
APPENDIX 10

EPA Guidelines



**Environmental Protection Authority
Draft Guidelines for preparation of PER**

8 April 2002

**POULTRY LITTER FIRED POWER STATION, BRAND HIGHWAY,
MUCHEA
(Assessment Number 1412)**

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These guidelines are provided for the preparation of the proponent's environmental review document. The specific environmental factors to be addressed are identified in Section 4.2.

The environmental review document must address all elements of these guidelines prior to approval being given to commence the public review.

The EPA expects the proponent to **fully consult with interested members of the public and relevant stakeholders, and to take due care in ensuring any other relevant environmental factors, which may be of interest to the public and stakeholders, are addressed. The environmental review should document the results of all consultation undertaken.**

Guidelines for the preparation of the PER document

1. Overview

All environmental reviews have the objective of protecting the environment. Environmental impact assessment is deliberately a public process in order to obtain broad ranging advice. The review requires the proponent to:

- describe the proposal;
- describe the receiving environment;
- outline the potential impacts of the proposal on factors of the environment;
- identify the proposed management strategies to ensure those environmental factors are appropriately protected; and
- demonstrate that the proposal should be judged by the EPA to be environmentally acceptable.

Throughout the assessment process it is the objective of the Environmental Protection Authority (EPA) to help the proponent to design the proposal to improve the protection to the environment. The DEP administers the environmental impact assessment process on behalf of the EPA.

The primary purpose of the environmental review is to provide information to the EPA on the proposal within the local and regional framework, with the aim of emphasising how the proposal may impact the relevant environmental factors and how those impacts may be mitigated and managed so as to be environmentally acceptable.

The language used in the body of the environmental review should be kept simple and concise, considering the audience includes non-technical people, and any extensive, technical detail should either be referenced or appended to the environmental review. The environmental review will form the legal basis of the Minister for the Environment and Heritage's approval of the proposal and therefore the environmental review should include a description of all the main and ancillary components of the proposal.

Information used to reach conclusions should be properly referenced, including personal communications. Such information should not be misleading or presented in a way that could be construed to mislead readers. Assessments of the significance of an impact should be soundly based rather than unsubstantiated opinion, and each assessment should lead to a discussion of the management of the environmental factor.

2. Objectives of the environmental review

The objectives of the environmental review are to:

- place this proposal in the context of the local and regional environment;
- adequately describe all components of the proposal, so that the Minister for the Environment and Heritage can consider approval of a well-defined project;
- provide the basis of the proponent's environmental management program, which shows that the environmental impacts resulting from the proposal, including cumulative impact, can be acceptably managed;

- communicate clearly with the public (including government agencies), so that the EPA can obtain informed public comment to assist in providing advice to government; and
- provide a document which clearly sets out the reasons why the proposal should be judged by the EPA to be environmentally acceptable.

3. Preparation of the environmental review document

Proponents are encouraged to maintain close contact with the [DEP](#) officer during the preparation of the environmental review. The preliminary environmental review should be provided to the [DEP](#) officer for comment. At this stage the document should have all figures produced in the final format and colours.

The proponent and [DEP](#) officer/Manager should agree on the time to be taken to review the draft, taking into account the level of consultation during the environmental review preparation, [DEP](#) officer's availability and the need for external review. Revision of the document may be requested to ensure that it addresses all topics and issues in these guidelines, can be read by the educated lay-person, contains no significant error of science and meets the required format.

When the EPA is satisfied with the standard of the environmental review document [it](#) will provide a written sign-off to the proponent, giving approval to advertise the document for public review. The review document may not be advertised for release before written approval is received.

Following approval to release the review for public comment, the final environmental review document should also be provided to the [DEP](#) project officer as an electronic copy, in PC Microsoft Word 2000 format, and any scanned figures. Where possible, these figures should be legible and meaningful in a black and white format.

4. Contents of the environmental review document

The environmental review document should include an executive summary, introduction and at least the following: [An Executive Summary should also be provided as a stand-alone document.](#)

4.1 The proposal

General requirements

The environmental review document should provide a comprehensive description of the proposal including its location (address and certificate of title details where relevant). Specific matters requiring attention are:

- justification and objectives for the proposed development.
- the legal framework, including existing zoning and environmental approvals, and decision making authorities and involved agencies;
- consideration of alternative options; and
- outline the siting requirements and constraints and describe how potential sites were identified and the process used to select the preferred/proposed site.

Brief description of the proposal which is the subject of these guidelines

Blairfox Generation (the proponent) intends to establish a Poultry Litter Fired Power Station near Muchea. The proposed project area is indicated on the attached plan (Attachment 1).

The proposal involves the incineration of poultry litter to make steam which is used to power a steam turbine and produce electricity.

Key characteristics of the proposal

The Minister's statement will bind the proponent to implementing the proposal in accordance with any technical specifications and key characteristics¹ in the environmental review document. It is important therefore, that the level of technical detail in the environmental review, while sufficient for environmental assessment, does not bind the proponent in areas where the project is likely to change in ways that have no environmental significance.

