Dangerous Goods (Storage and Handling) Regulations

WorkSafe Victoria

Regulatory Impact Statement – Dangerous Goods (Storage and Handling) Regulations

September 2012

pwc

Responding to the proposed Dangerous Goods (Storage and Handling) Regulations 2012 and the related Regulatory Impact Statement

Interested organisations and members of the public are invited to make comments and submissions responding to the Regulatory Impact Statement and the proposed Regulations.

Submissions will be received by WorkSafe up to 5pm on 11 October 2012.

Submissions should be made by email to **storageandhandling2012@worksafe.vic.gov.au** or in writing to:

Manager, Stakeholder Engagement and Communications
Legislation, Policy and Information Services Division
WorkSafe Victoria
222 Exhibition Street
Melbourne Vic 3000.

Victorian
Competition & Efficiency
Commission

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20 August 2012

Mr Garry Radley
Manager, Legislative and Regulatory Services
WorkSafe Victoria
222 Exhibition Street
MELBOURNE VIC 3000

Dear Mr Radley

ADVICE ON THE ADEQUACY OF REGULATORY IMPACT STATEMENT

Thank you for seeking advice on the Regulatory Impact Statement (RIS) on the proposed *Dangerous Goods (Storage and Handling) Regulations 2012.*

The Victorian Competition and Efficiency Commission (VCEC) advises on the adequacy of RISs as required under section 10(3) of the *Subordinate Legislation Act 1994* (the Act). I advise that the final version of the RIS received by the VCEC on 16 August 2012 meets the requirements of section 10 of the Act.

The VCEC's advice is based on the adequacy of the evidence presented in the RIS and is focused on the quality of the analysis rather than the merits of the proposal itself. **Therefore, the VCEC's advice that the RIS is adequate does not represent an endorsement of the proposal.**

The VCEC notes the *Victorian Guide to Regulations* requires an assessment of the costs and benefits of sunsetting regulations compared to a base case without regulations in place. For long-standing regulations, such as those that are the subject of this RIS, it can be difficult to establish a base case for this assessment. In this instance, the information from stakeholder consultations, relevant literature and technical views summarised in the RIS provides a basis for assessing the likely costs and benefits, which has resulted in proposed regulations that would reduce the regulatory burden substantially.

In the interests of transparency, it is government policy VCEC's advice be published with the RIS when it is released for consultation.

If you have any questions, please contact RegulationReview@vcec.vic.gov.au.

Yours sincerely

Jeff Hole

Executive Director

Victorian Competition and Efficiency Commission

Disclaimer

This report has been prepared by PricewaterhouseCoopers Australia (PwC) on behalf of the Victorian Government. This document is not intended to be utilised or relied upon by any other persons other than the Victorian Government, nor to be used for any purpose other than that articulated above. Accordingly, PwC accepts no responsibility in any way whatsoever for the use of this report by any other persons or for any other purpose. This report does not constitute legal advice.

The information, statements, statistics and commentary (together the "Information") contained in this report have been prepared by PwC from information sourced through business and industry consultations, publicly available material and from material provided by WorkSafe Victoria (WSV). PwC has not sought any independent confirmation of the reliability, accuracy or completeness of this information. It should not be construed that PwC has carried out any form of audit of the information that has been relied upon.

Accordingly, whilst the statements made in this report are given in good faith, PwC accepts no responsibility for any errors in the information provided by WSV or other parties nor the effect of any such error on our analysis, suggestions or report.

The information used in this report has been: provided by WSV; obtained from business interviews; and sourced from publicly available documents. Within this context PwC has made a number of assumptions regarding this material to establish a model which has been used to frame the economic costs and benefits for the remaking of Victoria's Dangerous Goods (Storage and Handling) Regulations.

It is impossible to predict with complete accuracy the cost and benefits associated with the Dangerous Goods (Storage and Handling) Regulations, but every effort has been made to use the most reasonable assumptions and methods for valuing the costs and benefits.

This document has relied on a number of data sets, none of which have been verified or assured by PwC and is based on the information available at the time of preparation of this report. Results should be seen in context of the terms of engagement. Changes to the underlying assumptions in this model will have material impacts on this analysis.

Executive summary

Dangerous goods are those that pose significant risks to people, property and the environment because of their properties. These properties include flammability; acute toxicity; the ability to react dangerously with other chemicals, either explosively or corrosively; and the ability to react dangerously with air, other metals or articles that lead to spontaneous combustion and corrosion.

Unsafe handling and storage of dangerous goods in workplaces and other premises may result in explosions or fires; serious injuries and death; damage to property and the environment; poisoning, chemical burns and other serious health problems.

Governments have found it necessary to control these risks through legislative and regulatory means because manufacturers, suppliers and users of dangerous goods are unlikely to fully control these risks of their own accord.

The storage and handling of dangerous goods is currently regulated under the Dangerous Goods (Storage and Handling) Interim Regulations 2011 under section 52 the *Dangerous Goods Act 1985*. These regulations are due to expire on 1 December 2012.

The storage and handling regulations assist in reducing the frequency and severity of claims and incidents recorded by WorkSafe Victoria. More importantly, however, the regulations aim to prevent the occurrence of significant incidents. Such incidents result in major damage to property and the environment, as well as multiple injuries and deaths. The cost impact of a such a significant event could run into the hundreds of millions of dollars.

The national model Work Health and Safety (WHS) Regulations offered the opportunity to regulate the storage and handling of both dangerous goods and hazardous substances under the one regime of hazardous chemicals and applying a new classification and labelling system known as the Globally Harmonised System of Classification and Labelling of Chemicals (GHS). The Victorian government has decided not to adopt the model regulations and as a result there is a need to consider the appropriate policy response to meet the desired objective for the safe storage and handling of dangerous goods within Victoria.

This RIS considers a number of options to control the risks associated with the storage and handling of dangerous goods. The first option is to simply remake the current regulations. This would have imposed $171 million worth of compliance and administrative costs on Victorian businesses over the 10 year period in which the regulations would be in place. The second option considered involves remaking the current regulations with a number of changes. Potential changes were only adopted if they decreased the costs on business without impacting on the safety benefits of the regulations.

A non-regulatory option, such as a code of practice, was not considered because WorkSafe Victoria believe that, being non-mandatory, such a code is unlikely to achieve the level of compliance to achieve the desired objective.

After considering the potential changes, the preferred option to control the risks associated with the storage and handling of dangerous goods involves a remaking of the current regulations with the following changes:

- removal of risk assessment requirements

- clarifying the ability to use the current classification and labelling system under the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code), as well as the GHS
- replace the prescriptive requirement on occupiers to report spills, including those that pose no danger, with advice in the Code of Practice on using a risk based approach to incident reporting
- removal of the requirement to keep records of induction and training activities carried out under the regulations
- removal of placarding requirements for retail petrol stations
- extending the notification requirement of manifest quantities from two to five years
- changing the requirement to consult with all persons engaged by the occupier to work at the premises from mandatory to where it is 'reasonably practicable' to do so
- redefining C1 combustible liquids so that it only captures goods that have a flash point that is higher than 60°C but no higher than 93°C to align with the approach taken in the GHS
- other changes that clarify existing requirements.

Under the proposed regulations certain requirements would be placed on manufacturers and suppliers of dangerous goods, as well as any property where dangerous goods are stored or handled. Meeting these requirements will take time, effort and other associated costs that would not exist if the regulations were not in place.

It is estimated that the total cost imposed on Victorian businesses, over the 10 years during which the proposed regulations would be in place, would be $83 million. When compared to simply remaking the current regulations, this represents a 49 per cent decrease in the costs imposed on Victorian business, from $171 million to $83 million.

The costs incurred under the proposed regulations amount to:

- $42 per year per small business, meaning about $8 per employee per year
- $646 per year per large business, meaning about $13 per employee per year.[1]

In terms of the nature of hazards relating to dangerous goods, it could be argued that this is a small price to pay for promoting safety in premises where dangerous goods are concerned.

In order for the proposed regulations to provide a net benefit to society they would need to prevent claims, incidents and fatalities. Avoiding these consequences needs to result in benefits over and above the compliance and administrative costs – in short, the benefits of the 'cure' need to outweigh the costs of the 'disease'.

[1] The 'per employee' estimates have been calculated on the basis that there are, on average, approximately five employees per small business and 50 employees per large business.

In this regard, if the proposed regulations prevented one significant incident in the 10 year period of the proposed regulations then the regulations would likely provide a net benefit to society.

Given uncertainty surrounding the frequency, extent and timing of significant incidents, it is useful to focus on smaller scale incidents. That is, determine the number of claims, fatalities and incidents resulting in property or environmental damage that the proposed regulations would need to prevent in order to provide a net benefit to society.

By way of example, in a situation where the current storage and handling regulations were allowed to expire without replacement and the following level of incidents resulted, then it would be more beneficial to impose the regulatory costs of compliance than to see the following level of incidents:

- 0.6 death per year
- 210 claims (injuries and illnesses that led to a claim) per year
- 375 non-reported injuries and illnesses per year, and
- 78 incidents that led to property and environmental damage.

It is likely that the proposed regulations would prevent an increase to this number of incidents. This number of incidents represents a 40 per cent increase on the current level of incidents experienced under the current regulations. Such an increase is from a low level of current incidents and without regulations it is believed that incidents (small and significant) would increase beyond this point.

Given that this level of incidents is below the number of incidents experienced in the year 2000, it seems reasonable to assume that without regulation in place, the level of these events would be even higher and the safety benefits of the regulations would outweigh the costs.

Any increase in deaths and incidents is unacceptable and concern about this is evidenced by the fact that dangerous goods are heavily regulated throughout all developed countries.

In summary the preferred option as outlined above represents a 49 per cent decrease in costs incurred by Victorian businesses over the life of the proposed regulations as opposed to simply remaking the regulations in their current form. It is also reasonable to assume the preferred option will provide a net benefit to Victorian society over the life of the proposed regulations by preventing an increase in either significant or small scale incidents resulting in deaths, claims, injuries, illnesses and damage to property and the environment.

Contents

Abbreviations

Abbreviation	Description
ADG Code	Australian Code for the Transport of Dangerous Goods by Road and Rail
ANZSIC	Australian and New Zealand Standard Industrial Classification
GHS	Globally Harmonised System of Classification and Labelling of Chemicals
LPG	Liquefied petroleum gas
MFB	Metropolitan Fire and Emergency Services Board
MSDS	Material safety data sheet
NPV	Net present value
NTC	National Transport Commission
OHS	Occupational health and safety
PACIA	Plastics and Chemicals Industries Association
PwC	PricewaterhouseCoopers
RIS	Regulatory Impact Statement
SDS	Safety data sheet
UN	United Nations
WHS	Work Health and Safety

1 Introduction

PwC has been engaged by the WorkSafe Victoria to prepare this Regulatory Impact Statement (RIS) in relation to the remaking of Victoria's Dangerous Goods (Storage and Handling) Regulations ('the proposed regulations').

Under section 7 of the *Subordinate Legislation Act 1994* a RIS must be prepared for the proposed regulations, unless an exemption is issued by the Premier or the responsible Minister. In general terms, a RIS is required for any subordinate legislation that imposes a significant economic or social burden on a sector of the community.

A RIS forms an essential part of the regulatory development process as it considers the appropriateness of regulation in comparison to other non-regulatory options available to Government and the costs and benefits of all regulatory and non-regulatory options. It should also consider the sectors of the community where the costs and benefits will be attributed. The RIS process should ensure that:

- the implementation of regulation only occurs where there is a justified need
- only the most efficient forms of regulation are adopted
- there is an adequate level of public consultation in the development of regulatory measures.

This RIS adheres to the Victorian Guide to Regulation (Edition 2.1, August 2011), which provides a step-by-step guide to preparing RISs.

1.1 Purpose of this regulatory impact statement

To meet the terms of reference and adhere to the requirements of the *Subordinate Legislation Act 1994*, the purpose of this RIS is to:

- identify, establish and determine the extent of the problem that the Government is seeking to address
- specify the desired objectives of intervention
- identify a set of options for Government to address the identified problems
- assess the costs and benefits of these options, and the effectiveness of each option in addressing the problem before establishing a preferred option for Government action
- develop an implementation and evaluation strategy for the preferred option.

1.2 Opportunities for public comment on this RIS

WorkSafe Victoria has undertaken extensive consultation with key stakeholders to inform the development of the proposed regulations prior to release for public comment. Letters were sent to around eighty stakeholders informing them of the review and inviting comments on the operation of the current regulations and suggestions for change. The review process was also advertised on the WorkSafe

Victoria website. In addition, WorkSafe Victoria held meetings with key union, employer, government and emergency services stakeholders at two points during the review process to seek their views on key policy issues and proposals for change.

PwC has also undertaken consultation in the preparation of this RIS. Details of this consultation can be found in Appendix A.

Public comments and submissions are invited on the proposed regulations, in response to information provided in this RIS. All submissions will be treated as public documents. Written comments and submissions should be forwarded no later than 5pm on 11 October 2012 to:

storageandhandling2012@worksafe.vic.gov.au or in writing to:

Manager, Stakeholder Engagement and Communications
Legislation, Policy and Information Services Division
WorkSafe Victoria
222 Exhibition Street
Melbourne Vic 3000.

1.3 Structure of this report

This RIS is structured as follows:

- Chapter 2 provides contextual information in relation to dangerous goods and the regulatory environment.
- Chapter 3 describes the nature of the problems, any regulatory gaps that currently exist and measures the extent of the problems.
- Chapter 4 outlines the objective of government action.
- Chapter 5 considers the options available to government to address the problem in light of the government's objectives.
- Chapter 6 assesses the costs and benefits of each option.
- Chapter 7 discusses the preferred option, including a competition assessment and assessment of the impact on small business.

The Appendices set out the approach to the consultations and cost benefit analysis, and references. A copy of the proposed regulations have been made available from WorkSafe Victoria as a separate document.

2 Context

2.1 Dangerous goods

Dangerous goods are chemicals and articles that pose a physical hazard to people, property or the environment because of their properties. These properties include:

- flammability
- ability to react dangerously with other chemicals, either explosively or corrosively
- ability to react dangerously with air, other metals or articles that lead to spontaneous combustion and corrosion
- acute toxicity.

Petrol, liquefied petroleum gas (LPG), paints, pesticides and acids are examples of commonly used dangerous goods.[2]

Dangerous goods can cause significant damage if they are manufactured, transported, stored or handled incorrectly. Incidents involving dangerous goods can result in explosions or fires, causing death and serious injury, as well as large scale damage to property and the surrounding environment. Unsafe use of dangerous goods can also cause poisoning, chemical burns and other serious health problems.

Victoria's *Dangerous Goods Act 1985* (the 'Dangerous Goods Act') defines dangerous goods in the same way as the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code). The ADG Code classifies dangerous goods based on certain criteria regarding the hazard that items present. There are nine classes and some are subdivided into divisions. The Dangerous Goods Act does not apply to all dangerous goods, for example division 6.2 infectious substances or class 7 radioactive substances. Table 1 identifies dangerous goods that are regulated under the current storage and handling regulations.[3]

[2] Victorian WorkCover Authority, *Dangerous Goods (Storage and Handling) Regulations 2000 RIS*, p. 1.

[3] Explosives are not regulated by the storage and handling regulations but by the Dangerous Goods (Explosives Regulations 2011.

Table 1: Dangerous goods regulated when stored or handled

Type of goods	Description	Reference for classification
Dangerous Goods		ADG Code
Class 2	Gases	
Division 2.1	Flammable gases	
Division 2.2	Non-flammable, non-toxic gases	
Division 2.3	Toxic gases	
Class 3	Flammable liquids	
Class 4	Flammable solids	
Division 4.1	Flammable solids, self-reactive and related substances	
Division 4.2	Substances liable to spontaneous combustion	
Division 4.3	Substances that in contact with water emit flammable gasses	
Class 5	Oxidising substances and organic peroxides	
Division 5.1:	Oxidising substances	
Division 5.2:	Organic peroxides	
Class 6	Toxic and infectious substances	
Division 6.1:	Toxic substances	
Class 8	Corrosive substances	
Class 9	Miscellaneous dangerous substances and articles	
Goods too dangerous to be transported		Regulation 39 of the Dangerous Goods (Transport by Road or Rail) Regulations 2008
C1 combustible liquids	A liquid, other than a flammable liquid, that has a flashpoint higher than 60 degrees but no higher than 150 degrees, and a firepoint less than its boiling point	Regulation 105 of the Dangerous Goods (Storage and Handling) Interim Regulations

Source: Victorian WorkCover Authority, *New Dangerous Goods Laws – What you need to know?*, 2000, p. 3. as amended by WorkSafe Victoria.

2.2 Market for dangerous goods

The market for dangerous goods is difficult to determine due to the broad range of goods they encompass. The market for chemicals is the next best available, although not all chemicals are dangerous goods.

The chemical industry has changed significantly since the Dangerous Goods Act was introduced. Victoria is no longer a significant manufacturer of base chemicals. Production now generally involves smaller manufacturers of specialty chemical products. Demand is being met through imports of both base chemicals and end user products.

There were 1,860 chemical wholesaling businesses in Australia in 2011-12, 28 per cent (or 520) were located in Victoria, generating revenues of $6.6 billion. Annual growth of the Australian chemical wholesaling industry is predicted to be 2.3 per cent from 2012 to 2017.[4] The main growth in Australia's chemical industry to date has been in fertilisers and inorganic chemicals, followed by paints, explosives, pharmaceuticals and cosmetics, although Victoria's share of this growth is limited mainly to paints.[5]

[4] IBISWorld, *Industry Report F4523: Chemical Wholesaling in* Australia, 2012, p. 3.

[5] WorkSafe Victoria, *Workplace Chemicals Strategy* , 2010, p. 5.

WorkSafe Victoria has identified a number of industries, outlined in Table 2, which are likely to store and handle significant quantities of dangerous goods. These industries represent seven per cent of all industries and 14 per cent of Victorian businesses.[6]

Table 2: Industries likely to store and handle significant quantities of dangerous goods

Industry
Industrial and Agricultural Chemical Product Wholesaling
Other hardware goods wholesaling
Pharmaceutical and Toiletry Goods Wholesaling
Fuel retailing
Supermarket and Grocery Stores
Other warehousing and storage services
Scientific testing and analysis services
Building and other industrial cleaning services
Building pest control services
Hospitals
Automotive Body, Paint and Interior repair
Hairdressing and beauty services
Laundry and dry cleaning services
Leather tanning, fur dressing and leather product manufacture
Veneer and plywood manufacturing
Pulp, paper and paperboard manufacturing
Printing
Fixed space heating, cooling and ventilation equipment manufacturing
Non-Residential Building Construction
Higher education
Farming
Secondary schools
Swimming pool operation
Painting and decorating
Plumbing supply and services

Source: WorkSafe Victoria

2.3 Regulatory framework

The Dangerous Goods Act sets out a range of duties for the manufacture, storage, transport, transfer, sale, purchase and use of dangerous goods. The following regulations are made under Section 52 of the Act to facilitate the Act's operation:

- Dangerous Goods (Explosives) Regulations 2011
- Dangerous Goods (High Consequence Dangerous Goods) Regulations 2005
- Dangerous Goods (Transport by Road or Rail) Regulations 2008
- Dangerous Goods (Storage and Handling) Interim Regulations 2011.

The storage and handling of dangerous goods in the workplace would also be covered by the general duties of the *Occupational Health and Safety (OHS) Act 2004* and the OHS Regulations 2007 which contain specific requirements for the control of risks associated with hazardous substances.

[6] Australian Bureau of Statistics, 'Counts of Australian Businesses, including Entries and Exits, June 2007 – June 2011', Catalogue 8165.0, April 2012.

Dangerous goods and hazardous substances are related, the difference being in their classification. Dangerous goods are classified on the basis of immediate physical or chemical effects; such as fire, explosion, corrosion and poisoning on property, the environment or people. Hazardous substances are classified only on the basis of health effects, both immediate and long term, from exposure to those substances.[7]

2.3.1 National work health safety laws

In July 2008 the Council of Australian Governments formally committed to the harmonisation of work health and safety (WHS) laws. The model WHS legislation consists of an integrated package of a model WHS Act, supported by model WHS Regulations, model Codes of Practice and a National Compliance and Enforcement Policy.

Under the national WHS package, dangerous goods and hazardous substances are covered under a single framework for hazardous chemicals and a new hazard classification and hazard communication system based on the United Nations' (UN) GHS.[8]

The GHS includes harmonised criteria for classification of physical, health and environmental hazards. GHS is being progressively implemented in many countries internationally and will be mandatory in Australian jurisdictions adopting the national WHS framework from 1 January 2017. New South Wales, Queensland, Northern Territory and Australian Capital Territory have already adopted and implemented the national WHS framework. Tasmania has delayed commencement until 13 March 2012, Western Australia has announced it would not meet the 1 January 2012 implementation timeframe and South Australia has adjourned debate on their WHS Bill until further notice.

Following a supplementary impact assessment of the national WHS laws, the Victorian Government has decided not to adopt those laws as they currently exist. To ensure the safety of Victorian workers and the community a need therefore exists for the current dangerous goods storage and handling regulations to be reviewed and assessed in order for replacement regulations to be implemented prior to the current regulations sunsetting in December 2012. The replacement regulations are the subject of this RIS.

2.3.2 Dangerous Goods (Storage and Handling) Regulations 2000

The Dangerous Goods (Storage and Handling) Regulations 2000 came into effect following a substantial 'line by line' review of the 1989 regulations, shifting from a highly prescriptive nature to a performance based approach in line with national standards. The 2000 regulations were due to sunset on 5 December 2010 and a review of those regulations commenced in 2009. That review was deferred as a result of the national OHS harmonisation agenda because national WHS laws offered the option to regulate the storage and handling of dangerous goods under that regime. The Dangerous Goods (Storage and Handling) Interim Regulations 2011 (the 'current regulations') were put in place as a temporary measure to ensure the risks associated with the storage and handling of dangerous goods remained controlled. The current regulations are essentially a remake of the 2000 regulations and are due to sunset on 1 December 2012.

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[7] Victorian WorkCover Authority, *New Dangerous Goods Laws – What you need to know?*, 2000, p. 1.

[8] The implementation of the GHS under the model WHS regulations is based on the third revised edition of the GHS, published in 2009.

The current regulations place requirements on manufacturers and suppliers of dangerous goods with respect to the determination of dangerous goods, marking and packaging dangerous goods correctly, and the preparation and supply of information in the form of material safety data sheets (MSDSs). The regulations also place duties on occupiers, who store and handle dangerous goods on their premises. These duties include; identifying hazards and assessing risk; eliminating or reducing risk; obtaining and providing information in relation to labelling, MSDS, manifests, placards and emergency preparation; investigating incidents and reviewing risk.

WorkSafe Victoria considers that the current regulations have worked relatively well and few concerns have been raised about their operation. The terms of reference for the review of existing regulations and development of replacement regulations are:

- The replacement regulations will maintain best practice regulation of dangerous goods storage and handling, thereby ensuring that there is no reduction in safety standards for Victorian workers or the community.
- The review will consider any unintended consequences in the operation of current regulations and recommend remedies where appropriate.
- The review will identify opportunities to decrease costs for business without compromising current safety standards.[9]

[9] WorkSafe Victoria, Internal Communications.

