



REGULATORY IMPACT STATEMENT

DRAFT ENVIRONMENT PROTECTION (INDUSTRIAL WASTE RESOURCE) REGULATIONS

Publication 1275 March 2009



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ENVIRONMENT PROTECTION (INDUSTRIAL WASTE RESOURCE) REGULATIONS - REGULATORY IMPACT STATEMENT

This regulatory impact statement (RIS) has been prepared to fulfill the requirements of the *Subordinate Legislation Act 1994* and to facilitate public consultation on the proposed *Environment Protection (Industrial Waste Resource) Regulations 2009*. A copy of the draft regulations is provided as an attachment to this regulatory impact statement.

Public comments and submissions are invited on the proposed regulations, in response to information provided in this regulatory impact statement. All submissions will be treated as public documents. Written comments and submissions should be forwarded no later than Friday 3 April to:

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Prepared for EPA by PricewaterhouseCoopers.

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EXECUTIVE SUMMARY

Prescribed industrial waste (PIW) in Victoria is currently regulated by the *Environment Protection Act 1970* (the Act) and the associated subordinate legislation – the *Environment Protection (Prescribed Waste) Regulations 1998* (the Regulations) and the *Industrial Waste Management Policy (Prescribed Industrial Waste) 2000* (the Policy). The Regulations are due to sunset in July 2009. This means that the Regulations will cease to operate and new regulations will need to be made.

If the Regulations were allowed to sunset then there is expected to be an increase in inappropriate disposal of industrial waste and this would result in significant costs to the economy, the environment and the community more generally. The main reason for this is that the market does not provide adequate incentives for business to take into account the costs imposed on the community of industrial waste production.

Without regulations there would be no definition for prescribed industrial waste and it would be significantly harder for the Environment Protection Authority (EPA Victoria, EPA) to monitor and ensure compliance with other provisions in the Act. The Act provides overarching provisions through which EPA can prosecute offenders for causing an environmental hazard or pollution, providing a disincentive to pollute; however, these provisions are generally enforced after the fact, with the damage already done. Regulations seek to provide a structure whereby the impact to the environment and society more broadly is avoided.

EPA undertook extensive stakeholder consultation in the development of the proposed regulations, which identified a number of concerns. Stakeholder consultation also highlighted a number of problems with the current Regulations that provided market obstructions to reuse and unnecessary costs from regulation. These were as follows:

- The complex nature of the existing regulatory system has meant that understanding and thus complying with the regulatory system is difficult. In written submissions some industry stakeholders noted they had received sanctions for non-compliance, but that it was their inability to understand their obligations that led to the non-compliance. Also noted was the time taken, and the costs associated with, negotiating the regulatory system.
- Both industry and stakeholders from the broader community noted regulatory barriers to reuse and recycling. Under the existing regulatory system 24 per cent of prescribed industrial waste is recovered for reuse or recycling, and stakeholders believe that this could be significantly increased if the administrative or regulatory obstructions to reuse and recycling were reduced or removed.
- The prescribed industrial waste reuse exemption process was noted by a large number of stakeholders as being ineffectual and a barrier to the reuse and recycling of prescribed industrial waste. Several leading industry stakeholders documented that they were aware of many companies who would not consider negotiating an exemption and were obstructed from reusing or recycling their wastes, as the cost of landfilling their waste was favourable when compared to the time and costs associated with negotiating an exemption.

The extensive stakeholder consultation has enabled EPA to gain insight into different opinions, beliefs and attitudes towards the current regulations and to help to shape an alternative approach. A number of alternatives have been assessed in this regulatory impact statement. These options are:

- Option 1 – the base case or 'do nothing' approach, which assumes that the current regulations sunset or lapse
- Option 2 – remake current regulations without any changes
- Option 3 – remake the schedules of the current Regulations (which define a prescribed industrial waste) without any other requirements
- Option 4 – remake the schedules of the current Regulations (which define a prescribed industrial waste) without any other requirements, and EPA will also develop and implement an education campaign
- Option 5 – reshape current regulations to:
 - (a) provide a clear definition of which wastes are prescribed
 - (b) provide definitions of non-prescribed (inert/innocuous/nuisance) industrial waste
 - (c) allow for reuse and recycling with a streamlined exemption process
 - (d) provide for exclusion of material with an established, direct beneficial reuse that would otherwise be a prescribed waste.

Option 1 represents the 'do nothing' base case, Option 2 is the status quo, while Option 5 will be put forward as the preferred option for the new regulations.

It is expected that it will take two years for a change in regulations to change the way that waste is managed. This is based on EPA's considered view on what is likely to occur following the remaking of the regulations. The known or expected rates of reuse/recycling for these options are 10 per cent for Option 1, 24 per cent for Option 2 and 40 per cent for Option 5 (see Appendix D). Under a base-case scenario, with no obligation to reuse materials, there would

remain a component that is recovered due to its feasibility and inherent resource value. A reuse/recycling rate of 40 per cent has been estimated for Option 5, based on the stakeholder advice and EPA expectations if direct reuse of material was facilitated and encouraged in the regulations, and the existing exemption process was streamlined, simplified, faster and applied consistently.

The increased rate of reuse and recycling expected to be achieved under Option 5 does not factor in the influence of landfill levies, which provide an incentive to produce less waste, nor does it consider the influence of the HazWaste Fund, which provides support to industry to implement reuse/recycling opportunities. The influence of the landfill levies and the HazWaste Fund are expected to provide additional reductions in the volume of prescribed industrial waste requiring landfill disposal, both through avoiding production of prescribed industrial waste in the first instance, and facilitating and promoting reuse and recycling.

A cost-benefit analysis was undertaken in which each of the options outlined above was assessed relative to Option 1 – the base case – and the estimated net benefit over the life of the proposed regulations are set out in Table ES.1.

All of the options considered, except the base case, involve remaking the definition of prescribed industrial waste via the Schedules. This has flow-through implications for other legislative requirements, such as landfill levies and the requirement to treat Category A waste. The cost-benefit analysis has therefore taken a broader approach and considered the benefits and costs that extend beyond the administrative requirements of the regulations. Notwithstanding this broader approach, readers are encouraged to focus on the specific requirements set out in the regulations including the schedules and administrative requirements.

Table ES.1: Summary of all options (10-year net present value [NPV])¹

	Benefits (\$M)	Costs (\$M)	10-year net outcome (\$M)
Option 2	1,707.0	1,211.2	495.8
Option 3	1,142.8	849.6	293.2
Option 4	1,349.3	888.3	461.0
Option 5	1,946.5	1,116.3	830.2

The cost-benefit analysis highlighted that all options result in a net benefit relative to allowing the regulations to sunset. The analysis shows that Option 5 – that is, the proposed regulations – has the highest net benefit of all the options. This benefit is estimated to be approximately \$830 million in net present value terms. These estimates are based on conservative assumptions about the potential benefits and the analysis takes at face value industry estimates of administration costs and, therefore, the actual benefits could well be higher.

One of the more critical assumptions in the model is the value that society places on the inappropriate disposal of waste. The assumption adopted is that society values the appropriate management of waste by at least the same amount as the cost of treatment of prescribed industrial waste. While consultation did not highlight that stakeholders had a contrary view, specific feedback on this assumption is sought.

Feedback is also sought from industry participants regarding the reasonableness of the time estimates for administrative requirements relating to the regulations. These estimates are outlined in Appendix D.

The analysis shows that the proposed regulations impose higher costs on industry than some of the alternatives. Specifically, Option 2 and Option 5 impose administration costs on business over and above what would be incurred if the regulations focused only on remaking the schedules which define prescribed industrial waste. However, Option 3 and Option 4 result in lower expected benefits.

The decision criterion, consistent with the Government’s policy objectives, is to adopt the policy option that results in the highest net benefit and promotes the optimal management of industrial waste. In this regard, the proposed regulations result in the highest estimated net benefit.

Relative to the current regulations, the proposed regulations are expected to result in an administrative cost saving of approximately \$6.2 million per year.

In light of some of the uncertainties associated with the forward projects used in the model, EPA has committed to preparing an independent assessment of the impact of the change in regulations in the third year of their implementation. This assessment will include an updated cost-benefit analysis, if necessary.

¹ Net outcome is net benefits minus net costs; discrepancies between these figures are due to rounding.

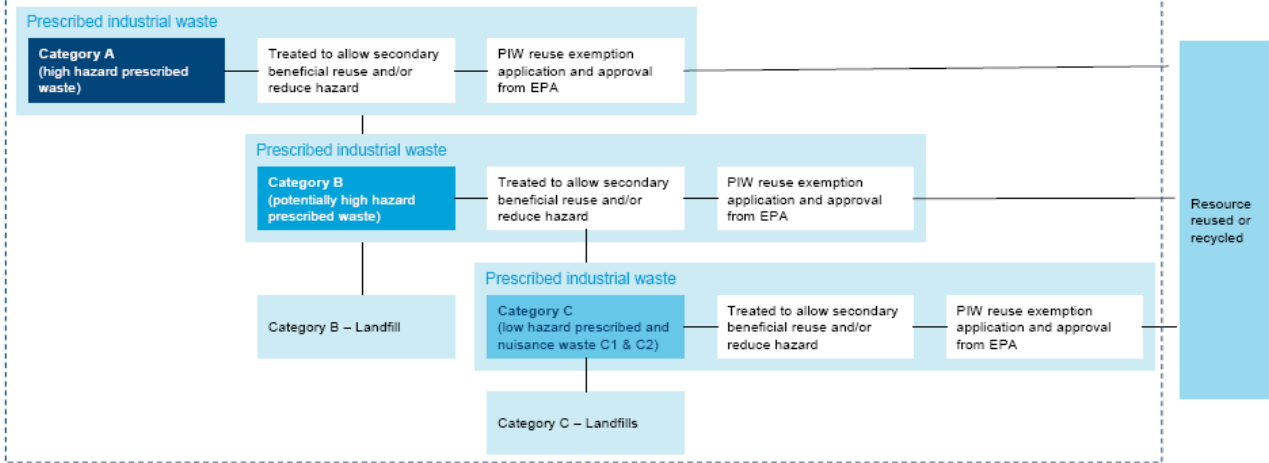
The major differences between the current and the proposed regulations are as follows:

- Changing the way 'prescribed industrial waste' is defined from the current reliance on the Schedule 1 list to rely on the Act to define 'industrial waste' and then provide that all industrial waste is prescribed industrial waste unless it has a 'direct beneficial reuse', 'secondary beneficial reuse' (via exemption), is non-prescribed (in other words, inert, as per new Schedule 1) or its hazard is sufficiently low to drop below the Category C base (this will be determined as part of a separate process to this regulatory impact statement, and will be provided in updated guidelines that will be in place when the proposed regulations take effect).
- Extending the current definitions of hazard categories to include the assessment and classification of waste by waste producers and EPA, as is currently provided by the existing Policy. The Policy is proposed to be revoked if the proposed regulations are made.
- Streamlining the exemption process by allowing waste producers to make their own assessments of their suitability for exemption and provide notification of the intended 'secondary beneficial reuse' to EPA, along with a declaration endorsed by a third party. This will replace the existing prescribed industrial waste exemption process. EPA will retain the ability to attach conditions to exemptions, to refuse to authorise notifications and to amend or revoke authorised notifications.
- Removing under/unutilised components of the current Regulations, such as annual returns and accredited waste producers.
- Simplifying the permitting and placarding requirements for vehicles transporting industrial waste and prescribed industrial waste.
- The transport permits and transport certificate requirements will continue.

Figure ES.2 provides a diagrammatic representation of the current *Environment Protection (Prescribed Waste) Regulation 1998* and the proposed *Environment Protection (Industrial Waste Resource) Regulations 2009*.

Environment Protection (Prescribed Waste) Regulations 1998

Prescribed industrial wastes are listed under Part B of Schedule 1 within the Regulations. Those wastes that fit within the categories listed are Prescribed Industrial Waste and are subject to regulation. Other than through a Prescribed Industrial Waste exemption there is no opportunity for materials to exit the regulatory system.



Proposed Environment Protection (Industrial Waste Resource) Regulations 2009

Non-prescribed industrial wastes are listed in Schedule 1, with all other industrial wastes subject to hazard analysis. Through hazard analysis those wastes that are Classified Category A, B or C are Prescribed Industrial Waste and subject to regulation. Where a waste has a direct beneficial reuse, it is not classed as PIW. PIW can also be treated to reduce its hazard, allowing management as a lower hazard material or, as an industrial waste where the hazard is sufficiently low i.e. below the Cat C threshold.

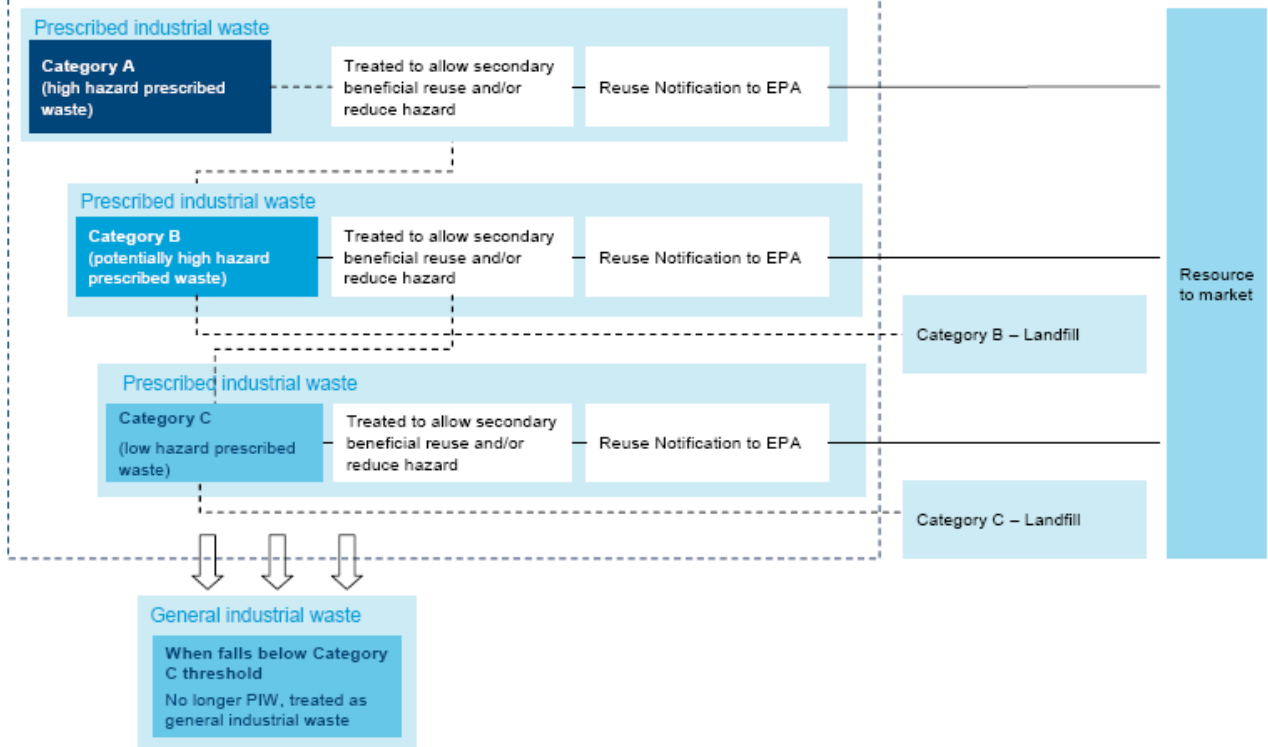


Figure ES.2: Prescribed industrial waste regulation - existing and proposed

1 INTRODUCTION

1.1 Prescribed industrial waste regulations must be remade

Prescribed industrial wastes (PIWs) are regulated under the *Environment Protection Act 1970* (the Act), the associated regulations – the *Environment Protection (Prescribed Waste) Regulations 1998* (the Regulations) – and the *Industrial Waste Management Policy (Prescribed Industrial Waste) 2000* (the Policy). A number of technical guidance documents are also incorporated into the Regulations and the statutory Policy. The Regulations have provided the framework for managing prescribed industrial waste in Victoria for the past 10 years. The statutory Policy was declared by the Governor in Council under Division 1 of the Act in December 2000. It is due to be reviewed in 2010. The Policy and the Regulations are being reviewed together.

The Regulations are due to sunset on 21 July 2009. This means that the regulations will cease to operate and new regulations will need to be made. Section 10 of the *Subordinate Legislation Act 1994* requires that a regulatory impact statement be prepared in respect of a proposed statutory rule or amendment unless an exemption is granted. This regulatory impact statement formally analyses the appreciable burden on a sector of the public of the proposed new regulations against the requirements in the *Victorian Guide to Regulation*.²

The *Victorian Guide to Regulation* requires that regulation should not be introduced, remade or adjusted without clear justification. Therefore, it is necessary to demonstrate the existence of a problem or that there are problems to which the market will not, on its own, provide a satisfactory response. Where there is a circumstance in which the market will not provide a satisfactory response, there is likely to be a need for government intervention of some kind.

In determining whether there is a role for government intervention there must be some form of overarching policy rationale, and for the management of industrial waste this includes the potential impacts on society and the environment from the inappropriate management of industrial waste.

Within this context, this regulatory impact statement sets out the objectives of the proposed amendments, explains their effect, assesses the dimensions of the problem that the proposed amendments seek to address and provides an estimate of the likely impacts – that is, costs and benefits – of a range of alternatives to address the problem, including the proposed amendments.

1.2 What is prescribed industrial waste?

Industrial waste is defined in the Act as:

- any waste arising from commercial, industrial or trade activities or from laboratories
- any waste containing substances or materials which are potentially harmful to human beings or equipment.³

Prescribed industrial wastes are a particular class of industrial waste. They are defined in the Regulations. They are generated from commercial or industrial sources and are highly odorous or potentially hazardous to humans or the environment. Car repair workshops, dry-cleaning services, fast-food chain stores, food processing plants, chemical, paint and plastics manufacturing, dental surgeries and hospitals all generate types of prescribed industrial waste.

Prescribed industrial wastes are distinct from other wastes such as:

- municipal wastes, which are wastes that are typically collected from households by local councils through kerbside collections
- commercial and industrial wastes that arise from commercial, industrial or trade activities and include construction and demolition wastes.

For a further discussion on prescribed industrial waste and Victoria's industry waste sector, see Chapter 2.

1.3 The current Regulations

The current Regulations provide the basis for defining, recording, management, transport and the appropriate disposal of prescribed industrial waste.

Schedule 1 of the Regulations sets out what is a prescribed waste or a prescribed industrial waste. The schedule defines prescribed industrial waste in terms of chemical values, its source or its components. Schedule 1 also provides the definitions to classify this waste into categories:

- **Category A** is the highest hazard waste. It is banned from landfill and therefore requires treatment to reduce its hazard before landfill disposal is considered. An example of this waste is highly contaminated tank sludge

² Government of Victoria 2007, *Victorian Guide to Regulation*, Department of Treasury and Finance, Melbourne.

³ *Environment Protection Act 1970*, section 4.

from an oil refinery or other wastes that are flammable, corrosive, explosive or display other hazardous characteristics.

- **Category B** is high-hazard waste. It can be disposed of to a Category B licensed landfill (there is only one such licensed site in Victoria, at Lyndhurst), or it may be treated to further reduce its hazard and allow disposal to a Category C licensed landfill. Examples of this waste are residual waste from a waste treatment facility, paint residues from car manufacturing or lacquers or glue wastes.
- **Category C** is low-hazard waste. It can be disposed of to a licensed Category C landfill, such as a best practice municipal landfill. Examples of this waste are low-hazard contaminated soil from a service station, animal effluent and residues from poultry and fish processing, or packaging wastes such as small containers, cans, bottles, tins, bags, internal liners and bladders.⁴

The Regulations also set out the record-keeping requirements for the transport and management of waste. Transporters of prescribed industrial waste must apply for a permit from EPA under Section 53F of the Act. Waste producers and transporters are responsible for tracking the movement of prescribed industrial waste via the use of transport certificates. The producer, transporter and receiver of the waste must all fill out sections of the transport certificate form. The transport certificate can be submitted to EPA online or in paper form. Premises that produce, treat, store or dispose prescribed industrial waste must produce an annual return relating to the amount, category and quality of prescribed industrial waste.

Part 5 of the Regulations allows EPA to exempt certain persons from complying with particular sections of the Act and the Regulations. Thirty-four exemptions are currently in place. The exemptions are often used when there are opportunities for a prescribed industrial waste to be reused in a production process for the same business. An exemption means that a vehicle permit and tracking through transport certificates is not required.

Part 6 of the Regulations allows for the accreditation of prescribed industrial waste producers to exempt them from transport certificate and record-keeping requirements. An exemption under Part 6 has never been sought or granted.

Further information regarding the current Regulations is set out in Appendix A.

As outlined in the following chapters, particular aspects of the current Regulations will be retained in the proposed industrial waste resource regulations. However, how the regulatory framework operates will be overhauled.

1.4 The proposed amendments

Regulation of industrial waste is typically justified by the potential external impacts on the economy, environment and the community from inappropriate management of industrial waste.

In this light, and after extensive consultation with stakeholders (including initial targeted interviews, four half-day workshops, stakeholder submissions and an online survey), the proposed changes to the current regulations are as follows:

- The definition of 'prescribed industrial waste' will change from the current reliance on the list in Schedule 1 of the current Regulations to a reliance on the definition of 'industrial waste' in the Act, with all industrial waste defined as prescribed industrial waste unless it is classified as non-prescribed in a new Schedule 1 list, has a 'direct beneficial reuse' or 'secondary beneficial reuse' (via reuse notification to EPA), or its potential hazard is below the (yet-to-be-established) base-threshold for Category C prescribed industrial waste. The base threshold for Category C waste will be determined as part of a separate process to this RIS, which will commence shortly. EPA Publication 996 (*Guidelines for hazard classification of solid prescribed industrial wastes*) will then be amended accordingly.
- Part 2 of the proposed regulations will replace the prescribed waste management decision framework and classification provisions currently set out in Clause 11 and Schedule 2 of the Policy. The Policy will therefore become redundant under the proposed option and is incorporated into the regulations.
- Assessment and classification by waste producers and EPA to be included in the regulations. Currently the regulations do not deal with classifying waste (beyond the definitions of hazard categories), as this is outlined in the Policy.
- The current regulations require the Authority to assess applications for exemption. Part 5 of the proposed regulations require waste producers to make their own assessments and provide notification of the intended 'secondary beneficial reuse' to EPA, along with a declaration endorsed by a third party. EPA will retain the ability to attach conditions to these reuses, to refuse to authorise reuses and to amend or revoke previously authorised reuses.
- Annual returns and accredited waste producers have been removed from the proposed regulations.

⁴ EPA Victoria 2008, 'Classifications Issues by EPA', website: www.epa.vic.gov.au/waste/classifications_by_EPA.asp, accessed 8 October 2008.

- Permitting and placarding requirements are simplified under the proposed regulations.

1.5 Structure of this regulatory impact statement

The analysis in this regulatory impact statement (RIS):

- outlines the background to the industry (Chapter 2)
- identifies the problem to be addressed by the proposed regulations (Chapter 3)
- outlines the objectives of the proposed regulations (Chapter 4)
- outlines alternatives to be considered in the RIS (Chapter 5)
- assesses the costs and benefits of the alternatives, including the proposed regulations (Chapter 6)
- provides an evaluation of the alternatives (Chapter 7)
- discusses the impact on small business and competition (Chapter 8)
- describes the preferred model (Chapter 9)
- outlines stakeholders consulted in the preparation of this RIS (Chapter 10).

The RIS is also supported by a number of appendices:

- Appendix A – The proposed regulatory changes
- Appendix B – The current regulatory framework
- Appendix C – An interjurisdictional comparison and risk-based regulation
- Appendix D – Cost-benefit analysis information sources
- Appendix E – Online survey questions
- Appendix F – Provides the key responses to the survey questions.

2 BACKGROUND TO THE INDUSTRY

2.1 Introduction

In addition to heavy industry, businesses such as dental surgeries, dry cleaners, car repair workshops and hospitals all produce prescribed industrial waste. To ensure an appropriate context for the discussion on regulatory options, this chapter provides an overview of the waste industry with a focus on prescribed industrial waste.

2.2 What is prescribed industrial waste?

As set out in Chapter 1, industrial waste is defined in the Act as:

- any waste arising from commercial, industrial or trade activities or from laboratories
- any waste containing substances or materials that are potentially harmful to human beings or equipment.⁵

The Regulations then define prescribed waste and prescribed industrial waste, with the prescribed industrial waste then classified by its potential hazard. There are two main documents that aid with this assessment of prescribed industrial waste into one of three categories (Category A, Category B and Category C). These are as below:

- Publication 448.3 (*EPA publication 448 Classification of wastes*), used to classify contaminated soils
- Publication 996 (*Guidelines for hazard classification of solid prescribed industrial wastes*), used to classify solid prescribed industrial wastes.⁶
- Classification is representative of the level of potential hazard the waste poses to human health, amenity and the environment. The classification determines which authorised transporter, facility treatment operator and/or landfill can accept the waste for transport, treatment and / or disposal.

The categories of prescribed industrial waste, including their characteristics and management options, are set out below.

Category A

Category A is the highest hazard waste category. It requires high-level control and ongoing management. Waste is classified as Category A if it contains any contaminant concentration or leachable concentration greater than those specified in the guideline documents, or if it exhibit hazardous characteristics, as listed in the table below.

Table 2.1: Specific hazard characteristics for solid wastes

Hazard characteristic	Definition
Explosive wastes	An explosive waste is a solid waste (or mixture of wastes) which is, in itself, capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings. These are wastes classified as 'Class 1' under the provisions of the <i>Road Transport (Dangerous Goods) Act 1995</i> and/or classified as 'Goods too dangerous to be transported' under the Australian Dangerous Goods Code
Flammable solid wastes	Waste solids, other than those classified as explosives, that, under conditions encountered in transport or containment, are readily combustible or may cause or contribute to fire through friction. These are wastes classified as 'Class 4.1' under the provisions of the <i>Road Transport (Dangerous Goods) Act 1995</i> .
Wastes liable to spontaneous combustion	Wastes that are liable to spontaneous heating under normal conditions encountered in transport, or to heating up in contact with air, and being then liable to catch fire. These are wastes classified as 'Class 4.2' under the provisions of the <i>Road Transport (Dangerous Goods) Act 1995</i> .
Wastes that, in contact with water, emit flammable gases	Wastes which, by interaction with water, are liable to become spontaneously flammable or to give off flammable gases in dangerous quantities. These are wastes classified as 'Class 4.3' under the provisions of the <i>Road Transport (Dangerous Goods) Act 1995</i> .
Oxidising wastes	Wastes that, while in themselves not necessarily combustible, may, generally by yielding oxygen, cause or contribute to the combustion of other materials. Note: These are wastes classified as 'Class 5.1' under the provisions of the <i>Road Transport (Dangerous Goods) Act 1995</i> .

⁵ *Environment Protection Act 1970*, Section 4

⁶ Note that publication 996 provides a bottom limit for Category C waste. Waste that falls below the bottom limits is inert and therefore does not have to be treated as prescribed industrial waste. Publication 448.3 does not provide bottom limits and this has been criticised by industry for not providing sufficient clarity on what is and what is not a waste.

Hazard characteristic	Definition
Organic peroxide wastes	Organic wastes that contain the bivalent O-O structure and that are thermally unstable and may undergo exothermic, self-accelerating decomposition. These are wastes classified as 'Class 5.2' under the provisions of the <i>Road Transport (Dangerous Goods) Act 1995</i> .
Infectious wastes	Wastes containing viable micro-organisms or their toxins that are known or suspected to cause disease in animals or humans. These include clinical and related wastes as prescribed in the <i>Environment Protection (Prescribed Waste) Regulations 1998</i> and is waste classified as 'Class 6.2' under the provisions of the <i>Road Transport (Dangerous Goods) Act 1995</i> .
Corrosive wastes	Wastes that, by chemical action, will cause severe damage when in contact with living tissue or, in the case of leakage, will materially damage or even destroy other goods or the means of transport or containment; they may also cause other hazards. This includes wastes classified as 'Class 8' under the provisions of the <i>Road Transport (Dangerous Goods) Act 1995</i> .
Wastes that liberate toxic gases in contact with air or water	Wastes that, by liberation with air or water, are liable to give off toxic gases in dangerous quantities. These are wastes liable to give off toxic gases that are classified as 'Class 2.3' under the provisions of the <i>Road Transport (Dangerous Goods) Act 1995</i> .

Source: EPA Publication 448 Classification of Wastes (May 2007)

Category A waste is banned from landfill and requires treatment by a licensed treatment facility to reduce its hazard (at least to a Category B waste classification) before landfill disposal can be considered.⁷ Highly contaminated tank sludge from an oil refinery is an example of Category A prescribed industrial waste.

Category B

Category B waste is a high-hazard waste stream. It includes wastes with any contaminant concentration or any leachable concentration greater than those specified by Schedule 1 of the Regulations, but not exceeding the contaminant and leachable levels specified under Category A. Waste must first be considered and excluded from Category A waste criteria before being classified Category B.

Treatment is preferred if existing technology is available to reduce the hazard risk from Category B to Category C, although this is not mandatory. If treatment is not possible, disposal must be made at the only currently operating licensed landfill in Victoria – Lyndhurst.

An example of a Category B prescribed industrial waste is paint residue from a car manufacturer.

Category C

Low-hazard prescribed industrial wastes are defined as Category C. In the case of contaminated soil, Category C includes wastes with any contaminant concentration or any leachable concentration greater than those specified by the classification guidelines for Category C but not exceeding the contaminant and leachable levels specified under Category B guidelines. In the case of all other prescribed industrial wastes, Category C contaminant concentration or any leachable concentration must not exceed those specified by the classification guidelines for Category B guidelines. There is currently no lower threshold for non-soil Category C prescribed industrial waste. Waste must first be considered and excluded from both Category A and Category B waste criteria before it can be classified as Category C.

The Policy classifies Category C waste into two classes, which determine its management requirements. The first classification, called 'C(1)', is waste with potential amenity effects (these effects include highly odorous and/or dusty characteristics). The second classification is 'C(2)' and is waste with other low environmental risks. Again, treatment is preferred to reduce or eliminate the hazard level of this waste before disposal to landfill; where not possible, this waste may be disposed of to a licensed Category C landfill.

Low-hazard contaminated soil from a service station would be classified as a Category C prescribed industrial waste.

2.3 Industrial waste participants

There are a number of participants in the industrial waste supply chain. The supply chain of industrial waste is depicted in Figure 2.2. Waste is produced by an industrial waste producer ('generator') and is transported to one of:

⁷ Victorian Government Gazette 2000, *Industrial Waste Management Policy (Prescribed Industrial Waste)*, Number S 183, Tuesday 5 December 2000, p.12, Schedule 3 notes that a prescribed industrial waste facility can only accept Category B or C waste.

- reuse/recycling
- a Category B landfill if it is classified as Category B (and is not treated to Category C)
- a Category C landfill if it is classified as Category C
- a treatment plant if it is Category A or B and it will be treated down to a lower classification or treated for reuse.

Waste will be reused or recycled, disposed in a Category B or C landfill, or act as an input into another production process.

Each of the arrows in the diagram represents a transport process where a transporter who has a permit to carry prescribed industrial waste will carry the waste between each part of the supply chain.

EPA acts as the relevant authority to ensure the proper transport, treatment and disposal of industrial waste in Victoria.

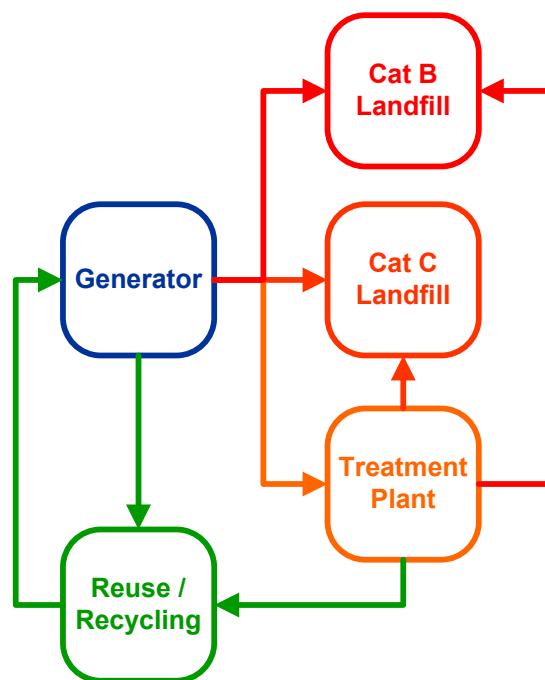


Figure 2.2: Industrial waste supply chain

There are currently around 10,000 prescribed industrial waste generators in Victoria.⁸ While it is difficult to obtain recent and reliable information on the sector that manages the waste generated by these businesses, the Australian Bureau of Statistics (ABS) undertook a survey of public and private businesses involved in waste management services on the size and nature of the industry in 2002-03. The ABS survey reports that, at the end of June 2003, there were 335 public and private businesses providing waste management services in Victoria. These businesses employed 3,673 persons. The waste management services sector is comprised of businesses that:

- collect and transport waste
- collect and transport recyclables
- own or operate transfer stations and/or materials recovery facilities
- own or operate landfills
- operate green waste recycling facilities
- own and operate liquid treatment plants.

In Victoria the waste management industry generated \$641.3 million in income in the year to 30 June 2003. In the same year Victoria provided the second largest share of waste management services, held 30.6 per cent of businesses, 25.5 per cent of employment and 23.9 per cent of income in Australia.⁹

⁸ Data provided by EPA Victoria.

⁹ ABS 2002-03, *Waste Management Services*, Cat. No. 8698.0.

Producers of industrial waste

Industrial waste is generated from building and infrastructure works, industrial and commercial manufacturing and from community services such as hospitals and laboratories. Other, smaller generators include car repair workshops, dry cleaners, dental surgeries, fast food stores and food processing plants. Of the 10,000 prescribed waste producers in Victoria, 80 per cent are located in the Melbourne metropolitan region.

In 2007-08 there were approximately 1,011,430 tonnes of prescribed waste produced in Victoria. Some of this waste is disposed in landfills. EPA reported that, of the estimated 748,000 tonnes of prescribed industrial waste that was transported to Victorian landfills for disposal in 2007, the major component of industrial waste (approximately 85 per cent) was contaminated soil. Contaminated soils originate from the clean-up of old industrial sites, such as the redevelopment of old petrol stations and major projects, including rail and road developments.

Figures 2.3 and 2.4 reflect historical trends for the two main contributors of industrial waste to landfill in Victoria: contaminated soil and manufacturing wastes. These contribute approximately 80 per cent and 15 per cent respectively of prescribed industrial waste sent to landfill annually.

In 2007 there was a significant increase in the quantity of contaminated soil disposed of in landfills from 370,000 tonnes in 2006 to 634,000 tonnes in 2007. The reason for this disproportionate increase is most likely linked to (what was then) the anticipated higher landfill levy on prescribed industrial waste commencing in July 2007.

In contrast to contaminated soil, manufacturing waste contributed considerably lower volumes of industrial waste, representing 15 per cent of the total industrial waste disposed in landfills in 2007. This may be due to industrial sources being better placed to implement cleaner production initiatives and reduce their prescribed industrial waste generation.

It is expected that the volumes for both contaminated soil and manufacturing waste disposed to landfill will be lower than the long-term average in 2008-09 once the effect of the increase in the landfill levy feeds through and companies find alternative ways to manage their waste.

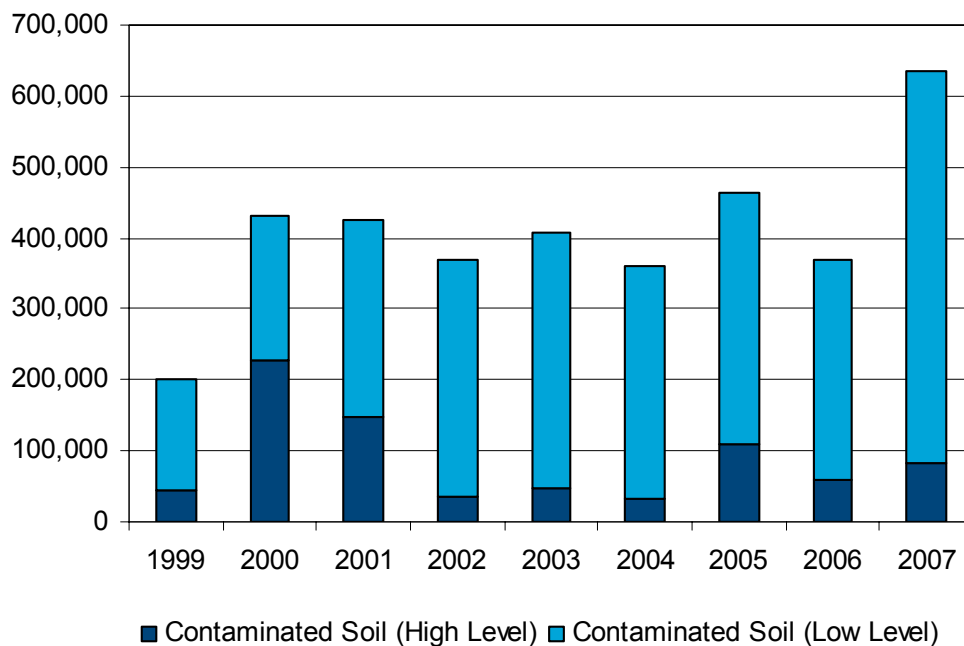


Figure 2.3: Trends in contaminated soil disposed to landfill (tonnes)

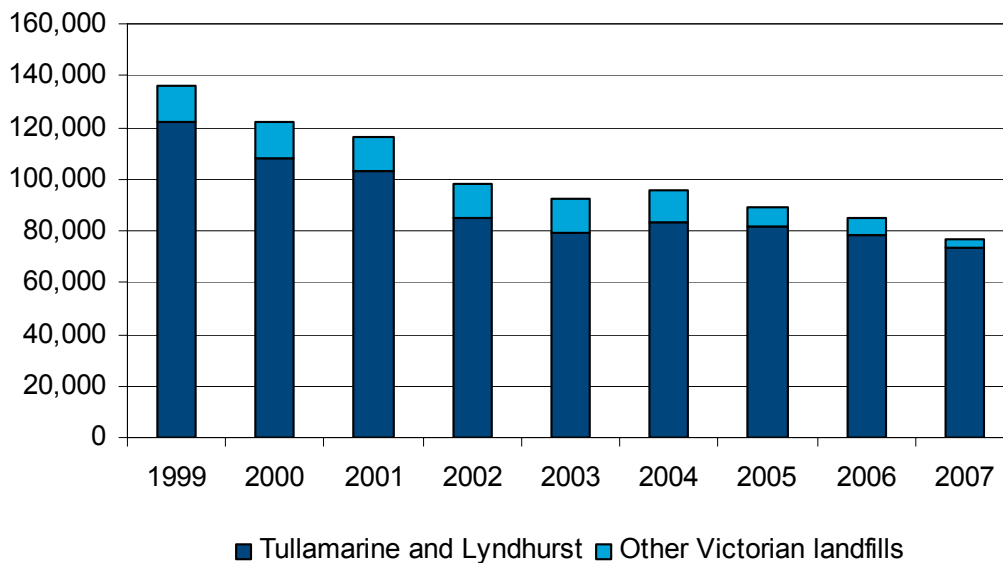


Figure 2.4: Trends in manufacturing waste disposal to landfill (tonnes)

Transporters of industrial waste

There are 1578 vehicle permits issued by the EPA allowing for transport of specified categories of prescribed industrial waste. These permits are held by 150 transport companies, which range from large multi-permit transport companies to small, 'one-person' operations.

Transport of prescribed industrial waste can be carried out by generators, treatment facilitators and/or landfill operators, but also includes individual professional transporters hired for the purpose of carrying out the transport of industrial waste only.

Where generators of prescribed industrial waste do not have the resources to facilitate appropriate transport or do not generate sufficient volume to employ a professional transporter, an accredited agent can be appointed to act on their behalf. Accredited agents must hold an EPA permit that allows for collection of a waste category specified by the permit. There are approximately 90 accredited agents in Victoria.

As an interim, 12-month variation, the interstate movement of prescribed industrial waste is currently regulated by the *Industrial Waste Management Policy (Movement of Controlled Waste between States and Territories)*. This policy variation, which will expire on 23 July 2009, requires transporters who wish to move prescribed industrial waste out of Victoria to be pre-approved by EPA, in addition to obtaining a consignment authorisation given from the jurisdiction of destination required under the *National Environment Protection Measure (Movement of Controlled Waste between States and Territories)*.

An approval can only be granted by EPA if the waste in question will be:

- reused, recycled or used for the recovery of energy in accordance with the principle of wastes hierarchy
- destroyed or deposited at a facility with better environmental performance standards than is available in Victoria.

This approval process does not apply to liquid wastes. The existing approval process for movements of these materials will be maintained. In the 2007-08 financial year there were 19,504 tonnes of prescribed industrial waste produced in Victoria and granted approval to be transported interstate. This represents less than two per cent of the total prescribed industrial waste produced in Victoria.

It is proposed that the provisions governing the interstate movement of prescribed industrial waste, currently provided by the *Industrial Waste Management Policy (Movement of Controlled Waste between States and Territories)* 2008, will be adopted within the proposed regulations.

Treatment of prescribed industrial wastes

Waste treatment facilities are engaged to treat industrial waste so that the hazardous elements of the waste are reduced to a level that allows for reuse, recycling or safe landfill disposal. EPA licenses 160 treatment or disposal facilities in Victoria.

Disposal of prescribed industrial waste

Where prescribed industrial waste cannot be reused, recycled or used for energy recovery it must be disposed of in an appropriate landfill.