Include a description of the components of the proposal, including the nature and extent of works proposed, in the form of a table, an example of which follows:

Table 1: Key characteristics (example only)

Element	Description
Life of project (mine production)	< 5 yrs (continual operation)
Size of ore body	682 000 tonnes (upper limit)
Depth of mine pit	less than 30m
Water table depth	50m below ground surface
Area of disturbance (including access)	100 hectares
Mine operation	Daylight hours only, Monday to Friday
List of major components <ul style="list-style-type: none">• pit; waste dump, etc• infrastructure (water supply, roads, etc)	refer to 'Plans, specifications, charts' section immediately below for details of map requirements
Maximum ore mining rate	<ul style="list-style-type: none">• 200,000 tonnes per year
Maximum solid waste materials	<ul style="list-style-type: none">• 800,000 tonnes per year
Water supply source <ul style="list-style-type: none">• maximum hourly requirement• maximum annual requirement	<ul style="list-style-type: none">• XYZ borefield, ABC aquifer• 180 cubic metres• 1,000,000 cubic metres
Fuel storage capacity and quantity used	litres; litres per year

¹ Changes to the key characteristics of the proposal following final approval would require assessment of the change and can be treated as non-substantial and approved by the Minister, if the environmental impacts are not significant. If the change is significant, it would require assessment under section 38 or section 46. Changes to other aspects of the proposal are generally inconsequential and can be implemented without further assessment. It is prudent to consult with the Department of Environmental Protection about changes to the proposal.

Plans, specifications, charts

Provide adequately dimensioned plans showing clearly the location and elements of the proposal which are significant from the point of view of environmental protection. Locate and show dimensions (for progressive stages of development, if relevant) of plant, amenities buildings, access ways, stockpile areas, port facilities, dredge areas, waste product disposal and treatment areas, all dams and water storage areas, mining areas, storage areas including fuel storage, landscaped areas etc.

Only those elements of plans, specifications and charts that are significant from the point of view of environmental protection are of relevance here.

Always include:

- a map showing the proposal in the local context - an overlay of the proposal on a base map of the main environmental constraints;
- a map showing the proposal in the regional context;
- a process chart / mass balance diagram showing inputs, outputs and waste streams;
- an energy balance; and
- a water balance.

Provide details of resources (water, gas, power etc) required for the project and comment on the availability of the resource.

The plan/s should include contours, north arrow, scale bar, legend, grid coordinates, the source of the data, and a title. The dates of any aerial photos should be shown.

Other logistics

- timing and staging of project; and
- ownership and liability for waste during transport, disposal operations and long-term disposal (where appropriate to the proposal).

4.2 Environmental factors

The environmental review should focus on the relevant environmental factors for the proposal, and these should be agreed in consultation with the [EPA and DEP](#) and relevant public and government agencies.

At this preliminary stage, the Environmental Protection Authority (EPA) believes the specific relevant environmental factors, objectives and work required for this proposal are as detailed in the table below:

CONTENT		SCOPE OF WORK	
Factor	Site specific factor	EPA objective	Work required for the environmental review
POLLUTION MANAGEMENT			
Air emissions	Air quality	<p>With due consideration of neighbouring sources and background concentrations, to ensure that gaseous emissions from the new plant in isolation and in combination from neighbouring sources and background concentrations:</p> <ul style="list-style-type: none"> do not cause ground level concentrations to exceed appropriate criteria, including the NEPM for Ambient Air Quality (with advice sought from the DEP on relevant standards and guidelines and specific pollutants as necessary); do not cause an environmental or human health/amenity problem; and meet the requirement of Section 51 of the Environmental Protection Act 1986, to take all reasonable and practicable measures to minimise all discharges. 	<p>The proponent is responsible for identifying and quantifying all emissions to atmosphere from the proposal and, as much as practicable, surrounding industrial sources with a potential to have non-trivial impact on the environment (including impact on human health, nuisance, amenity, vegetation and fauna).</p> <p>Emissions which must be addressed include but are not limited to combustion products such as SO_x, NO_x, CO, acid gases, metals, dioxins, and particulates.</p> <p>Details of how all likely emissions were identified.</p> <p>Explanation of how the emissions have been quantified for normal and worst cases and the basis eg from demonstration plants, manufacturers guarantees, technology provider, other similar plant.</p> <p>A mass balance which clearly shows the fate of pollutants in the waste stream.</p> <p>Demonstrate that any offsite impacts can be managed in an environmentally acceptable manner.</p> <p>Provide descriptions of options in technology that have been considered to minimise emissions, particularly at source.</p> <p>Note: The proponent should refer to the Air Quality and Air Pollution Modelling Guidelines in Attachment 5 for a discussion of identification and modelling required.</p>

	Odour	<p>To ensure that odour emissions, both individually and cumulatively, meet appropriate criteria and do not cause an environmental or human health problem.</p> <p>To use all reasonable and practicable measures to minimise the discharge of odours.</p>	<p>Show that odour emissions will meet acceptable standards from:</p> <ul style="list-style-type: none"> • storage and processing of waste; and • any other likely sources of emissions. <p>Note: Draft guidelines for Storage, Processing and Recycling of Organic Waste are applicable.</p> <p>Note: EPA guidance No. 47, 2002, "Assessment of Odour Impacts" is applicable.</p>
	Dust	<p>(i) Ensure that dust generated during construction and operation does not cause any environmental or human health problem or significantly impact on amenity; and</p> <p>(ii) Use all reasonable and practicable measures to minimise airborne dust.</p>	<p>Provide details of dust emission sources during construction and operation and how these will be managed.</p> <p>Provide details of any potential impacts and measures to minimise impacts of dust.</p>
	Smoke/ Opacity	<p>To ensure that:</p> <ul style="list-style-type: none"> • smoke emissions meet the requirement of Section 51 of the Environmental Protection Act 1986, to take all reasonable and practicable measures to minimise all discharges, and • opacity meets best practice. 	<p>Detail management to ensure smoke/opacity meets the guidelines and standards and are as low as practicably achievable.</p>

