIRO, 2008). The EPA notes that this review concludes that the predicted direct toxicity on plants and agricultural crops from:

- NO₂ is acceptable
- PM is likely to be low
- SO₂ is negligible
- Dioxins and furans are negligible; and

- PAH is unlikely.

A submitter provided a report from the Australian Wine Research Institute (AWRI, 2008) which states that combustion products have the potential to taint wine.

However, a review of the potential impacts of the biomass power plant emissions on grapes and wine by Smart Viticulture (Smart Viticulture, 2008) found that the predicted GLCs of these emissions are so low as to be orders of magnitudes lower than the sensory threshold concentrations in wine.

Given the proposal's small contribution to background GLCs, and the maximum predicted cumulative GLCs of potential wine tainting compounds being orders of magnitude lower than the sensory threshold concentrations, the EPA does not consider the possibility of the emissions from the plant tainting wine to be realistic.

Summary

Having particular regard to the:

- (a) best practice design and technology used;
- (b) predicted GLCs of major emissions meeting the NEPM and other relevant national guidelines; and
- (c) independent reviews concluding that potential impacts on public health, agriculture and viticulture are not likely to be significant,

it is the EPA's opinion that the proposal can be managed to meet the EPA's environmental objectives for this factor provided conditions are imposed requiring the proposal to:

- meet best practice stack emission limits;
- monitor and report ambient air quality; and
- implement contingency measures if validation shows that ambient air quality exceeds relevant guidelines.

3.2 Ground and Surface Water Quality

Description

The proposal lies on a ridgeline marking the divide of 3 catchment boundaries (Figure 4):

- the East Brook Catchment to the south;
- the Lefroy Brook Catchment to the northwest; and
- the Smith Brook Catchment to the east.

The local drainage of the site is within the East Brook Catchment and discharges downstream of the Pemberton town water supply weir. The geology of the site consists of locally porous laterite rock underlain by a clay layer.