EPA has issued 160 licences and exemptions allowing for the acceptance, treatment and/or disposal of prescribed industrial waste in Victoria. Of this figure approximately 25 are licensed landfill operators who are permitted to accept certain Category C (low-hazard) prescribed industrial wastes. The SITA Taylors Road landfill in Lyndhurst is the one exception, as it is licensed to accept Category B (high-hazard) and Category C industrial waste.

Government

Government plays a vital role in the management and regulation of waste management in Victoria through EPA. EPA works together with federal and local governments and Victorian Government departments to determine best practice management of waste.

Community and environmental interest groups

Community and environmental interest groups play a key role in the waste management industry to:

- raise public awareness of the environmental and community impacts associated with industrial waste
- support waste reduction initiatives
- provide localised knowledge of environmental and community concerns
- maintain pressure on industry to continually improve environmental standards
- report illegal dumping and inappropriate disposal of wastes.

2.4 Summary

Waste is an acknowledged, though undesirable by-product of many of the goods and services that the Victorian community produces and consumes. Victorian regulations outline the definitions to classify prescribed industrial waste into one of three categories – A, B or C – based on their hazard characteristics.

There are a number of stakeholders in the waste management industry. Stakeholders range from those who produce, transport, treat or dispose of the waste, to government, community and environmental interest groups.

EPA data shows that there are around 10,000 producers, 1,578 transporters and 160 treatment and disposal facilities for industrial waste in Victoria.

Historical data shows that the disposal of contaminated soil to landfill fluctuates from year to year, while the volume of manufacturing prescribed industrial waste disposed to landfill has continued to decline since 2000.

3 NATURE AND EXTENT OF THE PROBLEM

3.1 Introduction

This chapter examines the rationale for the regulation of prescribed industrial waste and considers the impact if the current regulations are allowed to lapse (sunset). Initially, this chapter discusses the fundamental characteristics of prescribed industrial waste production that give rise to the need for government intervention. The various 'market failures' associated with industrial waste production are examined, including:

- the tendency for producers to supply goods without consideration of external costs to the environment and the community
- the characteristics of the industry that make it difficult to negotiate a common agreement to take responsibility for waste.

Market failures in and of themselves are not sufficient to justify government intervention. The economic and social significance of the problem also needs to be considered. The second part of this chapter examines the application of these market failures in the Victorian context. This includes the nature and scale of prescribed industrial waste production and, in particular, the magnitude of the problem should the existing Regulations not be remade.

The cost of having no regulations is also explored. This section outlines the situation if there were no regulations to govern the management of prescribed industrial waste. In this situation, there would be a loss of valuable resources, a reduction in land value where waste is inappropriately disposed, cost of rehabilitation, environmental degradation, social concerns and a loss of waste management support industries.

However, it is difficult to consider a situation of no regulations for the management of industrial waste and it is often easier to consider the proposed regulations in terms of current regulations. With this in mind, the last section of the chapter looks at the nature and extent of the problems associated with the existing Regulations.

3.2 The characteristics of prescribed industrial waste production

Prescribed industrial wastes are generated from commercial or industrial sources and are highly odorous or potentially hazardous to humans or the environment. Industrial waste generators such as car repair workshops, dry cleaning services, fast food chain stores, food processing plants, chemical, paint and plastics manufacturing, dental surgeries and hospitals can produce a number of types of waste including the following:

- **Hazardous** – waste with one or more ignitable, corrosive, reactive, toxic or infectious properties.
- **Radioactive** – waste that generates radioactivity and does so for significant periods of time. This can result in cancer, inheritable genetic disease, ageing, loss of hair, lesions and nausea.
- **Chemical** – waste that can result in declining surface and ground water quality. Chemical waste can cause liver disease, diabetes, lung fibrosis, asthma, cancer, chronic fatigue syndrome, genetic damage, neurological disorders and reproductive problems.¹⁰

There are a number of disposal options for these industrial wastes; however, each option has its own problems:

- Landfill can generate leachate and pollutant gases, odours, bacteria, noise and litter. It also results in a loss of waste that could be used as a resource, and loss of land resources. During its operating life, the Tullamarine landfill encompassed a significant area of land, both for landfilling activities and surrounding buffer land. As a result, this land was precluded from other beneficial development opportunities. Its close proximity to Melbourne's main airport would otherwise have made this valuable commercial property. Through its history, large volumes of metal and other valuable resources were deposited in the landfill. This material is largely unrecoverable due to the risk of exposing hazardous materials in the process. These instances represent losses in economic potential, in both land redevelopment and resource losses.
- Incineration in its crude form can generate a variety of emissions such as carbon dioxide, nitrogen oxides, sulfur dioxide, water vapour, toxic metals, polychlorinated dibenzodioxins, and polychlorinated dibenzofurans. While there is technology applied internationally that largely mitigates these emissions, incineration also results in a residue which must be appropriately disposed of. With the exception of clinical waste, incineration is not a disposal option currently available in Victoria, due to the cost implications of constructing a suitably high-standard facility.
- Discharge of liquid wastes to the sewer can result in fat, greases and oils building up on pipe walls, causing sewer blockages, nutrient build-up which results in nuisance growths on pipes, toxic and flammable contents that are harmful to maintenance crews, and substances passing through the system untreated or only partially

¹⁰ Zada Lipman and Gerry Bates, 2002, *Pollution Law in Australia*, Sydney

treated. As a result water authorities place strict controls on the wastes, and the concentration of those wastes, that may be disposed to sewer, through trade waste agreements with waste generators. Any liquid waste that cannot be disposed to sewer requires treatment and/or alternative management. An example is grease interceptor waste from fast-food outlets, which is either refined for energy recovery (as biodiesel) or composted with garden waste to generate nutrient-rich compost. There are a number of facilities in Victoria that are currently recovering, reusing, reprocessing, recycling and treating a large variety of liquid wastes, reducing the demand on sewer discharge.

- Discharge to water can result in inland waters contaminated by phosphorus and nitrogen, pollution of groundwater from downward leaching of substances from septic tanks, landfill, mine tailings dams, and agricultural and industrial activities, as well as land-based discharges polluting the ocean, affecting human and animal health.

An example of the impact of discharge to inland waters is demonstrated by a case study from Rajasthan in India. In 1988 and 1989 two chemical companies were engaged in the production of around 395 tonnes of H-acid (a naphthalene sulfonic acid-based azo dye). The production resulted in some 8250m³ of wastewater which was let out without treatment and over 2400 tonnes of process sludge which was dumped on the plant premises. The wastewater flowed across the entire region through the Udaisagar canal, while rainwater washed the sludge across the soil and into the groundwater. Surveys indicated that groundwater 70 feet below the ground level over an area of 7 km² was contaminated, which affected 8000 people in seven villages. It was estimated that the extent of contamination in this area would require Rs.44 crore (approximately \$13.7 million) to rehabilitate the 350 hectares of contaminated land.¹¹

- Illegal dumping and littering can affect aesthetic values, threaten public health, create fire hazards and life-threatening situations for wildlife, and lead to significant clean-up and enforcement costs.¹²

Prior to the 1970s there was no overarching environmental protection legislation, or subordinate policies. At this time there were no controls on what materials were disposed of, or standards required of facilities receiving hazardous materials. At the time it was common for industry to incinerate, discharge, dump or store its waste on site. The result is that there are several former landfills in the Melbourne metropolitan area, and to a lesser extent rurally, that have accepted materials that would be equivalent to Category A prescribed industrial waste. These landfills were not constructed to the best practice standards required of modern landfill facilities. Whilst unsubstantiated at this time, there is potential for materials that were disposed of in substandard landfills to pose an adverse risk of harm to the environment. It has only been since the 1970s, when advances in science noted specific consequences on both human and environmental health of certain substances, that more stringent requirements on their disposal have been put in place.

There have been several key events over the past 10 years that have forced the state to take steps to accelerate hazardous waste reductions. On 9 January 2007, the Victorian Government announced it would not proceed with the establishment of a proposed long-term containment facility at Nowingi in Victoria's north-west. It also announced that the government would rule out the examination of any other site for a long-term containment facility. At the time the Tullamarine and Lyndhurst landfills were the state's two remaining landfills for the disposal of prescribed industrial waste.

With the finite capacity of the state's remaining prescribed industrial waste landfills the government further announced an accelerated prescribed waste reduction strategy that relied on a three-pronged approach to waste reduction:

- Firstly, the landfill levy payable for the disposal of prescribed industrial waste was to increase and provide a cost incentive to implement cleaner production and resource efficiency initiatives, while also providing market parity to many reuse, recycling and treatment technologies.
- The second part was to reinvest the increased levy revenue back into industry, providing support for cleaner production, research, development and establishment of reuse, recycling and treatment alternatives, reducing the volume of waste requiring landfill disposal.
- The third part of the strategy was to provide regulatory support that assisted cleaner production and resource efficiency initiatives. This included banning high-hazard Category A prescribed industrial waste from landfill.

On 19 February 2008 the Tullamarine landfill closed, having reached capacity. This left the Lyndhurst landfill as the sole landfill available for the appropriate disposal of the majority of the state's prescribed industrial waste. It is

¹¹ NERRI Report 2002, *Remediation/reclamation of Hazardous Waste Contaminated Areas Due to Past Waste Disposal Activities of Village Bichhre, Rajasthan*; as quoted in Kumar S, Mukherjee S, Chakrabarti R, and Devotta S, 2008, *Hazardous Waste Management System in India: An Overview*, *Critical Reviews in Environmental Science and Technology*, p. 43

¹² Zada Lipman and Gerry Bates, 2002, *Pollution Law in Australia*, Sydney

therefore necessary to eliminate the need for the disposal of higher-hazard Category B prescribed industrial waste before the Lyndhurst landfill reaches its capacity.

There are a number of characteristics of hazardous prescribed industrial waste management that create problems if there are no regulations in this area.

External costs to third parties

In the absence of regulation there is no feedback and control mechanism to inform and motivate individual producers of waste to take into account the effects of their waste disposal actions on third parties. This means that the external costs of waste production may not be borne by the producer of the waste. In economics, this is called a negative externality.

Producers have an incentive to dispose of waste by the least-cost mechanism. Depending on the wastes produced, this could be one or more of the disposal methods explained above. For example, without a definition of prescribed industrial waste and no recognition of hazard or risk, in a best-case scenario it is likely that solid wastes will be dumped or disposed of in municipal landfills, as this would present a low-cost option for waste producers. A worst-case scenario would see the material illegally dumped, with increased potential for adverse environmental and human health effects.

An externality means that property rights are imperfectly designed or enforced or non-transferable. When an externality exists, the production of industrial goods will be higher than socially optimal. This results in harm to the economy, the environment and the community. These effects are explored in Chapter 5 as costs imposed from inadequate redress.

Inadequate regulation would mean that there would not be restrictions on the disposal of waste and this may lead to inefficient production techniques and excess pollution. This is demonstrated in Case Study 1, which shows that, if the full social costs of waste are not taken into account in production, then the production will exceed the optimal amount.

Large numbers of producers and affected parties

Waste production often causes widespread harm both to the environment and to people. Where there are a large number of producers and a large number of affected parties, it is difficult to determine who is responsible for the consequences of inappropriate disposal of waste and also to exclude parties from being affected by it.

The consequences from the production of waste are spread across the community and, unless appropriately managed or regulated, it is difficult to stop people from being affected by the waste production. In this situation it is almost impossible for the market to provide a solution.

In theory, if industrial waste affects the environment and the community, the market could determine a solution. In a market for industrial waste, this solution would involve negotiation between the producers and third parties who suffer the costs (that is, the rest of the community). The solution would mean that the community agrees to share the costs of waste reductions or agrees on sharing the compensation arrangements to the producer (depending who has the rights to the clean environment). However, as there are many producers and many who are inversely affected, these negotiations would involve significant costs. The individual member of the community would see that their contribution will make little or no difference, but they will reap the benefits of reduced waste production regardless. Hence, there is little to no incentive for individuals to contribute to reduced waste production; in other words, they would choose to free-ride and market negotiations will fail.

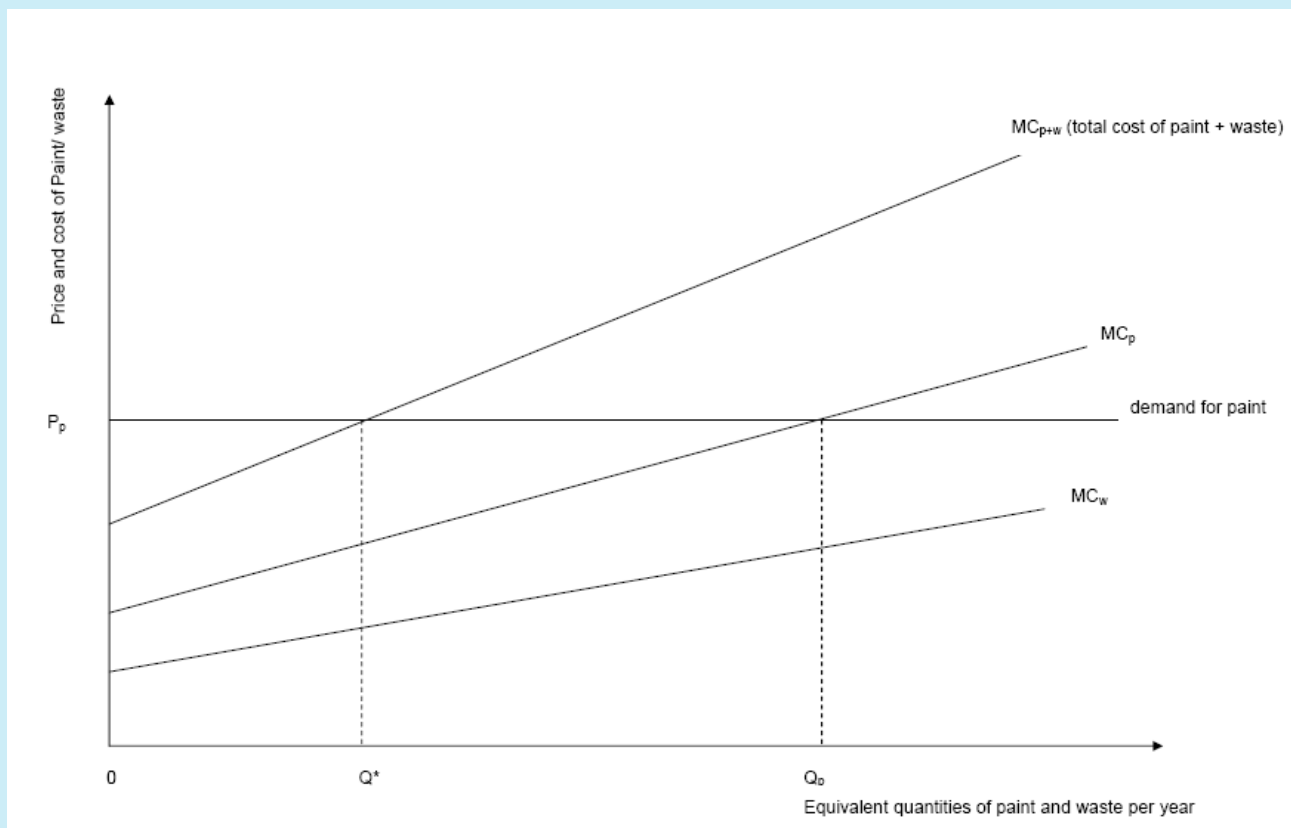
The characteristics of the market provide a reason for government intervention to settle negotiations between large numbers of producers and large numbers of sufferers.

The market for industrial waste management fails to take into account costs to external parties, and the widespread consequences of external costs mean that it is difficult to negotiate a solution to overproduction. The next section will explore the problems with no regulations in Victoria.

Case Study 1: Production of waste under no regulations

This case study illustrates what would happen if there were no regulations for the management of prescribed industrial waste.

The market for paint is shown in the figure below. We will assume that the paint manufacturer is a price taker (that is, there are many paint manufacturers, so that the price of paint does not change if production increases or decreases), so that the price for paint in a competitive market is P_p . The private marginal cost for paint is shown as MC_p (the cost for the labour, raw materials, equipment and buildings used to make paint). If only the costs signalled in the marketplace are used to determine the quantity of paint produced to maximise profits, then Q_p of paint will be produced per year. This quantity equates the price the producer expects for its paint with the private opportunity cost of the last litre of paint that it produces.



If we assume that, for every litre of paint that is produced, waste is produced in fixed proportions. If all the costs from those who bear the burden from paint wastes are aggregated, the marginal costs of waste from the producers are equal to MC_w . This curve represents, in money terms, the additional costs imposed on all people and the environment from inappropriate discharge of waste per year.

The community as a whole values both paint and a clean environment. From the point of view of the community, the total social cost involved in paint production is not only the private costs but also the waste costs. The total social marginal costs of paint and waste production are MC_{p+w} . From the community point of view, the appropriate comparison of the benefits and costs is P_p against MC_{p+w} . At this level the annual net benefits from paint and waste combined are a maximum when the paint and waste output is equal to Q^* .

In short, if the social costs are not taken into account there will be too much waste produced and society is worse off as a result.

3.3 Application to the Victorian context

Victorian industries exhibit many of the characteristics described above. As set out in Chapter 2, there are approximately 10,000 prescribed waste producers in Victoria. In an unregulated environment, a large volume of prescribed industrial wastes is likely to be produced, transported and disposed of inappropriately and cause economic, social and environmental consequences. Businesses are unlikely to account for the external impacts on the environment and the community in setting their production schedule. Thus, in a competitive environment, generators are inclined to dispose of their waste in a way that causes the least possible cost to their business.

A paper survey provided to workshop participants and an online survey sent to industrial waste stakeholders has been used in the preparation of this regulatory impact statement to provide stakeholder perceptions, opinions and beliefs about the current regulatory arrangements. The paper survey was circulated to 72 workshop participants and there were 52 responses (a response rate of 72 per cent). The online survey was sent to the EPA’s database of industrial waste stakeholders. This database contained 519 email addresses; 448 people received the survey and there were 89 responses (a response rate of 19.9 per cent). The online and paper results show that respondents represent a wide range of stakeholder groups. While the response rate of the survey is not statistically significant, EPA is confident that the results provide some reflection of stakeholder views and are representative, given the overall consistency of the responses. Nevertheless, limited sample responses mean that the results of the analysis need to be interpreted with care.

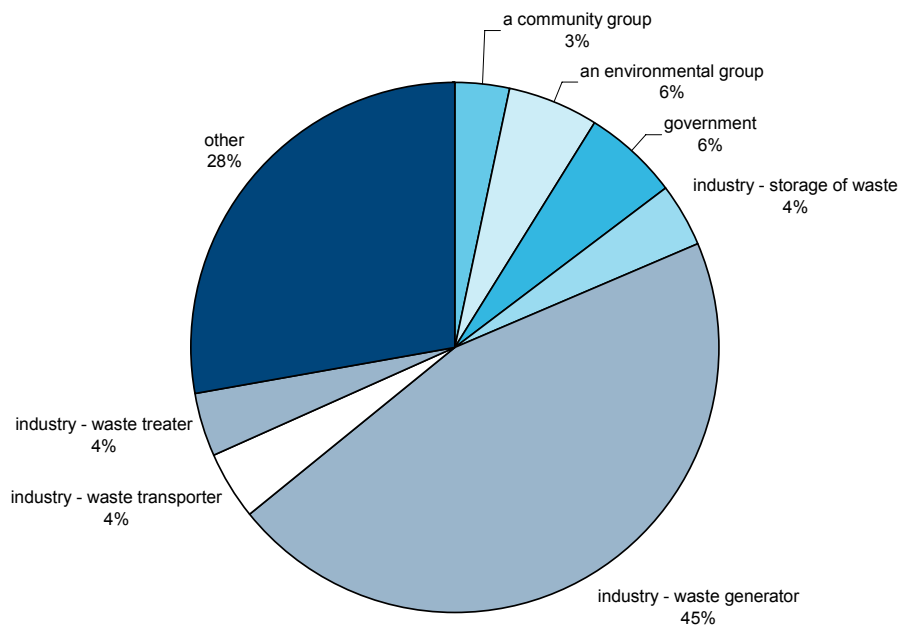


Figure 3.1 Survey question result – ‘Who do you represent?’

The results of the paper survey circulated to workshop participants and the online survey sent to all industrial waste stakeholders to the question,

In the absence of a regulatory framework to manage the treatment and disposal of hazardous waste, do you think this waste would be: (a) disposed inappropriately (b) managed voluntarily in accordance with the waste management hierarchy (avoid, reuse, recycle, recover energy, treat, contain, dispose) or (c) disposed of appropriately with consideration given to the potential future social and environmental costs.

show that stakeholders would expect that, in the absence of regulations, waste would be disposed of inappropriately. Sixty-nine per cent of stakeholders (industry, community, government) suggested that, in the absence of regulations to manage industrial waste, the waste would be disposed of inappropriately.

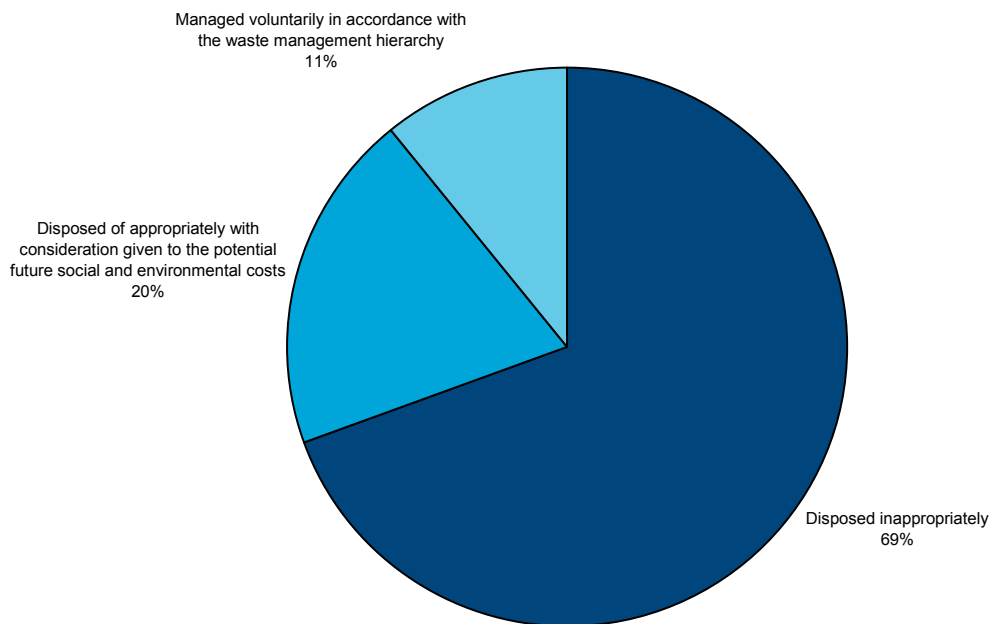


Figure 3.2: Survey question result – waste management in the absence of a regulatory framework

The cost of no regulations

Even if the regulations governing the management of prescribed waste were to lapse, there would still be some broad powers relating to environmental hazards, as well as general provisions in the Act and other legislation.

Section 11 of the Act would still apply. This section sets out the broad policy for the management of waste in accordance with the waste hierarchy and states that, 'wastes should be managed in accordance with the following order of preference –

- a) avoidance
- b) re-use
- c) recycling
- d) recovery of energy
- e) treatment
- f) containment
- g) disposal.'

While this principle provides guidance for administration of the Act, EPA would not be able to directly enforce against departure from the hierarchy if the regulations did not exist.

It would still be an offence to dump industrial waste under section 27A of the Act. This offence carries a maximum penalty of 5000 penalty units.

Under the *Environment Protection (Scheduled Premises and Exemptions) Regulations 2007*, A01 premises (which are used for storage, treatment, reprocessing, containment or disposal of prescribed industrial waste not generated at the premises) would no longer exist without a definition of 'prescribed industrial waste'. EPA would still licence A02 premises, used for waste treatment works engaged in the immobilisation, thermal degradation, incineration or other treatment of waste.

Licence holders would still have to produce annual performance statements as required by section 31D of the Act.¹³

Without a definition of prescribed industrial waste in regulations, the levies (in Schedule E of the Act) relating to disposing of waste to landfill would be inoperative. In 2007-08 there were 103,263 tonnes of Category B waste and 460,085 tonnes of Category C waste disposed in landfills. Under the current arrangements, and if the landfill levies

¹³ The requirement for annual performance statements was introduced by the 2006 amendment. However, annual performance statements are not yet required; they will probably be required by the end of July 2009.

were inoperative, the Victorian Government would lose a significant revenue stream that currently funds the HazWaste Fund, which supports industry to reduce, reuse, recycle and manage its prescribed industrial waste.

Part IXA of the Act, relating to transport requirements, would also be inoperative, as it relies on the definition of 'prescribed waste' and/or 'prescribed industrial waste'. However, the *Road Transport (Dangerous Goods) Act 1995* may cover the transport of some of the waste currently defined as prescribed industrial waste. It regulates the transport of dangerous goods by road in Victoria in order to promote public safety and protect property and the environment.¹⁴

As part of the analysis for this regulatory impact statement, quantification of the base case – no regulations – was prepared. Under the analysis set out in Chapter 6 and the assumptions outlined in Appendix D, the quantification of the cost without regulations was calculated to be almost \$2 billion.

Loss of valuable resources

Inadequate waste regulation may lead to a loss of valuable resources if businesses are not provided with incentives to reuse such resources, where possible. A number of waste products from industrial sources can be used as inputs in other production processes. An online survey conducted by PwC, as part of the development of this regulatory impact statement, found that waste producers recycle or reuse 30 per cent of their waste produced.

Current regulatory requirements, including the banning of Category A waste to landfill and the high fees for Category B to landfill, provide an incentive for producers to find an alternative way of clearing their waste. Without appropriate incentives in place, producers are likely to prefer the least costly mechanism for disposing of waste. This is likely to result in less reuse and recycling and loss of valuable resources.

Loss of land value

Economic research suggests that living near a polluting manufacturing facility reduces the value of a house. Brid Gleeson Hanna used Toxics Release Inventory and census data from the 1980s in six New England states to estimate the effects of pollution in nearby neighbourhoods. Hanna found that a house would be valued at 1.9 per cent more if it were located one mile further away from the factory; this is an increase of \$1,965 on an average home using 1990 prices in New England.¹⁵

Decker, Nielsen and Sindt also use hedonic pricing analysis to measure environmental impacts on real estate prices. Their study analyses the impact of Toxics Release Inventory release on housing prices.¹⁶ The study finds that a 10 per cent increase in Toxics Release Inventory releases per square mile reduces a home's price by 0.015 per cent. Based on the samples used in the study this equates to a \$2,207 decrease in the value of the residential property. The study found that a 10 per cent increase in toxic release inventory releases per square mile can generate an effect as low as \$1,427 and as high as \$2,963, depending on the location of the property. The study also found that there was not a relationship between the degree of harm caused by the toxic release and the change in the property value; in other words, more toxic releases did not reduce property values further.¹⁷

In 2008, the discovery of dangerous levels of landfill gas (mostly methane and carbon dioxide) in Brookland Greens estate in the south-east of Melbourne led to the evacuation of some households in the area. Initial evidence on the effect on property values of the gas leak suggests that the value of homes within the estate would drop by 50 to 60 per cent.¹⁸

The Productivity Commission's Waste Management Inquiry found that the external costs of a properly located, engineered and managed landfill with efficient methane capture and electricity generation capacity were \$0 to \$5 per tonne of commercial and industrial waste. If the landfill did not have efficient methane capture and electricity generation capacity, the external costs increase to \$5 to \$24 per tonne of commercial and industrial waste. If the landfill were poorly located and managed, then these external costs could be much higher than these estimates.¹⁹

If there were to be no regulations in place and industrial waste was inappropriately disposed of in municipal landfills, the result would be significant decreases in the value of the surrounding areas.

¹⁴ *Road Transport (Dangerous Goods) Act 1995*, Section 1

¹⁵ Brid Gleeson Hanna 2007, 'House Values, Incomes, and Industrial Pollution', *Journal of Environmental Economics and Management* 54, pp. 100–112.

¹⁶ The United States Emergency Planning and Community Right-to-Know Act requires the collection and public dissemination of the Toxics Release Inventory data. This data on releases and transfers of toxic chemicals from industrial facilities is collected annually and publicly released.

¹⁷ Decker C, Nielsen D, Sindt R 2005, 'Is Pollution a Homogeneous Determinant of Value?', *Appraisal Journal*, 73.2, p. 183(15).

¹⁸ Cooper M, Rood D 2008, 'EPA to Check All Closed Landfill Sites', *The Age*, 17 September 2008, website: www.theage.com.au/environment/epa-to-check-on-all-closed-landfill-sites-20080916-4hxd.html, accessed 8 December 2008.

¹⁹ Productivity Commission 2006, *Inquiry Report no. 38, Waste Management*, 20 October 2006, Canberra, pp. 439–440.

Cost of rehabilitation

One of the major costs imposed from inadequate redress is the cost involved in rehabilitating land to prevent further damage and allow use of the land for other purposes. These rehabilitation costs are illustrated in Case Study 2 on Homebush Bay in New South Wales.

Case Study 2: Homebush Bay

Homebush Bay is now the location of the Sydney Olympic Park, including residential and commercial buildings, sports stadiums, a showground and parklands. However, it took \$137 million, two years of investigations and 10 years of rehabilitation to get it to this stage.

The 760-hectare site has a 100-year industrial history, with associated waste production: indiscriminate dumping of wastes, including a mixture of a number of hazardous products such as asbestos, pesticides, paint products, petrochemicals, heavy metals, tars and organochlorines, along with building rubble, putrescible garbage and domestic waste.²⁰

Workers and residents noted that, in the 1950s, people experienced headaches, asthma, hay fever and coughs. Residents' complaints to politicians, public servants and the industrial businesses themselves were ignored.

A groundsman on one of the converted industrial sites in 1990 noticed that, when digging in the soil, his hands became blistered and were stinging. He said that pipes used in the sprinkler system were corroded and, on hot days, tar would bubble out of the ground. He also said that, 'Whenever a gum tree would get to a height of about 20 ft, it would just turn its toes up and die'.

Rehabilitation costs have already been released on a number of sites throughout Victoria. EPA has a list of 145 known sites where contaminated soils have been discovered through environmental audits.

Environmental audits are required through planning law when it is proposed to change the zoning for a property to a more sensitive use; for example from Industrial 1 Zone to Residential 2 Zone. These sites may have been used in the past by industries such as automotive garages or dry cleaners, which have had poor management practices, failed plant or have not disposed of their waste appropriately. These sites have been unexpectedly discovered by EPA through the planning requirement when the purpose changes. While some of those sites may have been treated as dumping grounds for prescribed industrial waste before regulations were in place, it is likely that the discovery of some of these sites means that there is already some non-compliance with the current regulations. If current regulations did not exist it is likely that the number of contaminated sites would increase.

Environmental concerns

The case study of Homebush Bay not only demonstrates the significant rehabilitation costs involved in cleaning up industrial sites, but also the environmental and social costs from indiscriminate dumping of industrial waste. In the case study above, one of the effects on the environment was the inability of gum trees to survive their full life.

Prescribed industrial waste can be toxic, corrosive, flammable or explosive and thus presents significant danger to our natural resources. The inappropriate disposal of prescribed industrial waste can create many problems for the water, air and land in which it is deposited.

For example, inappropriate disposal of prescribed industrial waste may increase CO₂ emissions, thus exacerbating climate change, and additionally can cause fire hazards.²¹ The loss of finite resources and impacts on ecological processes can create significant and ongoing problems for the environment, the economy and the community.

Social

Exposure to industrial waste has been related to a number of negative health impacts. Where exposure pathways exist, particular types of industrial waste can be hazardous both to humans and the environment. Human exposure to radioactive waste can induce 'cancer, inheritable genetic disease, impacts on the immune system, diminished fertility, reduced vitality, premature ageing, loss of hair, lesions and nausea.'²² Chemical waste can 'play a role in the

²⁰ Siobhan McHugh 2000, 'Home Sweet Homebush – a Lifetime in Detox', 24 June, *Australian Magazine*.

²¹ Zada Lipman and Gerry Bates, 2002, *Pollution Law in Australia*, p. 217.

²² *Ibid*, p. 217.



formation of liver diseases, diabetes, lung fibrosis, asthma, cancer, chronic fatigue syndrome, genetic damage, neurological disorders and reproductive problems'.²³

In addition to the health impacts of particular types of industrial waste, it may create social concerns such as reductions in amenity. Some industrial waste may give off a bad odour, attract insects and pests and affect the general surroundings in which we live.

Inappropriately disposed waste may also cause safety concerns for humans and animals who may not be aware of the location or potential danger associated with the waste.

3.4 Problems arising from existing regulations

It is difficult to imagine a situation where regulations would be allowed to sunset in this industry. It is therefore pertinent to discuss the current regulations and their success in managing hazardous waste in Victoria.

There has been extensive consultation as part of this hazardous waste regulatory review. EPA released a discussion paper and invited comments through a series of workshops, one-on-one consultations were undertaken, and submissions were received. Further to this, an online survey has been sent to stakeholders encouraging feedback on the current system of regulations.

Stakeholders have raised a number of concerns with the existing regulations.

Complexity

A number of stakeholders noted that the current hazardous waste regulatory framework was unclear and complex. A survey of workshop participants and stakeholders was conducted to gain an insight into their opinions, beliefs and attitude toward the current regulatory framework.

One of the questions asked, 'How would you rate the clarity of the current hazardous waste regulatory framework?' Figure 3.3 shows that 46 per cent of respondents found that the current regulatory framework was unclear or very unclear.²⁴

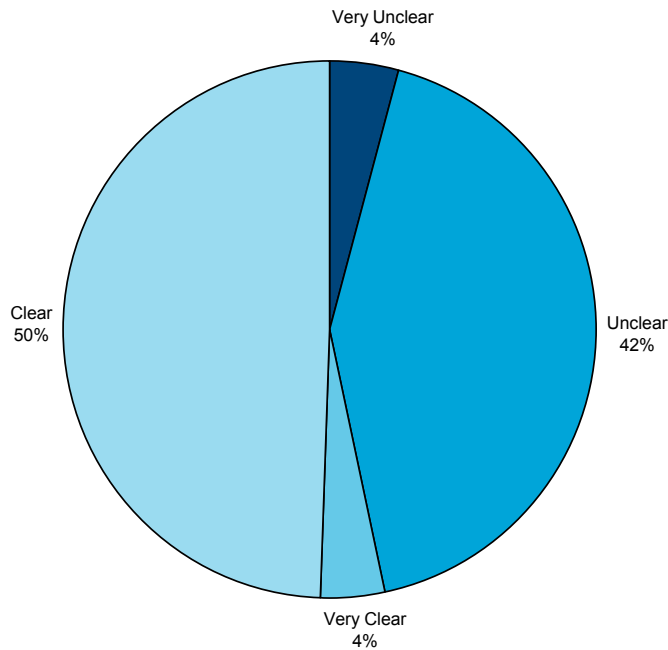


Figure 3.3: Survey question result – clarity of existing regulatory framework

²³ Ibid. p.217.

²⁴ The results from the workshop and online survey have been used to formulate the chart. Respondents who answered 'indifferent' have been excluded, 41 per cent of respondents responded 'indifferent'. These results were excluded to highlight the non-neutral response to the clarity of the existing framework. If the stakeholder response was 'indifferent' then they have a neutral opinion on the clarity and therefore are neither against nor for the current clarity of the framework. The exclusion of the 'indifferent' responses does not affect the cost-benefit modelling.

In written submissions, some industry stakeholders noted that they had received sanctions for non-compliance, but that it was their inability to understand their obligations that lead to the non-compliance.

The Victorian Waste Management Association (VWMA) noted the complexity of the regulatory framework in its submission to the review:

The VWMA believes that the Policy and Regulations should be collapsed into more simple, easily understood document(s) that provide practical guidance to the manufacturers, transporters and landfillers of waste.

The key focus for the VWMA is that any system is operationally simple, i.e. does not impose a large administrative burden on businesses, yet achieves its desired aim of a transparent, efficient system.²⁵

The VWMA provided an example of the complexity in the regulatory system:

VWMA members cart everything from grease trap wastes, contaminated soils, asbestos up to PCBs and chemical sludges. Depending on the degree of hazard, the amount, EPA policy, there are different criteria for managing and treatment. The number of publications involved in explaining different aspects of the system have become unwieldy and there are too many levels and subcategories.²⁶

SITA also noted that the current regulatory system is unclear:

The current regulatory framework language is sometimes unclear and open to interpretation. This has led to confusion particularly within the Regulations and technical supporting guidelines.²⁷

VWMA suggested that a risk-based approach to regulations should be adopted:

Where these waste streams can not be dealt with through avoidance, a risk based approach should be adopted with an accreditation system established along the chain that would enable the companies themselves to reduce the paperwork and the EPA not requiring every movement to generate paperwork, but rather a regular reporting regime to be implemented instead.²⁸

The complexity of the current regulations, the number of documents involved in the regulatory framework and the language used add to compliance costs and increase the likelihood of non-compliance. A lack of clarity can result in misclassification of waste, with the outcome being that hazardous wastes are inappropriately managed or non-hazardous wastes are subject to more onerous requirements than are otherwise necessary.

Definitional problems

Another issue that is related to the complexity of the current regulatory framework is the consistency of definitions within the subordinate legislation and guidelines, and not having a definition of inert waste or a point where wastes are no longer defined as hazardous. One of the key themes in two of the workshops was the definitional problems with the current framework. Workshop 1 participants noted the following problems:

- Prescribed industrial waste definitions are not clear and are too broad.
- Definitions should be risk-based.
- There should be a consistent approach for the classification of manufacturing wastes and contaminated soil disposal.
- Definitions should be clear and concise.
- A base-threshold ('bottom limit') should be established for Category C prescribed industrial waste in EPA publication 996.
- The classification guidance in publications 996 and 448 should be reconciled.

One of the key concerns of industry was that there is no definition of a 'bottom limit' for Category C Publication 996 - Solid Industrial Wastes. This means that there is no definition of inert waste and therefore industry must comply with the complex regulations even though the waste may not pose an environmental hazard. This means that the waste may be able to be safely reused, recycled or disposed in clean fill or municipal landfill sites.

Stakeholder consultation identified that, if the desire was to truly identify and manage risk, then it was necessary to clearly define what represented high risk, low risk, and no risk, then establish a framework that managed these risks accordingly. By establishing a base-threshold on Category C prescribed waste, the regulatory framework defines what

²⁵ Victorian Waste Management Association 2008, Submission to the Hazardous Waste Management Review – *The future of hazardous waste management in Victoria*, August 2008.

²⁶ Ibid.

²⁷ SITA Environmental Solutions 2008, Submission to the Hazardous Waste Management Review – *The future of hazardous waste management in Victoria*, August 2008.

²⁸ Victorian Waste Management Association 2008, Submission to the Hazardous Waste Management Review – *The future of hazardous waste management in Victoria*, August 2008.

is considered sufficiently low-risk to not require regulation. The materials below this threshold that fall out of the system are then managed as per any general industrial waste.

In establishing a base threshold it will be important for regulators to consider the risk posed by the material in a largely unregulated environment. That being the case, and if disposal of the industrial waste to landfill is the final outcome, then there are requirements for landfill operators (waste receivers) – which fall outside the scope of the proposed regulations – to adequately manage any risks to potential receiving environments (externalities). Establishing a base threshold for Category C prescribed waste does not lead to an increased risk of externality costs, but rather provides a clear, risk-based decision/management framework.

Community capacity building

The current regulatory framework has been criticised for providing 'short-term/issue-based' engagement with stakeholders. That is, stakeholders are only engaged for a short period of time and this engagement is usually focused on a particular industrial waste management issue. Participants in the first workshop suggested that stakeholder engagement should be translated into long-term engagement strategies.

In order to facilitate stakeholder engagement, a number of suggestions were made by workshop participants to improve the terminology and dissemination of the current regulatory framework. Stakeholders suggested that regulations should be written in plain English and that the broader community should be educated through involvement in policy decisions and through school programs. Stakeholders suggested that the regulatory framework should be 'infused and ingrained in industry and community mindsets and everyday thought patterns'.²⁹

The VWMA submission to the review supported this change in terminology:

*The overriding principle of hazardous waste framework is that it should be able to be understood by the lay person. Presently is it dominated by classes and sub-classes, types. There are scheduled waste, hazardous wastes, classes of contaminated soil, waste asbestos, non hazardous wastes and industrial wastes. There are references to Tables, Schedules and Appendices.*³⁰

Community capacity building is also related to the problems with complexity and definitions noted earlier.

Exemptions should be streamlined

One of the key suggestions to improve the current regulatory framework was to alter the exemptions and approvals system in order to facilitate recycling and reuse. Stakeholders suggested that, where there is a marketable product that can be reused, it should not be classified as a 'waste'.

Provided it does not conflict with its other priorities, industry can be expected to manage its waste in the way that imposes the lowest net costs on it. In deciding whether to recycle, reuse, dispose or recover energy from their waste, industry will be expected to consider:

- the financial costs or incentives of waste disposal, waste treatment, recycling and reuse
- the value of time and effort taken to manage waste
- any preferences it may have for recycling or reuse that arise from environmental concerns.³¹

Key factors impacting on Victorian businesses' decisions include:

- charges incurred due to landfill levies
- costs incurred due to recycling and reuse
- value of recycled or reused waste
- administrative costs and time involved in complying with the various aspects of the regulatory regime
- their level of knowledge and understanding of the above
- barriers that might impede recycling and reuse
- their level of concern for environmental issues, which for some firms may include their desire to be seen as a 'good corporate citizen'.

The Productivity Commission inquiry into waste management found that there were a number of barriers to reducing waste and recovering resources. These barriers included:

- where virgin material prices do not include the environmental externalities associated with their production, therefore favouring the use of virgin materials over recovered resources

²⁹ Workshop 3, 2008, *Hazardous Waste Regulatory Review Notes of Workshop 3*, 11 August 2008, Drum Theatre, Dandenong, p. 4.