<p>Management of air emissions</p>	<p>Health risk.</p>	<p>To ensure that the public are not exposed to an unacceptable health risk, either short or long term.</p>	<p>Undertake a Health Risk Assessment for dioxin emissions from the plant which includes:</p> <ul style="list-style-type: none"> • Details of the facility and process. • Evidence for the emissions and how they were derived. • Site context information, ie. location in respect to residences (and other sensitive places such as hospitals, schools, parks), food produce, sensitive ecosystems (ie. wetland, water supply area etc), other industrial activities which may also emit the same pollutants. • Identification of potential receptors, ie. residents, children, farm produce etc • The contribution of other sources to exposure need to be outlined. If no data is available, assumptions will need to be made and justified. Dietary intake should be included where relevant. • Where possible actual data should be used. • Determination of the fate and behaviour of the dioxin emitted and particularly the ground level concentrations. In the case of chemicals that will be deposited, an estimate of the likely deposition rates and concentration over time is required. • Information will be required on the nature of the pollutant, the short and long term health or environmental impacts. Obviously those pollutants which present a risk via bioaccumulation will have to be dealt with in a different manner than those with short term irritation type impacts. • The sensitive receptors for dioxin should be identified. This will obviously be based on the modelling, anticipated ground level concentrations and comparison with guideline values. • Modelling should be based on both typical and worst case scenarios for the facility. The RA should consider the most likely exposure scenarios. • Where humans are deemed the sensitive receptor, calculations should be based on exposure scenarios for children rather than adults where they are identified as being the more sensitive receptor. • Where project specific information is not available, all assumptions used should be outlined.
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Greenhouse gases	Greenhouse gas emissions.	<p>To minimise greenhouse gas emissions in absolute terms and reduce emissions per unit product to as low as reasonably practicable.</p> <p>To mitigate greenhouse gas emissions in accordance with the Framework Convention on Climate Change 1992, and in accordance with established Commonwealth and State policies including EPA Interim Guidance No 12 “Minimising Greenhouse Gases”. Proponents are required to :</p> <ul style="list-style-type: none"> • take all “no regrets” measures in construction and operation, • take “beyond no regrets” measures which are reasonable and practicable, and • commit to a program of investigation, research and reporting of and progressive implementation of “no regrets” and “beyond no regrets” measures. 	Provide details of greenhouse gas emissions in comparison with existing practices or other similar plants using the same or different technologies.
Noise		To ensure noise emissions from the plants operations are as low as reasonably practical and comply with the Environmental Protection (Noise) Regulations 1997.	<p>Undertake noise modelling (in accordance with EPA Draft Guidance for the Assessment of Environmental Factors No. 8 – Environmental Noise) to show that noise limits are met at the boundary of the premises and at surrounding noise sensitive premises.</p> <p>Provide details of noise management during the construction of the plant.</p>
Water protection	Ground water quality.	To ensure that the beneficial uses of groundwater can be maintained, consistent with the Australian and New Zealand Guidelines for fresh and marine water quality (Oct. 2000) and the NHMRC / ARMCANZ Australian Drinking Water Guidelines- National Water Quality Management Strategy 1996.	<p>Describe potential sources of groundwater contamination and proposed management measures.</p> <p>Show that any environmentally hazardous liquids are stored in accordance with the DEP’s secondary containment policy.</p> <p>Describe control of leachate from waste storage and handling areas.</p>
	Surface water quality.	To ensure that surface water is managed to prevent discharge of contaminated water from site or to groundwater.	Describe potential impacts on surface water and proposed management measures.

Management of plant waste	Plant wastes.	To ensure plant wastes are managed in accordance with the DEP's waste management hierarchy (ie. avoid, minimise, recycle, treat and dispose). To ensure any offsite disposal of plant waste meets health and environmental standards. To ensure that storage of waste does not cause adverse impacts.	Describe the management strategy to meet the EPA objective. Show that where waste is to be re-used, it is suitable for the use (ie ash). Describe alternative disposal options if re-use is not feasible. Describe the quantities and conditions under which waste is stored. Describe the contingency to divert waste if plant has to be shutdown due to unforeseen circumstances.
SOCIAL SURROUNDINGS			
Social Surrounds	Road transportation	To ensure that the increase in traffic activities resulting from the project does not adversely impact on the social surroundings.	Describe the increase in traffic expected for both the construction and operational phases of the plant. Describe traffic management measures.

These factors should be addressed within the [PER](#) document for the public to consider and make comment to the EPA. The EPA expects to address these factors in its report to the Minister for the Environment and Heritage.

The EPA expects the proponent to fully consult with interested members of the public and take due care in ensuring all other relevant environmental factors, which may be of interest to the public, are addressed.

Further environmental factors may be identified during the preparation of the environmental review, therefore on-going consultation with the [EPA](#), [DEP](#) and other relevant agencies is recommended. The [DEP/EPA](#) can advise on the recommended EPA objective for any new environmental factors raised. Minor matters which can be readily managed as part of normal operations for the existing operations or similar projects may be briefly described.

