
POLICY IMPACT ASSESSMENT

WASTE MANAGEMENT POLICY
(SITING, DESIGN AND
MANAGEMENT OF LANDFILLS)

Policy Impact Assessment

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(SITING, DESIGN AND MANAGEMENT OF LANDFILLS)

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FOREWORD

Over the past decade, community attitudes towards waste have changed from a culture of waste disposal to strong support for waste avoidance, reuse and recycling. The community expects companies to manage the wastes they generate.

Industry perceptions have also changed and we are increasingly seeing cleaner production, reuse and recycling programs adopted. The focus of waste management has changed from provision of waste disposal facilities to systems and facilities that recover resources and reduce the amount of waste generated.

Pursuing waste avoidance and recycling rather than filling up our landfills is an important way of contributing to a more sustainable Victoria. Using our resources more efficiently conserves natural resources like the energy, water and raw materials we use to produce the goods and services we consume. Therefore there is growing community expectation that we will reduce our reliance on landfills for the disposal of waste. Inevitably some wastes cannot currently be viably removed from the waste stream. However, use of landfills is a last resort and needs to be carried out in a way that protects the environment and the community.

The *Waste Management Policy (Siting, Design and Management of Landfills)* encourages minimisation of the development and use of landfills and diversion of waste materials for reuse or recycling instead of disposal. The policy also promotes improvement in the way we site, design and manage landfills, to ensure residual waste is managed in a way that protects the environment and human health.

This Policy Impact Assessment (PIA) provides an explanation of the policy, the rationale for its provisions, the key impacts of adopting the policy and a discussion of the alternatives to the policy. The policy reflects broad community, industry and government expectations of the siting, design and management of landfills in Victoria.

MICK BOURKE
CHAIRMAN

EXECUTIVE SUMMARY

The State Environment Protection Policy (Siting and Management of Landfills Receiving Municipal Wastes) (the SEPP) was declared on 1 July 1991. While a great deal has been achieved over the last decade in terms of the adoption and implementation of the wastes hierarchy and increases in recycling, it is recognised that more needs to be done. In particular, improved planning, siting, design and management of landfills is necessary so that potential adverse effects to the environment, such as contamination of surface waters and groundwater and potential health and amenity impacts on the community, can be avoided.

The SEPP needed to be updated to reflect improved scientific and technical information, changing community values, institutional arrangements and to provide a statutory framework for the next 10 years that helps drive more efficient use of our resources.

In June 2002, the *Environment Protection Act 1970* was amended to introduce waste management policies that provide the strategic statutory framework within which waste management activities must operate. As the management of landfills clearly falls within the ambit of a waste management policy, EPA Victoria developed the *Waste Management Policy (Siting, Design and Management of Landfills)* (the WMP). This replaces the SEPP.

The policy applies to all landfill sites in Victoria that accept non-prescribed wastes and/or Category C prescribed industrial waste. Victoria already has a framework in place to manage prescribed wastes through the *Industrial Waste Management Policy (Prescribed Industrial Waste)*.

The WMP recognises that landfills serve an important function for the community in the management of wastes that cannot currently be viably removed from the waste stream. To minimise environmental and social risks, the policy provides a statutory basis for environmental protection and ensures that best-practice standards at any point in time are applied to the siting, design and management of landfills. It is intended that, in the interests of intergenerational equity, present-day landfills should not leave an environmental legacy for future generations to address.

The WMP outlines the responsibilities of all stakeholders in the management of wastes in Victoria, including industry, municipal councils, regional waste management groups, EcoRecycle, EPA Victoria and the community. Clear definition of the roles of key stakeholders helps to strengthen the links between strategies, plans and programs that affect existing or proposed landfill sites and help ensure the highest possible level of protection of the environment and the community.

The policy also places a greater emphasis on management options higher up the wastes hierarchy. In particular, the policy reinforces that landfills are the least preferred waste management option and therefore their development and use should be kept to a minimum.

The WMP is designed to achieve significant reductions in the amount and types of waste currently disposed of to landfill through the promotion of waste minimisation and the development of resource recovery infrastructure.

This will encourage market opportunities for recycling, and economic benefits through the separation and collection of recyclable products. The construction of a landfill comes at a cost and decreasing the amount of waste disposed to landfill will conserve valuable landfill space and extend the life of a landfill's capacity.

LIST OF ACRONYMS

BPEM	Best-practice environmental management
EIP	Environment improvement plan
EPA Victoria	Environment Protection Authority Victoria
GEM	Guideline for Environmental Management
NEPM	National Environment Protection Measure
PEM	Protocol for Environmental Management
PIA	Policy impact assessment
RWMG	Regional waste management group
RWMP	Regional waste management plan
SEPP	State environment protection policy
SIWMP	Solid industrial waste management plan
WMP	Waste management policy

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WASTE MANAGEMENT POLICY (SITING, DESIGN AND MANAGEMENT OF LANDFILLS)

1 INTRODUCTION

Victoria's approach to waste management has significantly improved resource efficiency during the last decade. The implementation of the wastes hierarchy has contributed to the diversion of a significant amount of material from landfills. Recycling of household packaging wastes is at a high level and progress is being made on demolition and green wastes. Waste avoidance, reuse and recycling minimises the need for the use of landfills for waste disposal.

Nevertheless, landfills continue to serve a key function in the waste management system. Whilst they represent the least preferred option in the wastes hierarchy, they will continue to be required for the foreseeable future to manage wastes that cannot currently be viably removed from the waste stream.

Landfills remain a significant concern for the community. The potential impacts associated with landfill operations include adverse impacts on groundwater and surface waters, litter, dust, odour, noise and vermin problems. To minimise or eliminate these impacts on the environment and the community and provide the highest possible level of protection, continuous improvement in siting, design and management of landfills must be adopted. Landfill management begins with construction and continues through all phases of operation, rehabilitation and after-care.

This policy impact assessment (PIA) provides an explanation of the contents of the WMP, the rationale for its provisions and the key impacts of its adoption. It identifies key alternatives considered during the development of the policy, incorporates a

description of the policy development process and outlines the consultation process undertaken on the draft policy.

1.1 Waste management agencies

Effective waste management involves more than just collecting discarded material and depositing it in landfill. It also involves:

- fostering practices which avoid waste or lead to the generation of less waste
- encouraging recycling of discarded material
- developing sustainable markets for recyclables
- educating consumers and waste generators
- working with industry to modify practices to ensure best-practice standards are met.

The key government agencies responsible for waste management in Victoria are: EPA Victoria (EPA), local government, regional waste management groups (RWMGs) and EcoRecycle Victoria.

1.1.1 EPA Victoria

Victoria's approach to environment protection and its environmental management systems and practices are underpinned by the provisions of the *Environment Protection Act 1970* (the Act). The Act establishes the Environment Protection Authority (the Authority) and defines its powers, duties and functions. The Act's provisions include statutory powers, instruments and measures to:

- manage environmental quality
- establish environmental standards and criteria
- regulate emissions, discharges and wastes
- prevent and clean up pollution

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- impose and enforce environmental requirements.

EPA is responsible for State-wide policy development, regulation, licensing and enforcement. Some of the most important instruments for environmental management include State environment protection policies, waste management policies, regulations, works approvals, licences and pollution abatement notices.

1.1.2 Local government

An important role performed by local government in waste management is the planning for and delivery of waste management services that meet the needs of the municipality. The *Local Government Act 1989* sets out the responsibilities of local government for waste disposal. It also requires municipal strategic statements and municipal corporate plans to provide a strategic framework for local government activities, including waste management. The *Planning and Environment Act 1987* is the principal legislative vehicle for determining land use on a strategic basis, including use for waste management purposes.

1.1.3 Regional waste management groups (RWMGs)

RWMGs are established through the provisions of the Act and facilitate and foster best practice in waste management within a defined area of Victoria. RWMGs, in partnership with their member councils, develop regional plans to give effect to State-wide policies and strategies and local programs.

Victoria has 16 RWMGs that plan for the management of municipal waste in their region and facilitate best practice. They are: Western; Eastern;

South Eastern; Northern; Mornington Peninsula; North East; Grampians; Central Murray; Mildura; South Western; Goulburn Valley; Gippsland; Barwon; Highlands; Desert Fringe; and Calder.

1.1.4 EcoRecycle Victoria

EcoRecycle Victoria (EcoRecycle) is a statutory body established under the Act and is responsible for facilitating the achievement of Victoria's waste reduction objectives. They play an important role in providing information and advice to business, government and the community about waste reduction and improving materials efficiency.

EcoRecycle also develops State-wide strategies and programs to minimise the creation of waste, promote the sustainable use of resources, better manage the disposal of materials and assist in the implementation of policy. EcoRecycle is currently finalising a solid waste strategy that will provide measures for the minimisation and management of municipal and solid industrial waste in Victoria. This strategy will assist in the implementation of the policy, identify priority waste streams and infrastructure needs and drive the key programs of EcoRecycle and RWMGs.

EcoRecycle has a specific, State-wide role in the planning of commercial and industrial waste streams and is required under the Act to prepare a draft Solid Industrial Waste Management Plan (SIWMP). The plan will identify specific needs for reducing solid industrial waste in Victoria. This complements the key role of RWMGs in the planning and management of municipal waste streams.

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1.2 What is a waste management policy?

Waste management policies establish a statutory policy framework for protecting the environment and reflect the aspirations of the Victorian community for the protection of their environment. These policies are used to establish consistent State-wide goals and directions for waste management. They can cover the generation, use, storage, treatment, transport, handling, disposal, recycling, recovery, reclamation and reuse of waste.

These policies are developed through an extensive public process and include an analysis of social, environmental and economic considerations. There are many opportunities for interested stakeholders to influence the policy framework. The public process is very powerful in that it is able to engender ownership and commitment by stakeholders to the policy direction agreed during the process.

Waste management policies are statutory instruments that must be followed by EPA and other government agencies in developing and implementing their own strategies, plans and programs, and must be complied with by all individuals and organisations, both public and private, in Victoria.

These policies provide the management approach and technical basis for the application of works approvals and licences and other statutory measures to manage the environment. The application of these instruments and measures must always be consistent with the requirements of policy.

1.3 The previous landfill policy

The State Environment Protection Policy (Siting and Management of Landfills Receiving Municipal Wastes) (the SEPP, 1991 SEPP) was declared on 1 July 1991. A history of inappropriate siting and poor management practices led to increasing community concern about landfills. While municipal councils and private operators responded to particular concerns, a comprehensive policy was required to ensure that all landfills in Victoria meet specific standards.

The SEPP objectives include the protection of groundwater and surface waters, control of offsite effects on the environment and the community, and promotion of waste minimisation and resource recovery. The SEPP established environmental quality indicators and objectives and an attainment program for the siting and management of landfills to protect designated beneficial uses.

The SEPP provided a framework for the siting, management and rehabilitation of landfills in Victoria. The SEPP set the direction for minimum operating and rehabilitation standards and contributed to the awareness of stakeholders of the potential adverse impacts of landfills on the surrounding community and environment. The policy also influenced the way in which the landfill industry viewed waste management and the importance of waste minimisation and resource recovery programs.

While the SEPP played a significant role in improving landfill practices, standards have progressed since 1991. The SEPP therefore no longer reflected current best-practice approaches to environmental management and rehabilitation of landfills.

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1.4 Why an updated policy for landfills?

A landfill policy should reflect the community's expectations and aspirations for the protection of the environment, including the amenity of its local communities. It also needs to reflect improvements in scientific and technical information and developments in institutional arrangements, such as RWMGs. Such a policy should be delivered through the joint efforts of government agencies, industry and the community.

Waste management in 2004 is considerably different from that of 1991. Today there is a greater emphasis on waste minimisation, cleaner production, best practice, recycling, kerbside recycling and collection, and transfer stations. These developments are not adequately addressed in the previous landfill policy.

The provisions of the landfill SEPP were generally accepted as standard business practice for the design and management of landfills. However, many requirements of the SEPP were not as advanced as current best-practice techniques for the environmental management and rehabilitation of landfills. In October 2001, EPA released the *Best Practice Environmental Management for the Siting, Design, Operation and Rehabilitation of Landfills* (BPEM) (EPA Publication 788). The development of this guideline involved extensive public consultation and represents current thinking in best-practice landfill design and management. EPA has encouraged the incorporation of current best-practice measures, as set out in the BPEM, into the operation of landfills through works approval and licence conditions.

Victoria's approach to waste management has evolved since the SEPP came into force. Significant changes to collection infrastructure have occurred and private sector contractors now largely undertake municipal waste management.

Since 1990 the number of licensed landfills has reduced by more than 60 per cent¹. A large number of small municipally owned local landfill facilities have given way to a smaller number of larger, licensed facilities, a high proportion of which are privately owned. This trend is likely to continue. There has been a parallel trend towards establishing 'transfer stations' that provide the convenience of small local landfills without acting as permanent disposal facilities for waste. Transfer stations allow materials to be sorted for reuse and recycling before the remaining material is disposed of in a licensed landfill.