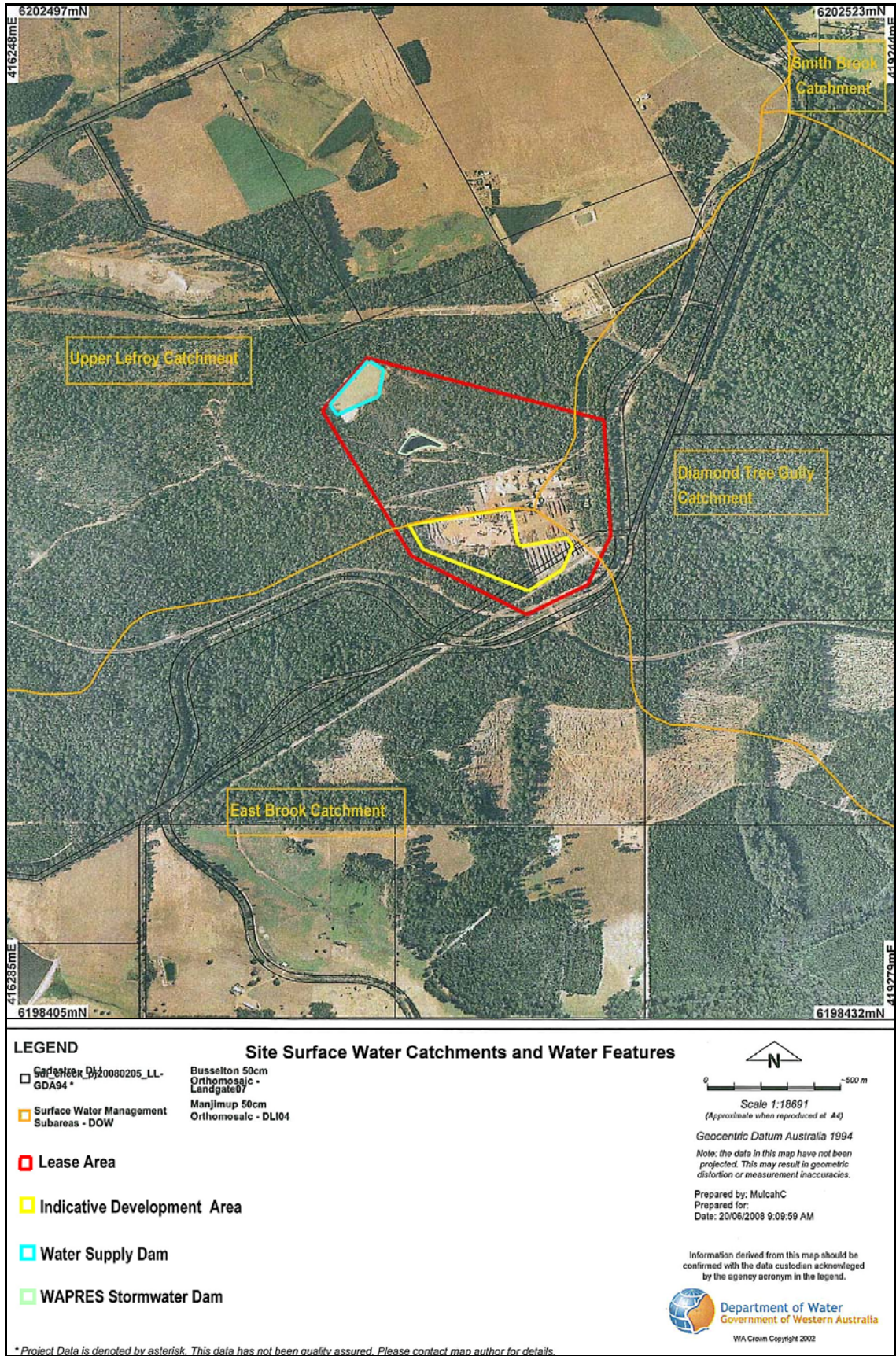


Figure 4: Catchment boundaries and surface water features

All areas of the proposal site would be sealed. Proposed management measures to minimise potential impacts on ground and surface water include:

- high risk areas such as hydrocarbon and chemical storage areas and workshop facilities would be bunded and roofed;
- stormwater collected from high risk areas would be sent offsite for treatment and disposal;
- stormwater collected from the fuel storage area would be directed to a retention pond and used either to suppress dust, wet ash or as process water for the plant; and
- stormwater runoff from other areas would be directed to a sedimentation pond and either treated to background water quality on the site before discharging to the local drainage system or used to wet ash, suppress dust or as process water.

Approximately 7,500 to 11,500 tonnes per annum of fly and furnace ash would be generated by the proposal. Ash would be stored temporarily on the site before offsite disposal. The proponent is also investigating options of reusing ash for agricultural purposes.

Submissions

The Department of Water (DoW) noted that the impacts on ground and surface water quality had not been fully assessed and the site needs to be protected for future use as a drinking water source. Many public submitters were also concerned with the impacts of stormwater runoff and seepage from the proposal on drinking water supply.

Assessment

The EPA's environmental objective for this factor is to maintain the quality of ground and surface water so that existing and potential uses, including ecosystem maintenance are protected.

The EPA notes that there would be zero process water discharge from the site as all process waste water would be used for dust suppression or to wet ash. The EPA considers that sealing all areas of the proposal site would minimise the risk of water infiltration on the site.

Following release of the PER, stormwater modelling was carried out by Queensland Laboratory Pty Ltd and showed that the proposed design and layout of the plant is capable of capturing all runoff from a 1-in-10 year, 24-hour storm during an average 90th percentile rainfall year. The DoW advised that it is satisfied that the proponent has the technical capability to manage water resource quality issues at the site.

The EPA considers that, based on the modelling and the DoW advice, the proposed management measures are appropriate to minimise the risk of stormwater runoff impacts on ground and surface water.

The EPA considers that it is inappropriate to allow storage of large amounts of ash onsite and as such, has recommended a condition that ash should be stored in fully enclosed containers or areas and that not more than 100 tonnes of ash is stored on the site at any one time. The proponent has committed to developing a sampling regime in consultation with the DEC to determine if the ash is suitable for agricultural

purposes. The EPA recommends that ash should be disposed of at appropriate licensed landfills unless appropriate approvals are obtained for other uses.

Summary

Having particular regard to the:

- (a) zero process water discharge policy;
- (b) fully sealed proposal site;
- (c) modelling by Queensland Laboratory Pty Ltd; and
- (d) proposed management measures,

it is the EPA's opinion that the proposal can be managed to meet the EPA's environmental objective(s) for this factor provided conditions are imposed requiring the proposal to:

- monitor ground and surface water quality on and around the site;
- report monitoring results and submit contingency plans to the DEC;
- limit the quantity of ash stored on the site to 100 tonnes and store ash in fully enclosed containers or areas; and
- dispose of ash at appropriate licensed landfills, unless approvals have been gained for its use in agriculture or other uses.

3.3 Environmental principles

In preparing this report and recommendations, the EPA has had regard for the object and principles contained in s4A of the *Environmental Protection Act (1986)*. Appendix 3 contains a summary of the EPA's consideration of the principles.

4. Other Advice

Fuel source – There is community concern regarding the potential use of native forests as fuel for the proposal. While the proponent has committed to only using fuel that meets the wood waste eligibility criteria as determined by the Office of the Renewable Energy Regulator so that the proposal can be accredited as a renewable energy power plant, the EPA considers that a condition that only allows the use of waste from Bluegum and Pine plantations as fuel would provide the community with more certainty on this issue. As such, the EPA has recommended condition 6-1.

5. Recommended Conditions

Section 44 of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on the environmental factors relevant to the proposal and on the conditions and procedures to which the proposal should be subject, if implemented. In addition, the EPA may make recommendations as it sees fit.

Having considered the information provided in this report, the EPA has developed a set of conditions that the EPA recommends be imposed if the proposal by WA Biomass Pty Ltd to construct and operate a 40MW (nominal) biomass power plant fuelled by up to 380,000 tonnes per annum of plantation waste is approved for implementation.

These conditions are presented in Appendix 4. Matters addressed in the conditions include the following:

- meet best practice stack emission limits;
- monitor and report ambient air quality;
- implement contingency measures if validation shows that ambient air quality exceeds relevant guidelines;
- monitor ground and surface water quality on and around the site;
- report monitoring results and submit contingency plans to the DEC;
- limit the quantity of ash stored on the site to 100 tonnes and store ash in fully enclosed containers or areas;
- dispose ash at appropriate licensed landfills unless approval for re-use is obtained; and
- only use wastes from Bluegum and Pine plantations as fuel.