³⁰ Victorian Waste Management Association, 2008, Submission to the Hazardous Waste Management Review – *The future of hazardous waste management in Victoria*, August 2008.

³¹ Productivity Commission 2006, *Inquiry Report no. 38, Waste Management*, 20 October 2006, Canberra, p. 62.

- a lack of information and expertise, a resistance to cultural change and other organisational barriers
- regulations that impede the recovery of resources
- the absence of a market for recovered resources.³²

The current exemption system applying to reuse and recycling exacerbates these barriers and results in a less-than-efficient outcome, particularly as it relates to the Productivity Commission's third dot point immediately above.

A waste producer will reuse or recycle their waste when:

Benefits (value of the reused/recycled waste, avoided landfill levies, avoided treatment costs)
outweigh

Cost (cost of recycling/reuse, administration costs, other barriers – such as determining demand for recovered resources, behavioural, cultural and organisational impediments)

While there is no historical trend data available for reuse/recycling, current reuse and recycling is estimated at 24 per cent of total prescribed industrial waste produced. This estimation is derived from the Transcert waste certificate database, data from landfills, exemption data and data provided by companies as part of their EPA licence requirements. It is expected that, if current regulations remain, the percentage of recycling and reuse will continue to be 24 per cent over the regulatory period.

The current system of regulation defines prescribed industrial wastes and requires exemptions to be sought in order to reuse this waste. Exemption requires a number of steps, as shown in Figure 3.4.

Stakeholders noted that the complexity and length of the exemption process meant that some producers are deterred from seeking reuse of valuable resources. For example, in its submission to the review, Bradken noted that:

Documentary requirements for the approval of offsite reuses for hazardous wastes can deter potential end users from accepting these materials as alternative resources.

Why should a business get involved with recycling if it involves extra paperwork? If that business bought the equivalent material as new raw material from a mine or chemical supplier there would be no extra paper work or regulations.³³

CMA Corporation Limited is an integrated recycling group. Its main activities are processing and recycling of secondary ferrous and non-ferrous metal products. In its submission to the review it noted its concerns with the incentives in the existing Regulations to encourage recycling and reuse:

Our main concern is that EPA Victoria and other regulatory authorities incorporate the maximum incentives into any new legislation to encourage industry to recover resources from the waste streams whether they be solid, liquid, gaseous or energy related.

...there are many companies, like ours, that have been established to recover valuable raw materials from waste streams. The common lack of economies of scale in Australia means that these types of businesses often struggle to become viable. They are further hampered by regulations including Works Approvals, Licenses, Transport Certificates and un-necessary red tape and administration. They should be rewarded for their 'value adding' activities.³⁴

The administrative costs involved in gaining an exemption and the definition of a marketable product as 'waste' are key impediments to gaining increased recycling and reuse. Stakeholders suggested that the exemption process could be streamlined in particular circumstances. For example:

- for high volumes of waste
- where different industries or businesses would benefit from similar exemptions
- by allowing a nominated list of reuse applications/sites.

The current exemption process has been criticised for its complexity. This increases costs for industry and EPA and deters waste generators from seeking alternative uses for their waste.

³² Ibid., pp. 121 - 122

³³ Bradken Resources Pty Ltd 2008, Submission to the Hazardous Waste Management Review – *The future of hazardous waste management in Victoria*, August 2008.

³⁴ CMA Corporation Limited 2008, Submission to the Hazardous Waste Management Review – *The future of hazardous waste management in Victoria*, August 2008.

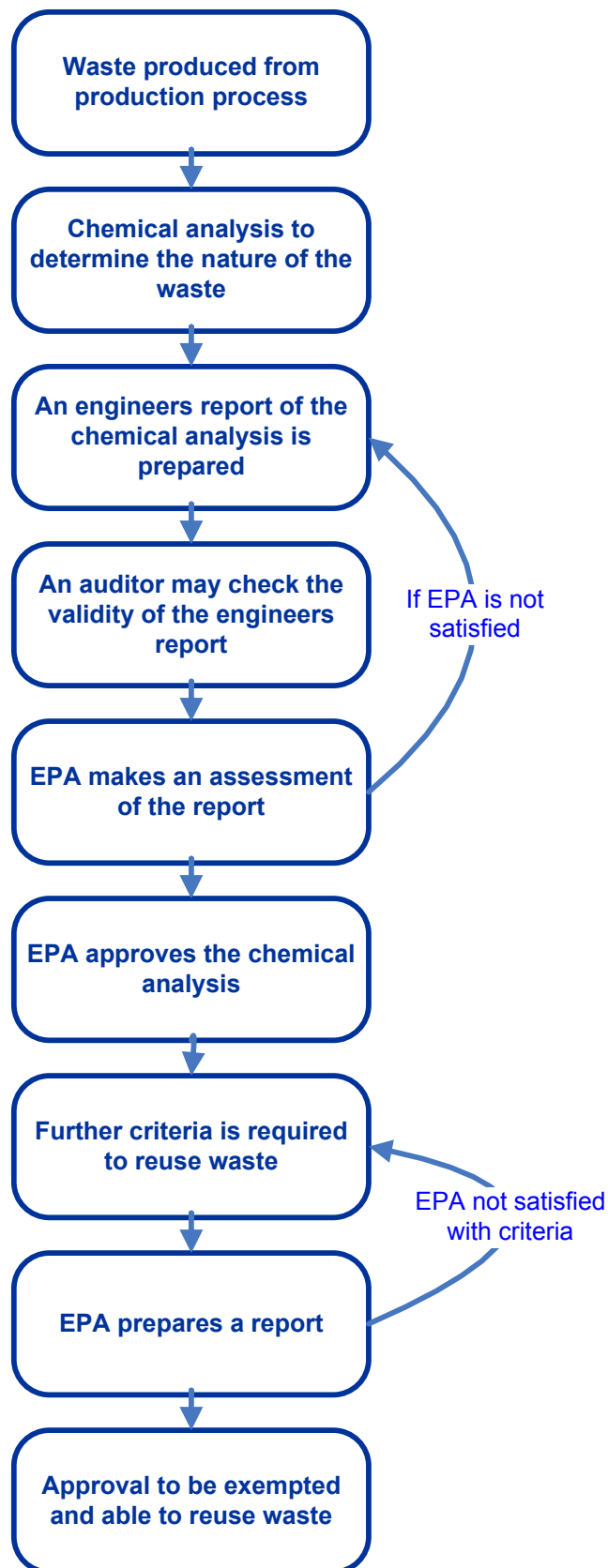


Figure 3.4: Steps required for exemption

Risk evaluation

The previous sections have outlined the case for government intervention based on the high external costs and the widespread consequences in the absence of regulations. The current regulations go some way to treating these market failures through a risk-based approach. A risk-based approach takes into account the likelihood and the consequence of an event happening. High-risk activities often call for greater control and scrutiny than low-risk activities; for example, managing carcinogenic substances as opposed to managing substances that have only an unpleasant smell.³⁵

The definitions for Category A, B and C prescribed industrial waste in the current regulations are a first step towards risk-based regulation of prescribed industrial waste: Category A is banned from landfill because of the potentially very high associated risks, Category B and C may only be disposed of at licensed facilities with appropriate design standards, to ensure that any risks posed by these wastes are minimised. While this is a significant first step, the current regulations do not take a truly risk-based approach in the way that 'prescribed industrial waste' is defined, or through the exemption process for reuse or recycling prescribed industrial waste.

The Productivity Commission found that classifying materials as waste sometimes impedes opportunities for them to be recovered.³⁶ A number of jurisdictions have introduced risk-based approaches to the regulations of industrial waste. England, Wales and the US have recently introduced changes that declassify waste to facilitate greater treatment and recycling. NSW has also recently introduced changes to facilitate resource and energy recovery.³⁷

In Victoria, the current definition of 'prescribed industrial waste' captures all wastes that contain any substance listed in Schedule 1. There is no base threshold for category C manufacturing waste, so even a waste containing trace amounts of a substance listed in Schedule 1 must be managed as prescribed industrial waste (unless an exemption is granted), despite the fact that it may not pose any real risk.

It is therefore suggested that the Regulations could be made less onerous without a commensurate increase in risk by taking a different approach to defining prescribed industrial waste, based on the risk posed. For example, all 'industrial waste' would be described as 'prescribed industrial waste' unless it drops below the category C lower threshold, has a direct beneficial reuse, a secondary beneficial reuse (for which there is a proposed exemption process), or is listed as non-prescribed (inert) in the proposed Schedule 1.

Under the current Regulations, if a waste producer has a prescribed industrial waste with a direct beneficial reuse, it must apply for an exemption before it can use that material. The likelihood that this waste would cause significant consequences is low and therefore it is proposed that the regulations recognise that direct reuse is likely to pose a lower risk than secondary reuse, where some kind of prior treatment is required before the material can be used again. Material with a direct beneficial reuse could be explicitly excluded from the definition of 'prescribed industrial waste', so a producer wishing to use the material would not be subject to the proposed regulations.³⁸

Prescribed industrial waste with a secondary beneficial reuse could also be regulated differently. As described above, under the current Regulations, the onus for making decisions about prospective exemption rests with EPA, and the process of negotiating exemptions can be time-consuming and relatively costly. This can be changed so that the onus is shifted back towards industry. EPA can retain the ability to reject and attach conditions to secondary beneficial reuse, allowing a more risk-based approach.

A discussion on risk-based regulation and its inclusion in the proposed regime is outlined in Appendix C.

Redundant regulations

EPA and workshop participants noted that there are a number of sections of the current Regulations that are not used or not required.

Under the current Regulations, annual returns are required by prescribed industrial waste producers. Annual returns state the amount of each category of prescribed industrial waste that has been transported from the premises over the last 12 months. However, only 20 per cent of producers who are eligible to submit an annual return actually do so. EPA has noted that the submission of annual returns is not enforced, as the data from annual returns is available through the waste transport certificates.

Under Part 6 of the regulations a producer can apply to be an 'accredited prescribed industrial waste producer'. If an application is accepted then the producer is exempt from complying with the requirements for transport certificates

³⁵ The risk-based approach to regulations is described in Appendix C.

³⁶ Productivity Commission 2006, *Inquiry Report no. 38, Waste Management*, 20 October 2006, Canberra, p. XLIII.

³⁷ URS Australia 2008, *Prescribed Industrial Waste Regulation: Review of International Best Practice*.

³⁸ See Appendix C for detail on risk assessment.

and record keeping. This part of the Regulations has not been used in the current regulatory period, there have been no applications and therefore no approvals or denials of the accreditation. It has thus become apparent that this provides no tangible benefit to industry, as is reflected in no individual or company taking advantage of the provision. This suggests that rather than being a difficult process, the accreditation is not valued by stakeholders and thus is a redundant provision of the current Regulations.

EPA concludes that the sections of the Regulations pertaining to annual returns and accreditation are redundant.

3.5 Summary

It is likely that, if the Regulations were to sunset, there would be significant costs borne by the economy, the environment and the community.

The market does not provide adequate incentives to take into account the external costs of industrial waste production. If the Regulations were to lapse, there would be no definition of prescribed industrial waste, which would mean that the relevant provisions in the Act would lose their effectiveness. While some general provisions – such as the policy to follow the waste hierarchy and the offence of dumping industrial waste – would still apply, it is likely that, without provisions such as transport requirements and landfill levies, waste will be disposed of inappropriately. Disposal such as illegal dumping to waterways will affect public water supplies and aquaculture, and disposal to unsuitable municipal landfills will decrease property values and valuable resources will be lost.

In a survey of industrial waste stakeholders, 69 per cent of respondents suggested that, in the absence of regulations, industrial waste would be disposed of inappropriately. Inappropriate disposal has implications for resource and land value, increasing rehabilitation costs and creating environmental and social concerns.

Stakeholder consultation noted that there are a number of issues arising with the current Regulations. They noted that the current Regulations were unnecessarily complex, in particular due to the definition used and the requirements for gaining an exemption. There is also belief that the Regulations could be made less onerous through a risk-based approach.

Stakeholders noted that the current Regulations have components that are not required.

4 OBJECTIVES

EPA prepared a discussion paper to elicit feedback and comments on the existing regulatory framework from interested stakeholders. The discussion paper states that:

The State Government has stated its objective for an end to the landfill disposal of higher hazard wastes by 2020. This discussion paper starts a process to explore what new regulatory and non-regulatory approaches could help to meet this objective, while considering the potential implications on the community, the economy and the environment³⁹.

In a survey of stakeholders, 58 per cent of respondents believed that the target of zero high-hazard waste by 2020 is unrealistic.

In its annual report EPA notes the interim goal to reduce the amount of Category B prescribed industrial waste to 40,000 tonnes a year by 2009. In 2007-08 the manufacturing industry sent only 56,000 tonnes of Category B waste to landfill, which was below the target of 60,000 tonnes set for 2008.⁴⁰

The objectives of the proposed regulations are to provide a hazardous waste management framework so that the following objectives can be achieved in the earliest possible timeframe, and continue to be maintained:

Environment

- Reduced hazardous waste generation from current levels.
- Improved resource efficiency through greater rates of reuse and recycling.
- Safe and controlled transport of hazardous waste.
- Classification and pre-treatment of hazardous waste to ensure safe and appropriate management.

Industry

- Provide regulatory support to drive the avoidance, reuse, recycling and treatment of prescribed wastes.
- Reduced hazardous waste generation, creating business benefits in avoided landfill costs.
- A level playing field created for the management of hazardous waste.
- Administrative costs to industry and government are minimised.

Community

- Reduced hazardous waste generation.
- The potential hazard of the waste is reduced and appropriately managed.
- There are adequate data and records such that EPA can assure itself and stakeholders of the safe and appropriate management of prescribed industrial waste.

A number of these objectives are competing. For example, administrative costs would be significantly minimised if there were no regulation to govern the management of hazardous waste; however, this would not allow the other objectives to be achieved.

These objectives will be used to assess the relative merits of the various options for the future hazardous waste management framework in Victoria. The preferred option will match each of the objectives.

39 EPA Victoria 2008, *EPA Discussion Paper: The Future of Hazardous Waste Management in Victoria*, p. 2.

40 EPA Victoria 2008, *EPA Victoria 2008 Annual Report*, p. 4.

5 OPTIONS

5.1 Introduction

EPA has undertaken extensive stakeholder consultation to gain insight into different convictions, assessments and attitudes towards the current Regulations and to help shape an alternative approach. Stakeholders from government, industry, the broader community and consultants have all contributed to the review. This chapter sets out some of the conclusions from the stakeholder feedback and then outlines the potential options for a new regulatory framework.

These options have been informed by a consideration of the regulatory approaches in other jurisdictions – see Appendix C for a description of what is required across Australia.

5.2 Stakeholder consultation

Chapter 3 focuses on the stakeholder consultation that was held on the EPA discussion paper. The discussion paper focused on the problems with the existing framework and ways the framework could be improved to achieve the government's objective to end disposal of higher hazard wastes to landfill by 2020, and to encourage waste avoidance, reuse or recycling.

Another key part of stakeholder consultation were two similar surveys that not only helped to capture views about the current regulatory framework but also asked questions regarding current and future waste management techniques and opinions on particular waste management techniques. Participants in both the paper survey and online survey were asked if they strongly agreed, agreed, were neutral, disagreed or strongly disagreed with the following policy options being incorporated into the future regulatory framework:⁴¹

- bans on landfill
- less reporting and record-keeping requirements than under current requirements
- incentives or subsidies to encourage change
- education requirements on alternative approaches or uses
- information provision on alternative approaches or uses
- self-regulation by industry with little to no oversight by government
- industry oversight by a government-approved third party
- fees higher than at present
- an alternative classification of waste.

Figure 5.1 sets out the response to this question.⁴²

Stakeholders also set out their opinions regarding:

- the clarity of the existing framework
- the rating that they would put on the current regulatory system in terms of –
 - protecting and enhancing Victoria's environment
 - growing Victoria's economy by supporting industries producing industrial waste
 - supporting the happiness and wellbeing of all Victorians
- the current hazardous waste regulatory framework allowing for flexibility in applying the waste management hierarchy
- the achievability of the Government objective of no high-hazard (Category A or B) waste disposal to landfill by 2020
- the current landfill levy
- the treatment and disposal of hazardous waste in the absence of a regulatory framework
- which policy options should be considered as part of the making of new prescribed waste regulations
- current administration and compliance costs
- current and future waste management
- how long current regulatory requirements take to complete.

These results are set out in Appendix F.

Given the results of stakeholder consultation and the objectives of the future regulatory framework, the following feasible alternatives are suggested.

41 The paper survey was distributed to participants who attended the workshop sessions run by EPA; online surveys were distributed to a waste management email list compiled by EPA.

42 The respondents who responded 'neutral' have been taken out of the results.

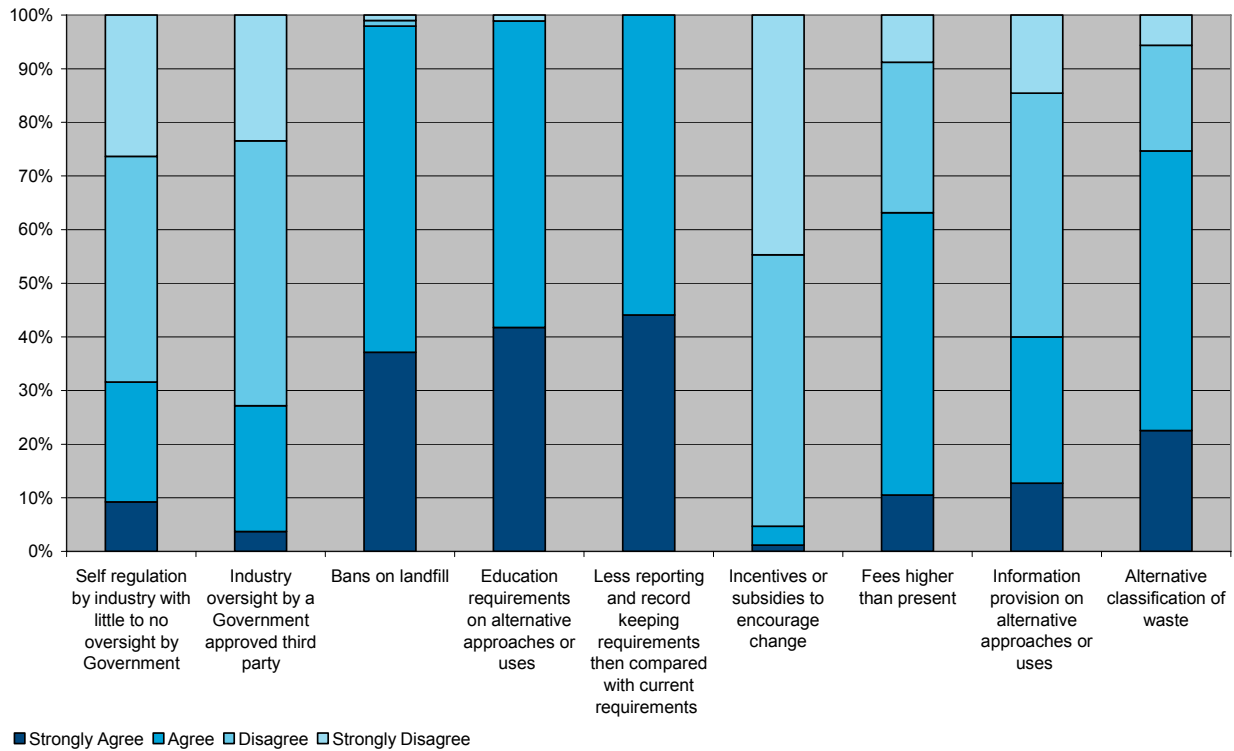


Figure 5.1: Survey result: policy options to be part of a future regulatory framework⁴³

5.3 Feasible alternatives

The base case or ‘do nothing’ approach assumes that the Regulations sunset, leaving the industry to self-regulate.

A number of feasible alternatives to address the problems discussed earlier will be assessed relative to the base case. These options are:

- remake current regulations without any changes
- remake schedules (that define a prescribed industrial waste) without any other requirements
- remake schedules (that define a prescribed industrial waste) without any other requirements but for the EPA to develop and implement an education campaign
- develop new regulations that –
 - provide a clear definition of which wastes are prescribed
 - provide definitions of non-prescribed industrial waste
 - allow for reuse and recycling with a streamlined exception process
 - provide for exclusion of material with an established direct beneficial reuse that would otherwise be a prescribed waste.

The costs and benefits of these alternatives will be estimated as incremental to the current situation.

⁴³ This figure does not include ‘neutral’ responses. Neutral results were excluded to highlight those who had a positive or negative view on the policy options available in prescribed industrial waste regulation.

5.4 Option 1: Do nothing

This option is the base case; that is, that the current Regulations sunset. In this option, the Act, Policy and other legislation would still apply to industrial waste. One of the key factors that would influence the treatment of industrial waste under this option is the *Environment Protection Act 1970*. The following sections would still apply are the following:

- Section 11 – the principle of the wastes hierarchy. This section states that wastes should be managed in accordance with the following order of preference: (a) avoidance; (b) reuse; (c) recycling; (d) recovery of energy; (e) treatment; (f) containment; (g) disposal. This principle alone would not be enforceable.
- Section 27A – Offences relating to industrial waste. This means that it would still be an offence for dumping industrial waste as defined in the Act.
- Section 31D – Annual performance statement. This section requires that annual performance statements would still be required for licence holders.

Under the *Environment Protection (Scheduled Premises and Exemptions) Regulations 2007* the EPA would still license AO2 waste treatment works engaged in the immobilisation, thermal degradation, incineration or other treatment of waste.

However, without a definition of prescribed industrial waste in regulations, the levies would cease to operate, Part IXA transport requirements would be inoperative and AO1 premises in the scheduled premises regulations would effectively cease to exist.

There would still be other broad powers relating to environmental hazards in the Act, including pollution abatement notices (Sections 31A and 31B), clean-up provisions (Sections 62, 62A, 66) and notifiable chemical orders (section 30D). Pollution abatement and clean-up provisions are primarily reactive, rather than preventative. Notifiable chemical orders prevent or abate a serious environmental hazard but are not designed to be used as an ongoing management tool.

The *Dangerous Goods Act 1985* does not currently regulate the transport of prescribed industrial waste. Wastes that can be classified as 'dangerous goods' for the purposes of the Dangerous Goods Act would theoretically be subject to the transport provisions of that Act if there was no definition of prescribed industrial waste. The main limitations of the Dangerous Goods Act are that it would not capture wastes that would not be classified as 'dangerous goods', and it would not ensure that wastes (that would otherwise be classed as 'prescribed industrial wastes') are disposed of at appropriate facilities.

Part 4.3 of the *Occupational Health and Safety Regulations 2007* provides some rigour for on-site management of waste asbestos, but these Regulations specifically rely on transport and disposal requirements prescribed under the Environment Protection Act. In effect, these Regulations would not supplement the regime in the absence of prescribed industrial waste regulations.

5.5 Option 2: Remake current regulations without any changes

This option involves the remaking of the current regulations without any changes. See Appendix B for a full description of the current system.

The components of the current Regulations are:

- classification of waste into Category A, B or C
- the requirement for a permit to transport prescribed waste
- recording of transport of waste by the consignor, transport and receiver
- the accreditation of agents to carry out the annual return and transport certificate on behalf of the waste producer
- the requirement to produce an annual return
- record-keeping requirements
- a clause to allow for exemptions from obtaining permits, transport certificates and retaining records
- accreditation to provide exemption from the requirements of transport certificates and retention of records.

5.6 Option 3(a): Remake schedules (that define a prescribed industrial waste) without any other requirements

Remaking the schedules provides a definition of prescribed waste and prescribed industrial waste. These schedules allow for the landfill levies in the Act to operate effectively.

As described in Option 2, the current regulations comprise of a number of components that:

- prescribe waste and industrial waste for the purposes of the *Environment Protection Act 1970*
- prescribe the transport and management of prescribed waste and prescribed industrial waste
- provide for exemptions from some parts of the regulations.

This option would require no administrative tracking of waste.

5.7 Option 3(b): Remake schedules (which define a prescribed industrial waste) with an increase in the landfill levy

This option is the same as Option 3 (a) except that, in addition to the wastes being defined in the schedules, a market mechanism (increasing the landfill levy) is incorporated to encourage the procedure set out under the waste hierarchy.

An increase in the landfill levy may help to achieve some of the objectives set out by stakeholders and EPA but, as it is not set under these Regulations, it is considered beyond the scope of this regulatory impact statement.

As of 1 July 2008, the landfill levies increased from \$130 to \$250 per tonne of Category B waste, and from \$50 to \$70 per tonne of Category C waste. The most recent data shows that, in anticipation of the increased levy, there was a spike in the amount of waste disposed of in landfills in June 2008. While it is too early to see the full effects of the increase in the landfill levy, it is likely that there will be a decrease in the amount of waste sent to landfill as alternative disposal options become more attractive.

As Option 3(b) will not be assessed as part of this regulatory impact statement, Option 3(a) will be referred to as Option 3.

5.8 Option 4: Remake schedules (that define a prescribed industrial waste) without any other requirements but for the EPA to develop and implement an education campaign

This option is the same as Option 3 except that, in addition to remaking the schedules, an education campaign is conducted. The education campaign could provide the opportunity to:

- communicate regulatory changes to stakeholders
- clarify definitions
- set out options and ideas for waste management, recycling, reuse
- advise best practice
- decrease the transaction costs of determining different approaches
- provide market opportunities
- match opportunities.

5.9 Option 5: Proposed regulations

This option involves the development of proposed regulations to do the following:

- Provide a clear definition of which wastes are prescribed. The definition of 'prescribed industrial waste' will change from the current reliance on the list in Schedule 1, to a reliance on the definition of 'industrial waste' in the Act, with all industrial waste defined as prescribed industrial waste unless –
 - it is classified as non-prescribed in a new Schedule 1 list
 - it has a 'direct beneficial reuse'
 - it has a 'secondary beneficial reuse' (via reuse notification to EPA)
 - its potential hazard is below the (yet-to-be-established) base threshold for Category C prescribed industrial waste. The base threshold for Category C waste will be determined as part of a separate process from this RIS, to commence shortly. Publication 996 will then be amended accordingly.
- Include assessment and classification by waste producers and EPA in the regulations. Currently, the Regulations do not deal with classifying waste (beyond the definitions of hazard categories), as this is picked up in the Policy.
- Require waste producers to make their own assessments and provide notification of the intended 'secondary beneficial reuse' to EPA, along with a declaration endorsed by a third party. EPA will retain the ability to attach conditions to exemptions, to refuse to authorise notifications and to amend or revoke authorised notifications.

- Annual returns and accredited waste producers have been removed from the proposed regulations.
- Permitting and placarding requirements are simplified under the proposed regulations.

5.10 Conclusion

The feasible alternatives to be assessed against the base case are options 2, 3(a), 4 and 5. Changing the landfill levy is beyond the scope of this RIS and, given the relatively recent changes to the levy, it would be precipitous to change the levy again before the full effects of the current charge have been observed.

6 ANALYSIS OF COSTS AND BENEFITS

The proposed regulation and feasible alternatives have the potential to impose both direct and indirect costs and benefits in quantitative and qualitative ways.

There are six main stakeholder groups that will be affected by any changes to regulation: industrial waste producers, waste transporters, treatment plants, landfill sites, the government and the community. The nature and extent of the impact will naturally depend on the option being considered.

The cost-benefit analysis is based on best available information and is illustrative of the costs and benefits, given this. It should be noted that the assessment of benefits is conservative, as it draws mainly on analysis that focuses on all wastes, rather than hazardous waste – which is likely to impose higher costs. Supporting evidence and discussion of the model assumptions are provided in Appendix D. The costs and benefits assessed for the alternatives are assessed against the base case of 'do nothing' and they are presented in net present terms using a discount rate of 3.5 per cent. As the first-year costs and benefits generated by the alternatives will be experienced in the 2009-10 financial year, the total annual costs and benefits have been discounted back to 2008-09 dollars.

All of the options considered, except the base case, involve remaking the definition of prescribed industrial waste via the Schedules. This has flow-through implications for other legislative requirements, such as landfill levies and the requirement to treat Category A waste. The cost-benefit analysis has taken a broader approach and considered the benefits and costs that extend beyond the administrative requirements of the regulations.

6.1 Costs associated with each option

6.1.1 Option 1: Do nothing

Derivation of Option 1 – the base case from the perspective of EPA, waste industry participants and the community

Cost of applying for licence for premises

Under this option the current Regulations will lapse. This means that the producers who currently have an exemption from scheduled premises regulations will now need to apply for a licence.

There are currently 34 businesses that are exempt from licensing of premises. The lapse of the Regulations will mean that these businesses will incur the cost of having to apply for a scheduled premises licence, where this cost is:

$$\text{Cost} = A \times B$$

where:

A = the number of businesses that would no longer be exempt

B = the cost of applying for a licence.

See Appendix D for model assumptions, specifically Table D.7.

EPA costs

Under this option EPA resources will be dedicated to industrial waste management as defined under the Act and Policy. While there will be no time dedicated to the administration of the regulations, it is expected that more time will be dedicated to the compliance, enforcement and emergency management under the Act. The implementation of the waste hierarchy will also be required under the Act. In this regard, the cost to EPA under this option will be the cost of those staff currently employed in the administration of prescribed industrial waste. This is estimated using the following formula:

$$\text{Cost} = ((A \times B \times C) + (D \times B \times E) + (F \times B \times G) + (H \times B \times I) + (J \times B \times K))$$

where:

A = VPS Grade 2 annual income

B = Overhead factor/on-cost

C = Number of VPS Grade 2 FTE staff required⁴⁴

D = VPS Grade 3 annual income

E = Number of VPS Grade 3 FTE staff required

F = VPS Grade 4 annual income

G = Number of VPS Grade 4 FTE staff required

⁴⁴FTE: full time equivalent

H = VPS Grade 5 annual income

I = Number of VPS Grade 5 FTE staff required

J = VPS Grade 6 annual income

K = Number of VPS Grade 6 FTE staff required.

See Appendix D for model assumptions, specifically Table D.1 and D.7.⁴⁵

Economic, social and environmental externalities

Under this option the management of prescribed industrial waste is governed by the Act, Policy and other relevant legislation and local by-laws. It is expected that, without a definition of prescribed industrial waste and regulations in place to govern the way that it is managed, waste management will lead to the following results:

- 40 per cent will be disposed inappropriately.
- 10 per cent will be reused or recycled.
- 4 per cent will be used as an energy source.
- 5 per cent will be disposed of at Lyndhurst.
- 41 per cent will be disposed of at a municipal or public landfill.⁴⁶

Different management options create different costs for the economy, environment and the community. These externalities are explained in Appendix D.

$$\text{Cost} = ((A \times B \times C) + (A \times D \times E) + (A \times F \times G) + (A \times H \times I) + (A \times J \times K))$$

where:

A = Total prescribed industrial waste produced

B = Economic, social and environmental costs of inappropriate disposal

C = Percentage that will be disposed inappropriately

D = Economic, social and environmental costs of reuse/recycling

E = Percentage that will be reused/recycled

F = Economic, social and environmental costs of prescribed industrial waste used as an energy source

G = Percentage that will be used as an energy source

H = Economic, social and environmental costs of prescribed industrial waste disposed at Lyndhurst

I = Percentage that will be disposed at Lyndhurst

J = Economic, social and environmental costs of prescribed industrial waste disposed at a municipal or public landfill

K = Percentage that will be disposed at a municipal or public landfill.

Transport costs

Transport costs related to the management of waste have not been included in the analysis. This is because transport costs are a business-as-usual cost that will be the same for each option, including the base case.

See Appendix D for model assumptions, specifically Tables D.1, D.2, D.9-D12.

⁴⁵ Note that executive officer salaries have not been included in this analysis. Executive officers are not dedicated to prescribed industrial waste, so executive officer costs are included as part of EPA's corporate overheads and in the on-cost factor of 1.85.

⁴⁶ Estimates provided by EPA after discussions with PwC and reflect EPA's views as to what is likely to happen relative to the current situation. Estimates of this allocation for the status quo were developed from observed data. The estimates for all other options are considered relative to these observations and are set out in Figure D.2.

Table 6.1: Option 1 – derivation of the base case

Stakeholder	Cost driver	2008-09 (\$)	10-year NPV (\$)
EPA	EPA costs	3,136,331	26,996,553
Industry	Cost of applying for schedule premises licences	425,000	3,658,267
Economy, environment & community	Costs from way in which waste is managed	196,157,661	1,769,047,684
Total (Option 1)		199,718,991	1,799,702,504

The high costs of this option are being driven by the economy, environmental and community cost associated with no regulations. These are high as there is an expectation that a large proportion of prescribed industrial waste under this option will be disposed inappropriately, leading to high environmental and social cost implications.

6.1.1 Option 2: Remake current regulations without any changes

Costs associated with Option 2 from the perspective of EPA, waste industry participants and the community

Permit to transport waste

Under this option, businesses must apply for a permit to transport waste. Any transport provider that would like to transport prescribed industrial waste must apply for an annual permit. Transport providers who wish to transfer or amend their permit must also follow the requirements under the regulations. These costs relate to:

$$\text{Cost} = (A \times B) \times C \times D$$

where:

- A = Average hourly earnings (37.5 hour week)
- B = Overhead factor/on-cost
- C = Time spent completing initial application for certificate (hours)
- D = Number of initial applications per annum

See Appendix D for model assumptions, specifically Tables D.1, D.7.

Transfer or amendment of transport permit

$$\text{Cost} = (A \times B) \times E \times D$$

where:

- A = Average hourly earnings (37.5 hour week)
- B = On-cost factor
- C = Number of applications
- D = Time spent completing application (hours).

Annual return

Under this option the prescribed industrial waste producers must submit an annual return to EPA, outlining the amount of each category of prescribed industrial waste that has been transported from the producer over the past 12 months.

$$\text{Cost} = (A \times B) \times C \times D$$

where:

- A = Average hourly earnings (37.5 hour week)
- B = Overhead factor/on-cost
- C = Number of annual returns
- D = Time spent completing annual return (hours).

See Appendix D for model assumptions, specifically Table D.1, D.7.

Transport certificate

Under this option the waste producer, waste transporter and waste receiver must fill out a transport certificate for each consignment of waste. The transport certificates can be submitted online or on a paper form. Online transport certificates are cheaper and are becoming more popular. The waste producer and waste receiver must submit a copy of the form to EPA.

$$\text{Cost} = (((A \times B) + (C \times D) + (E \times F)) \times (G \times H)) + (I \times J) + (K \times L)$$

where:

- A = Number of waste generators
- B = Time spent filling in certificate – Generator
- C = Number of waste transporters
- D = Time spent filling in certificate – Transporter
- E = Number of treatment plants/waste disposal facilities
- F = Time spent filling in certificate – Receiver
- G = Average hourly earnings (37.5 hour week)
- H = Overhead factor/on-cost
- I = Transport certificates – online
- J = Cost per transport certificate – online
- K = Transport certificates – paper
- L = Cost per transport certificate – paper.

See Appendix D for model assumptions, specifically Tables D.1, D.7.

Record keeping

Under the current Regulations a prescribed industrial waste producer, waste transporter and waste receiver must retain any information on transport certificates for at least 24 months.

$$\text{Cost} = (A \times B \times C) \times (D + E)$$

where:

- A = Average hourly earnings (37.5 hour week)
- B = Overhead factor / on-cost
- C = Time spent general record keeping
- D = Number of waste generators
- E = Number of waste transporters.

See Appendix D for model assumptions, specifically Tables D.1, D.7.

Application for exemption

Under the current Regulations an exemption from some requirements of the Regulations, such as transport certificates, annual returns and record keeping, can be sought. The application, as described in Chapter 3, is an iterative and complex process involving the waste producer, engineers, auditors and EPA to grant exemptions. Costs of the exemption process are borne by the waste producer and EPA.

$$\text{Cost} = (A \times B) \times (C + D) \times E$$

where:

- A = Average hourly earnings (37.5 hour week)
- B = Overhead factor/on-cost
- C = Time required for application for exemption – licensing of premises (hours)
- D = Time required for application for exemption – recording of information (hours)
- E = Number of exemptions per year.

See Appendix D for model assumptions, specifically Tables D.1, D.7.

Treatment costs

Under the current Regulations, Category A waste must be treated in order to be disposed of. The definition of prescribed industrial waste allows the working of the Regulations governing the imposition of a landfill levy for Category B and Category C prescribed industrial waste. The application of the landfill levies means that businesses have an incentive to treat their Category B and C waste to lower its hazard and thus incur a lower, or no, landfill levy cost. The cost of treatment has been calculated as follows.

$$\text{Cost} = ((A - B) \times C) + (D \times E)$$

where:

- A = Amount of Category A
- B = Amount disposed inappropriately
- C = Cost of treating Category A
- D = Amount of Category B and C currently treated
- E = Cost of treating Category B and C.

EPA estimates have been used to calculate the cost of treating the prescribed industrial waste.

Cost of recycling

Under the current Regulations, the definition of prescribed industrial waste allows the functioning of the regulations governing the imposition of a landfill levy for Category B and Category C prescribed industrial waste. Consequently, producers may choose to recycle where the cost is equal to or less than the cost of disposal. The cost of recycling has been calculated as the maximum of the weighted average of the landfill levies. The weighted average of the landfill levies has been used as an upper or maximum cost. The reason for this is that, for a profit-maximising business, if the cost of recycling was higher then businesses would choose to dispose of their waste. The weighted average of the landfill levies is calculated as follows.

$$\text{Cost} = ((A \times B) + (C \times D)) / (B + D)$$

where:

- A = Category B landfill levy
- B = Amount of Category B waste produced
- C = Category C landfill levy
- D = Amount of Category C waste produced.

Landfill levy

Under this option the definition of prescribed industrial waste allows the working of the regulations governing the imposition of a landfill levy for Category B and Category C prescribed industrial waste. Disposal of Category B and Category C prescribed industrial waste in a landfill will incur the levy.

$$\text{Cost} = (A \times B \times C) + (A \times D \times E)$$

where:

- A = Total prescribed industrial waste produced
- B = Cost for Category B prescribed industrial waste
- C = Percentage that will be disposed at Lyndhurst under Option 2
- D = Cost for Category C prescribed industrial waste
- E = Percentage that will be disposed at a municipal or public landfill under Option 2.

See Appendix D for model assumptions, specifically Tables D.1 – D.7.

EPA costs

EPA dedicates a number of staff to the administration, enforcement, compliance, education and policy setting under these Regulations. EPA advises that these costs are not expected to be different from those in the base case. Whereas in the base case there are more resources dedicated to education, compliance and enforcement, this option will dedicate resources to the administration of the regulatory requirements.

See EPA cost calculation under the base case for details.

Table 6.2: Option 2 – costs associated with Option 2

Stakeholder	Cost driver	2008-09 (\$)	10-year NPV (\$)
Industry	Application for permit to transport waste	169,012	1,454,799
	Transfer or amendment of transport permit	23,657	203,634
	Annual return	330,101	2,841,404
	Transport certificate	4,296,680	36,809,800
	Record keeping requirements	14,647,629	144,679,343
	Application for exemption	4,401	37,885
	Treatment costs	42,435,928	365,275,165
	Cost of recycling	11,586,048	99,729,069
	Landfill levy ⁴⁷	62,110,773	560,145,950
Total (Option 2)		135,604,230	1,211,177,051

While Option 2 contains administrative, treatment, recycling and landfill costs not incurred in the base case, overall costs are much lower when compared to the base case. This is because inappropriate disposal is much lower and, therefore economic, environmental and community costs are a benefit for this option when compared to the base case.

6.1.3 Option 3: Remake schedules (that define prescribed industrial waste) without any other requirements

Costs associated with Option 3 from the perspective of EPA, waste industry participants and the community

Understanding regulations

Under this option the schedules from the current regulations will be the same as in Option 2. However, because only the schedules will be remade, industry will need to take some time to understand their obligations. As the schedules do not change from current Regulations, a conservative estimate that each business in the waste management industry will take half a day to understand its obligations is applied under this option.

$$\text{Cost} = (A \times B \times C) \times (E + D)$$

where:

A = Average hourly earnings (37.5 hour week)

B = Overhead factor/on-cost

C = Time required (hours) - Option 3

D = Number of waste generators

E = Number of waste transporters.

See Appendix D for model assumptions, specifically Table D.1.

Treatment costs

As under Option 2, this option provides for the definition of prescribed industrial waste, meaning that Category A waste must be treated in order to be disposed. The definition of prescribed industrial waste means that the landfill levies will be in force. The application of the landfill levies means that businesses have an incentive to treat their

⁴⁷ The cost of the landfill levy was presented in the EPA Annual Report 2007-08 as \$34 million. This was based on a forecast of prescribed industrial waste landfilled at a point in time. The results of our analysis are based on actual 2007-08 data with forecast made using expected volumes of prescribed industrial waste going forward (based on historical trends).

Category B and C waste to lower its hazard and thus incur a lower, or no, landfill cost. The cost of treatment will be calculated in the same way as for Option 2; however, as it is expected that more waste will be inappropriately disposed of, the treatment cost under this option is lower than in Option 2.

Cost of recycling

As under Option 2, this option provides for the definition of prescribed industrial waste, meaning that the landfill levies will be in force. The application of the landfill levies means businesses have an incentive to recycle their waste where the cost of recycling is less than that of disposal. The approach used in Option 2 to calculate the cost of recycling is used to calculate the cost in this option.

Landfill levy

The remaking of the schedules allows the landfill levy regulations to be effective. This means that the costs and cost calculation as set out in relation to landfill levies in Option 2 will also be relevant in this option.

EPA costs

While the EPA will not be dedicating staff to the administration of the requirements such as transport certificates, permits and annual returns, there will need to be resources dedicated to the enforcement, compliance, education and policy setting under this Option. EPA advises that these costs are not expected to be different to those in the base case.