A key institutional development has been the establishment of RWMGs and regional waste management plans (RWMPs) under the Act in 1994. A significant requirement of a RWMP is that it must identify the landfill site options within a region, evaluate the merits of alternative options and establish a filling sequence. The current system of regional waste management planning introduced a mandatory requirement for systematic evaluation of landfill site options, which was not reflected in the SEPP. The landfill SEPP did not reflect the current structure and responsibilities of the RWMGs or the RWMPs.

The SEPP has been replaced with the *Waste Management Policy (Siting, Design and Management of Landfills)*. Overall, the WMP

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provides a mechanism for continuous improvement and the adoption of best practice by those responsible for the siting, design and management of landfills. This will enable the protection of the community and the environment from potential adverse impacts arising from waste going to landfill.

1.5 Policy development process

Before preparing the WMP, EPA considered a range of possible policy options. These options were evaluated according to their ability to achieve the desired outcome of an effective and robust framework of environment protection based on:

- protection of the environment, both human and physical, from the potential effects of landfill operations
- promotion of the wastes hierarchy and adoption of best practice by all stakeholders to continue the diversion of waste from landfill.

Three key possible approaches considered were:

- Option 1: do nothing and allow the SEPP to continue in its current form
- Option 2: revoke the SEPP and not replace it
- Option 3: update the policy.

The possible implications of each option are discussed in Chapter 3 and summarised in Chapter 5.

EPA determined to update the policy by developing a WMP to address the changes during the last decade. The WMP provides an improved strategic policy framework tailored to address scientific, institutional, industry and community expectations

¹ In 1990 there were 251 licensed landfills operating in Victoria compared to 92 in 2004: EPA Victoria.

and meet Victoria's needs for at least the next decade.

In accordance with the requirements of the Act, the WMP development process was transparent and public from its inception. EPA aimed to ensure active involvement of all affected stakeholders in the development of, and comment on, the draft WMP and PIA and in their finalisation.

There were five phases to the WMP development:

Phase 1 – Pre-consultation

This involved targeted consultation with representatives from key stakeholder groups such as EcoRecycle, Municipal Association of Victoria, Victorian Local Governance Association, Victorian Waste Management Association, Association of Victorian Regional Waste Management Groups, Landfill Victoria and Environment Victoria. They were informed that a draft WMP was being developed, and of the intent of the draft WMP, the possible tools and mechanisms to achieve the intent and key steps involved in the policy development process.

In response to stakeholder suggestions, EPA developed a consultation plan to clearly outline and communicate the policy consultation process. A copy of this plan is included at the end of this document (Appendix B).

Phase 2 – draft WMP release

The draft WMP and draft PIA were released in November 2003 for public comment. Both documents were available on EPA's website and hard copies were available from the EPA Information Centre.

Letters advising stakeholders that the draft WMP was available for comment were distributed to local

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government, regional waste management groups (RWMGs), government agencies, landfill operators, industry associations, non-government organisations, community groups and those who registered their interest.

Notification of the draft WMP release and call for submissions was printed in major and regional newspapers across the State. Articles were also placed in stakeholder group newsletters to ensure that a range of stakeholders were made aware of their opportunity to comment on the draft WMP.

Phase 3 – Four-month public comment period

Consultation was undertaken during this period to give communities, industries and government agencies the opportunity to discuss and seek clarification on any issues before making a submission. Consultation included briefing sessions, workshops, meetings and one-on-one discussions. In total, 17 briefing and workshop sessions were conducted, including 10 in regional Victoria.

The formal period for public comment closed on 2 April 2004, enabling just over a four-month public comment period. This period was longer than the statutory minimum required under the Act. Time extensions were given to some organisations to make their submissions.

Phase 4 – WMP's finalisation

A total of 35 formal submissions on the draft WMP were received. These submissions, together with the informal comments made throughout the consultation process, have been taken into account in the WMP finalisation.

All public comments received on the draft WMP and PIA were considered. A written summary of public comments and responses to those comments was prepared and distributed to all individuals and organisations that submitted comments. Following the consideration of public comment, final revisions of the WMP and PIA were produced.

EPA then recommended the WMP to the Government for adoption through the processes outlined in the *Environment Protection Act 1970*. The WMP now replaces the SEPP.

1.6 Policy impact assessment

A policy impact assessment (PIA) is required for each new policy. PIAs provide information on the need to develop or vary statutory policy, the nature and meaning of policy proposals and their practical impacts and implications. In particular, PIAs explain the intended means of implementing new or varied policy and the likely environmental, social and economic impacts of implementation. The PIA is also the medium by which the process of the policy development is clearly outlined for the Victorian community, including seeking and considering public comments.

The information in this PIA is provided to assist those who are interested in the policy to understand and evaluate the possible implications of policy. The final version of the PIA was produced after public comments were evaluated and any changes considered necessary made to the policy.

The PIA contains the following sections:

- Information on the waste stream and landfills in Victoria (Chapter 2)

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- A discussion of the policy options considered and their impacts (Chapter 3)
- A discussion of the policy and its impacts (Chapter 4)
- A summary of the impacts of the policy and alternative policy options (Chapter 5)
- A Guideline for Environmental Management – Landfills Exempt from Licensing – Preliminary Outline for Comment (Appendix A)
- The consultation plan – *Waste Management Policy (Siting, Design and Management of Landfills)* (Appendix B).

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2 THE WASTE STREAM AND LANDFILLS IN VICTORIA

2.1 Waste minimisation

Ninety-two per cent of Victorians consider that it is important to reduce the amount of waste going to landfill². The Victorian community wants the amount of waste generated to be reduced and supports ongoing improvements to recycling.

The most effective step towards waste minimisation is to produce less waste in the first place. The next step is to reuse and recycle as much material as is economically sustainable and in a way that provides the best environmental outcome. After that, materials may be used for the recovery of energy, treated to reduce potential risks or contained until such time as an alternative waste management option becomes viable.

2.2 Waste to landfill

The majority of household waste, street litter and waste from parks and gardens is collected through services provided directly by municipal councils or by contractors engaged by the councils. Commercial and industrial waste, and a small proportion of household waste, is collected by private-sector organisations engaged on a commercial basis.

In 2002–03, approximately 4.2 million tonnes of solid, non-prescribed waste was received at licensed landfills in Victoria (excluding material used for cover). In 1992 the landfill levy was introduced in Victoria and applied to metropolitan Melbourne, Ballarat, Bendigo, Geelong and

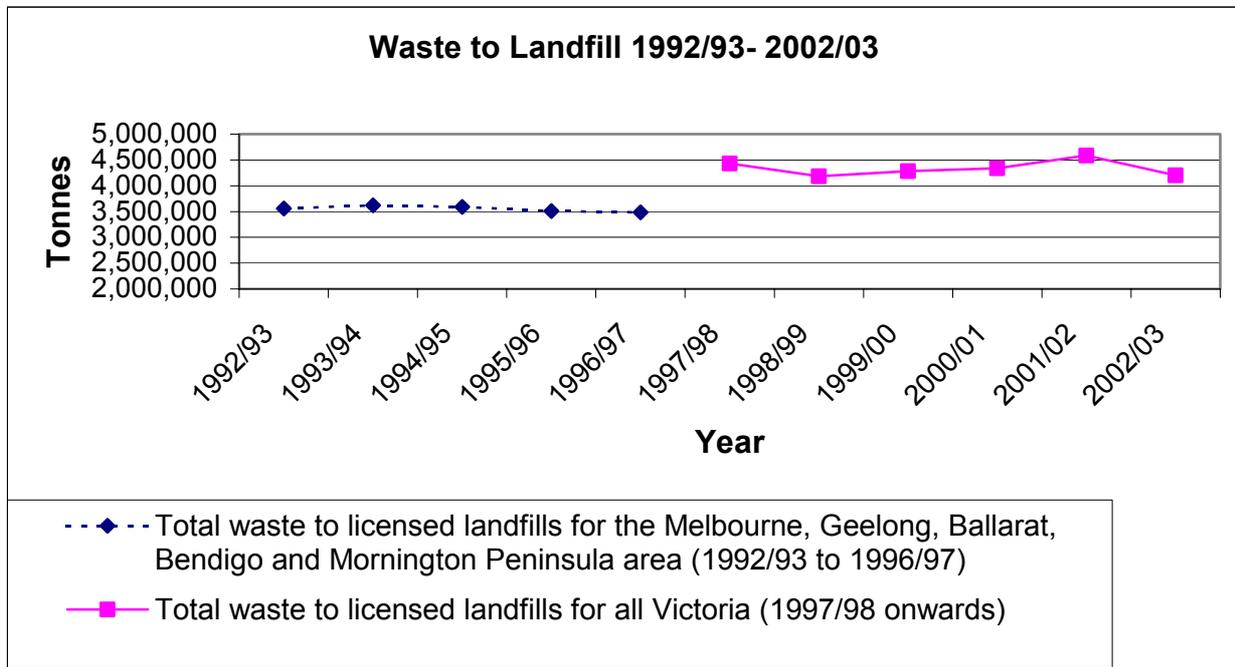
Mornington Peninsula landfills. In 1997–98 the landfill levy was extended to all licensed landfills throughout Victoria. This accounts for the apparent increase in waste to landfill in 1997–98 seen in Figure 1.

The volume of waste sent to landfill varies as a result of changes in population and economic activity. Waste volumes at licensed landfills have also increased, particularly during the last five years, as a result of the progressive closure of small (unlicensed) landfills and the movement of waste to regional landfills.

² EcoRecycle Victoria 2001 “Public Views Victoria: Community Attitudes to Waste and Recycling Summary Report”

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Figure 1



It is estimated that the waste going to landfill is comprised of 36 per cent municipal waste, 24 per cent commercial and industrial waste and 40 per cent construction and demolition waste. The top six waste streams sent to landfill, which represent over 70 per cent of waste, are fill material, food, timber, concrete/bricks, paper/cardboard and green waste³.

2.3 Recycling

A key waste management function of municipal councils throughout Victoria is the provision of kerbside collection services. For the majority of councils, this involves providing recycling services for materials such as glass, paper, plastics, green waste and hard waste such as furniture, and collecting garbage and depositing it directly to

landfill. Councils also have responsibility for collecting litter from streets and parks within their municipalities⁴.

Increasingly, councils and landfill operators run resource recovery and waste transfer facilities that provide collection points for material recovery and recycling, and local drop-off facilities. These facilities provide an economic transportation arrangement for waste destined for landfill and allow for the separation and processing of waste for reuse.

Since 1996, EcoRecycle has provided funding support of \$18 million for over 239 projects to develop comprehensive facilities to collect, sort,

³ Nolan ITU report for EcoRecycle Victoria *Solid Industrial Waste Management Plan Data Report*, 2002.

⁴ In the case of state highways and state-managed parks and reserves, the responsibility rests with other bodies.

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treat and dispose of residuals, and implement best-practice transfer station and landfill design and operation. For the 2003–04 Towards Zero Waste Infrastructure Support Program an allocation of \$5,000,000 has been provided to fund 59 approved projects over the 2003–04 to 2004–05 grant periods.

The annual survey of Victorian recycling industries for 2002–03 indicated that a total of 4,430,263 tonnes of material was recovered and diverted from landfill, which represents a 51 per cent recovery rate.⁵

Research undertaken so far illustrates that current recycling practices are having a significant impact on the waste stream, particularly paper, glass and plastic. The drive to recycle has received strong community support and significant progress has been made. The community in general has become far more waste-conscious and recycling rates have increased significantly.

It is important that EPA, EcoRecycle, municipal councils, RWMGs, industry and the community build on this success and continue to work in partnership to achieve greater resource recovery.

2.4 What are landfills?

The International Solid Waste Association (ISWA) has described a landfill as ‘the engineered deposit of waste onto and into land in such a way that pollution or harm to the environment is prevented and through restoration, land provided which may be used for another purpose’⁶.

⁵ EcoRecycle Victoria 2004 Annual Survey of Victorian Recycling Industries 2002/2003

⁶ Westlake K, 1997, ‘Sustainable Landfill – Possibility or Pipe Dream?’ *Waste Management & Research* 15, 453–461

Landfill siting, design and management has evolved and improved over the last decade. Landfills currently form an essential part of Victoria’s integrated waste management system for the safe management of waste.

Many landfills are sited in former extractive industry operations, such as quarry sites, and therefore have the benefit of rehabilitating an existing hole.

Common after-use options for landfills include sports grounds, public open space and golf courses.

Landfill siting should involve selecting the most appropriate site that minimises the potential for adverse impacts on the community and environment. The design of a landfill must be able to ensure the protection of the environment, for example preventing contamination of groundwater by leachate. The management of a landfill includes all phases of the landfill’s construction, operation, rehabilitation and ongoing after-care of the site.