It should be noted that other regulatory mechanisms relevant to the proposal are:

- *Environmental Protection (Noise) Regulations 1997*;
- Works Approval and Licence under Part V of the *Environmental Protection Act 1986* (The EPA has recommended emission limits for adoption in the operating licence);
- Planning Approval under the *Planning and Development Act 2005*;
- Lease under the *Conservation and Land Management Act 1984*;
- Dangerous Goods Licence under the *Explosive and Dangerous Goods Act 1961*;
- Electricity Generation Licence under the *Electricity Industry Act 2004*; and
- Agreed connection and access under the *Electricity Corporation Act 1994*.

6. Conclusions

The EPA has considered the proposal by WA Biomass Pty Ltd to construct and operate a 40MW (nominal) biomass power plant fuelled by up to 380,000 tonnes per annum of waste from *Eucalyptus Globus* (Bluegum) and *Pinus Radiata* (Pine) plantations.

The EPA recognises the environmental benefits of this proposal due to the greenhouse gas savings from using renewable fuel to generate electricity and the positive contribution the proposal makes to achieving targets set out in *The Premier's Climate Change Action Statement* (May, 2007).

The EPA notes that the proposal would implement best practice technology, meet relevant air quality guidelines and pose low risks to public health, existing landuses and the surrounding ground and surface water. The EPA considers that the proposed management measures to manage impacts on air quality and ground and surface water would further minimise the risks to these environmental factors.

The EPA has therefore concluded that it is unlikely that the EPA's objectives would be compromised, provided there is satisfactory implementation by the proponent of their commitments and the recommended conditions set out in Appendix 4, and summarised in Section 4.

7. Recommendations

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

1. That the Minister notes that the proposal being assessed is for the construction and operation of a 40MW (nominal) biomass power plant;
2. That the Minister considers the report on the key environmental factors and principles as set out in Section 3;
3. That the Minister notes that the EPA has concluded that it is unlikely that the EPA's objectives would be compromised, provided there is satisfactory implementation by the proponent of the recommended conditions set out in Appendix 4, and summarised in Section 5, including the proponent's commitments; and
4. That the Minister imposes the conditions and procedures recommended in Appendix 4 of this report.

Appendix 1

List of submitters

Government Departments:

Department of Environment and Conservation
Department of Health
Department of Indigenous Affairs
Department of Water
Environmental Protection Authority Service Unit
Heritage Council of Western Australia
Main Roads Western Australia (Southwest Region)
Shire of Manjimup
Tourism Western Australia

Non-governmental Organisations:

Conservation Council
Food Industry Association Western Australia Inc
Manjimup Chamber of Commerce and Industry Inc
Manjimup Tourist Bureau Inc T/A The Manjimup Visitor Centre
Northcliffe Environment Centre
Pemberton Tourist Centre
Pemberton Wine Region Association
Small Business Centre
Southwest Forests Defence Foundation Inc
Telethon Institute for Child Health Research
The Bushfire Front Inc
Timber Communities Australia Ltd (WA State Office)
Timber Communities Australia Ltd (Warren Branch)
Warren Water Management Area Advisory Committee
Western Australia Forest Alliance
Western Australia Sustainable Energy Association Inc
Wilderness Society
Wine Industry Association Western Australia Inc

Individuals:

Neil Bartholomaeus	Ron Masters	Grant Wilson
Robyn Bowles	Greg & Maria Munyard	Janet Woollard (Dr)
Maxine Joyce Cassidy	G Narkiullt	J. D. Zorr
Patrick Coutts	Paul Omodei MLA	4 group submissions (total of 150 signatures)
Rupert & Julie Crowe	Jorgen Overgaard	68 completed questionnaires
Julius Cutts	William (Dr) & Daniel Pannell	
Anthony DiSalvo	P & Rita Pardini	
Paul & Anna Garratt	Carole Perry	
L Gunson	Bob & Josephine Pessotto	
Peter Gunson	David & Monica Radomiljac	
J. D. Hall	Keith George Smith	
Arthur & Anne Hawke	Don Spriggins	
Alan Jacob	Michael Starkie	
Greg Kelly	Harvey Strack	
Keith Liddelw	Jeanette G Sturis	
Paul Llewellyn MLC	M. J. Taylor	
Pat & Trevor Martin	Robert & Elizabeth Thorn	

Appendix 2

References

Australian Wine Research Institute (AWRI) (2008) *Letter to Mr Dan Pannell, Picardy Winery*. AWRI, 14 February 2008.