3 Nature and extent of the problem

3.1 Risks of dangerous goods

The properties of dangerous goods — flammability, ability to react dangerously with other chemicals, either explosively or corrosively, and acute toxicity — mean that when they are not stored or handled correctly, they can pose significant risks to people, property and the environment. These risks principally manifest themselves in the following way:

- Human injury – these risks tend to affect a single individual and include superficial chemical burns, poisoning and eye injuries.
- Property damage – spills and leaks of dangerous goods can cause damage to property and the surrounding environment through corrosion and contamination.
- Significant incidents – a significant incident can involve fire, explosion and/or chemical release, and may result in serious injury or loss of life. The incident also affects the surrounding community, environment, and may result in loss of infrastructure and/or services. In large quantities the effects of some dangerous goods incidents can be catastrophic.[10]

These risks are compounded by the fact that dangerous goods are not confined to workplaces, but include retail outlets and domestic premises. The scope of the proposed regulations is broader than typical OHS legislation in that it extends beyond workplaces to all premises where dangerous goods are stored and handled. It is acknowledged that there is a difference in requiring an employer to provide a safe workplace and an occupier of domestic premises to accept certain responsibilities. Unless non-workplaces hold large quantities of dangerous goods they will not have to comply with specific provisions of the proposed regulations, meaning although some non-workplaces will be captured by the proposed regulations, a key focus will be on workplace health and safety.[11]

Although these risks have been better controlled since the introduction of the Dangerous Goods Act and the storage and handling regulations, the underlying risks have not changed significantly since they were first legislated for in Victoria and appear unlikely to change significantly within the period of the proposed regulations because of their chemical properties.

The environment in which these risks operate, however, have changed significantly. As noted in section 2.2, the chemical industry in Victoria has changed significantly since the Dangerous Goods Act was introduced. Victoria is no longer a significant manufacturer of base chemicals. Production now generally involves smaller manufacturers of specialty chemical products. Demand is being met through imports of both base chemicals and end user products as evidenced by Australia's chemical trade outlined in Figure 1.

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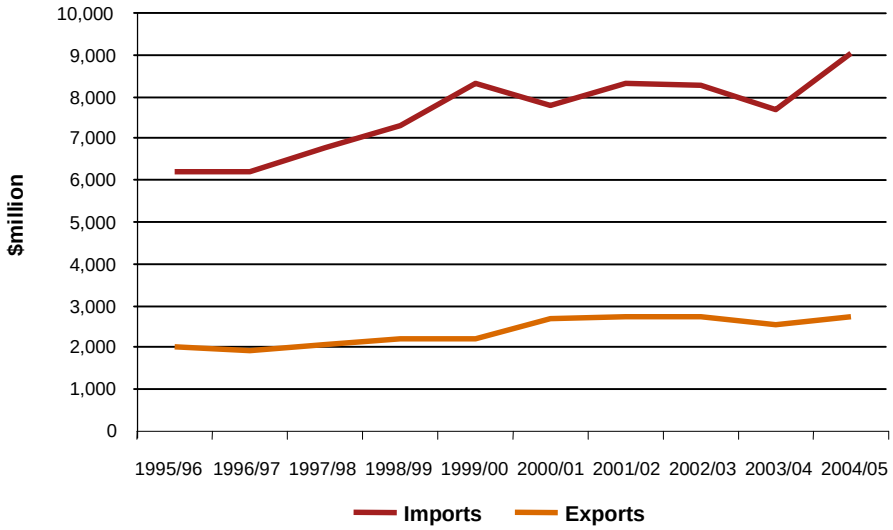
[10] WorkSafe Victoria, *Workplace Chemicals Strategy 2010*, p. 8.

[11] Victorian WorkCover Authority, *Dangerous Goods (Storage and Handling) Regulations 2000 RIS*, p. 9.

Figure 1: Australian trade in chemical products



Source: WorkSafe Victoria, Workplace Chemicals Strategy, 2010, p. 4.

This changed the operating environment meaning the importance of the storage and handling regulations shifted from duties placed on manufacturers to those of suppliers and occupiers. Dangerous goods imports have to be stored prior to being distributed to final consumers and risk is heightened when storage facilities hold significant quantities of dangerous goods.

3.2 Extent of the risks

It is difficult to accurately estimate the number and costs of dangerous goods incidents per year. This is because not all dangerous goods incidents are reported to OHS agencies. Specifically, dangerous goods incidents and injuries that do not occur in the workplace are unlikely to be recorded by WorkSafe Victoria. There is also variation in recording procedures used by different agencies responsible for handling dangerous goods incidents. WorkSafe Victoria estimate, however, regulations for the storage and handling of dangerous goods in Victoria impact approximately 95,000 businesses.

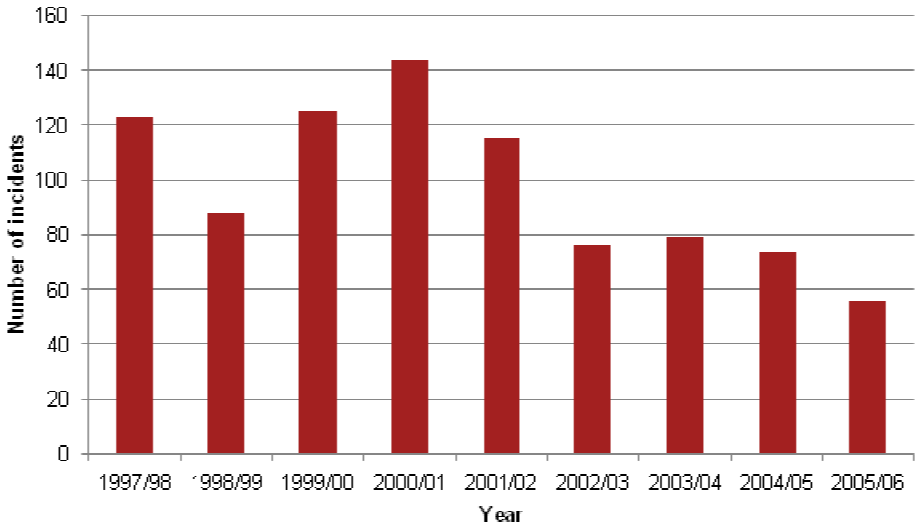
It is also difficult to determine the extent of harm to people caused by dangerous goods in the workplace because comprehensive incident data, mortality data and accident and disease statistics are unavailable due to difficulties in differentiating and attributing these outcomes to specific workplace and chemical exposure related to dangerous goods.[12]

During 2007, WorkSafe Victoria's dangerous goods unit manually compiled an incident notifications database which shows the frequency and nature of dangerous goods incidents in recent years. It is important to note that this database includes all dangerous goods incidents, including those related to the transport of dangerous goods that is regulated separately. While it would be useful to understand the number of incidents that occur in an unregulated environment, the number of incidents was recorded in an environment where regulatory controls for the storage and handling of dangerous goods have been in place for a number of years.

[12] Victorian WorkCover Authority, *Dangerous Goods (Storage and Handling) Regulations 2000 RIS*, p. 1.

There have been 835 dangerous goods incidents notified to WorkSafe Victoria in the eight financial years from 1998 to 2006. This number has been declining since the introduction of the 2000 storage and handling regulations as shown in Table 3.

Table 3: Dangerous goods incidents



Source: WorkSafe Victoria

Two case studies investigated by WorkSafe Victoria demonstrate the severe impact that incidents involving the storage and handling of dangerous goods can have on the community. These are highlighted in Table 4.

Table 4: Dangerous goods case studies

Case study 1 – Under prescriptive 1989 regulations

A gas flame used for shrink wrapping which ignited combustible micro-fine dust from powder being repackaged started a fire in a transport warehouse. The ensuing explosion caused one of the biggest fires Victoria has experienced. The warehouse contained large quantities of combustible products, mostly non-dangerous goods, and smaller quantities of dangerous goods; including flammable, toxic and corrosive products. The smoke from the fire was carried up to one kilometre into the air and the fire caused a major community outcry, calling for more and stricter controls on such premises. Clean up took one month and the incident required the involvement of some 575 emergency services and safety agency personnel. The total cost of the incident, primarily caused by the use of unsuitable equipment in a hazardous area, was $3.41 million.[13]

Case study 2 – Under performance based 2000 regulations

In 2007 a line ruptured at a business resulting in the release of 3,000 kilograms of anhydrous ammonia, a commonly used refrigerant and class 2.3 toxic, liquefied, flammable gas which is suffocating at low concentrations. The spill resulted in the occupied premises and surrounding properties being evacuated. 200 people were stood down from a neighbouring business. The clean up required 8 Metropolitan Fire and Emergency Services Board (MFB) appliances and 30 fire fighters for seven days. The restricted area was only able to be entered using full air supplied breathing apparatus. The estimated cost of MBF attendance was $1.5 million and the estimated total cost to business was $2.5 million.

The manual compilation by WorkSafe Victoria's dangerous goods unit during 2007 found there have been 1,722 claims involving dangerous goods between 1998 and 2006. The number of claims have been declining since the introduction of the 2000 storage and handling regulations as shown below. The total direct cost of these claims is $30,308,000.[14]

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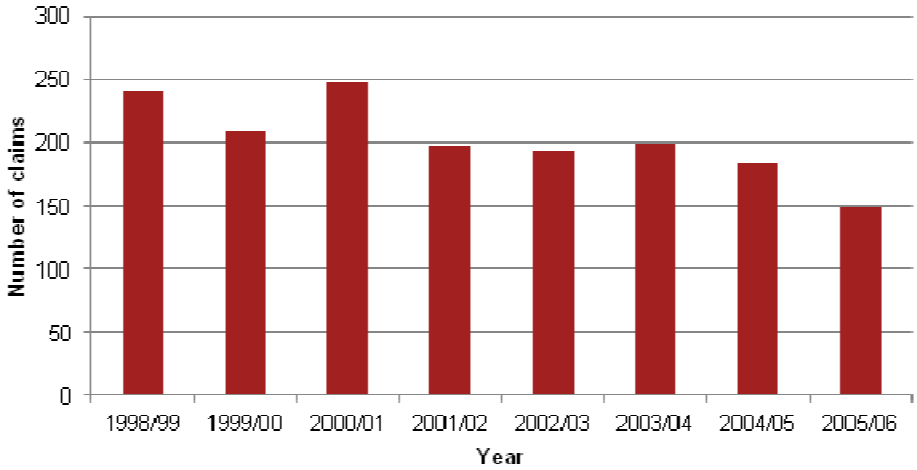
[13] Victorian WorkCover Authority, *Dangerous Goods (Storage and Handling) Regulations 2000 RIS*, p. 1.

[14] WorkSafe Victoria, *Analysis of Dangerous Goods Incident Data, 1997-2006*.

Table 5: WorkSafe Victoria claims associated with dangerous goods



Source: WorkSafe Victoria

Although WorkSafe Victoria have a data set of claims regarding hazardous chemicals up to 2012, in the time available they have been unable to subject this data to the same level of analysis and scrutiny as was undertaken in 2007 to identify claims specifically linked to dangerous goods. Accordingly WorkSafe Victoria believe the data set created in 2007 remains the most authorative in respect of dangerous goods.

WorkSafe Victoria's *Chemicals Strategy 2010* estimated that chemical related claims constituted less than 0.03 per cent of claims per 1,000 workers. Those related specifically to dangerous goods would be less than this. This means claims in relation to the storage and handling of dangerous goods represent a very small proportion of all claims. This was reflected in the manual analysis undertaken in 2007 and WorkSafe Victoria do not believe this profile has varied in the last five years.

There have been 11 fatalities attributable to the storage and handling of dangerous goods that are subject to the storage and handling regulations since 1995, ie not including explosives. The majority of those have occurred in regional areas. These fatalities are outlined in Figure 2. This represents a reduction in fatalities from 1.2 per year under the prescriptive 1989 regulations to 0.42 per year under the current performance based regulations.

The change from a prescriptive based regulatory regime to a performance based regime in 2000 is believed to be a major driver in the reduction in incidents, claims and fatalities since 2000. It is important to remember, however, that other factors; including increased enforcement activity, increased awareness of risk and the changed operating environment from manufacturing to importing of dangerous goods; may have played a part in this reduction.

Evidence of incidents, claims and fatalities from the incorrect storage and handling of dangerous goods do not, however, include the impact of significant dangerous goods incidents. Such incidents result in major damage to property and the environment, as well as multiple injuries and deaths. The cost impacts of such a significant event could well run into the hundreds of millions of dollars. The timing, frequency and extent of such significant incidents are difficult to predict. There has not been a significant incident in relation to the storage and handling of dangerous goods under the current regulations to accurately demonstrate the extent of such risks.

WorkSafe Victoria believes that the number and severity of dangerous goods incidents and claims would be higher if the current regulations were not in place.

Figure 2: Dangerous goods storage and handling fatalities 1995-2012

No. Fatalities	Class	Substance	Date	Region	Description	Age	Industry Sector
1	3	Flammable liquid	April 1995	Mildura	A man was working in the machinery shed. He was using an angle grinder to remove the top of a 44 gallon drum. During the course of this operation an explosion has occurred resulting in his death.	64	Agriculture
1	2.2	Carbon dioxide	September 1997	Bendigo	A barman entered a confined space of a hotel cellar and is believed to have been overcome by carbon dioxide gas, commonly referred to as beer gas.	59	Hospitality
1	2.2	Compressed air	November 1997	City	A man was at a service station using an air compressor to inflate a wheel barrow tyre. The tyre apparently over-inflated and the two halves of the wheel rim split apart, one of them hitting the deceased.	73	Service Station
2	2.1	Petroleum gases, liquefied (LPG)	September 1999	Traralgon	Two men were killed and eight received serious injuries when an explosion and fire occurred at a gas plant.	48 52	Hazard management division
1	3	White spirits (turpentine substitute)	February 1999	Wangaratta	A man suffered 70% burns to his body when an explosion and fire occurred in a skin washing process that used "white spirit" which is a highly flammable liquid. The man died 3 months later from the injuries.	70	Manufacturing
1	6.1	Dichloromethane	May 2002	Bendigo	53 year old male stripping paint off an old door using a Class 6 poison (Methylene Chloride) was found slumped in a dipping tank containing this product and apparently overcome by the fumes.	53	Construction and utilities
1	3	Petroleum fuel	May 2004	Warrnambool	An elderly farmer on a farm at Dunkeld was burning waste plastic wrapping off silage using a liquid accelerant. The accelerant caught fire and the farmer received extensive burns.	80	Agriculture
1	2.2	Carbon Dioxide	March 2010	Birregurra	A male worker taking delivery of kegs and placing them in a cellar collapsed and died. It appears oxygen levels within the cellar were low.	50	Hospitality
1	C2	Combustibles	October 2010	Thomastown	A male wielding a 61 tonne tank containing cooking oil and methanol has exploded. The male sustained burns to the upper body and the tank ended up some 130 metres away.	75	Manufacturing
1			May 2011	Laverton North	A male was exposed to a chemical and has collapsed and died.	54	

Source: WorkSafe Victoria

3.3 Market incentives for controlling risk

It is important to acknowledge that incentives do exist to ensure that dangerous goods are stored and handled correctly. Manufacturers, suppliers, employers and other occupiers have private incentives to ensure the correct storage and handling of dangerous goods. These include:

- ensuring their own safety and in the case of employers, the safety of their workforce
- protecting against damage to their property and assets
- protecting their reputation which may negatively impact continuing business operations.

These incentives, however, are unlikely to be sufficient in all cases to ensure the correct storage and handling of dangerous goods that meet community expectations and fully control the associated risks. A number of economic inefficiencies exist that cause these incentives to be inadequate. They include:

- externalities – private individuals or firms are unlikely to fully consider the costs of dangerous goods incidents on others, the environment or the community. The Productivity Commission found that employers generally incur only 30 per cent of the true cost associated with workplace accidents, with approximately 30 per cent borne by workers and 40 per cent by the community.[15]
- imperfect information – the hazards and risks associated with dangerous goods and adverse impacts on people, property and the environment may not necessarily be obvious resulting in inadequate safety precautions in workplaces and domestic settings where dangerous goods are kept.
- information asymmetries – emergency services, for example, may not have sufficient information when responding to an incident to control it quickly and safely.

To overcome these market failures, governments in developed countries have deemed it necessary to regulate the risks associated with the storage and handling of dangerous goods.

3.4 The case for regulatory control

The absence of specific regulations for the storage and handling of dangerous goods would result in industry having to comply with general duties of care in the Act, other regulatory controls in relation to hazardous substances and industry codes of practice. Legal requirements for explosives, high consequence dangerous goods and the transport of dangerous goods would also remain.[16]

Specific regulatory guidance and requirements, however, can assist duty holders in fulfilling more general duties set out in legislation (such as those under the Dangerous Goods Act and the OHS Act). The 2007 OHS RIS found that there is a risk that – without specific guidance – there will be a level of uncertainty with respect to what constitutes compliance. This may result in situations where compliance does not meet the requirements of the general duties and therefore do

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15 Industry Comission, *Work, Health and Safety*, 1996.

16 Victorian WorkCover Authority, *Dangerous Goods (Storage and Handling) Regulations 2000 RIS*, p. 7.

not provide the necessary control of risks, or situations of over compliance where unnecessary costs are incurred.[17] This is particularly the case in respect of hazard identification, risk assessment and risk control for occupiers (discussed below).

This does not mean that the storage and handling regulations for dangerous goods need to be prescriptive rather than performance based. Chapter 3.2 provides evidence that a performance based approach has been more successful in reducing incidents and claims than the highly prescriptive nature of the 1989 regulations.

A performance based approach to regulation also ensures that the regulations remain responsive to changes in the structure of markets, operational processes and technology that may impact how dangerous goods are stored or handled. For example, the use of digital technology such as email may have changed the way a MSDS is supplied, but has not impacted the need to supply information in the form of a MSDS.

According to WorkSafe Victoria, dangerous goods storage and handling regulations are required to prevent accidents and to provide safety standards to protect workers, the community and property from fires, explosions and escapes of dangerous goods. To protect people, property and the environment from incidents involving dangerous goods, control measures have to be put in place to combat identified hazards and risks. Where the quantity of dangerous goods exceed specific thresholds and there is a higher risk of an incident – warning notices (placards) have to be displayed on a premises, and information (manifests and emergency plans) must be made available to emergency services so that they are aware of any hazards and risks posed and can combat any incidents with minimal impact.

For high risk premises holding quantities of dangerous goods exceeding specified quantities, fire services also need to be involved in the preparation of emergency plans and in the design, set up and maintenance of fire protection systems so that the premise's systems are compatible with emergency services equipment and assist the fire services in dealing with any incidents that may arise. Premises holding dangerous goods in quantities exceeding specified quantities also need to notify WorkSafe Victoria of the quantities of dangerous goods being stored so WorkSafe Victoria is able to monitor potential risks in the community and intervene if unacceptable risks or issues are identified.

These duties are allocated to specific entities in order to minimise the cost of overcoming the market failures discussed in chapter 3.3 and adequately control the risks associated with dangerous goods. For example, to allow for a quick and safe response to an emergency situation and overcome the problem of information asymmetries between occupiers storing and handling dangerous goods at their premises and emergency services, it is more efficient to impose a duty on the occupier to provide information to emergency services in the way of a register and placards, than to impose a duty on emergency services to carry out assessments of each individual premise where dangerous goods are stored or handled.

The following sections describe in more detail WorkSafe Victoria's view as to the case for regulatory control for the key areas covered by the regulations.

[17] WorkSafe Victoria, *Occupational Health and Safety Regulatory Impact Statement*, 2007, p. 33.

3.4.1 Manufacturers and suppliers

Determination, marking and packaging of dangerous goods

Manufacturers and suppliers make determinations, mark and package in accordance with dangerous goods classifications detailed in the ADG Code and based on UN Model Regulations. This ensures only dangerous goods that are 'fit for purpose' are produced and their associated risk can be controlled.

In requiring adherence to international classification and standards these requirements facilitate trade through minimising disruption when dangerous goods are transported, stored and handled across jurisdictions. Under the ADG Code, dangerous goods packaging is required to be 'fit for purpose' and subjected to testing. Once tested, markings can be put on packaging that allows for traceability of manufacturers and suppliers in the event of incidents and emergencies anywhere in the world. For example, the construction, markings and labels of a 205 litre drum are standard anywhere in the world.

Were these provisions not in place, WorkSafe Victoria believes it is likely a small percentage of producers would attempt to supply potentially dangerous materials, in unsafe packaging and for which the chemical properties are unknown. In reducing costs, this gives such suppliers a competitive edge in the market and could lead to a 'race to the bottom'.

Preparation and supply of MSDS

Manufacturers and suppliers are required to prepare and supply MSDSs. MSDSs provide information that will assist in minimising the risks associated with the storage and handling of dangerous goods, corrective action required in the case of spills or incidents, and information in relation to the manufacturer or supplier of those goods.

This requirement ensures receivers of dangerous goods have the maximum amount of information in relation to the hazards and risks of those goods. Although some exceptions apply to suppliers who are retailers, the provision of MSDS throughout the supply chain assists in protecting the OHS of workers within the supply chain.

3.4.2 Occupiers

Consultation, information and training for workers

Specific regulations require occupiers to provide consultation, information and training for their workers with respect to the particular dangerous goods stored and handled in the workplace. This regulation assists occupiers in meeting their duty of care to employees.

The purpose of the specific regulations is to provide as much information as possible to minimise exposure and risks to health and safety. This includes information regarding personal protective equipment, hazards and risks, corrective action required in the case of spills and emergency processes. Providing this information gives employees the confidence to carry out their work appropriately and protect themselves from inherent dangers in the workplace.

An occupier of premises where dangerous goods are stored and handled is also responsible for making decisions about operational conditions and processes that result in safe storage and handling of the goods at the premises. Without adequate consultation with their workers, an occupier may not have a full understanding of the finer points of the work being performed by their workers in storing and handling dangerous goods and therefore may not be fully aware of the risks associated with that work. A lack of adequate consultation with workers may result in occupiers not fully understanding the working conditions that may create risks for workers, the general public and for property.

According to WorkSafe Victoria, this requirement is a crucial element in identifying hazards and controlling risks associated with dangerous goods including hazards and risks arising when new systems, plant and processes are introduced or changed. Studies have demonstrated improved health and safety outcomes where firms have incorporated higher levels of consultation into their work practices.[18] Retention of an explicit requirement in these regulations will ensure that awareness of the need to consult workers in relation to safe storage and use of dangerous goods is maintained.

The decision to align this provision with the approach adopted under the OHS Act will provide opportunities for occupiers who are employers to develop processes and arrangements that will permit compliance with both schemes concurrently.

Hazard identification, risk assessment and risk control

There is a requirement to provide a detailed risk framework. It involves identifying hazards, undertaking risk assessments with respect to these hazards and controlling those risks. In essence this framework allows for the provision of premises and systems that are 'fit for purpose' in order to ensure that risks are adequately controlled.

There is some debate as to whether requirements for occupiers to record risk assessments is necessary. Having identified hazards with regard to specific matters outlined in regulations, it is possible that occupiers could implement risk controls based on Australian standards or the risk control hierarchy without undertaking a risk assessment. Costs associated with risk assessments could also reduce funds that may be made available for implementing risk controls, which is the ultimate objective.

Visitors

The regulation requires occupiers to inhibit the free movement of untrained people at premises where dangerous goods are stored and handled. These requirements involve securing sites from unauthorised entry and providing information, safety instructions and supervision to authorised visitors.

These regulations are required because where workers are protected through education and training, visitors and unauthorised entrants have not undergone such training and so are at greater risk.