See EPA cost calculation under the base case for details.

Table 6.3: Option 3 – costs associated with Option 3

Stakeholder	Cost driver	2008-09 (\$)	10-year NPV (\$)
Industry	Cost of understanding regulations	2,547,938	2,547,938
	Treatment costs	32,284,174	286,498,493
	Cost of recycling	7,448,174	64,111,545
	Cost of landfill levy	55,046,526	496,437,043
Total (Option 3)		98,326,667	849,595,018

Costs under this Option are lower than the base case as the introduction of some level of regulation is expected to decrease the amount of inappropriate disposal. Costs are also lower than Option 2 - the status quo because there are no administrative requirements.

6.1.1 Option 4: Remake schedules (that define a prescribed industrial waste) without any other requirements but for the EPA to develop and implement an education campaign

Costs associated with Option 4 from the perspective of EPA, waste industry participants and the community

Understanding regulations

This cost will be the same as for Option 3.

Treatment costs

This will be the same as in Option 3; however, as it is expected that less waste will be inappropriately disposed of, the treatment cost under this option is lower than in Option 3.

Cost of recycling

This will be the same as for Option 3; however, with an education campaign it is expected that more waste will be recycled than in Option 3.

Cost of landfill levy

This cost will be the same as in Option 3.

EPA costs

This cost will be the same as for Option 3.

Education campaign

Under this option EPA will run an education campaign to educate waste producers on alternative waste management, including ways to reuse and recycle waste. The cost of the education campaign will be higher in the initial year than for the remaining years of the regulatory period. The cost will be borne by EPA.

See Appendix D for model assumptions.

Table 6.4: Option 4 – costs associated with Option 4

Stakeholder	Cost driver	2008-09 (\$)	10-year NPV (\$)
EPA	Cost of the education campaign	50,000	240,192
Industry	Cost of understanding regulations	2,547,938	2,547,938
	Treatment costs	34,809,346	299,627,938
	Cost of recycling	14,896,347	128,223,089
	Cost of landfill levy	50,746,549	457,657,708
Total (Option 4)		103,050,181	888,296,865

The costs for Option 4 are lower than in the base case. The definition of prescribed industrial waste allows the landfill levies to be in force and, along with an education campaign, it is expected that inappropriate disposal will be lower than in the base case.

6.1.5 Option 5: Proposed regulations

Costs associated with Option 5 from the perspective of EPA, waste industry participants and the community

Costs

The following are the key differences between the costs for Option 2 and this option:

- Annual returns will no longer be required.
- Various administrative processes will be streamlined, thereby reducing administrative costs when compared to Option 2.
- Administrative requirements for waste that is recycled or reused will no longer be required.

Permit to transport waste

The proposed regulations will streamline the application process to make it easier to apply for a permit. This is estimated to cut administrative costs by 36 per cent.

These costs relate to:

$$\text{Cost} = (A \times B) \times C \times D \times E$$

where:

A = Average hourly earnings (37.5 hour week)

B = Overhead factor/on-cost

C = Time spent completing initial application for certificate (hours)

D = Number of initial applications per annum

E = Reduction in administrative burden because of streamlined exemption process.

See Appendix D for model assumptions, specifically Tables D.1, D.7 and D.13.

Transfer or amendment of transport permit

The proposed regulations will streamline the process to transfer or amend a transport permit. This is estimated to cut administrative costs by 36 per cent.

$$\text{Cost} = (A \times B) \times C \times D \times E$$

where:

- A = Average hourly earnings (37.5 hour week)
- B = On-cost factor
- C = Number of applications
- D = Time spent completing application (hours)
- E = Efficiency factor.

See Appendix D for model assumptions, specifically Table D.1, D.7 and D.13.

Transport certificate

The proposed regulations will streamline this process from the existing regulations. This is estimated to cut administrative costs by 36 per cent from the existing regulations.

$$\text{Cost} = (((A \times B) + (C \times D) + (E \times F)) \times (G \times H)) + (I \times J) + (K \times L) \times M$$

where:

- A = Number of waste generators
- B = Time spent filling in certificate - Generator
- C = Number of waste transporters
- D = Time spent filling in certificate - Transporter
- E = Number of treatment plants / waste disposal facilities
- F = Time spent filling in certificate - Receiver
- G = Average hourly earnings (37.5 hour week)
- H = Overhead factor / on-cost
- I = Transport certificates - online
- J = Cost per transport certificate - online
- K = Transport certificates - paper
- L = Cost per transport certificate - paper
- M = Efficiency factor.

See Appendix D for model assumptions, specifically Table D.1, D.7 and D.13.

Record keeping

The proposed regulations will streamline this process from the existing regulations. This is estimated to cut administrative costs by 45 per cent.

$$\text{Cost} = (A \times B \times C) \times (D + E) \times F$$

where:

- A = Average hourly earnings (37.5 hour week)
- B = Overhead factor / on-cost
- C = Time spent general record keeping
- D = Number of waste generators
- E = Number of waste transporters
- F = Efficiency factor.

See Appendix D for model assumptions, specifically Table D.1, D.7 and D.13.

Application for exemption

The proposed regulations will streamline this process from the existing regulations. The streamlined process is expected to increase the number of exemptions sought. This is expected to increase the cost of applying for exemptions by 103 per cent. This has been calculated in the following way:

- A = Current amount of waste is 853,170 tonnes
- B = 34 businesses are currently exempt from transport certificates
- C = An exemption currently takes 4 hours

D = Total amount of hours taken to apply for exemption under current regulations = B x C = 136 hours

E = The average amount of waste for which businesses are exempt is 4,935 tonnes

F = The proposed regulations expect 40% of the waste to be recycled, this is 341,268 tonnes (40% x A)

G = At an average of 4,935 tonnes per business, (F/E) = 69 businesses will have to apply for an exemption under the proposed regulations

H = This is an increase of 103% in the amount of exemptions sought = (G - B)/B

I = The exemptions under the proposed regulations are expected to take half as long, 2 hours

J = The total about of hours to apply for exemptions under the proposed regulations = G x I = 138 hours

K = The difference between current and proposed = J - D = 2 extra hours under the proposed regulations.

Therefore the streamlined exemption is expected to increase exemption costs by 103 per cent from the existing regulations.

$$\text{Cost} = (A \times B) \times (C + D) \times E \times F$$

where:

A = Average hourly earnings (37.5 hour week)

B = Overhead factor/on-cost

C = Time required for application for exemption - licensing of premises (hours)

D = Time required for application for exemption - recording of information (hours)

E = Number of exemptions per year

F = Streamlined exemption factor.

See Appendix D for model assumptions, specifically Table D.1, D.7 and D.13.

Understanding regulations

$$\text{Cost} = (A \times B \times C) \times (E + D)$$

where:

A = Average hourly earnings (37.5 hour week)

B = Overhead factor / on-cost

C = Time required (hours) - Option 5

D = Number of waste generators

E = Number of waste transporters

See Appendix D for model assumptions, specifically Table D.1.

Treatment costs

The treatment costs are calculated in the same way as for Option 2; however, as it is expected that less waste will be inappropriately disposed of, the treatment cost under this Option is lower than in Option 2.

Cost of recycling

As under Option 2, this Option provides for the definition of prescribed industrial waste, meaning that the landfill levies will be in force. The application of the landfill levies means that businesses have an incentive to recycle their waste where the cost of recycling is less than that of disposal. The approach used in Option 2 to calculate the cost of recycling is used to calculate the cost in this option.

Landfill levy

$$\text{Cost} = (A \times B \times C) + (A \times D \times E)$$

where:

A = Total prescribed industrial waste produced

B = Cost for Category B prescribed industrial waste

C = Percentage that will be disposed at Lyndhurst under Option 5

D = Cost for Category C prescribed industrial waste

E = Percentage that will be disposed at a municipal or public landfill under Option 5

See Appendix D for model assumptions, specifically Table D.1 - D.7.

Table 6.5: Option 5 – Costs associated with Option 5

Stakeholder	Cost driver	2008-09 (\$)	10-year NPV (\$)
Industry	Application for permit to transport waste	108,021	929,808
	Transfer or amendment of transport permit	15,120	130,149
	Transport certificate	2,746,143	23,637,934
	Record keeping requirements	9,361,758	79,612,261
	Application for exemption	4,533	39,022
	Understanding regulations	10,191,753	10,191,753
	Treatment costs	43,198,586	371,839,888
	Cost of recycling	22,344,521	192,334,634
	Landfill levy	48,519,776	437,575,552
Total (Option 5)		136,490,210	1,116,291,000

The costs under this option are lower than for the base case, mainly due to lower inappropriate disposal. In relation to Option 2, this option has slightly higher costs, mostly because recycling and reuse are expected to increase from the status quo.

6.2 Consideration of benefits

It is difficult to precisely quantify the benefits associated with regulation of prescribed industrial waste in Victoria, as the value of appropriate waste management is a 'non-traded' good (in an economic sense) and directly observed price signals are not available. It is therefore necessary in the preparation of this regulatory impact statement to draw on appropriate proxies, where available.

6.2.1 The work of the Productivity Commission

In 2006 the Productivity Commission undertook a review into waste generation and resource efficiency in Australia. The scope of the inquiry was based on providing advice and strategies to address the market failures associated with the generation and disposal of waste. While the inquiry did look into commercial and industrial waste and construction and demolition waste, the focus of the inquiry was on solid, non-hazardous wastes.

Municipal waste vs prescribed industrial waste⁴⁸

EPA classifies waste into three main categories – municipal wastes, commercial and industrial wastes, and prescribed wastes.

Municipal wastes are wastes produced by households and are typically collected by local councils through kerbside collections.

Commercial and industrial wastes are produced by commercial, industrial and trade activities, including from construction and demolition work. These are wastes that pose a low hazard to the environment.

Prescribed wastes include wastes that are hazardous or wastes that can affect amenity. Prescribed wastes mainly consist of those from industrial sources and are referred to as prescribed industrial waste. Prescribed wastes are listed in the Regulations.

⁴⁸ EPA Victoria 2008, *Waste*, website: www.epa.vic.gov.au/waste/#what, accessed 8 December 2008.

6.2.2 The significance of inappropriate disposal

One of the key variables in determining the benefits of each option in relation to the base case is the amount of waste inappropriately disposed. In Option 1, the base case, it is expected that 40 per cent of waste will be disposed inappropriately. Under different options, the incentive to manage waste inappropriately differs. Where options provide greater incentives to manage waste appropriately, the economic, social and environmental benefit in relation to the base case will also be greater. It is therefore important to attach an appropriate cost to the disposal of waste inappropriately.

The Productivity Commission report does not give an indication as to the exact value of solid, non-hazardous wastes being inappropriately disposed. Using the values for alternative management options – reuse/recycling or landfill disposal – an opportunity cost method of valuing the inappropriate disposal of prescribed industrial waste can be used.

As explained in Appendix D, it is difficult to find data on the externalities associated with reusing or recycling prescribed industrial waste. A conservative estimate of the external costs of waste recycled is negative \$151 (in other words, it is a benefit) per tonne. This value is likely to significantly underestimate the cost of inappropriate disposal of municipal waste, and therefore be an even greater underestimate of inappropriate disposal of prescribed industrial waste (see how the two differ in the box above). The reason for this is that society will not be as concerned about the lost resources when waste is put in a landfill compared with the loss or 'outrage' when they become aware that hazardous materials have been dumped in their local tip or, worse, in rivers, parks and other places.

If \$151 per tonne of waste was the cost to society associated with prescribed industrial waste that is inappropriately disposed, then the benefits of regulating its disposal will be considerably lower than the costs. In this sense if this value was taken the analysis would not genuinely be capturing all the benefits of the prescribed industrial waste regulation and thus on this data alone it was not possible to undertake a meaningful cost-benefit analysis.

6.2.3 Trying to measure society's value of prescribed industrial waste regulation

An alternative method of measuring the inappropriate disposal of prescribed industrial waste is to use the cost to treat Category A and Category B and C waste as a proxy.

The treatment cost of Category A prescribed industrial waste is estimated to be approximately \$1000 per tonne of waste treated. If society did not value the benefits of treatment by at least this much, then treatment of Category A waste should not be mandated; however, this is not the case.

In the development of this regulatory impact statement EPA has undertaken a significant consultation and stakeholder engagement process which gave the opportunity for industry or the community to raise concerns about the schedules or treatment requirements. The consultation process has indicated that the mandatory treatment of Category A waste is not an issue of concern. This would suggest that society's value of treatment of prescribed industrial waste is greater than the \$1000 per tonne cost.

A similar argument could be made for Category B prescribed industrial waste, which is estimated to cost \$500 per tonne to treat. The consultation process has indicated that this is not an issue of concern.

As society values the treatment of prescribed industrial waste at a minimum of \$1000 for Category A and \$500 for Category B waste, then a conservative estimate to determine the value of inappropriate disposal is to use the weighted average of the two treatment costs. This is calculated using the following equation:

$$\text{Cost} = (A \times B) + (C \times D) / (A + C)$$

where:

A = Amount of Category A currently treated

B = Cost of treating Category A

C = Amount of Category B and C currently treated

D = Cost of treating Category B and C.

6.2.4 Option 1: Do nothing

Benefits

No benefits have been calculated for Option 1.

6.2.5 Option 2: Remake current regulations

Benefits associated with Option 2 from the perspective of EPA, waste industry participants and the community

Economic, social and environmental benefits

Under this option, the management of prescribed industrial waste is governed by the Act, regulations, Policy and other relevant legislation and local by-laws. The way that waste is currently managed has been used to formulate the following management process:

- 4 per cent will be disposed inappropriately
- 24 per cent will be reused or recycled
- 4 per cent will be used as an energy source
- 14 per cent will be disposed at Lyndhurst
- 54 per cent will be disposed at a municipal or public landfill.⁴⁹

Different management options create different costs for the economy, environment and the community. These externalities are explained in Appendix D.

$$\text{Benefit} = A \times ((A \times B \times C) + (A \times D \times E) + (A \times F \times G) + (A \times H \times I) + (A \times J \times K))$$

where:

A = The cost of economic, social and environmental externalities in Option 1

B = Total prescribed industrial waste produced

C = Economic, social and environmental costs of inappropriate disposal

D = Percentage that will be disposed inappropriately

E = Economic, social and environmental costs of reuse/recycle

F = Percentage that will be reused/recycled

G = Economic, social and environmental costs of prescribed industrial waste used as an energy source

H = Percentage that will be used as an energy source

I = Economic, social and environmental costs of prescribed industrial waste disposed at Lyndhurst

J = Percentage that will be disposed at Lyndhurst

K = Economic, social and environmental costs of prescribed industrial waste disposed at a municipal or public landfill

L = Percentage that will be disposed at a municipal or public landfill.

See Appendix D for model assumptions, specifically Tables D.1, D.2, D.9–D12.

As less waste is inappropriately disposed of under this option relative to the base case, this will provide a benefit as part of the analysis.

Businesses no longer having to apply for a licence for premises

Under this option, the current Regulations will be in place. This means that producers that have an exemption from scheduled premises regulations will no longer need to apply for a licence. This will create a benefit relative to the base case.

There are currently 34 businesses that are exempt from licensing of premises. The renewal of the current Regulations will mean that these businesses will no longer incur the cost of having to apply for a scheduled premises licence. This is a benefit of:

$$\text{Benefit} = A \times B$$

where:

A = Number of businesses that will no longer have to apply for a licence

B = Cost of applying for a licence.

See Appendix D for model assumptions, specifically Table D.7.

⁴⁹ Estimates were provided by EPA after discussions with PwC and reflect EPA's views as to what is likely to happen relative to the current situation. Estimates of this allocation for the status quo were developed from observed data; the estimates for all other options are considered relative to these observations and are set out in Figure D.2.

Table 6.6: Option 2 – Remake current regulations

Stakeholder	Benefit driver	2008-09 (\$)	10-year NPV (\$)
Economy, environment & community	Costs from way in which waste is managed	188,874,657	1,703,365,924
Industry	Cost of applying for schedule premises licences	425,000	3,658,267
Total (Option 2)		189,299,657	1,707,024,190

The remaking of the current regulations will provide significant benefits in relation to the base case. This is mostly due to the significant decline in inappropriate disposal – four per cent compared to 40 per cent in the base case.

6.2.6 Option 3: Remake schedules without any other requirements

Benefits associated with Option 3 from the perspective of EPA, waste industry participants and the community

Economic, social and environmental benefits

Under this option the schedules will provide a definition of prescribed industrial waste. This will bring in force the landfill levies; however, without tracking and record-keeping procedures it is expected that inappropriate disposal will increase in comparison to Option 2, but still be less in relation to Option 1. Under this option the following management outcome is expected:

- 16 per cent will be disposed inappropriately
- 20 per cent will be reused or recycled
- 4 per cent will be used as an energy source
- 12 per cent will be disposed at Lyndhurst
- 48 per cent will be disposed at a municipal or public landfill.⁵⁰

This benefit is calculated in the same way as for Option 2.

These benefits are explained in Appendix D.

Table 6.7: Option 3 – Remake schedules without any other requirements

Stakeholder	Benefit driver	2008-09 (\$)	10-year NPV (\$)
Economy, environment & community	Benefits from way in which waste is managed	126,717,565	1,142,802,242
Total (Option 3)		126,717,565	1,142,802,242

While Option 3 does produce substantial benefits compared to the base case, tracking and record-keeping requirements that decrease inappropriate disposal in Option 2 – the status quo – mean that the benefits do not reach the same level as in the current situation. This is because the tracking and record-keeping requirements are expected to decrease inappropriate disposal.

6.2.7 Option 4: Remake schedules (which define a prescribed industrial waste) without any other requirements but for the EPA to develop and implement an education campaign

Benefits associated with Option 4 from the perspective of EPA, waste industry participants and the community

Economic, social and environmental benefits

Under this option the schedules will provide a definition of prescribed industrial waste. This will bring into force the landfill levies. An education campaign will also be provided to industrial waste producers. It is expected that the education campaign will increase the amount of Category B and C waste being reused and recycled and reduce the

⁵⁰ Estimates were provided by EPA after discussions with PwC and reflect EPA's views as to what is likely to happen relative to the current situation. Estimates of this allocation for the status quo were developed from observed data. The estimates for all other options are considered relative to these observations and are set out in Figure D.2.

amount of waste being inappropriately disposed. However, without tracking and record-keeping procedures it is expected that inappropriate disposal will be higher than under Option 2, but less in relation to the base case. Under this option the following management outcome is expected:

- 14 per cent will be disposed inappropriately
- 30 per cent will be reused or recycled
- 4 per cent will be used as an energy source
- 12 per cent will be disposed at Lyndhurst
- 40 per cent will be disposed at a municipal or public landfill.⁵¹

This benefit is calculated in the same way as for Option 2.

These benefits are explained in Appendix D.

Table 6.8: Option 4 – Remake schedules with education campaign

Stakeholder	Benefit driver	2008-09 (\$)	10-year NPV (\$)
Economy, environment & community	Benefits from way in which waste is managed	149,613,559	1,349,289,750
Total (Option 4)		149,613,559	1,349,289,750

The education campaign in this option provides more benefits than Option 3; however, the expectation that the inappropriate disposal will still be 14 per cent means that these benefits do not reach the current regulation levels.

6.2.8 Option 5: Proposed regulations

Benefits associated with Option 5 from the perspective of EPA, waste industry participants and the community

Economic, social and environmental benefits

Under this option the following management outcome is expected:

- 3 per cent will be disposed inappropriately
- 40 per cent will be reused or recycled
- 4 per cent will be used as an energy source
- 10 per cent will be disposed at Lyndhurst
- 43 per cent will be disposed at a municipal or public landfill.⁵²

In relation to the base case it is expected that a definition of prescribed waste and tracking and record-keeping requirements will reduce the amount of waste inappropriately disposed. This is also less than in relation to the current Regulations, as clearer definitions of prescribed industrial waste will make it easier for producers to comply with the regulations under this option.

It is also expected that reuse and recycling will be significantly increased under this option, as the exemption process is streamlined in comparison to current Regulations. This will make it easier for producers to apply for an exemption and find alternative management options for their waste.

This benefit is calculated in the same way as for Option 2.

These benefits are explained in Appendix D.

Businesses no longer having to apply for a licence

Under this option, the same provisions as the current regulations will be in place. This means that producers that have an exemption from schedule premises regulations will no longer need to apply for a licence; this will create a benefit relative to the base case.

This benefit is calculated in the same way as for Option 2.

⁵¹ Estimates were provided by EPA after discussions with PwC and reflect EPA's views as to what is likely to happen relative to the current situation. Estimates of this allocation for the status quo were developed from observed data. The estimates for all other options are considered relative to these observations and are set out in Figure D.2.

⁵² Estimates were provided by EPA after discussions with PwC and reflect EPA's views as to what is likely to happen relative to the current situation. Estimates of this allocation for the status quo were developed from observed data. The estimates for all other options are considered relative to these observations and are set out in Figure D.2.

Table 6.9: Option 5 – Proposed regulations

Stakeholder	Benefit driver	2008-09 (\$)	10-year NPV (\$)
Economy, environment & community	Costs from way in which waste is managed	215,430,162	1,942,426,716
Industry	Cost of applying for schedule premises licences	425,000.00	3,658,267
Total (Option 5)		215,855,162	1,946,514,983

Option 5 produces the greatest benefits of all of the feasible alternatives. Tracking and record keeping help to decrease the amount of waste inappropriately disposed, and minimise externalities. Adjustments to the current Regulations make it easier for industry to comply with the regulations and to gain exemptions for recycling and reuse. Under Option 5 the expected management of prescribed industrial waste means that there will be lower inappropriate disposal, increased reuse and recycling and lower landfill levels than under the current Regulations.

6.3 Summary of costs and benefits

Table 6.10 provides a summary of the costs of, and benefits associated with each of the options from the perspective of EPA, waste industry participants and the community.

Table 6.10: Summary of costs and benefits

	Costs 10-year NPV (\$)	Benefits 10-year NPV (\$)	Net outcome (\$)
Option 2	1,211,177,051	1,707,024,190	495,847,140
Option 3	849,595,018	1,142,802,242	293,207,224
Option 4	888,296,865	1,349,289,750	460,992,885
Option 5	1,116,291,000	1,946,514,983	830,223,893

As noted in the discussion of this chapter, while Option 5 may increase the costs compared to the current regulatory framework, the increase in costs is expected to be because of increased reuse and recycling. Adjustments to the current Regulations in Option 5 mean that the benefits are much higher in this Option. Option 5 produces the highest net outcome of over \$830 million in net present value.

By way of an alternative presentation, and perhaps one that is more accessible to key stakeholders, is an assessment of the proposed changes relative to the status quo rather than an ‘assumed’ zero-regulation base case. Table 6.11 shows that, while all of the options produce a positive new outcome when compared to the base case, it is only Option 5 that produces a positive outcome when compared to the status quo. The cost-benefit analysis shows that Option 5 is the preferred option.

Table 6.11: Summary of costs and benefits relative to Option 2

	Relative to Option 2 (status quo) 10-year NPV (\$)
Option 2	–
Option 3	-202,639,916
Option 4	-34,854,255
Option 5	334,376,843

7 EVALUATION OF ALTERNATIVES

7.1 Summary of options

The alternatives have been assessed relative to the base case of allowing the current regulations to sunset (or lapse). Table 7.1 provides a summary of the analysis presented in Chapter 6, with those results separated out in terms of whether the cost of landfill levies are included or excluded.⁵³

Table 7.1: Summary of all options (10-year NPV)

	10-year net outcome (\$m)
Option 2	495.8
Option 3	293.2
Option 4	461.0
Option 5	830.2

The cost-benefit analysis highlights that all options result in a net benefit relative to allowing the Regulations to sunset.

The analysis shows that Option 5 – that is, the proposed regulations – has the highest net benefit of all the options, regardless of whether landfill levies are included or excluded. This net benefit to Victoria is estimated to be approximately \$830 million in net present value terms. These estimates are based on conservative assumptions about the potential benefits and the analysis takes at face value industry estimates of administration costs and therefore actual benefits could well be higher.

Given the Government’s overarching policy objectives (set out in Chapter 4), the preferred option is to maximise the net benefits to the community as a whole, and this is achieved via the proposed regulations outlined in Option 5.

In considering the Government’s broad policy objectives, the proposed regulations will (relative to the current Regulations) do the following:

Environment

- Encourage reduced hazardous waste generation from current levels by increasing reuse and recycling and decreasing inappropriate disposal through clearer definitions and a bottom limit for Category C, as well as a streamlined exemption process.
- Improve resource efficiency through greater rates of reuse and recycling, through streamlined exemption processes allowing industry to find marketable uses for its waste products without them being defined as prescribed industrial waste.
- Clearer definitions will improve compliance with the proposed regulations and therefore provide safer and controlled transport of hazardous waste; as well as allowing classification and pre-treatment of hazardous waste, to ensure safe and appropriate management.

Industry

- Streamlined exemption processes and bottom Category C limits will encourage industry to identify and implement opportunities for resource recovery, as industrial waste resources that are reused or recycled will not be defined as prescribed industrial waste and, hence, will not require the same level of tracking and certificates as is currently the case.
- Promote the waste hierarchy and provide incentives to find recycling or reuse opportunities, by reducing the administration and compliance costs associated with reuse and recycling.
- Provide a level playing field for the management of hazardous waste, as streamlined exemption will mean that it is easier for all businesses to be able to gain an exemption.

⁵³ The reason for presenting the results of the analysis ‘with’ and ‘without’ the landfill levy is that landfill fill levies form part of the Environment Protection Act and they are not something directly related to the options considered in this RIS. Rather, the cost of landfill levies is a flow-through consequence of remaking the schedules which define a prescribed industrial waste. That is, the landfill levies could not be imposed if there was no definition of prescribed industrial waste. Given that all of the alternatives include a definition of prescribed industrial waste, then the flow-through consequence will be that levies will be incurred by industry. These costs are substantial and, to ensure readers can distinguish between the direct impacts of the options as well as the flow-through (or secondary consequences), Table 7.1 presents both the net results with levies included and excluded.

- Reduce the administrative costs to industry and government associated with complying with regulations through bottom-limit Category C definitions, streamlined exemptions and no longer having a requirement to produce annual returns.

Community

- Reduce hazardous waste generation through increased reuse and recycling.
- Improve definitions to improve reduction in the potential hazard of the waste is reduced and ensure that the waste is appropriately managed.
- Provide adequate data and records to allow EPA to assure itself and stakeholders that prescribed industrial waste is being managed appropriately and, hence, address community expectations about prescribed industrial waste management.

In relation to the administrative costs, it is estimated that the proposed regulations are expected to result in an administrative cost saving of \$6.2 million per year for industry (see Chapter 8 for more details). EPA will continue to actively solicit ideas for additional measures to increase this saving.

7.2 Sensitivity analysis

There are a number of key assumptions that have been made, based on comparative data and anecdotal evidence. However, there has not been specific data to confirm these assumptions. In large part the assumptions are forward looking and rely on relevant or 'defensible' proxies or the judgement of EPA and its staff within their relative area of expertise. Assumptions and the reasoning behind them are outlined in Appendix D. In order to test these assumptions and the impact that changes in these assumptions will have on the analysis, a sensitivity analysis is set out below.

The key assumptions are:

- landfill costs are \$24
- recycling and reuse will increase to 40 per cent in Option 5
- the cost associated with inappropriate disposal is \$642 per tonne.

The following assumptions were independently tested in the cost-benefit analysis model in order to test the significance of these assumptions on the results.

- landfill costs are \$8
- recycling and reuse will stay the same at 24 per cent under Option 5
- the cost associated with inappropriate disposal is \$301 per tonne.

The results are shown in the table below.

Table 7.2: Sensitivity analysis of key assumptions

	Assumptions used in cost-benefit analysis		Use of \$8 landfill cost		Use of 24% reuse/recycling and 59% municipal waste for Option 5		Use of \$301 externality cost for inappropriate disposal	
	Benefit/cost ratio	Net benefit or cost (\$m)	Benefit/cost ratio	Net benefit or cost (\$m)	Benefit/cost ratio	Net benefit or cost (\$m)	Benefit/cost ratio	Net benefit or cost (\$m)
Option 2	1.4	495.8	1.4	525.2	1.4	495.8	0.7	-355.3
Option 3	1.3	293.2	1.4	312.6	1.3	293.2	0.7	-274.2
Option 4	1.5	461.0	1.5	471.5	1.5	397.9	0.8	-153.7
Option 5	1.7	830.2	1.7	840.7	1.6	634.3	1.0	-44.5

The sensitivity analysis shows that, when the assumptions change, the relativities between each option do not change. Option 5 is still the preferred option under each of the assumptions.

8 IMPACTS ON SMALL BUSINESS AND COMPETITION

8.1 Introduction

This chapter explores the impacts on small business and competition of the preferred approach. The preferred approach is discussed in Chapter 9.

8.2 Impact on small business

There are approximately 10,000 prescribed industrial waste producers, 1,578 prescribed industrial waste transporters and 160 treatment plants or waste disposal facilities. While there is little specific data on the number of small business operators who produce industrial waste, or who are involved in the prescribed industrial waste management industry, the distribution of Australian waste management participants derived from a 2002-03 national ABS survey can provide an indication of the likely distribution by size. As noted in Chapter 2, the waste management services sector comprises businesses who:

- collect and transport waste
- collect and transport recyclables
- own or operate transfer stations and/or materials recovery facilities
- own or operate landfills
- operate green waste recycling facilities
- own and operate liquid treatment plants.

Table 8.1: Waste management industry

Employment size (persons)	Number of businesses	Percentage of total businesses
0-4	809	74.1 %
5-19	209	19.1 %
20-99	60	5.5 %
100 or more	15	1.3 %
Total	1093	100.0 %

Table 8.1 shows that over 93 per cent of businesses in waste management have fewer than 20 employees.

While large manufacturing businesses are likely to be large producers of prescribed industrial waste, it is probable that most of the 10,000 producers of prescribed industrial waste will be small businesses. As described in previous chapters, producers of prescribed industrial waste include car repair workshops, dry-cleaning services, fast-food chain stores and dental surgeries.

This means that the compliance burden of the regulations will fall almost entirely on small businesses.

Table 8.2 summarises the current annual cost imposed on businesses under the current Regulations and also provides an indication of the costs of the preferred model, based on assumptions outlined in this regulatory impact statement.

Table 8.2: Typical annual costs per business

	Existing Regulations	Preferred model	Change
Fees and levies	\$62,110,773	\$48,519,776	-\$13,590,997
Administrative burden	\$22,427,327	\$22,428,868	\$2,955,847
Understanding regulations ⁵⁴	-	\$1,019,175	\$1,019,175
Total	\$71,966,278	\$71,967,819	-\$9,615,975

The administrative burden for application for exemptions will decrease because of a more streamlined process. The administrative burden for some waste producers will decline significantly as there will be a bottom-limit definition of what is prescribed industrial waste. The bottom limit will mean that some waste that is currently defined as prescribed industrial waste will no longer fall into this category and therefore will not be subject to the same requirements.

8.3 Competition impacts

The considered options should not restrict competition unless it can be demonstrated that:

- the benefits of the restriction, as a whole, outweigh the costs
- the objectives of the legislation can only be achieved by restricting competition.

The proposed changes are considered to have an impact on competition if any of the questions in Table 8.3 can be answered in the affirmative.

Table 8.3: Criteria for determining whether there are adverse competition impacts

Question	Answer
Are the proposed options likely to affect the market structure of the affected sectors?	No
Will it be more difficult for new firms or individuals to enter the industry after the imposition of the proposed measure?	No
Will the costs/benefits associated with the proposed measure affect some firms or individuals substantially more than others?	No
Will the proposed measure restrict the ability of businesses to choose the price, quality, range or location of their products?	No
Will the proposed measure lead to higher ongoing costs for new entrants that existing firms do not have to meet?	No
Is the ability or incentive to innovate or develop new products or services likely to be affected by the proposed measure?	Yes

Note: Checklist adapted from Government of Victoria 2007, *Victorian guide to regulation*, Department of Treasury and Finance, Melbourne, pp. 5-22.

In the table above, all of the criteria for determining whether there are adverse competition impacts have been answered in the negative except for the last criterion. It is likely that the proposed regulation will affect the ability or incentive to innovate or develop new products or services. However, this effect is likely to be a positive one.

The cost (and required time) will be reduced as a result of the proposed changes. The measures that have been changed in relation to exemption processes will make it easier for all businesses to gain exemptions from the regulatory processes. In the current Regulations, gaining an exemption requires a complex process involving a number of stages, including an engineers report, auditing of the engineers report and EPA analysis of the reporting, which may go through a number of iterations and can take many months. The current exemption process means that only those who can afford to invest the time and money into the process can realistically aim at gaining an exemption. The proposed exemption process will make it easier for everyone to gain an exemption, thus helping to promote a more competitive environment. It is estimated that the proposed changes will allow an approximate saving of \$6.2 million per annum in administrative costs (see Section 8.4).

⁵⁴ The cost of understanding the proposed regulations is to be realised in the first year, however, has been annualised over the regulatory period.

8.4 Administration burden

The *Victorian guide to regulation* notes that the standard cost model to measure the changes to the administrative burden of a proposed regulatory proposal is not required if changes generate less than \$250,000 in new costs or savings per annum.⁵⁵

This regulatory impact statement has calculated the additional administrative savings to be material, at approximately \$6.2 million per annum (see Table 8.4). A standard cost model estimate of these savings will be undertaken following the making of the proposed regulations (see Appendix D for further details).

Additionally, as part of the next round of the consultation process, during which the draft regulations are available for stakeholder comment, EPA will actively solicit and explore any additional measures to reduce the administrative burden still further.

Table 8.4: Administrative burden reduction (\$) – proposed regulations

	Current Regulations (\$)	Proposed regulations (\$)
Application for permit to transport waste	169,011.63	108,020.61
Transfer of amendment of transport permit	23,657.23	15,120.07
Annual return	330,100.83	-
Transport certificate	4,296,680.19	2,746,142.58
Record Keeping requirements	14,647,629.24	9,361,757.59
Application for exemption	4,401.34	4,533.38
Cost of understanding regulations ⁵⁶	0.00	1,019,175.32
Total	19,471,480.46	13,254,749.56
	Per annum saving	6,216,730.90

8.5 Summary

The majority of businesses that produce, transport, treat or dispose of prescribed industrial waste employ fewer than 20 people. The typical annual cost for businesses in this sector will decline overall. The decline in costs is mostly attributable to the streamlined exemption process. This exemption process will help to improve competition in the sector by helping more producers of industrial waste to be able to receive an exemption for recycling and reusing their waste streams. Fewer businesses are likely to be exposed to the prescribed industrial waste regulations as there will be a base-threshold established for Category C waste, meaning that they will no longer have to follow the administrative requirements of the Regulations.

⁵⁵ Government of Victoria 2007, *Victorian Guide to Regulation*, Department of Treasury and Finance, Melbourne, p.4-39

⁵⁶ This cost is to be realised in the first year; however, it has been annualised over the regulatory period.

9 DESCRIPTION OF PREFERRED MODEL

9.1 The Proposed Model

The proposed regulations represent the efficient and effective components of the current regulation with some changes to overcome certain problems with the current Regulations. The major difference between the current and the proposed regulations are as follows:

- Changing the way 'prescribed industrial waste' is defined – from the current reliance on the Schedule 1 list to relying on the Act to define 'industrial waste' and then providing that all industrial waste is prescribed industrial waste unless it is classified as non-prescribed in a new Schedule 1 list, has a 'direct beneficial reuse', or 'secondary beneficial reuse' (via reuse notification to EPA), or its potential hazard is below the (yet-to-be-established) base-threshold for Category C prescribed industrial waste.
- Extending the current definitions of hazard categories to include the assessment and classification of waste by waste producers and the Authority (Part 2). This assessment and classification is currently outlined in the Policy.
- Part 2 of the proposed regulations will replace the Prescribed Waste Management Decision Framework and Classification provisions currently set out in Clause 11 and Schedule 2 of the Policy. As the proposed Part 2 is currently set out in the Policy, which would continue under the base case of no regulations, it is not anticipated that waste producers will need to perform additional analysis under the proposed regulations relative to the base case.⁵⁷
- Draft regulations 6-10 embody the Decision Framework and Classification provisions, requiring producers to assess and classify their waste in terms of opportunities for avoidance (cleaner production), reuse, recycling, recovery of energy, treatment and, finally, hazard posed.
- Under the Policy, if a generator fails to apply the Decision Framework and Classification provisions, the Authority can step in to prevent such a failure in the future. Part 2 of the proposed regulations is intended to provide the same capacity. If a producer fails to manage its waste in accordance with Part 2, the Authority can issue a classification to prevent such a failure recurring.
- Streamlining the exemption process by allowing waste producers to make their own assessments of their suitability for exemption and provide notification of the intended 'secondary beneficial reuse' to the EPA along with a declaration endorsed by a third party. EPA will retain the ability to attach conditions to exemptions, to refuse to authorise notifications, to amend or revoke authorised notifications.
- Removing under/unutilised components of the current regulations – annual returns and accredited waste producers.
- Simplifying the permitting and placarding systems.

The transport permits and transport certificate requirements will continue.

It is expected that the changes to the Regulations will result in a number of changes to the way waste is currently managed. The existing reuse exemption process has not effectively facilitated reuse. The exemption process has required a great deal of information be prepared for EPA to assess in order to provide approval. In 2007-08 there were two applications that were withdrawn because the time taken to receive approval for exemption meant that a market opportunity had been missed, meaning that material that would have otherwise been recycled was not. It is therefore expected that recycling and reuse will increase under the proposed regulations. The change in the exemption process is illustrated in Figure 9.1. The proposed regulations will outline the criteria required for exemption and have a set regulatory period for when notification can be accepted by EPA. It is therefore expected that iterations will be avoided. The proposed exemption is a notification to EPA rather than an assessment.

⁵⁷ The proposed Part 2 provisions simply reflect the Prescribed Waste Management Decisions Framework and Classification provisions currently set out in the Policy. These provisions would continue under a base case. Part 2 does, however, provide for EPA to determine the nature of waste and therefore how it should be managed – although this has rarely been used as a basis for issuing formal management classifications.

