DRAFT Guideline

Draft Guideline Demonstrating Best Practice

Publication number 1507 October 2012
Authorised and published by EPA Victoria, 200 Victoria Street, Carlton

Introduction

Draft guideline for public comment

Assessing best practice is an important aspect of Victoria's environment protection framework. We at EPA Victoria (EPA) have heard from our stakeholders that we need to provide more and better guidance on this issue.

EPA is committed to increasing the consistency, transparency and proportionality of approvals, and releasing this draft guideline for public comment is a step towards this outcome.

If you would like to provide comment on this draft guideline, please email EPA on guidelines@epa.vic.gov.au by 23 November 2012.

Purpose

The purpose of this guideline is to:

- provide direction on the information required from applicants when a statutory application is required to demonstrate best practice
- assist in the early clarification and confirmation of evidentiary requirements for works approval applications
- contribute to increased consistency and transparency in EPA's assessment of works approvals.

Using this guideline

This guideline should be referred to for all decisions under the *Environment Protection Act 1970* (EP Act) relating to best practice. The guideline should be used by all works approval applicants.

All applicants are encouraged to discuss with EPA the nature of their proposal early in the process. This will help ensure both the application and assessment are proportional to the issues being addressed, and that effort is targeted to prevent risk of harm to human health and the environment.

This guideline should be used in conjunction with *EPA's Works Approval Guidelines* (Publication 1307).

Other decision makers in local and state government may find this guideline useful when performing their duties. The standards set in statutory policies apply across all activities in Victoria. EPA may refer to this guideline when making statutory decisions or providing non-statutory advice.

Legal status

Best practice is a legal requirement in a number of statutory policies under the EP Act. This guideline provides direction from EPA on how to meet the legal requirements of best practice. If a statutory application does not demonstrate that it will meet the requirements under the EP Act, or does not provide the required information, then EPA cannot approve the application.

Background

What is best practice?

Best practice is a requirement of statutory policy

Statutory policies underpin environment protection in Victoria and have a range of important uses. Statutory policies define the meaning of clean air, water and land, and acceptable noise levels under the EP Act. These are minimum and quantifiable requirements that must be met by all activities in Victoria and by all statutory applications.

Statutory policies also include process related requirements of industry, including requirements for the management of emissions to air, land, surface water or groundwater.

As shown in table 1, a range of terms are used in statutory policies relating to best practice or continuous improvement, depending on the particular environmental segment in question.

Table 1. Examples of best practice and continuous improvement requirements in statutory policies

State environment protection policy (SEPP)	Clause (context)	Emitter/industry requirement
SEPP (Noise N-1)	Cl. 19 (when replacing or installing new equipment)	Use quietest equipment available
SEPP (Waters of Victoria)	Cl. 3 (in definition of 'minimise', e.g. relevant to Cl. 44 dredging activities)	Reduce to maximum extent practicable
SEPP (Groundwaters of Victoria)	Cl. 12 (prevention of groundwater pollution)	Undertake all practicable measures

State environment protection policy (SEPP)	Clause (context)	Emitter/industry requirement
SEPP (Prevention and Management of Contamination of Land)	Cl. 17(2) (prevention of contamination of land)	Apply best practice
SEPP (Air Quality Management)	Cl. 19 (management of new sources of emissions)	Apply best practice for all indicators; reduce to maximum extent achievable for 'Class 3' indicators

Of the above, the State environment protection policy (Air Quality Management) (SEPP (AQM)) provides the most detailed articulation of what is meant by best practice. Part IV of SEPP (AQM) defines best practice to mean:

> 'the best combination of eco-efficient techniques, methods, processes or technology used in an industry sector or activity that demonstrably minimises the environmental impact of a generator of emissions in that industry sector or activity'

-- where eco-efficient is defined as:

> 'producing more goods with less energy and fewer natural resources, resulting in less waste and pollution'.

For air emissions, best practice can be distinguished from the requirement to reduce emissions to the 'maximum extent achievable' (MEA). This refers to the most stringent measures available to be applied to hazardous pollutants (classified as class 3 indicators in SEPP (AQM), for example dioxins), where less consideration is given to cost and more emphasis is placed on minimising risk to human health.

