Liquid waste treatment plant — Lot 197 Cocos Drive, Bibra Lake

Western Resource Recovery

Report and recommendations
of the Environmental Protection Authority

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Summary and recommendations

This report is to provide the advice and recommendations of the Environmental Protection Authority (EPA) to the Minister for the Environment about the proposal by Western Resource Recovery to build a Liquid Waste Treatment Plant at Lot 197 Cocos Drive, Bibra Lake. The report is based on the environmental factors relevant to the proposal.

The proponent Western Resource Recovery proposes to build and operate an integrated facility for treating wastes such as grease trap wastes, oily waters, process waters and industrial wastes such as alkali and acids from metal finishing industries.

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.

Relevant environmental factors

In the EPA's opinion, the following are the environmental factors relevant to the proposal:

(a) ground water quality - potential for contamination;

(b) odour - impact on people;

(c) noise and vibration - impact on people;

(d) solid and liquid wastes - types of wastes to be treated;

(e) public health and safety (risk) - risk to people; and

(f) transport - safety of people.

Conclusion

The EPA has concluded that the proposal by the Western Resource Recovery to establish a Liquid Waste Treatment Plant at Lot 197 Cocos Drive, Bibra Lake, can be modified to meet the EPA's objectives, and thus not impose an unacceptable impact on the environment, provided there is a satisfactory implementation by the proponent of the recommended conditions set out in Section 4 and Appendix 3.

In addition to receiving advice from the relevant regulatory agencies, the EPA sought independent review of a composite package of material in relation to the proposal comprising the Consultative Environmental Review (CER) document, the public submissions, the proponent's response to those submissions and a draft of the proponent's commitments as a result of the public review process. The independent review advice is set out in Appendix 4.

The agency comments and review highlighted some deficiencies in the CER document, but the shortcomings had been largely corrected in the proponent's response to public submissions. The development of a proposal is often an iterative process through discussions between the proponent and the officers of the Department of Environmental Protection (DEP) on behalf of the EPA. This approach is in accord with the guide to environmental impact assessment in Western Australia which includes the statement "Throughout the process, the EPA will advise and help proponents to improve or modify their proposals so that the environment will be protected". However, it is important that in its report to the Minister the EPA provide information on the improvements to the proposal which have occurred between the time of issuing the CER document and completion of the assessment by the EPA.

The independent review reported that the proponent's commitments were generally considered to be satisfactory, but that some further clarification was required as set out in section 6 of the independent review (Appendix 4). The EPA has clarified those matters as follows:

- The environmental management system will have to be prepared in consultation with the DEP, and attention will be given to the matters raised by the independent review.
- The proponent has committed to providing an Emergency Response Plan to the satisfaction of the DEP.
- The DEP can require noise measurements under Part V of the Environmental Protection Act.
- The proponent has committed to installing a standby power system.

Recommendations

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

1. That the Minister consider the EPA report on the relevant environmental factors of Groundwater quality, Odours, Noise and Vibration, Solid and Liquid wastes, Public Health and Safety and Transport set out in Section 3;
2. That the Minister notes that the EPA has concluded that the proposal can be modified to meet the EPA's objectives, and thus not impose an unacceptable impact on the environment, provided there is a satisfactory implementation by the proponent of the recommended conditions;
3. That the Minister imposes the conditions and procedures set out in Appendix 3.

Conditions

The EPA recommends that the proposal be subject to the conditions and procedures set out in Appendix 3, and summarised below, if the Minister determines that the proposal may be implemented:

(a) the proponent shall fulfil the commitments in the Consolidated Commitments statement set out as an attachment to the recommended conditions in Appendix 3;

(b) in order to manage the relevant factors and EPA objectives contained in this bulletin, and subsequent conditions and procedures authorised by the Minister for the Environment, the proponent shall be required to prepare, prior to implementation of the proposal, environmental management system documentation with components such as those adopted in Australian Standards AS/NZ ISO 14000 series.

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1. Introduction and background

This report it to provide the advice and recommendations of the Environmental Protection Authority (EPA) to the Minister for the Environment on the environmental factors relevant to the proposal by Western Resource Recovery to build a Liquid Waste Treatment Plant at Lot 197 Cocos Drive, Bibra Lake (Figure 1).

The proposed Liquid Waste Treatment Plan was referred to the EPA in November 1996, and the level of assessment was set at Consultative Environmental Review (CER).

The CER report "Western Resource Recovery - Liquid Waste Treatment Plant - Lot 197 Cocos Drive, Bibra Lake", hereafter referred to as the CER (WRR, 1997a), was made available for public review for four weeks between 28 April to 26 May 1997. It can be viewed at the DEP library.

Eighty individual submissions and 486 proforma submissions were received by the DEP. The major issues raised were;

- odour;
- groundwater pollution;
- transport routes through local communities;
- concerns about hazardous industry;
- solid and liquid wastes
- public safety; and
- noise.

In compiling this report, the EPA has considered:

(a) information provided in the CER;

(b) issues raised by the public and government agencies in their submissions on the CER;

(c) the proponent's response to issues raised in submissions;

(d) information provided by the DEP as well as other expert agencies; and

(e) a review of the documentation by an independent consultant.

Further details of the proposal are presented in Section 2 of this Report. Section 3 discusses environmental factors relevant to the proposal. Conditions and procedures to which the proposal should be subject if the Minister determines that it may be implemented are set out in Section 4. Section 5 presents the EPA's conclusion and Section 6 the EPA's recommendations.

A list of people and organisations that made submissions is included in Appendix 1, published information is listed in Appendix 2, Recommended Environmental Conditions and Proponent Commitments are included as Appendix 3 and the independent review is presented in Appendix 4.

The DEP's summary of submissions and the proponent's response to those submissions has been published separately and are available in conjunction with this report.

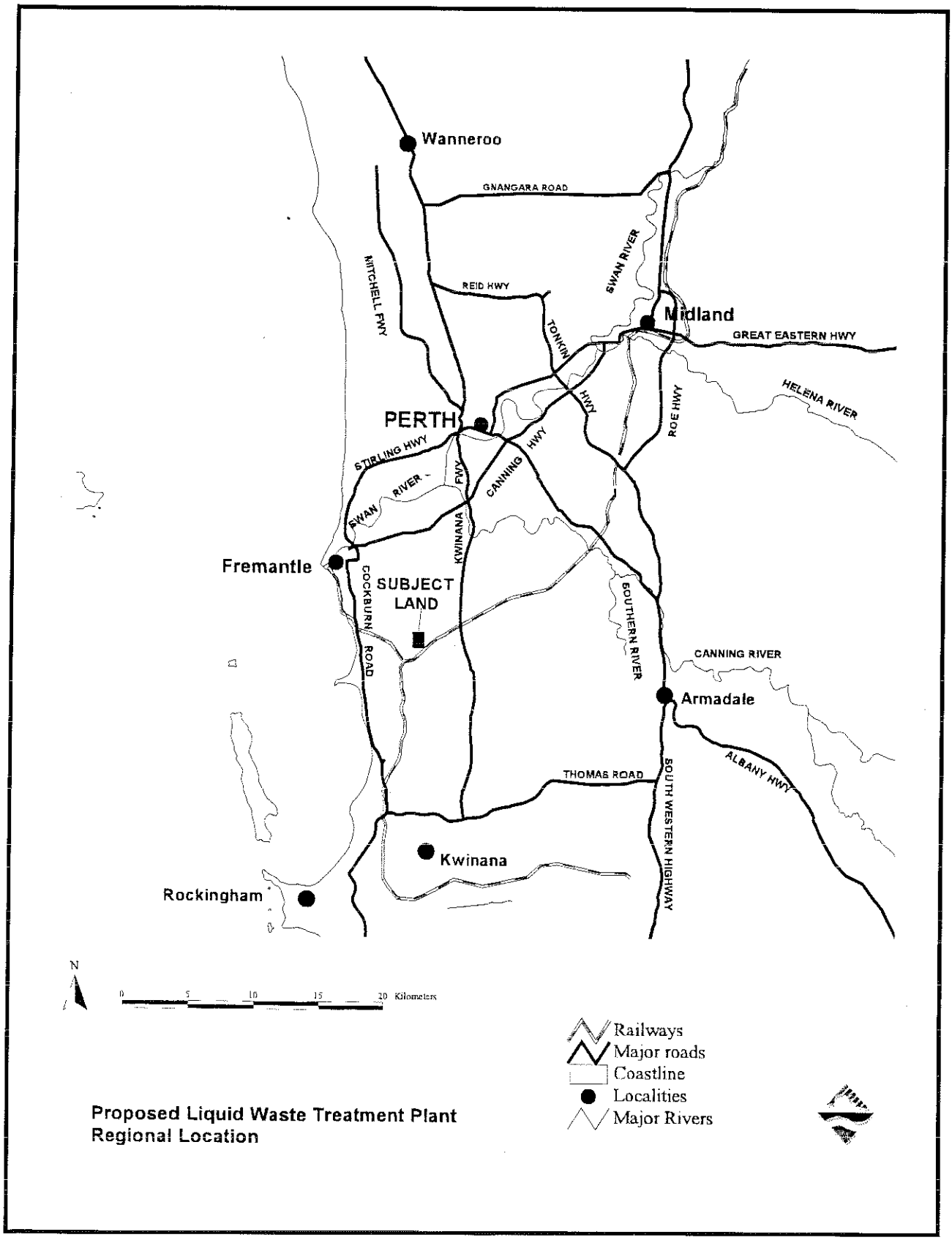

Figure 1. Proposed liquid waste treatment plant regional location.

2. The Proposal

The proposal site is approximately 18 km south of Perth and is located centrally within the Bibra Lake Industrial Park which is zoned general industry (Figure 2). The facility would consist of a single building with offices and a laboratory at the front and the process area to the rear. A weighbridge would be incorporated on the site to weigh waste trucks.

All operational activities would be conducted within a fully enclosed building. The building would be kept as air tight as possible and maintained under negative pressure by extraction fans. The exhaust air would be passed through an air emission control system to remove odours prior to discharge to the atmosphere.

The building would be concrete floored and fully bunded. All external drive ways and parking areas would be sealed to minimise dust and manage spillage.

The proposal is to provide an integrated treatment facility for wastes such as grease trap wastes, oily waters, process waters and industrial wastes such as alkali and acids from metal finishing industries. There would be treatment processes for three types of waste streams;

- Biodegradable aqueous wastes: waste from grease interceptor traps, typically from the food processing industry.
- Oily water wastes: waste from oil interceptor traps, typically from the automotive service industry.
- Wastes for stabilisation/solidification: non sewerable liquid wastes and sludges would be treated by Cement Fixation and Stabilisation (CFS) process.

Detail on the treatment process is presented in section 3.3 of the CER (WRR, 1997a). A summary of Plant and Equipment is included in Table 12 of the CER. The anticipated waste streams are summarised in Table 1.