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Appendix 3

Summary of submissions and identification of key environmental factors

Summary of submissions and identification of key environmental factors

Preliminary Environmental Factors	Proposal Characteristics	Main Government Agency and Public Comments ¹ Received During the Public Submission Period	Identification of Key Environmental Factors
BIOPHYSICAL			
Flora, vegetation and fauna	<p><u>Vegetation Clearing</u> The proposal would require clearing of not more than 5 hectares of vegetation for fuel supply and handling area, easement for power line and easement for water pipeline. Vegetation in the proposal area consists of the Pemberton and Crowea complexes. Most of the survey areas have been logged recently. No Declared Rare Flora or Threatened Ecological Communities have been identified in areas to be cleared. Proposal area is unlikely to contain significant habitat for threatened and priority fauna.</p> <p><u>Fuel Supply</u> The plant would be fuelled by approximately 380,000 tonnes per annum of <i>Eucalyptus Globulus</i> (Bluegum) and <i>Pinus Radiata</i> (Pine) plantation waste.</p>	<p><u>Department of Environment and Conservation (DEC)</u></p> <ul style="list-style-type: none"> • Inaccurate description of regional vegetation on Page 51 of PER • Require preparation of Fire Management Plan • Concern regarding availability of sustainable plantation-based fuel supply <p><u>Non-governmental Organisations (NGOs) and public</u></p> <ul style="list-style-type: none"> • Survey was inadequate and area surveyed was unclear • Risks to cockatoos and falcons • Risks to Schedule 1 fauna • Concerns that native forests would be used as fuel supply • Plantation waste used as fuel would need to be from sustainable plantations • Proposal would result in an improvement in forest management practices and reduced bushfire risk • Impacts of removing plantation waste on soil quality 	<ul style="list-style-type: none"> • Detailed description of vegetation in Section 12 of PER. • Clearing unlikely to impact on significant and/or rare flora/vegetation and significant fauna habitat. • Fire, weed and dieback management measures have been prepared • If lease is granted by DEC, construction and operation of proposal subject to conditions on lease. • Plantation waste suppliers operate under the <i>Code of Practice for Timber Plantations in Western Australia</i> by Forest Industries Federation WA Inc (August 2006), which provides goals and guidelines for plantation management. <p>The issue of potential use of native forests as fuel supply is discussed under Other Advice. Factor does not require further EPA evaluation.</p>
Soil and landform	The project area lies on the southern extreme of the Darling Plateau. Precambrian gneissic rock forms the basement of the Plateau and is mantled by laterite.	<p><u>NGOs and public</u></p> <ul style="list-style-type: none"> • Concerns about the cumulative impacts of lead on soils over life of plant 	Independent assessment by CSIRO Land and Water shows that impact of inorganic compounds, including lead, on soil are well below acceptable levels. Not considered to be a significant environmental factor.

Summary of submissions and identification of key environmental factors

Preliminary Environmental Factors	Proposal Characteristics	Main Government Agency and Public Comments ¹ Received During the Public Submission Period	Identification of Key Environmental Factors
Ground and surface water	<p>The site lies on a ridgeline separating 3 catchments:</p> <ul style="list-style-type: none"> • Eastbrook Catchment to the south • Lefroy Brook Catchment to the northwest; and • Smith Brook Catchment to the east. <p>The local drainage of the site is within the East Brook Catchment and discharges downstream of the Pemberton town water supply weir (Connell Wagner, 2008b). The site is outside the area proclaimed as a drinking water source in the <i>Country Areas Water Supply Act 1947</i>.</p> <p><u>Water requirements</u> The proposal would require 24ML of water per year. Water would be sourced from an existing dam operated by WA Pine Resources.</p>	<p><u>Department of Water</u></p> <ul style="list-style-type: none"> • Assessment shows that site lies in the catchment of a drinking water supply catchment • Water on and around site needs to be protected for future use as a drinking water source • Concerns that impacts on ground and surface water have not been fully addressed <p><u>DEC</u> Inadequate assessment of impacts of increasing dam storage on downstream surface and groundwater dependent ecosystems.</p> <p><u>Department of Health (DoH), NGOs and public</u></p> <ul style="list-style-type: none"> • Concerns about impacts of the plant on drinking water supply, either through stormwater runoff, stormwater seepage, ash disposal and/or air pollutants • Impacts of increasing dam capacity on the environment • Is there sufficient water available for the proposal? 	<p>Considered to be a significant environmental factor.</p>

Summary of submissions and identification of key environmental factors

Preliminary Environmental Factors	Proposal Characteristics	Main Government Agency and Public Comments ¹ Received During the Public Submission Period	Identification of Key Environmental Factors
POLLUTION			
Air quality	The major air emissions expected from this proposal are nitrogen oxides and particulate matter. Other air emissions include sulphur dioxide, carbon dioxide, carbon monoxide, volatile organic compounds, polycyclic aromatic hydrocarbons, dioxins and furans. Air quality modelling of emissions from the proposal shows that cumulative worst case scenario meet the National Environment Protection Measure standards.	<p><u>DoH, Shire of Manjimup</u></p> <ul style="list-style-type: none"> • Incorporation of background air quality in model wrong • Inadequate modelling of nitrogen oxides and ozone • Bunbury air quality does not represent Manjimup air quality • Health risk assessment required • Sulphur in fuel should be constrained • Detailed management plan required <p><u>NGOs and public</u></p> <ul style="list-style-type: none"> • Impacts on flora, vegetation, crops and fauna from airborne emissions of the power plant • Impacts of air emissions on drinking water supply • Bioaccumulation of pollutants • Impacts of air emissions on public health – health risk assessment inadequate • Impacts of air emissions on existing land users, in particular food and wine industry • Proposal did not incorporate best practice technology • Bunbury and Bridgetown air quality not representative of Manjimup’s • Comparison of air quality from burning plantation waste in the open to burning plantation waste in power plant • Stringent air quality monitoring and management required • Contingency plans required 	Considered to be a significant environmental factor.