Awareness of the issues related to the management of wastes, together with growing concerns over the environmental effects of waste disposal, have led to significant development in scientific and technical information and community expectations.

2.5 Why do we need landfills?

‘Waste’ in broad terms refers to material which has been discarded. It can be solid, liquid or gaseous and, in some cases, can be harmful to humans and/or the environment. The way in which waste needs to be managed depends to a large extent on the nature of the material.

The WMP deals with solid, non-prescribed materials generated from such sources as households, street litter, municipal parks and gardens, and commerce

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and industry, including the demolition, building and construction industries.

Waste reduction programs, recycling and composting all play a significant role in reducing the amount of waste going to landfill. Nevertheless, as long as landfills are required to dispose of those wastes that cannot be removed from the waste stream, they must be managed to best-practice standards at any point in time, to ensure the highest level of social and environmental protection.

2.6 What are the types of landfills in Victoria?

Landfills are classified according to the wastes that they can accept and the number of people served by the landfill. EPA classifies the types of wastes as:

- fill material, e.g. soil

- solid inert, e.g. demolition material
- putrescible, e.g. domestic garbage
- Category C prescribed industrial waste, e.g. low-level contaminated soil or food processing waste.

The WMP does not deal with prescribed wastes, except for Category C prescribed industrial waste, as these are managed under the *Industrial Waste Management Policy (Prescribed Industrial Waste)*.

The classification of facilities can be seen in Table 1. Type 1 is defined in the *Industrial Waste Management Policy (Prescribed Industrial Waste)* as a 'prescribed industrial waste containment facility'. Since the WMP does not deal with such wastes or facilities, Type 1 facilities are not included in Table 1.

Table 1: Classification of facilities

Type	Waste accepted	Description
2	<ul style="list-style-type: none"> • Putrescible waste, solid inert waste and fill material. • Specifically licensed Category C prescribed industrial waste. 	<ul style="list-style-type: none"> • Reflects best available technology for landfill siting, design, construction, operation, maintenance and after-care. • Operated in accordance with an appropriate management system that ensures adequate supervision, control on waste receipt, safe handling, record keeping and placement of prescribed waste in accordance with requirements of that waste.
3	<ul style="list-style-type: none"> • Solid inert waste, fill material. 	<ul style="list-style-type: none"> • Reflects commonly available technology in siting, design, construction, operation, maintenance and after-care.

All landfill operations must comply with the Act, its regulations and relevant policies. The *Environment Protection (Scheduled Premises and Exemption) Regulations 1996* state that landfill facilities serving a population of 500 or more people require a works approval, which must be obtained before a landfill can be constructed. Landfills serving a population of

5000 people or more are also subject to licensing provisions.

During the 10 years since the landfill SEPP was established, the system of RWMGs has been extended State-wide and RWMPs have been developed by all regions and approved by EPA. One of the objectives of the plans is to progressively

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reduce the number of poorly located and difficult-to-manage, small (unlicensed) landfills, and replace these with a system of resource recovery and waste transfer facilities to service local communities. These facilities will feed wastes into a smaller number of well-designed and operated, licensed regional landfills. With the assistance of State funding from EcoRecycle, considerable progress has been made in putting this strategy into place.

EPA currently licenses 92 landfills throughout Victoria. Two are able to accept a broad range of prescribed wastes, while 30 are licensed to receive materials including putrescible prescribed industrial waste such as food processing wastes, asbestos (after appropriate packaging to avoid the release of fibres) and low-level contaminated soil. The remaining landfills are only licensed to receive putrescible and/or solid inert waste.

2.7 What are the potential impacts associated with landfills?

Landfills can cause a range of social and environmental impacts if not properly sited, managed and rehabilitated. Such impacts can lead to the localised loss of amenity due to litter, dust, odour, noise and vermin problems. To avoid or minimise these impacts, daily cover of the waste is necessary to abate odour, rodents and birds, and to decrease site litter. Waste is compacted to minimise voids that encourage vermin and fire, and also to save valuable landfill space.

Other potential impacts include the uncontrolled production and release of greenhouse gases and migration of combustible gases that may, in some circumstances, result in fires. Landfill gas is produced

when solid wastes decompose. The quantity and composition of gas depends on the types of waste that are decomposing. Landfill gas is made up of approximately 55 per cent methane (which has a high global warming potential) and 45 per cent carbon dioxide, and can be recovered for its energy content. Recovery of landfill methane and its conversion to electricity is becoming increasingly common. Landfill gas energy recovery facilities make a positive contribution to the community by collecting an otherwise wasted energy resource and providing energy back to the community in various forms, as well as reducing greenhouse gas emissions.

Contamination of soils, groundwater and aquifers by leaching of organic and inorganic pollutants is another potential impact of landfills. If not properly designed and managed, landfills have the potential to cause significant groundwater and surface water damage, both during operation and after closure. To eliminate or minimise such impacts, effective mechanisms such as liner and leachate collection systems and ongoing monitoring programs are used.

In many cases the true costs of poor landfill practices to the environment and the community are not borne by those who produce or dispose of the waste. Rather, they leave an environmental legacy for future generations to address. For instance, in 1999 the City of Yarra spent one million dollars rehabilitating contamination in Edinburgh Gardens, North Fitzroy, which had been caused by the use of the site as a landfill in the nineteenth century.

In order to minimise current and future impacts and costs to the community and the environment, best-practice measures for the siting, design and management of landfills must be adopted.

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2.8 Landfill Levy

The Act requires the holder of a licence for a landfill to pay a levy for each tonne of waste (municipal, industrial and prescribed) deposited to their landfill. The landfill levy is an integral component of the waste management system and was introduced in Victoria in 1992 in metropolitan and provincial centres and extended to the whole of Victoria in 1996.

Landfill levies play an important role in providing funding assistance to establish waste management infrastructure, support programs for industry, education programs and the resourcing of the bodies responsible for waste planning and management in Victoria. The levies also act as an incentive to minimise the generation of waste, increase reuse and recycling and promote investment in developing alternatives to disposal to landfill.

Landfill levies for municipal and industrial waste are distributed amongst EcoRecycle, EPA, the RWMGs and the Sustainability Fund. The *Environment Protection (Distribution of Landfill Levy) Regulations 2002* sets out how these funds are to be distributed. Funds generated from prescribed waste levies are allocated in accordance with the Act for the purposes of environment protection. For example, EPA's business sustainability program is largely funded from prescribed waste levies.

2.9 Future of landfills in Victoria

Over the past decade, standards for landfills have progressively improved, kerbside recycling services have expanded and been made available to a larger number of households, and recycling rates have

increased. There is strong support in the Victorian community for recycling and the diversion of waste from landfill. But while a great deal has been achieved to improve waste management, more needs to be done.

Landfills represent the least preferred waste management option and thus should be kept to a minimum. However, until those wastes that cannot currently be removed from the waste stream are managed by measures higher up the wastes hierarchy, landfills will continue to be provided as part of an effective waste management strategy in the foreseeable future. Future landfill development should be minimised, consistent with the broader objective of ecologically sustainable development of Victoria. This requires continuous improvement in the way in which we manage waste, including:

- reducing the amount of waste produced
- viewing waste as a resource to be utilised
- minimising the risks of environmental pollution and harm to human health
- increasing the proportion of waste managed by options higher up the wastes hierarchy.

Therefore Victoria needs an up-to-date statutory framework tailored to encourage the adoption and implementation of the wastes hierarchy and assist landfill operators to progressively improve standards of landfilling, so that the community and environment are protected, and so that potential liabilities, both in the short and long term, are significantly reduced.

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3 POLICY OPTIONS

EPA considered three possible policy options for the siting, design and management of landfills in Victoria. All three options were evaluated according to their ability to achieve an effective and robust framework for environment protection and are outlined below.

The three approaches considered were:

- Option 1: Do nothing.
- Option 2: Revoke the Landfill SEPP and not replace it.
- Option 3: Update the Policy.

3.1 Option 1: Do nothing

This option would mean that the existing arrangements for the siting and management of landfills would continue, with no changes being made to the statutory framework. The effect of the 'do nothing' option is that the 1991 SEPP would continue in the current form.

Under this option there would continue to be a statutory framework in place for landfill siting and management. However, changes and developments that have occurred over the last ten years would not be reflected in policy. This is because the current policy focuses strongly on waste disposal and does not sufficiently encourage strategies for avoidance, reuse and recycling.

This option would result in the statutory policy framework being inconsistent with current best-practice techniques for the siting, design and management of landfills. EPA has encouraged the incorporation of best-practice measures into the operation of landfills through works approvals,

licence conditions, environment improvement plans (EIPs) and the BPEM, but these provisions are not reflected in the SEPP.

This option also fails to meet the community's expectation for ongoing improvements in the siting and operation of landfills and the protection of the environment, including local amenity, which remains a significant community concern.

The 'do nothing' option is not preferred as it relies on a 'status quo' approach, thus failing to encourage continuous improvement in landfill siting, design and management and does not meet the expectations of the community.

3.2 Option 2: Revoke the Policy

This option involves revoking the 1991 SEPP and not replacing it with any other statutory instrument. Therefore, under this option, there would be no statutory framework to provide clear direction on requirements for the siting, design and management of landfills.

While the BPEM would provide a source of guidance to operators on best-practice measures, it does not clearly define the specific roles and responsibilities of different stakeholders in the planning and management of landfills. The BPEM also does not specifically address the requirements for small (that is, unlicensed) landfills and as such these issues would not be addressed in policy.

In revoking the 1991 SEPP, advances in waste management policy and changes in community values and institutional arrangements would not be reflected in a statutory framework and further improvements could not be properly addressed or considered. By not addressing the above issues in

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policy the potential exists that the expectations of the community for the highest possible protection of the environment for current and future generations would be undermined.

3.3 Option 3: Update the Policy

Option 3 is the preferred option, and has been pursued in the development of the *Waste Management Policy (Siting, Design and Management of Landfills)* and PIA. This option advocates the development of a modern and flexible policy framework for the protection of the community and the environment through improved planning, siting, design, operation, rehabilitation and after-care of landfills.

This option involves developing a WMP to incorporate recent developments in technical and scientific knowledge, advances in waste management policy, changes in infrastructure and institutional arrangements and increased community expectations.

In summary this option:

- reflects changes in approaches to waste management, including placing greater emphasis on managing wastes higher up the wastes hierarchy
- enables the philosophy of continuous improvement to be adopted through the implementation of best-practice measures in planning, siting, design and management of landfills
- ensures the ongoing protection of the community and the environment by minimising the use of landfills for the disposal of waste.

3.4 Impacts of each alternative

The benefits and costs of each of the alternatives have been assessed and are outlined below. The benefits and costs of the preferred approach are outlined in detail in Chapter 4 and summarised in Chapter 5.

3.4.1 Option 1: Do nothing

As this option maintains the SEPP for the siting and management of landfills, this option provides the benefit of retaining a statutory framework. However, if this option were adopted, there would be no change to any of the requirements in the SEPP.

The SEPP lacks a strategic framework for the management of waste and does not effectively allow for the development or implementation of best-practice standards in planning, siting, design and management. Therefore, the policy is limited in its ability to facilitate the achievement and maintenance of the highest possible level of environmental protection consistent with community expectations.

The requirements in the SEPP are generally accepted as standard business practice. Those operators that are already going beyond the requirements of the SEPP and applying best-practice measures to the siting, design, operation and rehabilitation of landfills would be disadvantaged under this option as they would not be supported by the statutory framework.

Under this option, those operators that are not employing best-practice measures would not be required to improve their performance, leading to limited or no environmental improvement. This could give these operators a short-term competitive

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advantage against those who are proactively adopting more environmentally sustainable practices. However these short-term benefits would be offset by long-term losses due to higher clean-up costs, extended monitoring and potentially higher financial assurance.

This option would continue to provide some guidance to stakeholders on their roles and responsibilities. However, this guidance would be limited and does not reflect current institutional arrangements; for example, the important role that RWMGs and EcoRecycle play in the management and diversion of waste from landfill.

This option would also not encourage the incorporation of environmental impacts and management costs in landfill pricing that may lead to increased waste disposal to landfill. This in turn would fail to encourage efficient reuse of resources or promote sustainable markets for recycling.

3.4.2 Option 2: Revoke the policy

Since this option would revoke the SEPP and it would not be replaced, there would be no statutory framework to ensure the protection of the community and environment from the potential adverse impacts of landfilling.

This option would reduce EPA's ability to enforce best-practice requirements for siting and management of landfills. This would shift the focus to clean-up after pollution has occurred, with significant associated costs for both the environment and the community.

There would be limited guidance to stakeholders as to the principles underpinning effective waste management and landfilling or the philosophy of

reducing the use of landfills for waste disposal through the adoption of the wastes hierarchy and implementation of best-practice standards. The clear articulation of what measures are required to protect the environment and the community would not be provided.

If the policy were revoked and not replaced it would leave a significant gap in providing guidance to stakeholders on their roles and responsibilities in the management of landfills. This may lead to inefficient resource allocation and certain issues not being addressed, resulting in declining standards in waste minimisation and recycling.