Table 1. Summary of anticipated waste streams for the proposal (ML).

Waste Type	Volume per Annum	Resource Recovered	Solid Waste	Liquid to Sewer
Biodegradable aqueous waste (eg grease interceptor trap wastes)	13	0.65	1.95 compostable	10.4
Oily Water (oil interceptor trap waste)	6	0.9		5.1
Non sewerable sludges and heavy metal contaminated liquors	10		11.25	2.5

The plant would discharge treated effluent to sewer. The fixed solids would be tested against waste acceptance criteria and then disposed to appropriate Class II or Class III landfill facilities.

The plant would not treat pesticides, polychlorinated biphenyls (PCB's) or materials which are flammable, explosive or radioactive.

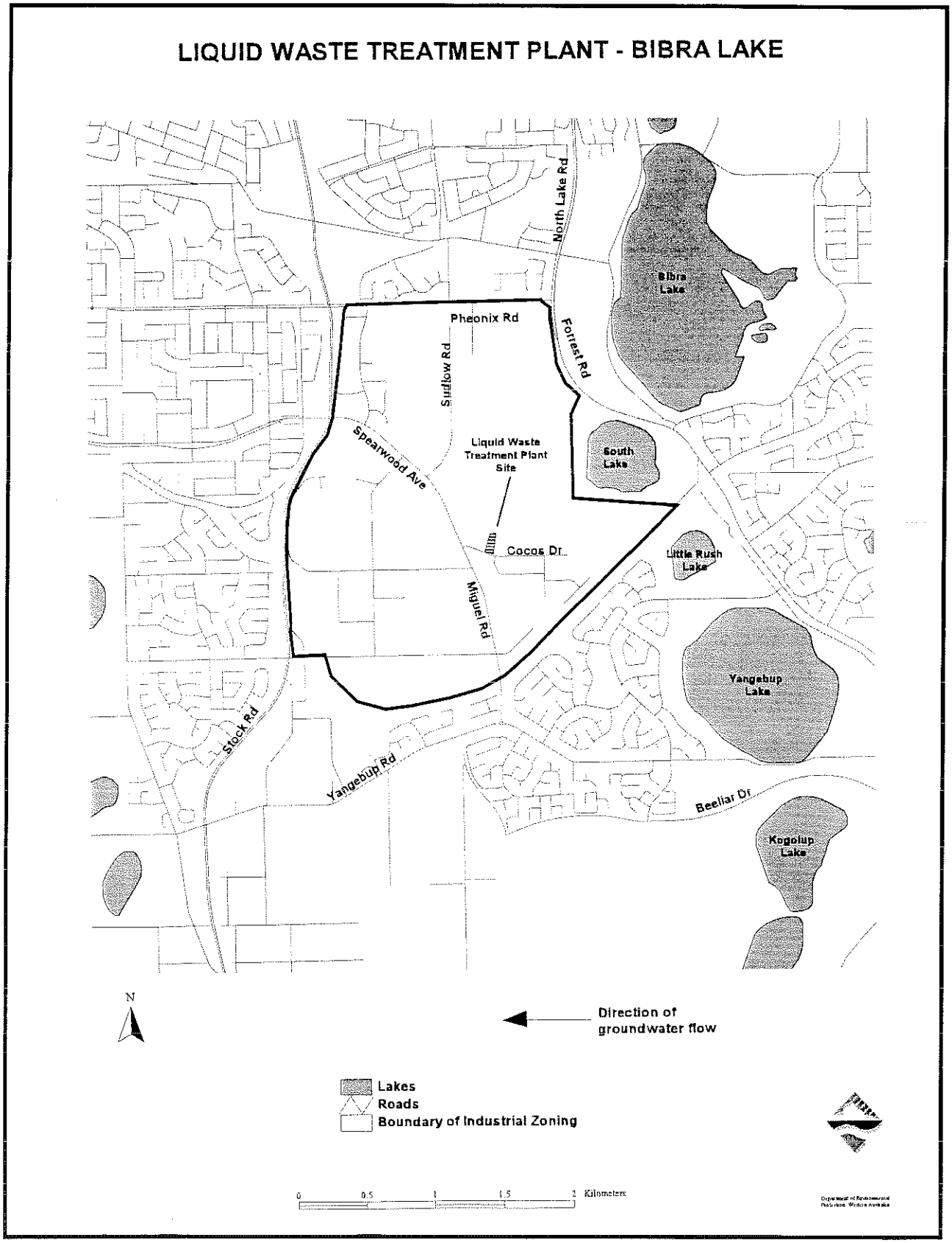

Figure 2. Proposed site in Bibra Lake industrial estate.

Changes to proposal

Following the public submission period, and discussions with the DEP, the proponent has made several changes to the proposal presented in the CER. These changes are;

- The inground receival wells will now consist of a steel liner sitting inside a concrete well with an air gap to allow easy integrity checks of the liners.
- The air emission control system will be designed to allow continued operation should any one component fail or be unable to operate during maintenance. This would be achieved by having two sequential scrubbers which can operate independently and two extraction fans which also can operate independently.
- A standby power supply will be installed to provide continued operation of the air emission control system in the event of a power failure.
- The transport routes listed in the CER will be revised to the satisfaction of the DEP in consultation with the City of Cockburn and the DME.

3. Environmental factors

3.1 Relevant environmental factors

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 public and government submissions (Appendix 1) and appropriate references (Appendix 2), in the EPA's opinion the following are the environmental factors relevant to the proposal:

(a) Groundwater quality - potential for contamination;

(b) Odour - impact on people;

(c) Noise and vibration - impact on people;

(d) Solid and liquid wastes - types of wastes to be treated;

(e) Public health and safety (risk) - risk to people; and

(f) Transport - safety of people.

The above relevant factors were identified from the EPA's consideration and review of all environmental factors generated from the EPA's guidelines (preliminary factors), the proponent's CER document, the submissions received, the proposal characteristics (including significance of the potential impacts), the adequacy of the proponent's response and commitments, and the effectiveness of the proposed management. The identification process is summarised in Table 2.

The factors, surface water, dust, occupational health/safety, and visual amenity, and other issues raised in the submissions were considered by the EPA and are addressed in Table 2. However these do not require further evaluation by the EPA.

The relevant environmental factors are discussed in Sections 3.2 to 3.7 of this report, and the EPA's assessment is summarised in Table 3.

Table 2: Identification of relevant environmental factors

FACTOR	RELEVANT AREA	PROPOSAL CHARACTERISTICS	GOVERNMENT AGENCY AND PUBLIC COMMENTS	IDENTIFICATION OF RELEVANT FACTORS
POLLUTION				
Groundwater Quality	Proposal area and superficial aquifer down hydraulic gradient from the plant within the site boundaries.	The soils are predominantly quartz sand with underlying limestone deposits. Regionally, groundwater flow is east to west. The proponent does not propose to draw groundwater to supply the Plant. All operations will be undertaken in a sealed concrete floored and bunded building. All solid wastes derived from the treatment process will be stored in sealed containers or in bunded areas. The in-ground receival wells will consist of a tank sitting in a concrete well which will allow visual integrity checks of the tank. Leachate recovery/monitoring bores will be installed to monitor groundwater quality beneath the site.	**Government:** Water and Rivers Commission (WRC) has indicated that the proposal addresses water resource issues adequately. The City of Cockburn is concerned that with the porous nature of soils on site it is essential that sufficient capacity is present in bunding and spillage containment systems to deal with a worst case situation. The City of Cockburn notes that Tanker wash downs will occur on site and that precautions will be required to contain and dispose of effluent. **Public:** Members of the community note that the building plan relies entirely on the concrete bunded design of the plant. No detailed plans of the concrete building sections or the specifications of the bunded concrete is provided and question what would be the effect if this concrete bund is breached or broken down by corrosion or earthquake. Concerns expressed about the adequacy of the Hydrogeological information, particularly data for groundwater flow. Submission stated that additional research on local groundwater quality and usage should be made available and noted that ground water is used in the area for the growing of vegetables for human consumption. Concern that the site was not suitable due to the potential for leachates to contaminate groundwater and affect beneficial uses of the groundwater. The Yangebup Progress Association indicated that the CER did not provide details of the drainage design to be employed.	**Considered to be a relevant factor.**
Surface Water Quality	Yangebup and Kogolup Lakes.	There are no standing surface waters on the proposed site. Management measures proposed include control and isolation of process areas from stormwater. Process areas and storage areas will be bunded.	**Government:** WRC has indicated that the proposal addresses water resource issues adequately. **Public:** The Conservation Council of WA expressed concern over the transport routes passing between Yangebup and Kogolup Lakes where accidents could allow spills into the Lakes. A member of the public expressed concern that the stormwater drainage system at the industrial estate has the main sump on the eastern side adjacent to the Beeliar Regional Park and accidental spills going into the storm water system could potentially end up in the lake system.	Potential for spillages on transport routes is addressed under the factor, Transport. The proponent has made a commitmnet to submit a storm water management plan to the DEP for approval prior to construction. Potentially contaminated stormwater will be managed on-site and will not be discharged to the drainage system for the industrial estate. **Factor does not require further EPA evaluation.**

FACTOR	RELEVANT AREA	PROPOSAL CHARACTERISTICS	GOVERNMENT AGENCY AND PUBLIC COMMENTS	IDENTIFICATION OF RELEVANT FACTORS
Odour and Gaseous Emissions	Proposal area and adjacent properties.	The proposed treatment plant is within a fully enclosed building maintained under negative air pressure. All exhaust air is passed through a scrubber to remove odour. Nearest residences are approx. 800 m from the boundary of the site.	**Government**: The Air Quality Branch (AQB) has advised that the DEP will require; • a quantitative odour assessment approach to quantify the odour sources and predict odour concentrations. • further details of the scrubber design and performance. • details of the contingency measures for equipment or power failure. The City of Cockburn asks if the proponent can provide specific details of the odour control technology, backup systems and odour dispersion modelling based on current scientific knowledge. **Public:** Members of the community: • note that the CER makes no commitment to achieving any known odour standards of emission control and have had considerable problems with odour in Queensland. • say that further study should be undertaken into the odour potential taking into account local meteorology. • note that the CER gives no indication of the effect of power outages, nor does it provide a procedure to be adopted by staff during such an event. Does the plant have back up generators? Does the negative pressure of the building remain? Can critical mixing or transfer procedures be adversely affected by power cuts? Will emissions control equipment be able to retain any odour and airborne emissions? • have concerns about the impact of gaseous emissions on asthmatics, especially children at the local schools.	**Considered to be a relevant factor.**
Dust and Particulates	Proposal area and adjacent properties including nearby residences.	Following construction, the surface will be either paved or landscaped therefore there will be no unstable areas. Cement and flyash will be stored on-site for use in the CFS process.	**Government**: The City of Cockburn indicated that precautions to minimise dust during the filling of the cement and flyash silos will be required.	Facility will incorporate dust suppression technology. Can be managed under Part V of the *Environmental Protection Act*. **Factor does not require further EPA evaluation.**
Noise and Vibration	Proposal area and adjacent properties including nearby residences.	**Plant:** Noise emissions assessed against the *Environmental Protection (Noise) Regulations 1997*. The CER states that measurements on a similar plant in Queensland reveal that the assigned level of 65 dB(A) is achievable at the boundary. **Road Transport:** There will be approximately 10 truck movements per day, with deliveries accepted between 0500 and 1800 hours (except in emergencies).	**Plant Noise** **Government**: The City of Cockburn states that additional noise modelling should be required and a clear commitment made to deal with any noise emissions identified by the modelling. **Road Noise** **Government**: The City of Cockburn states that it is preferable that the hours of operation for the receipt of waste be limited to 0700 to 1800 hours to minimise noise impacts on residents near the industrial area and along transport routes.	**Considered to be a relevant factor.**