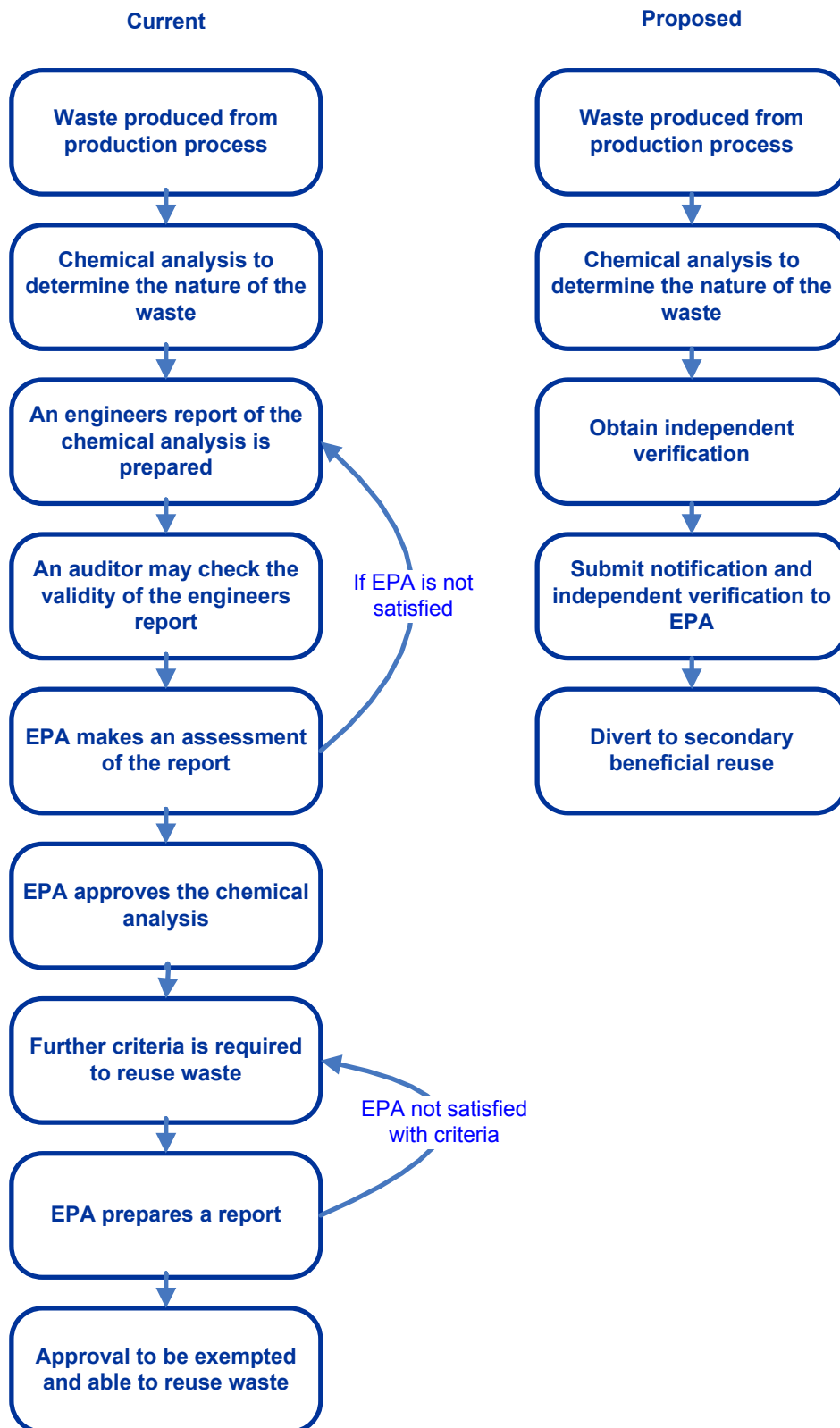


Figure 9.1: Current and proposed exemption process

Proposed Environment Protection (Industrial Waste Resource) Regulations 2009

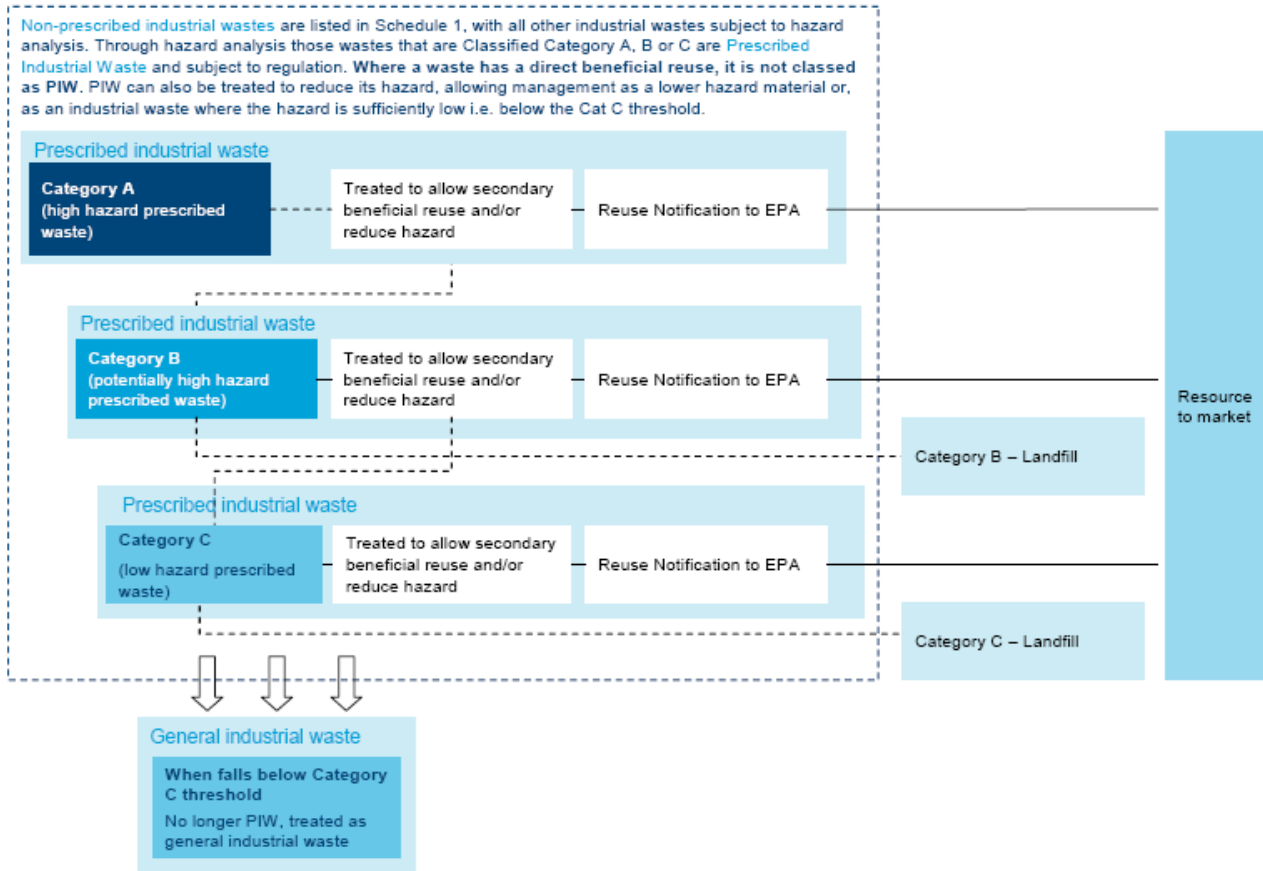


Figure 9.2: Proposed Environment Protection (Industrial Waste Resource) Regulations 2009

9.2 Implementation and enforcement

Chapter 6 discussed the administration costs EPA incurs to administer the regulations. These are estimated to be approximately \$3.1 million per year (using the on-cost factor set out in Table D.1 in Appendix D).⁵⁸ EPA staff will need to acquaint themselves with the new arrangements. The proposed regulations will help to streamline the administration requirements for EPA in some respects.

- Some waste that is defined as prescribed industrial waste in the current Regulations will no longer be defined as prescribed industrial waste as it: has direct or secondary beneficial reuse exemption; is no longer a prescribed waste (it is inert); or it is below the base-threshold for Category C waste.
- The streamlining of the exemption process will make it easier for an assessment for an exemption but the administration savings may be curtailed by an increase in the total number of exemptions sought.

EPA will continue to permit transport providers and track prescribed industrial waste through the transport certificates.

Industrial waste industry participants – producers, transporters and receivers – will be informed of the proposed changes to the Regulations via a communications strategy that will be implemented when the RIS is released.

The transport certificates and online system, WasteCert, will continue. Producers may benefit from proposed regulations through industrial waste no longer being defined as prescribed industrial waste or through the less complicated exemption process. Industry participants will also be able to rely on the Act and the regulations (and not the Act, regulations and Policy) to provide the framework for the management of industrial waste.

⁵⁸ EPA estimates of staff costs have been used to estimate the administrative cost to EPA of the proposed regulations. These costs do not include executive officer costs. This is because there are no executive officers dedicated solely to prescribed industrial waste. Executive officer costs are included as part of the EPA's corporate overheads and therefore included in the analysis through the use of the on-cost factor of 1.85.

EPA will continue to undertake compliance activities, including enforcement, education, and information and deterrence.⁵⁹ The focus of the proposed regulations is on waste disposed in landfills. It is expected that there will be less need for EPA resources in reviewing, assessing and approving various aspects of prescribed industrial waste management, as only those disposing of waste in landfill will have to comply with administrative requirements. However, there remains the need to monitor and enforce the requirements of the regulations.

Compliance activities are not expected to change from the current Regulations. There are approximately 1000 commercial/industrial sites in Victoria that are licensed or have a notice on them. Of these, approximately 100 treat waste or are landfills. These sites are generally inspected annually. For the remainder, EPA conducts about 200 inspections of industrial sites (most of which are prescribed industrial waste generators) per year on a priority basis. In other words, EPA focuses on those sites where the risk is thought to be greatest. This may be triggered by anomalies in the waste transport database or where the public notifies EPA of incidents such as suspected illegal dumping. All companies with licensed sites must produce reports annually on their performance, which EPA assesses.

Compliance monitoring and enforcement are critical to underpinning the regulations. Umpiring the baseline level of performance expected of industry has several positive outcomes, including:

- allowing industry to make the necessary investment in new treatment/recycling technology with the surety that prescribed industrial waste generated in the system is managed within the system, therefore allowing industry to recover their costs
- providing market parity, with no individual company being able to achieve an advantage and undercut their competitors by avoiding their obligations under the regulations
- strong enforcement action against illegal dumping will act as a strong disincentive to this activity.

For these reasons compliance monitoring by EPA will occur across the full waste spectrum, regardless of the potential risk posed by the waste. Under the proposed risk-based regulatory system the obligations under the regulations are less stringent for those producing and managing lower hazard wastes. However, regardless of the potential hazard, the repercussions for those who breach the regulations should be equally strong. The focus of compliance monitoring will be towards those premises/generators with the highest risk of breaching the regulations, irrespective of the hazard category of their prescribed industrial waste.

Strong but fair enforcement of the regulations will ensure that the intended outcomes of the regulations (increased resource efficiency, reuse and recycling) are achieved.

There are three information technology systems currently used to support the administration of prescribed industrial waste (WasteCert, TransCert and WAMS). As the base level of regulation does not change greatly, it is not expected that the level of compliance will change. However, the proposed regulations provide improved mechanisms to avoid regulation in an environmentally beneficial manner.

Over the two-year period from July 2006 to June 2008 there were 23 industrial waste cases prosecuted in the courts. Of these 11 were related to prescribed industrial waste. In the same period, there were 136 Environmental Penalty Infringement Notices issued; approximately 45 of these were related to prescribed industrial waste.⁶⁰

Local government will not be involved in the implementation of the proposed regulatory regime, though it will have a supplementary role in the authorisation of building and planning permits under the Planning and Environment Act for the construction and operation of treatment and disposal facilities. These are facilities that would be needed to successfully reuse and recycling industrial waste.

9.3 Penalties for non compliance

The proposed penalties for non-compliance are outlined in Tables 9.3 to 9.5.

Table 9.3: Penalties for transport and management of waste

Transport and management of waste	Current penalty unit	Proposed penalty unit
Display of permit	8	8
Waste container	8	8

⁵⁹ More information regarding EPA's approach to enforcement can be found in EPA Victoria 2006, *Enforcement Policy*, publication 384.3.

⁶⁰ Information provided by EPA.

Table 9.4: Penalties for prescribed industrial waste

Prescribed industrial waste	Current penalty unit	Proposed penalty unit
Transport certificates - prescribed industrial waste producer responsible for ensuring waste has transport certificate	20	20
Transport certificates - prescribed industrial waste producer must ensure transport certificate has right information	20	20
Transport certificates - waste receiver	20	20
Transport certificates - waste receiver send producer information	20	N/A
Transport certificates - correct information	20	20
Retention of records	8	8

Table 9.5: Penalties for exemptions

Exemptions	Current penalty unit	Proposed penalty unit
Contravening exemptions	20	N/A
Conditions for secondary beneficial reuse	N/A	20

9.4 Evaluation strategy

EPA is committed to ensuring that the objectives of the proposed regulations are met. EPA will monitor the performance of the regulations through the ongoing collection of data and annual publication of key performance indicators that will show how the prescribed industrial waste is being managed. EPA will also conduct periodic surveys of stakeholders to gain feedback on the implementation of the regulations. Examples of consultation strategies may include:

- monitoring the change in waste transported as prescribed industrial waste to determine whether new definitions and exemption processes are working to achieve the regulatory objectives
- monitoring the number of prescribed industrial waste offences, such as the number of clean-up notices or penalty notices
- monitoring any changes in the number of businesses that enter or exit the industry, and considering the implications and costs associated with revisions to the management of industrial waste
- ongoing consultation with businesses to assess the impact of proposed regulatory changes and to understand future requirements
- specific consultation on the rates of reuse and recycling to determine the uptake of the streamlined exemption process.

Specifically, EPA will commission an independent assessment of the implementation of the regulations after three years. An updated cost-benefit analysis will be prepared and published if necessary.

EPA will continue the public reporting currently undertaken in regard to prescribed industrial waste, including reporting of the amount of prescribed industrial waste to landfill on the EPA website, and prosecutions and events in the EPA Annual Report.

The proposed regulations will sunset on 30 June 2019.

10 CONSULTATION

10.1 Consultation in preparation of regulatory impact statement

There has been extensive consultation as part of the Hazardous Waste Regulatory Review. EPA released a discussion paper and invited comments through a series of workshops, one-on-one consultations were undertaken, and submissions were received. Further to this, an online survey has been sent to stakeholders, encouraging feedback on the current system of regulations.

The following stakeholders were consulted regarding the proposed regulations:

Community-based organisations

- Residents Against Toxic Waste in the South East (RATWISE)
- Terminate Tulla Toxic Dump Action Group (TTTDAG)
- Lyndhurst Community Engagement Group
- Tullamarine Landfill Community Consultative Committee (TLCCC)
- Western Region Environment Centre (WREC)
- Community members

Industry

- Veolia
- SITA Australia
- Transpacific Industries
- Boral Waste Solutions
- Gippsland Water
- Australian Industry Group (AiG)
- Petroleum and Chemical Industry Association (PACIA)
- Victorian Employers' Chamber of Commerce and Industry (VECCI)
- Waste Management Association Australia (WMAA)
- Victorian Waste Management Association (VWMA)
- Civil Contractors Federation (CCF)
- Australian Environment Business Network
- Regional Safety & Environment Network

Government departments

- Department of Sustainability and Environment (Incl. Sustainability Victoria) (DSE)
- Department of Premier and Cabinet (DPC)
- Department of Treasury and Finance (DTF)
- Department of Planning and Community Development (DPCD)
- Department of Primary Industries (DPI)
- WorkSafe Victoria
- Department of Transport
- Department of Innovation, Industry and Regional Development (DIIRD)
- Department of Human Services (DHS)

Local government

- Municipal Association of Victoria (MAV)
- City of Casey
- City of Great Dandenong
- City of Hume
- Mildura Rural City Council
- Victorian Local Governance Association

Non-government organisations

- Greenpeace
- Australian Conservation Foundation (ACF)
- Keep Australia Beautiful - Victoria
- Environment Victoria (EV)

Regional waste management groups

- Barwon
- Mornington Peninsula
- North Eastern
- South Western
- Calder
- Central Murray
- Desert Fringe
- Gippsland
- Goulburn Valley
- Grampians
- Highlands
- Mildura

Other organisations

- Australian Sustainable Industry Research Centre (ASIRC)
- Australian land and groundwater association (ALGA)
- Prescribed Industrial Waste Advisory Committee (PIWAC)
- Australian Contaminated Land Consultants Association (ACLCA)

Future consultation

This regulatory impact statement and the proposed regulations will be made available for public comment for a period of 60 days. Submissions received as part of this process will be considered and the proposed regulations will be reviewed where necessary.



APPENDIX A: PROPOSED REGULATIONS

Environment Protection (Industrial Waste Resource) Regulations

Exposure Draft

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Victoria

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PART 1—PRELIMINARY

1 Objectives

The objectives of these Regulations are to—

- (a) assist industry to implement the principle of wastes hierarchy as set out in section 11 of the **Environment Protection Act 1970**;
- (b) prescribe requirements for assessing and classifying industrial waste and prescribed industrial waste for the purposes of the **Environment Protection Act 1970**;
- (c) encourage industry to utilise industrial waste as a resource through exempting material from categorisation as prescribed industrial waste where a secondary beneficial use is established;

- (d) prescribe requirements for the transport and management of prescribed industrial waste including requirements for the tracking of prescribed industrial waste.

Note

The purposes of the Act include creation of a legislative framework for the protection of the environment in Victoria having regard to the principles of environment protection. One of the principles of environment protection is the principle of wastes hierarchy, which provides that the most preferable management option is avoiding waste production, and the least preferable management option is disposal.

2 Authorising provisions

These Regulations are made under Part IXA and section 71 of the **Environment Protection Act 1970**.

3 Commencement

These Regulations come into operation on 1 July 2009.

4 Revocation

- (1) The Environment Protection (Prescribed Waste) Regulations 1998¹ are **revoked**.
- (2) The Environment Protection (Prescribed Waste) (Amendment) Regulations 2000² are **revoked**.
- (3) The Environment Protection (Prescribed Waste) (Amendment) Regulations 2007³ are **revoked**.

5 Definitions

- (1) In these Regulations—

ASLP₁ thresholds means the leachable concentration thresholds specified in Appendix 3 to Publication 996;

ASLP₂ thresholds means the leachable concentration thresholds specified in Appendix 3 to Publication 996;

category A waste means the type of prescribed industrial waste referred to in clause 1 of Schedule 2;

category B waste means the type of prescribed industrial waste referred to in clause 2 of Schedule 2;

category C waste means the type of prescribed industrial waste referred to in clause 3 of Schedule 2;

direct beneficial reuse means use as an input or raw material in a commercial, industrial, trade or laboratory activity without prior treatment or reprocessing;

exempt material means any industrial waste or mixture containing industrial waste—

- (a) for which a secondary beneficial reuse is established in accordance with Part 5; or
- (b) which is classified as exempt material by the Authority in accordance with Part 2;

permit means a permit to transport prescribed industrial waste;

practicably accessible means that, having regard to the location of the premises, the scale of the business conducted by the prescribed industrial waste producer and the financial viability of that business, the technology and facilities are reasonably available and reasonably affordable;

prescribed fee means the relevant fee prescribed in the Environment Protection (Fees) Regulations 2001⁴;

prescribed industrial waste producer means an occupier of premises at which prescribed industrial waste is produced and—

- (a) disposed of on the premises; or
- (b) transported from the premises, other than through a sewer;

prescribed industrial waste means any industrial waste or mixture containing industrial waste other than industrial waste or a mixture containing industrial waste that—

- (a) is listed as non-prescribed industrial waste under Schedule 1; or
- (b) has a direct beneficial reuse and has been consigned by the waste producer to a person to use in manufacturing materials, or to use in processing, handling, or transporting other materials; or
- (c) is exempt material;

Publication 364 means the publication titled "The Transport and Disposal of Waste Asbestos" published by the Authority in November 2004 and as amended from time to time or republished by the Authority;

Publication 448 means the publication titled "Classification of Wastes" published by the Authority in May 2007 and as amended from time to time or republished by the Authority;

Publication 996 means the publication titled "Guidelines for Hazard Classification of Solid Prescribed Industrial Wastes" published by the Authority in June 2005 and as amended from time to time or republished by the Authority;

recoverer of energy means a person who generates heat energy from prescribed industrial waste;

reprocessing does not include reusing or recycling prescribed industrial waste or generating heat energy from prescribed industrial waste;

secondary beneficial reuse means use as an input or raw material in a commercial, industrial, trade or laboratory activity following any form of treatment or reprocessing;

TC₁ thresholds means the total contaminant concentration thresholds specified in Appendix 3 to Publication 996;

TC₂ thresholds means the total contaminant concentration thresholds specified in Appendix 3 to Publication 996;

the Act means the **Environment Protection Act 1970**;

waste receiver means an occupier of premises licensed by the Authority, or premises exempt from licensing requirements, who disposes of, treats, stores or reprocesses prescribed industrial waste;

waste transporter means a person who transports prescribed industrial waste on a highway.

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Part 1—Preliminary

(2) These Regulations prescribe industrial waste to be—

- (a) prescribed industrial waste;
- (b) category A waste;
- (c) category B waste;
- (d) category C waste—

for the purposes of the **Environment Protection Act 1970**.

**PART 2—ASSESSING AND CLASSIFYING INDUSTRIAL
WASTE AND PRESCRIBED INDUSTRIAL WASTE**

**6 Producer to assess and classify prescribed industrial
waste**

A prescribed industrial waste producer must—

- (a) assess and classify prescribed industrial waste in accordance with this Part; and
- (b) manage prescribed industrial waste in accordance with any relevant classification under this Part.

7 Cleaner production opportunity

(1) A prescribed industrial waste producer must assess processes that produce or have the potential to produce prescribed industrial waste against the following tests of potential for cleaner production—

- (a) **Available:** The technology and facilities needed to achieve a cleaner production process are practicably accessible;
- (b) **Not available:** The technology and facilities needed to achieve a cleaner production process are not practicably accessible.

(2) Where a cleaner production process is assessed as—

- (a) available under regulation 7(1)(a) it must be implemented;
- (b) not available under regulation 7(1)(b), prescribed industrial waste produced must be assessed in accordance with regulation 8.

8 Reuse, recycling or recovery of energy opportunity

- (1) A prescribed industrial waste producer must assess prescribed industrial waste against the following tests of potential for reuse, recycling or recovery of energy where required to do so by regulation 7(2)(b)—
 - (a) **Available:** The prescribed industrial waste has potential for reuse, recycling or recovery of energy, and technology and facilities necessary to realise this potential are practicably accessible;
 - (b) **Not available:** The prescribed industrial waste does not have potential for reuse, recycling or recovery of energy, or technology and facilities necessary to realise this potential are not practicably accessible.
- (2) Prescribed industrial waste assessed as satisfying—
 - (a) regulation 8(1)(a) must be reused, recycled or used for recovery of energy;
 - (b) regulation 8(1)(b) must be assessed in accordance with regulation 9.

9 Treatment opportunity

- (1) A prescribed industrial waste producer must assess prescribed industrial waste against the following tests of potential for treatment where required to do so by regulation 8(2)(b)—
 - (a) **Available:** The prescribed industrial waste can be treated to reduce the requirement for residual management, and technology and facilities necessary are practicably accessible;
 - (b) **Not available:** The prescribed industrial waste cannot be treated to reduce the requirement for residual management, or
-

technology and facilities necessary to realise this potential are not practicably accessible.

- (2) Prescribed industrial waste assessed as satisfying—
 - (a) regulation 9(1)(a) must be treated and then assessed in accordance with regulation 8;
 - (b) regulation 9(1)(b) must be classified in accordance with regulation 10.

10 Hazard classification

Where regulation 9(2)(b) requires a prescribed industrial waste producer to classify prescribed industrial waste in accordance with this regulation, the prescribed industrial waste must be classified in terms of hazard posed in accordance with Schedule 2.

11 Determining management option and classification by hazard

- (1) The Authority may—
 - (a) classify any industrial waste as prescribed industrial waste; or
 - (b) further classify any industrial waste or prescribed industrial waste in accordance with this Part.
- (2) The Authority may specify conditions and limitations that apply to a classification under subregulation (1).
- (3) A classification issued by the Authority under this Part may—
 - (a) determine a management option for prescribed industrial waste in accordance with this Part; or
 - (b) classify industrial waste according to hazard.

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Part 2—Assessing and Classifying Industrial Waste and Prescribed Industrial
Waste

- (4) A classification issued by the Authority under this Part—
 - (a) may be of general or specific application; and
 - (b) if it is of general application, must be published in the Government Gazette.
- (5) Subject to subregulations (3) and (4), a waste producer must manage prescribed industrial waste in accordance with any relevant classification issued by the Authority.
- (6) The Authority may issue—
 - (a) a classification of its own motion or on application from a waste producer; or
 - (b) an alternative classification of its own motion or on application from a waste producer—

where the Authority is satisfied that the classification or the alternative classification is consistent with—

- (c) the principles of environment protection set out in sections 1B to 1L of the Act; and
 - (d) any applicable national environment protection measure made by the National Environment Protection Council; and
 - (e) any applicable State environment protection policy or waste management policy.
-

PART 3—TRANSPORT AND MANAGEMENT OF WASTE

12 Display of permit identification label

A person holding a permit under section 53F of the Act must ensure that the current permit identification label supplied by the Authority is displayed on any vehicle for which the person holds a permit.

Penalty: 8 penalty units.

13 Transporting industrial waste

A waste transporter transporting any of the industrial wastes listed in clause 3 of Schedule 4 must meet the relevant vehicle requirements specified in Schedule 4.

14 Application for a permit to transport prescribed industrial waste for the purpose of Part IXA

- (1) An application for a permit to transport prescribed industrial waste under section 53F of the Act must be—
 - (a) made to the Authority; and
 - (b) accompanied by a declaration that the vehicle to which the permit will apply is fit for the purpose of transporting the prescribed industrial waste specified in the application; and
 - (c) accompanied by the prescribed fee for the permit.
 - (2) The Authority must issue, or refuse to issue, a permit within 21 days after receiving—
 - (a) an application for the permit that complies with subregulation (1); or
-

- (b) any other information requested by the Authority in accordance with regulation 20—

whichever is the later.

15 Conditions of permit

- (1) In addition to any conditions specified in a permit by the Authority, a permit is subject to the following conditions—
 - (a) no wastes other than those listed in the permit are to be transported under the permit;
 - (b) the permit holder must advise the Authority as soon as is practicable of any change in the information taken into consideration by the Authority in granting the permit;
 - (c) the permit holder must ensure that, when a vehicle to which the permit applies is used to transport prescribed industrial waste—
 - (i) the prescribed industrial waste does not escape, spill or leak from the vehicle at any time;
 - (ii) prescribed industrial wastes of different types are not transported together unless they are compatible with each other;
 - (iii) the containers used to contain the prescribed industrial waste are compatible with the prescribed industrial waste;
 - (iv) only drivers who have undertaken training approved by the Authority drive the vehicle;
 - (v) the vehicle meets any relevant requirements specified in Schedule 4;
-

- (d) where a vehicle to which the permit applies is used to transport waste requiring placarding in accordance with Schedule 4, that the vehicle complies with any determinations with regard to prohibited routes made under the **Dangerous Goods Act 1985**;
- (e) the permit holder must ensure that any spillage, leak, escape or other loss is reported to the Authority immediately;
- (f) the permit holder must ensure that where a declaration has been made by the permit holder to the Authority that the vehicle to which the permit applies is fit for the purpose of transporting the prescribed industrial waste as specified in the permit in accordance with regulation 14 or 19, the vehicle and associated insurance and approvals are maintained in accordance with that declaration whenever the vehicle is transporting prescribed industrial waste.

16 Duration of permit and expiry

- (1) If the Authority issues a permit it must specify in the permit the expiry date of the permit.
- (2) A permit expires at the end of the day recorded as the permit expiry date unless it is earlier revoked, suspended or surrendered.

17 Notice of renewal of permit

- (1) The Authority may send a permit holder a notice to renew stating that the permit will expire if it is not renewed on or before a specified date.
 - (2) If the Authority fails to send a notice of renewal, the permit expires on the date specified in the permit.
-

- (3) When the Authority sends a notice to renew under subregulation (1) the Authority may require a permit holder to provide a declaration that the vehicle to which the permit applies is fit for the purpose of transporting the prescribed industrial waste as specified in the permit.

18 Renewal of permit

A permit holder may apply for renewal of the permit by submitting to the Authority—

- (a) an application for renewal of permit; and
- (b) payment of the prescribed permit fee for renewal of the permit for the relevant period; and
- (c) where required by regulation 17(3) a declaration by the applicant that the vehicle to which the permit will apply is fit for the purpose of transporting the prescribed industrial waste as specified in the permit.

19 Application for transfer or amendment of permit

- (1) The owner of a vehicle may apply to the Authority for a permit in respect of the vehicle to be transferred or amended.
 - (2) An application for a transfer or amendment of a permit must be accompanied by—
 - (a) a declaration by the applicant that the vehicle to which the permit will apply is fit for the purpose of transporting the prescribed industrial waste as specified in the application; and
 - (b) the prescribed fee for transfer or amendment.
-

- (3) The Authority must transfer or amend, or refuse to transfer or amend, a permit within 21 days after receiving—
 - (a) an application for the permit that complies with subregulation (2); or
 - (b) any other information requested by the Authority in accordance with regulation 20—

whichever is the later.

20 Authority may require more information

- (1) The Authority may require by notice in writing a person who has made an application under regulation 14 or 19 to provide to the Authority within a reasonable time specified in the notice any additional information concerning the application that the Authority considers necessary to enable the Authority to properly assess the application.
- (2) The Authority may refuse the application if the person does not provide the Authority with the additional information required within the time specified in the notice.

21 Authority-initiated amendment of permit

- (1) If the information taken into consideration by the Authority in granting or transferring a permit has changed, the Authority may vary the permit to take account of the changed circumstances by giving the permit holder written notice of the variation.
 - (2) The Authority may make an administrative amendment to the content or format of a permit that does not alter the obligations of the permit holder by giving the permit holder written notice of the amendment.
-

22 Surrender of permit

- (1) A permit holder may surrender a permit by returning the permit to the Authority with a document signed by the permit holder stating that the permit holder surrenders the permit.
- (2) If a permit is surrendered more than 30 days before the expiry date of the permit, the Authority must refund to the person who held the permit the unexpired portion of the current permit fee, calculated to the nearest day.

23 Suspension of permit

- (1) The Authority may suspend a permit during any time the Authority is unable to contact the permit holder at the address given in the application as the principal place of business of the permit holder despite reasonable attempts to make contact.
- (2) The Authority may suspend a permit for a specified period not exceeding 60 days if it has reasonable grounds for believing that the permit holder has not complied with any obligation imposed on the permit holder by these Regulations or has not complied with a condition specified in the permit.

24 Cancellation of permit

The Authority may cancel a permit if it is satisfied that—

- (a) any information supplied by the permit holder in applying for the permit was false or misleading; or
 - (b) any other information taken into consideration by the Authority in issuing the permit has changed and the continued use of the permit is likely to result in an
-

- unacceptable risk of harm to the environment; or
- (c) the permit holder has not complied with any obligation imposed on the permit holder by these Regulations or has not complied with a condition specified in the permit; or
 - (d) the permit holder has been found guilty of one or more relevant offences (as defined in section 20C(1) of the Act) and, as a result the person is, in the opinion of the Authority, not a fit and proper person to hold a permit.

25 Procedure to be followed before cancellation

- (1) Before cancelling a permit, the Authority must—
 - (a) give the permit holder a written notice that—
 - (i) gives details of the action the Authority intends to take; and
 - (ii) gives the reasons why the Authority intends to take that action; and
 - (iii) invites the permit holder to comment on the Authority's proposed course of action within the time specified in the notice; and
 - (b) consider any comments that are made by the permit holder within the time specified in the notice.
- (2) The Authority must not specify a period of less than 7 days under subregulation (1)(a)(iii).

26 Exemption from section 53A and Part 4

A waste transporter transporting prescribed industrial waste where the net load is less than 200 kilograms is exempted from the requirement to hold a permit under section 53A of the Act and the requirements in Part 4.

27 Transporting prescribed industrial waste

- (1) A person must not transport prescribed industrial waste or cause or permit it to be transported from any premises to another premises unless—
 - (a) the receiving premises is licensed under the Act to receive that category of prescribed industrial waste; or
 - (b) the receiving premises is exempt under the Act or has been exempted by the Authority from requiring a licence to reprocess, treat, store, contain, dispose of or handle that prescribed industrial waste at the premises; or
 - (c) the transport has been approved by the Authority under subregulation (2).
 - (2) The Authority may approve the transport of prescribed industrial waste to specified premises for the purposes of subregulation (1)(c) if it is satisfied that the proposed reprocessing, treatment, storage, containment, disposal or handling of that waste at those premises would result in a better environmental outcome.
 - (3) An approval under subregulation (2) may—
 - (a) apply to one or more instances;
 - (b) apply to a class or classes of prescribed industrial waste;
 - (c) be for a limited duration or quantity of waste.
 - (4) Where prescribed industrial waste is transported in accordance with this regulation a prescribed industrial waste producer is exempt from the provisions of section 53D of the Act in relation to that transport.
-

- (5) Despite anything else in these Regulations, this regulation applies—
- (a) to any transport of prescribed industrial waste whether or not a person requires a permit to transport the prescribed industrial waste; and
 - (b) whether or not a person holds a permit to transport the prescribed industrial waste.

28 Waste container

- (1) A prescribed industrial waste producer who supplies or provides a container for the purposes of the transport of prescribed industrial waste produced by that waste producer must ensure that the container—
- (a) is fit for the transport of the prescribed industrial waste; and
 - (b) will not leak or allow the contents to spill.
- Penalty: 20 penalty units.
- (2) This regulation does not apply to a vessel used to contain prescribed industrial waste that is a fixture of a transport vehicle.
-

PART 4—PRESCRIBED INDUSTRIAL WASTE

29 Transport certificates

- (1) A prescribed industrial waste producer must ensure that each consignment of prescribed industrial waste transported from the premises of that waste producer is accompanied by a transport certificate setting out the information specified in Part A of Schedule 3.

Penalty: 20 penalty units.

- (2) A waste transporter must ensure that for each consignment of prescribed industrial waste transported by that waste transporter the information specified in Parts A and B of Schedule 3 is—
- (a) set out in a transport certificate accompanying the consignment; and
 - (b) given to the prescribed waste producer before the waste is transported from the premises of the waste producer; and
 - (c) given to the waste receiver at the time of delivery of the waste to the waste receiver.

Penalty: 20 penalty units.

- (3) A prescribed industrial waste producer who receives information under subregulation (2)(b) must, within 7 days of receiving the information, send the information to the Authority.
- (4) A waste receiver who receives a consignment of prescribed industrial waste must—
- (a) at the time of delivery of the waste, give the waste transporter the information specified in Part C of Schedule 3; and
-

- (b) within 7 days after receipt of the waste, send to the Authority the information specified in Parts A, B and C of Schedule 3.

Penalty: 20 penalty units.

30 Information must be correct

A person who must comply with regulation 29(1), 29(2) or 29(4) must ensure that any information supplied in a transport certificate under those provisions is correct.

Penalty: 20 penalty units.

31 Records to be retained

A prescribed industrial waste producer, waste transporter and waste receiver must retain any information that they receive under regulation 29 or send to the Authority under that regulation for a period of not less than 24 months from the date on which the waste was transported.

Penalty: 8 penalty units.

32 Accredited agents

- (1) The Authority may, in writing, do all or any of the following—
- (a) authorise a waste transporter to be an accredited agent to carry out the requirements of regulations 29 to 31 on behalf of a prescribed industrial waste producer;
 - (b) place conditions and limitations on the functions of an accredited agent in relation to regulations 29 to 31;
 - (c) alter those conditions and limitations;
-

- (d) suspend the authorisation of a person to be an accredited agent for a specified period not exceeding 60 days by giving the accredited agent written notice of suspension;
 - (e) cancel the authorisation of a person to be an accredited agent by giving the accredited agent written notice of cancellation.
- (2) A prescribed industrial waste producer may enter into an agreement or arrangement with an accredited agent to act on behalf of the producer to comply with the requirements of regulations 29 to 31.
- (3) If an accredited agent has entered into an agreement or arrangement with a prescribed industrial waste producer and fails to comply with a requirement of regulation 29, 30 or 31, the accredited agent is liable for the offence that would otherwise apply if the waste producer failed to comply with a requirement of regulation 29, 30 or 31.

33 Procedure to be followed before cancellation

- (1) Before cancelling the authorisation of a person to be an accredited agent, the Authority must—
- (a) give the accredited agent a written notice that—
 - (i) gives details of the action the Authority intends to take; and
 - (ii) gives the reasons why the Authority intends to take that action; and
 - (iii) invites the accredited agent to comment on the Authority's proposed course of action within the time specified in the notice; and
-

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Part 4—Prescribed Industrial Waste

- (b) consider any comments that are made by the accredited agent within the time specified in the notice.
 - (2) The Authority must not specify a period of less than 7 days under subregulation (1)(a)(iii).
-

**PART 5—EXEMPT MATERIAL WHERE ESTABLISHED
SECONDARY BENEFICIAL REUSE**

34 Exemption for secondary beneficial reuse

The Authority may authorise a secondary beneficial reuse—

- (a) of its own motion; or
- (b) when a prescribed industrial waste producer has provided a notification of the reuse to the Authority—

in accordance with this Part.

35 Establishing a secondary beneficial reuse

- (1) A secondary beneficial reuse is established—
 - (a) when a prescribed industrial waste producer has provided a notification of the reuse to the Authority in accordance with regulation 36; and
 - (b) the Authority has authorised the secondary beneficial reuse in accordance with regulation 38.
- (2) A secondary beneficial reuse may also be established when the Authority issues a secondary beneficial reuse notification in accordance with this Part.
- (3) The establishment of a secondary beneficial use may be limited to the types, classes or consignments of waste specified in the authorisation of the notification by the Authority.

36 Matters to be declared in notification

- (1) The secondary beneficial reuse notification must include—
 - (a) any recognised specifications or standards for the material resulting from the reuse or recycling of the waste or the recovery of energy from the waste;
 - (b) an assessment of the likelihood of an unacceptable risk of harm to the environment;
 - (c) an assessment of the potential for diversion of the material to a higher value use;
 - (d) an assessment of commonly available or best available technologies, methods or processes for reuse or recycling of the waste or the recovery of energy from the waste;
 - (e) consideration of any applicable waste minimisation plans or waste management plans;
 - (f) consideration of any applicable national environment protection measure made by the National Environment Protection Council;
 - (g) consideration of any applicable State environment protection policy or waste management policy;
 - (h) for reuse or recycling of, or recovery of energy from, matter that could otherwise be classified as category A or B prescribed industrial waste under Part 2, a statement from an environmental auditor appointed by the Authority that the information in the notification is, to the best of the environmental auditor's knowledge, correct and in accordance with the requirements of the Act and these Regulations;
-

- (i) for reuse or recycling of, or recovery of energy from, matter that could otherwise be classified as category C prescribed industrial waste under Part 2, a statement from any suitably qualified professional that the information is, to the best of the person's knowledge, correct and in accordance with the requirements of the Act and these Regulations.
- (2) The Authority may refuse to authorise the notification if the prescribed industrial waste producer does not provide the Authority with all relevant information specified in subregulation (1).

37 Authorising notification

- (1) Within 7 days of receiving a secondary beneficial reuse notification, the Authority must write to the prescribed industrial waste producer who lodged the notification confirming that the Authority has received the notification.
- (2) Within 28 days after the Authority confirms receipt of a secondary beneficial reuse notification under subregulation (1), the Authority must determine whether to authorise or refuse to authorise the notified reuse.

38 Advising authorisation

If the Authority does not, within 7 days after the end of the period specified in regulation 37(2), issue advice in writing to a prescribed industrial waste producer who submitted a secondary beneficial reuse notification that the notified reuse has been refused, the notified reuse is deemed to have been authorised.

39 Conditions for secondary beneficial reuse

- (1) If the Authority authorises a secondary beneficial reuse under this Part the Authority must specify the period for which the authorisation applies and may impose conditions relating to any or all of the following—
 - (a) characteristics of the material for which the authorisation has effect, including—
 - (i) physical form;
 - (ii) quantity to be dealt with over a specified time period;
 - (iii) concentration;
 - (iv) existence or levels of any permissible contaminants;
 - (b) the prescribed industrial waste producer, premises or industries from which the material may originate;
 - (c) the person, premises or industries permitted to receive the material;
 - (d) any sampling, analysis, monitoring and reporting requirements to be undertaken by the prescribed industrial waste producer, receiver, reuser, or recycler of the material or the recoverer of energy;
 - (e) any measures that are required of the prescribed industrial waste producer, transporter, receiver, reuser, or recycler of the material or recoverer of energy to ensure that the management of the material is not likely to result in an unacceptable risk of damage to the environment;
 - (f) a requirement to notify the Authority of any changes relating to the matters and information relating to the authorisation;
-

(g) any other condition that the Authority considers appropriate.

(2) A prescribed industrial waste producer must not contravene any condition imposed in relation to an authorisation under this regulation.

Penalty: 20 penalty units.

40 Amendment of authorisation

(1) The Authority may amend any authorisation under this Part if it is satisfied that amending the authorisation—

(a) is necessary or desirable because the circumstances that existed at the time the Authority gave the authorisation have changed; and

(b) will not result in an unacceptable risk of harm to the environment.

(2) If the Authority amends an authorisation it must notify the prescribed industrial waste producer whose authorisation was amended in writing within 7 days after the amendment.

41 Revocation of authorisation

(1) The Authority may revoke any authorisation under this Part if it is satisfied that—

(a) any information supplied by the prescribed waste producer was false or misleading; or

(b) any other information taken into consideration by the Authority has changed and as a consequence the authorisation is likely to result in an unacceptable risk of harm to the environment; or

(c) any condition in relation to that authorisation under regulation 39 has been contravened; or

- (d) the prescribed industrial waste producer has been found guilty of one or more relevant offences (as defined in section 20C(1) of the Act) and, as a result is, in the opinion of the Authority, not a fit and proper person to hold a permit; or
 - (e) the activities in respect of which the authorisation related have ceased.
- (2) If the Authority revokes an authorisation it must notify the prescribed industrial waste producer whose authorisation was revoked in writing within 7 days after the revocation.

42 Procedure to be followed before amendment or revocation under this Part

- (1) Before amending or revoking an authorisation granted under this Part, the Authority—
- (a) must issue a written notice to the prescribed industrial waste producer whose authorisation the Authority intends to amend or revoke that—
 - (i) gives details of the action the Authority intends to take; and
 - (ii) gives the reasons why the Authority intends to take that action; and
 - (iii) invites the prescribed industrial waste producer whose authorisation the Authority intends to amend or revoke to comment on the Authority's proposed course of action within the time specified in the notice; and
 - (b) must consider any comments that are made by the prescribed industrial waste producer whose authorisation the Authority intends to amend or revoke within the time specified.
-

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Part 5—Exempt Material where Established Secondary Beneficial Reuse

- (2) The Authority must not specify a period of less than 7 days under subregulation (1)(a)(iii).
-

PART 6—ADMINISTRATION

43 Certificates, records, applications or other documents

- (1) A certificate, application, notification, declaration or other document required to be given or sent to or lodged with the Authority that is referred to in these Regulations must be—
 - (a) in writing; and
 - (b) in the form approved by the Authority.
 - (2) A certificate, application, notification, declaration or other document required to be given or sent to or lodged with the Authority that is referred to in these Regulations may be served by—
 - (a) delivering it to an office of the Authority; or
 - (b) post addressed to the Authority at an office of the Authority; or
 - (c) leaving it with a person who has authority to accept documents on the Authority's behalf; or
 - (d) any other means approved by the Authority.
-

PART 7—TRANSITIONAL

**44 Savings for certain existing permit conditions,
accreditations and exemptions**

Despite the revocation of the Environment
Protection (Prescribed Waste) Regulations 1998—

- (a) regulation 10A and Schedule 3 of those
Regulations continue to have effect for the
purposes of this regulation until 1 July 2010;
 - (b) a person who, immediately before the date of
that revocation, was an accredited agent
continues subject to these Regulations to be
an accredited agent;
 - (c) an exemption granted under Part 5 of those
Regulations continues to have effect as a
secondary beneficial reuse authorisation for
the purposes of Part 5 of these Regulations.
-

SCHEDULES

SCHEDULE 1

NON-PRESCRIBED INDUSTRIAL WASTES

Note

See regulation 5 for the definition of *prescribed industrial waste*.