Summary of submissions and identification of key environmental factors

Preliminary Environmental Factors	Proposal Characteristics	Main Government Agency and Public Comments ¹ Received During the Public Submission Period	Identification of Key Environmental Factors
Noise	The closest sensitive receptor to the site is approximately 1.4km to the north. Construction activities would be limited to 7am to 7pm Monday to Saturday, excluding Public Holidays. Noise modelling shows that worst case noise level is predicted to be 33dBA (L ₁₀) at closest sensitive receptor.	<p><u>DEC</u> Location of fuel storage differs in description and in layout used for noise modelling. Noise assessment should be revised.</p> <p><u>NGOs and public</u></p> <ul style="list-style-type: none"> • Concerns of exceeding noise regulations. • Transport noise should be included in assessment 	<p>Revised noise assessment shows proposal can meet limits in the <i>Environmental Protection (Noise) Regulations 1997</i>. Factor can be adequately managed through these regulations and proposed noise management measures.</p> <p>Factor does not require further EPA evaluation.</p>
Greenhouse gas emissions	Fuel source for the power plant is classified as a renewable energy source under the <i>Renewable Energy Act 2000</i> . Greenhouse gas (GHG) savings of the plant is expected to be more than 280,000 tonnes of CO ₂ -equivalent units per year.	<p><u>NGOs and public</u></p> <ul style="list-style-type: none"> • Plantation waste should not be classified as renewable. • Plant would actually increase carbon dioxide emissions in the region. • Transport has not be factored into the GHG emission calculations. 	<p>Assessment of GHG has considered transport of the plantation waste and has been undertaken using emissions factors from the Australian Greenhouse Office. The proposal would result in greenhouse gas savings by producing electricity from a renewable source.</p> <p>Factor does not require further EPA evaluation.</p>
Solid and liquid waste	The main types of wastes expected to be generated by the proposal include ash and stormwater contaminated with hydrocarbons.	<p><u>NGOs and public</u> Concerns regarding using ash for agricultural purposes and the impacts related to transport of ash.</p>	<p>Ash would be sampled to confirm suitability for agricultural use. Where not suitable ash would be disposed of at a licensed landfill. Liquid wastes would also be disposed of at licensed facilities.</p> <p>Not considered to be a significant environmental factor.</p>

Summary of submissions and identification of key environmental factors

Preliminary Environmental Factors	Proposal Characteristics	Main Government Agency and Public Comments ¹ Received During the Public Submission Period	Identification of Key Environmental Factors
SOCIAL SURROUNDINGS			
Indigenous heritage and culture	The proposal is located on a brownfields site that has been part of another industrial operation. Desktop searches of relevant databases did not identify any sites of Aboriginal significance at the proposal site.	<u>Department of Indigenous Affairs</u> <ul style="list-style-type: none"> • Consultation with relevant Aboriginal people have not taken place. • Further information on potential sites of significance need to be obtained. • Any sites discovered need to be reported to the Minister for Indigenous Affairs. 	<p>As the site has been utilised for industrial purposes, it is unlikely that the proposal would impact on Indigenous heritage and culture. The proponent has engaged an Aboriginal heritage consultant to undertake further investigations.</p> <p>Not considered to be a significant environmental factor.</p>
Non-indigenous heritage and culture	The proposal is located on a brownfields site that has been part of another industrial operation. Desktop searches of relevant databases did not identify any sites of non-indigenous significance at the proposal site. The site is approximately 1.8km from the Diamond Tree.	<u>Heritage Council of WA</u> Concerns with impact of power plant on health of Diamond Tree.	<p>Independent assessment by CSIRO concluded that power plant would not significantly affect plants and vegetation around the area.</p> <p>Not considered to be a significant environmental factor.</p>
Transport	An estimated 34 deliveries per day of plantation waste from Monday to Saturday 7am to 7pm would be required. The waste would be transported using B-Double truck and trailer. Along South Western Highway, traffic increase from this proposal is expected to range from 1.1% to 4.4%.	<u>DEC</u> <ul style="list-style-type: none"> • Some roads potentially unsuitable for B-Double trucks and trailers. • Transport of boiler bed sand not assessed. <u>Shire of Manjimup</u> Road safety audit required prior to council deciding on Development Application. <u>NGOs and public</u> <ul style="list-style-type: none"> • Transport by rail preferred. • Consideration of safety and road maintenance in relation to increased traffic. • Backloading options should be investigated. 	<p>Necessary transport permits would be obtained from Shire of Manjimup and Main Roads WA (MRWA). Consultation with Shire and MRWA on road upgrades and safety issues. The DEC would also be consulted regarding use of DEC owned roads. Backloading of trucks from Bunbury to the Diamond Timber Mill are being investigated.</p> <p>Factor does not require further EPA evaluation.</p>