FACTOR	RELEVANT AREA	PROPOSAL CHARACTERISTICS	GOVERNMENT AGENCY AND PUBLIC COMMENTS	IDENTIFICATION OF RELEVANT FACTORS
Solid and Liquid Wastes	The proposal area, disposal sites and transport routes to and from the proposed facility.	Wastes generated will be recycled where practical and disposed to approved landfill.	**Government:** Pollution Prevention Division (PPD) notes that it is common for treated waste to be stored in a locked storage tank until clearance to discharge is obtained from the water authority. There does not appear to be an allowance for this approach in the current design. Accordingly , an effective management system will need to be worked out with the Water Corporation. PPD notes that should solidified wastes fail the TCLP test, it is not clear how such wastes would be crushed for reprocessing. The text suggests that the solid material would be expected to dissolve or mix readily in liquid but this has not been properly established. Waste Management Division (WMD) states that typical waste streams in WA have a very high solids content and this can lead to problems with the treatment process and cleaning of tankers. The high solids content of sludge wastes also tends to block large delivery systems. The CER does not identify any facilities for tanker clean out. At the Forrestdale plant, the high solids content has necessitated the construction of specialised waste tanker clean out facilities. WMD note that figures in the CER for the metal content of the cement stabilised waste are in accord with current policies in terms of TCLP but do exceed the concentrations limits for disposal to existing landfills. WRC questions what data is available on the long term performance of the Cement Fixation and Solidification (CFS) process under the biochemical regime applying at a landfill? Is it possible that the cement /flyash/slurry blocks may break up in a damp bio-active environment over time and leach at a higher rate than indicated in the CER. The primary checks described in the CER are pH, EC and noticeable odour from solvent and sewage. The WRC believes this should be supplemented by random comprehensive testing performed under the supervision of the DEP or an independent party. The analysis should include biotoxins and GC traces. WRC asks what happens to reject loads. If they are turned away illegal dumping may result. Onsite capacity needs to be provided to store reject loads and to cater for equipment outage. If a non spec load arrives the generator and sullage contractor need to be held jointly responsible for the cost of supplementary treatment and disposal. The Water Corporation notes that the use of ammonium phosphate in the treatment stream for oily wastes may result in significant loadings of ammonia and phosphorus in the effluent. The proponent may need to consider alternative pH adjustment reagents if the use of ammonium phosphate results in nitrogen or phosphate loadings which exceed the Water Corporations industrial waste criteria. The City of Cockburn is concerned that the system for material acceptance could result in materials which are excessively toxic and hazardous being transported to and possibly stored on the site even if not accepted for treatment. To ensure this situation does not arise, will wastes proposed for fixation/solidification be fully assessed for acceptability off-site prior to transportation to the site? **Public:** Members of the community note that the CER specifically excludes PCB's but fails to address other organochlorine pesticides and chlorinated chemical wastes. The proponent should introduce a testing protocol to screen for such contaminants as these wastes are easily blended and absorbed in greasy or oily wastes	**Considered to be a relevant factor.**

FACTOR	RELEVANT AREA	PROPOSAL CHARACTERISTICS	GOVERNMENT AGENCY AND PUBLIC COMMENTS	IDENTIFICATION OF RELEVANT FACTORS
SOCIAL SURROUNDINGS				
Public Health and Safety (risk)	Proposal area, Industrial Estate and surrounding area including nearest residences approx 800 metres away.	CER states that risk to the public does not exceed the criteria in EPA Bulletins 611 and 627.	**Government:** The Department of Minerals and Energy (DME) notes that the CER states that offsite risk would not exceed the risk criteria specified in EPA bulletin 611. Though this statement is not argued, they question what assessment has been conducted by the proponent to ensure that hazards and risks at the facility have been correctly identified and actions taken to mitigate them. The City of Cockburn notes that the CER does not include a risk assessment for offsite hazard and one should be prepared to identify possible offsite risks and determine necessary management procedures. **Public:** Members of the community have expressed concern that: • the facility will be handling "hazardous" chemicals such as cyanide, cadmium, chromium, acids and heavy metals. • the CER describes detailed procedures for evacuation of the plant and neighbouring businesses and factories, and specifies fire brigade and police notification procedures but does not give any indication of procedures to notify anyone farther away at residences or local schools. • the CER gives no risk analysis statement and no information on Acceptable Level of Risk to Persons (ARLP) either for persons working at the facility or for individuals outside the facility.	**Considered to be a relevant factor.**
Occupational Health and Safety	Proposal area and industrial estate.	CER states that plant personnel will be equipped with appropriate protective equipment.	**Public:** Members of the community: • have expressed concern about the lack of a DOW fire and explosive rating study. • question if plant personnel will require fire protective clothing and breathing apparatus. • have concerns about the impact of gaseous emissions on asthmatics working nearby.	Matters are addressed by State Occupational Safety and Health legislation. **Factor does not require further EPA evaluation.**
Transport	Transport routes to and from the proposed facility.	The CER presents four proposed transport routes.	**Government:** The City of Cockburn finds the proposed transport routes from the north east and the south to be unacceptable in terms of local community impact. **Public:** The Conservation Council of WA expressed concern over the transport routes passing between Yangebup and Kogolup Lakes where accidents could allow spills into the Lakes. Members of the community note that the CER uses the term "Tankers" and would like clarification that this refers to "Road Tankers" and not "Sea Tankers" or any other type of tanker used for the transport of liquid waste.	**Considered to be a relevant factor.**
Visual Amenity	Proposal area and industrial estate.	Proposed building will be in keeping with the land use and will incorporate architecturally designed offices and landscaping appropriate to the area.	**Public:** There was some concern that the site may incorporate an oil refining plant with associated large stacks.	An oil refining plant is not part of this proposal. **Factor does not require further EPA evaluation.**

FACTOR	RELEVANT AREA	PROPOSAL CHARACTERISTICS	GOVERNMENT AGENCY AND PUBLIC COMMENTS	IDENTIFICATION OF RELEVANT FACTORS
OTHER ISSUES				
Other Issues raised in submissions	Proposal area and surrounding areas.		**Government:** WMD notes that the CER proposes that the plant will be operated by a total of six employees including a qualified chemist and expresses doubt if adequate supervision can be maintained over the plant and waste disposal with this level of staffing.	Proponent has made a commitment to prepare a supervision plan.
			Public: Many residents of Yangebup anticipate that this development so close to the suburb will adversely impact property values. Similar concerns may also apply to areas of South Lake, Bibra Lake, Coobellup, Spearwood and Munster.	The matters of amenity that cause the perception of reduced property values are addressed by the factors of Odour, Noise and Public Health and Safety.
			General comment about the proposed site and why it was chosen. The suitability of the site and the adequacy of the buffer distance to residences was questioned.	Site is zoned industrial and is approximately 800m from the nearest residence, buffer issues relate to odour and noise.
			Members of the community believe that the existing waste treatment facility at Forestdale is under-utilised and certainly not working to capacity and suggest the introduction of a second plant without the need, may paradoxically increase prices of treatment to cover capital cost.	This is a commercial consideration and therefore not a factor the EPA can consider.
			Information obtained from the internet by members of the community indicate that Transpacific Industries Pty Ltd (the parent company) has purchased an oil refining plant and will purchase a second plant within two years. There is concern that one of these plants may be intended for the Cocos Road site.	An oil refining plant would be subject to a separate assessment.
			Members of the community question what effect spillage's of chemicals could have on flora and fauna?	Site is cleared industrial land. **Factors do not require further EPA evaluation.**

Table 3: Summary of assessment of relevant factors

FACTOR	RELEVANT AREA	EPA OBJECTIVES	EPA's ASSESSMENT	EPA's ADVICE
Groundwater Quality	Proposal area and superficial aquifer down hydraulic gradient from the plant within the site boundaries.	Quality of ground water is maintained in accordance with the requirements of the draft Western Australian Water Quality Guidelines for Fresh and Marine Waters (EPA Bulletin 711).	Bunding and containment areas to the of requirements in AS1940 and AS3780. Tanker unloading and wash downs to occur within bunded building. The quantities and types of waste being handled at any one time are such that a single spill has limited potential to cause groundwater pollution. Water and Rivers Commission (WRC) have advised that the proposal is acceptable to the Commission. Proponent's commitments; 1. Monitoring bore holes to be established on site in accordance with the guidelines of the WRC. Monitoring will be conducted at regular intervals and results will be reported to the DEP. 2. Soil analysis will be conducted prior to construction to establish base line conditions. 3. Should pollution be detected the leachate will be recovered by converting the leachate monitoring/recovery bores to recovery mode.	Having particular regard to: • the design features of the plant; • the WRC advice; • the pollution potential of the waste being handled; and • the proponent's commitments. it is the EPA's opinion that the proposal can be managed to meet the EPA's objective provided that the proponent's commitments are made legally enforceable.
Odours	Proposal area and adjacent properties.	Odour emissions do not cause nuisance to surrounding land users.	Independent review of the proposal recommended that an adequate process monitoring and alarm/notification system, standby capacity in the extraction and air emission control equipment and a standby power supply are essential requirements for this type of operation and location. The proponent has provided detailed odour modelling which indicates that odour concentration will be less than 0.5 OU's at the site boundary. Air Quality Management Branch (AQMB) has performed odour modelling using the conservative screening model MAXMOD and are satisfied that odour will be acceptable at the nearest residence on a hot summer's day. Proponent's commitments; 1. To engage a consultant to conduct an independent air emission survey including odour assessment to ensure that emissions are in conformity with EPA requirements. Should the survey determine non compliance, remedial measures will be implemented to ensure compliance. 2. To install an odour control system with duplicated major components (scrubbers and extraction fans). 3. To provide a supervision plan. 4. To install a standby power supply.	Having particular regard to: • the design features of the plant; • the draft air quality guidelines for odours; • the odour modelling submitted by the proponent; • the odour modelling performed by the DEP; • the proponent's commitments; and • Part V of the *Environmental Protection Act.* it is the EPA's opinion that the proposal can be modified to meet the EPA's objective provided that the proponent's commitments are made legally enforceable.