Storage environment

The regulations require that dangerous goods are stored in stable environments, isolated from other dangerous goods or are not subject to interaction with plant and equipment that have not been designed, commissioned or in a good state of repair for use with those goods.

These regulations are required because risk controls help reduce the likelihood of a dangerous goods incident occurring. For example, sulphuric acid will react with iron to create flammable and potentially explosive hydrogen gas. Interaction between sulphuric acid and plant and equipment not designed for its use, including iron, will increase the likelihood of a dangerous goods incident occurring.

Packaging and containers

Specific regulations require that bulk containers need to be adequately designed, constructed and regularly tested and maintained to prevent spills and ensure action is taken should a spill occur.

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[18] See Productivity Commission, *Performance Benchmarking of Australian Business Regulation: Occupational Health and Safety*, 2010, pp. 218-219.

The ADG Code outlines the appropriate design of packaging containers or receptacles for the containment of dangerous goods. Risk is heightened when spills from such packaging or storage facilities occurs because spills expose dangerous goods to the open environment and bring them into contact with ignition sources, increasing risk. For example, bulk containers storing 500kg/500L or more present a greater risk due to the quantity of material stored that could be lost in the event of catastrophic failure. Recording of maintenance procedures is required so that occupiers know when maintenance is required and allow inspectors to audit maintenance schedules and ensure required maintenance is carried out.

Specific regulatory controls also require the clearing of decommissioned receptacles. Decommissioned containers pose significant risks. This risk is specifically relevant to petrol stations where tanks both above and below ground have historically been abandoned containing residual amounts of petrol, which is a dangerous good. Petrol sweats and vapour can escape into the atmosphere or material can seep from containers to the surrounding area. Each of these pose significant environmental hazards, as well as explosive risks if met with an ignition source.

Impact protection

The regulations require premises where dangerous goods are stored or handled to prevent damage from impact from moving vehicles, ships or boats.

Impacts of this nature can cause catastrophic failure of dangerous goods storage facilities, creating large spills and exposing dangerous goods to the open environment and ignition sources leading to explosions and fire. For example, the impact between a car and petrol bowser can result in large fires but can be controlled through the use of bollards and other protective devices.

Emergencies

Occupiers are required to comply with specific duties; including manifests, placarding, provisions for emergency equipment and planning, and responses to emergencies.

Given the nature of emergency situations these specific regulatory duties are required to both assist emergency services in carrying out their functions and in ensuring the correct emergency response from occupiers of premises where dangerous goods are stored and/or handled.

Manifests assist emergency services in carrying out their duties as quickly as possible by providing up to date information in relation to a facility, the names and descriptions of dangerous goods contained at that facility and site contact details.

Placarding assists emergency services by providing information regarding dangerous goods prior to entry to premises where incidents have occurred, thereby protecting the health and safety of emergency services personnel.

Because emergency services usually respond to a dangerous goods incident and take control when an emergency occurs, specific regulations are required to ensure they are involved in the implementation of adequate fire protection equipment, systems and emergency response plans commensurate with the level and type of dangerous goods stored or handled. This ensures everyone knows what to do, what their role is and where to marshal.

Specific requirements are also needed to ensure that – in response to dangerous goods incidents and emergencies – appropriate review processes are undertaken and identified issues are responded to. This can also assist in educating and learning through the sharing of information between occupiers, emergency services and workplace authorities.

Notification

Occupiers who store quantities of dangerous goods in large quantities – greater than manifest levels – are required to notify WorkSafe Victoria. This assists the workplace health and safety authorities to efficiently and effectively monitor occupiers where hazards and risks are likely to be high.

Thresholds

Specific quantity levels for manifests, placarding and fire protection are required due to the different treatment of the potential hazards and risks by emergency services.

4 Objectives

This chapter sets out the objectives of the proposed regulations.

The *Subordinate Legislation Act 1994*[19] requires a RIS to include a statement of the proposed regulations' objectives. These objectives should be closely related to the objectives of the Act authorising the proposed regulations[20] and should be consistent with, or contribute to, the achievement of the government's strategic policy aims. Some proposed measures may have several objectives and where this is the case, the statement must identify a primary objective. The objectives should be stated in terms of the ends to be achieved rather than the means of their achievement. In other words, they must be specified in relation to the underlying problems that have been identified in chapter 2.[21]

The objectives are important as they help to assess whether the proposed regulations have been appropriately selected as a means of addressing the underlying problems. In addition, a main criterion for assessing the proposed regulations against their alternative options is their relative cost-effectiveness in achieving this objective.

The stated objectives of the *Dangerous Goods Act 1985* are:

- to promote the safety of persons and property in relation to the manufacture, storage, transport, transfer, sale and use of dangerous goods and the import of explosives into Victoria
- to ensure that adequate precautions are taken against certain fires, explosions, leakages and spillages of dangerous goods and that when they occur they are reported to the emergency services and the inspectors without delay
- to ensure that information relating to dangerous goods is provided by occupiers and owners of premises to the relevant authorities
- to allocate responsibilities to occupiers and owners of premises to ensure that the health and safety of workers and the general public is protected
- to provide for licensing of persons required by the regulations to hold a licence in relation to dangerous goods
- to provide for the implementation of the ADG Code.[22]

The stated objective of the proposed regulations is to ensure the safe handling and storage of dangerous goods within Victoria.

In reality the major policy objective of the dangerous goods storage and handling regulations is to prevent the occurrence of significant incidents which result in major damage to property and the environment, as well as multiple injuries and

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[19] In particular, sections 10(1)a and 12H(1)a of the *Subordinate Legislation Act 1994*.

[20] Victorian Competition and Efficiency Commission, Victorian Guide to Regulation: Edition 2.1, August 2011.

[21] Victorian Competition and Efficiency Commission, Victorian Guide to Regulation: Edition 2.1, August 2011.

[22] Section 4, *Dangerous Goods Act 1985*.

fatalities. For example, an explosion of a retail petrol station or chemical manufacturing facility.

The subsequent policy objectives of the dangerous goods storage and handling regulations include:

- prevention of injury or harm to people, property and the environment from incidents involving the storage and handling of dangerous goods
- facilitating effective responses when incidents involving the storage and handling of dangerous goods occur.

5 Options

It is important the most effective tool is selected to achieve the desired outcome. Thus, RISs need to identify and assess all feasible regulatory and non-regulatory measures that could meet the desired objective. Without a full and proper assessment of all viable options, the proposed measure adopted is unlikely to be the best solution to the problem.[23]

This chapter outlines the options considered in this RIS to address the problems identified in chapter 2. The first option is to remake the current storage and handling regulations. The second option is to remake the current storage and handling regulations with a number of changes. These changes are discussed in section 5.2 and are considered separately within the cost benefit analysis so that each individual change, or any combination of changes, could be implemented if the cost benefits analysis identifies that doing so would yield the highest benefit for Victoria.

The changes considered in section 5.2 reflect all options that have been raised by key stakeholders during the consultation process. A clear message from the consultation process with affected businesses was that the current regulations were operating well and were an improvement to the prescriptive nature of the previous regulatory regime.

Another key message from the consultation process was that the new regulations should align with the model WHS laws where possible. The changes considered include elements of the model WHS laws considered best practice and appropriate to align with the dangerous goods storage and handling regulations. In line with the Victorian Government's stated policy, no option to adopt the model WHS laws has been considered.

5.1 Remake current regulations

This option would involve the remaking of the current Dangerous Goods (Storage and Handling) Interim Regulations in their current form.

Manufacturers and Suppliers

Under this option the following obligations would be placed on manufacturers and suppliers in relation to the dangerous goods outlined in Table 1 of section 2.1.

- Make determinations of goods that are dangerous goods in accordance with the ADG Code and other provisions as outlined in Table 1 of section 2.1.
- Assign ADG Code classifications (ie class, subsidiary risk, and packing group), if applicable.
- Ensure dangerous goods are marked and packaged in accordance with the ADG Code, and in the case of retailers if dangerous goods are supplied into a container provided by a customer that that container also meets those standards.
- Ensure that C1 combustible liquids and goods too dangerous to be transported are packed in accordance with the specific requirements of the regulations.

[23] Victorian Competition and Efficiency Commission, Victorian guide to regulation: Edition 2.1, August 2011.

- Prepare and supply MSDSs, which are to be reviewed every five years.
- Provide information to registered medical practitioners on request.

Occupiers

An occupier is defined by the Dangerous Goods Act as a person who, in relation to any premises: is the owner of that premises; exercises control at the premises under mortgage, lease or franchise; is normally or occasionally in charge of or exercising control or supervision at the premises as a manager or employee or in any other capacity. Their obligations are outlined below.

- Consult and provide induction, information (including risk assessments), training and supervision to workers if the occupier's premise is a workplace, and keep records of such training for five years.
- Identify hazards having regard to a list of factors.
- Conduct a risk assessment for any hazards identified, record that assessment, and review that risk assessment if hazards change, an incident occurs or at intervals no more than five years.
- Ensure risks associated with the storage and handling of dangerous goods are eliminated or reduced as far as practicable through substitution to lower risk items or reduction in quantities.
- Control risks associated with storage and handling dangerous goods through:
  - the design of premises, plant, processes and systems of work
  - the provision of information, safety instructions and supervision to visitors and preventing unauthorised access
  - ensuring stable storage environments for dangerous goods and preventing chemical interaction between different dangerous goods or dangerous goods and other plant and processes
  - ensuring structures and plant are correctly manufactured, installed, commissioned, operated, tested, maintained, repaired and decommissioned, particularly bulk storage containers
  - clearing decommissioned receptacles of dangerous goods and protecting structures and plant from impact
  - containment of spills
  - preventing ignition sources in hazardous areas and atmospheric release
  - preparedness for incidents and emergencies by:
    - maintaining manifests where dangerous goods are above prescribed quantities
    - placarding premises where dangerous goods are above prescribed quantities

- providing equipment for clean-up and fire protection systems (with regard to advice from emergency services where dangerous goods are above prescribed quantities)
- planning for emergencies where dangerous goods are above prescribed quantities having regard to advice from emergency services and reviewing every five years
- obtaining MSDSs and ensuring correct packaging and marking of containers and pipework
- maintaining a register of all dangerous goods stored and handled on premises
- responding to emergencies and conducting and recording incident investigations.

– notifying WorkSafe Victoria of premises where dangerous goods are stored and handled above manifest quantities.

5.2 Potential alternatives

WorkSafe Victoria has identified a number of potential alternatives in respect of particular aspects of the current regulations. These alternatives are described below.

5.2.1 Removal of risk assessment

Regulation 405 of the storage and handling interim regulations makes it mandatory for occupiers to conduct a risk assessment for any hazards that are identified. Under the current regulations, occupiers are also required to record risk assessments, and review risk assessments if hazards change, an incident occurs or at intervals no more than five years.

Following a review of OHS regulations in 2007 risk assessment requirements were generally removed except where hazards and risks are deemed to be complex, for example mines, major hazard facilities and construction. Risk assessment is not mandated for controlling risks associated with hazardous chemicals under the model WHS Regulations.

Under this option the requirement to undertake, record and review risk assessments would be removed and the only requirements placed on occupiers would be to identify hazards and control any associated risks.

5.2.2 Referencing third party documents

Many Victorian regulations apply, adopt or incorporate third party technical documents. The storage and handling interim regulations currently apply, adopt or incorporate matter from eight such documents, five of which are Australian Standards. All incorporated third party documents are referenced as being in force as amended from time to time. The current regulations do not specify the length of time duty holders have to meet new obligations imposed from changes to these incorporated documents.

Under this option third party documents would continue to be referenced in the regulations and would be explicitly expressed to be in force as amended from time to time. This option would allow for a six month transition period for duty holders to meet new obligations following the automatic updating of incorporated documents.

5.2.3 Adoption of GHS

The storage and handling interim regulations refer to the seventh edition of the ADG Code for determination of dangerous goods, hazard classification and labelling requirements. The ADG Code is administered by the National Transport Commission (NTC) and is based on classifications and labelling under model UN regulations for the transport of dangerous goods. The transportation of dangerous goods has been largely harmonised internationally under the model UN regulations.

Internationally a new system for hazard classification, labelling and packaging has been introduced covering the physical, health and environmental hazards of chemicals in the workplace. The system is the GHS. Many of Australia's trading partners are currently in the process of implementing the GHS. New Zealand was the first country to implement the GHS in 2001. The European Union, Japan and China are currently in transitional phases of implementation.[24]

The implementation of the national Work Health Safety (WHS) laws by other jurisdictions will also mean that other jurisdictions in Australia will be shifting to GHS during a five year transitional period. The model WHS regulations is based on the third revised edition of the GHS with some hazard classes and categories of the GHS excluded from coverage.

The ADG Code permits GHS labelling and marking of inner packaging giving Victorian manufacturers, importers and exporters the necessary flexibility to avoid any need to reclassify or re-label inner packaging. Due to the nature of the reference within a third party document however, it is unlikely that all duty holders would be aware of this provision.

This option would retain the requirement for manufacturers and first suppliers to determine whether goods are dangerous goods in accordance with the ADG Code. The regulations would explicitly state that duty holders would then have the flexibility to use either GHS or the ADG Code for the classification and labelling of the intrinsic hazards of dangerous goods for storage and handling purposes. The Victorian storage and handling regulations would reference the revised third edition of the GHS but would provide duty holders with flexibility to use the revised fourth edition if they wish. Classification and labelling in accordance with other Australian jurisdictions under the WHS laws would also be permitted. The outer packaging of dangerous goods would still need to be classified and labelled according to the ADG Code for transportation.

5.2.4 Replace incident reporting requirements with Code of Practice advice

The Act requires a licensee, prescribed person or master of a ship to report any fire, explosion, spillage, leakage or escape involving dangerous goods in their ownership, possession or control to emergency services. The regulations prescribe occupiers as prescribed persons and extend the reporting requirements under the Act to all occupiers of premises where dangerous goods are stored. The addition of occupiers by the regulations extends reporting requirements to approximately 95,000 additional duty holders.

Prescribed persons must report all incidents involving fires, explosions, spills, leaks and escapes from large containers regardless of whether a risk exists. This means that currently trivial spills, leaks and escapes from large containers must be reported to the emergency services. Examples of trivial incidents are small routine

[24] Access Economics,*RIS: Proposed Revisions to the National OHS Framework for the Control of Workplace Hazardous Substances and Dangerous Goods*, p. 8-11.

spills from petrol bowser nozzles that occur when customers are filling vehicle petrol tanks, and small leaks and gas escapes from chemical storage tanks where risk controls are in place and no person or property is affected. For smaller containers (less than 500kg or litres) where less than 250kg or litres of dangerous goods are involved in an incident, there is no requirement to report these to emergency services providing there was no injury to persons or damage to property. This exclusion for smaller containers does not factor in the potential for an incident involving a container of less than 500 litres to result in a large incident. This may give occupiers the impression that small incidents involving small packages that could lead a significant incident are not correctly reportable to emergency services if an injury or damage to property does not occur at the time.

Under this proposal occupiers will no longer be explicitly covered by the reporting requirements under the Act. However, the regulations will continue to contain general risk control requirements to eliminate, or reduce so far as is reasonably practicable, risks associated with the storage and handling of dangerous goods. Where an occupier was not able to control the risk associated with an incident the notification of emergency services will remain a key means of risk control under the general duty.

For those storing over manifest quantities, reporting triggers can be incorporated into occupiers' emergency plans as a way of ensuring that occupiers have clarity on when they should contact emergency services.

To facilitate this, WorkSafe will update the Code of Practice (as part of a review process which will follow the making of the new regulations) to specify that an emergency plan should include reporting triggers for contacting the emergency services. The Code will outline a risk based approach to defining criteria for notification of the emergency services.

5.2.5 Mandatory emergency service advice

The storage and handling interim regulations include a role for emergency services by requiring occupiers to interact with them under certain circumstances and to notify them of particular information. The current storage and handling regulations only give emergency services an advisory role and only require occupiers to seek advice and have regard to that advice when developing a fire protection system and an emergency plan.

Under this option the requirement for the occupier to seek and implement advice from emergency services in relation to fire protection systems and emergency plans would be mandatory, or duty holders would have to negotiate an alternative with them. The regulations would also provide a dispute resolution system other than being adjudicated by WorkSafe Victoria.

5.2.6 Material Safety Data Sheets

The storage and handling interim regulations require the preparation of MSDSs that differ from the requirements in the Victorian OHS Regulations 2007 for chemicals determined to be hazardous substances, and differ from safety data sheet (SDS) requirements for hazardous chemicals that form part of the model Work Health Safety (WHS) Regulations 2011. Under the model WHS Regulations, MSDS are referred to as SDSs.

Under the storage and handling interim regulations it is sufficient for compliance purposes if manufacturers or first suppliers have prepared a MSDS for dangerous goods in accordance with corresponding legislation. In this respect corresponding legislation means provisions in other legislation in Victoria or legislation in another jurisdiction that provide for the form and content of a MSDS. Therefore, for example, an MSDS prepared in accordance with the Victorian OHS regulations 2007 is acceptable.

Under this option further clarification would ensure that a SDS prepared under other Australian jurisdictions' WHS laws or a SDS prepared in accordance with the third revised edition of the GHS, or fourth revised edition of the GHS, would be sufficient to meet the requirements under the dangerous goods storage and handling regulations. (A SDS prepared in accordance with the GHS would need to be in legible English and contain contact details of the Australian importer.)

5.2.7 Removal of induction and training requirement

The storage and handling regulations require occupiers of premises to conduct induction and training of workers relevant to the tasks undertaken and the risks associated with those tasks. Under the current regulations there is a requirement for these occupiers to make a record of induction and training activities carried out under the regulations and keep a copy of that record for a minimum of five years.

Under this option occupiers would no longer be required to make a record of induction and training activities, and as a result would not be required to keep that record for five years.

5.2.8 Removal of placarding requirement for retail petrol stations

The storage and handling regulations require HAZCHEM outer warning placards to be displayed at the entrances of premises storing or handling quantities of dangerous goods that exceed specified 'Placarding Quantities'.

Under this option an exemption will be applied to retail outlets storing or handling dangerous goods that are used to refuel a vehicle, and is either a flammable gas or flammable liquid. This option has the effect of removing the placarding requirement from retail petrol stations.

5.2.9 Manifest notification

The storage and handling regulations require occupiers who store or handle quantities of dangerous goods exceeding the relevant specified 'Manifest Quantities' to notify WorkSafe Victoria of the presence of those dangerous goods. Further notifications are required every two years.

Under this option occupiers who store or handle quantities of dangerous goods exceeding the relevant specified 'Manifest Quantities' will still be required to notify WorkSafe Victoria of the presence of those dangerous goods. Further notification, however, will only be required every five years instead of every two years.

5.2.10 Other alternatives

WorkSafe Victoria has also identified two other alternatives as part of their review of the current regulations. These include:

- changing the requirement to consult with all persons engaged by the occupier to work at the premises from mandatory to where it is 'reasonably practicable' to do so

- redefining C1 combustible liquids so that it only captures goods that have a flash point that is higher than 60°C but no higher than 93°C to align with the approach taken in the GHS.

WorkSafe Victoria considers these changes relatively minor in nature. While they may produce a decrease in regulatory burden for some duty holders it is not expected that the savings would be significant or material across the applicable businesses. As a result, the costs have not been modelled as part of the cost benefit analysis.

5.3 Non-feasible options

A non-regulatory option not considered feasible is the implementation of a code of practice to provide manufacturers, suppliers and occupiers with guidance on complying with their general duties under the Dangerous Goods Act in relation to the storage and handling of dangerous goods.

A code of practice does not have the same legal force as the regulations and is not mandatory. Since compliance with a code of practice is not mandatory it is unlikely that the level of compliance with the provisions of the code of practice would be as high as the level of compliance under regulation. This lower level of compliance could be expected to yield less than the comprehensive level of safety that WorkSafe Victoria believes is expected by the community.

6 Cost benefit analysis

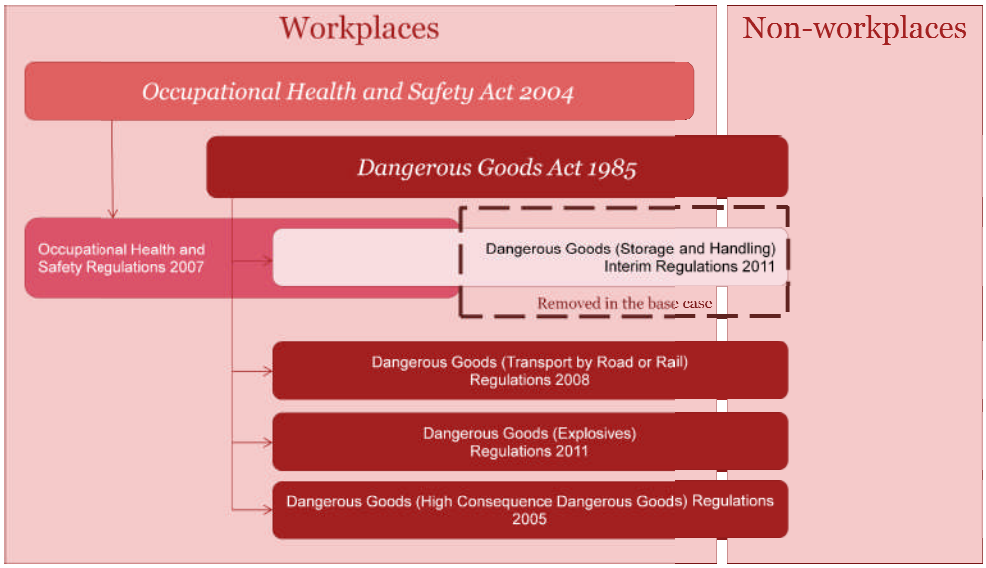
The main impacts associated with the proposed regulations are:

- compliance and administration costs for property owners, employers, and government
- benefits for society in terms of reduced injuries, deaths and damage to property and the environment from dangerous goods incidents.

Where possible, impacts have been estimated over the life of Victorian regulations, which is 10 years, and then discounted back to a 'present value' estimate.

Section 6.1 outlines the costs imposed on Victorian businesses from simply remaking the current regulations. These costs are compared to a base case. The regulatory environment that would exist in the base case is illustrated in Figure 3.

Figure 3: Dangerous goods regulatory environment



Under the base case, the Dangerous Goods (Storage and Handling) Interim Regulations 2011 would be allowed to sunset on 1 December 2012 without replacement. Manufacturers, suppliers and occupiers would still be required to meet their general duties under the *Dangerous Goods Act 1985*.

Other regulatory controls for dangerous goods would also be in place including those imposed by:

- Dangerous Goods (Explosives) Regulations 2011
- Dangerous Goods (High Consequence Dangerous Goods) Regulations 2005
- Dangerous Goods (Transport by Road or Rail) Regulations 2008.

Employers would also still be required to comply with the general duties in the *OHS Act 2004* and specific obligations to control the risks associated with hazardous substances under the OHS Regulations 2007.

The costs of compliance are only measured for workplaces. This is because WorkSafe Victoria only record claims and incident data for workplaces and it is difficult to estimate the number of non-workplaces storing dangerous goods in quantities that would subject them to the regulations. As a result, measured costs of compliance are understated because they do not include the costs incurred by property owners who are not employers. Correspondingly, benefits are understated because they do not include public safety benefits that result from a reduction in dangerous goods accidents and incidents at non-workplaces.