For all other best practice requirements under other statutory policies that are summarised in table 1, the following considerations should be applied when interpreting requirements.

Best practice for site selection and management systems

An assessment of environmental impact needs to consider the sensitivity of the receiving environment and is therefore site-specific. For example, relevant Air Quality Control Regions and proximity to sensitive receptors should be considered in an assessment of best practice. In another example, the beneficial uses of groundwater – which vary depending on levels of Total Dissolved Solids and with region – require different levels of protection.

The best practice assessment may also need to be applied to site selection, site layout and management systems to ensure that human health and amenity, and the environment, are protected.

Best practice is preventative

Best practice contributes to ensuring that the proposed environmental impact is minimised and prevented as far as possible. This means going beyond the minimum requirements of quantified standards. For example, best practice needs to be applied to minimise air emissions, rather than just complying with the ground level concentration design criteria specified in SEPP (AQM).

Works built at best practice now are less likely to need to undertake retrofits to adapt to future changes in standards due to improvements in the understanding of the impacts of pollutants.

Best practice means undertaking all practicable measures

Decisions with regard to practicability, when assessing best practice, should have regard to technical, logistical and financial considerations. This is different to meeting *quantified* limits set in statutory policies or regulations, where issues of cost are not a consideration when it comes to assessing compliance.

It is not expected that reductions in emissions in pursuit of best practice be pursued 'at any cost'. Nor does it mean that best practice will always be the lowest cost option. It is important that the proposed approach be cost-effective in the context of the relevant industry sector within which the enterprise operates, as well as within the context of the total project cost. Most important is that the preferred option is proportional to environmental risk.

Cost is taken to mean 'net cost', where up-front capital investment is considered together with a pay-back period based on consequently reduced resource management costs.

Best practice is internationally demonstrated and locally available

Identifying best practice means identifying measures or practices that *demonstrably* minimise environmental impact. An assessment of best practice needs to give reasonable consideration to the availability of technology.

In many circumstances, as acknowledged by the Victorian Civil and Administrative Tribunal (the Tribunal), the assessment may invite a comparison with practices used elsewhere in the world. This is particularly the case where the relevant practice under examination is novel or has a limited basis for comparison in Australia, and where international best practice is reasonably available and achievable in Australia under local operating conditions[1].

If the proposal, or an element of the proposal, is not yet commercially proven or available, and the purpose of the proposal is to demonstrate an approach, the application may be more suited to an application for Research, Development and Demonstration (RD&D) approval under section 19D of the EP Act.

[1] *Dual Gas Pty Ltd & Ors v Environment Protection Authority [2012] VCAT 308* (Dual Gas case) at [166].

What is the scope of best practice I need to consider?

The requirements for best practice arise from statutory policies relating to segments of the environment. The best practice requirement therefore applies, to use the example of the SEPP (AQM), to the management of emissions, rather than to the proposal as a whole[2]. The management of emissions is, however, directly dependent on the choice of process, technology, site layout and location.

Determining the scope of the process or activity to be examined should begin with a reference to the activities defined in the Environment Protection (Scheduled Premises and Exemptions) Regulations 2007.

Further narrowing of the scope may be made based on the availability of technology (as described above) and the nature of the industry sector or activity. For example, best practice for a large urban landfill may be assessed differently to that of a smaller rural landfill.

The intent is to provide a benchmark against a sector or activity that provides a relevant and reasonable comparable basis for the assessment.

Broader legislative context

While best practice can only be assessed in the specific context of each application, it also needs to be considered in the relevant broader legislative and regulatory context, including:

- legislative requirements under other Acts of Parliament, such as:
    - *Public Health and Wellbeing Act 2008* (Vic) and *Safe Drinking Water Act 2003* (Vic), as works approval applications are referred by EPA to the Victorian Department of Health
    - EPA's duty to consider greenhouse gas emissions and climate change impacts under section 14 of the *Climate Change Act 2010* (Vic)
- requirements of regulations under the EP Act, such as:
    - Environment Protection (Industrial Waste Resource) Regulations 2009
    - Environment Protection (Environment and Resource Efficiency Plan) Regulations 2007
- all other requirements of statutory policies, including waste management policies
- the principles of environment protection under the EP Act.