FACTOR	RELEVANT AREA	EPA OBJECTIVES	EPA's ASSESSMENT	EPA's ADVICE
Noise and Vibration	Proposal area and adjacent properties including nearby residences.	**Plant -** To protect the amenity of nearby residents from noise and vibration impacts by ensuring that noise and vibration levels meet the criteria in the Environmental Protection (Noise) Regulations. **Transport -** To protect the amenity of nearby residents from noise and vibration impacts resulting from the transport of waste.	**Plant** The DEP considers that for the type of equipment to be used, there is no technical difficulty in meeting the Environmental Protection (Noise) Regulations. providing there is appropriate selection of equipment at the design stage. The proponent has advised that measurements on a similar plant indicate the assigned levels are readily achievable. Proponent's commitments; 1. To engage a consultant to conduct an independent noise survey to ensure compliance with the regulations. Should that survey determine non compliance, remedial measures will be undertaken to ensure compliance.	Having particular regard to: • the criteria in the Environmental Protection (Noise) regulations 1997; • the advice from the DEP; • the proponent's commitments; • the requirement to apply for Works Approval and an operating Licence; and • Part V of the *Environmental Protection Act.* it is the EPA's opinion that the proposal can be modified to meet the EPA's objective provided that the proponent's commitments are made legally enforceable. Transport noise is addressed under the factor Transport.
Solid and Liquid Wastes	The proposal area, disposal sites and transport routes to and from the proposed facility.	To reduce as far as practicable the generation of solid and liquid wastes, and to dispose of wastes in a manner that is environmentally acceptable and meets statutory requirements.	Proponent's commitments; 1. Liquid waste disposed to sewer will be NATA tested and metered to meet the requirements of a Water Corporation Industrial Waste Permit. 2. Solid waste disposed to landfill will be NATA tested and meet the DEP criteria for acceptance at landfill sites. 3. All opportunities for resource recovery will be explored to minimise waste. 4. No mixing of incompatible loads. 5. Sampling program for waste acceptance. 6. Types of wastes that will not be handled.	Having particular regard to: • the NATA testing of wastes discharged to sewer and landfill; • the proponent's commitments; • the requirements of the DEP's licence conditions relating to waste disposal; and • Part V of the *Environmental Protection Act.* it is the EPA's opinion that the proposal can be managed to meet the EPA's objective provided that the proponent's commitments are made legally enforceable.
Public Health and Safety.	Proposal area and, Industrial Estate and surrounding area including nearest residences approx 800 metres away.	To ensure that the risk associated with the plant complies with acceptable standards, and meets criteria in Bulletins 611 and 627.	The Department of Minerals and Energy (DME) have advised that the proponent has addressed their comments satisfactorily. The proponent has advised that there will not be any flammable, explosive or toxic materials that could cause an offsite risk. Proponent's commitment; 1. To not treat or store wastes or materials that could cause an offsite risk to the public.	Having particular regard to: • the DME's advice; • the nature of the waste being handled; and • the proponents commitments. it is the EPA's opinion that the proposal can be managed to meet the EPA's objective provided that the proponent's commitments are made legally enforceable.
Transport	Transport routes to and from the proposed facility.	To ensure that the transport of waste does not adversely affect the health and safety of the community. Transport noise - To protect the amenity of nearby residents from noise and vibration impacts resulting from the transport of waste.	There will be approximately 20 additional truck movements per day which represents a negligible increase in traffic entering the industrial area. Proponent's commitment: 1. To use transport routes and hours of operation that are negotiated with and approved by the City of Cockburn. Vehicles using inappropriate routes could be identified by the GPS equipment presently being installed in DEP licensed waste transport trucks.	Having particular regard to: • the low number of additional trucks; • the preferred transport routes indicated by the City of Cockburn; and • the proponent's commitments. it is the EPA's opinion that the proposal can be modified to meet the EPA's objective provided that the proponent's commitments are made legally enforceable.

3.2 Groundwater quality

Description

The proposal site is situated approximately 700 metres downstream from the Beeliar Wetland chain and is approximately 30 metres above the groundwater table. Regionally, groundwater moves from east to west.

The proposal has the potential to threaten groundwater quality through accidental spillage of wastes and uncontrolled discharge of contaminated stormwater.

The proponent has committed to a management program and operational procedures which mitigate against groundwater pollution. These include:

- No groundwater abstraction will occur on the site except for monitoring purposes;
- All treatment and storage would take place above ground;
- All operational activities would be undertaken within a sealed, concrete floored and bunded building;
- All solid wastes derived from the treatment process would be stored in sealed containers or in bunded areas prior to approved off-site disposal by licensed transporters;
- The inground receival wells would consist of a tank sitting in a concrete well which would allow visual integrity checks of the tank;
- Treated effluent would be discharged to the Water Corporation sewer;
- Monitoring bore holes would be established on the site in accordance with guidelines from the Waters and Rivers Commission. These would be used to characterise ground water flowing beneath the site to provide baseline data prior to construction and subsequently to demonstrate the integrity of the site. Sampling would be in accordance with the procedures in Bulletin 711 (EPA, 1993); and
- Should the monitoring detect pollutants the leachate monitoring bore holes could be converted to recovery bores, this would allow much of the pollutant to be recovered and reprocessed in the waste treatment plant.

Public submissions related to the adequacy of the plant design to prevent groundwater contamination and the effect groundwater contamination could have on beneficial downstream uses.

Assessment

The area considered for assessment of this relevant environmental factor is the proposal area and superficial aquifer down hydraulic gradient from the plant within the site boundaries. This is the area where ground water quality could be affected by the operations of the liquid waste treatment plant.

The EPA's objective in regard to this environmental factor is to ensure that Western Resource Recovery implements sound design and management practice to avoid contamination of ground water from the plant's operations.

The EPA notes the design change to the inground receival wells which will provide for simple integrity checks.

Since the wastes are stored and processed in above ground tanks any leaks would be immediately obvious. The concrete bunded building provides ample secondary containment until the spill could be cleaned up. The possibility of waste entering the sand below the site is thus extremely unlikely.

Groundwater down-flow of the site is mainly used for industrial use or domestic garden watering. The groundwater is not used for public drinking supplies.

The Water and Rivers Commission (WRC) has advised that the proposal is acceptable from the point of view of protection of local water resources.

It should also be realised that the types and quantities of wastes being treated at any one time have only a limited potential to cause groundwater pollution from a single spillage.

The proponent has made a commitment to monitor groundwater for contamination. If contamination is detected the proponent has made a further commitment to recover the contaminant via leachate recovery bores.

Having particular regard to:

(a) the design of the plant;

(b) the WRC advice;

(c) the pollution potential of the wastes being handled, and

(d) the proponent's commitments

it is the EPA's opinion that the proposal can be managed to meet the EPA's objective provided that the proponents commitments are made legally enforceable.

3.3 Odour

Description

Some of the proposed waste (notably greasetrap waste) is inherently odorous and has the potential to cause nuisance to persons on adjacent properties.

Proposed measures to manage the odorous compounds are outlined in the CER. These include:

- all operations to be conducted within a fully enclosed building;
- the building would be kept as airtight as possible and maintained under negative pressure;
- doors would be kept closed except when trucks are entering or leaving the building;
- internal air ducts would be positioned over potential odour sources to reduce odour within the building; and
- all air exiting the building would be directed through emission control equipment prior to discharge through a vertical stack.

Odour Units: Odour concentration is measured in Odour Units (OUs). This is a scale based on the sensitivity of the human nose. A concentration of 1 OU is the level at which an average person can just smell an odour.

The DEP considers that acceptable criteria for odour impacts in terms of design ground level concentration OUs are most appropriate for a gas mixture with potential cumulative impacts (DEP, 1996a). As interim criteria, the DEP will accept either the Queensland or New South Wales odour criteria. The Queensland criteria specifies that the odour concentration should be less than 0.5 OUs when predicted as a 3 minute ground level concentration for 99.5% of the time.

At the request of the DEP, Western Resource Recovery has provided further information on a determination of the ground level concentration of the exhaust mixture in odour units, using the dynamic olfactometry method. The results are presented in figure 3.

The odour modelling was based on dynamic olfactometry performed at a similar plant in Queensland, this is considered conservative as the proposed plant has twice the dilution rate (twice the volume with the same number of air changes per hour) and is envisaged to treat only

Contours of 99.5th percent frequency three minute ground-level odour concentrations in OU for the proposed Bibra Lakes liquid waste treatment facility for worst case truck unloading operations. The Kwinana meteorological database has been used in this evaluation. It is considered that odour concentrations should not exceed a level of 0.5 OU predicted as a 3 minute ground-level concentration for greater than 99.5 percent of the time to avoid odour nuisance. Note: Stack located at (x, y) = (0,0).