In estimating the costs of compliance, we have only considered costs directly attributable to the dangerous goods storage and handling regulations. These costs do not include costs that businesses would incur anyway if the regulations were not in place. For example, if a business would provide safety equipment for employees to use when handling dangerous goods even if the regulations were not in place then the cost of this equipment is not included.

During consultations with duty holders it was identified that on average, 75 per cent of businesses would carry out requirements placed on them in the base case even though they would not be required to by the regulations.[25] This ranged from 30 to 100 per cent depending on the specific requirement. This may be due to insurance, international standards or corporate reputation.

Costs do not include those that can be attributed to other regulations or in meeting general duties under the Dangerous Goods Act that would still exist in the base case situation.[26] For example, manufacturers would be required to prepare and supply a MSDS for provision to customers in other Australian jurisdictions or overseas and only a portion of that cost can be attributed directly to the storage and handling regulations in Victoria.

Costs are only calculated for those businesses that would be compliant with the regulations because those businesses that are not compliant do not incur costs associated with meeting the requirements under the regulations.

Costs do not include those that have been incurred previously. For example, where an occupier has built a storage facility for dangerous goods in the past, then only the ongoing maintenance cost has been included. Only initial costs for new businesses that would be incurred because the regulations are in place are included in total costs.

Cost estimates are therefore not the full cost of managing dangerous goods, but only the costs relevant and attributable to the specific storage and handling regulations in Victoria.

Section 6.2 analyses the marginal costs and benefits of the potential alternatives outlined in section 5.2. Section 6.3 determines which of the potential alternatives are preferred in the second option to remake the current storage and handling regulations with a number of changes. Section 6.3 also summarises the cost impacts on Victoria's businesses of the second option in comparison to the base case described above.

Section 6.4 discusses the required benefits to society required in order for the second option to provide a net benefit to society.

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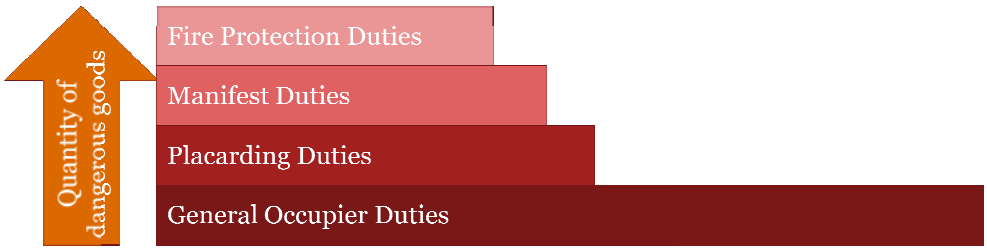
[25] This average does not include requirements that only exist because of the regulations; for example, manifest notification.

[26] For the proportion of costs attributable to storage and handling regulations as opposed to other regulations or general duties of the Act refer to Table 22 of Appendix B.

6.1 Remake current regulations

A remaking of the current regulations would impose costs on all businesses that store or handle dangerous goods on their premises in meeting the general occupier duties of the regulations. As the quantity of a given type of dangerous good increases above specified thresholds additional costs will be incurred in meeting specific duties of the regulations as illustrated in Figure 4.

Figure 4: Occupier duties under the storage and handling regulations



In addition specific costs are incurred by businesses that manufacture or supply dangerous goods.

The estimated total cost for all businesses that would be affected by the remaking of the current regulations over the next 10 years is $172 million. Table 6 below outlines the total costs of compliance for occupiers and the additional costs specific to manufacturers required to comply with the regulations.

Table 6: Cost of compliance for business groups

Stakeholder	Costs over 10 years ($m)	Costs per annum ($m)	Costs per business ($ p.a.)
Occupiers	115.47	13.96	147
Manufacturers and suppliers	55.81	6.71	2,247
Total*	171.28	20.67	217

Note that the figures in this table may not sum due to rounding. * This is not a total but a weighted average of stakeholders.

Putting these costs into context and to give a sense of whether they are reasonable, it is useful to consider the costs of remaking the regulations in terms of the cost per business per year for small and large business and individual employed. Re-making the existing regulations would cost:

- for small business, $66 per year per business, meaning about $13 per employee per year
- for large business, $851 per year per business, meaning about $17 per employee per year.[27]

Note however that these costs for small and large businesses do not include the cost to importers of re-labelling dangerous goods, as the number of businesses who import dangerous goods and the split between small versus large importers is unknown. As a result, the per business estimates of re-making the existing regulations may be understated.

[27] The 'per employee' estimates have been calculated on the basis that there are, on average, approximately five employees per small business and 50 employees per large business.

Occupiers

All occupiers would incur costs in meeting the general duties under the regulations. These include identifying hazards, undertaking risk assessments in response to those hazards identified, controlling the risks associated with those hazards, providing consultation and training to employees, keeping a register of dangerous goods, providing equipment for clean-up of dangerous goods spills, having adequate fire protection for the dangerous goods they have and reporting incidents involving dangerous goods.

The total cost for all occupiers in complying with these general requirements of the regulations is $114 million as outlined in Table 7.

Table 7: Cost of compliance with general duties for all occupiers

Requirement	Costs over 10 years ($m)	Costs per annum ($m)
Hazard identification	8.16	0.99
Risk assessment	33.35	4.03
Risk control	13.37	1.62
Consultation, induction and training	31.52	3.81
Register of dangerous goods	2.91	0.35
Equipment for clean-up	14.39	1.74
Fire protection system	9.52	1.15
Review systems after incidents	0.00	0.00
Incident reporting	0.36	0.04
Total	113.58	13.73

Note that the figures in this table may not sum due to rounding.

There are also specific requirements for occupiers based on the level of dangerous goods stored and handled on their premises. Holders of dangerous goods in bulk containers have specific maintenance requirements. Holders of dangerous goods above specified placarding quantities and required to install and maintain HAZCHEM signs. Holders of dangerous goods above specified manifest quantities are required to keep a manifest of all dangerous goods, notify WorkSafe Victoria every two years and have regard to advice from emergency services in development of an emergency plan. Holders of dangerous goods above fire protection quantities are also required to have regard to emergency services advice in developing their fire protection system.

The additional costs of complying with specific occupier requirements are outlined in Table 8.

Table 8: Costs of compliance with specific requirements for occupiers

Requirement	Costs over 10 years ($m)	Costs per annum ($m)
Bulk dangerous goods containers[28]	-	-
Placarding	1.41	0.17
Manifest notification	0.36	0.04
Emergency plan for manifest quantities	0.13	0.02
Emergency services advice for fire protection[29]	-	-
Total	1.89	0.23

Manufacturers and suppliers

Businesses who manufacturer or supply dangerous goods would incur additional costs in classifying any dangerous goods produced or supplied, preparing MSDS for dangerous goods identified and providing MSDS to customers. Retailers would also be required to check and make sure containers – if supplied by their customers – are fit for purpose. The total cost for manufacturers and suppliers in complying with their specific requirements under the regulations over the next ten years is $56 million as outlined in Table 9.

Table 9: Cost of compliance for manufacturers and suppliers

Requirement	Costs over 10 years ($m)	Costs per annum ($m)
Classification[30]	-	-
Re-labelling of GHS labelled inner packages	53.45	6.43
Preparation and revision of MSDS	2.00	0.24
Provision of MSDS	0.35	0.04
Retailers[31]	-	-
Total	55.81	6.71

Note that the figures in this table may not sum due to rounding.

Employees

Employees are not expected to incur any additional costs under the proposed regulations. All consultation, education and training are assumed to occur within already existing paid employment time.

Government

There will be one-off costs for WorkSafe Victoria associated with the adoption of the proposed regulations. These costs include:

- costs associated with introducing the proposed regulations, such as instructions for Parliamentary Counsel, preparation of legislation by Parliamentary Counsel and printing

28 Although there are specific requirements under the regulations related to bulk dangerous goods containers, stakeholder consultations suggested there are no cost impacts. For more information please see Appendix B.

29 Although there are specific requirements under the regulations regarding emergency services advice for fire protection, stakeholder consultations suggested there are no cost impacts. For more information please see Appendix B.

30 Manufacturers and suppliers would meet the requirement to classify dangerous goods under the dangerous goods transport regulations and therefore there are no costs as a result of the storage and handling regulations. For further information please see Appendix B.

31 Although retailers have specific requirements under the regulations, stakeholder consultations suggested there are no cost impacts. For more information please see Appendix B.

- training of office staff to administer the new regulations
- training for inspectors in the new regulations.

These costs, which are not expected to be significant and will come out of WorkSafe Victoria's existing budget, will be off-set by a reduction in the costs of the administration and enforcement of the current regulations involved with the removal of risk assessment requirements.

6.2 Analysis of potential alternatives

6.2.1 Removal of risk assessment

Under this option the requirement to conduct and record a formal risk assessment will no longer be required thereby reducing the costs for occupiers. Removal of risk assessment would bring the dangerous goods storage and handling regulations into line with Victoria's OHS regulations and the model WHS regulations at the national level.

WorkSafe Victoria does not believe there would be any reduction in safety if this requirement was removed and this was supported in consultation with stakeholders. Consultations also identified that a lower percentage of businesses would carry out risk assessments if the regulations did not require it as opposed to other requirements of the regulations.

Table 10 outlines the estimated savings to business for each aspect of the risk assessment process.

Table 10: Savings from removal of risk assessment requirements

Area	Saving over 10 years ($)	Saving per annum ($m)
New risk assessments	29.05	3.51
Risk assessment review	0.25	0.03
Recording risk assessments	1.94	0.23
Other costs associated with risk assessment	2.10	0.25
Total	33.35	4.03

Note that the figures in this table may not sum due to rounding.

6.2.2 Referencing third party documents

In assessing the incorporation of third party documents, WorkSafe Victoria considered the option of moving references to technical documents to the Code of Practice for Storage and Handling of Dangerous Goods as guidance on how to comply with the regulations. WorkSafe Victoria's assessment found, however, that this option would mean references to third party documents would not be legally binding, that duty holders would still be required to access documents separate to the regulations, and some important definitions may require considerable additional text within the regulations. It was therefore decided that such an option was not appropriate.

WorkSafe Victoria found that allowing a six month transition period for new obligations following automatic updating of third party documents referred to as in force from time to time would:

- be less burdensome for duty holders by allowing them time to prepare for any changes

- be supported by employers by allowing them the flexibility to spread capital and other expenses required to achieve compliance with the new obligations over a six month period or immediately if they so wish

- promote consistency by bringing the storage and handling regulations into line with other OHS regulations, other dangerous goods regulations and the Dangerous Goods Act.

It is not expected that the option to maintain reference to third party documents with a six month transition period would have any substantial impact on compliance costs because costs would eventually be incurred anyway.

6.2.3 Adoption of GHS

It is understood that some businesses who bring dangerous goods into Victoria from a jurisdiction (interstate or overseas) that has adopted the GHS would re-label inner packaging even though they would not technically have to. Under this option, these businesses would benefit from clarification explicitly allowing for GHS or the ADG Code for classification and labelling. This will provide duty holders with certainty that they can label under the ADG Code or the GHS, provide maximum flexibility to duty holders and ensure that the Victorian storage and handling regulations can operate alongside the national WHS laws. Stakeholders are supportive of this approach.

In clarifying the ability to classify and label inner packaging according to GHS or the ADG Code, current manufacturers, suppliers and occupiers may incur extra one off training costs to educate workers in respect of GHS classification and labelling. This cost however has not been included in this analysis because it would be incurred anyway even if the regulations were not in place. Without the regulations, re-labelling would not occur and businesses would be faced with the same need to train staff about GHS.

The main impact is therefore avoiding the cost of re-labelling dangerous goods from the GHS to the ADG Code as outlined in Table 11.

Table 11: Savings in clarifying allowance for GHS

Requirement	Savings over 10 years ($m)	Savings per annum ($m)
Re-labelling of GHS labelled inner packages	53.45	6.43

6.2.4 Replace incident reporting requirements with Code of Practice advice

Stakeholders, including the Plastics and Chemicals Industries Association (PACIA) raised concern with WorkSafe Victoria that reporting to emergency services spills that pose no risk result in unnecessary regulatory burden and red tape on Victorian businesses.

As discussed in chapter 5.2.4 removing occupiers from the coverage of the reporting requirements under section 32 of the Dangerous Goods Act will have the effect of removing the requirement to report to emergency services incidents that pose no risk.

The regulations contain general risk control requirements to eliminate, or reduce so far as it reasonably practicable, risks associated with the storage and handling of dangerous goods. Where an occupier was not able to control the risk associated with an incident, the general risk control duty would compel them to contact emergency services for assistance.

For those storing over manifest quantities, reporting triggers can be incorporated into occupiers' emergency plans as a way of ensuring that occupiers have clarity on when they should contact emergency services.

To facilitate this, WorkSafe will update the Code of Practice (as part of a review process which will follow the making of the new regulations) to specify that an emergency plan should include reporting triggers for contacting the emergency services. The Code will outline a risk based approach to defining criteria for notification of the emergency services for fires, explosions, spills, leaks and escapes of dangerous goods.

As such, WorkSafe Victoria believes that removal of this reporting requirement will not increase the likelihood of dangerous goods incidents and will therefore not impose any costs. WorkSafe Victoria would need to monitor this change to ensure that incidents that do pose a risk to people, property and environment are reported to emergency services in a way that meets community expectations for public safety.

Union and employer stakeholders are supportive of this approach. Emergency service stakeholders have indicated that the proposed approach is workable providing that the Code of Practice contains adequate examples of triggers and discusses the need to consider the likelihood of escalation of a situation when examining reporting thresholds."

Removing incident reporting requirements would avoid the time spent in reporting to emergency services spills that pose no risk and any costs from having emergency service vehicles attend. The estimated benefit in removal of the incident reporting requirement is shown in Table 12.

Table 12: Savings from removal of incident reporting

Area	Savings over 10 years ($)	Saving per annum ($m)
Incident reporting	0.001	0.0002
Emergency services call outs	0.35	0.04
Total	0.36	0.04

Note that the figures in this table may not sum due to rounding.

6.2.5 *Mandatory emergency services advice*

An amendment to compel duty holders to implement the advice of emergency services in relation to fire protection systems and emergency plans, as opposed to merely having regard to that advice, was first put forward by the MFB during the initial review of the regulations during 2009. The requirement to 'have regard to' advice means the advice must be taken into account (not just a fleeting consideration). The duty holder would have to show that they had taken the advice into account even if they subsequently decided not to follow the advice.

From our consultations with stakeholders, all businesses required to 'have regard to' advice from emergency services in relation to emergency plans and fire protection systems implemented that advice anyway. This supports WorkSafe Victoria's view that making such advice mandatory would not result in any additional safety benefits.

This option is therefore not supported and the current arrangements for duty holders to seek and have regard to the advice of emergency services in relation to fire protection systems and emergency plans are recommended.

6.2.6 Material Safety Data Sheets

This option would amend Regulation 307 of the current storage and handling regulations to clarify that corresponding legislation includes other Australian jurisdictions' WHS regulations and would provide for the recognition of a SDS prepared in accordance with the GHS (third revised edition or fourth revised edition).

This would allow for Victoria's storage and handling regulations to operate alongside other legislative frameworks and facilitate cross border trade. WorkSafe Victoria believes this will not result in a reduction in safety. Stakeholders were supportive of this approach.

Feedback from a multinational manufacturer during stakeholder consultations was that it is currently possible to prepare generic SDSs that could be applied under many legislative frameworks globally. Any clarification around this issue would therefore have no impact on costs or benefits of the proposed regulations.

6.2.7 Removal of requirement to record induction and training

This option would amend Regulation 403 of the current storage and handling regulations and result in occupiers no longer being required to make a record of induction and training activities, and as a result would not be required to keep that record for five years.

Such records are not considered risk control measures and are not required to allow others to carry out their duties under the regulations. As a result they will not impact the benefits of preventing incidents from the storage and handling of dangerous goods occurring.

The change will reduce the cost of compliance for occupiers by saving them time and administrative costs in recording induction and training and storing such records for five years. The estimated benefits from removing this requirement are outlined in Table 13.

Table 13: Savings from removal of requirement to record induction and training

Area	Savings over 10 years ($)	Savings per annum ($m)
Record training and induction	0.62	0.07
Total	0.62	0.07

6.2.8 Removal of placarding requirement for retail petrol stations

This option would provide an exclusion to placarding requirements for retail outlets that store or handle dangerous goods that are a flammable gas or flammable liquid and are used to refuel a vehicle. This would mean that petrol stations would not need to have a HAZCHEM sign warning that petrol, diesel or gas was on the premises.

This exclusion would not impact the benefits of the regulations in preventing dangerous goods incidents because it is obvious to emergency services the dangerous goods being stored at these outlets.

The option would provide cost savings for petrol stations in having to erect and maintain HAZCHEM signs on their premises. The estimated savings from implementing this exclusion are outlined in Table 14.

Table 14: Savings from removing placarding requirements for retail petrol stations

Area	Savings over 10 years ($)	Savings per annum ($m)
Removing placarding for petrol stations	0.08	0.01
Total	0.08	0.01

6.2.9 *Changing the frequency of manifest notifications*

This option would result in occupiers with manifest quantities of dangerous goods only being required to notify WorkSafe Victoria every five years instead of every two years. WorkSafe Victoria have advised that the frequency of two years to update on notification is considered too short and moving to a longer notification period of five years will not lower safety standards.

The regulations would also be amended to remove any impediments to moving to an online scheme in the future. Any savings from shifting to an online system have not been quantified in the estimated savings because it is not known whether or when this would occur.

The estimated cost savings on businesses as a result of this change in the notification period are outlined in Table 15.

Table 15: Savings from changing the frequency of manifest notifications

Area	Savings over 10 years ($)	Savings per annum ($m)
Manifest notification	0.18	0.02
Total	0.18	0.02

6.3 *Remaking the current regulations with changes*

6.3.1 *Determining of preferred approach*

The marginal analysis in section 6.2 identified a number of potential alternatives that would provide a reduction in costs on Victorian businesses without impacting safety and therefore the benefits of the regulations in reducing incidents, claims or fatalities. As a result a remake of the current regulations with the following changes is preferred:

- removal of risk assessment requirements
- replace incident reporting requirements with Code of Practice advice
- allowing for GHS
- removal of recording requirements for induction and training
- removal of placarding requirements for retail petrol stations
- increasing the notification period for manifest quantities.

These changes target the majority of the major costs of the current regulations (as set out in Table 7). The one exception is the requirement for consultation, induction and training. Our analysis found that consultation, induction and training imposed a significant cost under the current regulations, and while the proposed approach seeks to remove some of the burden of this requirement

through the removal of recording requirements for induction and training, a substantial cost still remains.

While consultation, induction and training remains a cost for occupiers of dangerous goods, the link between this requirement and safety benefits has been clearly established. For example, the Productivity Commission has previously considered the issue of consultation with workers from the perspective of regulatory burden. They found that the burdens faced by business as a result of consultation provisions and arrangements are likely to be material in the aggregate but that participation of workers and their representatives in OHS is an important driver of OHS outcomes.[32] The Commission sites various studies in support of this view. The Commission goes on to observe that for those businesses where consultation provisions have been activated "the resultant burdens should be considered in light of the widely accepted importance of worker consultation and participation as a 'necessary condition of the effective regulation of health and safety at the workplace.'"[33]

WorkSafe Victoria believes that consultation with employees and their representatives should be encouraged and supported and is critical to the successful management of risks to safety at the workplace. The 2007 review approached the issue on the basis that consultation provisions in existing OHS Regulations were not translated because most of these matters are covered by the consultation duty in the OHS Act 2004. However, where an existing regulation requires consultation in relation to a specific activity not expressly covered by the OHS Act 2004 that requirement was transitioned into the proposed regulations but amended to require consultation with employees consistent with the OHS Act.[34] The RIS on the Victorian OHS Regulations 2007 noted "A review of OHS research literature by WorkSafe looked at the relationship between worker representation and the standards of health and safety outcomes…the review concluded that representative mechanisms are related to better health and safety outcomes."[35]

As a result of this analysis consultation, induction and training is retained as part of the preferred approach.

The preferred approach would decrease the costs on business by 49 per cent from $171 million to $83 million over the 10 years the regulations would be in place.

6.3.2 *Costs of preferred approach*

The total cost of compliance under the proposed regulations is $83 million as outlined in Table 16.

32 Productivity Commission, *Performance Benchmarking of Australian Business Regulation: Occupational Health and Safety*, 2010, p. 218.

33 Ibid., p. 219.

34 WorkSafe Victoria, Occupational Health and Safety Regulatory Impact Statement, 2007, pp. 46-47.

35 Ibid., p. 46.

Table 16: Costs of the preferred approach

Area	Costs over 10 years ($m)	Costs per annum ($m)
Cost of remaking the current regulations	171.28	20.67
Less benefits associated with risk assessment requirements	33.35	4.03
Less benefits of removing incident reporting	0.36	0.04
Less benefits of allowing for GHS	53.45	6.43
Less benefits of removing recording requirement for training	0.62	0.07
Less benefits of removing placarding for retail petrol stations	0.08	0.01
Less benefits of increasing notification period	0.18	0.02
Total costs under the proposed regulations	83.26	10.07

Note that the figures in this table may not sum due to rounding.

Table 17 breaks down the total costs of compliance for occupiers and the additional costs specific to manufacturers required to comply with the proposed regulations.

Table 17: Total costs under the proposed regulations for occupiers and manufacturers/suppliers

Stakeholder	Costs over 10 years ($m)	Costs per annum ($m)	Costs per business ($ p.a.)
Occupiers	80.90	9.78	103
Manufacturers/suppliers	2.35	0.28	94
Total*	83.26	10.07	106

Note that the figures in this table may not sum due to rounding. * Cost per business is not a total but a weighted average of small and large businesses.

Table 18 breaks down the total cost of compliance for small and large businesses under the proposed regulations.

Table 18: Total costs under the proposed regulations for small and large business

Area	Costs over 10 years ($)	Costs per annum ($m)	Costs per business ($ p.a.)
Small business	29.43	3.55	42
Large business	53.83	6.51	646
Total*	83.26	10.07	106

Note that the figures in this table may not sum due to rounding. * Cost per business is not a total but a weighted average of small and large businesses.

Re-making the existing regulations with the proposed changes would cost:

- for small business, $42 per year per business, meaning about $8 per employee per year
- for large business, $646 per year per business, meaning about $13 per employee per year.[36]

In terms of the nature of hazards relating to dangerous goods, it could be argued that this is a small price to pay for promoting safety in the workplace where

[36] The 'per employee' estimates have been calculated on the basis that there are, on average, approximately five employees per small business and 50 employees per large business.

dangerous goods are concerned. This also represents a 49 per cent decrease in the costs incurred by business than simply remaking the existing regulations without change, with no decrease in the safety benefits.

6.4 Benefits

There will be a number of benefits arising from the remaking of the current dangerous goods storage and handling regulations with the preferred changes. The principal benefit will be from avoiding significant incidents involving the storage and handling of dangerous goods. Such incidents result in major damage to property and the environment, as well as multiple injuries and deaths. The cost impacts of such a significant incident could well run into the hundreds of millions of dollars. If one significant incident was avoided in the 10 year life of the proposed regulations, it is likely that the benefits would outweigh the $83 million cost of compliance on Victorian businesses.

Other benefits include a reduction in the frequency and severity of the following events from smaller scale dangerous goods incidents:

- deaths
- claims (injuries and illnesses that led to a claim)
- non-reported injuries and illnesses
- incidents that led to property and environmental damage.