How does EPA assess best practice?

Risk-based approach

EPA's regulatory approach is increasingly risk-based. We are seeking to ensure that our regulatory response is proportional to the issue it is seeking to address, and our resources are targeted to prevent the most serious risk of harm to human health and the environment.

Principles of environment protection

EPA's powers, duties and functions – including decisions relating to works approvals and licences – all need to be discharged in accordance with the environment protection principles of the EP Act ('principles').

Statutory policies, regulations and guidelines are all developed with regard to the principles. There may nevertheless be a need to give further consideration to the principles for individual approvals if there is ambiguity, competing principles or qualitative requirements such as continuous improvement or best practice.

Any one or more of the eleven principles in the EP Act (sections 1B to 1L) may come to the fore, depending on the context. It is ultimately the job of the decision maker to balance the principles in reaching each decision. For works approval assessments, the most frequently relevant principles include:

Integration of economic, social and environmental considerations (section 1B)

- This principle makes it clear that best practice measures adopted as a response to the integration of economic, social and environmental factors need to be cost-effective and *in proportion* to the significance of the environmental problems being addressed.
- This principle also ensures that social and environmental issues, as well as economic considerations, are given equal attention in decision making.
- *EPA's 5 Year Plan 2011-2016* confirms that proportionality is a guiding principle for our work.

The wastes hierarchy (section 1I)

- This principle states that wastes should be managed in accordance with the following order of preference: avoidance, re-use, re-cycling, recovery of energy, treatment, containment and disposal.
- The aspect of eco-efficiency in the definition of best practice is heavily influenced by the wastes hierarchy.
- Waste is broadly defined under the EP Act, and includes any discharge, emission or deposit that causes an alteration in the environment, as well as any discarded, rejected, unwanted, surplus or abandoned matter intended for treatment or sale.

Integrated environmental management (section 1J)

- This principle states that if approaches to managing environmental impacts on one segment of the environment have potential impacts on another segment, the best practicable environmental outcome should be sought.

[2] Dual Gas case at [148].

- This emphasises that an assessment of best practice may require an integrated environmental assessment, as discussed in further detail in table 3.

Roles and responsibilities

EPA relies on a number of sources of knowledge to assess best practice for works approval applications.

The applicant

- It is the responsibility of the applicant to prepare the best practice assessment and submit the statutory application to EPA for assessment. The primary source of information on the proposed works will therefore be the applicant.
- The burden of proof lies with the applicant to research and document the application and demonstrate that best practice will be adopted.

EPA Assessing Officers

- EPA relies on its Assessing Officers to analyse and assess the information provided by the applicant, and be satisfied that the application has adequately demonstrated best practice in accordance with these guidelines.
- It is the responsibility of EPA to provide advice to the applicant on any recent decisions in the relevant industry sector.
- Assessing Officers assess the application and provide a recommendation to EPA on the decision to approve or refuse an application.

Specialist advisors engaged by the applicant

- Works approval applicants often engage a consultant to prepare the works approval application, or otherwise have access to industry specialists or contractors who provide information and advice to support the application.

Specialist advisors engaged by EPA

- Where needed, EPA may also seek advice from external specialists to verify or peer review the information provided by the applicant.
- Specialist advisors may make recommendations to EPA based on the information provided by the applicant and may provide EPA with suggestions for improvement, although any decisions rest with EPA.

When is best practice assessed by EPA?

The requirements of statutory policy, including best practice, apply broadly to all activities in Victoria. EPA assesses compliance with statutory policy and best practice, as relevant, when assessing statutory applications. Most notably, this happens as part of the works approval process.

A works approval permits the construction of an entire plant, the installation of equipment or modification of a process at a scheduled premises. Works approvals ensure that development proposals adequately address environmental risks before works begin at a scheduled premises.

By influencing proposals and setting conditions on industrial infrastructure and activity ahead of time, works approvals can protect the environment from pollution and avoid expensive retrofitting later down the track.

The remainder of this document uses the example of a works approval application, although the approach can be used for any statutory application.

What should your works approval application include?

Risk assessment

In accordance with EPA's Works Approval Guidelines, your application should include an environmental risk assessment. The outcomes of the risk assessment should be used to guide the scope and purpose of your best practice analysis.