Summary of submissions and identification of key environmental factors

Preliminary Environmental Factors	Proposal Characteristics	Main Government Agency and Public Comments ¹ Received During the Public Submission Period	Identification of Key Environmental Factors
Alternative locations	The proponent has examined several alternative locations for suitability and has concluded the site at the Diamond Timber Mill is most suitable.	<p><u>NGOs and public</u></p> <ul style="list-style-type: none"> • Proposal should be moved to an alternative site, such as the Manjimup Industrial Park. • More details on site selection • The Warren-Blackwood Region Industrial Sites Study (June, 2005) carried out by the Western Australian Planning Commission states that: <i>“Diamond Mill has the existing Lambert rail siding and the main Manjimup substation located at the site. However these benefits are mitigated by the conservation issues and possible conflicts with the planning objectives of protecting this vegetation and protecting prime agricultural land.”</i> 	<p>The EPA considers environmental impacts of a proposal as referred. The EPA notes that the Warren-Blackwood Region Industrial Sites Study is related to industrial sites of at least 200 hectares with the potential of expansion to 500 hectares. The biomass power plant site would occupy an area of approximately 5 hectares, most of which has been previously cleared.</p> <p>Clearing of no more than 5 hectares is required for the power plant site, power line easement and easement for the water pipeline. The EPA considers that the plant would have minimal risk to vegetation in the area.</p> <p>The EPA has also concluded that the risk of the power plant to the agriculture and viticulture industry in the area is low (Section 3.1).</p> <p>Factor does not require further EPA evaluation.</p>
Visual amenity	The proposal has potential to impact on visual amenity, in particular from the proposed 40m tall stack.	<p><u>DEC and Heritage Council of WA</u></p> <p>Visual impacts from Diamond Tree lookout.</p>	<p>Investigation show visual impacts of the proposal would be minimal.</p> <p>Not considered to be a significant environmental factor.</p>

Summary of submissions and identification of key environmental factors

Preliminary Environmental Factors	Proposal Characteristics	Main Government Agency and Public Comments ¹ Received During the Public Submission Period	Identification of Key Environmental Factors
Misc social and economic issues, including consultation	The proposal has potential to impact on various socio-economic factors, including image and economy of the region. Stakeholder consultation in the form of one-to-one and public meetings, information brochures, website and through the PER process.	<p><u>NGOs and public</u></p> <ul style="list-style-type: none"> • Concerns about the economic viability of the proposal. • Image of area as clean and green and as a tourist destination tarnished. • Impact on property prices. • Require financial accountability for impact from proposal (polluter-pays principle). • Lack of consultation and misleading information provided. • Additional or revised studies need to be made publicly available. 	<ul style="list-style-type: none"> • The EPA does not consider economic aspects of proposals. • Financial penalty is provided for under the <i>Environmental Protection Act 1986</i>. • The PER process, described in <i>Administrative Procedures 2002</i>, provides for formal consultation. Following the release of this report, there is a 2-week public appeal period. The proponent has undertaken additional consultation outside the PER process. • Additional or revised studies are be made publicly available as part of the proponent’s response to submissions. <p>Not considered to be a relevant environmental factor.</p>

¹ Refer to *Proposed Biomass Power Plant, Manjimup – Response to Submissions* for detailed comments

PRINCIPLES		
Principle	Relevant Yes/No	If yes, Consideration
<p>1. The precautionary principle <i>Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.</i> <i>In application of this precautionary principle, decisions should be guided by –</i> (a) <i>careful evaluation to avoid, where practicable, serious or irreversible damage to the environment;</i> <i>and</i> (b) <i>an assessment of the risk-weighted consequences of various options.</i></p>	Yes	The proposal has the potential to impact air quality, groundwater and surface water. Studies on the existing environment and assessment of potential impacts have been carried out. Monitoring and management measures should be implemented to detect and avoid impact.
<p>2. The principle of intergenerational equity <i>The present generation should ensure that the health, diversity and productivity of the environment is maintained and enhanced for the benefit of future generations.</i></p>	Yes	The proposal would result in greenhouse gas savings of approximately 280,000 tonnes of CO ₂ -equivalent units per year.
<p>3. The principle of the conservation of biological diversity and ecological integrity <i>Conservation of biological diversity and ecological integrity should be a fundamental consideration.</i></p>	Yes	The proposal requires the clearing of not more than 5 hectares of vegetation. Survey shows that no rare or significant flora and fauna would be impacted.
<p>4. Principles relating to improved valuation, pricing and incentive mechanisms (1) <i>Environmental factors should be included in the valuation of assets and services.</i> (2) <i>The polluter pays principles – those who generate pollution and waste should bear the cost of containment, avoidance and abatement.</i> (3) <i>The users of goods and services should pay prices based on the full life-cycle costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste.</i> (4) <i>Environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structure, including market mechanisms, which enable those best placed to maximize benefits and/or minimize costs to develop their own solution and responses to environmental problems.</i></p>	Yes	The proposal incorporates monitoring and management measures; the costs of which would be borne by the proponent. Costs of the contingency measures would also be paid by the proponent.
<p>5. The principle of waste minimisation <i>All reasonable and practicable measures should be taken to minimize the generation of waste and its discharge into the environment.</i></p>	Yes	The proposal uses plantation waste to generate electricity. All process waste water would be used to wet the ash. The potential for the re-use of ash for agricultural purposes is being investigated.