Asphalt

Brick

Cardboard

Commercial food waste

Concrete

Formed metal components

Glass

Green waste

Paper

Plastic

Textiles

Timber

Wood

SCHEDULE 2

HAZARD CATEGORIES

1 Category A waste

Category A waste is prescribed industrial waste—

- (a) that can be classified as dangerous goods under the **Dangerous Goods Act 1985** and falls within one or more of the following classes under that Act—
 - (i) Class 1;
 - (ii) Class 4.1;
 - (iii) Class 4.2;
 - (iv) Class 4.3;
 - (v) Class 5.1;
 - (vi) Class 5.2;
 - (vii) Class 6.1;
 - (viii) Class 6.2;
 - (iv) Class 8; or
- (b) that generates gases that can be classified as Class 2.3 dangerous goods under the **Dangerous Goods Act 1985** when it comes into contact with air or water; or
- (c) with any contaminant concentration greater than the TC₂ thresholds specified in Appendix 3 to Publication 996 except for prescribed industrial waste that is contaminated soil; or

- (d) with any leachable concentration greater than the ASLP₂ thresholds specified in the table in Appendix 3 to Publication 996 except for prescribed industrial waste that is contaminated soil; or
- (e) that is contaminated soil with—
 - (i) any contaminant concentration greater than the contaminant concentrations specified in Table 4 of Publication 448; or
 - (ii) any leachable concentration greater than the leachable concentrations specified in Table 4 of Publication 448; or
- (f) that the Authority has classified as category A waste in accordance with Part 2.

2 Category B waste

- (1) Subject to subclause (2), category B waste is prescribed industrial waste—
 - (a) with—
 - (i) any contaminant concentration greater than the TC₁ but not exceeding the TC₂ thresholds specified in Appendix 3 to Publication 996 except for prescribed industrial waste that is contaminated soil; or
 - (ii) any leachable concentration greater than the ASLP₁ but not exceeding the ASLP₂ thresholds specified in Appendix 3 to Publication 996 except for prescribed industrial waste that is contaminated soil; or

- (b) that is contaminated soil with—
 - (i) any contaminant concentration greater than those specified in Table 3, but not exceeding those specified in Table 4 of Publication 448; or
 - (ii) any leachable concentration greater than those specified in Table 3, but not exceeding those specified in Table 4 of Publication 448; or
 - (c) that the Authority has classified as category B waste in accordance with Part 2.
- (2) This clause does not apply to prescribed industrial waste that is category A waste under clause 1.

3 Category C waste

- (1) Subject to subclause (2), category C waste is prescribed industrial waste—
- (a) with—
 - (i) all contaminant concentrations not exceeding the TC_1 thresholds specified in Appendix 3 to Publication 996 except for prescribed industrial waste that is contaminated soil; and
 - (ii) all leachable concentrations not exceeding the $ASLP_1$ thresholds specified in Appendix 3 to Publication 996 except for prescribed industrial waste that is contaminated soil; or
 - (b) that is contaminated soil with—
 - (i) any contaminant concentrations greater than those specified in Table 2, but not exceeding those specified in Table 3 of Publication 448; or
-

- (ii) any leachable concentrations not exceeding those specified in Table 3 of Publication 448; or
 - (c) that is waste asbestos that is packaged in accordance with Publication 364 and in particular the section headed "Packaging of Waste Asbestos"; or
 - (d) that the Authority has classified as category C waste in accordance with Part 2.
- (2) This clause does not apply to prescribed industrial waste that is category A waste under clause 1 or category B waste under clause 2.
-

SCHEDULE 3

TRANSPORT INFORMATION

Part A: To be supplied by the prescribed industrial waste producer

Consignment identification

Description of the waste(s)

The physical nature of the waste(s)

Waste code(s)

Hazard category

Contaminant(s)

UN Number

UN Class/Code

Dangerous Goods Class

Packaging Group number

Amount of waste(s)

Waste origin

Type of package (e.g. bulk)

Name of waste producer

Address of waste producer

Emergency contact number

Date of dispatch

Intended receiver

State/Territory of the waste receiver

Type of treatment at the premises of the waste receiver

Part B: To be supplied by the waste transporter

Name of transporter

Address of transporter

Vehicle registration number

Transport permit number

Part C: To be supplied by the waste receiver

Name and address of waste receiver

Receiving facility name (if different from address of
waste receiver)

Receiving facility licence number

Date of receipt at facility

Amount of waste(s)

Type of treatment

Discrepancies

Name and address of any other waste receiver to which
the waste receiver intends that the waste be transported

SCHEDULE 4

Regulation 15

ADDITIONAL VEHICLE REQUIREMENTS FOR CERTAIN INDUSTRIAL WASTES

PART A

1 Vehicles must be placarded

- (1) Any vehicle transporting more than 500 kilograms of prescribed industrial waste must display class labels for Class 9, Miscellaneous Dangerous Goods as specified in the **Dangerous Goods Act 1985** at the front and rear of the vehicle.
- (2) Subclause (1) does not apply if otherwise specified in this Schedule or if the vehicle is subject to an exemption under these Regulations.

PART B

2 Dangerous Goods

- (1) A vehicle transporting any prescribed industrial waste that can also be classified as dangerous goods under the **Dangerous Goods Act 1985** must display class labels and Emergency Information Panels in accordance with the requirements of the **Dangerous Goods Act 1985**.
 - (2) Despite anything in subclause (1), a vehicle transporting bulk solid prescribed industrial waste that can also be classified as dangerous goods under the **Dangerous Goods Act 1985** must display class labels in accordance with the requirements of the **Dangerous Goods Act 1985** but is not required to display Emergency Information Panels.
-

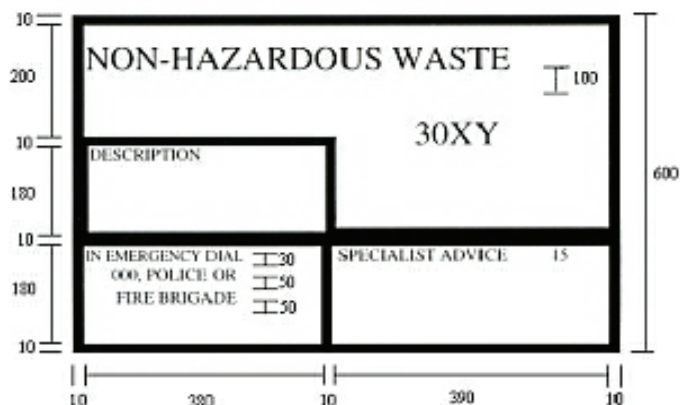
PART C

3 Non-Hazardous Waste

- (1) A vehicle transporting the following industrial wastes in a tipper, tanker or container with a capacity of more than 500 kilograms must display the 30XY Emergency Information Panel depicted in Figure 1—
- (a) animal and vegetable oils and derivatives;
 - (b) animal effluent and residues including abattoir effluent and poultry and fish processing wastes;
 - (c) grease interceptor trap effluent;
 - (d) inert sludges or slurries;
 - (e) non-toxic salts;
 - (f) vegetable, fruit or food processing effluent;
 - (g) vehicle, machinery or industrial plant washwaters with or without detergents;
 - (h) waste oil or mixtures or emulsions containing waste oil;
 - (i) hydrocarbons and water mixtures or emulsions; and
 - (j) waste oils unfit for their original intended use.

Figure 1.

30XY Emergency Information Panel



- (2) The 30XY Emergency Information Panel must comply with the dimensions (in millimetres) specified in Figure 2.

PART D

4 Clinical and related wastes

- (1) A vehicle transporting any volume of clinical and related wastes must have the class label depicted in Figure 3 in black on a yellow background fixed on the front and rear of the vehicle.

Figure 2.



- (2) When clinical and related wastes are being transported, the packages or combination of packages must be marked and packaged in a manner approved by the Authority.

PART E

5 Provision for half-sized Emergency Information Panels

- (1) Where Emergency Information Panels must be fixed to a vehicle in accordance with Part B or C, but mounting of full size panels is not possible because of vehicle design or construction, half-size panels are permitted to be fixed.
 - (2) For the purposes of this clause, half-size panels must replicate the information and proportions and measure not less than half the dimensions of the full-size Emergency Information Panel otherwise required.
-
-

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ENDNOTES

¹ Reg. 4(1): S.R. No. 95/1998, as extended by S.R. No. 21/2008.

² Reg. 4(2): S.R. No. 92/2000.

³ Reg. 4(3): S.R. No. 76/2007.

⁴ Reg. 5 def. of *prescribed fee*: S.R. No. 119/2001.

**Table of Applied, Adopted or Incorporated Matter Required by
Subordinate Legislation Regulations 2004**

Note that the following table of applied, adopted or incorporated matter is included in accordance with the requirements of regulation 5 of the Subordinate Legislation Regulations 2004.

Statutory Rule Provision	Title of applied, adopted or incorporated document	Matter in applied, adopted or incorporated document
Regulations 4 and 6(2)	Publication 996 titled "Guidelines for Hazard Classification of Solid Prescribed Industrial Wastes" published by the Authority in June 2005 and as amended from time to time or republished by the Authority.	Appendix 3
Regulations 4 and 6(2)	Publication 364 titled "The Transport and Disposal of Waste Asbestos" published by the Authority in November 2004 and as amended from time to time or republished by the Authority.	Pages 3 and 4
Regulations 4 and 6(2)	Publication 448 titled "Classification of Wastes" published by the Authority in 2007 and as amended from time to time or republished by the Authority.	Tables 2, 3 and 4

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Statutory Rule Provision	Title of applied, adopted or incorporated document	Matter in applied, adopted or incorporated document
Regulation 5; Schedule 1, Part C	Publication 996 titled "Guidelines for Hazard Classification of Solid Prescribed Industrial Wastes" published by the Authority in June 2005 and as amended from time to time or republished by the Authority.	Appendix 3
Regulation 5; Schedule 1, Part C	Publication 364 titled "The Transport and Disposal of Waste Asbestos" published by the Authority in November 2004 and as amended from time to time or republished by the Authority.	Pages 3 and 4
Regulation 5; Schedule 1, Part C	Publication 448 titled "Classification of Wastes" published by the Authority in 2007 and as amended from time to time or republished by the Authority.	Tables 2, 3 and 4
Schedule 1, Part B	Publication 448 entitled "Classification of Wastes" published by the Authority in 1995 as amended from time to time or republished by the Authority.	Table 2 and Table 3

APPENDIX B: CURRENT REGULATORY FRAMEWORK

B.1 Current regulatory framework

Introduction

The *Environment Protection (Prescribed Waste) Regulations 1998* set up a system to define, manage and track the generation, treatment, transport and storage of industrial waste. Figure B.1 provides a diagrammatic representation of the regulations.

Environment Protection (Prescribed Waste) Regulations 1998

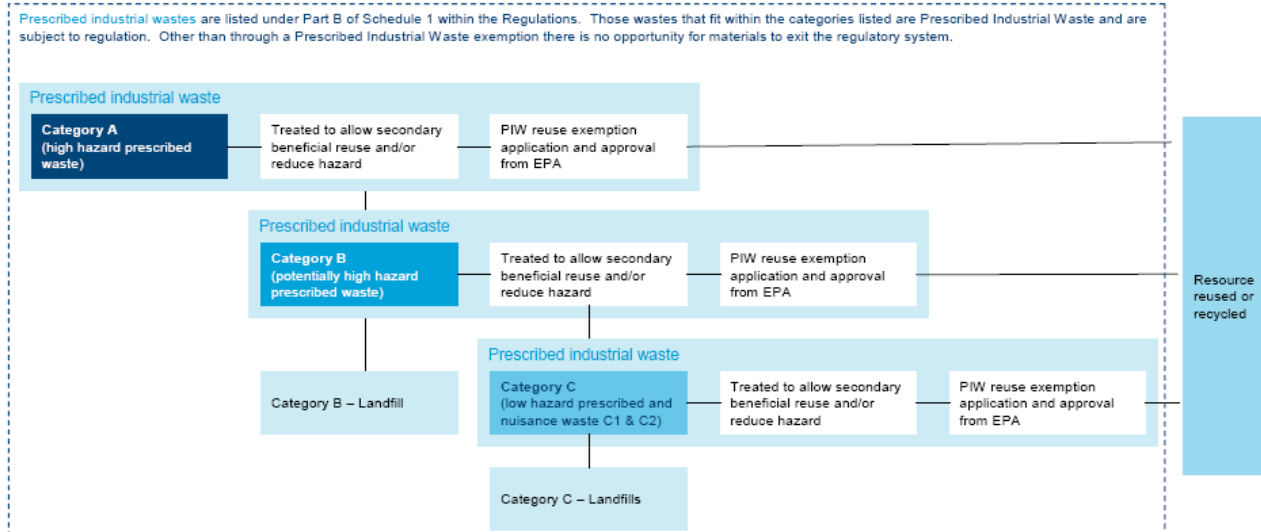


Figure B.1: Environment Protection (Prescribed Waste) Regulations 1998

The *Environment Protection Act 1970* (the Act) defines industrial waste as:

- (a) any waste arising from commercial, industrial or trade activities or from laboratories; or
- (b) any waste containing substances or materials which are potentially harmful to human beings or equipment.

The regulations relate to prescribed industrial waste defined as a waste that is:

- (a) is an industrial waste –
 - (i) that arises from an industrial, commercial or trade activity or from a laboratory; or
 - (ii) that is potentially harmful to human beings or equipment and arises from a hospital; and
- (b) is listed in Part B of Schedule 1 –

and any mixture containing an industrial waste that is listed in Part B of Schedule 1 are prescribed industrial wastes.

Classification of industrial waste

The Regulations provide the definitions to classify prescribed industrial wastes into one of three categories – Category A, Category B or Category C – depending on the level of hazard the waste poses.

- Category A wastes represents the highest hazard level. These wastes require a high level of control. Treatment to reduce the hazard level prior to reuse or disposal is mandatory, as Category A waste is banned from Victorian landfills.
- Category B wastes are high-hazard wastes. Treatment of Category B wastes is preferred if existing technology is available to reduce the hazard risk to Category C. If treatment is not possible, disposal must be managed by a landfill that is licensed to accept Category B waste.
- Category C represents industrial waste that poses a low hazard level or exhibits offensive aesthetic characteristics (odorous waste). If reuse or recycling is not an option for this waste it may be accepted by best practice municipal landfills.

Generators of all three categories of industrial waste must apply the waste management hierarchy, which seeks to avoid, reuse, recycle, recover energy or treat prior to consideration for disposal at landfill. This hierarchy is set out in Section 1 of the Act.

Transport and management of prescribed industrial waste

The Act and the Regulations set out the requirements for generators, transporters, treatment facilitators and landfill operators in relation to the transport and management of industrial waste in Victoria.

The Act and the Regulations require that a permit be obtained prior to commencement of any business whose purpose is to transport prescribed industrial waste. However, the Regulations allow for EPA to give an exemption to vehicles with a gross load carrying capacity of less than 1000 kilograms that transport industrial waste for no fee or reward no more than twice a month.

The Regulations impose obligations on the consignor of waste to ensure that the transporter of prescribed industrial waste has a permit to transport the waste and to ensure that the receiver of the waste is licensed to carry out its treatment or disposal.

Obligations are placed on the consignor, transporter and receiver to ensure that the industrial waste is classified prior to transport and that all movements of prescribed industrial wastes are recorded. Annual returns (see form below) assist with management of prescribed industrial waste, whereby a waste producer returns a spreadsheet to EPA that summarises the type and amount of prescribed industrial waste generated by that producer.

The Regulations reinforce EPA's rights to issue, renew, transfer, suspend or cancel a permit to transport and receive prescribed waste or prescribed industrial waste.

ENVIRONMENT PROTECTION ACT 1970
Environment Protection (Prescribed Waste) Regulations 1998
ACCREDITED AGENT'S ANNUAL RETURN
OF CLIENT'S PRESCRIBED INDUSTRIAL WASTE

To be submitted by 3 months after the end of the reporting period.

Reporting Period	From	<input type="text"/>	To	<input type="text"/>		
Accredited Agent Registered Company Name <input style="width: 100%;" type="text"/>						
Accredited Agent No. <input style="width: 100%;" type="text"/>						
Producer Name <input style="width: 100%;" type="text"/>						
Producer Address <input style="width: 100%;" type="text"/>						
Producer Suburb & Postcode <input style="width: 100%;" type="text"/>						
AMOUNT SENT TO WASTE DESTINATION						
Accredited Agent Categories	Waste Category	Waste Receiver	Waste Recycler	Waste Reuser	Recoverer of Energy	Waste Units
Category 1	K110	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Kilolitres
	K120	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Kilolitres
Category 2	K150	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Kilolitres
	K170	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Kilolitres
Category 3	J100	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Kilolitres
Category 4	J120	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Kilolitres
	J130	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Kilolitres
Category 5	R100	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Tonnes
Category 6	T120	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Kilolitres
	D261	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Kilolitres
Category 7 (please specify)	G ...	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Kilolitres
Category 8	N100	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Tonnes
	N110	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Tonnes

I certify that:


I have prepared and sent a copy of this report to the producer (client) of the above waste in the above format showing the amount of waste that I transported from that producer's premises; and
 All information contained in this Annual Return including any attachments is true and correct.

Signed	<input style="width: 100%;" type="text"/>	Date	<input style="width: 100%;" type="text"/>
Full Name	<input style="width: 100%;" type="text"/>	Phone	<input style="width: 100%;" type="text"/>
Position	<input style="width: 100%;" type="text"/>	Email	<input style="width: 100%;" type="text"/>

Transport certificates

The regulations require that the producer and transporter of the waste ensure that each consignment of waste is accompanied by a certificate that contains the description of waste, hazard category, name of the waste producer, amount of waste and date of dispatch.

ENVIRONMENT PROTECTION AUTHORITY WASTE TRANSPORT CERTIFICATE	
PART A	<p>1. Name of Waste Producer _____ Address of Site of Waste Source _____ _____ _____ Name of Emergency Contact _____ Phone _____ _____</p> <p>2. Proposed Disposal/Treatment/Storage Site _____ State _____</p> <p>3. Intended Disposal Route – Recycling <input type="checkbox"/> Landfill <input type="checkbox"/> Energy Recovery <input type="checkbox"/> Chem/Phys Treatment <input type="checkbox"/> Storage <input type="checkbox"/> Incineration <input type="checkbox"/> Immobilisation <input type="checkbox"/> Biodegradation <input type="checkbox"/> Other <input type="checkbox"/></p> <p>4. Description of Waste _____ _____</p> <p>5. Waste Code No. (List 1) _____ Hazard Category (List 2) _____ Contaminants (List 3) _____ Waste Origin (List 4) _____ U.N. Number _____ Class _____ Packing Group _____ Bulk/No. of Packages _____ Amount of Waste _____ kilograms or _____ cubic metres or _____ litres I declare that to the best of my knowledge and belief the above information is true and correct. Name and Position _____ Signature _____ Date _____</p>
PART B	<p>6. Name of Transporter _____ Address _____ Vehicle No. 1 Registration _____ Transport Permit No. _____ Vehicle No. 2 Registration _____ Transport Permit No. _____ _____ EP _____ EP _____ I acknowledge receipt of the waste described in part A. Name (in block letters) _____ Signature _____ Date _____</p>
PART C	<p>7. Name of Disposal/Treatment/Storage Facility _____ Licence No. _____ Address _____ Type of Treatment (List 5) _____</p> <p>8. Amount of Waste _____ kilograms or _____ cubic metres or _____ litres</p> <p>9. Are there any discrepancies between the wastes described above and the waste received? YES <input type="checkbox"/> NO <input type="checkbox"/> Briefly note discrepancy: _____</p> <p>10. Name and address of any other waste receiver to which the waste receiver intends that the waste be transported _____</p> <p>11. I hereby acknowledge acceptance of the waste described in part A. Name _____ Signature _____ Date _____</p>


**EPA
VICTORIA**
 Regional Support Systems
 GPO BOX 4395QQ
 MELBOURNE 3001

To be completed by the Producer of the Waste.

To be completed by the Waste Transporter.

To be completed by the Depot Receiving Waste.

PLEASE USE BLOCK LETTERS

ORIGINAL — TO BE FORWARDED TO EPA WITHIN SEVEN (7) DAYS BY THE PERSON/COMPANY WHO COMPLETED PART C

ORIGINAL

As shown in the example of a transport certificate above:

- Part A is filled in by the producer of the waste
- Part B is filled out by the transporter of the waste
- Part C is to be filled out by the depot receiving the waste.

The paper version of the transport certificate provides one original and five copies. The copies are managed in the following way:

- **Original copy** (white) is to be lodged with EPA within seven days of receipt of the certificate by the waste receiver, by the person or company that completed Part C, being the waste receiver. Parts A and B must be completed before Part C is completed.
- **Copy 1** (pink) is to be lodged with EPA within seven days with completed Part A and Part B. Copy 1 (pink) is to be lodged by the person or company who completed Part A, being the waste producer or, in some cases, the accredited agent. The waste transporter must complete Part B at the time the waste is collected.
- **Copy 2** (green) is to be retained by the person or company who completed Part A, being the waste producer. The copy of the certificate must be retained for a period of not less than 24 months from the date on which the waste was transported. The waste transporter must ensure that the waste producer retains Copy 1 (pink) and Copy 2 (green) before the waste is transported from the premises of the waste producer.
- **Copy 3** (yellow) is to be retained by the person or company who completed Part C, being the waste receiver. The copy of the certificate must be retained for a period of not less than 24 months from the date on which the waste was transported. At the time of delivery of the waste, the original, yellow, gold and purple copies must be given to the waste receiver.
- **Copy 4** (gold), with all parts completed, is to be retained by the waste transporter. The copy of the certificate must be retained for a period of not less than 24 months from the date on which the waste was transported.
- **Copy 5** (purple) is to be forward by the person or company who completed Part C, being the waste receiver, to the person/company who completed Part A, being the waste producer. The copy must be forwarded within 30 days of receipt of the certificate. If Part A is completed by a subcontractor (e.g., for contaminated sites), Copy 5 must be forwarded to the subcontractor.⁶¹

EPA also has a web-based system for electronic completion and lodgement of waste transport certificates – WasteCert. This system is cheaper to use than paper certificates.

The Regulations provide for accreditation agents, who are waste transporters who can carry out the annual return and transport certificate requirements on behalf of the waste producer. Agents can be accredited so that one certificate can be used for the collection of industrial waste from multiple producers and are subject to similar requirements to that of a receiver, where records of consignments must be sent to the producer and EPA.

Certificates must be retained by the prescribed industrial waste producer, waste transporter and waste receiver for at least two years from the date on which the waste was transported.

Exemptions

EPA may grant an exemption under the Regulations from the requirements of obtaining permits, transport certificates and retaining records.

To gain an exemption, EPA must take into consideration the level of risk that the waste may pose, its potential for reuse and the current regulatory environment pertaining to industrial waste and the associated waste management policies. EPA has the authority to limit and impose conditions on the exemption. Notification requirements are included in the Regulations for granting an exemption.

Accreditation

An industrial waste producer may apply to EPA to be accredited. Accreditation provides exemptions to the requirements of transport certificates and retention of records; however, lodgement of an annual return is required. Accreditation further exempts those who transport and receive waste from an accredited industrial waste producer from these requirements. There have been no applications to seek accreditation under this section of the Regulations.

⁶¹ EPA 2007, *Instructions for Completion of Waste Transport Certificates*, EPA publication 395.3, December 2007

APPENDIX C: INTER-JURISDICTIONAL COMPARISON AND RISK-BASED REGULATION

C.1 Inter-jurisdictional comparison

The way each jurisdiction legislates to provide for classification and management of industrial waste varies. Below is a summary of the key similarities and differences that can be drawn from the inter-jurisdictional comparison Table C.1.

Definition

The definition of industrial waste is broadly similar in all Australian jurisdictions. Each jurisdiction is similar to the Victoria in that definitions relate to wastes arising from a commercial or industrial activity or hospital and/or that contain hazardous materials or substances that could potentially pose risks to the environment and human health.

Classification

Industrial waste is classified under one or more categories in the relevant Act, regulations and/or guidelines in each jurisdiction. For example, depending on its nature and origin, industrial waste is classified in one of three waste categories under NSW guidelines, and classified in one of two categories under Queensland regulations.

The regulations in Western Australia, Tasmania and the Northern Territory and the Act in ACT define industrial waste or industrial-related wastes under one waste classification.

Waste that is classified as either Category A, B or C in Victoria is also categorised as a form of industrial waste in other jurisdictions. The name, definitions and methods of classification may differ between jurisdictions, as may the requirements placed upon waste producers. Nonetheless, all jurisdictions seek to manage and quantify the generation of industrial waste through regulation.

Transport

Transport of industrial waste is regulated by the states using approved instruments. Licences, permits and certificates allow for the relevant authority to track and monitor the movement of industrial waste within that state. New South Wales, Western Australian and Queensland regulations provide similar requirements to those of Victoria with regard to tracking and monitoring of transport of industrial waste. The ACT and Tasmania currently have no tracking requirements for industrial waste within their jurisdictional boundaries.

Transport of industrial waste interstate is regulated by the National Environment Protection Measure which ensures that hazardous ('controlled') wastes are identified and transported in a consistent and environmentally sound manner between states and territories. Victoria is the only jurisdiction that requires approval for waste to be transported out of the state.

Storage

New South Wales regulations and the Northern Territory Act require a licence to be held by the occupier of the premises where the industrial waste is stored. Although not specified under the Act or regulations, the *Environment Protection (Scheduled Premises and Exemptions) Regulations 2007* provide for the licensing of AO1 premises that provide storage, treatment, reprocessing, containment or disposal facilities handling any prescribed industrial waste not generated at the premises.

Treatment and disposal

Treatment and disposal requirements of industrial waste differ considerably between jurisdictions.

Regulations such as those in Tasmania and Queensland provide for treatment if prior approval is granted or if local government standards require it. These differ from the Victorian Policy, where there is a mandatory requirement that wastes of the highest hazard classification must be treated prior to acceptance by landfill.

NSW guidelines have similar requirements to Victoria's regarding disposal of hazardous wastes to landfill, whereby hazardous waste is banned from landfill unless it can be 'immobilised'. Immobilised waste contains contaminants that have been treated in such a way as allows for reassessment and reclassification, thus allowing it to be disposed in landfill.

New South Wales and Western Australian regulations require that the receiver of industrial waste record information and issue a receipt to comply with tracking requirements similar to those required under Victorian industrial waste regulation.

Regulations in Western Australia and Victoria further provide that disposal may only occur at the site specified in the tracking form (in other words, in the transport certificate).

A common theme for disposal of industrial waste by the jurisdictions relates to the nature of disposal, such as those specified by Queensland and Tasmanian regulations, where disposal must have minimal impact on the environment.

Table C.1: Inter-jurisdictional comparison

	NSW	QLD	WA	SA	TAS	ACT	NT
Governing body and legislation	Department of Environment and Climate Change (NSW) <i>Protection of the Environment Operations Act 1997 (NSW)</i> <i>Waste Avoidance and Resource Recovery Act 2001 (NSW)</i> <i>Protection of the Environment Operations (Waste) Regulation Act 2005 (NSW)</i> <i>Road and Rail Transport (Dangerous Goods) Act 1997 (Cwlth)</i> <i>Waste Classification Guidelines</i> <i>Part 1 Classifying Waste (DECC)</i> <i>Part 2 Immobilisation of Waste</i> <i>Part 3 Waste Containing Radioactive Material</i> <i>Part 4 Acid Sulfate Soils</i>	Environmental Protection Agency (QLD) <i>Environmental Protection Regulation 1998</i> <i>Environmental Protection (Waste Management) Policy 2000</i> <i>Environmental Protection (Waste Management) Regulation 2000</i>	Environmental Protection Authority (WA) <i>Environmental Protection Regulation 1987 (WA)</i> <i>Environmental Protection (Controlled Waste) Regulation 2004</i>	Environment Protection Authority (SA) <i>The Environment Protection Act 1993 (SA)</i> <i>Environment Protection (Waste Management) Policy 1994 (SA)</i> (deals with management and disposal of medical waste)	Department of the Environment Heritage and the Arts Tasmania <i>Environmental Management and Pollution Control (Waste Management) Regulations 2000(TAS)</i> <i>Draft Environmental Management and Pollution Control (Controlled Waste Tracking) Regulations 2007</i>	Department of Treasury and Municipal Services (Business Unit is the EPA) <i>Environment Protection Act 1997 (ACT)</i>	Environment Protection Authority (NT) <i>Environment Protection Authority Act 2007 (NT)</i> <i>Waste Management and Pollution Control Act 2007 (NT)</i> <i>Waste Management and Pollution Control (Administration) Regulations 2004 (NT)</i>
Relevant sites	www.environment.nsw.gov.au www.ntc.gov.au	www.epa.qld.gov.au www.legislation.qld.gov.au	www.epa.wa.gov.au www.slp.wa.gov.au	www.epa.sa.gov.au www.legislation.sa.gov.au	www.environment.tas.gov.au www.thelaw.tas.gov.au	www.tams.act.gov.au www.legislation.act.gov.au	www.epa.nt.gov.au www.icat.org.au

	NSW	QLD	WA	SA	TAS	ACT	NT
Classification/s	<p>Under NSW Waste Classification Guidelines industrial waste could form part or whole of any of the below listed classes:</p> <p>Hazardous waste Includes wastes such as lead-acid or nickel-cadmium batteries that are generated or separately collected by activities carried out for business, other commercial or community services purposes, and lead paint waste other than solely from residential premises or educational or childcare institutions (implying commercial use). <i>Distinction between residential and commercial use.</i></p> <p>General solid waste (non-putrescible) Includes wastes associated with building and demolition waste. <i>No distinction between residential and commercial use.</i></p> <p>Special wastes Include: Clinical and related waste includes clinical waste from medical, nursing, dental, pharmaceutical, skin penetration or other related clinical activity. Pharmaceutical, drug or medicine waste carried out for commercial or business purposes and sharps waste collected from designated sharps waste containers during business, commercial or community service activities.</p>	<p>Under Schedule 9 of the Environmental Protection (Waste Management) Regulation 2000 (QLD) industrial waste means - Interceptor waste or waste other than from commercial waste, domestic clean-up waste, domestic waste, green waste, recyclable interceptor waste, recyclable waste, waste discharged to a sewer. Hazardous wastes are known as 'regulated wastes'; these wastes are regulated under the <i>Environmental Protection Regulation 1998</i>.</p>	<p>Residues from industrial wastes are defined as 'controlled wastes' under Schedule 1 of the <i>Environmental Protection (Controlled Waste) Regulation 2004 (WA)</i>.</p>	<p>The Act does not provide a classification for industrial waste however lists wastes arising out of activities that have a significant environmental impact. Solid waste is described by the EPA as waste from any commercial or industrial premises or teaching/research institution - other than a building or demolition waste.</p>	<p>Industrial waste in Tasmania would be classified a controlled waste. Under Section 5 of the Regulation a 'Controlled waste is broadly defined as one that exhibits environmentally significant characteristics and, amongst others, "directly or indirectly" causes environmental harm'.</p>	<p>Industrial waste and hazardous wastes Under Schedule 1 of the <i>Environment Protection Act 1997 (ACT)</i> are listed as regulated wastes.</p>	<p>Under the Regulations, residue from industrial waste treatment or disposal operations are classified as a listed waste.</p>

	NSW	QLD	WA	SA	TAS	ACT	NT
Regulation of industrial wastes	<p>Licensing</p> <p>Required by those generating, storing, treating, transporting and disposing of hazardous waste.</p> <p>Licensing conditions relate to pollution prevention, monitoring, cleaner production through recycling and reuse and the implementation of best practice.</p> <p>Transport</p> <p>Transporter must ensure that both a transport certificate is completed and a consignment authorisation has been approved prior to transporting the waste.</p> <p>Interstate transport dealt with under the National Environment Protection Measure.</p> <p>Immobilisation approvals</p> <p>Hazardous waste can not be disposed of in landfills unless otherwise granted authority by DECC</p> <p>Waste tracking</p> <p>Hazardous wastes listed in the <i>Protection of the Environment Operations (Waste) Act 2005</i> must be tracked assigning obligations on consignor, transporter and receiver to ensure that a consignment authorisation and waste transport certificate is provided.</p> <p>A person undertaking activities with waste that is also classified as a dangerous good must comply with <i>Road and Rail Transport (Dangerous Goods) Act 1997</i> governing dangerous goods.</p>	<p>Regulation states that the occupier of the premises has obligations in relation to the storage and disposal of industrial waste.</p> <p>Storage of industrial waste</p> <p>Occupier of premises must supply containers, if required by local government, for storage of industrial waste.</p> <p>Treatment and disposal of industrial waste</p> <p>Occupier of premises must, if required by local government, treat waste to a standard approved by the local government for disposal of the waste at a waste facility.</p> <p>Transportation of regulated waste</p> <p>Requires a development permit and a registration certificate.</p> <p>Interstate transport dealt with under the National Environment Protection Measure.</p> <p>Disposal of regulated waste</p> <p>Requires a development permit and a registration certificate. Development permit contains conditions to ensure that operations by industry are conducted in such a way so as minimise its impact on the environment.</p>	<p>Regulation states obligations of controlled waste holders and generators, carriers, drivers, relating to transportation, tracking and disposal.</p> <p>Transportation of controlled wastes</p> <p>Regulation states that an offence is committed by the waste holder/waste generator if holder/generator allows for waste to be transported by an unlicensed carrier.</p> <p>Interstate transport dealt with under the National Environment Protection Measure.</p> <p>Tracking of controlled waste</p> <p>Regulation states that an offence is committed if a carrier or driver allows controlled waste on a road without a tracking number for the transportation of the waste.</p> <p>Disposal of controlled waste</p> <p>Regulation states that controlled waste can only be disposed of at the site specified in the tracking form, these obligations are placed on the driver and/or carrier of the controlled waste.</p> <p>Obligations on the occupier of the disposal site under the regulation states that the occupier must record information from the tracking number and issue receipt of delivery.</p>	<p>Licensing</p> <p>A license must be sought from EPA for solid waste disposal.</p> <p>Tracking wastes</p> <p>Waste transport certificates track the majority of listed (hazardous) wastes. The EPA (SA) manages waste tracking requirements.</p> <p>Interstate transport dealt with under the National Environment Protection Measure.</p>	<p>The Regulation sets out the responsibilities, management, treatment and disposal of controlled waste.</p> <p>Production, storage and treatment of controlled waste</p> <p>Regulation states that a person must not cause or permit a controlled waste to be produced, stored or treated in such a way that may cause environmental harm.</p> <p>Tracking of controlled wastes</p> <p>Tasmanian Government intends to introduce a waste tracking system for controlled wastes.</p> <p>Interstate transport dealt with under the National Environment Protection Measure.</p> <p>Disposal of controlled waste</p> <p>Regulation states that a person must not dispose of a controlled waste in a manner that is likely to directly or indirectly, amongst others, cause environmental harm.</p> <p>Regulation prohibits dilution of a controlled waste by another substance so as to lower the concentration levels where it is no longer a controlled waste unless otherwise authorised.</p> <p>As part of the general responsibilities the Regulation states that a person must not receive, store, reuse, recycle, reprocess, salvage, incinerate, treat, dispose of or use for energy recovery a controlled waste other than from a facility specifically approved for that waste.</p>	<p>Transport of regulated wastes</p> <p>Listed as a Class A Activity under Schedule 1 of the Act transportation of 200kg or more of regulated waste without prior authorisation is prohibited.</p> <p>Tracking of industrial waste</p> <p>Dealt with under the <i>National Environment Protection Measure</i> for tracking of controlled wastes interstate. Regulated wastes transported within ACT have no tracking requirements.</p>	<p>Licensing</p> <p>Under Schedule 2 of the <i>Waste Management and Pollution Control Act 2007 (NT)</i> a licence is required where collecting transporting, storing, recycling, treating or disposing of a listed waste on a commercial or fee for service basis.</p> <p>A licence is also required to operate a facility for storing, recycling, treating, or disposing of listed (hazardous) wastes on a commercial basis.</p> <p>Licence objectives include preventing pollution, reducing the likelihood of pollution occurring, effectively responding to pollution, avoiding and reducing the generation of waste, increasing the re-use and recycling of waste and effectively managing waste disposal.</p> <p>Transport and Tracking</p> <p>Interstate transport dealt with under the National Environment Protection Measure.</p>

C.2 Risk-based regulation

In addition to the inter-jurisdictional comparison in Table C.1, EPA commissioned URS to compare and report on international best practice for risk-based hazardous waste regulation and management. The report, *Prescribed industrial waste regulation: Review of international best practice*, found that the regulatory approaches of other jurisdictions to the management of hazardous waste are essentially the same with respect to a number of key dimensions.⁶²

Risk-based regulation

Risk-based regulation is designed to enable both regulators and businesses to allocate their resources more appropriately than would otherwise be the case. It facilitates the allocation of resources, and development and implementation of risk mitigation strategies that are commensurate with the risk. This leads to a greater overall reduction of risk.

A risk analysis is used to determine what risks are associated with a particular hazard and estimate the probability that they will occur, and the consequence if they were to occur. The Australian Standard for identification and assessment of risk has been used to identify the risks associated with no regulation, the current regulations and the proposed regulations. The risk assessment uses an evaluation framework that uses:

- scales to describe a level of consequence of risk if it should happen
- a scale to describe the likelihood of suffering that level of consequence
- a means of assigning a level of risk given a level of consequence and likelihood.

For prescribed industrial waste the consequence of harm is mostly associated with the damage to the public and the environment. The consequence scale is described in Table C.2 below.

Table C.2: Consequence scale

Rating	Description
High consequence	There would be large numbers of serious injuries or loss of lives. There would be irreparable damage to the natural environment. There would be widespread concern in the community about government capacity to serve the community.
Moderate consequence	There would be isolated or small instances of serious injuries. There would be some reparable damage to the natural environment. There would be serious expressions of concern about government capacity to serve the community.
Low consequence	There is appearance of a threat but no actual harm. There would be no irreparable damage to the natural environment. There would be minor concerns.

The likelihood of the consequence is determined using the scale outlined in Table C.3.

Table C.3: Likelihood scale

Rating	Recurrent risks	Single events
High Likelihood	Could occur several times a year	Probability greater than 50 per cent
Moderate Likelihood	May arise once every couple of years	There is a 50/50 chance
Low Likelihood	Unlikely during the next 5 years	Probability close to zero

The consequence and the likelihood are then used to form a level of risk, as outlined in Table C.4.

⁶² URS Australia 2008, *Prescribed Industrial Waste Regulation: Review of International Best Practice*, prepared for EPA Victoria

Table C.4: Assessing level of risk

Likelihood	High	Medium risk	High risk	High risk
	Moderate	Low risk	Medium risk	High risk
	Low	Low risk	Low risk	Medium risk
		Low	Moderate	High
		Consequence		

Risk assessment of current regulation

In the case of prescribed industrial waste, the potential consequences to human health, the environment and amenity are very high. This is particularly the case for Category A waste, which is considered highly hazardous: for example, waste which contains a high level of lead or mercury.

Inappropriate disposal of the more dangerous forms of prescribed industrial waste has the potential to contaminate a large area (for example, materials may spread into the water table if disposed of inappropriately). This could potentially have a very negative impact on the health of a large number of people, in addition to causing widespread damage to the environment and amenity.

The risk posed by prescribed industrial waste varies markedly between different waste products; hence the categorisations A, B and C.

The likelihood of inappropriate disposal of prescribed industrial waste occurring in the absence of government regulation is high. In a survey of industrial waste stakeholders, 69 per cent of respondents suggested that, in the absence of regulations, industrial waste would be disposed of inappropriately.⁶³

Table C.5 is a preliminary analysis of the risk priority before and after the current Regulations.

Table C.5: Preliminary analysis of Regulations⁶⁴

Identified risk	Likelihood	Consequence	Risk	Mitigation measure (current Regulations)	Residual likelihood	Residual consequence	Residual risk
Category A waste may be disposed of inappropriately	High ⁶⁵	High	High	Waste must be treated to Category B, and then tracked and disposed of in an appropriately licensed landfill	Low	Moderate	Low
Category B waste may be disposed of inappropriately	High	High	High	Waste must be tracked and disposed of in an appropriately licensed landfill	Low	Moderate	Low
Category C waste may be disposed of inappropriately	High	Moderate	High	Waste must be tracked and disposed of in an appropriately licensed landfill	Low	Moderate	Low
Low-risk category C waste may be disposed of inappropriately	Low	Low	Low	Waste must be tracked and disposed of in an appropriately licensed landfill	Low	Low	Low
Waste with secondary beneficial reuse may not be managed appropriately	Moderate	Moderate	Moderate	Complex exemption process to gain exemption from transport certificates	Low	Low	Low

The preliminary analysis of the Regulations shows that there are some identified risks that have been assessed as a low or moderate risk but have high government intervention.

The proposed regime represents a move towards a more risk-based system, with Category C waste that is below the base level threshold no longer being classed as prescribed industrial waste. Bottom limits for Category C will be developed so that wastes with a low risk will no longer have to comply with the regulations. The base threshold will be

⁶³ Prescribed industrial waste survey; results shown in appendix F.

⁶⁴ Analysis conducted through discussion with EPA staff.

⁶⁵ As noted in previous sections, in the absence of regulations 69 per cent of stakeholders believe that waste will be disposed of inappropriately. Prescribed industrial waste survey, results shown in appendix F.

set at such a level that waste with contaminants below the threshold will pose a negligible risk to human health, the environment or amenity.

This is in line with the principle of proportionality, whereby regulatory measures should be proportional to the problem that they seek to address, as outlined in the *Victorian guide to regulation 2007*⁶⁶. This approach is also consistent with trends overseas and interstate towards risk-based regulatory systems for prescribed industrial waste, as detailed in the URS report *Prescribed Industrial Waste Regulations: Review of International Best Practice*, undertaken for EPA as part of the prescribed industrial waste review.

Waste products with a direct beneficial reuse will no longer be treated as prescribed industrial waste under the proposed regulations, as this material is essentially identical to any other input to the production process. The risk associated with these materials will be adequately and appropriately mitigated through other regulatory mechanisms such as occupational health and safety (OH&S) legislation, the *Dangerous Goods Act 1985* and the *Road Transport (Dangerous Goods) Act 1995*.

The risks associated with prescribed industrial waste with a secondary beneficial reuse are greater, as the material is being processed in some way. EPA will therefore retain regulatory oversight of this class of materials.