For discussion under each environmental factor:

- a description of where this factor fits into the broader environmental / ecological context (only if relevant - may not be applicable to all factors);
- a clear definition of the area of assessment for this factor;
- the EPA objective for this factor;
- a description of what is being affected - why this factor is relevant to the proposal;
- how this factor is being affected by the proposal - the predicted extent of impact;
- any relevant standards / regulations / policy;
- environmental evaluation - does the proposal meet the EPA's objective as defined above;
- if not, environmental management proposed to ensure the EPA's objective is met; and
- predicted outcome.

The proponent should provide a summary table of the above information for all environmental factors, under the three categories of biophysical, pollution management and social surroundings as shown below:

Table 2: Environmental factors and management (example only)

Environmental Factor	EPA Objective	Existing environment	Potential impact	Environmental management	Predicted outcome
BIOPHYSICAL					
vegetation community types 3b and 20b	Maintain the abundance, species diversity, geographic distribution and productivity of vegetation community types 3b and 20b	Reserve 34587 contains 45 ha of community type 20b and 34 ha of community type 3b	Proposal avoids all areas of community types 20b and 3b	Surrounding area will be fully rehabilitated following construction	Community types 20b and 3b will remain untouched Area surrounding will be revegetated with seed stock of 20b and 3b community types
POLLUTION MANAGEMENT					
Dust	Ensure that the dust levels generated by the proposal do not adversely impact upon welfare and amenity or cause health problems by meeting statutory requirements and acceptable standards	Light industrial area - three other dust producing industries in close vicinity Nearest residential area is 800 metres	Proposal may generate dust on two days of each working week.	Dust Control Plan will be implemented	Dust can be managed to meet the EPA's objective
SOCIAL SURROUNDINGS					
Visual amenity	Visual amenity of the area adjacent to the project should not be unduly affected by the proposal	Area already built-up	This proposal will contribute negligibly to the overall visual amenity of the area	Main building will be in 'forest colours' and screening trees will be planted on road	Proposal will blend well with existing visual amenity and the EPA's objective can be met

4.3. Environmental management

The EPA expects the proponent to have in place an environmental management system (EMS) appropriate to the scale and impacts of the proposal, including provisions for performance review and a commitment to continuous improvement.

The system may be integrated with quality and health and safety systems and should include the following elements:

- environmental policy and commitment;
- planning of environmental requirements;

- implementation of environmental requirements;
- measurement and evaluation of environmental performance; and
- review and improvement of environmental outcomes.

A description of the environmental management system should be included in the environmental review documentation. If appropriate, the documentation can be incorporated into a formal environmental management system (such as AS/NZS ISO 14001). Public accountability should be incorporated into the approach on environmental management.

The EMP should provide plans to manage the relevant environmental factors, define the performance objectives, describe the resources to be used, outline the operational procedures and outline the monitoring and reporting procedures which would demonstrate the achievement of the objectives.

4.4. Environmental management commitments

The final stage of the Environmental Impact Assessment (EIA) process is reached when the Minister for the Environment and Heritage issues the Ministerial Statement for the project, which is a set of legally enforceable conditions and procedures for the implementation of the project. One of the standard procedural conditions is a requirement for the proponent to implement the key commitments which have been made during the EIA process and which the EPA and the proponent wish to become legally enforceable.

It is accepted practice for a list of the proponent's key commitments to be attached to the Minister's statement, however, it is not compulsory for the proponent to make any legally enforceable commitments. The EPA will recommend conditions to address environmental matters that the implementation of the proposal should be subject to. The EPA expects proponents to implement all the commitments, which are made as part of the public review of the proposal, as part of their commitment to good environmental management.

Commitments that are to be made legally enforceable should not be made lightly and should focus on the important, on-going, high-risk issues that will need a higher level of environmental management in terms of achieving a satisfactory outcome. They would be key components within the proponent's environmental management system and would be subject to both internal (company) and external (regulator) audit processes to ensure both compliance as well as outcome.

Smaller-scale, generalised, overly-specific and/or non-controversial management actions, objectives and policies that the proponent intends to undertake in implementing the proposal (eg. return 150mm of topsoil, avoid coral reefs, minimise clearing of vegetation) do not need to be included in the list of legally enforceable commitments.

Ideally, management actions, etc, should be separated from the commitments in the public review document and they would not become specifically legally binding as would the commitments. However, the proponent would still be expected to implement these management actions as part of responsible environmental management as this is what the EPA will base its recommendations of acceptability upon.

It is important to ensure the commitments are auditable and, therefore, proponents are advised to follow a tabular format as explained below.

4.4.1. Commitment components

The commitments need to be framed in a format similar to that of the environmental conditions so that they have clarity and enforceability and, therefore, can be readily implemented by the proponent and audited efficiently by the DEP. The required standard format for all commitments comprises a number of components as follows:

The proponent will, for a specific topic (environmental issue), undertake an action (**what, how, where**) to meet an environmental objective (**why**) to a time frame (**when**), and on advice from a relevant advisory agency (**from whom**, eg. government agencies such as Department of CALM, Department of Mineral and Petroleum Resources, Shire Council). With regard to ‘advice from whom’, this need only be included if the expertise and/or statutory responsibilities of the third party is relevant to implementing the commitment.

It is important for the consolidated list of commitments to be numbered correctly for easy reference in the implementation and auditing stages of the project. These should therefore be sequentially numbered 1, 2, 3, ... without use of subgroups such as 1.1, 1.2 or 2(i) or 2(a), 2(b).