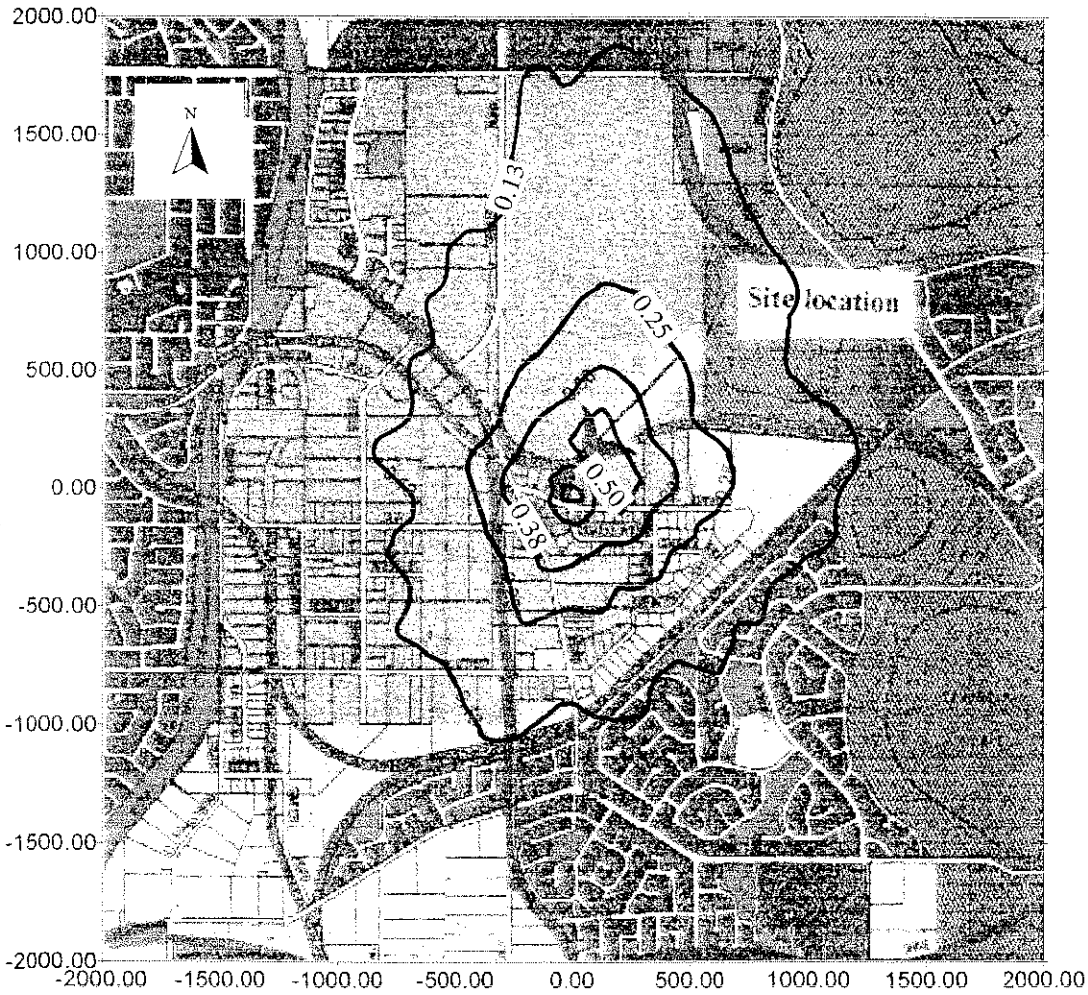

Figure 3. Results of odour modelling.

a third of the amount of greasetrap waste treated by the Queensland plant. Local meteorological data from Kwinana was used in the model.Section 51 of the Environmental Protection Act 1986 requires that Western Resource Recovery takes all reasonable measures to prevent or minimise discharge of odorous gases.

Reservations on the lack of odour modelling and lack of details of the emission control technology was expressed in both public and government agency submissions. Public concerns related to the effect odorous emissions may have on residents amenity and asthmatics in the community.

Assessment

The area considered for assessment of this environmental factor is adjacent properties, including nearby residences.

The EPA's objective in regard to this environmental factor is to ensure compliance with acceptable standards and that all reasonable and practicable measures are taken to minimise nuisance.

The EPA considers that the DEP's interim odour impact guidelines can be used as acceptable standards for this assessment.

The results of the dynamic olfactometry analysis of samples of the waste gas and subsequent modelling show that the worst case odour concentration would be less than 0.2 OUs at the nearest residential area.

To verify the proponent's supplied modelling the DEP performed its own modelling using the conservative screening model MAXMOD. The results indicate that the odour concentration would be acceptable at the nearest residence on a hot summer's day.

To meet community expectations for a facility of this type and location requires extra vigilance to ensure that odour does not cause a nuisance. This can be achieved through a total "odour control system". The odour control equipment should be designed with duplicate scrubbers and duplicate extraction fans, each of which can operate independently, thus allowing the odour control system to continue to function if any item fails or is down for maintenance. One of the key elements will be the maintenance of the dissolved oxygen levels in the activated sludge process during a power failure. The odour control equipment should be monitored by an alarm/notification system which alerts the operators of any upset condition. This alarm should be transferred to a designated person after normal working hours. To complete the system, standby power is required to allow the odour control equipment to continue to function during a power failure.

The proponent has made additional commitments to install an air emission control system with duplicate components, a standby power system and to provide a detailed supervision plan.

Having particular regard to:

(a) the design of the plant, specifically being fully enclosed and under negative pressure with all exhaust air being passed through a scrubber;

(b) the standards for odorous gases stipulated in the draft Air Quality guidelines;

(c) the results of the odour modelling carried out by the proponent, as amended;

(d) the results of the odour modelling carried out by the DEP; and

(e) the proponent's commitments;

it is the EPA's opinion that the proposal can be modified to meet the EPA's objective provided that the proponents commitments are made legally enforceable.

3.4 Noise and vibration

Description

The proposed site is within a general industry zone.

Noise levels for projects within Western Australia are subject to the Environmental Protection (Noise) Regulations 1997. The proposed facility would have to meet an LA10 assigned level of 65 dB(A) at the site boundary and about 38 dB(A) at the nearest residences during the overnight period.

The proponent has indicated that all operations associated with the treatment of waste at this facility would be conducted within an enclosed concrete building with an insulated roof. This would provide sufficient attenuation for internal noise sources. Equipment situated externally to the building consists of exhaust ventilation fans, an air blower and an air compressor. The proponent has advised that these units would be of a type and would be shrouded in such a manner as to ensure compliance with the legislation.

For this site the most stringent requirement in the Environmental Protection (Noise) Regulations 1997 is to meet 65 dB(A) at the site boundary since achieving this would result in levels well below the assigned levels for the nearest residential area. The proponent has advised that measurements on similar plants in Queensland show that 65 dB(A) can be readily achieved at the site boundary.

Public submissions related to the lack of detailed noise modelling.

Assessment

The area considered for assessment of this environmental factor is the proposal area and adjacent properties, including nearby residences. This is the area within which noise levels must be controlled to meet statutory requirements.

The EPA's objective in regard to this environmental factor is to ensure that noise emissions from the plants operations are as low as reasonably practical and comply with the Environmental Protection (Noise) Regulations 1997.

The DEP considers that there is no technical difficulty in obtaining the required equipment to meet the assigned noise levels for this proposal and that comprehensive modeling is not warranted. The DEP will assess the selected equipment during the Works Approval process.

The proponent has made a commitment to undertake a noise survey to check compliance with the legislation and implement noise control measures if necessary.

Having particular regard to:

(a) the assigned levels in the Environmental Protection (Noise) Regulations 1997;

(b) the advice from the DEP;

(c) the proponent's commitment to meet the assigned noise levels;

(d) the requirement to apply for and be granted Works Approval and subsequently hold an operating licence from the DEP.

it is the EPA's opinion that the proposal can be managed to meet the EPA's objective provided that the proponent's commitments are made legally enforceable.

3.5 Solid and liquid wastes

Description

A facility of this type should provide an environmental benefit by facilitating the environmentally acceptable disposal of waste, however there is the potential for this benefit to be negated if the waste is not managed correctly.

All waste entering and leaving the site would be recorded and would be subject to the provisions of the waste tracking system used by the DEP.

Through a combination of weighbridge recordings and sewer discharge metering together with fixation material stock take, the proponent would be capable of conducting waste audits and mass balances on all waste received or generated at the site.

The proponent included waste acceptance criteria in Tables 6, 7, 8 and 9 of the CER (WRR, 1997a)

The proposed facility has two tanks available for the quarantine of loads which arrive and do not meet acceptance criteria. In the event of a reject load, Western Resource Recovery would direct the material to the appropriate disposal facility.

Liquid effluent discharged to sewer would be tested by a National Association of Testing Authorities (NATA) accredited laboratory to ensure it meets the criteria stipulated by the Water Corporation. This will be subject to a Water Corporation Industrial Waste Permit for Sewer Discharge which will need to consider the issue of managing discharges that do not meet effluent criteria.

The material disposed to landfill would have to comply with the current waste acceptance criteria set by the DEP (DEP, 1996b). Solid waste would be tested by a NATA accredited laboratory prior to disposal to an appropriate landfill. Should the material not meet the specification then it would be reprocessed.

Public concern related to the types of waste that the facility would be handling, and this is addressed under the Public Health and Safety factor. The public submissions also included several specific questions and these have been adequately addressed in the proponent's response to public submissions (WRR, 1997b).

Assessment

The area considered for assessment of this environmental factor is the proposal area, disposal sites and transport routes to and from the proposed facility.

The EPA's objective in regard to this environmental factor is to ensure that the generation of solid and liquid wastes is reduced as much as practicable and to ensure the wastes are disposed of in an environmentally acceptable manner which meets statutory requirements.

The EPA recommends that the DEP should include waste acceptance criteria consistent with those presented inn Table 6, 7, 8 and 9 of the CER (WRR, 1997a) in the licence issued under Part V of the Environmental Protection Act. If it is intended to treat wastes which are different from those stipulated in the CER, then this should be referred to the EPA for consideration of the need for further formal assessment. The licence should also specify monitoring protocol for waste characterisation.

The Water Corporation has advised that the quantity of proposed liquid to sewer is acceptable and has indicated that it would require the proponent to carry out on site monitoring of effluent quality as a condition of an industrial waste permit.

The Waste Management Division (WMD) has advised that the proponent should be required to pre-book all loads and not permit load mixing of incompatible wastes.

The WMD also note the figures quoted in Table 5 of the CER (WRR, 1997a) for metal content of the stabilised waste are in accord with current policies in terms of TCLP but do exceed the concentration limits for disposal to existing landfills. The WMD will address this issue through the DEP licensing process.

Wherever possible biodegradable sludges produced by the plant should be composted or digested to produce soil amending agents rather than landfilling the material.

The proponent has made commitments to pre-book all loads, to not allow load mixing of incompatible wastes and to explore all options for waste minimisation.

Having particular regard to:

(a) the testing protocol of wastes disposed to sewer and landfill;

(b) the proponent's commitments; and

(c) the requirements of the DEP's licence conditions relating to criteria for acceptance of waste and the disposal of solid wastes,

it is the EPA's opinion that the proposal can be managed to meet the EPA's objective provided that the proponents commitments are made legally enforceable, and appropriate criteria are included in the DEP's licence for the facility.

3.6 Public health and safety

Description

The EPA has established management principles and acceptable criteria of off-site individual fatality risk (EPA, 1992a and 1992b) for new industrial developments.

The proponent has indicated that no component of the facility would present a risk to the general public as the facility would not cause an off-site risk.

The majority of public submissions related to concern that the facility would be handling waste materials that were extremely hazardous and/or toxic and which represented a danger to the surrounding community.

Assessment

The area considered for this environmental factor is the proposal site, industrial estate and surrounding area including nearby residences approximately 800 metres away.

The EPA's objective in regard to this environmental factor is to ensure that the risk associated with the plant is as low as reasonably practical and complies with acceptable standards. The EPA's criteria for the assessment of the fatality risk is outlined in Bulletins 611 and 627.

The EPA notes that in response to questions generated from submissions, the proponent has made it clear that there would be no flammable or explosive materials and no toxic gasses that could cause an offsite risk. Furthermore the wastes being handled only present a hazard if they are swallowed or in some cases if bodily contact is made.

The DME has indicated that it is satisfied with the proponent's response to the DME's questions on risk.