Appendix 4

Recommended Environmental Conditions

RECOMMENDED ENVIRONMENTAL CONDITIONS

Statement No.

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

40 MEGAWATT BIOMASS POWER PLANT - FOREST LEASE NO. 1994/97
APPROXIMATELY 10 KILOMETRES SOUTH-WEST OF MANJIMUP
SHIRE OF MANJIMUP

Proposal: The proposal involves the construction and operation of a 40 Megawatt power plant fuelled by up to 380,000 tonnes per annum of *Eucalyptus globulus* (Bluegum) and *Pinus radiata* (Pine) plantation wastes, a pipeline for water supply, and a power line connecting the power plant to the sub-station.

Proponent: Western Australia Biomass Pty Ltd

Proponent Address: Level 25, Waterfront Place, 1 Eagle Street,
BRISBANE QLD 4000

Assessment Number: 1707

Report of the Environmental Protection Authority: Report 1294

The proposal referred to in the above report of the Environmental Protection Authority may be implemented. The implementation of that proposal is subject to the following conditions and procedures:

1 Proposal Implementation

1-1 The proponent shall implement the proposal as assessed by the Environmental Protection Authority and described in schedule 1 of this statement subject to the conditions and procedures of this statement.

2 Proponent Nomination and Contact Details

2-1 The proponent for the time being nominated by the Minister for the Environment under sections 38(6) or 38(7) of the *Environmental Protection Act 1986* is responsible for the implementation of the proposal.

Published on

- 2-2 The proponent shall notify the Chief Executive Officer (CEO) of the Department of Environment and Conservation of any change of the name and address of the proponent for the serving of notices or other correspondence within 30 days of such change.

3 Time Limit of Authorisation

- 3-1 The authorisation to implement the proposal provided for in this statement shall lapse and be void within five years after the date of this statement if the proposal to which this statement relates is not substantially commenced.
- 3-2 The proponent shall provide the CEO of the Department of Environment and Conservation with written evidence which demonstrates that the proposal has substantially commenced on or before the expiration of five years from the date of this statement.

4 Compliance Reporting

- 4-1 The proponent shall submit to the CEO of the Department of Environment and Conservation environmental compliance reports annually reporting on the previous twelve-month period, unless required by the CEO of the Department of Environment and Conservation to report more frequently.
- 4-2 The environmental compliance reports shall address each element of an audit program approved by the CEO of the Department of Environment and Conservation and shall be prepared and submitted in a format acceptable to the CEO of the Department of Environment and Conservation.
- 4-3 The environmental compliance reports shall:
- 1 be endorsed by signature of the proponent's chief executive officer or a person, approved in writing by the CEO of the Department of Environment and Conservation, delegated to sign on behalf of the proponent's chief executive officer;
 - 2 state whether the proponent has complied with each condition and procedure contained in this statement;
 - 3 provide verifiable evidence of compliance with each condition and procedure contained in this statement;
 - 4 state whether the proponent has complied with each key action contained in any environmental management plan or program required by this statement;
 - 5 provide verifiable evidence of conformance with each key action contained in any environmental management plan or program required by this statement;

- 6 identify all non-compliances and non-conformances and describe the corrective and preventative actions taken in relation to each non-compliance or non-conformance;
- 7 review the effectiveness of all corrective and preventative actions taken; and
- 8 describe the state of implementation of the proposal.

4-4 The proponent shall make the environmental compliance reports required by condition 4-1 publicly available in a manner approved by the CEO of the Department of Environment and Conservation.

5 Performance Review and Reporting

5-1 The proponent shall submit to the CEO of the Department of Environment and Conservation Performance Review Reports at the conclusion of the second, fourth, sixth, eighth and tenth years after the start of implementation of the proposal and then, at such intervals as the CEO of the Department of Environment and Conservation may regard as reasonable, which address:

- 1 the major environmental risks and impacts; the performance objectives, standards and criteria related to these; the success of risk reduction/impact mitigation measures and results of monitoring related to the management of the major risks and impacts;
- 2 the level of progress in the achievement of sound environmental performance, including industry benchmarking, and the use of best available technology where practicable; and
- 3 significant improvements gained in environmental management which could be applied to this and other similar projects.

6 Fuel Source

6-1 The proposal shall only use waste from *Eucalyptus Globus* and *Pinus Radiata* plantations as a fuel source.

7 Air Quality

7-1 The proponent shall design and operate the biomass power plant such that the stack emissions do not exceed the emission limits set in the *Directive 2001/80/EC of the European Parliament and of the Council of 23 October 2001 on the limitation of emissions of certain pollutants into the air from large combustion plants*.

7-2 The proponent shall monitor ambient air quality at sensitive receptors in proximity to the project area and ensure that the contribution that the proposal's emissions makes to ambient air quality do not significantly exceed

the predicted percentages of the Ambient Air Quality National Environment Protection Measure in Schedule 2.

7-3 The proponent shall submit the results of the ambient air quality monitoring required by condition 7-2 to the CEO of the Department of Environment and Conservation.

7-4 The proponent shall provide proposed management measures to the CEO of the Department of Environment and Conservation in the event that the requirements of condition 7-2 are not met or are not likely to be met.