For example, if your risk assessment identifies that air emissions are the proposal's highest environmental risk, your best practice assessment should be focused on demonstrating that the proposed process has been selected and will be managed so as to effectively minimise air emissions in a best practice manner.

Commensurate to the scale of your proposal, you should undertake an initial desktop risk assessment prior to your pre-application meeting with EPA to ensure that the scope and direction of your best practice analysis can be confirmed.

Methodology

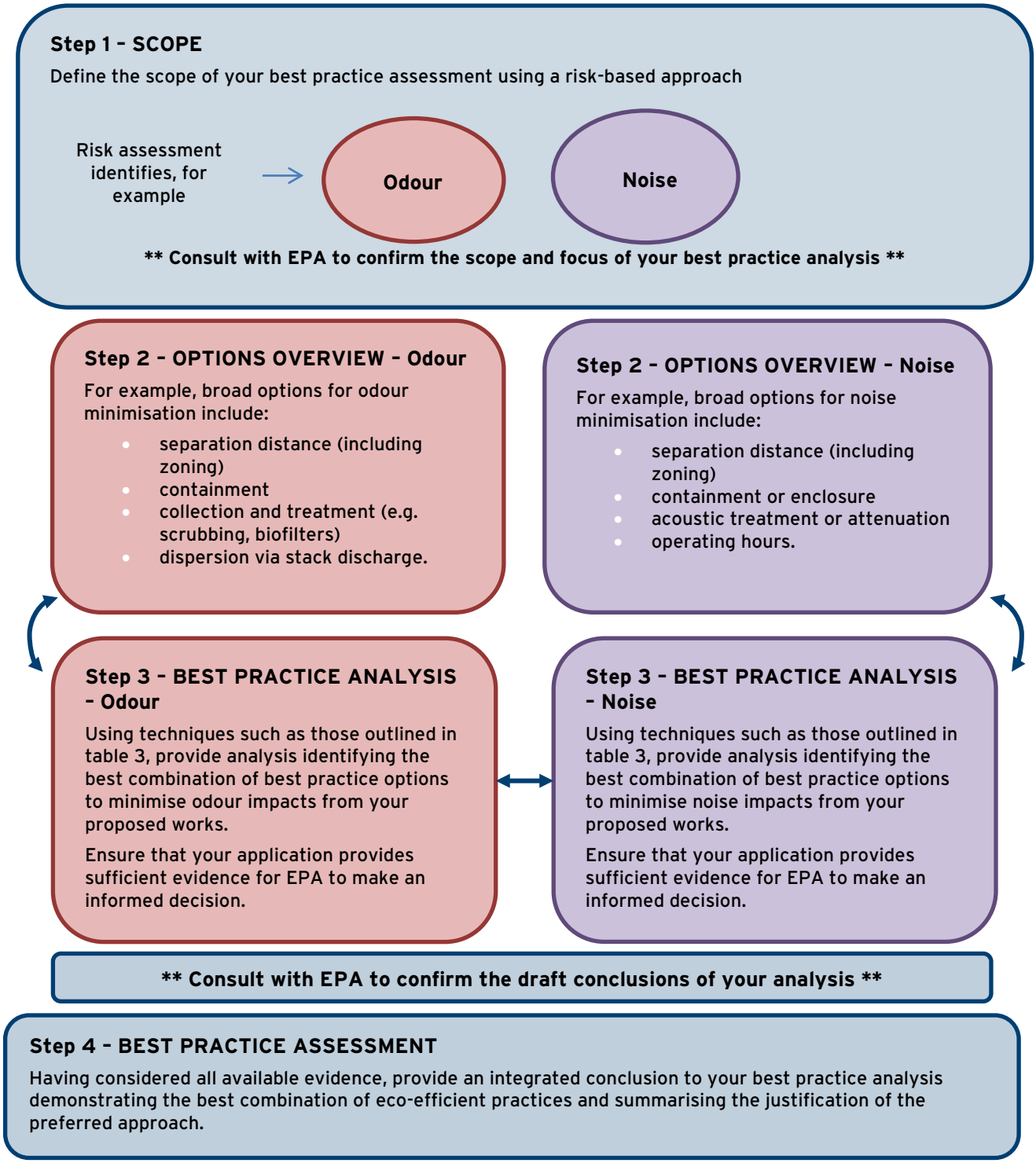
The best practice assessment part of the works approval should demonstrate how the proposal represents international best practice as applied to the Victorian environment and the proposed site in accordance with the methodology outlined in figure 1 and table 2.