The proponent has made a commitment to not accept wastes that are incompatible with the treatment process or wastes which are radioactive, flammable, explosive or contain polychlorinated biphenyls (PCB's) and a commitment to prepare an Emergency Response Plan.

Having particular regard to:

(a) the DME's advice;

(b) the nature of the waste being treated; and

(c) the proponent's commitments.

it is the EPA's opinion that the proposal can be managed to meet the EPA's objective provided that the specification of the nature of the wastes able to be accepted for treatment and the proponent's commitments are made legally enforceable.

3.7 Transport

Description

The proponent has indicated that they envisage up to ten trucks using the site per day. This equates to twenty truck movements per day through the industrial area.

The proponent identifies four transport routes to the facility in section 3.7.1 of the CER (WRR, 1997a) to provide access from the:

- North: via Stock Road, Spearwood Avenue, Miguel Road then into Cocos Drive.

- North/North East: via North Lake Road, Phoenix Road, Sudlow Road, Miguel Road then into Cocos Drive.
- North East: via Kwinana Freeway, Beeliar Drive, Yangebup Road, Miguel Road then into Cocos Drive.
- South: via Rockingham Road, Yangebup Road, Miguel Road then into Cocos Drive.

The City of Cockburn advised that the proposed routes from the North East and South would cause an unacceptable impact on the local community due to truck movements along a primarily local residential road, namely Yangebup Road.

The Conservation Council of WA (CCWA) notes that the North East route passes between Yangebup and Kogolup lakes and an accident on this section of Beeliar Drive could lead to pollution of the lakes.

Public submissions related to safety aspects and the noise from transport tankers travelling past residences and schools. There was also concern over the size of the tankers that would be used.

Assessment

The area considered for this environmental factor is the transport routes to and from the proposed facility.

The EPA's objective in regard to this environmental factor is to ensure that the transport of wastes does not adversely affect the health and safety of the community.

Twenty truck movements per day represents a negligible increase in traffic through the Bibra Lake Industrial Park.

The proponent has made a commitment to use routes and to limit receival times to those approved by the DEP in consultation with the City of Cockburn and the DME except in an emergency. Particular attention will be given to the routes between 5 am and 7 am and to the acceptability of using Beeliar Drive. This can effectively address the concern of transport along Beeliar Drive for this proposal, however the concern is equally valid for other materials such as petroleum products transported on this section of the road.

The Global Positioning System (GPS) and level sensing equipment currently being fitted to all licensed waste transport trucks could be used to identify vehicles using inappropriate routes.

Having particular regard to:

(a) the low number of additional trucks;

(b) the preferred transport routes indicated by the City of Cockburn; and

(c) the proponent's commitment in relation to transport routes.

it is the EPA's opinion that the proposal can be modified to meet the EPA's objective provided that the proponent's commitments are made legally enforceable.

However, the EPA believes there is sufficient concern about transport in general along Beeliar Drive to recommend that the City of Cockburn review road drainage along the section of Beeliar drive that is adjacent to the Beeliar Regional Park with a view to identifying and implementing a drainage system to minimise the potential for stormwater or spills to impact on the wetlands. The EPA will write to the City of Cockburn on the general subject of potential impact on Beeliar Regional Park.

4. 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.

In developing recommended conditions for each project, the EPA's preferred course of action is to have the proponent provide an array of commitments to ameliorate the impacts of the proposal on the environment. The commitments are considered by the EPA as part of its assessment of the proposal, and following discussion with the proponent the EPA may seek additional commitments.

The EPA recognises that not all of the commitments are written in a form which makes them readily enforceable, but they do provide a clear statement of the action to be taken as part of the proponent's responsibility for and commitment to continuous improvement in environmental performance. The commitments then form part of the conditions to which the proposal should be subject if it is to be implemented.

The EPA may, of course, also recommend conditions additional to that relating to the proponent's commitments.

The EPA recommends that the proposal be subject to the conditions and procedures set out in Appendix 3, and summarised below, if the Minister determines that the proposal may be implemented:

(a) the proponent shall fulfil the commitments in the Consolidated Commitments statement set out as an attachment to the recommended conditions in Appendix 3;

(b) in order to manage the relevant factors and EPA objectives contained in this bulletin, and subsequent conditions and procedures authorised by the Minister for the Environment, the proponent shall be required to prepare, prior to implementation of the proposal, environmental management system documentation with components such as those adopted in Australian Standards AS/NZ ISO 14000 series.

5. Conclusions

The EPA has concluded that the proposal by the Western Resource Recovery to establish a Liquid Waste Treatment Plant at Lot 197 Cocos Drive, Bibra Lake, can be modified to meet the EPA's objectives, and thus not impose an unacceptable impact on the environment, provided there is a satisfactory implementation by the proponent of the recommended conditions set out in Section 4 and Appendix 3.

In addition to receiving advice from the relevant regulatory agencies the EPA sought independent review of a composite package of material in relation to the proposal comprising the Consultative Environmental Review (CER) document, the public submissions, the proponent's response to those submissions and a draft of the proponent's commitments as a result of the public review process. The independent review advice is set out in Appendix 4.

The agency comments and review highlighted some deficiencies in the CER document, but the shortcomings had been largely corrected in the proponent's response to public submissions. The development of a proposal is often an iterative process through discussions between the proponent and the officers of the Department of Environmental Protection (DEP) on behalf of the EPA. This approach is in accord with the guide to environmental impact assessment in Western Australia which includes the statement "Throughout the process, the EPA will advise and help proponents to improve or modify their proposals so that the environment will be protected". However, it is important that in its report to the Minister the EPA provide information on the improvements to the proposal which have occurred between the time of issuing the CER document and the assessment by the EPA.

The independent review reported that the proponent's commitments were generally considered to be satisfactory, but that some further clarification was required as set out in section 6 of the independent review (Appendix 4). The EPA has clarified those matters as follows:

- The environmental management system will have to be prepared in consultation with the DEP, and attention will be given to the matters raised by the independent review.

- The proponent has committed to providing an Emergency Response Plan to the satisfaction of the DEP.

- The DEP can require noise measurements under Part V of the Environmental Protection Act.
- The proponent has committed to installing a standby power system.

6. Recommendations

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.

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

1. That the Minister consider the EPA report on the relevant environmental factors of Groundwater quality, Odours, Noise and Vibration, Solid and Liquid wastes, Public Health and Safety, and Transport set out in Section 3.
2. That the Minister notes that the EPA has concluded that the proposal can be modified 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 recommended conditions set out in Appendix 3.
3. That the Minister imposes the conditions and procedures set out in Appendix 3.

Appendix 1

List of submitters

State and local government agencies:

- Department of Environmental Protection
- Department of Minerals and Energy
- Waters and Rivers Commission
- Water Corporation
- Health Department of Western Australia
- City of Cockburn

Organisations:

- Conservation Council of Western Australia Inc
- Yangebup Progress Association

Members of the Public:

Mr N & Mrs J Leach

Ms R Bennett

B J Langdon

Ms J Langley - President, Yangebup Progress Association

Mr D Nockolds - Principal, Yangebup Primary School

Mr G Butcher

Mr J & Mrs Y Seigmannn

L J Sprlyan

F Zuvela

Mrs G Mayo

W F Hegarty

D Jones

Mr M Reeve-Fowkes

S J & W Copeland

Mr P & Mrs J Smith

K W & S K Leek

R A Hume

Ms M Rose

Mr C & Mrs S Mullarkey

Mr D Coombs

S Sowden

K Oldham

Mr P Mahony

Ms L Williams

Mrs J Davenport

Mrs M Di Re

Ms R Vos

Mr A & Mr K Tynan

R & C Prowse

W T & T L Lally

Mr E & M Cook

Mr W & Mrs J Boxma

E Cotterell

Mr & Mrs Knowles

V L Varkonyi

R C & R C & B Cochrane

R & K Wagenhauser

P G Daniels

Mrs N Bend

Ms G Stoner

Mr & Mrs De Aguiar

Ms R Sammels

R & E Gason

Mrs K Culverhouse

C Culverhouse

Mr T Chapman

Mr G & Mrs S Woodward

Mr J A Spencer

Mr R P Nainby

Ms T Fordham

M H & V H Fordham

MS B Fordham

M & D Markham

Mrs L Barrett

Mrs J Jongste - MacKillop Catholic Primary School

J, L, C & K Marston

Mrs L Wright -Chairman, Yangebup Family Centre

Mr D & Mrs C Barrett

Mr R & Mrs J Leather

Appendix 2

References

(DEP, 1996a) *Draft Determination of Acceptable air discharges from Stationary Sources.* Department of Environmental Protection, Government of Western Australia, November 1996.

(DEP, 1996b) *Landfill Waste Classification and Waste Definition.* Department of Environmental Protection, Government of Western Australia, November 1996.

(EPA, 1992a) *Criteria for Assessment of Risk from Industry.* Environmental Protection Authority. Bulletin 611, February 1992.

(EPA, 1992b) *Criteria for Assessment of Risk from Industry - Expanded Discussion.* Environmental Protection Authority. Bulletin 627.

(EPA, 1993) *Draft Western Australian Water Quality Guidelines for Fresh and Marine Waters.* Environmental Protection Authority. Bulletin 711, October 1993.

(WRR, 1997a) *Liquid Waste Treatment Plant, Lot 197 Cocos Drive, Bibra Lake* - Consultative Environmental Review. Western Resource Recovery, April 1997.

(WRR, 1997b) *Proponent's Response to Public Submissions.* Western Resource Recovery, July and October 1997.

Appendix 3

Recommended conditions and proponent commitments

December 4, 1997

RECOMMENDED ENVIRONMENTAL CONDITIONS

LIQUID WASTE TREATMENT PLANT - LOT 197 COCOS DRIVE, BIBRA LAKE (1066)

WESTERN RESOURCE RECOVERY

This proposal may be implemented subject to the following conditions:

1 Proponent Commitments

The proponent has made a number of environmental management commitments in order to protect the environment.

1-1 In implementing the proposal, the proponent shall fulfil the commitments made in the Consultative Environmental Review and subsequently during the environmental impact assessment process conducted by the Environmental Protection Authority, provided that the commitments are not inconsistent with the conditions or procedures contained in this statement.

In the event of any inconsistency, the conditions and procedures shall prevail to the extent of the inconsistency.

The attached consolidated environmental management commitments (October 1997) form the basis for consideration by the Chief Executive Officer of the Department of Environmental Protection for auditing of this proposal in conjunction with the conditions and procedures contained in this statement.

2 Implementation

Changes to the proposal which are not substantial may be carried out with the approval of the Minister for the Environment.