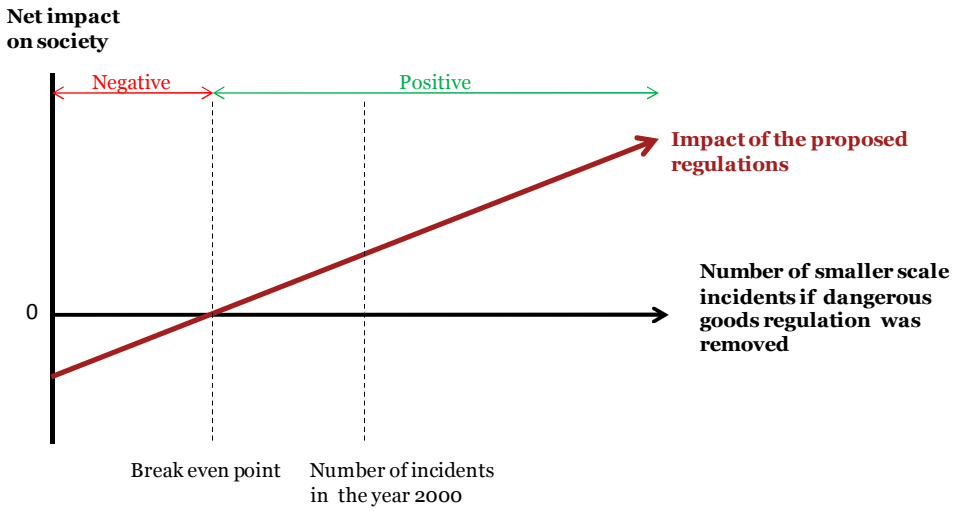
6.4.1 Breakeven analysis

The benefits of the proposed regulations are determined by the number of incidents, injuries and deaths that would occur if the regulations were allowed to lapse (sunset) without replacement. It is difficult to estimate the benefits that are in fact attributable to the proposed regulations because the storage and handling of dangerous goods has been regulated for many years. The extent to which incidents would increase if the regulations were removed cannot be observed and the government is not prepared to allow the regulations to lapse and see how many more people are injured or killed, nor how much damage to property and the environment could occur.

Given the uncertainty, it is useful to consider the minimum necessary increase in incidents to justify the remaking of the regulations (that is, the breakeven point). This RIS determines the number of events from incidents (deaths, claims, non-reported claims and incidents leading to property or environmental damage) that would need to be prevented each year in order for the proposed regulations to provide a net benefit to society. The likelihood of avoiding this number of events as a result of the proposed regulations is then assessed. Significant incidents are not included in this analysis, as their value and frequency is subject to a greater level of uncertainty.

The diagram in Figure 5 demonstrates the potential net benefit to society that would result as the number of incidents increases without regulation in place. The more incidents that are expected to occur without regulation in place, the greater is the benefit of the proposed regulations in avoiding these incidents.

Figure 5: Net impact of the proposed regulations



If without the regulations in place, the number of incidents increases to above the breakeven point, there will be a net benefit to society from re-making the proposed regulations. This is demonstrated in Figure 5.

If we exclude major incidents, the regulations would breakeven and the safety benefits would outweigh the associated costs if the level of incidents were greater than the following levels in the base case without the regulations in place:

- 0.6 death per year
- 210 claims (injuries and illnesses that led to a claim) per year
- 375 non-reported injuries and illnesses per year
- 78 incidents that led to property and environmental damage.

This is based on the current distribution of incidents across each incident type. This number of incidents represents an increase of 40 per cent compared to the number of incidents under the current regulations.[37] The incidents that currently occur with regulations in place are expected to occur in the future if the regulations are allowed to sunset (as these occurcurrently even with regulation in place). Therefore, if the removal of regulations resulted in a 40 per cent increase in incidents (to the levels listed above), the benefits of avoiding this increase would outweigh the costs of the proposed regulations.

6.4.2 How likely is it that a net benefit will result?

It is important to determine how likely it is that the level of incidents at the breakeven point would occur if the storage and handling regulations were allowed to expire without replacement. That is, how likely is it that the number of incidents will increase beyond current levels to a point above the minimum breakeven point?

To assess the likelihood of reaching the breakeven point and generating a net benefit, a reference point of past incidents can be useful. As demonstrated in Figure 5, if incidents rose to simply match the levels in the year 2000, then the benefits of the proposed regulations would outweigh the costs. The number of

[37] For more information on how this is calculated, please see Appendix B.

incidents in 2000 has no direct relationship to the expected number of incidents without regulation and the environment may not be exactly the same. However, it could be expected that if these levels occurred with regulation in place, the level without regulation may be even greater. This also demonstrates that the current level of incidents may be a low base of comparison.

Some further factors to consider in assessing the likelihood are as follows:

- During consultations, 75 per cent of businesses said they would carry out requirements placed on them even if the regulations were removed.[38] Of those that are compliant, this means if the regulations were removed, 25 per cent of businesses (or almost 24,000 businesses) would no longer adequately address and control the risks of dangerous goods.

- If the regulations were allowed to lapse, businesses would still be subject to general OHS requirements, and the Dangerous Goods Act and its associated regulations such as those for transport.

- The breakeven point does not account for significant incidents. If removing the regulations resulted in only one significant incident, with multiple fatalities and extensive damage, the benefit of avoiding this incident would lead to a net benefit for society without any change in smaller scale incidents.

The question therefore, is whether the changes in business behaviour from removing the regulations would be significant enough to increase incidents above the breakeven point or lead to one significant incident. Given the breakeven point is below the number of incidents experienced with regulation in place in 2000, it seems reasonable to assume that without regulation in place, the level of these events would be even higher and the safety benefits of the regulations would outweigh the costs.

As the level of incidents cannot be observed in the base case, the government is not prepared to allow the regulations to lapse and see how many more people are injured or killed, nor how much damage to property and the environment could occur.

[38] This average does not include requirements that only exist because of the regulations; for example, manifest notification.

7 Preferred option

The chapter provides a summary of the preferred option arising from the cost benefit analysis. It also provides an assessment of the preferred option's impact on small business and competition, before outlining an evaluation strategy.

7.1 Summary of preferred option

From the cost benefit analysis in chapter 6 the preferred option is to remake the current regulations, removing the requirement to undertake, record and review formal risk assessments; clarifying the provision for classification and labelling using either the ADG Code or GHS; and replacing the explicit requirement to report spills to emergency services with advice in the Code of Practice. Although the benefits of increased clarity and flexibility under the options to clarify references to third party documents and allow for MSDS prepared under corresponding legislation have not been quantified, these options are included.

An outline of the key requirements of the proposed regulations was provided in chapter 5.1, although the sections on risk assessment and reporting of spills would be removed. Manufacturers and suppliers would be given further clarification in relation to the classification and labelling of dangerous goods in accordance with either the ADG Code or GHS, and in the acceptance of MSDSs, prepared for other jurisdictions or regulations. A full copy of the proposed regulations has been made available by WorkSafe Victoria as a separate document.

7.2 Impact on small businesses

An assessment of the small business impacts must consider matters such as:

- variation in the compliance burden
- whether any compliance flexibility options have been considered that will assist small businesses to meet the requirements of the proposed measure
- the likely extent of compliance by small versus large business
- the distribution of benefits arising from the proposed measure
- the relative impacts of penalties and fines for non-compliance.

As was noted in the consultations, dangerous goods are used in many, if not all, types of industries and all sizes of businesses. The proposed regulations place more requirements upon dangerous goods users who hold larger quantities.

Consultations noted that small business with between one and 19 employees were more likely to have lower quantities of dangerous goods and hence are likely to have lower compliance costs under the proposed regulations. The one clear exception is petrol stations, which have large quantities of dangerous goods, but employ fewer than 20 employees. However, many petrol stations are held by operators under a broader brand name and therefore minimise their compliance costs through having standard policies and procedures provided by head office.

Nevertheless, there are some compliance costs for small businesses that use small quantities of dangerous goods. They will be required to implement control

measures to protect employees. These occupiers also have to provide information, instruction and training to their employees, and keep records of this. However, the compliance costs associated with these requirements are not considered to be prohibitive or excessive for small businesses. Small businesses will also benefit from the removal of risk assessment requirements.

7.3 Competition assessment

Any new legislation in Victoria must 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.

A legislative amendment is considered to have an impact on competition if any of the following questions in the table below can be answered in the affirmative. The table shows the rationale and significance of those areas where there is an impact on competition.

Table 5: Criteria for determining adverse competition impacts

Question	Answer	Significance
Is the proposed measure likely to affect the market structure of the affected sector(s) – ie will it reduce the number of participants in the market, or increase the size of incumbent firms?	No	N/a
Would it be more difficult for new firms or individuals to enter the industry after the imposition of the proposed measure?	No	In comparison to the current regulations the proposed regulations do not represent a major change to the status quo. Removal of risk assessment requirements will make it easier for firms or individuals to enter.
Would the costs/benefits associated with the proposed measure affect some firms or individuals substantially more than others (eg small firms, part–time participants in occupations, etc)?	No	
Would the proposed measure restrict the ability of businesses to choose the price, quality, range or location of their products?	No	N/a
Would the proposed measure lead to higher ongoing costs for new entrants that existing firms do not have to meet?	No	N/a
Is the ability or incentive to innovate or develop new products or services likely to be affected by the proposed measure?	No	N/a

Source: Government of Victoria 2007, pages 5-22.

7.4 Implementation and enforcement

WorkSafe Victoria will be responsible for administration and enforcement of the new regime. Under the Dangerous Goods Act, WorkSafe Victoria can appoint inspectors who have rights of entry to premises to ensure duty holders comply with requirements made under the Act. They do this by providing advice and information, inspecting workplaces and enforcing the law. Worksafe inspectors play a key role in implementing WorkSafe Victoria's constructive compliance strategy. Inspectors can take the following action to ensure contravention of a regulation under the dangerous goods storage and handling regulations is fixed:

- get immediate voluntary compliance and take no further action
- issue an improvement notice requiring the contravention to be fixed by a certain date
- issue a prohibition notice where there is an immediate risk and the activity must stop until the risk is removed
- direct that a certain action be taken where an immediate risk exists, or if the inspector deems this appropriate.

Worksafe Victoria issued 9,054 improvement notices and 133 prohibition notices between 1 January 2005 and May 2012 as outlined in Figure 6.

Figure 6 WorkSafe Victoria improvement and prohibition notices

Source: WorkSafe Victoria

The increase in the number of improvement notices is linked to an increase in dangerous goods related enforcement projects over the 2006 to 2012 period. This increase in dangerous goods related projects was driven by research undertaken during the development of the Workplace Chemicals Strategy. It was identified that there was a lack of claims data related to chemical hazards and risks. To make significant inroads in to the levels of risk from workplace chemicals, WorkSafe needed an approach that was more responsive to risks that were "hidden" by poor data and allowed for the more flexible application of resources. A workplace chemicals strategy was designed to ensure prevention programs were targeted at significant chemical risks. Many of the chemicals looked at via programs under the Workplace Chemicals Strategy were also dangerous goods. As such this increased

focus on dangerous goods lead to an increase in notices issued under the Dangerous Goods Act.

7.5 Evaluation strategy

It is an important step in best practice regulation to review regulations regularly to ensure that they remain the most appropriate means of addressing the specified objectives. An evaluation strategy helps to monitor the effectiveness of the preferred regulatory option.[39]

The Victorian Guide to Regulation[40] states the following key issues should be considered when reviewing the regulation:

- Is there still a problem that requires government intervention? Have there been any relevant changes or developments since the regulation was implemented?
- Are the objectives of the regulation being met?
- Are the impacts of the regulation as expected? Are there any effects or problems that were not anticipated?
- Is the regulation currently in place still the most appropriate form of action? Does experience with the measure suggest ways that it can be improved to meet the objectives? Is a different regulatory approach now warranted?

Data that could be used to gauge the impact of the proposed regulations include:

- levels of compliance
- the number of improvement and prohibition notices issued
- the number of claims
- the number of incidents notified to WorkSafe Victoria and/or emergency services.

WorkSafe Victoria will undertake an evaluation of the proposed regulations leading up to the expiry of the regulations in December 2022. The outcomes of this evaluation would feed into the next RIS process. WorkSafe Victoria will engage with stakeholders after the regulations are in place to finalise the exact timing and scope of this evaluation; including input on defining the performance indicators to measure the effectiveness of the regulations and the best way to assess how changes have affected business behaviour.

It is envisaged that the evaluation will involve a review of data listed above in order to determine the effectiveness of the regulations in meeting stated objectives, the levels of compliance and whether the risks associated with the storage and handling of dangerous goods still require government intervention. In reviewing data on claims and incidents, there will be a need to update the comprehensive review undertaken by WorkSafe Victoria's Dangerous Goods Unit in 2007.

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39 Government of Victoria, 2011, 'Victorian Guide to Regulation', Department of Treasury and Finance, Melbourne.

40 Government of Victoria, 2011, 'Victorian Guide to Regulation', Department of Treasury and Finance, Melbourne, p 94.

The evaluation could also involve an assessment of individual areas of regulation to ensure that the benefits continue to outweigh the costs. For example, this may include an assessment of regulations aimed at providing information to emergency services, ie placarding, manifests and emergency plans. A representative sample of businesses will be surveyed to understand their views and resulting costs and benefits of the regulations. The assessment will consider factors such as how the regulations result in changes to behaviour, how the regulations are complied with and stakeholders' views on the effectiveness of the regulations.

The results of a stakeholder survey and assessment of the claims data specific to the regulations will be used to inform this evaluation. The aim of the evaluation will be to test the effectiveness of the regulations to ensure burden is not unnecessarily placed on businesses without a commensurate benefit.

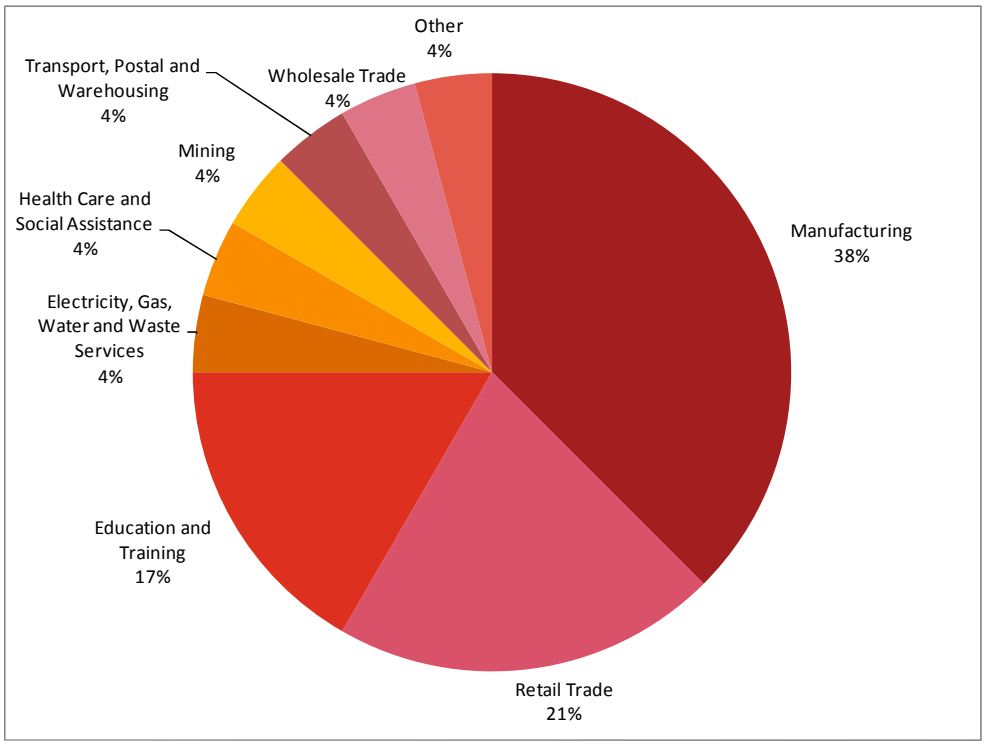
Appendices

Appendix A Consultations

In preparing this RIS PwC consulted with a range of stakeholders that store or handle dangerous goods. A selection of 25 businesses and organisations were consulted with in June 2012. They came from a range of industries, as Figure 7 shows. Of these stakeholders:

- 13 (or 52 per cent) employed between one and 19 staff
- Nine (or 36 per cent) had between 20 and 200 employees
- Three (or 12 per cent) counted more than 200 people as their employees.

Figure 7: Stakeholders consulted by industry



Note: Stakeholders are classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC) 2006.

The stakeholders were asked a range of questions to gather information on the current regulation's costs and benefits. While stakeholders were asked a number of common questions, those that identified as holding placarding (11 respondents), manifest (11 respondents) or fire protection quantities (10 respondents) were asked additional questions.

The questionnaire is as follows:

Questionnaire for Stakeholder Consultation

Introduction

First of all, thank you for agreeing to participate in this telephone interview. My name is [insert PwC interviewer name], and I work at PwC.

I've got with me [insert WSV representative name] who work in the policy area of WorkSafe Victoria. Their role is to provide clarification of any compliance requirements if needed to assist in answering the questions.

As detailed in the confirmation email you will have received we are conducting an assessment of the *Dangerous Goods (Storage and Handling) Interim Regulations* 2011.

We will be asking a series of questions which seek to understand the costs of complying with the Regulations, and some options on how the Regulations may be modified. We will also be asking some questions to help us understand the benefits of the Regulations.

All the information we collect during this consultation will:

- be confidential
- not be used for any purpose other than to inform PwC's analysis
- be aggregated and/or not be attributed to any individual business.

We will start with a few general questions, and then ask about some more specific questions related to storage and handling of dangerous goods.

General

Dangerous goods are substances that may be corrosive, flammable, explosive, spontaneously combustible, toxic, oxidising or water-reactive.

1. Are you able to provide us a bit of background to your organisation?
   a) What industry do you work in?
   b) Are dangerous goods part of your operations? Eg. do you use, store, sell, manufacture dangerous goods such as petrol, kerosene, LPG, paint, ammonium nitrate fertiliser and batteries?
   c) What are the main types of dangerous goods do you have?
   d) What are your main activities involving dangerous goods? Eg. manufacturing, blending/mixing, cleaning, storage/warehousing
   e) What quantity of dangerous goods would you have on-site at any one point in time?

[note to interviewer, classify interviewee as: manufacturer/supplier, occupier, retailer, placarding quantities, manifest quantities or fire protection quantities]

2. Do you seek advice from any other parties in determining what is required for the storage and handling of dangerous goods? Eg. WSV, consultants, MFB, parent company, other?
3. How many employees do you have (ideally seeking exact number)?
   - None
   - 1 – 19
   - 20 – 200
   - More than 200
4. What percentage of your employees work with dangerous goods?
5. Are your operations only in a rural/regional area?
6. Do you operate in other States or Territories of Australia?

Questions just for occupiers

An occupier is a person who owns or is in control of a premise where dangerous goods are stored or handled.

Hazard identification

Occupiers who hold dangerous goods must ensure that any hazard associated with storage and handling of the dangerous goods is identified.

7. How much time (or how much does it cost) on average to identify the hazards related to the storage and handling of the dangerous goods? Initially vs. ongoing?
8. Without the regulations would you do this differently? Why? eg. Insurance requirements, interstate/international practices.

Risk assessment and record of risk assessment

Once a hazard is identified, a risk assessment must be completed. The risk assessment must be updated every five years, or when a change in the circumstances occurs (eg. different dangerous goods, different work processes).

9. Do you undertake a risk assessment in relation to hazards identified for dangerous goods? If so, how much time does it take (or how much does it cost) on average to complete a risk assessment?
10. If yes, how many risk assessments do you undertake per annum on average?
11. How often do you review your risk assessment (eg. changes to work processes) each year on average? What are the costs associated with the review?
12. How much time is spent per annum to keep a record of your risk assessments?
13. Are there any other costs associated with a risk assessment eg. use of consultants?
14. If the requirement to conduct a formal risk assessment process for dangerous goods was removed what would you do differently?
15. How would this impact on safety in your workplace?

Control of risk

Occupiers are required to ensure that any risk associated with the storage and handling of dangerous goods is controlled by eliminating the risk or, where that is not practicable, reducing the risk as far as practicable.

16. How much time / resources are spent on controlling the risk associated with the storage and handling of dangerous goods? Initially and per annum costs*? [note to interviewer: use Anita/Conrad list for further detail]* For example,

    a) Eliminating the risk
    b) Substituting the dangerous goods with other goods
    c) Reducing the quantities stored and handled
    d) Use of engineering controls (eg. ventilation, automating a process, providing spill control)
    e) Isolating the risk (eg. distancing the DGs from people and property, providing a fume cupboard)
    f) Administrative controls (eg. procedures for waste disposal, regular cleaning, rotation of employees)
    g) Personal protective equipment (eg chemical resistant gloves, goggles or face shields)

17. To what extent, if any, do you refer to Australian Standards when developing risk controls?
18. Without the regulations would you control risks differently? If yes please explain.

Consultation

Occupiers must ensure that any person involved with the storage and handling of dangerous goods and/or combustible liquids is consulted with.

19. How much time is spent consulting employees associated with dangerous goods on average (eg. per employee per annum)?

20. Without the regulations would you do this differently?

Induction and training

Occupiers must ensure employees are provided with appropriate induction, information and training relating to the dangerous goods. Occupiers must also keep records of this induction and training. They must also provide visitors to the premises with information, safety instruction and supervision that are sufficient to ensure any risk to them from dangerous goods is reduced so far as is practicable.

21. How much time is spent inducting new employees associated with dangerous goods on average (eg. per employee)?
22. How much time is spent training existing employees associated with dangerous goods on average (eg. Per employee per annum)?
23. How much time is spent keeping records of the induction and training per annum?
24. Are there any other costs related to induction and training eg. providing information, instruction and supervision of visitors per annum?
25. Without the regulations would you do this differently?

Register of dangerous goods

Occupiers storing and handling goods in packages over a certain size are required to keep a register of dangerous goods (with a MSDS for each good) that are stored and handled on the premises.

26. How much time and cost is spent initially to establish the register?
27. How much time would you spend annually maintaining the register?
28. Without the regulations would you do this differently?

Equipment for clean up

The Regulations require that an occupier of a premise where dangerous goods are stored and handled must ensure that the equipment and materials are available on premises to allow for containment and clean-up of reasonably foreseeable incidents.

29. What is the cost of providing any equipment and materials to contain or clean-up incidents involving dangerous goods?
30. Without the regulations would you do this differently?

Fire protection system

The Regulations require that an occupier of a premise where dangerous goods are stored and handled must ensure that the premises have a fire protection system that is designed and constructed for the types and quantities of dangerous goods, and that uses fire fighting equipment that are compatible with the dangerous goods to effectively control incidents. The fire protection system needs to be property installed, tested and maintained; accessible to persons on the premises and to emergency services; and be capable of being used by the emergency services authority.

31. What is the cost of providing a fire protection system? Initially (how often would you incur this cost) vs. ongoing (per annum)?
32. Without the regulations would you do this differently?

Incident reporting

33. Have you had a spill/leak of dangerous goods?
34. Was the spill/leak from a large container (over 500 litres/ kg) or smaller container (under 500 litres/ kg)
35. How big was the spill? (eg. litres, kilograms)
36. Did it involve any injuries or damage to property?
37. Could you estimate the impact of the incident in terms of costs of clean up etc?
38. Did you report it to emergency services?