Table 2. Methodology for demonstrating best practice in a works approval application

Step	Description
Step 1 **Scope**	Using a risk-based approach, define the scope of your best practice assessment, including: • a proposed definition of industry or activity • a clear identification of the boundary of the assessment in relation to (where relevant): o environmental segments and which statutory policies your best practice analysis is responding to o the site boundary, location or layout o the remainder of the process or activity that is not in the scope of the best practice assessment (particularly for existing licence holders). Having undertaken an environmental risk assessment in accordance with EPA's Works Approval Guidelines, the scope definition should include a statement explaining how your risk assessment has directed the focus of the best practice assessment. Ensure that your risk assessment considers any relevant SEPP criteria as well as a consideration of the local receiving environment when estimating the consequence of hazards. **It is strongly recommended that that you consult with EPA during this stage to:** • **confirm the scope and focus of your best practice analysis prior to developing your works approval application** • **obtain advice from EPA regarding any recent decisions relevant to your industry.**
Step 2 **Options overview**	Provide a broad summary outlining the range of options available for the proposed works (including the 'do nothing' option), and a brief indication of why they were considered or discarded on consideration of environmental performance, cost, suitability, availability or practicability. Further analysis (step 3) and an understanding of options available (step 2) are likely to form part of an iterative process. For example, while detailed analyses of site locations or technology types should be reserved for the best practice analysis, these findings may influence the breadth or types of options considered.
Step 3 **Best practice analysis**	Provide a statement or detailed analysis, in a level of detail commensurate to the priorities identified in your risk assessment, that your proposal is best practice, including: • analysis demonstrating that the total proposed residual emissions load resulting from your best practice approach meets all relevant criteria in statutory policy • evidence: o Following table 3, provide a summary of techniques or approaches used to analyse best practice, including clear reference to any detailed analyses, assessments, reports or other sources of information relied upon. o Ensure that significant decisions within the analysis are supported by a decision analysis

	based on clear criteria. o You may wish to assign a weighting to the evidence used. • appendices – detailed options analyses, assessments or reports (whether developed by the applicant or sourced externally) to be provided as appendices where available. **It is recommended that that you consult with EPA at this stage to confirm the draft conclusions of your analysis prior to submitting your works approval application.**
Step 4 **Best practice assessment**	Having considered all available evidence, provide an integrated conclusion to your best practice analysis demonstrating the best combination of eco-efficient practices and summarising the justification of the preferred approach.

Figure 1. Methodology for demonstrating best practice in a works approval application



Types of evidence

Table 3 provides an outline of suggested evidence or analysis techniques that can be used to demonstrate an assessment of best practice in your works approval application. It is difficult to specify the weighting or preference that should be given to each type of evidence or analysis, as this balance can only be determined on a case by case basis. Table 3 provides suggestions as to when each approach may be necessary, or otherwise useful or encouraged.

It is EPA's responsibility as a decision maker to weigh up the evidence and considerations in each decision. It is the responsibility of the applicant to provide EPA with sufficient evidence upon which to make a decision. Any weighting of the different types of evidence used, as proposed by the applicant, may be considered by EPA in making its decision.