Similarly to Option 1, the full environmental costs of disposing of waste to landfill would not be reflected in landfill pricing. This may lead to a reduction in recyclable materials diverted from landfill and fail to encourage sustainable markets for recycling in Victoria.

The BPEM would provide guidance to landfill operators on the measures they should be putting in place to achieve best-practice environmental performance. However there is the risk that, if there is no statutory framework to require a level playing field, some operators may choose not to implement best-practice standards. As in Option 1, these operators may gain a short-term competitive advantage but, in the long term, their poorer practices may result in greater costs to the community, including the financial costs of clean-up and the potential adverse impacts on the environment (for example, groundwater pollution).

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4. WHAT IS IN THE POLICY?

The purpose of this chapter is to explain the clauses in the policy and to provide an assessment of the impacts of those clauses.

The structure of the WMP is as follows:

- An introductory section provides the policy's preamble, formal title, mechanism for commencement, scope of application, definitions and list of contents.
- Part I contains the objectives, principles and intent of the policy.
- Part II sets out an attainment program, which includes:
 - (a) a description of policy responsibilities
 - (b) the strategic planning and site selection requirements for landfills
 - (c) all aspects of the siting, design and management of landfills.

To provide a more comprehensive picture of how the policy applies to stakeholders and enable a more thorough appraisal of its overall impact, the discussion and assessment of these clauses has been drawn together and linked to other aspects of the policy.

4.1. Introductory clauses

Clause 1: Title

Clause 1 names the policy.

Clause 2: Commencement

Clause 2 provides for the usual mechanism for its commencement by publication in the Government

Gazette, following declaration by Governor in Council.

Clause 3: Revocation of the existing SEPP

Clause 3 revokes the State environment protection policy, which is no longer required due to the development of this policy.

Clause 4: Application of the policy

Clause 4 states that the policy applies throughout Victoria and includes those involved in the planning, siting, design and management of landfill sites; that is, industry, local government, regional waste management groups, EcoRecycle and EPA.

It specifies that the policy applies to all landfills in Victoria receiving non-prescribed wastes and/or Category C prescribed industrial wastes. The framework for the management of prescribed industrial waste is covered by the *Industrial Waste Management Policy (Prescribed Industrial Waste)*.

The landfills to which the policy applies remain unchanged from the SEPP and a strategic framework exists for the management of prescribed industrial waste. Therefore no direct impacts arise from this clause.

Clause 5: Contents of the Policy

Clause 5 lists the contents of the policy.

Clause 6: Definitions

This clause provides definitions and an interpretation of terms used in the policy, and has no direct impacts.

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Key points

Clauses 1 to 6 establish the fundamental provisions for creating the policy and provide a clear introduction. Clauses 1 to 6 have no direct impacts.

4.2 Part I – Policy framework

Clause 7: Policy Objectives

Clause 7 defines the objectives of the policy.

The objectives of the policy are to: protect the environment and the community from the potential risks posed by the disposal of waste to landfill; to encourage more efficient use of our resources through the diversion of waste from landfill; and to minimise the development and use of landfills for waste disposal in Victoria, consistent with the principles of the policy.

Clause 8: Policy Principles

Clause 8 presents the principles on which policy interpretation and implementation are to be based.

These principles are the same as those in the Act, which were introduced through the *Environment Protection (Liveable Neighbourhoods) Act 2001*. The incorporation of these principles in the policy reflects national agreements and important developments in environmental management in recent years.

These principles are drafted to be specific to environment protection aims. They reflect the community's expectation of a safe and healthy environment for Victoria.

The principles are:

- integration of economic, social and environmental considerations

- precautionary principle
- intergenerational equity
- conservation of biological diversity and ecological integrity
- improved valuation, pricing and incentive mechanisms
- shared responsibility
- product stewardship
- wastes hierarchy
- integrated environmental management
- accountability
- enforcement.

A number of these principles evolved from international agreements, such as the 1992 Rio Declaration of Environment and Development. Additionally, these principles have been drawn from a number of influential sources, including the 1992 Inter-Governmental Agreement on the Environment, the National Strategy for Ecologically Sustainable Development, the National Packaging Covenant and the Industrial Waste Strategy of 1986.

The principle of *integration of economic, social and environmental considerations* is consistent with integrating the triple-bottom-line approach into decision making. The triple bottom line modifies traditional accounting measurement, by including financial, environment and social costs.

The *precautionary principle* states that, in cases where there is a serious or irreversible environmental threat, lack of scientific certainty should not be used as a reason to postpone measures to prevent environmental damage. The

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second component of the principle provides practical guidance as to its application and essentially requires that a risk management approach be applied in cases where there is risk of serious or irreversible damage.

The principle of *intergenerational equity* reflects the view that we, as the present generation, have the duty to ensure that the environment is maintained and enhanced for future generations.

The principle of *conservation of biological diversity and ecological integrity* recognises that biodiversity conservation is fundamental to our survival and, as such, should be a fundamental consideration when EPA makes a decision under the *Environment Protection Act 1970*.

The principle of *improved valuation, pricing and incentive mechanisms* encompasses issues such as polluter-pays principles, pricing based on life-cycle assessments and market mechanisms for environment protection.

The principle of *shared responsibility* has been drawn from the National Packaging Covenant and recognises that everybody has a role in the protection of the environment. The responsibility is shared by all levels of government, business and industry, groups and individuals. This principle also encourages the production of competitively priced goods and services to meet human needs while progressively reducing the environmental impact to ensure sustainability – an objective sometimes referred to as ‘eco-efficiency’.

Eco-efficiency requires that goods and services are produced in a manner that progressively reduces the resources consumed and waste generated throughout their life cycle, and minimises the

associated environmental and ecological impacts. This concept flows from the recognition that economic, social and environmental goals are interrelated and should be pursued in an integrated manner to maximise the overall benefits to society. It reflects the related principle that decision making should integrate economic and environmental factors. It also seeks to maximise efficiency in the production of goods and services to satisfy human needs and pursue ecologically sustainable development.

The principle of *product stewardship*, central to the National Packaging Covenant, commits producers and users of goods and services (and those who manage their associated wastes) to work with Government to manage the environmental impact of those goods and services throughout their whole life cycle, including waste disposal. In other words, this principle encompasses ‘cradle to grave’ approaches to environment protection.

The principle of the *wastes hierarchy* has been drawn from two of Victoria's influential waste management strategies – the 1986 ‘Industrial Waste Strategy’ and the 1998 ‘Zeroing in on Waste Strategy’. This principle outlines the order in which wastes should be managed, with avoidance being the most preferred option and disposal the least preferred option.

The use of the wastes hierarchy for environmental management, with its preference for waste avoidance and minimisation over waste treatment and disposal, is now widely practised in Australia. It provides the fundamental philosophy and outlook that drives cleaner production programs and practices.

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The principle of *integrated environmental management* provides a clear statement of the acceptance of the general trend towards integration in environmental decision making. In other words, it prevents the transfer of problems from one environmental medium (for example, the air environment) to another environmental medium (for example, the water environment).

The principle of *accountability* recognises that the community's aspirations are a significant force driving environmental policies and programs. For these aspirations, and the mechanisms that express them, to work effectively, governments have an ongoing role to provide ready public access to useful and reliable information, use open and transparent processes for policy and program development, and maintain good communications and a constructive dialogue with the community.

The principle of *enforcement* reflects the well-established principles of criminal law. A key component of this principle is to ensure that there are adequate deterrence provisions to ensure that those who do not comply with environmental requirements do not obtain a competitive advantage over those who comply with these requirements. The enforcement principle is also in line with EPA's Enforcement Policy.

Restating these principles in the policy reinforces their importance in making decisions and formulating strategies, plans and programs under the policy. Incorporating the principles in the policy also assists people to understand the provisions that make reference to the principles.

Clause 9: Policy Intent

Clause 9 explains the intentions of the policy and provides, in a series of statements, an overview of Victoria's policy with respect to landfill planning, siting, design and management. It also provides a link between the objectives and principles of the policy on the one hand and the attainment program on the other. The policy intent assists in understanding and interpreting the overall intention of the policy.

Key points

The objectives of the policy (Clause 7) and its principles and stated intentions (Clause 8 and 9) will be pursued through the attainment program. Impacts will arise through the implementation of the attainment program. These impacts are discussed below in relation to the relevant clauses.

4.3 Part II – Attainment program

4.3.1 Policy responsibilities

Clause 10 addresses the policy responsibilities and commitments of municipal councils, RWMGs, EcoRecycle, EPA and other protection agencies, industry and private individuals. It encourages stakeholders to work in partnership to pursue and achieve the objectives, intent and principles of the policy.

Clause 10: Implementation

Clause 10(1) requires EPA, EcoRecycle, RWMGs, municipal councils and other protection agencies to pursue and apply the objectives, principles and intent of the policy in making decisions and devising programs that may affect current or proposed landfills.

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Clause 10(2) requires EPA to work in partnership with municipal councils, RWMGs, EcoRecycle and the community to encourage development of infrastructure for the collection of waste that can be reused or recycled and thus divert it from disposal to landfill. This may be through providing or increasing access to kerbside recycling and transfer stations or promoting greater participation in waste minimisation and recycling programs.

This clause also encourages stakeholders to work together to divert waste from landfill through avoidance, reuse, recycling, recovery of energy and treatment options. Waste minimisation and resource recovery has contributed to the diversion of a significant amount of material from landfills and the benefits of this are widely accepted by industry and the community. This clause provides a clear articulation in statutory policy that these efforts must continue to ensure the development and use of landfills for the disposal of waste in Victoria is reduced.

Clause 10(3) sets out how EPA applies its range of statutory instruments and measures in the implementation of the WMP. These measures include monitoring, auditing, regulation, enforcement measures and consultation and education programs to ensure that community expectations and priorities are reflected in actions undertaken by EPA.

Consistent with clause 10(3), clause 17(1) requires EPA to develop a guideline for the design and management of landfills exempt from licensing (in other words, unlicensed landfills). A preliminary outline of what this guideline may address has been developed (see Appendix A). The intention of this

document is to provide a guide to operators of unlicensed landfills on the minimum operating and rehabilitation standards required to ensure the environment and community are protected and that the objectives, principles and intent of the policy are met. EPA is keen to work with local government, RWMGs and the community to develop the preliminary outline to a draft document.

Clause 10(4) recognises that EcoRecycle plays a significant role in facilitating programs that address resource recovery, recycling and waste management. This clause outlines the specific responsibility of EcoRecycle, in consultation with EPA and other relevant stakeholders, to develop strategies and programs on the generation and management of both solid municipal and industrial waste. This will assist in the implementation of this policy and may include identifying opportunities to minimise the amount of waste generated, promote sustainable resource use and identify infrastructure needs. EcoRecycle has already conducted extensive public consultation on a draft solid waste strategy and is currently in the process of finalising it.

Under the Act, EcoRecycle is responsible for supporting and promoting solid industrial waste reduction and recycling. This will be addressed through the development and implementation of a State-wide Solid Industrial Waste Management Plan (SIWMP). The SIWMP may include waste reduction and resource recovery programs and an analysis of the need for additional solid industrial disposal facilities. This plan will provide essential information to RWMGs in the development of their RWMPs. Therefore, any plan will need to be consistent with the objectives, principles and intent of the policy.

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As part of the implementation of this policy, EcoRecycle will also undertake market research and development into higher waste management opportunities for materials that currently cannot be diverted from the waste stream. EcoRecycle will also continue to support the development of resource recovery infrastructure. These responsibilities are already part of EcoRecycle's long-term business plan.

Clause 10(5) requires RWMGs to ensure that their plans are consistent with the policy. RWMPs need to specifically encourage waste minimisation, reuse and recycling initiatives and only provide for additional landfill development to meet predicted demand.

It is also important that the waste management activities undertaken by RWMG members assist in the implementation of the policy. This is consistent with the Act's requirement that RWMGs coordinate the activities of their members to support State policies, programs and strategies relating to waste.

To further ensure a coordinated and consistent approach to landfill management, this clause states that RWMGs need to work in partnership with relevant agencies such as planning and responsible authorities to strategically plan for and site landfills.

Clause 10(6) states the fundamental requirement that all landfill operators, both licensed and unlicensed, must site, design and manage their landfills to protect beneficial uses of the environment. Beneficial uses are outlined in State environment protection policies. For example the State Environment Protection Policy (Groundwaters of Victoria) sets out specific beneficial uses to maintain and improve groundwater quality

throughout Victoria, such as maintenance of ecosystems and protection of potable groundwater.

Key points

Clause 10 aims to clearly set out the responsibilities of the various stakeholders involved in the planning, siting and management of landfills. In order to meet the objectives, principles and intent of the policy, all stakeholders will need to work in partnership towards common beneficial goals.