While the use of transport certificates will no longer be required once an exemption is in place, EPA will continue to have the ability to attach conditions to exemptions as deemed appropriate. This represents an increase in the Authority's flexibility in addressing the variety of risks associated with prescribed industrial waste over the current regulatory regime.

66 Government of Victoria, 2007, *Victorian Guide to Regulation*, Department of Treasury and Finance, Melbourne, p. 3-2.

APPENDIX D: MODEL ASSUMPTIONS AND INFORMATION SOURCES

D.1 Assumptions and information sources

All cost assumptions used to estimate the costs of the proposed regulations and the feasible alternatives are summarised in this Appendix. The following tables summarise the cost assumptions and calculations used in the regulatory impact statement.

General assumptions

General assumptions are summarised in Table D.1. It should be noted that costs and benefits have been calculated beginning in the 2008-09 financial year. However, values are expressed in 2007-08 dollars.

Table D.1: General assumptions

Category		Assumption	Source/explanation
Financial	Discount rate	3.5%	DTF recommended rate
	Dollars	2007-08	Current year
Time	Average weekly earnings (AWE)	\$1,113.40	ABS Cat. No. 6302.0
	Hours in a week	37.5 hours	Standard estimate
	On-cost/overhead factor	1.853	This on-cost factor has been reverse-engineered so that the average hourly earnings are \$55 as per the <i>Victorian guide to regulation</i>
Waste industry	Number of waste generators	10,000	EPA
	Number of waste transporters	1578	EPA
	Number of treatment plants/waste disposal facilities	160	EPA
	Number of participants in waste industry	3700	ABS (2003)
	Total prescribed industrial waste	853,169.96 tonnes	EPA (accounts for the spike in prescribed industrial waste sent to landfill in 2007-08, ahead of the introduction of higher landfill levies. The 2007-08 figure has been reduced by 200,000 tonnes to account for this spike. The 2008-09 figure has been further adjusted to account for estimated inappropriate disposal (4%).
	Change in prescribed industrial waste per year	1.1%	EPA – Future year estimates grow at a rate of 1.1% (which is the historical growth rate), over the 2008-09 figure.
VPS Salary	VPS Grade 2	\$43,668.00	Salary costs are taken on the mid-point for the pay grade per VPS level
	VPS Grade 3	\$55,548.50	
	VPS Grade 4	\$66,296.50	
	VPS Grade 5	\$79,193.50	
	VPS Grade 6	\$102,776.00	

Category	Assumption	Source/explanation	Category
EPA FTE staff required (all options)	VPS Grade 2	4.25	EPA estimate
	VPS Grade 3	5.0	
	VPS Grade 4	11.26	
	VPS Grade 5	5.33	
	VPS Grade 6	0.59	

From 1 July 2008 the landfill levy increased from \$130 per tonne to \$250 per tonne for Category B waste and from \$50 per tonne to \$70 per tonne for Category C waste. As a result, there was a spike in the amount of waste disposed of in May and June 2008. This spike varied from the trend in waste to disposal and therefore an adjustment has been made to the total prescribed industrial waste figure recorded by EPA. The adjustment of 200,000 tonnes has been calculated based on the trend from previous years.

Waste management

There are a number of ways in which the waste produced by industry can be managed. Options are:

- inappropriate disposal
- reuse/recycling
- used as an energy source
- disposal to landfill – either to Lyndhurst (with stricter management requirements) or a municipal or public landfill.⁶⁷

The management of the waste will depend on the regulations and incentives in place. EPA has estimated the way that the waste is managed for each option using a percentage for every type of management alternative. The expected waste management methods within two years of the change in regulations are shown in Table D.2.

Table D.2: Management of waste

	Option 1	Option 2	Option 3	Option 4	Option 5
Disposed inappropriately	40 %	4 %	16 %	14 %	3 %
Reused/recycled	10 %	24 %	20 %	30 %	40 %
Used as an energy source	4 %	4 %	4 %	4 %	4 %
Disposed – Lyndhurst	5 %	14 %	12 %	12 %	10 %
Disposed – Municipal/public landfill	41 %	54 %	48 %	40 %	43 %

The estimates set out in Table D.2 have been derived with reference to observed data of the allocation of waste under the current system, with this ‘status quo’ allocation of waste presented in the column for Option 2.

Under the status quo option, the allocation for disposal at a municipal/public landfill (54 per cent), the allocation for disposal at Lyndhurst (14 per cent) and the allocation for waste used as an energy source (four per cent) are taken from EPA’s certificate data. The allocation for the amount reused/recycled and the amount disposed of inappropriately is derived from the TransCert waste certificate database, data from landfills, exemption data and data provided by companies as part of their EPA licence requirements. This provides a high-level view of how much waste is

⁶⁷ Note that treatment has not been included as a management option as it is how the waste ends its life as waste that is the focus of these assumptions. Treatment is assumed to be used to treat waste to a lower hazard to dispose of in landfill or to treat the waste to be used for reuse or recycling.

reused and how much is inappropriately disposed of. Data is not available for the assessment of these trends over time for the amount reused/recycled and the amount disposed of inappropriately.

For the amount considered to be inappropriately disposed of, almost all of this waste is sent to municipal landfill when it should have been treated down to a lower category of waste or should have gone to Lyndhurst.

The allocation for the other options has then been estimated by reference to what is expected to occur under those options relative to the status quo. These estimates have also been informed by the feedback from stakeholders as part of the consultation survey. For example, under a no-regulation option (where prescribed industrial waste will no longer be defined) it is expected that waste disposed at Lyndhurst will be greatly reduced and, hence, generators of waste will avoid any potential for landfill levies. Moreover, it is expected that waste generators would dispose of their waste closer to their operation. Hence, disposal at Lyndhurst will be lower yet disposal at municipal landfills will increase relative to the status quo. Municipal waste is expected to increase, as it is expected that there will be an increase in Category A and B waste disposed of inappropriately in municipal waste (this is reflected in the inappropriate disposal figure). In this regard, EPA is confident that the relativities are robust, although it is acknowledged that the estimates are precisely that; estimates of what is likely to happen in the event that the regulatory regime changed.

As was seen in the survey of stakeholders, close to 70 per cent believe that, if there were no regulations, then waste would be inappropriately disposed of. For the purposes of this impact analysis, inappropriate disposal has been interpreted as both dumping and permanent storage at sites other than landfill, as well as disposal at municipal landfill, where previously the waste would have been treated and/or then disposed of at Lyndhurst. It is still expected, under a no-regulation option, that some waste will continue to be used as a fuel source, as there are commercial reasons for doing so and, for the same reason, some waste will still be recycled and reused.

Under the other options, the main difference relates to whether waste is inappropriately disposed of or whether it is sent to municipal landfill or reused. There is an expectation that, under the proposed regulations, reuse will be higher, as there is a commercial incentive under Option 5 (relative to the current situation) for waste generators to avoid administrative costs by reusing or recycling waste. If they do so, then the requirements for certificates and record keeping are reduced or eliminated (again, relative to the status quo). Coupled with the fact that the landfill levies will be avoided, it is expected that Option 5 will lead to lower inappropriate disposal, greater recycling and reuse and lower levels of landfill than is currently the case.⁶⁸

In addition to improved incentives, an increase in the amount of waste recycled and reused from the current 24 per cent to the proposed 40 per cent is based on advice from stakeholders regarding the current impediments to recycling and reuse. During consultation approximately five different companies noted that the proportion of recycling and reuse could be significantly increased if the administrative or regulatory obstructions to reuse and recycling were reduced or removed. For example, the inability for sub-products or by-products of production to be considered a product in and of themselves was noted as an obstruction, as the system regulated these as prescribed industrial waste.

Some industry stakeholders noted that a number of these materials could be reused in other manufacturing processes without the need for any treatment or reprocessing. However, classification as prescribed industrial waste meant that reuse of that material could only occur if approved through the prescribed industrial waste reuse exemption process. An example of this is a large chemical manufacturer in Melbourne's west that, through its process, generates a wax residue. Under the existing regulatory system this wax residue was considered a prescribed industrial waste and consigned to landfill, while it could be viably reused without any treatment or reprocessing by another manufacturer as a wax-substitute. A prescribed industrial waste reuse exemption had to be approved in order to facilitate this reuse, a process that took many months and involved significant costs to all parties.

The amount of waste inappropriately disposed of has been estimated to decrease from four per cent in the current regulations to three per cent in the proposed regulations. The 25 per cent decline in inappropriate disposal is directly related to the improved clarity and the reallocation of compliance and enforcement resources in the proposed regulations. As the proposed regulations will only focus on waste that is sent to landfill, EPA will be able to dedicate greater resources to the oversight of landfill waste and industry compliance with the regulations. There is expected to be a 36 per cent decrease in the administrative requirements on industry. While not necessarily directly related, a corresponding decrease in EPA's cost would mean around \$1 million in administrative savings that could be reallocated to compliance and enforcement. EPA expects that increased clarity and greater focus of compliance will decrease the amount of waste inappropriately disposed.

⁶⁸ The expectation under the proposed regulations is that recycling and reuse will increase from the current 24 per cent to 40 per cent. This is expected to be mainly due to the streamlined exemption process. Sensitivity analysis was undertaken to assess the impacts of using a lower recycling/reuse percentage and the results showed that this does not change relativities between the net outcomes of the options or the overall conclusions.

Under the proposed regulations there will be some waste that will no longer be classified as prescribed industrial waste. This is waste that has a direct beneficial reuse, or that will be defined as being below the bottom limit of Category C. As the base threshold for Category C will be determined as part of a separate process, it is difficult to estimate how much waste will no longer be regulated. However, it is expected to be less than one per cent. As there is a degree of uncertainty as to how much waste will no longer be defined as prescribed industrial waste, the current volume has been taken as the basis for the analysis. Nevertheless, if the total amount of waste was reduced in the analysis this would result in increased benefits and decreased costs under the proposed regulations. Using the current volume of waste in the analysis provides the most direct comparison of the proposed regulations relative to costs.

Industry stakeholders believe that, if material such as this could be managed as a product, the unnecessary – but significant – compliance costs associated with negotiating an exemption could be avoided and greater rates of reuse could be achieved. The determination of each of the percentages of prescribed industrial waste being recycled or reused has been included in Table D.3.

Table D.3: Determination of recycling/reuse

	Percentage recycled	Derivation
Option 1	10 %	The base case is lower than the current rate of recycling because the costs of alternative management options are lower. This is because there are no landfill levies and there is no incentive to spend money on researching the value of the resource – it's easier just to dispose of any prescribed industrial waste.
Option 2	24 %	The current rate of recycling/reuse has been derived from the TransCert waste certificate database, data from landfills, exemption data and data provided by companies as part of their EPA licence requirements.
Option 3	20 %	Option 3 is lower than Option 2 because, without tracking systems and administration requirements, inappropriate disposal will increase. While recycling/reuse will be cheaper than Option 2, a lower level will be recycled because inappropriate disposal will increase.
Option 4	30 %	Option 4 is expected to be higher than Option 3, as an education campaign will encourage reuse and recycling. However, because there is no tracking or record keeping, we expect inappropriate disposal to be high and thus recycling and reuse would not be as high as Option 5.
Option 5	40 %	<p>Under the proposed option, where the waste has a direct beneficial reuse, the waste is no longer classed as prescribed industrial waste, and thus an exemption or the use of transport certificates is no longer required. This facilitates reuse and recycling through a significant reduction in the administrative burden, as seen in section 8.4.</p> <p>As the exemption process is streamlined in comparison with current regulations, it will be less onerous and/or time consuming for producers to apply for an exemption where one is required. It is therefore anticipated that there will be an increase in the number of exemptions applied for and granted. Thus, reuse and recycling levels will rise accordingly.</p> <p>The changes above will also facilitate reuse and recycling as, previously, some firms missed out on opportunities due to the time required to gain an exemption, i.e. by the time they received/would have received an exemption, the business opportunity no longer existed. This was mentioned independently by approximately five stakeholders during consultation, suggesting concerns are widespread throughout industry. Once this perception changes in industry, it is expected (and strongly believed by EPA) that businesses will become more willing to explore reuse and recycling opportunities. Moreover, once this occurs, knowledge of reuse and recycling opportunities will be disseminated through the business community through the example of 'first mover' businesses. A two-year time delay (as shown in table D.5 below) has been used to model the time that businesses will take to react to the change in regulations.</p> <p>The reduced time required for administrative requirements under the proposed option will free up businesses to seek opportunities for reuse and recycling, where it is economic to do so.</p> <p>Under the current Regulations businesses may simply struggle to find enough time to invest in applying for exemptions (scarce labour); thus, even when it makes economic sense to reuse and recycle waste products, they may elect to concentrate on their core business. Reuse and recycling opportunities may thus 'fall off their radar'.</p> <p>The reduction in administrative burden may make opportunities to reuse and recycle – that are considered to be borderline in terms of profitability – more attractive. Businesses are thus more likely to pursue them.</p>

The results from the stakeholder surveys are used to formulate a view of how waste will be managed under no regulations. The survey suggests that, in the absence of a regulatory framework (Option 1), 69 per cent of industrial waste would be disposed of inappropriately. ‘Disposed of inappropriately’ may be defined as illegal dumping of waste or dumping of waste in a landfill that has not been designed to accept that waste.

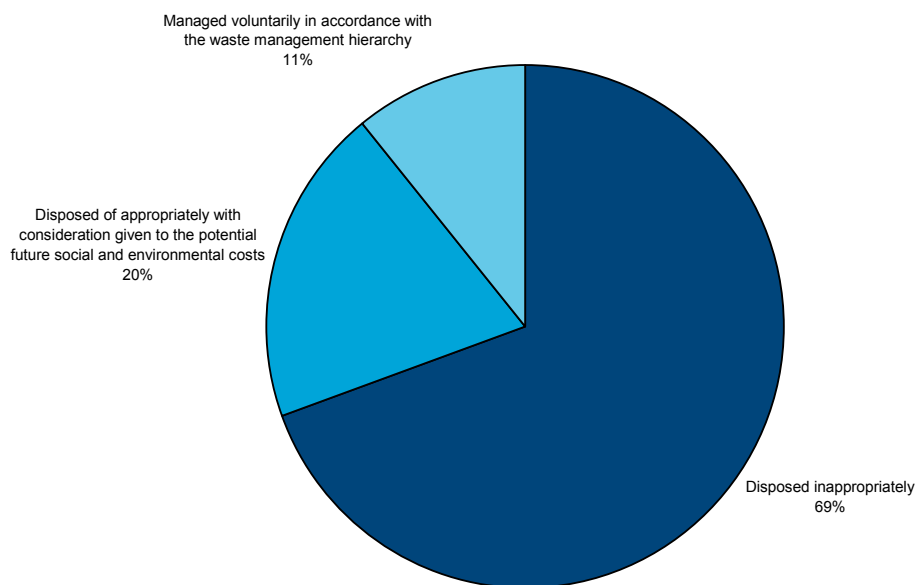


Figure D.4: Management of waste without regulations

This suggests that 20 per cent of waste will be disposed of appropriately. However, the nature of that disposal may not follow the principles of the waste hierarchy. For example, a hazardous waste that could be an input into another production process (in other words, reused or recycled) may be disposed of in a landfill, so it will not cause adverse harm to the environment or the community – however, it is not the most favoured destination for the waste.

A change in the way that waste is managed is expected to occur over the first two years of the regulatory period. The two-year delay in change in management is based on stakeholder feedback that produced significant anecdotal evidence of existing opportunities for reuse and recycling that are not pursued due to the unwieldy nature of the current exemption process (for example, lack of certainty and the time-consuming nature of the process). And also, on the basis of this consultation and EPA’s experience as the regulator, EPA considers a two-year period as sufficient for firms to adjust to the new regulations and take advantage of the streamlined reuse and recycling provisions.

Consequently, the management of waste is calculated using the following formula:

$$\text{Management of waste} = (A + 9B) / 10$$

where:

A = Current waste management

B = Proposed waste management.

The resulting average management outcome over the regulatory period for each option is shown in the table below.

Table D.5: Management of waste

	Option 1	Option 2	Option 3	Option 4	Option 5
Disposed inappropriately	36.4%	4.0%	14.8%	13.0%	3.1%
Reused/recycled	11.4%	24.0%	20.4%	29.4%	38.4%
Used as an energy source	4.0%	4.0%	4.0%	4.0%	4.0%
Disposed – Lyndhurst	5.96%	14.0%	12.2%	12.2%	10.4%
Disposed – municipal/public landfill	42.3%	54.0%	48.6%	41.4%	44.1%

Table D.6: Costs associated with waste management

Category	Cost per tonne (\$)	Source
Landfill levy cost for Category B PIW	250	Schedule E, <i>Environmental Protection Act 1970</i>
Landfill levy cost for Category C PIW	70	

Administrative costs

Administrative costs are the costs incurred by firms to demonstrate compliance with the regulations; or to allow the State Government to administer the regulations. This includes costs associated with familiarisation of requirements, record keeping for the requirements and reporting, including inspection and enforcement of regulation.⁶⁹

The current Regulations and some of the proposed options for regulatory change include administrative requirements that will impose costs on both industry and government.

Industry costs

The stakeholder survey conducted as part of the review sought responses from industry on how long particular requirements took. Industry stakeholders were asked:

Please indicate how long it takes to complete the following regulatory requirements in per year full time equivalents (FTE). For example, if an annual return takes one person 3 hours per year, and another person (e.g. manager) 1 hour per year, this is equivalent to 4 hours per year FTE. Or, if record keeping takes 1 person, 6 hours per month, this is 72 hours per year FTE.

The regulatory requirements included in the survey were: application for permit to transport prescribed waste; transfer or amendment of transport permit; preparation of an annual return; transport certificate (each relevant component); record-keeping requirements; application for an accredited agent; application for exemption; and application for accreditation as prescribed waste producers.

Forty-four industry participants provided data in response to this question. The survey was anonymous, so it is difficult to determine the spread of small versus large companies. The administrative costs for each of the administrative requirements are outlined in Table D.7.

The outliers for each of the responses were excluded from the analysis. The average of the remaining responses was taken to determine the time spent on each administrative requirement per year. This data was then verified by EPA experts. For the purposes of assessing the specific administrative burdens under the 'Reducing the Regulatory Burden' initiative, a standard cost model estimate of these savings will be undertaken following the making of the proposed regulations.

The current exemption process takes four hours to complete. Under the proposed regulations this process is expected to halve the administrative time for industry. The halving of time through the improved clarity and removal of the need for approval is expected to increase the number of businesses seeking exemption.

⁶⁹ Government of Victoria, 2007, *Victorian Guide to Regulation*, Department of Treasury and Finance, Melbourne, p. 4-33

Table D.7: Industry cost assumptions

Administrative requirement	Range of results (hours per full-time equivalent)	Hours per year (full-time equivalent) ⁷⁰	Number per year	Cost	Source
Initial application for transport permit	0–200	12	256		Online/paper survey EPA
Transfer or amendment of transport permit	0–50	5	86		Online/paper survey EPA
Transport certificate	0–2100	6 (generator) 6 (transport) 6 (receiver)	46,004.54 (Online – Increasing by the substitution away from paper from the previous year) 88,877.18 (Paper – declining at approximately 2% p/a, based on historical trends)	\$0.50 (online) \$5 (paper)	Online/paper survey EPA
Record keeping requirements	0–400	23	Per generator, transporter, receiver		Online/paper survey EPA
Annual returns	0–100	20	300 (1,578 eligible)		Online/paper survey EPA
Application for exemption (Option 2)	0–100	16 (licensing of premises) 4 (recording of information)	34		Online/paper survey EPA
Application for exemption (Option 5)		2 (recording of information)	81		EPA
Cost of applying for licence				\$12,500 (Scheduled premises RIS notes administration cost)	EPA
Getting to know new regulations		Option 3 & 4 (4 hours) Option 5 (16 hours)			EPA

⁷⁰ Due to the unreliability of the survey results, the number of hours per year for each requirement was adjusted on advice from EPA staff who are responsible for managing administrative requirements.

Government costs

The government also must bear costs related to the administration of regulations. A number of units within EPA dedicate time to the administration, compliance, enforcement, education and policy related to prescribed industrial waste. EPA has provided the following estimates for the resources dedicated to prescribed industrial waste in each unit.

Table D.8: EPA resource requirements

Unit	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
Regional Support Systems	2		3		
Waste Management Unit		1	2	2	
Regional Services			0.8		
Business Sustainability Unit	1	4	2	2	0.5
Special Prosecutions Unit			3	1.33	
Information Technology			0.46		
Office of the Solicitor					0.09
Outsourced resource equivalents	1.25				
Total	4.25	5	11.26	5.33	0.59

Table note: While the above table does not take explicit regard for executive or director time, these resources are accounted for as part of the on-cost factor, as they are not directly attributable to prescribed industrial waste regulation.

The saving in administrative cost is calculated using the administrative requirements under Option 2 (the status quo), compared to Option 5 (the proposed regulations).

Table D.9: Administrative burden reduction – proposed regulations

	Current Regulations (\$)	Proposed regulations (\$)
Application for permit to transport waste	169,011.63	108,020.61
Transfer of amendment of transport permit	23,657.23	15,120.07
Annual return	330,100.83	-
Transport certificate	4,296,680.19	2,746,142.58
Record-keeping requirements	14,647,629.24	9,361,757.59
Application for exemption	4,401.34	4,533.38
Cost of understanding regulations ⁷¹	0.00	1,019,175.32
Total	19,471,480.46	13,254,749.55
	Per-annum saving	6,216,730.90

⁷¹ This cost is to be realised in the first year; however, it has been annualised over the regulatory period.

Economic, environmental and social costs

Economic cost, or opportunity cost, is the value of the product foregone to attain or produce another product. For example, one of the economic costs discussed below is the impact of disposing of prescribed industrial waste that could be reused in another production process. In this case, the economic cost is the value of the reused waste as an input into the production process.

Environmental costs are costs such as resource depletion and impact to ecological processes. The nature of environmental costs means that they are difficult to quantify. The nature and extent of environmental costs depends on the toxicity of the waste disposed and the environment in which it is disposed of.

Social costs are those that are associated with loss in amenity, decreased safety and health impacts. Often social costs can not be quantified. Social costs will vary under each option.

The economic, environmental and social costs for the different waste management options are outlined below.

Landfill costs

In 2006 the Productivity Commission completed an inquiry into waste management in Australia. Appendix B of the Productivity Commission report discusses the environmental and other externalities associated with waste.⁷²

The Productivity Commission concludes that there are a number of external costs of landfill management. Costs include the following:

- **Greenhouse gas emissions:** The methane and carbon dioxide emissions from the landfill contribute to the greenhouse gas effect. Based on US Environment Protection Authority and Australian Greenhouse Office estimates, the Productivity Commission calculates the external costs of greenhouse gas emissions for commercial and industrial waste at between \$5 and \$21 per commercial and industrial tonne of waste disposed of at a properly located, engineered and managed landfill.
- **Other gas emissions:** Other gas emissions produced by landfills, such as benzene and methyl chloroform emissions, can have an adverse effect on human health and the environment. The Productivity Commission estimates these emissions to have an external cost of less than \$1. The low external cost can be explained by the nature of the way in which exposure to the other gas emissions occurs. The Productivity Commission concludes that modern landfills have been set up to minimise the risk to human health and the environment and that, when the gas is emitted into open air, it is expected to be diluted to extremely low concentration.
- **Leachate:** The liquid that is passed through a landfill, which may have become contaminated with organic or inorganic compounds and metals, can cause damage to human health or the environment if it is not contained within the landfill. The Productivity Commission valued the cost of leachate at less than \$1 per tonne of waste, because the likelihood of exposure in Australian landfills is low.
- **Amenity costs:** These costs include the loss in amenity of nearby households and businesses. The Productivity Commission estimates that these costs are less than \$1 per tonne of waste.

The costs for commercial and industrial waste disposed of in a properly located, engineered and managed landfill are outlined in the table below.⁷³

Table D.10: Costs of landfill disposal

External cost	\$ per tonne
Greenhouse gas emissions	5–21
Other gas emissions	1
Leachate	1
Amenity	1
Total external cost from landfill	8–24⁷⁴

72 Productivity Commission 2006, *Inquiry Report no. 38, Waste Management*, 20 October 2006, Canberra

73 Note that the Productivity Commission Inquiry reported a range of figures. The highest figures from the range have been used, as these figures are likely to be calculated on the basis of all commercial and industrial waste. It is likely that the commercial and industrial waste that would be defined as prescribed industrial waste would provide the highest external costs and, therefore, the top of the range is used.

74 Due to the hazardous nature of prescribed industrial waste and its associated externalities, the upper limit of \$24 has been used in all calculations in the cost-benefit analysis. Sensitivity analysis was undertaken to assess the impacts of using the low limit of \$8 and the results showed that this does not change relativities between the net outcomes of the options or the overall conclusions. It actually increases the net benefits of all options relative to the base case. This is due to a proportionally higher value associated with inappropriate disposal.

While the Productivity Commission inquiry did look into commercial and industrial waste, it did not cover wastes that exhibit hazardous characteristics and pose an immediate and unacceptable risk of harm to human beings or the environment. The costs outlined in the table above are likely to be similar to the external costs from a Category C (the lowest hazard) landfill. This means that these costs are likely to be underestimated for disposal of higher hazard wastes. In Victoria, higher hazard Category B wastes can be disposed of at a specially designed and managed landfill. There is only one licensed landfill in Victoria – Lyndhurst.

As a Category B landfill is designed and managed to a higher standard, it is assumed that the external costs from other gas emissions, leachate and amenity will not be any greater than that of a Category C landfill. As the waste has a higher hazard than the Category C, it is assumed that the greenhouse gas emissions will be higher than that of a Category C. For simplicity, it is assumed that this is one and a half times the external cost of a Category C landfill: \$36 per tonne.

Reuse/recycle

It is difficult to find data on the externalities associated with reusing or recycling prescribed industrial waste. The Productivity Commission inquiry into waste management explores two studies that estimate the benefits of reuse and recycling.⁷⁵

The first study, completed by Nolan-ITU for Global Renewables in 2004, compared sending mixed municipal waste to landfill and to an urban resource – reduction, recovery and recycling ('UR-3R') facility. The study suggests that the new environmental benefits from using the UR-3R alternative waste technology are valued at \$230 per tonne of waste. The \$230 in environmental benefits includes:

- upstream benefits, such as the benefits of recycling
- avoided downstream costs, such as the cost of leachate and landfill gas
- benefits of the UR-3R process, such as applying soil conditioner or 'organic growth media' generated from organic waste.⁷⁶

For the purposes of our cost-benefit analysis a number of assumptions regarding this study need to be made in order to apply it to prescribed industrial waste:

- Firstly, the benefits of recycling would be different. Municipal waste is likely to include plastics, cartons, glass and aluminium. Industrial waste is likely to include steel, chemical drums and batteries, which could be argued to have a higher value than municipal waste, and therefore the benefits would be higher than that suggested in the Nolan-ITU study.
- Secondly, industrial wastes are likely to have more severe downstream costs. However, these downstream costs are likely to be offset by higher standards in landfill design for industrial wastes. Therefore, it is expected that downstream benefits for municipal and industrial wastes would be similar.

The second study reported in the Productivity Commission inquiry is the 2001 Nolan-ITU and SKM Economics study on the external benefits of kerbside recycling. They found that the environmental and other benefits of kerbside recycling were valued at \$420 a tonne. This figure comprises:

- Reduced air and water pollution – \$315
- Resource conservation and reduced environmental impacts – \$88
- Reduced greenhouse gas emissions – \$17.⁷⁷

The study assumed 'closed-loop' recycling, where materials collected were recycled back into the same product.

The Productivity Commission believes the air and water pollution benefits are overstated because:

- they do not take into account the effects of upstream policies such as pollution taxes and environmental offsets
- they have been calculated on the basis of occurring in densely populated areas
- they did not apply a discount factor for future benefits of avoided emissions.

The Productivity Commission also argues that the estimates used for resource conservation and reduced environmental impacts may be overstated. This is because of the following:

- The Nolan-ITU and SKM Economics study uses overseas examples as a proxy for external cost to damage of mining land. However, the conditions in Australia, such as the regulations and restrictions that require mining companies to pay for environmental damage, means those overseas examples may not be a suitable proxy for determining the costs in Australia.

75 Productivity Commission, 2006, *Inquiry Report no. 38, Waste Management*, 20 October 2006, Canberra, Appendix B.

76 Ibid, pp. 424-427.

77 Ibid, pp. 448-455.

- The estimate for slower resource depletion is based on the external cost for electricity in Western Australia, which was in turn based on a German study substituting renewable energy for coal in the generation of electricity. This is controversial because the estimates are not based on the extraction of mineral resources. The Productivity Commission goes on to argue that there is no market failure in resource depletion, as the market reacts to a scarce resource through higher prices.
- The values used to estimate the external cost of forest production were arbitrarily selected and there are no published estimates for the environmental impacts associated with forest production that could be reduced by recycling paper and cardboard.

While there are a number of criticisms to the approach used by Nolan-ITU and SKM Economics, it appears to be the closest useful analysis for the purposes of the cost-benefit analysis without conducting primary research on the recycling of prescribed industrial waste. Taking a conservative approach, we can:

- discount the reduced air and water pollution benefits by 50 per cent so that these benefits amount to \$158
- discard the resource conservation and reduced environmental impacts
- include the value of the reduced greenhouse gas emissions of \$17.

The value of the benefits associated with recycling compared with landfill of prescribed industrial waste is then estimated to be \$175 per tonne of waste recycled. If we assume that the landfill of prescribed industrial waste produces costs of \$24 per tonne of waste, then the external cost of waste recycled is negative \$151 (in other words, it is a benefit).

$$\text{Cost} = (A/B) + C - D$$

where:

- A = Reduced air and water pollution
- B = 2 – to discount estimated air and water pollution benefits
- C = Reduced greenhouse gas emissions
- D = Cost of landfill of prescribed industrial waste.

Table D.11: Cost associated with recycling

External cost	\$ per tonne
Total external cost from recycling	-151

Used as an energy source

Incineration is used in Victoria for clinical waste. Thermal waste treatment can lead to external costs such as 'dust, noise, odour, traffic and visual intrusion'.⁷⁸

In the Waste Management Inquiry the Productivity Commission reports that the European Commission has stated:

Although there are differences in the types of nuisances and disamenities associated with living close to an incinerator and close to a landfill, there are also obvious similarities. It would therefore not seem unreasonable to expect a somewhat similar profile of welfare losses associated with a landfill and an incineration plant.

For the purposes of the regulatory impact, we have assumed that waste being disposed of by incineration will have the same external costs as landfill.

Table D.12: Costs associated with use as an energy source

External cost	\$ per tonne
Total external cost from incineration	24

Inappropriate disposal

There appears to be little evidence to help determine the external costs associated with inappropriate disposal. Victoria, along with most Western jurisdictions, prosecutes those responsible for the inappropriate disposal of

⁷⁸ Ibid, p. 444.

industrial wastes, but reporting of the prosecution typically includes the prosecution fine and not the cost that the responsible party has to pay for the clean-up of their inappropriately disposed waste.

For the purposes of the regulatory impact we expect that the nature of the external costs associated with inappropriate disposal would at least be equivalent to the cost of the waste being treated. If this was not the case, then it would cost more to treat waste than society gets back in benefits of having the waste treated. Given the extensive industrial consultation, and the fact that this was not raised as an issue, it would be reasonable to assume that the value to society of treating prescribed industrial waste (avoiding inappropriate disposal) is at least the cost of treatment.

Thus, the value assigned to inappropriate disposal of prescribed industrial waste is expected to be at least the weighted average of the cost of treatment of Category A and Categories B and C. This is calculated as follows.

$$\text{Cost} = ((A/B)*C) + ((D/B)*E)$$

where:

- A = Amount of Category A waste
- B = Total amount of waste
- C = Treatment cost of Category A
- D = Amount of Category B and C waste
- E = Treatment cost of Category B and C waste.

Table D.13: Costs associated with inappropriate disposal

External cost	\$ per tonne
Externality cost	642

Education campaign

This cost relates only to Option 4, where an education campaign has been proposed. The education campaign will:

- communicate regulatory changes to stakeholders
- clarify definitions
- set out options and ideas for waste management, recycling and reuse
- advise best practice
- decrease transaction costs of determining different approaches
- provide market opportunities
- match opportunities.

Table D.14 sets out the assumptions relating to the cost of the education campaign.

Table D.14: Costs associated with education campaign

Cost	Assumption	Reason
Education campaign (first year)	\$50,000	EPA estimate
Education campaign (subsequent years)	\$25,000	EPA estimate

Cost of recycling

This cost relates to the cost for businesses producing prescribed industrial waste to recycle or reuse the waste produced. The cost of recycling has been calculated as the maximum of the weighted average of the landfill levies. The weighted average of the landfill levies has been used as, if the cost was higher, then businesses would send the waste to landfill rather than recycling it. This maximum cost is the ‘net’ cost over and above what businesses receive as payment and does not impact on the negative \$151 considered above, as this is ‘society’s value’, not the recovered industry price. While using the maximum of the weighted average is expected to be the upper bound, and therefore the cost of recycling is likely to be lower, this cost is assumed to illustrate that the options are positive and to highlight the relativities of the options.

$$\text{Cost} = ((A \times B) + (C \times D)) / (B + D)$$

where:

- A = Category B landfill levy
- B = Amount of Category B waste produced
- C = Category C landfill levy
- D = Amount of Category C waste produced.

Table D.15: Cost of recycling assumptions – All Options

	Cost of recycling	Reason
Cost of recycling	\$97	Weighted average of landfill levies

Cost of treatment

This cost is the cost to businesses of treating waste for the different management options. The cost of treatment has been calculated for all options except the base case. This is because, in the base case, the cost of treatment is a business-as-usual cost. The treatment under the base case has been calculated in order to determine the incremental cost of treatment with regulations. The cost of treatment has been calculated as follows.

$$\text{Cost} = ((A - B) \times C) + (D \times E)$$

where:

- A = Amount of Category A
- B = Amount disposed inappropriately
- C = Cost of treating Category A
- D = Amount of Category B and C currently treated
- E = Cost of treating Category B and C.

EPA estimates have been used to calculate the cost of treating the prescribed industrial waste.

Table D.16: Cost of treatment assumptions – Options 2, 3, 4 and 5

	Option 1	Option 2	Option 3	Option 4	Option 5
Amount of Category A less proportion inappropriately disposed (note all Category A must be treated) ⁷⁹ (tonnes)	50,844	93,280	84,128	85,653	94,042
Cost of treating Category A	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
Amount of Category B and C currently treated (tonnes)	23,859	23,859	23,859	23,859	23,859
Cost of treating Category B	\$500	\$500	\$500	\$500	\$500
Total cost of treatment	\$50,843,880	\$93,279,808	\$84,127,910	\$85,653,226	\$94,042,466
Incremental Costs		\$42,435,928	\$33,284,030	\$34,809,349	\$43,198,586

⁷⁹ All of Category A must be treated under current regulations and Options 3, 4 and 5.

Efficiency factor

The proposed regulations will mean that only businesses that send their waste to a landfill will have to comply with transport certificates. Table D.17 outlines the estimated reduction in administrative costs associated with this.

The efficiency factor relating to each of the administrative requirements – application for permit to transport waste, transfer or amendment of transport permit, the filling out of the transport certificate and record keeping – has been calculated using the change in the percentage of waste requiring transport certificates from Option 2 compared to Option 5.

$$\text{Efficiency factor} = (B - A) / A$$

where:

B = Amount of waste requiring transport certificates under Option 5 (waste disposed at Lydhurst and municipal/public landfill) = 55%

A = Amount of waste requiring transport certificates under Option 2 (55% of the waste reused/recycled due to some waste being currently exempted from transport certificates, used as an energy source, and waste disposed at Lydhurst and municipal/public landfill) = 13% + 4% + 14% + 54% = 85%.

The efficiency factor for the exemption application has been estimated by EPA based on the change in the requirements for applying for an exemption under Option 5 compared to Option 2.

Table D.17: Efficiency factor assumptions – Option 5

	Efficiency factor (%)	Reason
Application for permit to transport waste	36	Calculation based on reduction of waste requiring transport certificate
Transfer or amendment of transport permit	36	Calculation based on reduction of waste requiring transport certificate
Transport certificate	36	Calculation based on reduction of waste requiring transport certificate
Record keeping	36	Calculation based on reduction of waste requiring transport certificate

Costs not included in the analysis

Transport costs

Transport costs related to the management of waste have not been included in the analysis. This is because transport costs are a business-as-usual cost that will be the same for each option, including the base case of no regulations.

Assessment costs

Assessment costs relate to Option 5. Part 2 of the proposed regulations will replace the Prescribed Waste Management Decision Framework and Classification provisions currently set out in Clause 11 and Schedule 2 of the Policy. As it is not anticipated that waste producers will need to perform additional analysis under the proposed regulations, this cost has not been included in the cost-benefit analysis.

Draft regulations 6-10 embody the Decision Framework and Classification provisions, requiring producers to assess and classify their waste in terms of opportunities for avoidance (cleaner production), reuse, recycling, recovery of energy, treatment and, finally, hazard posed.

Under the Policy, if a generator fails to apply the Decision Framework and Classification provisions, the Authority can step in to prevent such a failure in the future. Part 2 of the proposed regulations is intended to provide the same capacity. If a producer fails to manage its waste in accordance with Part 2, the Authority can issue a classification to prevent such a failure recurring.

The proposed Part 2 provisions simply reflect the Prescribed Waste Management Decisions Framework and Classification provisions currently set out in the Policy. These provisions would continue under a base case. Part 2 will not be sanctionable under the proposed regulations. Part 2 does, however, provide for the EPA to determine the nature of waste and therefore how it should be managed – although this has rarely been used as a basis for issuing formal management classifications.



APPENDIX E: ONLINE SURVEY QUESTIONS

1. The Future of Hazardous Waste Management in Victoria

*** 1. Who do you represent?**

- government
- an environmental group
- a community group
- industry - waste generator
- industry - waste transporter
- industry - waste treater
- industry - storage of waste
- other

If other, please specify

2. The existing regulatory system

These questions relate to the perception of the existing regulatory system.

2. How would you rate the clarity of the current hazardous waste regulatory framework?

- Very Unclear Unclear Indifferent Clear Very Clear

3. How would you rate the current regulatory system in terms of protecting and enhancing Victoria's environment?

- Very Ineffective Ineffective Indifferent Effective Very Effective

4. How would you rate the current regulatory system in terms of growing Victoria's economy by supporting industries producing industrial waste?

- Very Ineffective Ineffective Indifferent Effective Very Effective

5. How would you rate the current regulatory system in terms of supporting the happiness and wellbeing of all Victorians?

- Very Ineffective Ineffective Indifferent Effective Very Effective

6. Do you believe that the current hazardous waste regulatory framework allows for flexibility in applying the waste management hierarchy, an objective of the current framework?

(For information on the waste management hierarchy follow this link:

<http://www.epa.vic.gov.au/waste/#hierarchy>)

- Yes
 No
 Unsure

3. The new regulatory framework

7. Do you believe that the Government objective of no high hazard waste (category A or B) disposal to landfill by 2020 is realistic?

(For information on the hazard waste classification system follow this link: http://www.epa.vic.gov.au/waste/prescribed_waste.asp#hazard)

- Yes
- No
- Unsure

8. Do you believe the current landfill levy that applies to disposing of hazardous waste in Victoria is:

- Too little
- About Right
- Too Much

9. In the absence of a regulatory framework to manage the treatment and disposal of hazardous waste, do you think this waste would be: choose all that apply)

- Managed voluntarily in accordance with the waste management hierarchy (avoid, reuse, recycle, recover energy, treat, contain, dispose)
- Disposed of appropriately with consideration given to the potential future social and environmental costs
- Disposed inappropriately
- Unsure / No opinion



10. Which of the following policy options do you believe should be considered as part of the making of new prescribed waste regulations?

Note: This is neither a comprehensive list, nor an indication of the future regulatory framework.

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
Self regulation by industry with little to no oversight by Government	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Industry oversight by a Government approved third party	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bans on landfill	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Education requirements on alternative approaches or uses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Less reporting and record keeping requirements than compared with current requirements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Incentives or subsidies to encourage change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fees higher than present	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Information provision on alternative approaches or uses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alternative classification of waste	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="text"/>				

4. Additional Industry Questions

If you are not an industry representative, please proceed to Page 5.

11. Do you believe that administration and compliance costs related to the current hazardous waste regulatory framework to be:

Very low
 Low
 About right
 High
 Very high

12. Please rank the following regulatory requirements from less administratively costly to your business (rank 1) to most administratively costly to your business (rank 6):

	1	2	3	4	5	6
Requirements relating to the issuing of certificates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Preparation and provision of waste management annual returns to EPA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Accreditation requirements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Notification requirements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reporting and record keeping requirements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provisions for exemptions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. Please rank the following regulatory requirements based on which one you are most supportive of reforming to reduce costs to your business (rank 1) to which one you are least supportive of reforming to reduce costs to your business (rank 6):

	1	2	3	4	5	6
Requirements relating to the issuing of certificates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Preparation and provision of waste management annual returns to EPA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Accreditation requirements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Notification requirements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reporting and record keeping requirements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provisions for exemptions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please feel free to add comments

14. In applying the waste management hierarchy, please estimate what percentage of your Company's hazardous waste is:

	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Reused	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recycled	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used as an alternative fuel of energy source	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Treated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Contained	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Disposed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Ensure numbers add to 100%. Comments:

15. In applying the waste management hierarchy, please estimate what percentage of your Company's hazardous waste would be reused, recycled, used as an alternative fuel of energy source, treated, contained or disposed in 5 years time:

	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Reused	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recycled	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used as an alternative fuel of energy source	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Treated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Contained	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Disposed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Ensure numbers add to 100%. Comments:

16. Please indicate how long it takes to complete the following regulatory requirements in per year full time equivalents (FTE).