Table 3. Types of evidence and analysis techniques for demonstrating best practice

Type of evidence or analysis technique	Description	When should this technique be used?
Literature review	You must refer to EPA Victoria's Best Practice Environmental Management (BPEM) Guidelines and other publications where available and relevant to your industry. Where EPA Victoria publications are not available, information from other reputable sources may be considered. For example, guidance or standards from regulators in other jurisdictions (including international) e.g. European Commission Integrated Pollution Prevention and Control Reference Documents on Best Available Techniques, United States EPA New Source Performance Standards etc. Review of available literature on practices within the sector in Australia and internationally, e.g. the Energy Efficiency Exchange. ***See case studies 1 and 2.***	It is necessary to demonstrate that the proposal will meet any relevant EPA Victoria BPEM guidelines. It is necessary to review international practice, particularly where there are no existing similar sites in Victoria.
Benchmarking	Benchmarking is a tool for analysing relevant performance indicators at your site and comparing them to the same indicators for: • similar sites or businesses in Australia or internationally, with consideration given to overall scale • theoretical 'ideal' performance • original design specifications • known 'best practice' sites or businesses. In your pre-application discussions, EPA can provide you with information on any relevant previous successful approvals. Your application will need to meet any best practice benchmarks set by recent approvals, with consideration given to any distinguishing factors such as location or distance to sensitive receptors. This is particularly relevant where odour has been identified as a risk. By establishing your performance relative to one or more of these and highlighting where possible weaknesses exist, the best practice design process can lead to an improvement in your own performance. Benchmarking can effectively help a business achieve better performance by learning from 'best-in-class' businesses. Examples of benchmarks that can be used to demonstrate best practice for environmental impact include, kilolitres of wastewater per tonne of product, energy use or water use per tonne of product. Some consideration should also be given to the overall scale of the emissions. The assessment against relevant environmental objectives will involve a consideration of the environmental burden of the proposal. It is in this section that impacts on the use of resources and any resource limitation should be identified, and the rationale for design decisions based on these consideration documented. ***See case studies 1 and 3.***	Necessary where directly comparable industry is already operational. If directly comparable industry is not operational, benchmarking from similar industries may be necessary to provide context.
Application of the wastes hierarchy	Provide an assessment of how your proposal has considered and applied the wastes hierarchy in the management of key waste streams. This may address how your proposal is applying the waste hierarchy through decisions relating to: • input materials • resource efficiency (balancing considerations of overall emissions or discharge loads with consideration of emissions or resource intensity may be useful) • process design • emissions control technology • waste management. Decisions to design a process with reliance on lower elements of the hierarchy should justify why the former are not available or practicable. ***See case study 4.***	Necessary for justification of decisions where recovery of energy, treatment, containment or disposal are the preferred options.

Type of evidence or analysis technique	Description	When should this technique be used?
Integration of economic, social and environmental considerations	Where decisions are made weighing up economic, social and environmental considerations, some detail may be necessary to support the decision. For example, for a simple application in which economic or social factors have influenced a choice that is of consequence for environmental emissions or discharges, some assessment may be required to justify the reasoning behind the choice. Where a decision has been made relating to cost, a financial analysis of the diminishing return on investment against the relevant environmental risk factor may be necessary to demonstrate to EPA that your proposed approach is the best practicable. For more complex applications, a triple bottom line assessment may be necessary to support the decision. ***See case study 5.***	Necessary to justify decisions made on the basis of cost. Encouraged for any application that weighs up two or more of these factors.
Integrated environmental assessment	There may be aspects of a proposal where further improvement in one area can lead to greater environmental impacts in another. The principle of environment protection under section 1J of the EP Act states that if approaches to managing environmental impacts on one segment of the environment have potential impacts on another segment, the best practicable environmental outcome should be sought. Identify these areas and indicate how you intend to balance the competing considerations to achieve the best net environmental outcome. ***See case study 6.***	Necessary where a decision has been made relating to the weighing up of impacts and benefits for more than one segment of the environment.

In all cases, a citation should be provided for each example, of an evidence type referenced in the application. In the case that the document is not publicly available, the applicant should provide EPA with a copy of the source, with any content deemed commercial in confidence by the applicant clearly identified.

Case studies

The following case studies demonstrate the application of the above analysis techniques and how EPA assists with the assessment of best practice during the pre-application process.

Case study 1

Victorian Best Practice Environmental Management (BPEM) standards

Before preparing a works approval application for additional landfill cells at an already licensed landfill, an applicant meets with EPA to discuss relevant regulatory requirements.

EPA confirms that **EPA's Best Practice Environmental Management** (BPEM) publication for the *Siting, Design Operation and Rehabilitation of Landfills* (Publication 788) is a current document that accurately reflects best practice standards for landfills in Victoria.