Clause 10 focuses the policy and program development on areas of highest priority and facilitates open and transparent communication between stakeholders. This clause records all existing statutory obligations and requirements on stakeholders, including EPA, EcoRecycle, RWMGs and landfill operators.

4.3.2. Landfill planning and siting

Clauses 11 to 14 address the importance of strategic waste management planning and site selection, to ensure the long-term protection of the environment and community from the possible adverse effects of landfilling operations.

Clause 11: Strategic Land Use Planning

Clause 11(1) requires those persons involved in the planning and siting of landfills to comply with the provisions in any relevant RWMPs and SIWMP.

The Act already requires that councils must comply with relevant RWMPs and that all those involved in the generation, management and transport of solid industrial waste must not do anything inconsistent with the SIWMP.

EPA will work in partnership with the Department of Sustainability and Environment to amend the State

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planning policy framework to include references to the WMP, RWMPs and SIWMP. This will ensure consistency in landfill planning and encourage greater communication between the different stakeholders.

Clause 11(2) requires planning authorities, in reviewing their municipal strategic statements and amending the planning scheme, to make decisions that are consistent with the policy and any relevant RWMPs and SIWMP. The clause particularly highlights the landfill siting and scheduling sections of a RWMP, to provide guidance to planning authorities.

Under the *Planning and Environment Act 1987* municipalities are required to develop a municipal strategic statement that outlines the municipal district's strategic planning, land use and development objectives. The statement must be consistent with the municipality's Corporate Plan. Therefore, it is important that municipal strategic statements are consistent with the policy, RWMPs and the SIWMP, so that they reflect not only local goals and aspirations but also regional and State-wide objectives with regard to waste management.

It should also be noted that, under the Act, in preparing their plans EcoRecycle must consult with RWMGs and RWMGs must specifically consult with councils. This will encourage the different stakeholders responsible for waste management planning to recognise the importance of each other's plans and the need to develop them in partnership. It is intended that this will avoid planning conflicts, which have occurred in the past.

Clause 11(3) requires responsible authorities to make decisions consistent with the policy and the

BPEM when considering planning permit applications for existing or proposed landfill sites. This is especially relevant with regard to the siting of a landfill.

The policy and BPEM clearly state the different parameters that need to be considered when assessing prospective landfill locations. This assists local councils in their assessment of planning permit applications for landfills and whether the use of land for a landfill is appropriate.

It also encourages the use of consistent landfill site selection criteria and ensures that the sites selected reduce the potential for adverse impacts on the community and the environment.

Key points

Clause 11 is designed to ensure that Victoria has unified and coordinated programs and strategies for the planning and siting of landfills. It is important that these plans reflect local, regional and State priorities, directions and approaches. Improved environmental performance resulting from good planning and management will reduce the potential adverse impacts associated with landfills.

Overall this clause provides the mechanism for an open, coordinated and consistent approach in the development and implementation of waste management plans and strategies by responsible agencies.

Clause 12: Waste Management Planning

In determining the need for additional landfill space within a region and developing a proposed filling sequence, Clause 12 (1) requires RWMGs to consider the available landfill airspace, both existing and planned, in surrounding regions. This provides

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further guidance for groups in fulfilling the requirement under the Act that their RWMPs include the provision for future landfill capacity within the region. This clause directly relates to the objective of the policy to minimise the development and use of landfills.

Clause 12(2) reinforces the importance of the requirement under the Act that RWMGs, when scheduling and assessing prospective and existing landfill sites and proposing the sequence of filling for available landfill sites, undertake consultation with affected stakeholders. This is a requirement for both licensed and unlicensed landfill sites.

It is important that broad consultation is undertaken in the development of draft RWMPs to ensure the involvement of stakeholders, such as businesses and the community, in the early stages of the site planning process. Local community perceptions and understanding are essential factors in determining the acceptability of a landfill site.

Clause 12(3) recognises the need for RWMGs and EcoRecycle to consider local planning provisions and strategies when preparing or amending their plans. This encourages a greater understanding of local planning requirements and protects potential landfill sites against encroachment, and vice versa.

While this is a new requirement in statutory policy, RWMGs and EcoRecycle are required under the Act to consult with each other and with councils in preparing their plans. This clause requires them to specifically consider local planning provisions.

Key points

In accordance with ongoing open communication and accountability, there is a clear need for RWMGs, as well as EcoRecycle, to consult broadly on their plans. It is important that affected stakeholders, such as the community and industry, are made aware of possible future landfill sites.

Clause 13: Landfill Site Selection

The landfill site selection process must consider how the selection of the location reduces the potential for adverse effects on the environment, the design and operational aspects, and the potential impacts on the community and amenity.

Clause 13(1) requires RWMGs to consider a number of parameters in the planning and siting of prospective landfills. These include those set out and discussed in the BPEM, such as community need, buffer distances and groundwater. The development of the BPEM involved considerable public consultation and was released in October 2001.

EPA has been working closely with RWMGs in the development of a guideline to assist in the preparation and content of RWMPs. The guideline, *Development and Maintenance of Regional Waste Management Plans* (Publication 957, August 2004), includes a specific section on landfill siting.

Improved site selection processes allows greater involvement by the local community in the early stages of waste management planning of their region. It also helps to ensure the protection of the environment by identifying those areas not suitable for landfilling.

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Clause 13(2) identifies areas where a landfill should not be located. Schedule A of the policy lists these areas, including high-value wetlands, marine and coastal reserves, wildlife reserves, and water supply catchments and water supply protection areas. This is to ensure that areas specifically set aside for conservation and preservation are protected. Further information about these areas and their location can be found on the Department of Sustainability and Environment website.

Schedule A updates the list in Table 2 in the previous SEPP and includes a number of key additions: water supply catchments, groundwater protection zones and matters of national environmental significance.

Water supply protection areas (WSPAs) are identified under the *Water Act 1989* and were previously known as groundwater supply protection areas. WSPAs are declared to protect groundwater and ensure the long-term sustainability of the resource. A management plan is developed for each area and involves extensive consultation with groundwater users. While landfills should not be located in WSPAs, the policy provides for approval of a landfill in these areas, taking into consideration issues such as permissible annual volume for the area and depth of the target aquifer.

Groundwater protection zones are prescribed under the State Environment Protection Policy (Groundwaters of Victoria). These are zones where a greater level of protection for the groundwater within that zone is required. At the time of publication no groundwater protection zones have been declared.

The addition of a groundwater protection zone would require the groundwater policy to be varied. A

policy variation process involves an extensive public consultation, as occurred with this WMP. This process will ensure that the reasons for declaring a groundwater protection zone are extensively debated.

Matters of national environmental significance are identified in the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act). The BPEM already identifies these areas as inappropriate locations for landfills.

The EPBC Act came into effect on 16 July 2000, establishing six matters of national environmental significance:

- world heritage properties
- wetlands of international importance (Ramsar wetlands)
- nationally listed threatened species and communities
- internationally listed migratory species (CAMBA and JAMBA)
- nuclear actions
- Commonwealth marine areas.

Under the EPBC Act, a person must not take an action that has, will have or is likely to have a significant impact on a matter of national environmental significance, except where certain processes have been followed and/or certain approvals obtained.

The EPBC Act requires proponents of actions to which the Act may apply to seek a determination from the Commonwealth Environment Minister regarding whether or not their proposed action is a 'controlled action'. Proponents must then, if the Act

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applies, seek approval for the controlled action directly from the Commonwealth Environment Minister. State Government agencies, such as EPA, are not able to advise proponents on whether or not a particular proposal is affected by the EPBC Act – this advice must be obtained from the Commonwealth Environment Minister.

Clause 13(3) supports the SEPP (Groundwaters of Victoria) in the protection of groundwater beneficial uses. The beneficial uses, outlined in the Groundwater SEPP, determine the water quality indicators for maintenance and protection of groundwater quality, so that current and potential beneficial uses of that water are protected.

New landfill sites must not be located in areas where an aquifer contains groundwater of potable quality (Segment A), unless certain requirements are satisfied.

An aquifer is a permeable geological structure or formation that is capable of transmitting water. Pollution of groundwater by leachate is very difficult to remediate and therefore landfills should not be sited in areas where they could significantly impact upon beneficial uses such as drinking water.

While all beneficial uses must be protected, potable groundwater is a highly valuable resource. The risk of contamination from a landfill may be unacceptably high and therefore these areas warrant a higher level of protection for both the environment and the community. This approach is consistent with the precautionary principle, a principle of the Act and this policy.

The beneficial uses of groundwater are based on the inherent capacity of the groundwater to support a use, as indicated by the salinity of the groundwater.

This is irrespective of the location of the site or the likelihood of use. The Groundwater SEPP also gives EPA the capacity to identify beneficial uses that do not apply at specific locations, based on other inherent characteristics of the groundwater and aquifer system which would preclude use, or make it unlikely (for example, yield, or the presence of constituents at background concentrations unacceptable for the use).

EPA recognises that certain regions of the State, such as East Gippsland, contain large areas of Segment A groundwater and there is a need to balance reasonable access to landfills with the need to protect this valuable resource for future generations.

Where a landfill operator proposes to establish or extend a landfill (that is, submits an application for a works approval) into an area where an aquifer contains Segment A groundwater, they need to satisfy the Authority that sufficient additional design and management practices will be implemented and that it can be demonstrated that those measures will minimise any environmental impacts. In addition, EPA must also determine that a specific regional circumstance exists that warrants the development of the landfill. This may include consideration of whether there is a need for the landfill in the region, alternative viable waste management options and the protection of beneficial uses consistent with the State Environment Protection Policy (Groundwaters of Victoria).

Increasingly, concerns are being raised about the potable groundwater shortages along Australia's

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heavily developed coastline. It is important that these areas are protected.

The majority of Segment A groundwater is located in the eastern highlands, Gippsland, the Hepburn Springs district, the Grampian Ranges, the Otway Ranges and the Glenelg region. The water quality and beneficial use category of the major aquifers of Victoria have been mapped and are available from the Department of Sustainability and Environment website: www.dse.vic.gov.au.

Key points

Clause 13 provides further guidance to those stakeholders involved in the planning and siting of landfills to ensure the range of environmental and social issues are adequately considered.

The selection of appropriate sites for landfills and the protection of inappropriate areas is fundamental to the long-term protection of the community and environment from the potential adverse effects of landfilling operations.

The use of a robust site selection process will help minimise environmental problems and may also result in financial savings in design, operation and rehabilitation costs for operators. Appropriate site selection will also contribute to minimising the level of public concern.

Clause 14: Works Approval and Licensing

Clause 14(1) states that landfill sites that require a works approval (serving a population of 500 people or more) and/or a licence (serving a population of 5000 or more) must comply with the policy. Clause 14(2) also requires landfill sites that are exempt from a works approval or licence to be in compliance

with the policy. This remains unchanged from the 1991 SEPP.

Clause 14(3) states that current landfill licences will be amended to reflect changes in the statutory framework. It is intended that EPA will update landfill licences in close consultation with licence holders.

Since the BPEM was introduced in October 2001, EPA officers have been working with landfill licence holders on a case-by-case basis to update and amend their licences to encourage best practice. This is an ongoing process and involves costs to both the licence holder and EPA. However, these costs are dependent upon the current level of operation at the site, the best-practice measures that have been implemented and any improvements required.

It is important to note that the objectives and required outcomes in the BPEM are derived from existing statutory policies and therefore are not new. To meet the objectives and required outcomes, landfill operators should implement the relevant best-practice measures contained in the BPEM. This will need to be done in a way that ensures the protection of the environment and community in a cost-effective manner.

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Key points

Clause 14 requires applications for works approvals and/or licences to be consistent with the policy and those sites not subject to these requirements must also comply with the policy. EPA will update existing landfill licences to reflect the policy in consultation with licence holders.

The benefits that flow to the environment and the community as a result of improved landfill management across the industry outweigh the costs to licence holders implementing these improvements. It also encourages better relations between landfill operators and the local community through avoiding potential adverse impacts on local amenity.

4.3.3. Landfill siting, design and management

Clauses 15 to 21 relate to the siting, design and management requirements for a landfill site. Landfill management includes all phases of landfill construction, operation, rehabilitation and after-care.

Clause 15: General Requirements

Clause 15(1) states that on those occasions where the BPEM is inconsistent with the policy, the policy shall take precedence.

Clause 15(2) states that clause 15 specifically applies to those landfill sites that serve a population of 5000 persons or more (i.e. require a works approval and licence) and directing those that serve under 5000 persons to Clause 17.

Clause 15(3) reinforces the requirement that applicants or holders of a works approval or licence for a landfill must comply with not only this policy

but other relevant policies, such as the SEPP (Groundwaters of Victoria).

Landfill operators are also required to meet the objectives and the required outcomes outlined in the BPEM, which reflect existing requirements already specified in statutory policies and environment protection regulations. This requirement is clearly stated in the introduction of the BPEM.