2-1 Subject to these conditions, the manner of detailed implementation of the proposal, as modified during the environmental impact assessment process conducted by the Environmental Protection Authority, shall conform in substance with that set out in any designs, specifications, plans or other technical material submitted by the proponent to the Environmental Protection Authority with the proposal, as modified during the environmental impact assessment process conducted by the Environmental Protection Authority.

2-2 Where, in the course of the detailed implementation referred to in condition 2-1, the proponent seeks to change the designs, specifications, plans or other technical material submitted to the Environmental Protection Authority in any way that the Minister for the Environment determines, on the advice of the Environmental Protection Authority, is not substantial, those changes may be effected.

3 Proponent

These conditions legally apply to the nominated proponent.

3-1 No transfer of ownership, control or management of the project which would give rise to a need for the replacement of the proponent shall take place until the Minister for the Environment has advised the proponent that approval has been given for the nomination of a replacement proponent. Any request for the exercise of that power of the Minister shall be accompanied by a copy of this statement endorsed with an undertaking by the proposed replacement proponent to carry out the project in accordance with the conditions and procedures set out in the statement.

4 Environmental Management System

The proponent should exercise care and diligence in accordance with best practice environmental management principles.

4-1 In order to manage the relevant environmental factors, to meet the environmental objectives in Environmental Protection Authority Bulletin XXX, and to fulfil the requirements of the conditions and procedures in this statement, prior to construction, the proponent shall prepare environmental management system documentation with components such as those adopted in Australian Standards AS/NZS ISO 14000 series, to the requirements of the Environmental Protection Authority.

4-2 The proponent shall implement the environmental management system referred to in condition 4-1.

5 Commencement

The environmental approval for the substantial commencement of the proposal is limited.

5-1 If the proponent has not substantially commenced the project within five years of the date of this statement, then the approval to implement the proposal as granted in this statement shall lapse and be void. The Minister for the Environment shall determine any question as to whether the project has been substantially commenced.

Any application to extend the period of five years referred to in this condition shall be made before the expiration of that period to the Minister for the Environment.

Where the proponent demonstrates to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority that the environmental parameters of the proposal have not changed significantly, then the Minister may grant an extension not exceeding five years for the substantial commencement of the proposal.

6 Compliance Auditing

To help determine environmental performance and compliance with the conditions, periodic reports on the implementation of the proposal are required.

6-1 The proponent shall submit periodic Performance and Compliance Reports, in accordance with an audit programme prepared by the Department of Environmental Protection in consultation with the proponent.

Procedure

1 Unless otherwise specified, the Department of Environmental Protection is responsible for assessing compliance with the conditions contained in this statement and for issuing formal clearance of conditions.

2 Where compliance with any condition is in dispute, the matter will be determined by the Minister for the Environment.

Note

1 The Environmental Protection Authority reported on the proposal in Environmental Protection Authority Bulletin 87X (Dec 1997).

2 The proponent is required to apply for a Works Approval and Operational Licence for this project under the provisions of Part V of the Environmental Protection Act.

Proponent's Environmental Management Commitments

December 1997

LIQUID WASTE TREATMENT PLANT - LOT 197 COCOS DRIVE, BIBRA LAKE (1066)

WESTERN RESOURCES RECOVERY

ISSUE	COMMITMENT	OBJECTIVE	ACTION	TIMING	WHOSE REQUIREMENT	SPECIFICATION
GROUNDWATER QUALITY	1) Undertake soil sampling.	To establish baseline conditions.	Undertake soil sampling and analysis.	Pre-construction.	DEP.	
	2) Design and operate facility to minimise the potential for groundwater contamination.	To prevent groundwater contamination.	All operations within roofed and concrete bunded areas. In ground receival wells constructed to allow visual integrity checks.	Pre-construction and ongoing.	Water and Rivers Commission and DEP.	Bunding will be in accordance with AS1940 and AS3780 requirements.
	3) Monitor ground water quality.	To detect any groundwater contamination.	Bore holes will be established and groundwater will be monitored.	Site monitoring bores sampled yearly.	Water and Rivers Commission, and DEP.	Water quality guidelines for Fresh and Marine Waters (EPA Bulletin 711).
	4) If groundwater pollution is detected then steps will be taken to recover and reprocess the contaminant.	To prevent groundwater contamination moving offsite.	Convert bores to recovery mode and extract the contaminant. Recovered contaminant will be treated in the facility.	On-going.	DEP.	
SURFACE WATER QUALITY	5) Prepare a Stormwater Management Plan	To prevent contamination of surface water.	Appropriate drainage systems will be designed to ensure potentially contaminated stormwater is managed on-site.	Pre-construction and ongoing.	DEP	
ODOUR	6) Facility will be designed, constructed and operated to minimise odour.	To prevent odour causing a nuisance.	The building will be maintained under negative pressure and exhaust air will be passed through emission control equipment.	Pre-construction and on-going.	DEP.	Emission control system will be designed to meet an odour concentration of 0.5 OU's at the site boundary when expressed as 99.5% frequency, 3 minute ground level concentration.

ISSUE	COMMITMENT	OBJECTIVE	ACTION	TIMING	WHOSE REQUIREMENT	SPECIFICATION
ODOUR (cont...)	7) Air emitted from the facility will pass through an emission control system.	To prevent odour causing a nuisance.	Final design of scrubber submitted to the DEP for approval.	Pre-construction.	DEP.	The air emission control unit will incorporate at least two sequential units, each capable of 75% odour reduction and two extraction fans.
	8) Undertake an air emission survey.	To demonstrate compliance with criteria.	Engage a consultant to conduct an air emission survey including an odour assessment.	Upon commissioning and on-going.	DEP.	Ground level odour concentrations of less than 0.5 OU's when expressed as 99.5% frequency, 3 minute ground level concentration.
	9) Correct any non compliance.	To correct any non compliance.	Implement abatement measures to achieve compliance.	On-going.	DEP.	Ground level odour concentrations of less than 0.5 OU's when expressed as 99.5% frequency, 3 minute ground level concentration.
NOISE AND VIBRATION	10) Facility will be designed, constructed and operated to minimise noise emissions.	To minimise noise and vibrations effect offsite.	Select items that will meet regulations.	Pre-construction and on-going.	DEP.	Environmental Protection (Noise) Regulations 1997.
	11) Undertake a noise survey.	To demonstrate compliance with regulations.	Engage an independent consultant to do a noise survey.	Upon commissioning.	DEP.	Environmental Protection (Noise) Regulations 1997.
	12) Correct any non compliance.	To correct any non compliance.	Implement abatement measures to achieve compliance.	On-going.	DEP.	Environmental Protection (Noise) Regulations 1997.
SOLID AND LIQUID WASTES	13) Treated effluent will be discharged to the sewer in accordance with regulatory requirements.	To dispose of wastes in an environmentally acceptable manner.	Treated effluent discharged to the sewer will be monitored and analysed in accordance with regulatory requirements.	On-going.	Water Corporation.	Water Corporation Industrial Waste Permit for Sewer Discharge.

ISSUE	COMMITMENT	OBJECTIVE	ACTION	TIMING	WHOSE REQUIREMENT	SPECIFICATION
SOLID AND LIQUID WASTES (cont...)	14) Solid wastes will be tested prior to disposal to landfill.	To dispose of wastes in an environmentally acceptable manner.	Solid waste tested by NATA accredited laboratory and weighed prior to disposal to landfill.	On-going.	DEP.	DEP criteria for waste acceptance at landfills.
	15) Minimise as far as practicable the generation of solid and liquid wastes.	To reduce the load on landfill and sewer.	Ensure all opportunities for resource recovery are explored.	On-going.	DEP.	
	16) Load mixing of incompatible wastes will not be permitted.	To prevent incompatible loads reacting.	All wastes will be assessed prior to acceptance and load mixing will only occur with compatible loads.	On-going.	DEP.	
	17) Pre-book all waste loads.	To ensure that wastes are compatible with treatment process.	Not accept waste with out knowing its chemical composition in advance and take samples on arrival to confirm waste is as expected.	On-going.	DEP.	DEP criteria in Part V licence.
	18) To not accept materials that are radioactive, flammable, explosive or contain PCB's.	To ensure that wastes are compatible with treatment process.	Not accept wastes that are radioactive, flammable, explosive or contain PCB's.	On-going.	DEP.	DEP criteria in Part V licence.
PUBLIC HEALTH AND SAFETY	19) Minimise offsite risk.	To ensure the public are not endangered.	Not accept materials that could cause an offsite risk.	On-going.	DEP and DME.	EPA Bulletins 611 and 627.
	20) Prepare an Emergency Response Plan.	To ensure that appropriate procedures are in place in the event of an emergency.	Identify potential on-site hazards and scenarios and prepare appropriate emergency response procedures.	Pre-commissioning and ongoing.	DEP	

ISSUE	COMMITMENT	OBJECTIVE	ACTION	TIMING	WHOSE REQUIREMENT	SPECIFICATION
TRANSPORT	21) To use only agreed access routes.	To minimise impact of traffic on residents.	In conjunction with regulatory authorities negotiate appropriate routes and receival times.	Pre-commissioning and ongoing.	DEP on advice from City of Cockburn and DME.	Notify the DEP of any emergency deliveries within 2 days.
BACKUP POWER	22) Install a standby power system.	To cater for power failures.	Install a standby power system along with an appropriate power monitoring and alarm/notification system.	Pre-commissioning.	DEP.	Sufficient capacity to operate critical processes such as air emission control system.
SUPERVISION	23) Provide an adequate supervision system for the plant while unattended.	To provide adequate supervision.	Install an appropriate process monitoring and alarm/notification system.	Pre-commissioning.	DEP.	
	24) Provide a supervision plan for the plant.	To provide adequate supervision.	Provide details of the arrangements to ensure that the plant is adequately supervised at all times.	Pre-commissioning and on-going.	DEP.	
COMPLAINTS	25) Maintain a complaints register.	To record complaints.	Record the time, date, nature of complaint and actions that result.	On-going.	DEP.	
PUBLIC RELATIONS	26) Liaise with the community.	To disseminate information to and from the public.	Cooperate with any community environment liaison committee established in respect to the facility or the Industrial Estate.	On-going.	DEP.	

Appendix 4

Independent review

DEPARTMENT OF ENVIRONMENTAL PROTECTION

WESTERN RESOURCE RECOVERY

INDUSTRIAL WASTE TREATMENT PLANT

REVIEW OF

(1) CER

(2) PUBLIC SUBMISSIONS

(3) PROPONENT'S RESPONSE

by: BARRY ROBBINS ENGINEERING & PROJECT MANAGEMENT

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EXECUTIVE SUMMARY

The conclusions of this review are summarized as follows:

(1) The key environmental issues related to the project have been identified by the CER and the subsequent review process

(2) The issues raised are considered manageable - as the proposed processes to be operated are generally well established.