For example, if an annual return takes one person 3 hours per year, and another person (eg. manager) 1 hour per year, this is equivalent to 4 hours per year FTE.

Or, if record keeping takes 1 person, 6 hours per month, this is 72 hours per year FTE.

Application for permit to transport prescribed waste	<input type="text"/>
Transfer or amendment of transport permit	<input type="text"/>
Preparation of an Annual Return	<input type="text"/>
Transport certificate (each relevant component)	<input type="text"/>
Record keeping requirements	<input type="text"/>
Application for an accredited agent	<input type="text"/>
Application for exemption	<input type="text"/>
Application for accreditation as prescribed waste producers	<input type="text"/>

5. Thank You

17. Thank you for your time and energy, your input will be of great assistance to us as we prepare the draft regulatory framework for hazardous waste.

If you would like further information regarding the Prescribed Waste Review please visit:

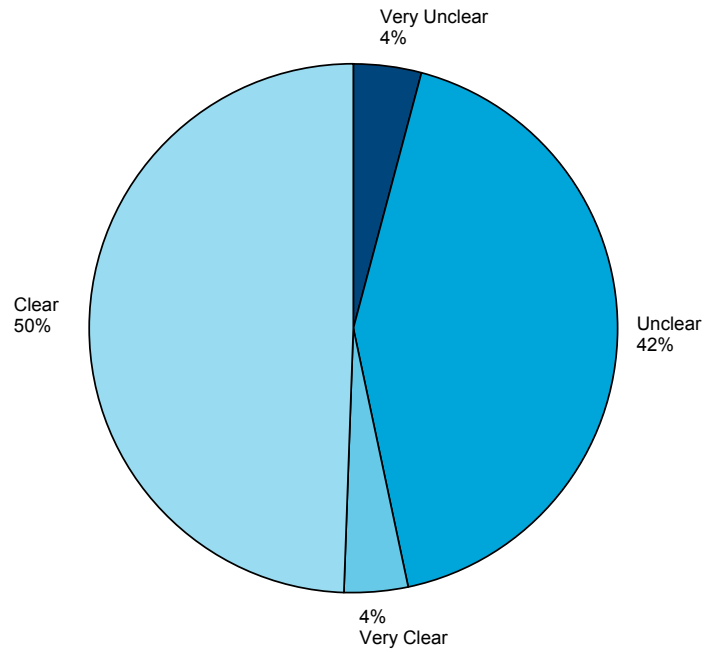
www.epa.vic.gov.au/waste

If you have any further comments, please note them here:

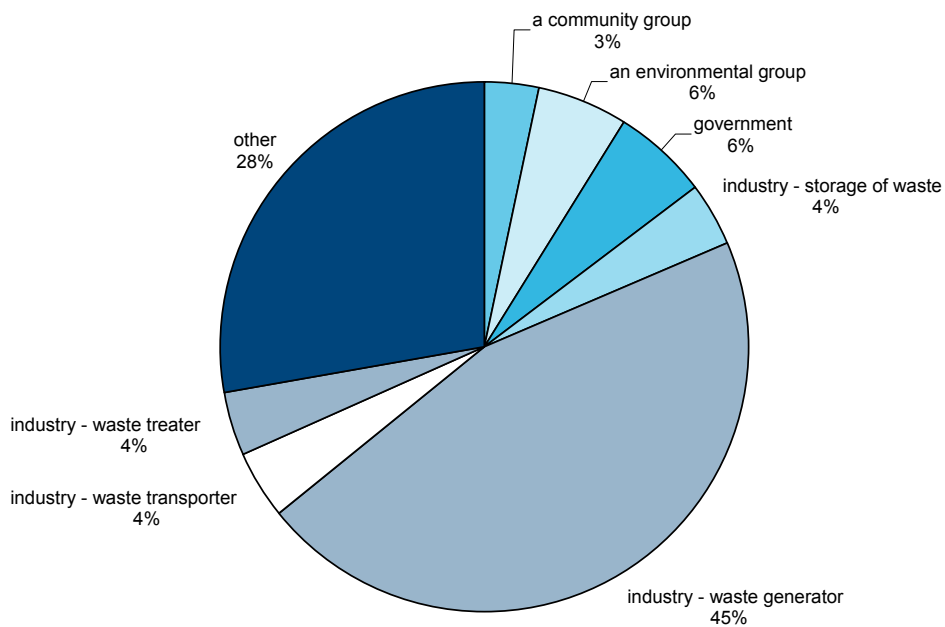


APPENDIX F: SURVEY QUESTION RESULTS

Question 1: Who do you represent?

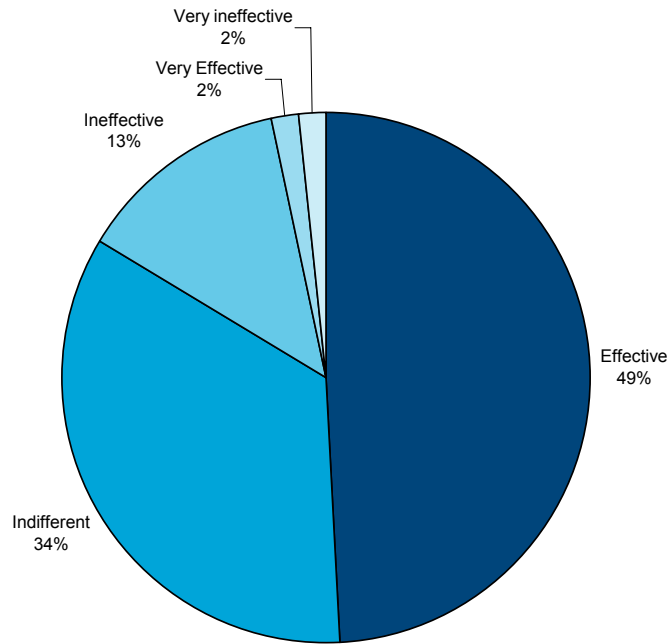


Question 2: How would you rate the clarity of the current hazardous waste regulatory framework?

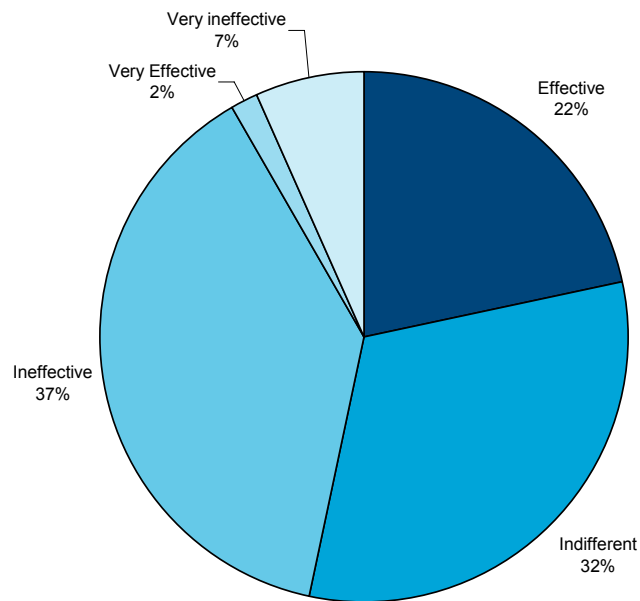




Question 3: How would you rate the current regulatory system in terms of protecting and enhancing Victoria’s environment?

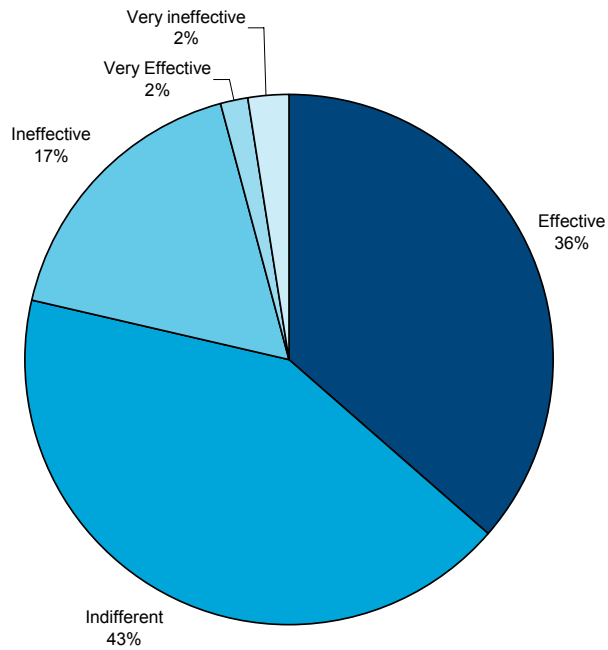


Question 4: How would you rate the current regulatory system in terms of growing Victoria’s economy by supporting industries producing industrial waste?

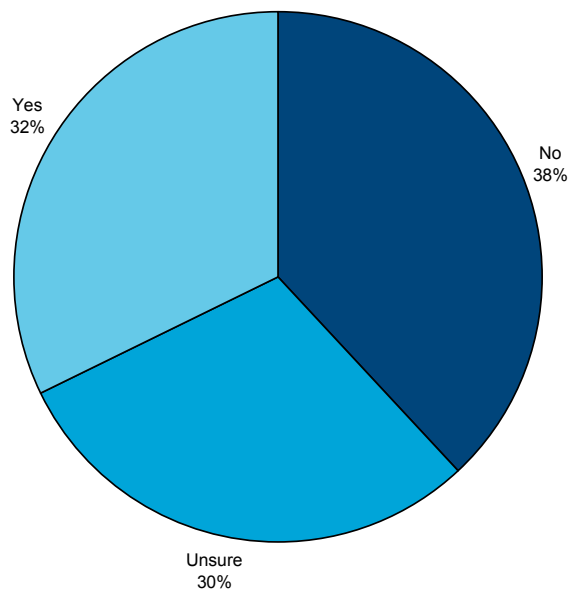




Question 5: How would you rate the current regulatory system in terms of supporting the happiness and wellbeing of all Victorians?

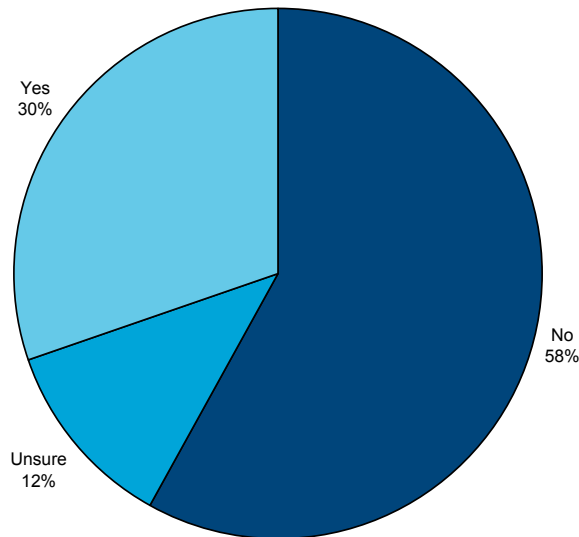


Question 6: Do you believe that the current hazardous waste regulatory framework allows for flexibility in applying the waste management hierarchy, an objective of the current regulatory framework?

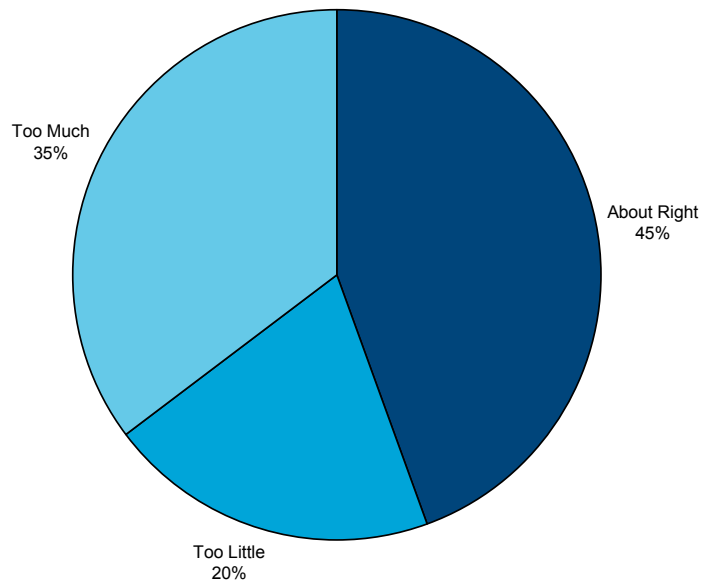




Question 7: Do you believe that the Government objective of no high hazard waste (Category A or B) disposal to landfill by 2020 is realistic?

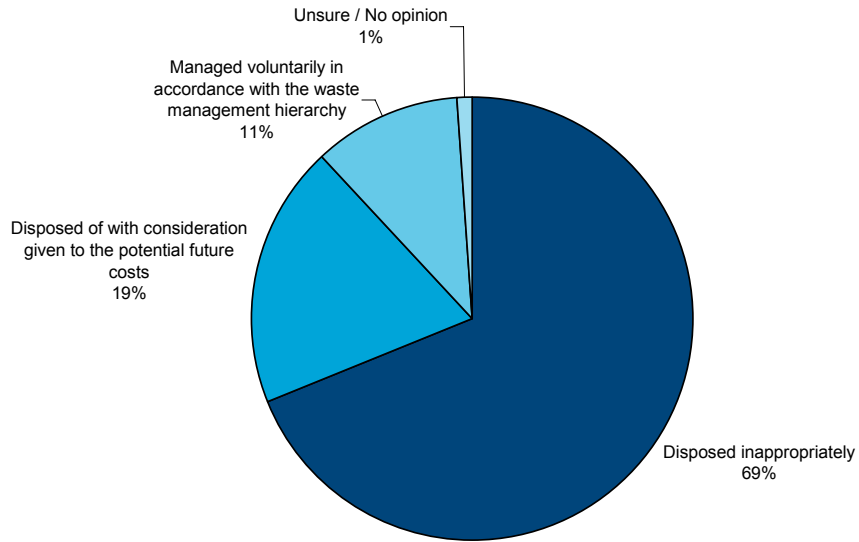


Question 8: Do you believe the current landfill levy that applies to disposing of hazardous waste in Victoria is: too little, about right, too much?





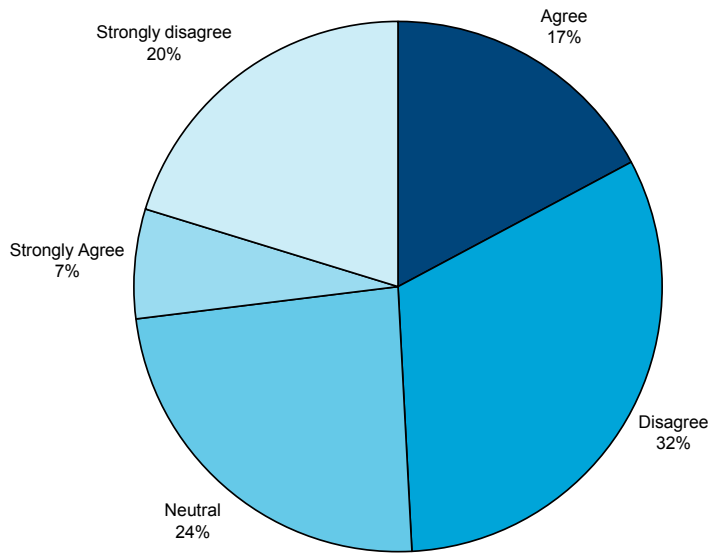
Question 9: In the absence of a regulatory framework to manage the treatment and disposal of hazardous waste do you think this waste would be?





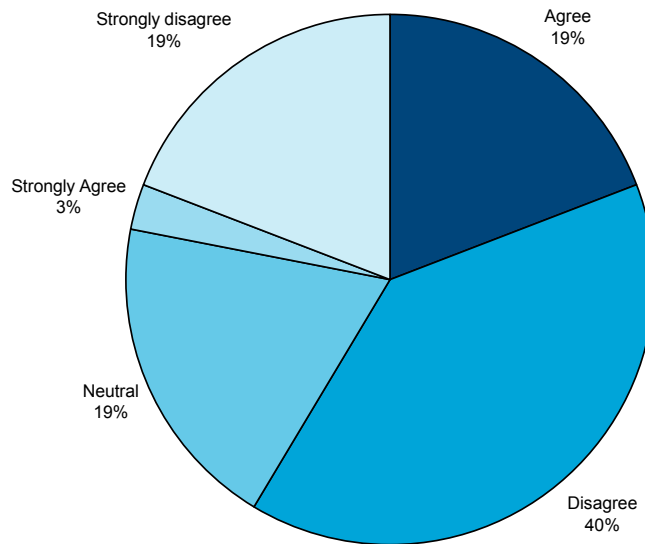
Question 10 Which of the following policy options do you believe should be considered as part of the making of new prescribed waste regulations?

(A) Self-regulation by industry with little to no oversight by government?

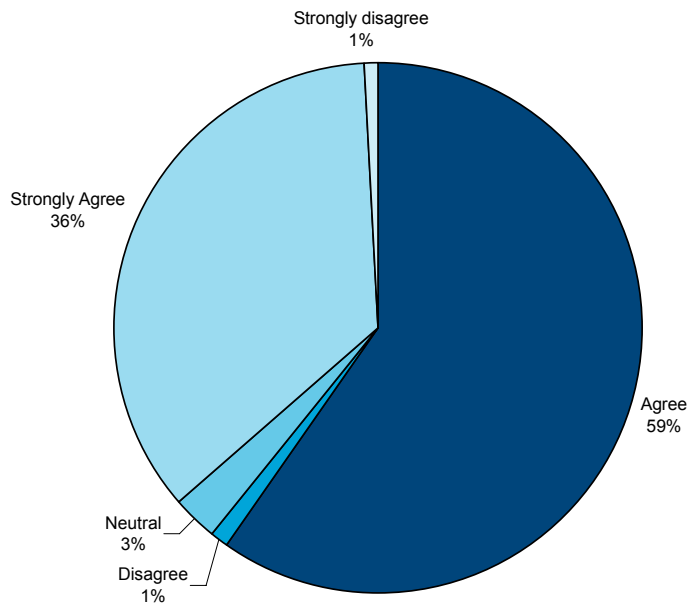




(B) Industry oversight by a Government-approved third party?

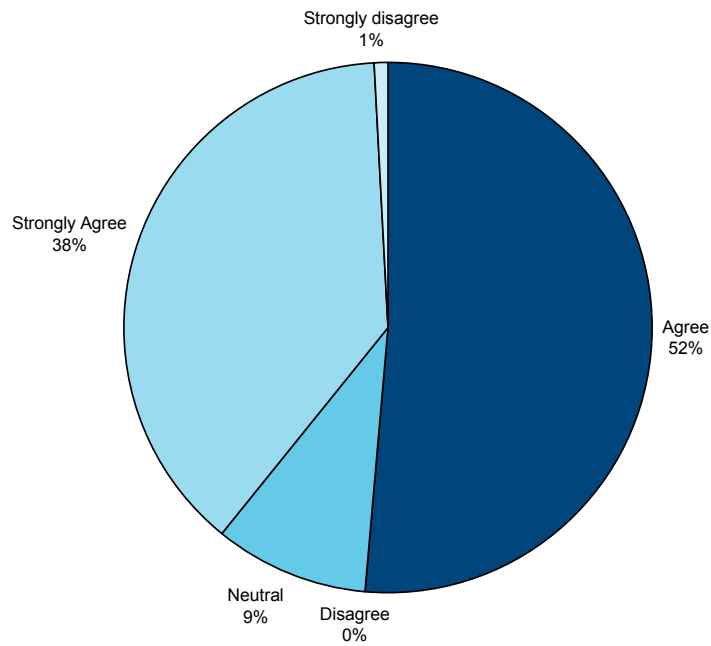


(C) Bans on landfill

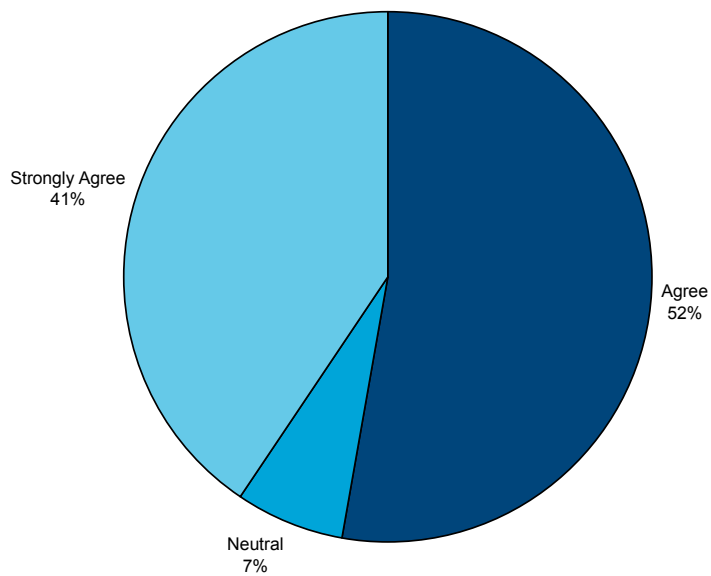




(D) Education requirements on alternative approaches or uses?

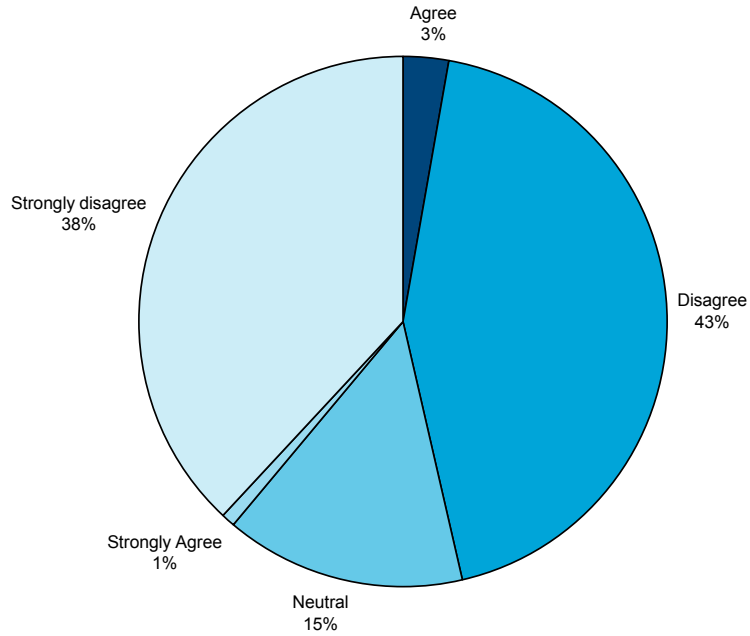


(E) Less reporting and record keeping than compared with current requirements?

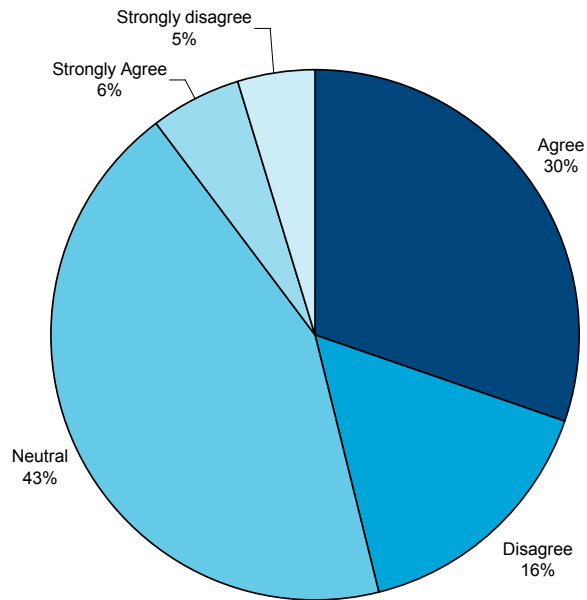




(F) Incentives or subsidies to encourage change?

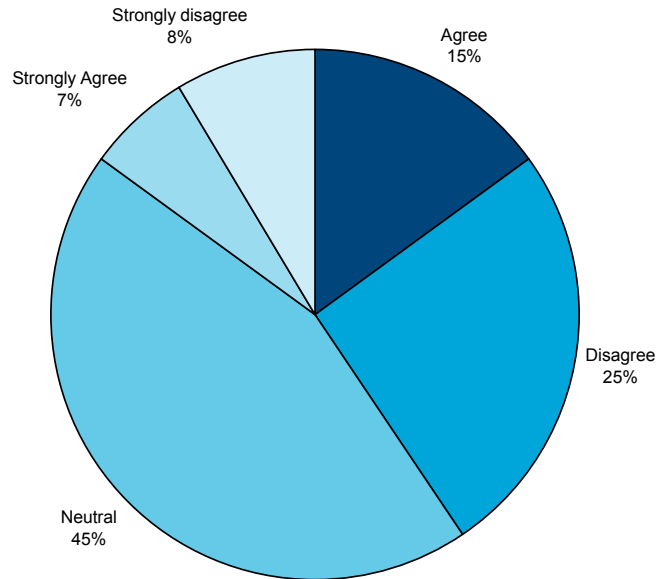


(G) Fees higher than present?

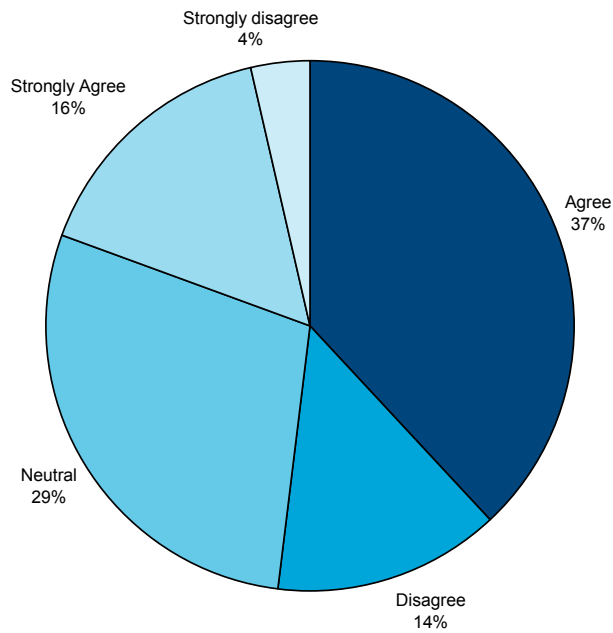




(H) Information provision on alternative approaches or uses?

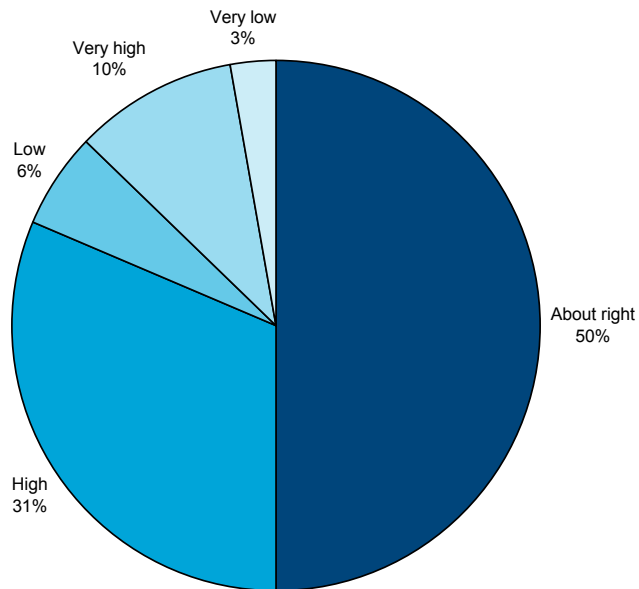


(I) Alternative classification of waste





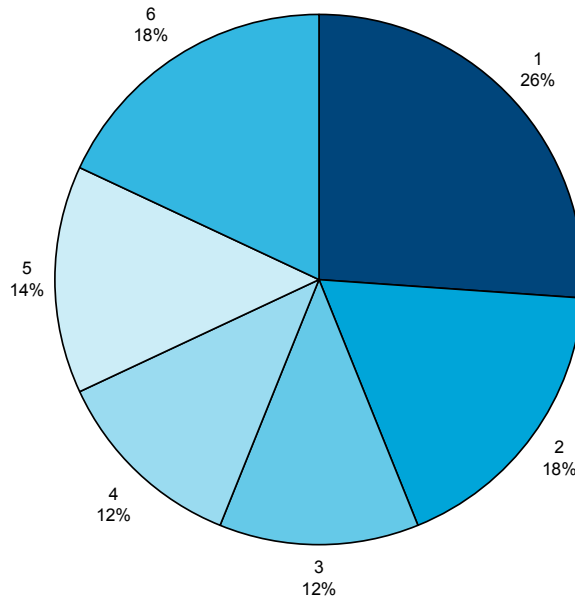
Question 11: Do you believe that the administrative and compliance costs related to the current hazardous waste regulatory framework is:





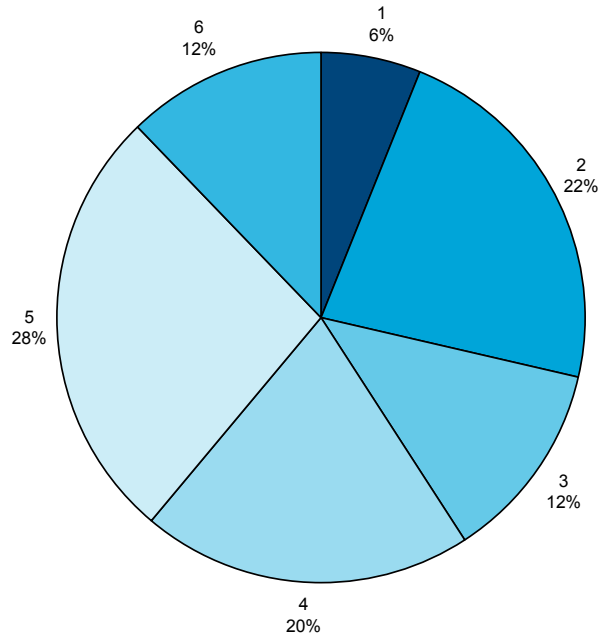
Question 12: Please rank the following regulatory requirements from less administratively costly to your business (rank 1) to most administratively costly (rank 6):

(A) Requirements relating to the issuing of certificates

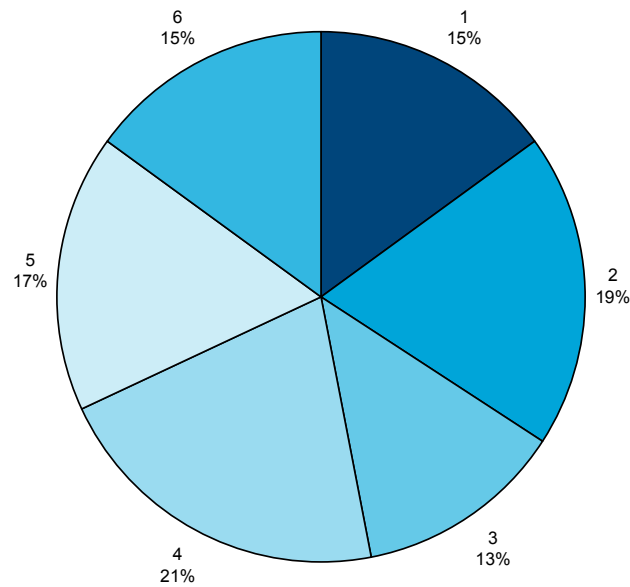




(B) Preparation and provision of waste management annual returns to EPA

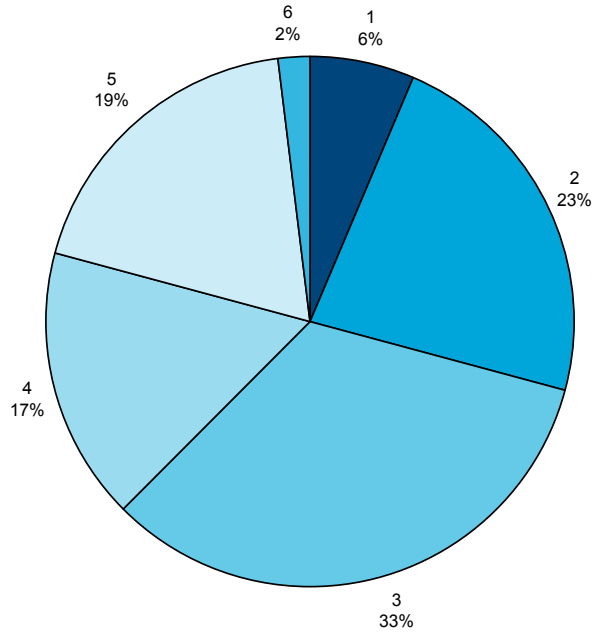


(C) Accreditation requirements

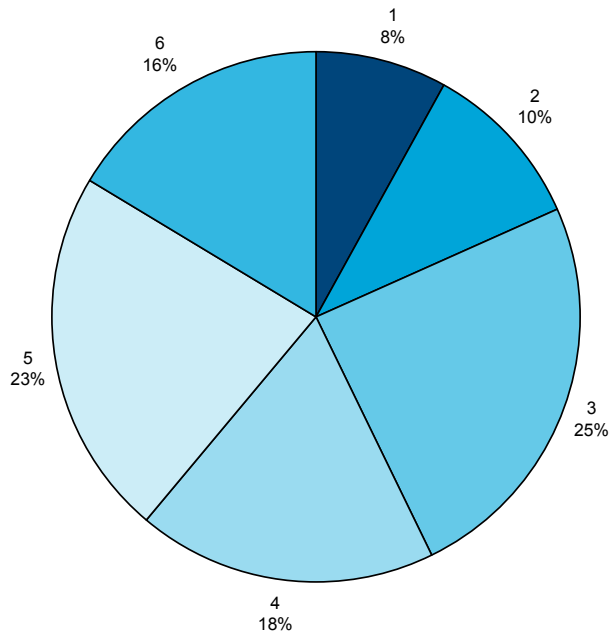




(D) Notification requirements

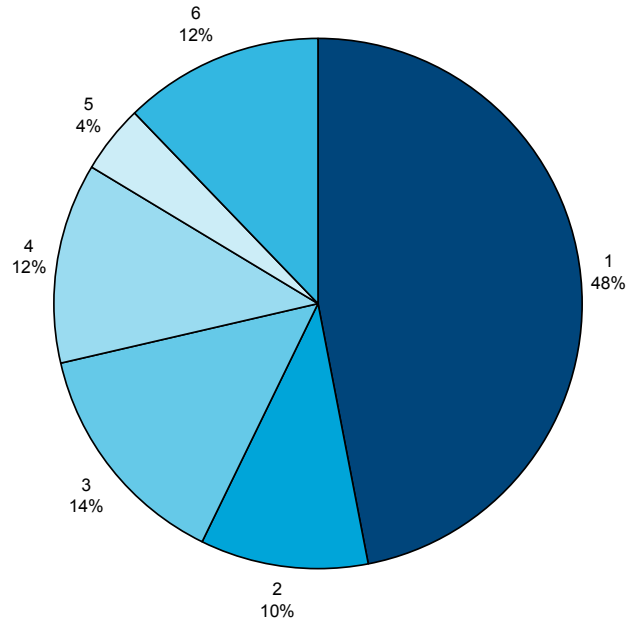


(E) Reporting and record keeping requirements



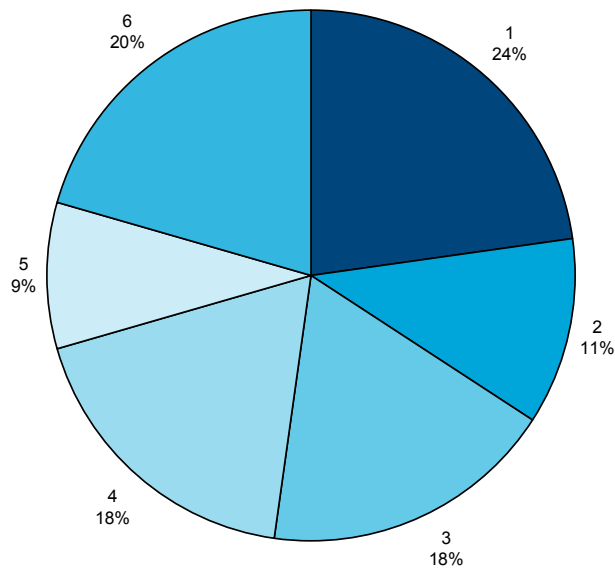


(F) Provisions for exemptions



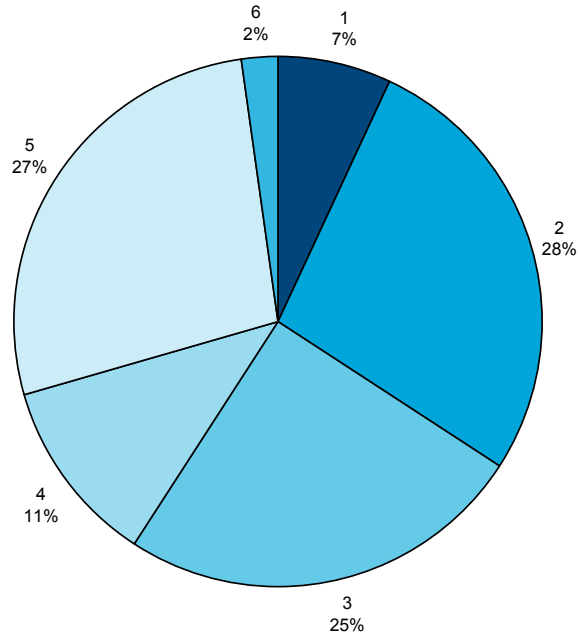
Question 13: Please rank the following regulatory requirements on which one you are most supportive of reforming to reduce costs to your businesses (rank 1) to which one you are least supportive of reforming to reduce costs to your business (rank 6):

(A) Requirements relating to the issuing of certificates

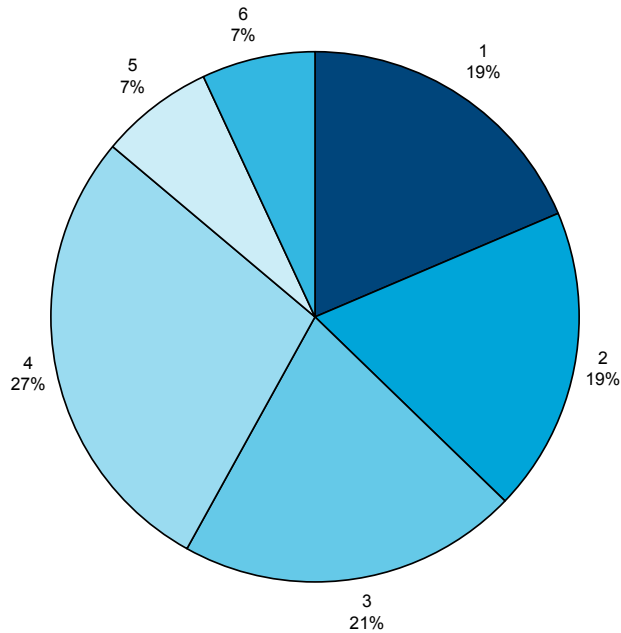




(B) Preparation and provision of waste management annual returns to EPA

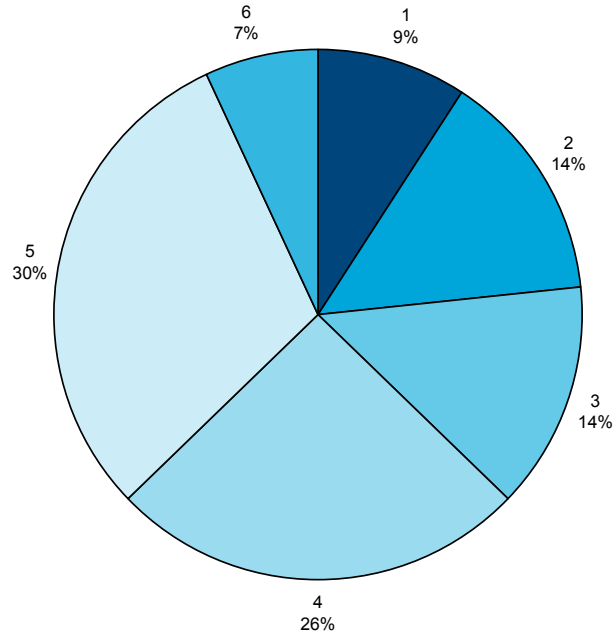


(C) Accreditation requirements

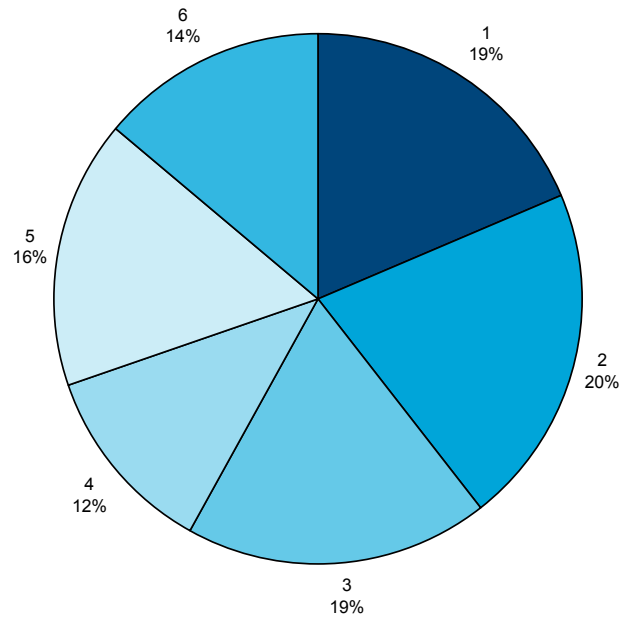




(D) Notification requirements



(E) Reporting and record keeping requirements





(F) Provisions for exemptions