4.4.2. Paragraph format

In applying the standard components (topic what, why, when, from whom) an example of a commitment in paragraph form is as follows:

Prepare and implement a Dust Control Plan that will minimise dust generation on-site and aim to prevent dust emission from construction of the foreshore extension in order to protect the amenity of nearby land users. The Plan will be prepared during the design (project planning) phase and will include measures that ensure dust levels do not exceed EPA dust control criteria (EPA, 1996). The Plan will be prepared and implemented on advice from the Shire of Widgie. The approved Plan will be implemented during the construction phase.

However, writing the commitment in paragraph form can result in a confusing or clumsy sentence structure that may be difficult to interpret for future auditing purposes. Hence, a paragraph format is not acceptable and a tabular format is now required.

4.4.3. Tabular format

It is recommended that the table column headings be titled: (commitment) ‘number’, ‘topic’, ‘actions’, ‘objectives’, ‘timing’ and ‘advice from’. The example in paragraph format above can be written in tabular form as per example 1 below. Note that the tabular format also overcomes the sometimes long-winded sentence structure where there are multiple specific actions for the plan to address. Also, it is desirable to create separate commitments for the preparation and implementation parts of the commitment. Finally, the tabular format provides an immediate audit framework for use both by the proponent and the DEP, which enables efficient administration of environmental approvals. An example of the three most common formats is given below. Example 4 shows how to rewrite a management strategy into a commitment.

Example 1. Prepare and Implement format

This is the most common format and will apply most of the time where there is an on-going need to address the issue.

No.	Topic	Actions	Objectives	Timing	Advice from*
1.	Dust management	Prepare a Dust Control Plan for the foreshore construction site which addresses: 1) dust prevention; 2) prevention of dust emissions off-site; and 3) monitoring and compensatory measures to address accidental emissions off-site.	1) Maintain the amenity of nearby residents. 2) Dust levels at nearest critical premise are within EPA dust control criteria (EPA, 1996).	Design phase (prior to the start of construction)	Shire of Widgie
2.	Dust management	Implement the approved Dust Control Plan referred to in commitment 1.	Achieve the objectives of Commitment 1.	During construction	Shire of Widgie

* this may be left blank if no advisory local or state government agency is relevant; note that the DEP or the EPA or the Minister for the Environment and Heritage are never noted in this column. They are the regulators and the commitments are to their requirements, not advice.

Example 2. Once-off Action format

This format is for actions that have a clear completion time.

No.	Topic	Action	Objectives	Timing	Advice from
3.	Fauna protection	Undertake a trapping programme, approved by CALM, for capturing and relocating the Southern Brown Bandicoots from the area to be cleared.	Relocate the Southern Brown Bandicoots to an area and in a manner where the population will be protected	Design (prior to the start of ground disturbance)	CALM

Example 3. Prepare, Implement and Upgrade format

This format is for circumstances when there is a clear need to modify a plan based on a study that is yet to be completed.

No.	Topic	Action	Objectives	Timing	Advice from
4.	Waste Rock Dump	Prepare a Waste Rock Dump Management Plan that: 1) ensures natural drainage is reinstated; 2) identifies rehabilitation options and techniques; 3) achieves a visual quality objective of level 3; 4) etc.	Construct a waste rock dump that: 1) blends with local landscape; 2) is stable in the long-term; and 3) will not produce leachate that would pollute the nearby wetlands.	Prior to the start of construction of the mine	Dept. Minerals and Petroleum Resources
5.	Waste Rock Dump	Implement the WRDM Plan referred to in commitments 4 and 6.	As for commitment 4.	During construction and operations	MPR
6.	Waste Rock Dump	Modify the WRDM Plan referred to in commitment 4 after the Acid Mine Drainage study referred to in commitment 9 is completed and the study findings approved by the EPA.	Ensure that drainage, including subsurface leachate, does not exceed water quality criteria (NHMRC, 1999).	During operations	MPR

Example 4. How to rewrite a management action, etc, into a commitment

No.	Topic	Action	Objectives	Timing	Advice from
1.	Waste material	Remove waste material which cannot be accommodated on-site due to potential changes in final design levels to an acceptable landfill. [This is a management action and is rewritten below]	To prevent contaminated material removed from the western part of the site being relocated inconsistent with the final plans for the development.	During remedial works	Shire of Widgie
1.	Excess waste material	Prepare a Waste Material Plan for any excess contaminated material that: 1) identifies the quantity and location of the material; 2) specifies the methods of removal and transport of the material; and 3) identifies the landfill site for disposal and the monitoring methods for the landfill disposal operation.	Ensure that contaminated material that cannot be contained on-site is disposed of at an acceptable landfill site.	During the remedial stage (prior to the validation stage)	Shire of Widgie
2.	Excess waste material	Implement the approved Waste Material Plan referred to in commitment 1.	Achieve the objectives of commitment 1.	After plan is approved by the DEP (during remedial stage)	Shire of Widgie

5. Public consultation

A description of the public participation and consultation activities undertaken by the proponent in preparing the environmental review should be provided. It should describe the activities undertaken, the dates, the groups/individuals involved and the objectives of the activities. Cross reference should be made with the description of environmental management of the factors which should clearly indicate how community concerns have been addressed. Those concerns which are dealt with outside the EPA process can be noted and referenced.