Development of the BPEM involved extensive public consultation, particularly with the landfill industry, and provides guidance and encourages stakeholders to work effectively towards continuous improvement in the siting, design, operation and rehabilitation of landfills. This will help ensure the long-term protection of the community and environment from the potential adverse impacts of landfilling wastes.

The objectives and required outcomes of the BPEM provide a consistent framework for best-practice management and therefore greater equity in operational standards and cost structures across the landfill industry.

The suggested measures in the BPEM provide the means to achieve the objectives and required outcomes, thereby meeting increasing community expectations. Therefore Clause 15(4) encourages applicants or holders of a works approval or licence for a landfill to implement the suggested measures in the BPEM.

Consistent with the intent in the BPEM, where an applicant or operator believes that a required outcome can be achieved through an alternative measure than those suggested, Clause 15(5) provides a process for this alternative measure to be

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evaluated and approved. The applicant must satisfy EPA that the alternative measure proposed meets the requirements of Clause 15(3) – meaning it must comply with statutory policy and meets the objectives and required outcomes of the BPEM. Clause 15(5) also requires that an alternative measure provide an equivalent or better environmental outcome compared to the outcome of the suggested measure.

This clause recognises that site-specific issues arise and there may be circumstances where a landfill operator believes an alternative measure is applicable and is consistent with the policy. This clause allows flexibility for innovation to not only meet, but also go beyond BPEM requirements.

Landfill operators already complying with or actively pursuing the requirements of the BPEM are subject to minimal costs. However, those operators who are not pursuing best practice may be subject to increased costs in order to ensure the highest possible level of protection for the community and environment and that the objectives, intent and principles of the policy are met.

Cost associated with implementation of best practice varies from site to site, depending on such factors as site features and the types of waste accepted.

Landfill prices may increase slightly due to improved landfill management standards and greater internalisation of the environmental costs of disposal of waste to landfill. However this will minimise the risk of adverse impacts on the environment and the community in the long term.

The cost of applying best-practice measures will always be a consideration for landfill operators.

However the cost must always be weighed against the potential cost to the community resulting from pollution and a reduction in the surrounding amenity.

Key points

Clause 15 helps to ensure that landfill management is progressively improved, so that the environment and community are protected and any potential liabilities associated with environmental damage in the short and long term are significantly reduced or, preferably, avoided. The implementation of the BPEM at all licensed sites works towards a level playing field in the operation of landfills.

There may also be instances where alternative measures than those otherwise specified may ensure the protection of beneficial uses and achieve an equivalent environmental outcome. The policy allows for such developments and issues that may arise over the next 10 years.

Charges (gate prices) for the disposal of municipal waste at landfills where the BPEM has already been implemented have only increased by around five per cent (implemented over two to three years), resulting in gate fees of around \$30 to \$50 per tonne of municipal waste (depending on the area). These charges compare favourably with landfills in New South Wales, where gate prices for the disposal of municipal waste are around \$85 per tonne.

Clause 16: Specific Requirements

Clause 16(1) enables EPA to require a landfill operator to segregate a specific waste in a landfill cell or elsewhere on the site. This is to facilitate the recovery of the material in the future when a higher waste management option is available or to provide

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a higher level of protection for the community and environment. The segregation of asbestos is already required at many landfill sites to minimise the generation of dust containing asbestos fibres through handling.

Clause 16(2) states that all new landfill sites must deposit waste at least two metres above the long-term undisturbed depth to groundwater. This means that waste must be deposited at least two metres above the natural watertable. The determination of the long-term undisturbed depth to groundwater would include the consideration of issues such as anthropogenic activities (for example, dewatering of excavations) and seasonal and climatic variations (flood and drought).

If a landfill operator requests a lesser separation, they must demonstrate to EPA, through a particularly detailed and rigorous assessment process, that sufficient additional design and management practices will be implemented that ensure the protection of the environment. In such circumstances EPA may require the landfill operator to prepare and submit to EPA an environmental audit report, prepared by an environmental auditor appointed under the Act, in relation to the risk of any possible harm or detriment to groundwater caused by the proposed activity. The requirement for such a report would be additional to normal works approval application requirements, which in themselves require demonstration of protection of all beneficial uses.

In addition to the increased burden of proof regarding the protection of groundwater quality, EPA must also determine that regional circumstances exist that warrant the development of the landfill.

For example, there may be areas within Victoria, in particular rural areas, where the long-term depth to groundwater is very close to the natural land surface and the cost of transporting waste to the next nearest landfill is not viable.

It is important to note that Clause 13(3) of the policy does not allow a new landfill to be sited or extended into areas where an aquifer contains Segment A groundwater except under certain circumstances.

The 1991 SEPP required that waste be deposited at least two metres above the upper level of the groundwater. However this wording resulted in some confusion for stakeholders as the groundwater level may change its depth with seasonal variation in rainfall and the watertable can drop in drier seasons. Additionally the groundwater levels may also be affected by pumping activities at nearby premises, such as quarry operations. Therefore the wording in the WMP was amended to the 'long term undisturbed depth to groundwater' to clarify this principle.

The SEPP (Groundwaters of Victoria) 1997 defines groundwater as 'any water contained in or occurring in a geological structure of formation or an artificial landfill', but does not apply to groundwater within a landfill cell (that is, leachate). By placing waste two metres above the long-term undisturbed depth to groundwater, it ensures that the natural watertable will not come into contact with either the waste or the landfill liner system.

Landfills are typically located below the natural ground surface and often in close proximity to groundwater. Best-practice design and construction of landfills with lining and leachate management systems, as required by Clause 15, reduces the risk

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of potential impacts on groundwater. Separation between the base of the liner and the groundwater provides an important additional contingency.

Therefore landfills below the watertable are generally not recommended due to an increased risk of groundwater contamination and the perpetual requirement to:

- maintain and operate pumps
- manage an increased volume of groundwater or leachate
- intensively monitor both groundwater and leachate quality and levels.

Significant resources are required to maintain and monitor these sites both during operation and throughout the after-care period (30 years or more).

While such preventative measures can be costly, it should be noted that the clean-up of groundwater is extremely expensive and labour-intensive and, often, is not successful in restoring groundwater quality.

There are numerous Victorian and overseas examples of landfills polluting groundwater and, subsequently, surface water ecosystems. In areas of Melbourne's western and south-eastern suburbs, as well as some country sites, plumes of contaminated groundwater have affected the beneficial uses of ground and surface waters.

In most circumstances waste should be deposited at new landfill sites at least two metres above the long-term undisturbed depth to groundwater to ensure sufficient protection of groundwater beneficial uses.

Clause 16(3) requires weighbridges to be used at licensed landfill sites in metropolitan and provincial

cities, which are subject to the landfill levy (municipalities listed in Schedule C of the Act), within three years of the policy being gazetted. The operator shall need to use a weighbridge to measure the quantity of waste sent to landfill within three years of the policy being gazetted.

Under the Act, a privately owned landfill that only receives wastes that consist of materials that were owned by the owner of the landfill before they became wastes, is not subject to the landfill levy. There are currently nine such licensed landfill sites in Victoria.

Weighbridges allow customers to be charged on an equitable basis and help the operator maintain adequate and appropriate records to enable calculation of the landfill levy payable. The use of weighbridges and associated data-recording software is increasingly common at licensed landfills and assists with record keeping and accounting functions. This requirement would bring Victoria in line with similar requirements in New South Wales and South Australia. The average cost for the purchase and installation of a weighbridge ranges from \$50,000 to \$65,000, while a second-hand one can be obtained for around \$30,000.

Over 80 per cent of Victoria's municipal and industrial waste goes to landfills in metropolitan and provincial cities. Currently over 70 per cent of these licensed landfills have a weighbridge on site, with a number of others planning to install a weighbridge in the near future.

The three-year time frame allows adequate time for those operators who require a weighbridge to plan and budget for this requirement.

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In 2000, the Government committed \$374,000 over three years to assist in the installation of weighbridges at regional landfills through EcoRecycle's Weighbridge Support Program. Weighbridges provide more accurate information on the amount of waste going to landfill, which assists in improved planning and management processes for both local and State government.

Natural processes within landfills continue to produce leachate and gas that require environmental management for many years after landfilling ceases. Clause 16(4) requires ongoing after-care of a licensed landfill site once it has closed until such time as the site has stabilised and no longer poses a threat to the environment or the community. This may include regular maintenance activities to ensure that the various components, such as the leachate collection system, are functioning effectively. Ongoing monitoring of possible impacts to land and water would also be generally required. This is the responsibility of the occupier of the site.

EPA already requires ongoing monitoring of a closed landfill site through a post-closure pollution abatement notice, to ensure that there is appropriate management of the site.

Key points

The segregation of certain wastes (for example, metals) facilitates the opportunistic recovery of wastes that have future economic value.

Segregating different types of waste creates the opportunity for the development of new technologies to deal with the stored waste in a more appropriate way at some point in time in the future.

To ensure the highest level of protection of groundwater beneficial uses and to prevent groundwater pollution, in most circumstances new landfill sites will be required to deposit waste at least two metres above long-term undisturbed depth to groundwater.

Weighbridges are required for licensed landfill sites in municipalities listed in Schedule C of the Act, to provide instant and accurate measurements of the quantity of waste being delivered to the site. This allows for more efficient collection of data, which in turn enables improved planning for the community's waste management needs.

Rehabilitation and after-care are essential to ensure that a landfill site no longer has the potential for adverse environmental effects and does not pose a risk to the community.

Clause 17: Landfills Exempt from Licensing

Clause 17(1) recognises that many municipal councils with landfills exempt from licensing (that is, unlicensed landfills) are concerned about the rising costs associated with the operation and rehabilitation of these sites. Recognising this as a State-wide issue, EcoRecycle provided funding support of \$613,000 between 1999–2000 and

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2001–02 for the rehabilitation of unlicensed landfills.

EPA will continue to work with councils and RWMGs to develop a strategic program for the management of unlicensed sites. One aspect of this is a risk-based assessment of currently operating sites across Victoria, taking into account factors such as the local and regional environmental and siting issues and their associated risks. This provides councils with sufficient information to prepare specific action plans that prioritise the closure and rehabilitation of those unlicensed sites posing an unacceptable environmental risk. This should then be reflected in the relevant RWMP.

While some unlicensed sites will end up being closed, each municipal council and RWMG will have to make informed strategic decisions about the future management of municipal waste in their area.

EPA will also work closely with RWMGs and municipal councils with unlicensed sites to develop a guideline on the management of these sites. A preliminary outline of what this guideline may address has been developed for discussion and is set out in Appendix A. The proposed guideline will strengthen the requirements for the operation and rehabilitation standards for unlicensed landfill sites outlined in Schedule A3 of the 1991 SEPP.

This guideline is intended to provide clearer guidance to operators of unlicensed landfills on the minimum operating and rehabilitation standards required to ensure the environment and community are protected and that the objectives, principles and intent of the policy are met. EPA is keen to develop the preliminary outline into a draft document in consultation with stakeholders.

There will be costs associated in developing this guideline for EPA, but these costs will be offset by the environmental and social gains that will flow as these landfill operators improve their operations.

Improved standards at unlicensed landfills may increase disposal costs at these facilities. This may increase the risk of illegal dumping of waste. Effective education is needed so the community better appreciates the potential adverse impacts of dumping waste in their local environment. Effective enforcement action by local government and EPA will be required against those who litter and illegally dump waste.

Clause 17(2) encourages operators of landfill exempt from licensing (that is, unlicensed landfills) to use and implement any guidelines developed by EPA under Subclause (1). The development and implementation of this guideline will help ensure that the standards for unlicensed landfills are improved consistently across Victoria.

Clause 17(3) recognises that unlicensed landfill sites service smaller communities (less than 5000 people) and hence have different closure, rehabilitation and after-care requirements. Therefore EPA may, through a notice, require ongoing after-care consistent with the level of risk associated with the site. EPA already requires this at a number of unlicensed landfill sites.

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Key points

EPA will continue to work with councils and RWMGs in the strategic management of unlicensed landfill sites. This includes collecting sufficient information about the environmental risks posed by these sites and the preparation of a guideline to improve the management of unlicensed landfills in Victoria.

Rehabilitation and after-care are essential to ensure that a landfill site no longer has the potential for adverse environmental effects and does not pose a risk to the community. EPA may require ongoing monitoring of a closed landfill site through a post-closure pollution abatement notice to ensure that there is appropriate management of the site.

Clause 18: Recycling Facilities

Clause 18 reflects the growing number of landfill operators encouraging waste reduction and recycling through the provision of areas on and off site for the community to separate and collect recyclable materials, such as cardboard, steel, concrete and green waste. EPA may require a landfill operator to provide, operate and maintain such facilities where practicable. While this will help ensure that only those wastes that cannot be viably reused or recycled are sent to landfill, the feasibility of such facilities will depend on a range of factors such as location, size, waste acceptance and distance to recycling markets.