8 Ground and Surface Water Quality

8-1 The proponent shall ensure that the run-off or leachate / seepage from the proposal site does not cause the quality of surface water or groundwater within or leaving the proposal area to exceed ANZECC* requirements, taking into consideration natural background water quality, so that existing and potential uses, including ecosystem maintenance, are protected.

*- *Australian Water Quality Guidelines for Fresh and Marine Waters*, ANZECC (November 1992, and its updates).

8-2 The proponent shall monitor the quality of any run-off and leachate / seepage from the proposal site entering surface water and groundwater within and / or in proximity to the proposal area. This monitoring shall be carried out to the satisfaction of the CEO of the Department of Environment and Conservation.

8-3 The proponent shall submit the results of the monitoring required by condition 8-2 to the CEO of the Department of Environment and Conservation.

8-4 The proponent shall provide proposed management measures to the CEO of the Department of Environment and Conservation in the event that the requirements of condition 8-1 are not met or are not likely to be met.

8-5 The proponent shall store all furnace and fly ash on the proposal site in fully enclosed and bunded areas.

8-6 The proponent shall not store more than one hundred tonnes of ash on the proposal site.

8-7 The proponent shall dispose all furnace and fly ash at appropriately licensed landfill facilities, unless regulatory approval is obtained for reuse of ash.

9 Decommissioning (Infrastructure, including Pipelines, Powerlines and Buildings)

9-1 Within six months following the cessation of operations, the proponent shall complete the following procedures and measures:

- 1 ensure that the site is suitable for future land uses;
 - 2 remove or, if appropriate, retain plant and infrastructure agreed in consultation with relevant stakeholders;
 - 3 rehabilitate all disturbed areas to a standard suitable for the agreed new land use(s); and
 - 4 identify contaminated areas, and provide evidence of notification and proposed management measures to relevant statutory authorities.
- 9-2 Within 12 months following the cessation of operations, the proponent shall rehabilitate areas of native vegetation cleared for this proposal (including areas cleared for pipelines, powerlines and buildings) in accordance with an accurate figure showing native vegetation cleared and which has been submitted to the CEO of the Department of Environment and Conservation within one month following the completion of clearing.

Procedures

1. Where a condition states “on advice of the Environmental Protection Authority”, the Environmental Protection Authority will provide that advice to the Department of Environment and Conservation 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 and Conservation.
3. The Minister for the Environment will determine any dispute between the proponent and the Environmental Protection Authority or the Department of Environment and Conservation over the fulfilment of the requirements of the conditions.
4. 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 and Conservation.
5. 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*.

Schedule 1

The Proposal (Assessment No. 1707)

General Description

The proposal is to construct and operate a 40 Megawatt biomass power plant approximately 10 kilometres south-west of Manjimup on part of Forest Lease No. 1994/97 currently held by WA Pine Resources (WAPRES), which operates the Diamond Timber Mill.

The biomass power plant will consist of a fluidised bed combustion boiler and conventional steam cycle plant generating approximately 322 Gigawatt hours (net) per annum of electricity to be supplied to the South West Interconnected System. Fuel for the plant will be sourced from *Eucalyptus globulus* (Bluegum) and *Pinus radiata* (Pine) plantation wastes from within a maximum radius of 100 kilometres from the plant.

The proposal is described in the following document – *Proposed Biomass Power Plant, Palings Road, Diamond Tree, Manjimup - Public Environmental Review, EPA Assessment No. 1707*, Connell Wagner (January 2008).

Summary Description

A summary of the key proposal characteristics is presented in Table 1.

Table 1 – Summary of Key Proposal Characteristics

Element	Description
General	
Life of project	Approximately 25 years
Generation capacity	Approximately 40 megawatts
Vegetation clearing	Not more than 5 hectares for proposal site, easement for power line and easement for water pipeline.
Water requirement	Not more than 25 mega litres per year
Fuel	
Fuel quantity	Not more than 380,000 tonnes per annum
Fuel type	Waste from <i>Eucalyptus Globulus</i> (Bluegum) and <i>Pinus Radiata</i> (Pine) plantations
Fuel storage	Not more than 30 days of supply
Main plant equipment	
Combustion system	Fluidised bed combustion boiler with flue gas recirculation and over fire air systems
Particulate emission control system	Eight baghouses fitted with fabric bags
Stack height	Not more than 40 metres
Cooling system	Air-cooled condenser
Misc	
Ash storage	Maximum of 100 tonnes on site stored in enclosed containers or areas.

Figures

Figure 1 – Proposal footprint (see figure 1 above)

Schedule 2

Maximum predicted ground level concentrations from the proposal expressed as percentages of the Ambient Air Quality National Environment Protection Measure (Assessment No. 1707)

Pollutants of significance	Power plant emissions
	Percentage of standard/ guideline
NO ₂ (1-hour average)	-
SO ₂ (1 hour average)	12.6%
PM ₁₀ (24-hour average)	6.4%
PM _{2.5} (24-hour average)	12.8%
CO (8-hour average)	0.33%
Lead (Annual average)	0.0026%

Appendix 5

**Summary of Submissions and
Proponent's Response to Submissions
(Attached CD)**