5.1. Availability of the environmental review document

Copies for distribution free of charge

Supplied to DEP:

- Library/Information Centre 9
- EPA members 6
- Officers of [DEP](#) 6

Distributed by the proponent to:

Government departments	<ul style="list-style-type: none">• Department of Health..... 1• Department of Mineral and Petroleum Resources..... 1• Department of Agriculture 1• Office of Energy 1• Water and Rivers Commission 1• Department of Environmental Protection (Licensing)..... 1
Local government authorities	Shire of Chittering 2
Libraries	<ul style="list-style-type: none">• J S Battye Library 3• Chittering Library 2
Other	<ul style="list-style-type: none">• Conservation Council of WA 1• The Environment Centre of WA 1

Available for public viewing

- Department of Environmental Protection Library, Perth;
- Chittering Library;
- J S Battye Library, Perth; and
- [anywhere else, [for example on your website](#)]

6. Other information

Additional detail and description of the proposal, if provided, should go in a separate section.

Attachment 1

Plan showing location and details of the proposal

Attachment 2

The first page of the proponent's environmental review document must be the following invitation to make a submission, with the parts in square brackets amended to apply to each specific proposal. Its purpose is to explain what submissions are used for and to detail why and how to make a submission.

Invitation to make a submission

The Environmental Protection Authority (EPA) invites people to make a submission on this proposal. If you are able to, electronic submissions emailed to the [DEP](#) Project Assessment Officer would be most welcome.

[Blairfox Generation](#) proposes to establish a Poultry Litter Fired Power Station near Muchea. In accordance with the Environmental Protection Act, an [PER](#) has been prepared which describes this proposal and its likely effects on the environment. The [PER](#) is available for a public review period of 4 weeks from [\[date\]](#) closing on [\[date\]](#).

Comments from government agencies and from the public will help the EPA to prepare an assessment report in which it will make recommendations to government.

Why write a submission?

A submission is a way to provide information, express your opinion and put forward your suggested course of action - including any alternative approach. It is useful if you indicate any suggestions you have to improve the proposal.

All submissions received by the EPA will be acknowledged. Submissions will be treated as public documents unless provided and received in confidence subject to the requirements of the Freedom of Information Act, and may be quoted in full or in part in the EPA's report.

Why not join a group?

If you prefer not to write your own comments, it may be worthwhile joining with a group interested in making a submission on similar issues. Joint submissions may help to reduce the workload for an individual or group, as well as increase the pool of ideas and information. If you form a small group (up to 10 people) please indicate all the names of the participants. If your group is larger, please indicate how many people your submission represents.

Developing a submission

You may agree or disagree with, or comment on, the general issues discussed in the [PER](#) or the specific proposals. It helps if you give reasons for your conclusions, supported by relevant data. You may make an important contribution by suggesting ways to make the proposal more environmentally acceptable.

When making comments on specific elements of the [PER](#):

- clearly state your point of view;
- indicate the source of your information or argument if this is applicable;
- suggest recommendations, safeguards or alternatives.

Points to keep in mind

By keeping the following points in mind, you will make it easier for your submission to be analysed:

- attempt to list points so that issues raised are clear. A summary of your submission is helpful;
- refer each point to the appropriate section, chapter or recommendation in the [PER](#);
- if you discuss different sections of the [PER](#), keep them distinct and separate, so there is no confusion as to which section you are considering;
- attach any factual information you may wish to provide and give details of the source. Make sure your information is accurate.

Remember to include:

- your name;
- address;
- date; and
- whether you want your submission to be confidential.

The closing date for submissions is: [\[date\]](#)

Submissions should ideally be emailed to
richard.sutherland@environ.wa.gov.au

OR addressed to:

The Environmental Protection Authority
PO Box K822
PERTH
WA 6842

[Westralia Square
141 St George's Terrace
PERTH WA 6000]

Attention: [R Sutherland]

Attachment 3

Advertising the environmental review

The proponent is responsible for advertising the release and arranging the availability of the environmental review document in accordance with the following guidelines:

Format and content

The format and content of the advertisement should be approved by the [DEP](#) before appearing in the media. For joint State-Commonwealth assessments, the Commonwealth also has to approve the advertisement. The advertisement should be consistent with the attached example.

Note that the [DEP](#) officer's name should appear in the advertisement.

Size

The size of the advertisement should be two newspaper columns (about 10 cm) wide by about 14 cm long. Dimensions less than these would be difficult to read.

Location

The approved advertisement should appear in the Saturday edition of the news section of the main daily paper ("The West Australian"), and in the news section of the main local paper at the commencement of the public review period, and again two weeks prior to the closure of the public review period.

Timing

Within the guidelines already given, it is the proponent's prerogative to set the time of release, although the [DEP](#) should be informed. The advertisement should not go out before the report is actually available, or the review period may need to be extended.

Attachment 4 Example of the newspaper advertisement

Proponent Name

Public Environmental Review

TITLE OF PROPOSAL

(Public Review Period: [date] to [date])

Proponent is planning to [brief description of proposal].

An **Public Environmental Review (PER)** has been prepared by the company to examine the environmental effects associated with the proposed development, in accordance with Western Australian Government procedures. The **PER** describes the proposal, examines the likely environmental effects and the proposed environmental management procedures.

[Proponent] has prepared a project summary which is available free of charge from the company's office address.