39. Were you billed by the emergency services? If so how much did this cost?
40. Following an incident, do you review the risk assessment, risk controls or both the risk assessment and risk controls? How long does this take?

Classification and Labelling

41. Do you provide training and instruction to workers relating to the interpretation of information contained on labels and safety data sheets for dangerous goods eg it's class, pictogram etc.
42. Do the precautionary statements and pictograms for the same product differ slightly from one supplier to another? If yes, has it been necessary to do things differently in your workplace - for example providing additional training and instruction to workers? How long does this take?

Questions just for retailers

43. What do you do differently to manage the storage and handling of dangerous goods due to the Dangerous Good (Storage and Handling) Regulations compared to other goods you sell? [ask additional questions to gauge costs if necessary]

Retailers of packaged dangerous goods must generally ensure, as far as practicable, that the container used to store the dangerous good is suitable.

44. Does this requirement impose any additional costs on you over what you would do anyway? If so, what would they be?

Questions just for holders of bulk dangerous goods

45. Do you provide containers for bulk goods to ensure that they are stable, prevent excessive stress and are protected from corrosion?
46. If so, how much does this cost (how much time does it take)? Initially (how often would you incur this cost) vs. ongoing (per annum)?
47. How often do you inspect the container and keep records of the inspection? How much does this cost (how much time does it take)?
48. Without the regulations would you do this differently?

Additional questions just for holders of placarding quantities

Placarding

49. Do you have a hazchem sign on the entrances to your workplace? If so, how many?
50. How much time (or what is the cost) of the signage initially vs. ongoing? Are there any other costs?
51. How much time (or what is the cost) of maintenance of the placard (per annum)? eg do you buy a new hazchem sign every 10 years?
52. Without the regulations would you do this differently?

Additional questions just for holders of manifest quantities

53. Do you know if you have manifest quantities of dangerous goods?

Notification

54. How much time is spent compiling the information required for notification of your manifest quantities?

Currently the notification is required every two years.

55. If the notification was only required when significant changes in quantity occurred, or where there was a change in risk, would that mean that you would have to notify more or less often? If so, by how much?

Role of emergency services in the development of emergency plan

The Regulations require that duty holders with manifest quantities seek advice from emergency services, and have regard to that advice when developing an emergency plan.

56. How much time/resources are required to develop an emergency plan? Initially (how often would you incur this cost) vs. ongoing (per annum)?
57. When you received written advice from the fire services did you implement that advice?
58. How much time/resources were required to implement the advice? What impact did this change have on safety within your workplace?

Additional questions just for holders of fire protection quantities

Role of emergency services in the development of fire protection system

The Regulations require that duty holders who hold dangerous goods above the 'fire protection threshold' seek advice from emergency services, and have regard to that advice when developing a fire protection system.

59. How much time/resources are required to put a fire protection system in place? Initially (how often would you incur this cost) vs. ongoing (per annum)?
60. Without the regulations would you seek advice from emergency services regarding your fire protection system?
61. When you received written advice from the fire service did you implement that advice?
62. How much time/resources were required to implement the advice? What impact did this have on safety within your workplace?

Questions just for manufacturers / suppliers / importers

Classification and Labelling

63. Are any of the dangerous goods you supply classified by another entity – eg parent company, goods classified by an overseas manufacturer etc?

64. If yes:

    a) what percentage would be classified by another entity?
    b) what system of classification did the other entity use: eg GHS second or third edition? Other please specify.....

65. Given there are classification requirements associated with the transport of dangerous goods, are there any additional costs associated with the requirement to classify dangerous goods? If yes, what are they?
66. Do you supply dangerous goods interstate?
67. If the regulations permitted manufacturer/supplier more flexibility in respect to systems used for the classification and labelling systems of dangerous good what impact would this have on your organisation? For example, do you currently need to reclassify imported dangerous goods to comply with ADG7 requirements? If yes please explain ...

Preparation of Material Safety Data Sheets (MSDS)

68. How often would you prepare a new MSDS? How often would you revise an existing MSDS?
69. What % of the MSDS that you provide to market would have been prepared by another entity in part or in full? For example: parent company, another manufacturer or supplier based overseas or interstate, derived from MSDS for a similar or related product already at market etc?
70. How much does it cost (or how much time does it take) to prepare a new MSDS?

71. How much does it cost (or how much time does it take) to revise a current MSDS?
72. Do you believe that the requirement to review every five years or when new information becomes available is adequate?
    a) Yes
    b) No, it should be reviewed more often (how often?)
    c) No, it should be reviewed less often (how often?)
73. Without the regulations would you do this differently?

Supply of MSDSs

The DG (S + H) Interim Regulations require manufacturers and suppliers to supply a MSDS to a purchaser on (i) the first supply of a dangerous good or, (ii) on the first occasion of supply after each revision to the MSDS.

74. How many MSDSs do you supply per annum?
75. How much does it cost (or how much time does it take?) to supply an MSDS on average?
76. Without the regulations would you do this differently?

Alignment of the MSDS requirements with Vic OHS regulations or WHS laws

77. Do you currently prepare separate Safety Data Sheets for other Australian jurisdictions and/or overseas?
78. If you could use/rely on MSDSs that have been prepared in compliance with other legislative schemes (eg. Victorian OHS Regulations or SDS requirements for hazardous chemicals in other jurisdictions OHS or DG laws), what impact would this have on your organisation?
79. Would greater flexibility in this area impact on safety standards at your workplace? If so how?

Overarching questions

80. Are there any other costs or benefits related to the current Regulations which we have not considered?
81. Do you have any suggested revisions to the current Regulations that would:
    a) increase the safety benefits
    b) decrease the burden from compliance with the Regulations?
82. What effect would these revisions have (costs and benefits)?

Conclusion

That concludes our survey. Thank you for your time today.

Note that all information that you have provided will be kept confidential and will be aggregated with other responses to form the preparation of our RIS. Once the RIS is prepared it will be released for public consultation along with draft Regulations. [note that timing of this is dependent on the Minister].

If we have any follow up questions do you mind if we call you in relation to these?

Should you have any further questions, please direct these to the email address used to confirm this interview.

Appendix B Technical appendix

Cost benefit analysis

Base case

In identifying the costs and benefits likely to arise from the viable options, the base case needs to be defined for comparison purposes (ie what are the potential costs and benefits compared to the situation where the proposed approach is not adopted).

Under the base case, the Dangerous Goods (Storage and Handling) Interim Regulations 2011 would be allowed to sunset on 5 December 2012 without replacement. Manufacturers, suppliers and occupiers would still be required to meet their general duties under the *Dangerous Goods Act 1985*.

Other regulatory controls for dangerous goods would also be in place including those imposed by:

- Dangerous Goods (Explosives) Regulations 2011
- Dangerous Goods (High Consequence Dangerous Goods) Regulations 2005
- Dangerous Goods (Transport by Road or Rail) Regulations 2008.

Employers would also still be required to comply with the general duties in the *OHS Act 2004* and specific obligations to control the risks associated with hazardous substances under the OHS Regulations 2007.

Framework for estimating costs

The average business cost for each of the requirements of the regulations has been calculated based on data and estimates collected through business consultations, primary research and advice and information provided by WorkSafe Victoria. These estimates were also discussed with a dangerous goods expert.

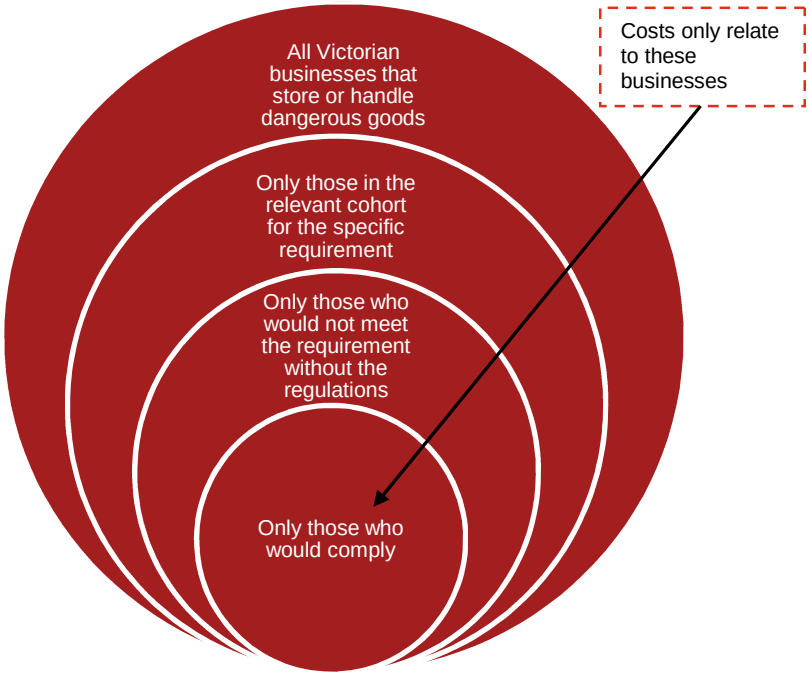
Where the average business cost was estimated from consultation, the median (ie the mid-point of the data) of business responses was used to prevent outliers in the data skewing the cost estimate. The average cost per business was then applied to the total number of businesses affected by the regulations.

To identify the number of businesses affected, the following factors were taken into account:

- some requirements are only relevant for certain business cohorts, such as those holding placarding quantities or manufacturers and suppliers of dangerous goods
- some businesses would meet the requirements of the regulations even without the regulations in place, meaning their costs are not attributable to the regulations themselves
- not all businesses would comply with the regulations and hence would not incur the costs of compliance.

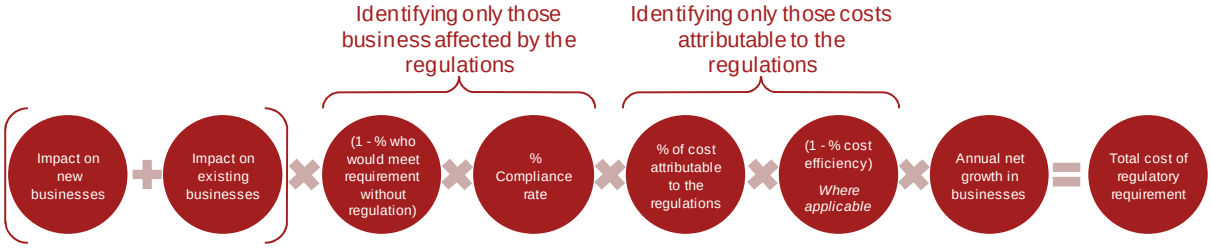
A diagrammatic explanation of the approach taken to estimate the number of businesses affected by each regulatory requirement is shown in Figure 8.

Figure 8: Diagrammatic explanation of the number of businesses affected by the regulatory requirements

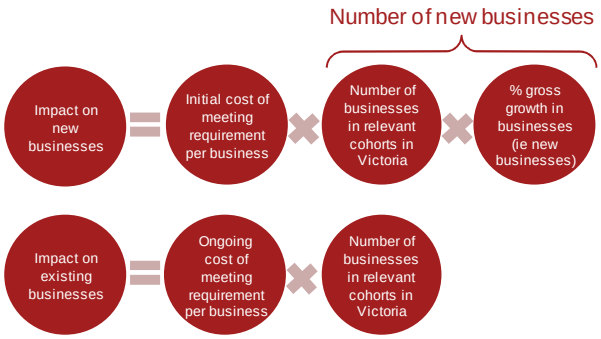


The total cost of each regulatory requirement has been calculated based on the per business cost of complying (identified through consultation or other sources), the number of businesses affected and a series of other assumptions that identify the proportion of cost attributable solely to the regulations. The approach taken to calculating the per annum cost for each requirement is shown in Figure 9. This diagram shows the approach for a typical calculation and as such does not provide detail that is specific to each requirement quantified.

Figure 9: Diagrammatic explanation of the calculation for estimating the costs



Where:



The following points provide some explanation of the calculation:

- The initial cost of meeting the requirement is only incurred once when first complying with the regulations. Existing businesses have already incurred this cost under the existing regulations, meaning their cost is already sunk and would not be attributable to the new regulations. Hence, this cost is only incurred by new businesses each year.

- The % gross growth rate in businesses represents the expected increase in businesses per annum before accounting for businesses that leave the industry. It is based on business entries data and hence is used to estimate the number of new businesses each year.

- The ongoing cost is incurred by all existing businesses in the relevant cohort.

- The % of businesses who would meet the requirements without the regulations are removed, as their costs would not be attributable to the regulations.

- Applying the % compliance rate ensures the cost is only applied to those businesses who will comply with the requirement and hence incur the costs of doing so.

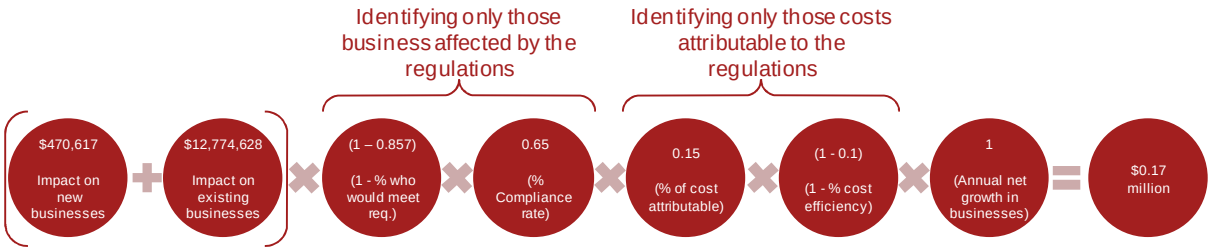
- The % of cost attributable to the regulations is applied to account for the fact that the cost of managing dangerous goods is not solely incurred due to the regulations. Businesses may also be driven to invest in dangerous goods related matters because they have general duties under OH&S (to create a safe workplace) and the Dangerous Goods Act. The value of this percentage varies according to the requirement being assessed.

- The % cost efficiency only applies to hazard identification, information, induction and training, and record-keeping related requirements. This accounts for the efficiency that businesses gain from doing these activities to meet a range of obligations. For example, in undertaking dangerous goods related training, efficiencies would be gained from undertaking training for all obligations (ie such as OHS training) at the same time.

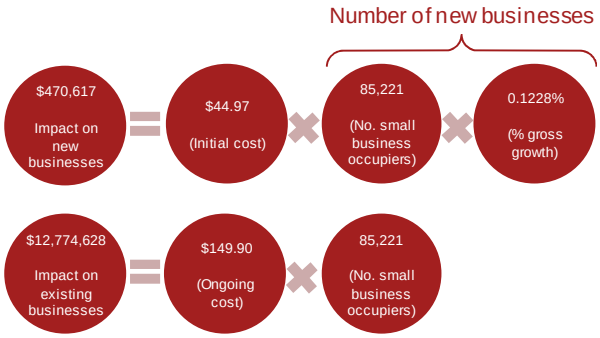
- Annual net growth in businesses – a net growth rate has been applied to the existing number of businesses over time. The growth has been applied exponentially beginning in year two of the proposed regulations.

An example of the calculation is provided in Figure 10. The example shows the annual cost of hazard identification for small business in year one. The calculation is done separately for small and large business, as their underlying per business costs are expected to vary.

Figure 10: Example of the calculation for estimating costs (impact on small business of hazard identification)



Where:



In the example:

- Hazard identification is relevant for all occupiers and hence the relevant business cohort is all small business occupiers
- The relevant figure to account for annual growth in businesses is one in year one, as growth is assumed to begin in year two.
- Each of the assumptions used in this calculation are outlined in the tables below.

General cost assumptions

The following general assumptions will be used in estimating the cost and benefits of remaking the current regulations and the potential alternatives.

Table 19: General assumptions for cost benefit analysis

Assumption	Unit	Value	Source
Discount rate	% p.a.	3.50%	Department of Treasury and Finance (Victoria), 'Victorian Guide to Regulation', Edition 2.1, Melbourne, August 2011, Page 83; Partnerships Victoria, 'Use of Discount Rates in the Partnerships Victoria Process', Technical Note, July 2003.
Time assumptions			
Number of hours in one working day	Hours	8.2	Calculated based on the number of hours in one working week and the number of days in one working week.
Number of days in one working week	Days	5.0	PwC Assumption
Number of working weeks in one year	Weeks	44.0	Department of Treasury and Finance (Victoria), 'Victorian Guide to Regulation – Appendices', Edition 2.1, Melbourne, August 2011.
Number of total weeks in one year	Weeks	52.0	PwC Assumption
Number of hours in one	Hours	41.0	Department of Treasury and Finance (Victoria),

Assumption	Unit	Value	Source
working week			'Victorian Guide to Regulation – Appendices', Edition 2.1, Melbourne, August 2011.
Value of several	Number	5.0	PwC Assumption
Value of more than a couple	Number	3.0	PwC Assumption
Value of a couple	Number	2.0	PwC Assumption
Value of a few	Number	3.0	PwC Assumption
Growth rates			
Net increase in the number of businesses per annum			
Manufacturers/Suppliers			
Small	% p.a.	(0.38%)	Derived based on the number of businesses at the start and end of 2010-11. Only those businesses expected to store or handle dangerous goods in Victoria have been included in calculating the growth rates. Australian Bureau of Statistics, 'Counts of Australian Businesses, including Entries and Exits, June 2007 – June 2011', Catalogue 8165.0, April 2012.
Large	% p.a.	(1.48%)	
Retailers			
Small	% p.a.	2.37%	
Large	% p.a.	(1.81%)	
Overall - all DG			
Small	% p.a.	1.32%	
Large	% p.a.	2.49%	
New businesses as a percentage of existing businesses			
Manufacturers/Suppliers			
Small	% p.a.	8.89%	Derived based on the number of business entries in 2010-11 as a percentage of the number of businesses at the start of 2010-11. Only those businesses expected to store or handle dangerous goods in Victoria have been included in calculating the growth rates. Australian Bureau of Statistics, 'Counts of Australian Businesses, including Entries and Exits, June 2007 – June 2011', Catalogue 8165.0, April 2012.
Large	% p.a.	3.95%	
Retailers			
Small	% p.a.	15.11%	
Large	% p.a.	2.17%	
Overall - all DG			
Small	% p.a.	12.28%	
Large	% p.a.	3.56%	
Wages/opportunity cost of time			
Average weekly earnings			
Manufacturers/Suppliers	$ per week	1,280.90	Based on manufacturing industry. Australian Bureau of Statistics, Average Weekly Earnings, catalogue 6302.0, Feb 2012, Average Weekly Earnings, Industry, Australia (Dollars) - Original - Persons, Full Time Adult Total Earnings Table 10H, viewed 3 July 2012, <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6302.0Feb%202012?OpenDocument >
Retailers	$ per week	989.80	Based on retail industry. Australian Bureau of Statistics, Average Weekly Earnings, catalogue 6302.0, Feb 2012, Average Weekly Earnings, Industry, Australia (Dollars) - Original - Persons, Full Time Adult Total Earnings Table 10H, viewed 3 July 2012, <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6302.0Feb%202012?OpenDocument >
Overall - all DG	$ per week	1,406.80	Based on all industries. Australian Bureau of Statistics, Average Weekly Earnings, catalogue 6302.0, Feb 2012, Average Weekly Earnings, Industry, Australia (Dollars) - Original - Persons, Full Time Adult Total Earnings Table 10H, viewed 3 July 2012, <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6302.0Feb%202012?OpenDocument >
Additional costs			
On-costs	Multiplication	1.165	Department of Treasury and Finance (Victoria), 'Victorian Guide to Regulation – Appendices',

Assumption	Unit	Value	Source
	factor		Edition 2.1, Melbourne, August 2011.
Overheads	Multiplication factor	1.5	Department of Treasury and Finance (Victoria), 'Victorian Guide to Regulation – Appendices', Edition 2.1, Melbourne, August 2011.
Hourly wage rate			
Chemical manufacturers/ suppliers	$ per hour	55	Calculated based on average weekly earnings, the number of hours in a working week, the on-cost multiplier and the overheads multiplier.
Retailers	$ per hour	42	Calculated based on average weekly earnings, the number of hours in a working week, the on-cost multiplier and the overheads multiplier.
Overall - All industries	$ per hour	60	Calculated based on average weekly earnings, the number of hours in a working week, the on-cost multiplier and the overheads multiplier.

Table 20 shows the number of businesses in each relevant cohort. These numbers are used to identify the number of businesses that are impacted by each regulatory requirement.

Table 20: Volume assumptions

Assumption	Unit	Value	Source
Number of businesses impacted			
Total - Dangerous Goods (Occupiers)	# of businesses	95,306	Derived based on the number of businesses in Victoria in 2010-11 that are expected to store or handle dangerous goods. This has been estimated by assessing each industry class and identifying whether 0%, 50%, 75% or 100% of the businesses in each class are likely to handle or store dangerous goods. Australian Bureau of Statistics, 'Counts of Australian Businesses, including Entries and Exits, June 2007 – June 2011', Catalogue 8165.0, April 2012.
Small	# of businesses	85,221	
Large	# of businesses	10,085	
Percentage of total large businesses that have 200+ employees	% of total large businesses	6%	Based on the same data used to estimate the total number of dangerous goods occupiers. Australian Bureau of Statistics, 'Counts of Australian Businesses, including Entries and Exits, June 2007 – June 2011', Catalogue 8165.0, April 2012.
Manufacturers and suppliers of DGs	# of businesses	2,986	Derived based on the number of businesses in Victoria in 2010-11 that are expected to manufacture or supply dangerous goods. This has been estimated by assessing each industry class and identifying whether 0%, 50%, 75% or 100% of the businesses in each class are likely manufacture or supply dangerous goods. Australian Bureau of Statistics, 'Counts of Australian Businesses, including Entries and Exits, June 2007 – June 2011', Catalogue 8165.0, April 2012.
Small	# of businesses	2,387	
Large	# of businesses	599	
Retailers of DGs	# of businesses	3,741	Derived based on the number of businesses in Victoria in 2010-11 that are expected to be a retailer of dangerous goods. This has been estimated by assessing each industry class and identifying whether 0%, 50%, 75% or 100% of the businesses in each class are likely to be a retailer of dangerous goods. Australian Bureau of Statistics, 'Counts of Australian Businesses, including Entries and Exits, June 2007 – June 2011', Catalogue 8165.0, April 2012.
Small	# of businesses	3,198	
Large	# of businesses	543	
Bulk dangerous goods			
All	# of businesses	2,875	Based on the number of businesses who have notified WorkSafe Victoria that they have

Assumption	Unit	Value	Source
			manifest quantities of dangerous goods. This has been used as a proxy for the number of businesses with bulk dangerous goods. Advice provided by the Hazard Management Division of WorkSafe Victoria and discussions with an industry expert.
Placarding Quantity	% of businesses	8%	Calculated as a weighted average of manufacturers/suppliers and occupiers.
Manufacturers/ Suppliers	% of businesses	90%	Based on discussions with an industry expert.
Occupiers	% of businesses	10%	Based on advice provided by the Hazard Management Division of WorkSafe Victoria and discussions with an industry expert.
Manifest Quantity	# of businesses	2,875	WorkSafe Victoria Data – Number of businesses that have notified WorkSafe Victoria that they handle or store dangerous goods in quantities that exceed manifest quantities.
Proportion of total businesses (occupiers) that are small versus large (used as proxy where no break down is available)			
Small business	% of businesses	89.4%	Calculated based on the total number of dangerous goods businesses outlined above.
Large business	% of businesses	10.6%	Calculated based on the total number of dangerous goods businesses outlined above.