(3) The issues concerned were not adequately addressed by the Proponent's CER. This shortcoming has largely been corrected by the Proponent's response to the DEP's "Questions on Public Submissions". However, several issues require more detailed information as to how the plant will be operated to ensure adequate odour control, operational management and emergency response.

These matters are discussed in Sections 5 & 6 of this report and relate primarily to a "Total Odour Control System" which embraces adequate monitoring, alarms, standby capacity of extraction and scrubbing equipment, auxiliary power facilities and a detailed emergency response plan covering expected contingencies in specific detail.

Further information is also required with respect to the qualifications and duties of staff and their actual working hours.

(4) The proposed "Proponent's Commitments" submitted to DEP on 15/10/97 now incorporates the Total Odour Control and other requirements overlooked initially.

However, the "Proponent's Commitments", Environmental Management Plan, or the "EPA Conditions" will need to be amended as necessary to ensure the Project's operational management, equipment and emergency response plan adequately covers the issues raised in summary item 3 above. In particular, the Proponent should provide evidence of exclusive access to an alternative power source within 3 hours of a power failure, or make provision for a permanent standby power installation

1 - INTRODUCTION

This review was undertaken following DEP brief of 29/8/97 to Barry Robbins Engineering and Project Management, to examine the documentation, and provide a technical review which, with respect to the above project identifies:

- whether the key environmental issues related to the project have been identified;
- whether these issues can be managed to meet reasonable environmental objectives
- whether the issues have been adequately addressed by the proponent; and
- whether the commitments of the project and recommended conditions from the DEP are sufficient to ensure that the proposal will meet reasonable environmental objectives.

The documents reviewed were:

- The CER, internal advice from within DEP, comment from government departments including Water & Rivers Commission, Department of Minerals & Energy, Water Corporation and Health Department.

- City of Cockburn, Conservation Council of WA, Yangebup Progress Association

- The Proponent's response to questions prepared by DEP from public comment.

- The DEP's draft Proponent's Commitments.

2 - GENERAL COMMENTS ON CER AND COMMENTS RECEIVED

The CER appears to have been prepared by persons with little experience in the preparation of such environmental documentation to the requirements of the Western Australian EPA.

While well presented and written in easily understood terms, the document is too superficial for its purpose - relying throughout on statements of reassurance rather than the provision of specific information on which the reader can judge acceptability. As a consequence, the document appears to have raised more issues than it has answered.

The technically informed reader will accept that the processes proposed are well established and should operate successfully as elsewhere, but is left with the impression that either the processes, or the EPA Guidelines have not been fully understood by the proponent.

Questions raised in the mind of the writer include:

- Who supervises the ongoing process operations during non business hours ie from 6 PM to 5 AM daily and 6 PM on Friday to 5 AM the following Monday?

- Can six staff operate the facility adequately and do they each work a 5 day, 65 hour week?

- What are the qualifications and previous experience of the Operator who is apparently in charge of the processes and is the nominated responsible person in the Emergency Response Plan. Does this person have a Deputy and, if so, what are the Deputy's qualifications and experience?

- What is the extent of monitoring of operations, alarms etc. How are these transferred into appropriate response and corrective action ?

- What happens in the event of a power failure, is there standby generation provision or do all operations, including odour control, simply cease to operate? What would the effect be on the surrounding area if power or equipment failure occurred soon after 6 PM on a Friday and was not discovered until 5 AM the following Monday?

- Is there standby capacity in the air extraction and scrubbing equipment, or does all odour control capacity close down for maintenance or malfunction?

- There is no justification for claims that surrounding areas will not be affected by odours.

- How often will independent odour monitoring be undertaken? If only once following commissioning, this is inadequate and will not measure average or extremely good or bad conditions. The same argument applies, but less strongly, to noise.

- Composting is not carried out in Western Australia and therefore is not a practical external method of waste activated sludge disposal at the present time.

3 - INTERNAL & GOVERNMENT DEPARTMENT ADVICE

3.1 - Internal advice from the Department of Environmental Protection was critical of lack of detail, lack of adequate technical information relating to odour effects and control equipment, and highlighted specific experiences of the Department in relation to the operation of the Forrestdale Waste Treatment Plant.

3.2 - Water and Rivers Commission found the proposal acceptable subject to satisfactory answers to several minor matters raised in earlier correspondence to DEP.

3.3 - Department of Minerals & Energy advised that it has no objections to the proposal.

3.4 - Water Corporation's response raised a number of matters related to the discharge of treated wastes to sewer and its specific requirements, but raised no objection to the proposal.

3.5 - Heath Department advised that the proposal satisfies public health concerns.

4 - OTHER COMMENT

4.1 - City of Cockburn raised a number of concerns based on its own reading of the CER and on concerns expressed by its ratepayers.

The main matters raised were related to transport routes, noise and odour effects on the Yangebup Community, dust emissions, emergency operations and contingency measures related to power or equipment failure.

The City also expressed concern at alleged inadequacies in the Public Consultation Program undertaken for the project.

4.2 - The Conservation Council of WA expressed concern regarding transportation, risk of ground water and surface water pollution, noise and the close proximity of the Yangebup residential area. The site was stated to be inappropriate for the proposed plant, and location to a noxious industry site with more extensive buffering was urged.

4.3 - The Yangebup Progress Association, Yangebup Primary School P & C and Yangebup Primary School jointly submitted a response which in the main was well researched and informed, relevant and compelling in the presentation of its objection to the proposal.

The submission highlights many of the inadequacies of the CER in terms of lack of detail, and a reliance on alleged satisfactory operation in Queensland to justify acceptance in Western Australia.

Most of the points raised in the Yangebup submission were included in the DEP's "Questions to Proponent from Public Submissions".

5 - PROPONENT REPLIES TO DEP QUESTIONS FROM PUBLIC SUBMISSIONS

In reply to the DEP's "Questions from Public Submissions", the Proponent provided a report from Katestone Scientific Pty Ltd on the results of modelling the distribution of odours using the AUSPLUME computer model - supported by a detailed reply to individual questions contained in the DEP question document. The relevant matters are dealt with in the following sub-sections.

5.1 - Odour Modelling

The results indicated that even in the case of extractor malfunction, odour levels in the surrounding area would be within acceptable limits. DEP specialists in odour and plume modelling raised a significant number of queries on the modelling approach and basic data used in the modelling process. It is understood that DEP is now satisfied with the modelling undertaken and the results

5.2 - Replies to Other Questions

The Proponent's replies to remaining matters raised were in the main satisfactory. However, there are some areas where the writer has reservations as to the detail provided in replies, or concerns as to the Proponent's stated intent. These are set out in the following

5.3 - Odour Control

It is accepted that a properly designed odour control "system" - comprised of appropriate equipment and supporting monitoring and alarms, back up equipment and . procedures will adequately control odour emissions The odour control "system" as described by the Proponent at present is considered deficient in the following areas.

(a) While monitoring of some areas will be automated, manual monitoring will also be necessary - and will apparently occur only during working hours. If manual monitoring includes factors critical to process operation, or the odour control system, there should be provision to undertake such monitoring at regular intervals both during and outside normal working hours. In any event, the general operation of processes should be monitored at regular intervals both during and outside working hours.

(b) All critical alarms should register at the site and be transferred to the residence of the Operator, (or some designated responsible person) outside normal working hours. The approach inferred of the plant operating unattended and without monitoring or alarm transfer overnight and during weekends is not acceptable

(c) There has been no advice given regarding the operational standby capacity of the extractor and scrubber equipment. It is common for installations of this

type each to be comprised of three individual units - each with say, 50% total capacity, or two units - each with 75% of total capacity. When this approach is adopted, 75% to 100% capacity remains available if a unit breaks down - possibly requiring several days delay to obtain spare parts and make repairs, or is undergoing maintenance. This approach should be adopted as a matter of good operational practice as well as for public reassurance.

(d) The Proponent has stated in his reply to question 3 (e) that standby power generation is not considered necessary. While acknowledging that the building will lose its negative pressure and ability to transfer materials during power failure, the Proponent states that the building and tanks of waste can be sealed to contain odours. However, there is no explanation of how difficult or simple the sealing of the building and tanks actually is and how long these operations might take to initiate and implement

Similarly, the possibility of loss of dissolved oxygen in the activated sludge process (following power failure) and the odours likely to be produced, are not addressed in the Proponent's reply.

The Proponent's reply relies heavily on the need for adequate monitoring and alarm systems which to date have not been demonstrated as being in place. Without adequate monitoring and alarms it is conceivable that a localised power malfunction could remain undetected at least overnight and at worst, over a whole weekend.

(e) A stand-by power system, adequate monitoring and alarms, and standby capacity in the extractor and scrubbing units are considered essential requirements of the odour control system for this type of operation and location.

6 - COMMENTS ON AMENDED COMMITMENTS ACCOMPANYING THE PROPONENT'S LETTER DATED 10/10/97

Following discussion of the above with Officers of DEP, a draft matrix of Proponent's Commitments was forwarded to the Proponent. In response, the Proponent forwarded an amended version for DEP consideration under cover of his letter to DEP dated 16th October 1997. The following comments are based on the Proponent's suggested amendments..

Proponent commitments are generally considered to be satisfactory. In particular:

- The Odour commitments now appear to incorporate the Total Odour Control concept (ie, continuous automated and manual monitoring, on site and extended alarms, standby capacity in extraction and scrubbing equipment as set out in sub-section 5.3 above - with the exception of auxiliary power (see later comment).

- The Air Emission survey of commitment No 7 will now be ongoing rather than the earlier proposed single survey on commissioning.

Notwithstanding the above, clarification of the following matters is still considered necessary.

- The Environmental Management System should be specific about the number of staff and their duties, the qualifications and experience of the Operator and his Deputy. The plan should also clarify the number of staff who will be on site during working hours and the hours worked by each member of staff weekly.

- The Emergency Response Plan should be far more specific about the procedures for implementation. The document currently lacks information as to standard response procedures, advice to Authorities, responsible persons, implementation and control etc.

- A single noise survey following commissioning is proposed under item No.10. While this survey will probably capture the likely noise range - provided operations are normal, there should be provision for DEP to request additional surveys if the results are considered non representative, or if complaints of noise are received.

- The Proponent continues to resist the requirement to install auxiliary power to keep the process and odour control systems operational in the event of a power failure - and now proposes to have access to a standby power system which can be connected in the event of an extended power failure.

  If the hire of such a system can be arranged at short notice - say three hours, then the proposal is probably adequate, given the relatively reliable power supply system in Perth. However, availability of such plant may be a problem if other industries are also seeking to hire standby plant at a given time. The commitment will be meaningless if a hire plant cannot be obtained.

  It is considered that if the Proponent cannot provide details of a contractual arrangement whereby he can be guaranteed access to an alternative power source within three hours of a power failure occurring, then he should make a commitment to install a permanent auxiliary power plant,