Copies of the PER may be purchased for \$10 (and the Appendices for \$10) from:

Company Name

Street

Suburb/Town WA Postcode

Telephone: (08) 9xxx xxxx

Copies of the complete **PER** will be available for examination at:

- Department of Environmental Protection
Library Information Centre
8th Floor, Westralia Square
141 St Georges Terrace
PERTH WA 6000
- Department of Environmental Protection
Regional Office - if appropriate [and relevant local libraries]

Submissions on this proposal are invited by [closing date]. Please email your submission to:

richard.sutherland@environ.wa.gov.au OR address to:

Chairman

Environmental Protection Authority

PO Box K822

PERTH WA 6842

Attention: [R Sutherland]

If you have any questions on how to make a submission, please ring the project officer, **Richard Sutherland**, on (08) 9222 7132.

Attachment 5 Air quality and air pollution guide:

Modelling Guidance Notes

DEPARTMENT OF ENVIRONMENTAL PROTECTION

WESTERN AUSTRALIA June 2000

1 Introduction

The Department of Environmental Protection (DEP) is frequently required to review assessments of the air quality impact of existing or proposed sources of air pollutants. This often occurs in the course of individuals or companies (generically called “proponents” below) meeting their obligations under the *Environmental Protection Act 1986* (“the Act”), notably environmental impact assessment under Part IV of the Act or in relation to Works Approvals and Licences under Part V of the Act.

Most air quality assessments employ computer modelling to provide estimates of the environmental (ambient) air quality impact. The quality of modelling efforts reviewed by the EPA over many years has varied from highly skilled to very inadequate. These guidance notes have been prepared to provide a clear understanding of the DEP’s expectations with respect to air quality modelling.

2 Identify emissions and secondary pollutants

The proponent is responsible for identifying and quantifying all emissions to atmosphere with a potential to have a non-trivial impact on the environment (including impact on human health and well-being; odour; nuisance; amenity; vegetation - natural and agricultural; and fauna - natural and agricultural). Emissions of potential concern include SO₂, NO_x, CO, particulates, volatile organic compounds, fluorides, hydrogen sulphide, other odorous gases, heavy metals, dioxins, furans, PAH and other toxic compounds, unless the emission rates of these are insignificant (to be justified). Additionally, the formation and impact of secondary pollutants such as photochemical smog and aerosols should be assessed if applicable. Greenhouse gases and ozone-depleting compounds are beyond the scope of these guidelines.

3 Modelling to predict impacts (overview)

For all primary and secondary pollutants which cannot be dismissed as being of no significance, the proponent must provide model predictions of the impact of emissions on the various elements of the environment, in the form of concentrations and/or rates of deposition over the range of averaging periods normally associated with “relevant standards” for each pollutant, and assess the magnitude of this impact against the “relevant standards”. “Relevant standards” means guidelines/goals/standards which the EPA has adopted or advised or, in the absence of an EPA position, guidelines/goals/standards proposed by the proponent on the basis of national or international practice and/or field

investigations of environmental sensitivity. Data from experiments or justifiable extrapolations from published literature will also be required on the susceptibility of natural vegetation and crops.

NOTE:

The proponent may choose to carry out "worst case" screening analyses for particular pollutants (eg via simplified, conservative calculations or models) in order to demonstrate to the [EPA](#) that air quality impacts are insignificant and therefore that comprehensive modelling procedures are not warranted. The worst case analysis procedures (calculations, models) must be adequately described, with reference to their source. Most of the discussion which follows is directed towards full modelling exercises rather than screening analyses. Nevertheless, a screening analysis will be considered inadequate if it ignores any of the features or factors described below which may be potentially significant.

4 Presentation of model results

Modelling results should be presented in the form of:

- contour plots covering the region of interest (including population centres or isolated residences), with a grid density adequate to avoid significant loss of resolution;
- numerical values of concentrations at the point(s) of maximum impact (explain where this occurs) and other locations (receptors) of interest (eg places of human residence).
- for each pollutant so modelled, the contours and numerical values should be presented with reference to relevant standards (eg at the averaging period and percentile level of the relevant standard) and the results evaluated against the standard. The meteorological conditions causing highest concentrations at important receptors should be determined (if possible) to check that the model is yielding sensible results.

5 Modelling cumulative impacts

For each pollutant modelled, the assessment must account for existing concentrations caused by other sources plus (if significant) the background concentration (whether natural or man-made) in order to estimate the cumulative concentration. When cumulative concentrations are modelled, the contribution of the proposal to high percentile short term (say 1-hour) averages is often masked. Consequently, in order for the contribution to be properly assessed, the [EPA](#) requires modelling results (as described in the foregoing point) to be presented for:

- the existing emissions plus background concentration (pre-proposal);
- the proposed development in isolation (excluding existing emissions); and
- the combined (existing plus proposed plus background) emissions.

The “existing emissions” must include not only those of existing, operating sources of emissions but also those expected from yet-to-be-constructed sources which are at a stage of approval, and commitment to proceed, ahead of the proposal. Such sources will need to be identified on a case-by-case basis. Industries proposed for location in Kwinana or other regions with airshed management policies will need to be assessed in accordance with the provisions of those policies; the [DEP](#) will provide details.

6 Emissions estimates

The EPA requires assurance that the estimates of emissions employed in modelling assessments are realistic and that uncertainty is balanced by conservatism. Details on how the source parameters (stack dimensions, mass emission rates, gas flow rate, temperature, density, etc) were derived should be summarised. This is to include whether these parameters were derived from stack testing (in relation to an existing facility), from theoretical calculations such as from a mass balance approach, from other existing facilities or standard emission factors (eg USEPA AP42). If the emissions are derived from stack testing, details should be given on how many stack tests were taken and how representative these were. Unless otherwise agreed, the level at which emissions should be set for modelling purposes is described in EPA Vic (1985).