Table 21 sets out the assumed levels of compliance for both small and large businesses. The current levels of compliance are based on WorkSafe advice. Compliance rates are multiplied by the total cost of complying with each particular requirement to estimate the costs incurred by businesses that are compliant.

Those businesses that are not in compliance with the regulations do not incur costs associated with meeting the requirements. Large businesses are expected to comply with the regulations more than small businesses because they have sufficient resources to do so and more likely to suffer large consequences should a dangerous goods incident occur. Given the remaking of the current regulations is a replication of previous regulations it is not envisaged that there will be any change in compliance rates over the next 10 years.

Table 21: Assumptions of compliance rates

Assumption	Unit	Value	Source
Compliance Rates			
Small	%	65.0%	Advice provided by WorkSafe Victoria. Based on inspector visits as part of recent interventions by WorkSafe Victoria.
Large	%	90.0%	Advice provided by WorkSafe Victoria. Based on inspector visits as part of recent interventions by WorkSafe Victoria.

The full cost of managing dangerous goods is not solely incurred due to the operation of the regulations. Businesses may also be driven to invest in dangerous goods related matters because they have general duties under OH&S (to create a safe workplace) and the Dangerous Goods Act. To account for this, the costs have been discounted to include only the proportion of costs that are attributable to the regulations. The proportions assumed for this analysis are shown below.

Table 22: Assumptions of proportional impact of regulations

Assumption	Unit	Value	Source
Proportion of impact attributable to regulations (as opposed to general duties)			
All requirements where no specific % is applied (ie all except hazard identification, Control mechanisms and Consultation, induction and training)	%	50%	Allen Consulting Group for WorkSafe Victoria (2007), 'Regulatory Impact Statement – Responding to the proposed occupational health and safety regulations 2007 and Proposed equipment (public safety) regulations 2007 regulatory package',

Assumption	Unit	Value	Source
			Volume 2: Technical Appendix to the RIS. In the 2007 OHS RIS, "WorkSafe's starting point in forming its attribution assumptions is to ascribe around one third of the substantive compliance costs to the Regulations, one third to the general duties of the OHS Act, and one third to non-regulatory drivers". In this analysis, non-regulatory drivers are already accounted for by considering the % of businesses who would meet the requirements without the regulations. Therefore, the remaining two thirds are attributed 50:50.
Hazard identification	%	15%	Allen Consulting Group for WorkSafe Victoria (2007), 'Regulatory Impact Statement – Responding to the proposed occupational health and safety regulations 2007 and Proposed equipment (public safety) regulations 2007 regulatory package', Volume 2: Technical Appendix to the RIS.
Control mechanisms	%	15%	
Consultation, induction and training	%	10%	

When undertaking certain activities, businesses may gain efficiencies because they are able to do similar activities to meet a range of obligations. For example, in undertaking dangerous goods related training, efficiencies would be gained from undertaking training for all obligations (ie such as OHS training) at the same time. In this analysis, this efficiency has been applied to hazard identification, information, induction and training, and record-keeping related requirements. The cost efficiencies assumed are shown below.

Table 23: Assumptions of cost efficiency

Assumption	Unit	Value	Source
Identify hazards	%	10%	Allen Consulting Group for WorkSafe Victoria (2007), 'Regulatory Impact Statement – Responding to the proposed occupational health and safety regulations 2007 and Proposed equipment (public safety) regulations 2007 regulatory package', Volume 2: Technical Appendix to the RIS.
Consultation, induction and training	%	10%	
Record-keeping	%	10%	

Remaking the current regulations

Manufacturers and suppliers

Classification

Manufacturers and suppliers are required to determine whether substances are dangerous goods or not via a classification process. No costs are attributable to this requirement as all dangerous goods are already classified in order to comply with State and Commonwealth legislation covering the transportation of dangerous goods.[41]

The implementation of GHS labelling in other jurisdictions in Australia and abroad will, however, result in a number of those who bring in dangerous goods from jurisdictions where GHS has been implemented reclassifying and re-labelling from GHS to ADG due to the limited knowledge of the provision for GHS labelling of inner packaging in the ADG Code.

In order to estimate the costs imposed on those who bring in dangerous goods from GHS jurisdictions, the following assumptions are made:

Table 24: Assumptions for costs of re-labelling from GHS to ADG

Assumption	Unit	Value	Source
Volume of dangerous goods imported into	Kg	10,283,982,595	UN Commodity Trade Statistics Database, http://comtrade.un.org/db/default.aspx, viewed 16 July 2012.

[41] Victorian WorkCover Authority, *Dangerous Goods (Storage and Handling) Regulations 2000 RIS*, p. 7.

Assumption	Unit	Value	Source
Australia			The volume of dangerous goods was estimated by assessing each chemical classification for products of the chemical or allied industries (28-38) and deeming dangerous goods where appropriate at the four digit classification level.
Proportion of DG imports entering Victoria (of total coming into Australia)	%	25%	Based on the value of Victoria's imports as a % of Australia's imports. Australian Bureau of Statistics, International Merchandise Imports catalogue 5439.0, May 2012, States and Australia, Customs Value Table 5, viewed 5 July 2012, <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/5439.0May%202012?OpenDocument>
Proportion of dangerous goods containers that do not have inner packaging (ie large drums)	%	50%	PwC assumption used for the purpose of this analysis.
Average volume of an inner packaged container of dangerous goods	Kg per container	2	PwC assumption based on discussions with an industry expert.
Proportion of containers that are being re-labelled	%	1%	Based on advice from WorkSafe Victoria and discussions with an industry expert.
Cost of relabelling a container	$ per container	$1	PwC assumption used for the purpose of this analysis. This figure has been chosen based on the cost per container including a small label printing cost (expected to be in the order of 20 to 50 cents) and a small amount of labour time to affix the label.

Preparation of MSDSs

Where a good is classified as a dangerous good, manufacturers are required to provide a MSDS. These MSDSs must be reviewed and revised every five years, or sooner where new information becomes available. Many existing dangerous goods already have MSDSs, so the cost only applies to new goods or to the revision of existing MSDSs. MSDSs are required in all Australian jurisdictions and in relation to other regulations such as the transportation of dangerous goods. A portion of cost of preparing and reviewing MSDSs would be incurred even in the absence of this regulatory proposal.

In order to estimate the costs imposed on businesses the following assumptions are made:

Table 25: Assumptions for preparation and revision of MSDSs

Assumption		Unit	Value	Source
Cost to prepare a new MSDS				
	Small	$ per MSDS	1,140.76	The consultation data provided inconsistent results. As a result, the cost to revise an MSDS has been used and is assumed to be 25 per cent of the full cost to prepare a new MSDS. This percentage is based on the approach taken in the 2000 RIS (Victorian WorkCover Authority, 'Regulatory Impact Statement: Dangerous Goods (Storage and Handling) Regulations 2000', August 2000, page 21.
	Large	$ per MSDS	600.54	
Number of new MSDSs produced each year				
	Small	Number p.a.	1	Based on advice provided by the Hazard Management Division of WorkSafe Victoria and discussions with an industry expert.
	Large	Number p.a.	2	Advice provided by the Hazard Management Division of WorkSafe Victoria.
Cost to revise an MSDS				
	Small	$ per MSDS	285	Consultation Data (median)
	Large	$ per MSDS	150	Consultation Data (median)
Number of revisions to MSDSs made each year				

Assumption		Unit	Value	Source
	Small	Number p.a.	0.56	Consultation Data. As there was insufficient data from small business, the average difference between small and large business inputs from consultation has been applied to the number of revisions to MSDSs made by large business.
	Large	Number p.a.	1.50	Consultation Data (median)
% who would meet requirements without regulation				
	Small	%	100.0%	Consultation Data
	Large	%	33.3%	Consultation Data

Supply of MSDSs

Manufacturers and suppliers would be required to supply a MSDS to a purchaser on the first supply of a dangerous good or on the first occasion of supply after each revision to the MSDS. Retailers who supply dangerous goods in consumer packaging are exempt from this requirement.

The following assumptions are used to estimate the costs incurred by manufacturers and suppliers in supplying MSDSs to purchasers:

Table 26: Assumptions for the supply of MSDSs

Assumption		Unit	Value	Source
Time to supply a MSDS				
	All	$ per MSDS	1.00	Consultation Data (median)
Number of MSDSs supplied				
	Small	Number p.a.	92.84	Based on discussions with an industry expert, the number of MSDSs supplied by small businesses should be lower than the estimate provided through consultation. As a result, the number has been estimated based on the average difference between small and large business inputs from consultation and applying this to the number supplied by large business.
	Large	Number p.a.	250.00	Consultation Data (median)

Retailers

Retailers of packaged dangerous goods would be required to ensure that if a container is provided by a purchaser, it is 'fit for purpose' and has the name of the dangerous good clearly marked. Consultations suggest that retailers would incur these costs even in the absence of the regulation. Therefore, no costs associated with this requirement have been considered in this analysis.

Occupiers

Hazard identification

An occupier of a premise holding large quantities must ensure that they identify hazards associated with the storage and handling of dangerous goods.

The following assumptions are used to estimate the costs incurred by occupiers in identifying hazards:

Table 27: Assumptions for hazard identification

Assumption		Unit	Value	Source
Initial cost of hazard identification				
	Small	$ per business	44.97	Consultation Data (median)
	Large	$ per business	121.09	Consultation Data. As there was insufficient data from large business, the average difference between small and large business

Assumption		Unit	Value	Source
				inputs from consultation has been applied to the initial cost of hazard identification for large business.
Ongoing cost of hazard identification				
	Small	$ per business	149.90	Consultation Data (median)
	Large	$ per business	2,950.06	Consultation Data (median)
% who would meet requirements without regulation				
	Small	%	85.7%	Consultation Data
	Large	%	80.0%	Consultation Data

Risk assessment

An occupier of a premise holding dangerous goods must ensure that an assessment of the risks associated with identified hazards is made. The assessment must be reviewed where there is a change in circumstances such that the previous assessment is no longer valid, or at intervals not exceeding five years from a previous assessment. Occupiers are allowed to undertake generic assessments.

The assumptions that are used to estimate the costs incurred by occupiers in undertaking and recording risk assessments are shown in Table 28. Note that in determining these assumptions, the inputs from education facilities have been removed from the consultation data because they represent outliers. The feedback from education facilities was that risk assessments were done before each individual laboratory practical was completed. However, this is not a requirement under the dangerous goods regulations and the number of assessments that result from these businesses are not representative of the majority of occupiers.

Table 28: Assumptions for risk assessment

Assumption		Unit	Value	Source
Time to complete a new risk assessment				
	Small	Hours per assessment	4.00	Based on discussions with an industry expert.
	Large	Hours per assessment	8.20	Estimated at one working day based on discussions with an industry expert.
Frequency of new risk assessments				
	Small	Number p.a.	0.50	Based on discussions with an industry expert.
	Large	Number p.a.	1.00	Based on discussions with an industry expert.
Time to review a risk assessment				
	Small	Hours per assessment	0.21	Consultation Data (median)
	Large	Hours per assessment	0.29	Consultation Data (median)
Frequency of review				
	All businesses	Number of years	5.00	Requirement of regulations
Number of reviews completed				
	Small	Average number p.a.	0.20	Calculated based on the frequency of new risk assessments and the frequency of review.
	Large	Average number p.a.	1.10	Calculated based on the frequency of new risk assessments and the frequency of review.
Initial cost of establishing record of risk assessment				
	Small	Hours	0.50	Consultation Data (median)
	Large	Hours	0.50	Based on discussions with an industry expert.
Ongoing time spent recording risk assessments				
	Small	Hours p.a.	0.10	Consultation Data (median)

Assumption		Unit	Value	Source
	Large	Hours p.a.	0.59	Consultation Data (median)
Other costs associated with risk assessments				
	Small	$ p.a.	50.00	The Consultation data was inconsistent, so the cost incurred by large business has been used as a proxy.
	Large	$ p.a.	50.00	Consultation Data (median)
Proportion of businesses incurring other costs associated with risk assessments				
	Small	% of businesses	20.0%	Consultation Data
	Large	% of businesses	60.0%	Consultation Data
% who would meet requirements without regulation				
	Small	%	50.0%	Advice provided by the Hazard Management Division of WorkSafe Victoria.
	Large	%	30.0%	Advice provided by the Hazard Management Division of WorkSafe Victoria.

Control of risk

Occupiers would be required to ensure that any risk associated with the storage and handling of dangerous goods is controlled by eliminating the risk, or where that is not practicable, reducing the risk as far as possible. There are also a number of specific requirements, including:

- the design of premises, plant, processes and systems of work
- the provision of information, safety instructions and supervision to visitors and preventing unauthorised access
- ensuring stable storage environments for dangerous goods and preventing chemical interaction between different dangerous goods or dangerous goods and other plant processes
- ensuring structures and plant are in correctly manufactured, installed, commissioned, operated, tested, maintained, repaired and decommissioned, particularly bulk storage containers
- clearing decommissioned receptacles of dangerous goods and protecting structures and plant from impact.

Measuring the costs of risk control is problematic due to the performance based nature of the regulations. The type and quantity of dangerous goods stored and handled would impact the nature and level of risk controls required. As a result cost estimates for risk control measures have been split between both small and large occupiers, and holders of small and large quantities. Most of the cost associated with controlling risk has been discounted because consultations identified that a large majority of occupiers would incur these costs anyway.

The following assumptions are used to estimate the costs incurred by occupiers in controlling the risks associated with the storage and handling of dangerous goods:

Table 29: Assumptions for the control of risks

Assumption	Unit	Value	Source
Initial cost of controlling the risk			
Small quantity - Small	$	2,000.00	Advice provided by the Hazard Management Division of WorkSafe Victoria.
Small quantity - Large	$	5,000.00	Advice provided by the Hazard Management Division of WorkSafe Victoria.
Large quantity - Small	$	50,000.00	Consultation Data (median)

Assumption	Unit	Value	Source
Large quantity - Large	$	321,723.92	Consultation Data (weighted average of costs estimated by businesses with 200+ employees and businesses with 20-199 businesses)
Ongoing cost of controlling the risk			
Small quantity - Small	$ p.a.	619.92	Consultation Data (median)
Small quantity - Large	$ p.a.	4,583.41	Consultation Data (median)
Large quantity - Small	$ p.a.	4,228.70	Consultation Data (median)
Large quantity - Large	$ p.a.	50,000.00	Consultation Data (median)
% of control costs incurred due to regulations (this is applied to the initial and ongoing costs for controlling risk outlined above)		22.5%	Consultation Data (median)
% who would meet requirements without regulation			
Small Quantities			
Small	%	85.7%	Consultation Data
Large	%	75.0%	Consultation Data
Large Quantities			
Small	%	100.0%	Consultation Data
Large	%	33.3%	Consultation Data

Consultation, induction and training

Occupiers would be required to ensure that any person involved with the storage and handling of dangerous goods is consulted with and provided with appropriate induction, information and training.

The following assumptions are used to estimate the costs incurred by occupiers in undertaking consultation, induction and training associated with the storage and handling of dangerous goods:

Table 30: Assumptions for consultation, induction and training

Assumption	Unit	Value	Source
Employee induction			
Time spent on induction			
Small	Hours per new employee	1.00	Advice provided by the Hazard Management Division of WorkSafe Victoria.
Large	Hours per new employee	2.00	Advice provided by the Hazard Management Division of WorkSafe Victoria.
Number of new employees per annum			
Small	Number p.a.	2.00	Consultation Data (median)
Large	Number p.a.	3.50	Consultation Data (median)
Consultation and training			
Time spent on consulting and training			
Small	Hours p.a. per business	11.15	Consultation Data (median)
Large	Hours p.a. per business	388.50	Consultation Data (median)
Time to keep records of consultation and training			
Small	Hour p.a.	0.50	Consultation Data (median)
Large	Hour p.a.	7.00	Consultation Data (median)
Other costs associated with consultation, induction and training			
Small	$ p.a.	184.88	Consultation Data (median)
Large	$ p.a.	2,000.00	Consultation Data (median)
Proportion of businesses incurring other costs associated with consultation, induction and training			
Small	% of businesses	83.3%	Consultation Data
Large	% of businesses	85.7%	Consultation Data

Assumption	Unit	Value	Source
% who would meet requirements without regulation			
Small	%	83.3%	Consultation Data
Large	%	87.5%	Consultation Data

Register of dangerous goods

Occupiers storing and handling dangerous goods in packages over a certain size will be required to keep a register of those dangerous goods, with a MSDS for each good.

The following assumptions are used to estimate the costs incurred by occupiers in establishing and maintaining a register of dangerous goods stored and handled on their premises:

Table 31: Assumptions for register of dangerous goods

Assumption	Unit	Value	Source
Initial cost to establish DG register			
Small	$ per business	100.00	Advice provided by the Hazard Management Division of WorkSafe Victoria.
Large	$ per business	500.00	Advice provided by the Hazard Management Division of WorkSafe Victoria.
Annual cost of maintaining the register			
Small	$ per business	25.00	Advice provided by the Hazard Management Division of WorkSafe Victoria.
Large	$ per business	120.00	Advice provided by the Hazard Management Division of WorkSafe Victoria.
% who would meet requirements without regulation			
Small	%	87.5%	Consultation Data
Large	%	63.6%	Consultation Data

Equipment for clean-up

Occupiers would be required to ensure that equipment and materials are made available on their premises to allow for the containment and clean up of reasonably foreseeable incidents. During stakeholder consultation, it became evident that in most cases, occupiers would provide this equipment in the case of no regulation, but generally not in the same quantities. This means that only a portion of the cost in providing this equipment and materials is attributable to the regulations.

The following assumptions are used to estimate the costs incurred by occupiers in providing equipment for clean up attributable to the regulations:

Table 32: Assumptions for equipment for clean-up

Assumption	Unit	Value	Source
Initial cost of having clean up equipment on site			
Small	$	500.00	Consultation Data (median)
Large	$	3,000.00	Consultation Data (median)
Number of years before clean up equipment needs to be replaced			
All businesses	Years	3.38	Consultation Data (median)
Ongoing cost of replacing/maintaining clean up equipment			
Small	$	148.15	Consultation Data (median)
Large	$	888.89	Consultation Data (median)
% who would meet requirements without regulation			
Small	%	80.0%	Consultation Data
Large	%	90.0%	Consultation Data

Fire protection systems

Occupiers would be required to ensure that premises where dangerous goods are stored or handled have a fire protection system that is designed and constructed for the types and quantities of dangerous goods, and that uses fire fighting equipment that are compatible with the dangerous goods to effectively control incidents. The fire protection system needs to be properly installed, tested and maintained; accessible to persons on the premises and emergency services; and be capable of being used by the emergency services authority.

Occupiers are already required to install fire protection systems under other building regulations and therefore the cost attributable to these regulations is only for specific fire equipment in relation to dangerous goods. For example, extra foam extinguishers or fire hose reels.

The following assumptions are used to estimate the costs incurred by occupiers in ensuring adequate fire protection systems in relation to the dangerous goods stored and handled on premise:

Table 33: Assumptions for fire protection

Assumption	Unit	Value	Source
Initial cost of fire protection system			
Small Quantities			
Small	$	400.00	Consultation Data (median)
Large	$	1,249.20	Consultation Data (median)
Large Quantities			
Small	$	3,645.00	Consultation Data (median)
Large	$	50,000.00	Consultation Data (median)
% of costs attributable given potential double counting between the cost of fire protection systems and control mechanisms more generally	%	25%	PwC Assumption
Ongoing cost of fire protection system			
Small	$ p.a.	100.00	Consultation Data (median)
Large	$ p.a.	4,950.00	Consultation Data (median)
% who would meet requirements without regulation			
Small	%	66.7%	Consultation Data (median)
Large	%	90.0%	Based on discussions with an industry expert.

Incidents

Occupiers of premises where an incident involving dangerous goods has occurred would be required to undertake an investigation of the incident, review the risk assessment and fix any deficiencies identified with risk control measures.

The following assumptions are used to estimate the costs incurred by occupiers in investigating incidents, reviewing risk assessments and fixing risk control measures:

Table 34: Assumptions for incidents

Assumption	Unit	Value	Source
Number of incidents currently reported			
All businesses	Number	56	WorkSafe Victoria data – 2005/06
% of all incidents that are currently required to be reported to emergency services			
All businesses	% of businesses	27.3%	Consultation Data
Cost of reviewing systems after incidents			
All businesses	Hours per incident	5.00	Consultation Data (median)
% who would meet requirements without regulation			
Small	%	83.2%	Consultation Data

Assumption	Unit	Value	Source
Large	%	69.0%	Consultation Data

Incident reporting

Under a remake of the current regulations, occupiers of premises where an incident, such as a spill has occurred must report to emergency services under section 32 of the Dangerous Goods Act. This is required for all incidents involving packaged dangerous goods from containers exceeding 250kg or 250L; spills involving injury to any person or damage to property from containers not exceeding 250kg or 250L; and any incidents from non-packaged dangerous goods.

The following assumptions are used to estimate the costs incurred by occupiers in reporting incidents to emergency services:

Table 35: Assumptions for incident reporting

Assumption	Unit	Value	Source
Number of incidents currently reported			
All businesses	Number	56	WorkSafe Victoria data – 2005/06
% of all incidents that are currently required to be reported to emergency services			
All businesses	% of businesses	27.3%	Consultation Data
% of all incidents that would be reported if reporting was not required (ie if trivial spills are not longer reported)			
All businesses	% of businesses	10%	Consultation Data
Cost of reporting			
All businesses	Minutes per incident	5	PwC Assumption
% who would meet requirements without regulation			
All businesses	%	0%	PwC Assumption
Cost of emergency services call out for a trivial incident	$ for call out	1,200.00	Based on the standard minimum call out fee for false alarms. Property Council of Australia – Victorian Division, 'The Fire Services Levy and Insurance: A submissions to the Victorian Bushfire Royal Commission', 21 December 2009, accessed 6 July, <http://www.royalcommission.vic.gov.au/getdoc/dddbb3c6-4223-4740-8ef9-17517bddd18c/Property-Council-of-Australia-(Victorian-Division)>

Bulk dangerous goods

Under a remake of the current regulations, occupiers who hold quantities of dangerous goods in a container that has a capacity greater than the maximum container size specified for packaged dangerous goods of that type must ensure such bulk containers are provided with stable foundations and support; prevent excessive stress; and carry out and record inspections on those containers. Consultation data indicated that 100 per cent of businesses would meet the requirements for bulk storage containers without the regulations in place. Thus, there are no impacts as a result of the regulations.

Placarding

Occupier who stores or handles quantities of packaged dangerous goods that exceed the quantity of goods listed under 'Placarding Quantities' will be required to ensure that a placard that conforms with the regulations is displayed and maintained on entrances to the premises. The occupier must ensure that all placards are revised as soon as possible if a change to the class and quantity of dangerous goods stored on the premises requires different information to be displayed.

Given existing signs are deemed to conform with the proposed regulations, this requirement will essentially impact new occupiers and where existing placards require revision.