The site has historically experienced issues with leachate management, so the applicant engages a consultant to undertake a comparative **benchmarking** review of the performance of more recent installations in Victoria and other jurisdictions, and identifies performance objectives that reflect the best available technology that is practicable for the site.

The applicant requests to meet with EPA to confirm the approach before submitting a works approval application.

Case study 2

Demonstrated and available practice to meet standards set in other jurisdictions

Thermal treatment is used to treat various wastes including medical waste and contaminated soil. Projects involving thermal oxidation such as incineration, thermal desorption, pyrolysis, gasification and plasma processes generate **air emissions** of class 1, 2 and 3 indicators (such as particles, acid gases and dioxins respectively). SEPP (AQM) requires best practice emission control for all emissions and 'maximum extent achievable' control for class 3 indicators.

Before preparing a works approval application for an incineration facility, the applicant meets with EPA to discuss relevant regulatory requirements. Prior to meeting with EPA, the applicant conducts a preliminary **literature review** that identifies a number of international standards for waste incineration and finds no apparent Victorian standards specific to the sector. EPA clarifies that best practice requires going beyond meeting minimum requirements such as design ground level concentrations specified in SEPP (AQM), and requires consideration of any relevant **international measures or practices** that are reasonably available and achievable in Australia under local operating conditions.

EPA advises that recent works approval applications involving thermal oxidation have met the Directive 2000/76/EC of the European Parliament and of the Council of 4 December 2000 on the incineration of waste ('EU Directive'), which has been approved by EPA as representing best practice (and 'maximum extent achievable' for class 3 indicators). The EU Directive provides details of wastes to be treated, emission concentration limits, as well as guidance on residence time, temperature and monitoring. This is a standard that is recognised in a number of jurisdictions as an achievable standard. It is a standard that has been met in Victoria by previous applicants. It is therefore adopted as a measure of best practice in Victoria.

The applicant submits a works approval application with a best practice assessment demonstrating how the proposed air emission controls will comply with SEPP (AQM) and the EU Directive.

Case study 3

Going beyond benchmarks set by recent approvals to address site-specific considerations

The emerging practice of sewer mining is resulting in a growing number of proposals for tertiary, mechanical sewage treatment plants (STPs) that are closer to residential areas than are traditional lagoon-based large-scale centralised STPs. STPs can be **odourous** and sewer mining STPs are typically established to provide a source of **recycled water for local re-use**.

Best practice odour controls for sewer mining projects that are near residential areas include designing smaller footprint aerobic treatment, containment of the treatment process within a building or underground to reduce noise and emission exposure, collection of foul air at odour source, treatment with scrubbers and adsorbents prior to discharge, and better air dispersion. These controls are necessary to protect the amenity of residents with the typically reduced buffer available.

Before preparing a works approval application for a sewer mining STP, the applicant meets with EPA.

EPA identifies a series of **recent successful works approval applications** for similar sewer mining projects. These recent applications have established a **precedent or 'track record'** of best practice that the applicant should use as a **benchmark**. If the proposed site location is closer to residential areas than the previous works approvals, the applicant will need to give **further site-specific consideration** to ensuring that local residential amenity is protected.

The applicant submits a works approval application with a best practice assessment demonstrating that the overall STP design meets the best practice benchmark set by previous applications, and has been optimised to protect residential amenity at the proposed site location, while meeting recycled water quality standards for the proposed end use.

Case study 4

Considering practicability in applying the waste hierarchy

Prior to preparing a works approval application, an applicant for a storage and tanker loading facility handling bitumen at 150ºC meets with EPA to confirm the scope and direction of the works approval application. Management of odorous emissions generated during tanker filling is identified as a key risk.

The applicant's assessment of options identifies that best practice for handling tanker filling emissions is 'vapour balancing technology', where emissions can be **avoided** by use of tanker vapour recovery systems. Tanker vapour recovery displaces vapour between the tanker and the bulk storage tank during the transfer of liquids, returning vapour to the tank. EPA advises that this approach has been approved as best practice for previous bulk storage and tanker loading applications involving volatile chemicals and fuels. Another option for the applicant is odour emissions collection and ducting to an existing thermal oxidiser on the site.