7 Variable or intermittent emissions

In the experience of the DEP, intermittent emissions (plant start-ups, plant upsets, etc) result in more pollution complaints than normal emissions from operating industries. The modelling must properly assess both emissions which are continuous in nature and emissions which are intermittent. Intermittent emissions which are insignificant in magnitude and/or very improbable in the lifetime of the plant may be screened out; the remaining emissions should be modelled together on a probabilistic basis to estimate the total plant impact. Screening of emissions cases must be based on the joint consideration of probability and magnitude of emission. The DEP is able to provide guidance on how to screen and model intermittent emissions.

8 Model capability

The models and/or worst case calculation procedures and data employed in the assessment must be demonstrably capable of simulating, or accounting for, all of the features which are important in the context of determining the air quality impact of the project. The proponent is responsible for identifying and properly accommodating these. The following list may not be exhaustive but is provided for checking purposes:

- trapping of plumes in mixed layers of limited height or, alternatively, penetration of plumes through elevated temperature inversions;
- vertical plume dispersion in convective conditions;

- fumigation of plumes into an encroaching mixed layer or thermal internal boundary layer near a coastline. Investigations of this phenomenon may require estimates of wind direction shear in stable layers;
- sea breeze trapping, recirculation of pollutants;
- near-surface dispersion under very stable calm conditions (a feature of WA winter meteorology);
- topographic influences - impact of plumes on elevated terrain, effect on spatially varying wind fields, valley winds (anabatic and katabatic winds), ponding of air in stable conditions;
- surface roughness;
- building wake effects, stack tip downwash (avoided by good engineering stack design);
- deposition, chemical transformation;
- effects of positive or negative buoyancy;
- radiation from flares.

The modelling report should describe how each of the relevant features was treated. Examples are:

- Physical description of the site to be modelled. This is to include details on the topography, ie highest hill/mountain within the model region, distance to coast or any other major water bodies and how this was dealt with in the modelling;
- For a coastal site, details on how sea breeze effects were incorporated in the modelling;
- The value(s) of the roughness length and details on how this was determined (refer to USEPA (1997) for recommended approaches).

9 Meteorological data for conventional models applied to simple situations

If using a conventional model, the proponent will need to obtain at least one (preferably two or more) years' data on the meteorology of the area, with high data recovery and verifiable data accuracy. In the simplest situations, the data may be limited to that necessary to provide reliable hourly average estimates of:

- wind speed;
- wind direction;
- air temperature;
- mixing height, estimated or measured via methods acceptable to the DEP;
- atmospheric stability, estimated by a method acceptable to the DEP.

Methods described in USEPA (1997) are generally acceptable to the DEP. The report should include a description on the meteorological data used or alternatively a reference to a publicly available report which contains this information. The description is to include details on the methodology used to derive stability classes and mixing heights and is to present (as a minimum) the annual wind rose, annual stability frequency distribution and details on the mixing height distribution. The description should also include details on the quality of the anemometer used and its starting threshold. **Discuss the suitability of the meteorological data to represent the Maddington site.**

10 Meteorological data for complex models and/or complex situations

Specialised and detailed meteorological data and associated calculations are necessary to accurately model some of the features listed in point 8. For example, to model shoreline fumigation, knowledge of the onshore-flow vertical temperature structure is required. The proponent is responsible for assessing the full range of pollution dispersion issues and designing an appropriate monitoring program. Where items of data are not based on the results of continuous monitoring (eg. based instead on intermittent field experiments or unverified hypotheses), the uncertainty of estimates must be offset by conservatism in these estimates. The proponent is invited to demonstrate to the DEP/EPA that complicated or costly monitoring programs and/or modelling procedures for particular meteorological parameters are not warranted.

11 Advanced models

The DEP/EPA accepts that advanced prognostic models may be less reliant on measurements than conventional (eg Gaussian) models. These advanced models would need to be well supported by published validation studies before they would accept their use in isolation.

12 Model acceptability and verification

The DEP/EPA does not generally prescribe which models must be used in particular circumstances. The DEP/EPA takes this position in order to allow scientific and technical advances to be introduced without regulatory delays. However the DEP/EPA reserves the right to reject a proposed model, or application thereof, if it considers it to be inadequate, inappropriate or unproven. The AUSPLUME and ISCST3 models are frequently used in an acceptable manner for modelling industrial emissions, but they have limitations which model users should understand and respect.

Unless the DEP/EPA agrees otherwise, proponents are required to present, in addition to model results, all of the model input files and configuration details to allow the DEP to check and reproduce the model results. Model output which describes the model configuration should also be provided. If the model has not been well validated and documented in the public domain (like AUSPLUME,

USEPA regulatory models), references to model validation reports (and provision of these on request) are required.

References

EPA Vic (1985) Plume Calculation Procedure: an approved procedure under Schedule E of State Environment Protection Policy (The Air Environment). Environment Protection Authority of Victoria, March 1985, Publication 210.

USEPA (1997) On-site meteorological program guidance for regulatory modelling applications. U.S. Environmental Protection Agency, June 1997.

AirAssessGuidelinesKRa060600