Landfill sites are often ideal locations on which to establish facilities for the acceptance, separation and storage of waste materials for recycling and reuse. Economies of scale may exist whereby specific materials can be accumulated in quantities on landfill sites to warrant economic recovery.

Increasingly landfill operators are acknowledging the benefits of providing onsite sorting facilities. Such facilities limit access by the public to the tip face, contribute to the conservation of landfill space and provide the opportunity to generate revenue from the recycling of certain materials such as steel.

EcoRecycle has provided significant funding support for the development of comprehensive facilities to collect, sort and treat materials and implement best practice at these facilities. For further information refer EcoRecycle's publication *Guide to Best Practice at Resource Recovery and Waste transfer Facilities* (July 2004).

An improved State-wide network of resource recovery and waste transfer facilities has been established, providing the community with improved access to recycling services. Such improvements in infrastructure ensure that a greater percentage of material is diverted from landfill and help support sustainable recycling markets.

Key points

It is important that facilities for the segregation and collection of recyclable wastes are established and operated to minimise the amount of waste going to landfill and promote sustainable recycling markets.

Landfill space must be used optimally and valued as a scarce resource. Diverting materials that can be reused or recycled from landfill minimises the inefficient use of landfill capacity.

Clause 19: Prohibited Waste to Landfill

Clause 19(1) states that EPA encourages the diversion of those wastes that can be managed higher up the wastes hierarchy from landfill. This is in line with the objectives and intent of the WMP to

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promote efficient reuse of resources and reduce disposal of waste to landfill where a higher waste management option is viably available.

Clause 19(2) enables EPA to prohibit certain wastes from being disposed to landfill if there is a higher waste management option practicably available or the waste poses an unacceptable risk to the environment. While EPA had this ability under the 1991 SEPP, it has been reworded in the WMP to more clearly express the underlying intention of the provision.

To ensure an open and transparent public consultation process, Clause 19(3) requires EPA to undertake consultation with stakeholders prior to prohibiting a waste. This may include publishing a notice in the relevant newspapers and seeking comments from those likely to be affected. EPA would work with relevant stakeholders to assess the implications of banning a specified waste from landfill.

Once the consultation process has concluded and comments have been taken into account, EPA will then determine whether or not to ban the disposal of the waste to landfill. Where EPA decides to prohibit the disposal of a waste to landfill, a range of actions will be undertaken to explain and communicate the ban.

Clause 19(4) outlines the factors to which EPA will have regard in making such a determination. These factors include the environmental risk posed by the waste and the practicability of avoidance, reuse and recycling, including the availability of secondary markets and technical, logistical and financial considerations.

Green waste, steel, timber, concrete, asphalt, electrical equipment (computers, mobile phones), waste tyres, batteries and fluorescent light tubes were materials which stakeholders identified during consultation on the draft WMP as possible materials to ban from landfill.

The solid waste strategy currently being finalised by EcoRecycle also identifies priority waste streams and materials where viable secondary markets exist that may warrant consideration.

Any waste prohibited to landfill will be published in the Government Gazette as stated in Clause 19(5).

Clause 19(6) outlines those wastes that currently cannot be disposed of to landfill. This includes certain categories of prescribed wastes, liquid wastes, whole automotive tyres and nightsoil, which have been carried over from the previous SEPP.

The only new addition to this list is for any waste prohibited by a National Environment Protection Measure (NEPM). NEPMs are broad framework-setting statutory instruments defined in the *National Environment Protection Council Act (Victoria) 1995*. They outline agreed national objectives for protecting or managing particular aspects of the environment. Currently no waste has been prohibited for disposal to landfill in a NEPM.

Clause 19(6) also highlights existing requirements under the *Health Act 1958* in relation to the disposal of radioactive substances to landfill. In order to dispose of radioactive substances to landfill, as defined by the *Health (Radiation Safety) Regulations 1994*, the landfill operator must obtain licence approval or an exemption in accordance with the *Health Act 1958*. The regulations do provide general exemptions for certain materials, such as smoke

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detectors. Further information on this process can be obtained from the Department of Human Services (www.dhs.vic.gov.au).

Key points

Clause 19 encourages the landfill disposal of only those wastes that have no higher waste management option viably available. These provisions help encourage the development of markets for recycling and improve sorting facilities available to the community. Reducing the amount of waste deposited to landfill will also conserve landfill space and thereby reduce the number of new landfills required.

Clause 20: Landfill Gas

Landfill gas is produced by the decomposition of organic materials in solid waste. Methane and carbon dioxide typically comprise 99 per cent of landfill gas. Methane is a greenhouse gas with a global warming potential of 21 times the effect of carbon dioxide. Methane emissions from landfill also have local impacts including damage to vegetation, unpleasant odours and risk of explosion and asphyxiation.

All landfill operators are required to manage greenhouse gas emissions, such as methane and carbon dioxide, consistent with the State Environment Protection Policy (Air Quality Management) 2001. Under the requirements of this policy, the *Protocol for Environmental Management (PEM) – Greenhouse Gas Emissions and Energy Efficiency in Industry* provides guidance to businesses subject to works approval and licensing, including landfill operators, on their requirements for the management of greenhouse gas emissions

and energy consumption. Licensed landfill operators are required to develop an action plan that includes an estimate of greenhouse gas emissions and identifies and evaluates opportunities to reduce these emissions consistent with best practice.

EPA has also published the *Environmental Guidelines for Reducing Greenhouse Gas Emissions from Landfills and Wastewater Treatment Facilities* (Publication 722, November 2000), which provides information on the options available to operators including waste minimisation, reuse, recycling and energy recovery to manage and reduce greenhouse emissions.

Clause 20(1) enables EPA to require a landfill operator to install and manage a landfill gas collection system in existing and/or new landfill cells to control odour, where the emissions pose a hazard or to reduce greenhouse gas emissions. This is not a new requirement, as it was carried over from the 1991 SEPP.

Currently there are 23 landfills in Victoria – mainly within metropolitan Melbourne – that have installed systems to capture landfill gas for energy generation. This represents approximately 40 megawatts of electricity generating capacity from landfill gas⁷. Other landfill sites have either passive venting systems or flares to reduce emissions.

Energy recovery should be considered in preference to flaring as landfill gas utilisation is both environmentally beneficial and helps to offset the costs of landfill gas control. With the growing market for energy sources not derived from fossil fuels, the

⁷ The State of Victoria, Department of Natural Resource and Environment, 2002 'Victorian Greenhouse Strategy'

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number of landfills collecting landfill gas for energy recovery is likely to increase over time.

Key points

Landfills are the main source of greenhouse gas emissions from the waste management sector. Those responsible for current and closed landfills, and for planning future landfills, must manage greenhouse gas emissions in accordance with best practice. Clause 20 provides for significant environmental benefits through the minimisation of greenhouse gas emissions.

The management of greenhouse gas emissions involves collecting gas for energy recovery, flaring or implementing practices that control gas production rate and composition. Many landfill operators are capturing and using methane for energy recovery. This not only reduces greenhouse gases and generates an energy source but can also provide economic benefits.

Clause 21: Environment Improvement Plan

Clause 21(1) enables EPA to require a licensed landfill operator to prepare and submit an environment improvement plan (EIP).

EIPs are tools already widely used by industry to continually improve the environmental performance of their site through identifying opportunities for environmental improvement and to ensure that the risk of adverse environmental impacts are minimised throughout the life of the landfill.

EIPs may be initiated by the landfill operator, be required as a licence condition to replace detailed prescriptive conditions in licences, or may be

directed by EPA to be prepared in accordance with section 31C of the Act.

Many landfill operators already have an EIP for their site, as required by their works approval or licence. Some landfill operators may have addressed some or all components of an EIP through the development of other tools such as an environment management plan. In these circumstances there would be no requirement to produce a separate EIP.

For further information about EIPs, refer to EPA Publication 394, *Environment Improvement Plans*.

Clause 21(2) encourages those landfills that serve fewer than 5000 people to voluntarily develop their own EIP. This could include identifying opportunities for reuse and recycling and ways in which to improve the operation, management and rehabilitation of the landfill.

Clause 21(3) requires the landfill operator in preparing and submitting an EIP to take into consideration each relevant RWMP, neighbourhood environment improvement plans and the SIWMP. This is to ensure that the site EIP is consistent with the other relevant plans and enable the operators to work with their local communities to develop a comprehensive and consistent plan to address their environmental performance at the site.

Key points

Clause 21 encourages industry to continuously improve its environmental performance in cost-effective and productive ways. EIPs also play a valuable role in communicating to the local community the industry's commitment to improving performance.

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4.4 Comparison to 1991 SEPP

Table 2 summarises the relationship between the WMP and the 1991 SEPP and identifies changes.

Table 2: Relationship between the 1991 SEPP and WMP

1991 SEPP clause/schedule	WMP clause	Comments on changes and their implications
3. Part I Definitions	Clause 6	Definitions have been amended to be consistent with other statutory policies and the Act.
4. Policy goal	Part I – Policy Framework – 7,8,9	WMP has been expanded to include policy objectives, principles and intent to provide all stakeholders with a greater understanding of Victoria’s framework for landfills.
5. Part II Boundaries of the area affected.	Clause 4	No substantive change or implications.
6. Part III Beneficial uses to be protected.	10(6)	No longer necessary to list specifically as have been incorporated into recent policies such as the SEPP (Groundwaters of Victoria) and SEPP (Air Quality Management). However it is generally stated that beneficial uses of the environment must be protected.
7. Groundwater SEPP inconsistencies	–	No longer necessary as inconsistencies have been removed.
8. Part IV Indicators and objectives	–	No longer necessary to list specifically as have been incorporated into recent policies such as the SEPP (Groundwaters of Victoria) and SEPP (Air Quality Management).
Part V Attainment program 9: Implementation	Part II – 10	Clearly outlines the responsibilities of EPA, EcoRecycle, RWMGs, municipal councils, industry and the community in pursuit of the objectives, principles and intent of the policy.
10. Planning policy	11, 12	Updated to reflect the need for stakeholders involved in planning and siting of landfills to take into account RWMGs, SIWMP and the BPEM. Also the importance of undertaking consultation in the development of draft plans.
11. WA and licensing	14	Requirements for WA and licensing remain the same.
12. Variations to licenses and WA	15(4)	Clearly outlines what the Authority will consider when measures alternative to the suggested measures of the BPEM are proposed.
13. Review	–	Removed, as is now a requirement of the <i>Environment Protection Act 1970</i> .
14. Planning new landfill sites	21	No longer necessary as s.50R of <i>Environment Protection Act 1970</i> outlines what RWMGs must address in their plans. However the use of EIPs to identify opportunities for environmental improvement and management is outlined in Clause 21.
15. Landfill site selection	13 and Schedule A	WMP requires a number of parameters to be considered including those in the BPEM such as proximity to the community and alternative uses for the site. Tables 2 and 3 in 1991 SEPP have been updated in BPEM and Schedule A.
16. Attenuation zones	–	No longer necessary as has been updated under the SEPP (Groundwaters of Victoria)
17. Landfill site development standards	15, 16	Siting, design and management standards are detailed in the BPEM and the WMP.

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18. Waste allowed in landfill sites	19	The section outlining specific wastes allowed has been removed. Encourages landfill disposal only for those wastes that cannot be practicably managed higher up the wastes hierarchy.
19. Wastes not allowed in landfill sites	19	The provision for banning certain wastes for disposal to landfill remains unchanged but the WMP provides information on what the Authority will consider when making their decision. The wastes prohibited from landfill also include those prohibited under a NEPM.
20. Operation of landfill sites	15, 16, 17, 18	The operator of a landfill must meet the objectives and required outcomes of the BPEM. The WMP contains a provision for facilities to be established for the segregation and collection of reusable and recyclable wastes at landfill sites. The WMP also addresses the management of landfills exempt from licensing.
21. Site completion and rehabilitation	15, 16	Rehabilitation must be in accordance with the BPEM. After-care must be ongoing until the site no longer poses a risk to the community or environment.
Part VI – Related activities 22. Research	10	Outlines the responsibility of all stakeholders to work in partnership to achieve the policy objectives, principles and intent.
23. Training	10	Outlines the responsibility of stakeholders, particularly operators, to work in partnership to achieve the policy objectives, principles and intent.
24. Public Education	10	Outlines the responsibility of all stakeholders, particularly EPA, EcoRecycle and local government to work in partnership to achieve the policy objectives, principles and intent.
Schedule A	15, 16, 17, 18, 20.	Removed. Provisions have been updated under more recent SEPPs, the BPEM and requirements under the WMP, including specific clauses on landfills exempt from licensing.

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5 SUMMARY OF IMPACTS OF POLICY OPTIONS

The previous chapters have provided background information and analysis on the WMP. The PIA has considered the broad implications of the approaches required to achieve the policy objectives. This final chapter is intended to provide a summary of the key impacts that flow from the implementation of the policy, as well as the benefits and costs of each of the alternative policy options discussed in Chapter 3.