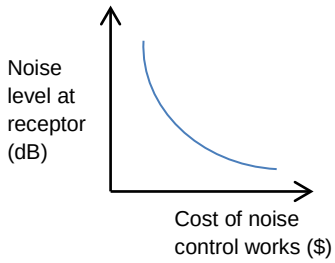
The waste hierarchy states that wastes should be managed in accordance with the following order of preference: avoidance, re-use, re-cycling, recovery of energy, treatment, containment and disposal. Some **analysis against the waste hierarchy** is necessary for justification of decisions where the proposed approach relies on measures that are at the lower end of the hierarchy. Vapour balancing is higher on the waste hierarchy than alternatives such as the **treatment and disposal** approach where, instead of being displaced, vapour is collected to a treatment device. Both options meet the quantified limits set in SEPP (AQM).

The applicant **undertakes trials** of its bitumen tanker fleet with vapour balancing technology and finds that it is not successful. The applicant provides an analysis in its works approval application, providing a justification as to why the best practice option is **not available** for its proposed operation. EPA accepts this approach as compliant with best practice under SEPP (AQM).

Case study 5

Integration of economic, social and environmental considerations

Minimising the impact of noise on **nearby residents** ('sensitive receptors') can be addressed in a number of ways. Consideration should be given to all available options (and combinations thereof), including control of separation distances, noise containment or enclosure, acoustic treatment or attenuation, and control of operating hours.



One common example of noise containment and attenuation is the installation of acoustic insulation. The relationship between the thickness of insulation and the resulting noise attenuation is not linear. That is to say, applying thicker insulation has **diminishing returns** in noise reduction.

An applicant is submitting a works approval application for a co-generation plant where noise impacts have been identified as a risk. The application provides an analysis of all available techniques to minimise off-site noise impacts. The application demonstrates that the combination of the proposed separation distance and proposed operating hours will result in residual noise levels that can be managed with acoustic insulation.

The applicant submits a works approval application proposing a level of acoustic insulation that is **based on an analysis of nearby businesses and residents, as well as an analysis of diminishing returns.**

Case study 6

Integrated environmental assessment

The principle of integrated environmental management (EP Act, section 1J) states that if approaches to managing environmental impacts on one segment of the environment have potential impacts on another segment, the best practicable environmental outcome should be sought. Works approval applicants are likely to be faced with such scenarios. For example, extra aeration at a wastewater treatment plant may produce better water quality, but use more energy. Additional gas scrubbing at a chemical works may produce cleaner air emissions, but may create more wastewater.

An applicant for a chemical works is preparing a works approval application. The design options include a range of possible treatments of air pollution technologies such as biofilter, carbon bed, regenerable carbon beds, stack dispersion, incinerator, regenerable thermal oxidiser and chemical scrubbers etc. All options can achieve low ground level concentrations to meet SEPP (AQM), and the applicant needs to undertake analysis to identify which is best practice for this particular application.

In this case, analysis of best practice air emissions should give consideration to the proposal's cumulative impact on the local air shed (including any requirements such as Air Quality Control Regions), health impacts on the region, and the possibility of standards increasing in the future due to the increased load on the local environment. On the other hand, additional air treatment may result in increased energy use, increased waste generation and increased costs (both capital and operating). The applicant's best practice analysis should provide a comparison of the risks and benefits, presented against decision making criteria. Further, applying discounted cash flow techniques enables the net present value of the options to be compared. Adding an additional treatment steps over and above those that are required to meet SEPP (AQM) criteria, but may increase capital and operating costs, which needs to be considered by the proponent in the context of the proposal's impact on the local air shed.

A best practice analysis needs to provide sufficient evidence weighing up these factors. In some cases, local air quality concerns may prevail, with associated high energy use, waste generation and cost impacts. In other cases, a lower cost approach may be deemed acceptable, however this would only be the case if risk assessment shows that human health is still protected.

How can EPA help?

Before preparing your application, contact EPA to:

- confirm that you require a works approval
- arrange a pre-application meeting to clarify information requirements and scope of your application.

**If you have any questions at any stage of the works approval process,
please contact EPA on 1300 EPA VIC (1300 372 842)
or visit EPA's website www.epa.vic.gov.au.**