In considering these impacts it should be noted that waste management costs include the costs of collection, transport, sorting and disposal. Most costs arise from the collection, transport and sorting of wastes; disposal represents a minority of overall costs. The policy, and this impact assessment, relates principally to disposal costs.

Since 1991 the SEPP has helped to drive significant improvements in the management of landfills in Victoria. Despite these improvements, landfills still pose a significant concern and cost to the community due to potential adverse impacts on the environment, human health and amenity.

The WMP plays a key role in improving landfill management standards and thereby minimising the risk of adverse environmental impacts in the future. The policy also encourages the efficient reuse of resources by providing a framework for cooperative and coordinated action and updates the 1991 SEPP in a number of important ways to provide a framework for continuous improvement. In particular the WMP improvements include:

- reflecting changes in approaches to waste management, including placing greater emphasis on managing wastes higher up the wastes hierarchy
- adopting the philosophy of continuous improvement through the implementation of best-practice measures in planning, siting, design and management of landfills
- ensuring the ongoing protection of the community and the environment by minimising the development and use of landfills for the disposal of waste.

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5.1 WMP (Siting, Design and Management of Landfills)

Benefits	Costs
<p>Improved planning, siting and design requirements that will avoid inappropriate siting of landfills, thereby reducing impacts and cost on the community, landfill operators and the environment.</p> <p>The adoption of best-practice standards for siting, design, operation and rehabilitation of landfills will improve environmental quality and reduce the burden on future generations from the management and post-closure use of landfills.</p> <p>The objectives and required outcomes in the BPEM generally represent existing statutory policies and regulations and therefore do not impose new requirements on operators.</p> <p>Allows flexibility for innovation to meet and go beyond BPEM requirements.</p> <p>Greater equity in the operational standards and cost structures across the landfill industry.</p> <p>Cleaning up of pollution from landfills is very costly and often unable to completely restore the original environmental quality. The cost of best practice is considerably less than the cost of managing a contaminated site and resultant loss of amenity.</p> <p>Clearly outlines roles and responsibilities of stakeholders, leading to improved partnerships and stronger links between planners, operators and the community.</p> <p>Promotes waste minimisation and resource recovery infrastructure to reduce the amount of waste disposed to landfill. This encourages market opportunities for recycling and, in the long term, leads to lower costs to consumers for recycling services.</p>	<p>Minimal cost for those landfill operators currently meeting the objectives and required outcomes of the BPEM.</p> <p>Long-term financial liability of a landfill site will be dependent on their compliance with the policy and implementation of best-practice standards.</p> <p>Possible increases in landfill management costs may result in increased waste disposal charges for consumers. However improved landfill management will minimise costs on the environment and the community in the long term.</p> <p>Charges (gate prices) for the disposal of municipal waste at landfills where the BPEM has already been implemented have only increased by around five per cent (implemented over two to three years), resulting in gate fees of around \$30 to \$50 per tonne of municipal waste (depending on the area). These charges compare favourably with landfills in New South Wales, where gate prices for the disposal of municipal waste are around \$85 per tonne.</p> <p>Licensed landfills in municipalities listed in Schedule C that do not use a weighbridge will be required within three years of the policy coming into force to do so. The average cost of a new weighbridge ranges between \$50,000 and \$65,000. A second-hand weighbridge costs around \$30,000.</p> <p>Costs will be associated with updating licences for EPA.</p>

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5.2 Option 1: Do nothing

Benefits	Costs
<p>Retains existing statutory framework – no change to requirements.</p> <p>Provides guidance, though limited, to stakeholders on roles and responsibilities.</p> <p>Short-term cost savings as some landfill sites will delay or avoid implementation of best-practice standards.</p> <p>EPA would not have to update licences.</p>	<p>Does not allow for the development or implementation of best-practice standards.</p> <p>Limited representation of community expectations of the level of environmental protection required.</p> <p>Operators applying best-practice measures would be disadvantaged in the short term as some competitors will have lower costs.</p> <p>Does not reinforce the current institutional arrangements, in particular RWMGs and EcoRecycle.</p> <p>Market signals (incorporation of environmental impacts and management) would not be reflected in landfill pricing and would likely lead to increases in waste disposal to landfill.</p> <p>Continued risk of long-term costs to environment and the community as landfills would not be managed to best-practice standards.</p>

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5.3 Option 2: Revoke the policy

Benefits	Costs
<p>BPEM provides guidance to landfill operators on the measures they should be putting in place to achieve best-practice environmental performance.</p> <p>Short-term financial benefits for those who do not implement best-practice standards.</p> <p>EPA would not have to update licences.</p>	<p>No statutory framework to ensure the protection of community and environment from the potential adverse impacts of landfilling.</p> <p>Reduced ability by EPA to enforce best practice and thereby avoid future environmental issues – the focus would shift from prevention to clean-up after pollution has occurred.</p> <p>A significant gap in providing guidance to stakeholders on their roles and responsibilities in the management of landfills.</p> <p>Limited guidance for unlicensed landfill operators.</p> <p>No statutory framework to require a level playing field; some operators may choose not to implement best-practice standards and gain a cost advantage over competitors.</p> <p>Significant risk of long-term environmental and financial costs for landfills not implementing best-practice standards.</p> <p>Probable reduction in diversion of recyclable materials from landfill.</p> <p>Landfill charges would not reflect the environmental costs of disposing of waste to landfill where best-practice standards are not implemented.</p>

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APPENDIX A: GUIDELINE FOR ENVIRONMENTAL MANAGEMENT – LANDFILLS EXEMPT FROM LICENSING – PRELIMINARY OUTLINE FOR COMMENT

Introduction

Guideline applies to landfills exempt from licensing
(those serving less than 5000 people)

Outline the statutory framework

Objectives

Landfill design

Site layout including signs, fences, buffer distance

Dimension of landfill cells

Liner system

Leachate collection system

Landfill operation

Waste minimisation – reuse/recycling facilities

Waste acceptance

Site supervision and security

Waste placement & cover

Water management – stormwater, surface water,
groundwater, leachate

Air quality – landfill gas, dust, odour

Litter control

Noise

Pest and vector control

Fire control

Rehabilitation and after-care

(see EPA Publication 674, *Rehabilitation of Landfills
Exempt from Licensing*, November 1999)

Rehabilitation plan

Site preparation

Capping

- Low permeability barrier.
- Construction quality assurance plan.
- Surface capping layer.
- Cap profile.

After-care

- Cap maintenance.
- Monitoring program.
- After-use of the site.

Record keeping

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APPENDIX B: CONSULTATION PLAN – WASTE MANAGEMENT POLICY (SITING, DESIGN AND MANAGEMENT OF LANDFILLS)

Background

The State Environment Protection Policy (Siting and Management of Landfills Receiving Municipal Wastes) (the SEPP) was declared on 1 July 1991. EPA undertook a statutory review of the SEPP and determined that Victoria's policy framework for landfills needs to be updated to take into account issues and changes that have occurred over the last decade and provide a framework that promotes continuous improvement.

In June 2002, the *Environment Protection Act 1970* (the Act) was amended to introduce waste management policies to provide the strategic statutory framework within which waste management activities must operate. As the management of landfills clearly falls within the ambit of a waste management policy, EPA proposes to develop a *Waste Management Policy (Siting, Design and Management of Landfills)* (the WMP). This will occur instead of proceeding with a variation to the existing SEPP as previously advertised in 2001.

There is a need for stakeholders to work together in developing the WMP to produce a policy that provides clear direction on the statutory requirements for the siting, design and management of landfills. The management of a landfill includes all phases of a landfill's construction, operation, rehabilitation and after-care.

CONSULTATION PLAN

Issues to be consulted about

- Content of draft WMP and draft policy impact assessment (PIA).
- The policy process and timeline for finalisation and implementation.

Consultation objectives

- Undertake effective consultation with a range of stakeholders on the policy.
- Provide information to stakeholders on the policy process.
- Provide a copy of draft WMP and draft PIA to all interested stakeholders and discuss how it may relate to them.
- Listen, understand and respond to stakeholder issues and concerns with regard to the draft policy and PIA.
- Seek participation and feedback from stakeholders.
- Establish/reinforce positive ongoing relationships with stakeholders.

Stakeholders to be consulted

- Landfill operators
- Local councils
- Regional Waste Management Groups (RWMGs)
- Association of Victorian Regional Waste Management Groups (AVRWMG)
- Victorian Local Governance Association (VLGA)
- Victorian Waste Management Association (VWMA)

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- Waste Management Association of Australia – Landfill Victoria
- Municipal Association of Victoria (MAV)
- EcoRecycle Victoria
- Consultants to landfill operators and industry
- Communities affected by landfills
- Relevant EIP groups
- Consultative committees
- Other relevant government agencies (DSE, DPI, DHS, DIIRD and SEAV)
- Environment Victoria
- Friends of the Earth (FOE)
- Greenpeace
- Australian Conservation Foundation (ACF)
- Victorian Farmers Federation (VFF)

Phase One: Pre-consultation

Key message: EPA proposes to develop a waste management policy on landfills, rather than vary the SEPP as previously advertised. We look forward to stakeholder involvement throughout the process.

Preliminary consultation was undertaken with representatives from key stakeholder groups such as EcoRecycle, MAV, VLGA, VWMA, AVRWMG, Landfill Victoria and Environment Victoria, advising them that a WMP is being developed and the key steps involved in this process.

Notification of EPA's intention to develop a landfill WMP was advertised four times over three weeks (31 August to 14 September 2002) in *The Age* and *Weekly Times*.

On 10 December 2002 EPA conducted a preliminary consultation session for key stakeholders (local government, RWMGs, AVRWMG, MAV, VLGA, landfill licence holders, Landfill Victoria and VWMA) on the policy. This session:

- placed the WMP in the broader context of waste management issues
- outlined the intent of the WMP
- discussed the tools and mechanisms to achieve the intent
- provided an opportunity for questions and discussion.

Phase Two: Release

Key message: Draft WMP and draft PIA were available for review and comment from November 2003 to 2 April 2004.

Local government mayors and CEOs, RWMG executive officers, landfill operators, environment groups, consultants, industry associations, targeted community groups, government agencies and those who registered their interest were notified when the draft WMP and draft PIA were available for comment and where they could obtain a copy. Stakeholders were encouraged to read the documents, attend workshops and provide written comments to EPA on the draft policy.

Notification of the draft WMP and draft PIA was also advertised on three occasions over 21 days in relevant newspapers as required by the Act. Notices/articles were also placed in stakeholder group newsletters such as those of MAV, EcoRecycle, VLGA, Environment Victoria and EPA.

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The draft WMP and draft PIA were made available on EPA's website.

Phase Three: Public comment period

Key message: EPA conducted a number of meetings with stakeholders throughout Victoria to discuss the draft WMP and draft PIA.

The Act requires at least three months for public consultation. Between November 2003 and 2 April 2004 the following meetings were conducted:

- EPA sought comment on the draft WMP and draft PIA. Ideally, written submissions were preferred. However where this was not possible people were encouraged to contact EPA to discuss alternative methods of providing formal feedback.
- Information sessions were held in Melbourne and regional areas on the draft WMP and draft PIA, including questions/answers, discussion on issues/concerns of stakeholders and how their involvement could be input into the WMP. Information was also given on the importance of written submissions and their due date.
- Presentations were made to specific stakeholder groups/associations (such as Landfill Victoria and AVRWMG). This included information on the WMP, potential impacts, questions/answers, discussion on issues/concerns and how their involvement could provide input into the WMP. Information was also given on the importance of written submissions and their due date.

- As required, individual meetings were held with stakeholders to discuss relevant concerns/issues with the draft WMP and draft PIA.

Phase Four: Finalisation

Key message: Comments received on the draft WMP and draft PIA were used in finalising the policy. EPA informed stakeholders of how it responded to their comments.

Comments received on the draft WMP and draft PIA were considered in the finalising the WMP and PIA. Further meetings were held with key stakeholders to discuss their specific comments and how EPA was going to respond to them. Additional meetings were also held with key stakeholders to discuss any significant changes to the policy.

A letter was sent to all stakeholders to thank them for their participation in the process and provide a summary of the main comments received and how EPA has responded to them. The Response to Comments document was sent out to those stakeholders who made a formal submission.

The WMP, PIA and Response to Comments document then went through the appropriate government processes for approval by Governor in Council and subsequent gazettal.

Phase Five: Release and implementation

Key message: EPA has notified stakeholders that the WMP and PIA have been finalised and where they can obtain a copy.

Policy finalisation will be followed by presentations to key stakeholders on the WMP and its implementation. The WMP and PIA are available from EPA and on EPA's website.

WASTE MANAGEMENT POLICY (SITING, DESIGN AND MANAGEMENT OF LANDFILLS)

Phase Six: Evaluate consultation process

Key message: To evaluate the process so that EPA's policy consultation process can improve.

This phase will review the consultation process, identifying whether the objectives have been met and where improvements can be made in the future.

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