The following assumptions are used to estimate the costs incurred by occupiers storing or handling dangerous goods in excess of 'Placarding Quantities' in relation to displaying and maintain placards:

Table 36: Assumptions for placarding

Assumption	Unit	Value	Source
Hazchem signs			
Average number of signs per business			
Small	Number per business	2	Consultation Data (median)
Large	Number per business	13	Consultation Data (median)
Initial cost of one hazchem sign			
All	$ per sign	107.50	Consultation Data (median)
Ongoing maintenance cost of placards			
Small	$ per business	2.00	Consultation Data (median)
Large	$ per business	507.48	Consultation Data (weighted average of costs estimated by businesses with 200+ employees and businesses with 20-199 businesses)
Proportion of businesses incurring ongoing maintenance cost of placards			
Small	% of businesses	50.0%	Consultation Data
Large	% of businesses	50.0%	Consultation Data
Replacement frequency			
Small	Number of years before replacement	10	Consultation Data (median)
Large	Number of years before replacement	20	Consultation Data (median)
% who would meet requirements without regulation			
Small	%	50.0%	Based on discussions with an industry expert.
Large	%	66.7%	Consultation Data

Manifest notification

An occupier who stores or handles quantities of packaged dangerous goods that exceed the quantity of goods listed under 'Manifest Quantities' will be required to notify WorkSafe Victoria in writing every two years.

The following assumptions are used to estimate the costs incurred by occupiers storing or handling dangerous goods in excess of 'Manifest Quantities' in notifying WorkSafe Victoria:

Table 37: Assumptions for manifest notification to WorkSafe Victoria

Assumption	Unit	Value	Source
Time spent notifying to WSV			
Small	Hours per notification	1.00	Consultation Data (median)
Large	Hours per notification	2.00	Consultation Data (median)
Frequency of notification			
	Years	2	Required frequency under the regulations
% who would meet requirements without regulation			
Small	%	83.2%	Consultation Data
Large	%	69.0%	Consultation Data

Emergency services advice in development of emergency plans

An occupier who stores or handles dangerous goods in quantities in excess of 'Manifest Quantities' will be required to seek advice from emergency services, and have regard to that advice when developing an emergency plan.

The following assumptions are used to estimate the costs incurred by occupiers storing or handling dangerous goods in excess of 'Manifest Quantities' in developing an emergency plan and seeking advice from emergency services:

Table 38: Assumptions for emergency planning

Assumption	Unit	Value	Source
Initial cost of establishing emergency plan			
Small	Hours	3.30	The Consultation data was inconsistent, so the cost incurred by large business has been used as a proxy.
Large	Hours	3.30	Consultation Data (median)
Ongoing cost of emergency plan			
Small	Hours	0.50	Consultation Data (median)
Large	Hours	2.55	Consultation Data (median)
Number of Major Hazard Facilities that would already need to do this under regulations specific to Major Hazard Facilities and are therefore not affected by the dangerous goods regulations			
Small	# of businesses	-	It is assumed that all Major Hazard Facilities are large businesses.
Large	# of businesses	45.00	WorkSafe Victoria, 'Approved Major Hazard Facilities', Publication date: 21 June 2012, <http://www.worksafe.vic.gov.au/wps/wcm/connect/wsinternet/WorkSafe/Home/Forms+and+Publications/Educational+Material/Approved+Major+Hazard+Facilities>
Cost of implementing emergency services advice			All businesses consulted there was no additional cost from implementing their advice
% who would meet requirements without regulation			
Small	%	83.2%	Consultation Data
Large	%	69.0%	Consultation Data

Emergency services advice in development of fire protection systems

Under a remake of the current regulations, an occupier who stores or handles dangerous goods in quantities in excess of 'Fire Protection Threshold' will be required to seek advice from emergency services, and have regard to that advice when developing a fire protection system.

In consultations with business, it was found that occupiers holding quantities in excess of 'Fire Protection Threshold' would seek and implement the advice of emergency services in relation to fire protection systems anyway. As a result, there is no cost impact associated with this regulatory requirement.

Potential alternatives

Removal of risk assessment

A regulatory duty to carry out a risk assessment means that it must be done in every single case to which the regulation applies. A duty holder who does not perform a risk assessment is in breach of the regulation, regardless of whether adequate risk controls are in place.[42]

Risk assessments may act as a barrier to the implementation of risk controls. Firstly, where hazards and risks are well known and there are universally accepted control measures, a duty holder may identify that hazard and implement the appropriate risk control without undertaking a risk assessment. In this case, a risk assessment would delay the implementation of risk controls.[43] Secondly, the costs involved in undertaking and recording risk assessments may result in fewer funds being made available for controlling risks.

Removal of risk assessment would bring the dangerous goods storage and handling regulations into line with Victoria's OHS regulations and the model WHS regulations at the national level.

[42] WorkSafe Victoria, *OHS RIS*, 2007, p. 41.

[43] WorkSafe Victoria, *OHS RIS*, 2007, p. 41.

WorkSafe Victoria's current position is for the removal of risk assessments. WorkSafe Victoria do not believe that removing risk assessment requirements would diminish the absolute duty on occupiers to adequately control risks associated with the storage and handling of dangerous goods. WorkSafe Victoria also believe that removal of risk assessment requirements will reduce the regulatory burden by not requiring occupiers to conduct or record risk assessments, or review them. WorkSafe Victoria also supports the alignment of the dangerous goods storage and handling regulations with both the hazardous substances chapter of the OHS Regulations and the model WHS laws.

Referencing third party documents

In assessing the incorporation of third party documents, WorkSafe Victoria considered the option of moving references to technical documents to the Code of Practice for Storage and Handling of Dangerous Goods as guidance on how to comply with the regulations. WorkSafe Victoria's assessment found, however, that this option would mean references to third party documents would not be legally binding, that duty holders would still be required to access documents separate to the regulations, and some important definitions may require considerable additional text within the regulations. It was therefore decided that such an option was not appropriate.

WorkSafe Victoria found that allowing a six month transition period for new obligations following automatic updating of third party documents referred to as 'in force from time to time' would:

- be less burdensome for duty holders in allowing them time to prepare for any changes
- be supported by employers by allowing them the flexibility to spread capital and other expenses required to achieve compliance with the new obligations over a six month period or immediately if they so wish
- promote consistency by bringing the storage and handling regulations in line with other OHS regulations, other dangerous goods regulations and the Dangerous Goods Act.

It is not expected that the option to maintain reference to third party documents with a six month transition period would have any substantial impact on compliance costs because costs would eventually be incurred anyway.

Adoption of GHS

The current regulations require dangerous goods to be classified, labelled and packaged in accordance with the ADG Code for storage and handling purposes.

Internationally a new system for classification, labelling and packaging has been introduced covering the physical, health and environmental hazards of chemicals. The system is the GHS.

Many of Australia's trading partners are currently in the process of implementing the GHS. New Zealand was the first country to implement the GHS in 2001. The European Union, Japan and China are currently in transitional phases of implementation.[44] The implementation of the national Work Health Safety laws by other jurisdictions will also mean that other jurisdictions will be shifting to GHS.

The ADG Code allows for the classification and labelling of inner packaging according to GHS. However, because there is a degree of uncertainty in relation this provision, a remake of the current regulations would result in a some of those who bring in dangerous goods from GHS implemented jurisdictions re-labelling inner packages from GHS to ADG. This is because "the usual practice is that imports arrive in Australia with labels and SDSs appropriate for the country of origin, and the importer has to provide labels and SDSs appropriate for Australia. However, some importers,

[44] Access Economics, *RIS: Proposed Revisions to the National OHS Framework for the Control of Workplace Hazardous Substances and Dangerous Goods*, p. 8-11.

especially multinational companies, arrange for imports to arrive with labels and SDSs appropriate for Australia."[45]

From our consultations, we found that remaking the current regulations would not impose additional costs on manufacturers and suppliers of dangerous goods who supply to other jurisdictions or export overseas because they currently classify and label in accordance with their customers' requirements – ADG for jurisdictions where GHS has not been implemented and GHS for jurisdictions where GHS has been implemented.

This option will provide duty holders with certainty that they can label under the ADG Code or the GHS, provide maximum flexibility to duty holders and ensure that the Victorian storage and handling regulations can operate alongside the national WHS laws.

In clarifying the ability to classify and label inner packaging according to GHS or the ADG Code, current manufacturers, suppliers and occupiers may incur extra one off training costs to educate workers in respect of GHS classification and labelling. This cost however has not been included in this analysis because it would be incurred anyway even if the regulations were not in place. Without the regulations, re-labelling would not occur and businesses would be faced with the same need to train staff about GHS.

The main impact is therefore avoiding the cost of re-labelling dangerous goods from the GHS to the ADG Code. The assumptions used to calculate these avoided costs are outlined in Table 24.

Removal of incident reporting requirements

Removing the reporting requirement for occupiers to report incidents such as spills under section 32 of the Dangerous Goods Act will benefit businesses that previously had to report minor incidents that pose no risk. Due to the general risk control duties, it is assumed that where incidents that pose a risk occur, that occupiers would still report to emergency services. WorkSafe Victoria therefore does not believe that removal of this reporting requirement will increase the likelihood of dangerous goods incidents.

The following assumptions have been used in modelling the costs and benefits of removing the requirement to report trivial incidents:

Table 39: Assumptions for the removal of incident reporting

Assumption	Unit	Value	Source
% of incidents that would be reported under the proposal			
All businesses	% of businesses	10%	Consultation Data

Mandatory emergency services advice

As discussed in chapter 6.2.5, this option is not expected to have any impact and is not supported by WorkSafe Victoria.

Material Safety Data Sheets

As discussed in chapter 6.2.6, this option only clarifies current regulations and would have no expected impacts.

Removal of induction and training requirement

This option would amend Regulation 403 of the current storage and handling regulations and result in occupiers no longer being required to make a record of induction and training activities, and as a result would not be required to keep that record for five years.

[45] Access Economics, *RIS: Proposed Revisions to the National OHS Framework for the Control of Workplace Hazardous Substances and Dangerous Goods*, p. .

Such records are not considered risk control measures and are not required to allow others to carry out their duties under the regulations. As a result, they will not impact the benefits of preventing incidents from the storage and handling of dangerous goods occurring.

The change will reduce the cost of compliance for occupiers by saving them time and administrative costs in recording induction and training and storing such records for five years. The assumptions used to estimate the benefits of removing these requirements are outlined in Table 30 above.

Removal of placarding requirement for retail petrol stations

This option would provide an exclusion to the requirement for outer warning placards under Regulation 429 of the current regulations. This exclusion would apply to retail outlets that store or handle dangerous goods that are used to refuel a vehicle, and is either a flammable gas or flammable liquid. In effect, this would mean that petrol stations would not need to have a placard warning that, for example, petrol or diesel was on the premises.

This exclusion would not impact the benefits of the regulations in preventing dangerous goods incidents because it is obvious to emergency services the dangerous goods being stored at these outlets.

The option would provide cost savings for petrol stations in having to erect and maintain HAZCHEM signs on their premises. The assumptions used to estimate the reduction in compliance costs are outlined in Table 36 above and Table 40 below.

Table 40: Assumptions for the removal of placarding for retail petrol stations

Assumption	Unit	Value	Source
Number of petrol stations			
Small	# of businesses	507	Australian Bureau of Statistics, 'Counts of Australian Businesses, including Entries and Exits, June 2007 – June 2011', Catalogue 8165.0, April 2012.
Large	# of businesses	73	Australian Bureau of Statistics, 'Counts of Australian Businesses, including Entries and Exits, June 2007 – June 2011', Catalogue 8165.0, April 2012.
Proportion of petrol stations no longer required to placard	%	100%	PwC Assumption

Manifest notification

This option would result in occupiers storing or handling quantities of dangerous goods exceeding manifest quantities providing notification of their levels of dangerous goods to Worksafe Victoria every five years instead of every two years.

Regulation 507 would also be amended to remove any impediments to moving to an online scheme in the future. Any savings from shifting to an online system have not been quantified in the estimated savings because it is not known whether or when this would occur.

The assumption used to estimate the costs of this change are those in Table 37 above and Table 41 below.

Table 41: Assumptions for the change in manifest notification

Assumption	Unit	Value	Source
Frequency of notification	Years	5	Required frequency under the proposed change

Benefits

There will be a number of benefits arising from the remaking of the current dangerous goods storage and handling regulations with the preferred changes. The principal benefit will be from avoiding significant incidents involving the storage and handling of dangerous goods. Such incidents result in major damage to property and the environment, as well as multiple injuries and deaths. The cost

impacts of such a significant incident could well run into the hundreds of millions of dollars. If one significant incident was avoided in the 10 year life of the proposed regulations, it is likely that the benefits would outweigh the $83 million cost of compliance on Victorian businesses.

Given uncertainty surrounding the frequency, extent and timing of significant incidents and the fact that the level of events resulting from minor incidents in the base case situation in which the regulations were not in place, this RIS determines the number of deaths, claims, non-reported claims and incidents leading to property or environmental damage that would need to be prevented each year in order for the proposed regulations to provide a net benefit to society.

Other benefits in remaking the current regulations are associated with a reduction in the frequency and severity of accidents and incidents involving the storage and handling of dangerous goods. A reduction in the frequency and severity of incidents will result in benefits including:

- reduced cost of claims (direct and indirect)
- reduced costs associated with non-reported claims (direct and indirect)
- reduced costs of deaths
- reduced damage to property and the environment.

It is difficult to determine the benefits associated with remaking the current regulations because the probability of these events occurring in an unregulated scenario – which is the base case against which the benefits and costs must be measured – is not able to be observed directly or estimated with any confidence. This reflects the fact that all developed countries have long histories of implementing comprehensive regulation of the storage and handling of dangerous goods.

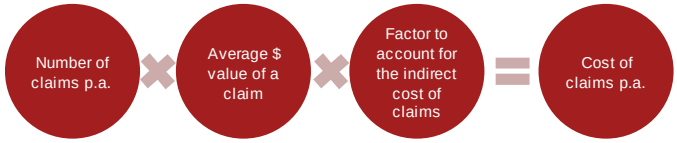
The approach taken is to estimate the minimum number of events that would need to be avoided in order for the benefits to outweigh the compliance costs for Victorian businesses under the proposed regulations.

The cost of dangerous goods related accidents and incidents is estimated based on the average value of each incident type. For example, deaths are valued based on the statistical value of a life and claims are valued based on the average value of claims paid out. The calculations used to estimate the cost of each dangerous goods related incident are shown below.

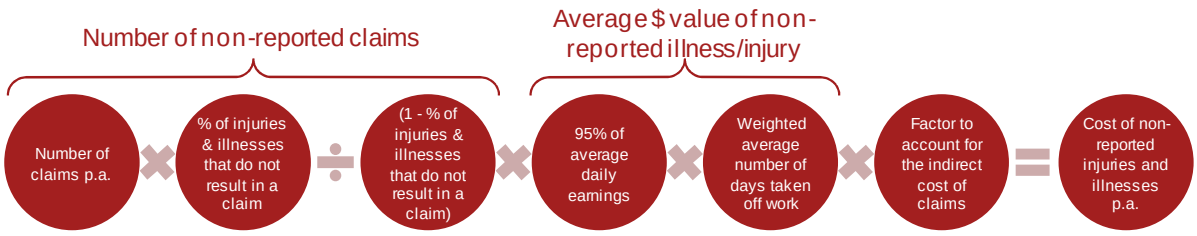
The calculations below show the equations used to estimate the cost of incidents based on the annual number of incidents at any one point in time.

Deaths

Claims (injuries and illnesses)



Non-reported injuries and illnesses



Incidents that resulted in property or environmental damage

Benefit related assumptions

The following assumptions are used to estimate the benefits and calculate the breakeven point under the proposed regulations.

Table 42: Assumptions for estimating benefits of the regulations

Assumption	Unit	Value	Source
Constant			
Factor to account for indirect costs of claims	Multiplication factor	5.00	This is based on a ratio of direct to indirect costs of 1:4, which results in a multiplication factor applied to the direct costs of 5. Allen Consulting Group for WorkSafe Victoria (2007), 'Regulatory Impact Statement – Responding to the proposed occupational health and safety regulations 2007 and Proposed equipment (public safety) regulations 2007 regulatory package', Volume 2: Technical Appendix to the RIS.
Deaths			
Average deaths per year			
As at the year 2000	No. Per year	1.20	WorkSafe Victoria Data. Based on the average number of deaths per annum up until the year 2000.
Current	No. Per year	0.42	WorkSafe Victoria Data. Annual average based on the number of deaths since 2000.
Statistical value of a life	$ per death	4,037,596	Department of Finance and Deregulation, Office of Best Practice Regulation, Best Practice Regulation Guidance Note – Value of statistical life', November 2008. The suggested figure is $3.5 million in 2007. This figure has been inflated from March 2007 to March 2012 based on indices in Australian Bureau of Statistics, 'Consumer Price Index, Australia – All groups CPI, Australia', 2012.
Claims – illness/injuries			
Average claims per year			
As at the year 2000	No. Per year	248	WorkSafe Victoria Data. Number of claims in 2000/01.
Current	No. Per year	150	WorkSafe Victoria Data. Number of claims in 2005/06.
Average value of claims	$ per claim	15,254	WorkSafe Victoria 2008-09 Statistical Summary
Non-reported claims – illness/injuries			

Assumption	Unit	Value	Source
% of illnesses and injuries which did not result in a workers compensation claim (ie. Non reported incidents)	%	64%	Australia Bureau of Statistics, 'Work Related Injuries Survey', Catalogue 6324.0, 2009-10.
Income compensated by WSV			
% of total income that will be paid by WSV	%	95%	WorkSafe Victoria
Value of 95% of average daily earnings	$	267	Calculated based on average weekly earnings and the number of days in a working week.
Distribution of the amount of time taken off work for injuries parties			
% no days off work for workplace illness and injury	%	52.9%	Australia Bureau of Statistics, 'Work Related Injuries Survey', Catalogue 6324.0, 2009-10.
% part days off work for workplace illness and injury	%	7.9%	Australia Bureau of Statistics, 'Work Related Injuries Survey', Catalogue 6324.0, 2009-10.
% 1 - 4 days off work for workplace illness and injury	%	26.3%	Australia Bureau of Statistics, 'Work Related Injuries Survey', Catalogue 6324.0, 2009-10.
% 5 - 10 days off work for workplace illness and injury	%	12.9%	Australia Bureau of Statistics, 'Work Related Injuries Survey', Catalogue 6324.0, 2009-10.
Number of days taken off work by injuries parties			
no days off work for workplace illness and injury	Days	-	Australia Bureau of Statistics, 'Work Related Injuries Survey', Catalogue 6324.0, 2009-10.
part days off work for workplace illness and injury	Days	0.50	Australia Bureau of Statistics, 'Work Related Injuries Survey', Catalogue 6324.0, 2009-10.
1 - 4 days off work for workplace illness and injury	Days	2.50	Australia Bureau of Statistics, 'Work Related Injuries Survey', Catalogue 6324.0, 2009-10.
5 - 10 days off work for workplace illness and injury	Days	7.50	Australia Bureau of Statistics, 'Work Related Injuries Survey', Catalogue 6324.0, 2009-10.
Number of non-reported claims			
As at the year 2000	No. Per year	443	Calculated based on the number of claims and the percentage of illnesses and injuries which did not result in a workers compensation claim.
Current	No. Per year	268	
Average value of non-reported claim	$ per non-reported claim	445	
Property damage and other related incident costs			
Average cost of incident in 2000	$ per incident	200,000	Based on the estimate of $100,000 made in 2000 in Victorian WorkCover Authority, 'Regulatory Impact Statement: Dangerous Goods (Storage and Handling) Regulations 2000', August 2000. Taking the $100,000 as a base, simply inflating this by CPI would lead to an estimate of around $140,000. Based on discussions with an industry expert and WorkSafe Victoria, a figure of $200,000 was deemed more appropriate.
Average number of incidents			
As at the year 2000	No. Per year	144	WorkSafe Victoria Data. Number of incidents in 2000/01.
Current	No. Per year	56	WorkSafe Victoria Data. Number of incidents in 2005/06.

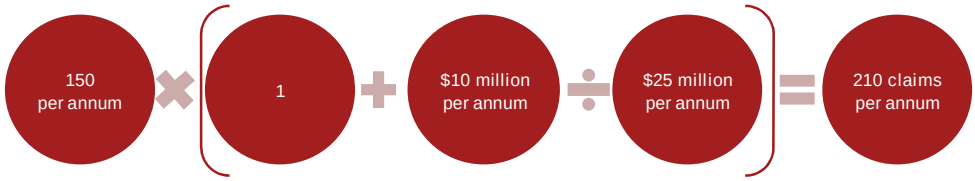
The breakeven analysis compares the costs of the regulations to the current cost and associated level of dangerous goods (storage and handling) related accidents and incidents. To estimate the current cost and level of incidents, the most recent data has been used on deaths, claims (injuries and illnesses), non-reported injuries and illnesses and incidents resulting in property or environmental damage. This data is shown in Table 42 above.

To calculate the current overall cost of accidents and incidents, the equations shown in the above benefits section apply. Using the current number of incidents, the overall cost of current accidents and incidents is $25 million per annum or $207 million over 10 years.

To calculate the number of incidents at the breakeven point, the current number of incidents incurring with regulations in place must be added to the number that should be avoided by the regulations. The calculation for the number of incidents at the breakeven point is shown in Figure 11.

Figure 11: Calculation for the breakeven point

Example: *Number of claims per annum at the break even point under the proposed regulations*



Appendix C Summary of key regulatory changes

WorkSafe Victoria has provided the following summary of key changes proposed to the Dangerous Goods (Storage and Handling) Interim Regulations 2011.

Removal of the requirement to undertake a formal risk assessment

Removal of the requirement to undertake a formal risk assessment is proposed. This would align with the approach taken for hazardous substances in the OHS Regulations 2007. Mandating risk assessment is not considered necessary in all cases to achieve adequate risk control. The removal of the risk assessment duty and its associated record-keeping requirement will reduce regulatory burden for businesses while continuing the requirement for risk control measures will maintain safety standards.

Allowing greater flexibility for the classification and labelling of dangerous goods and preparation of SDSs/MSDSs

Duty holders will continue to be required to determine whether goods they are manufacturing or supplying are 'dangerous goods' (as defined) but it is proposed to provide flexibility to classify dangerous goods according to the GHS, third revised edition or fourth revised edition. Under the proposal, duty holders will able to:

- continue to assign Australian Dangerous Goods Code (ADG) classifications
- classify according to the GHS
- classify according with other Australian jurisdictions' WHS legislation (which utilise an amended version of the GHS).

Similarly, flexibility will be provided in relation to labelling of dangerous goods and the preparation of MSDSs/SDSs. These changes will reduce the regulatory burden on businesses.

Removing the explicit requirement for the notification of the emergency services

Currently certain incidents, such as trivial spills and leaks, involving dangerous goods that pose no risk require reporting to emergency services (ie fire authority or the police). It is proposed to address this by amending the regulations to remove the explicit requirement on occupiers to report incidents to emergency services. However, where an occupier was not able to control the risk associated with an incident, notification to emergency services will remain a key means of risk control under the general duty, and this will be stressed in an amended Code of Practice separate to the proposed regulations. The Code of Practice will recommend reporting triggers be included in the emergency plans of all occupiers who store large quantities of dangerous goods, ensuring those occupiers have clarity on when they should contact emergency services. This will reduce the regulatory burden by ensuring that trivial incidents that pose no risk are no longer required to be reported.

Change from two to five year interval for manifest notification

Occupiers must notify the Authority where they store or handle at their premises dangerous goods in quantities that exceed prescribed 'manifest quantities'. Further notifications are required every two years. It is proposed to require five-yearly notifications rather than two-yearly. This will reduce the regulatory burden on occupiers.

Introduction of a tailored approach to placarding for petrol stations

It is proposed to introduce an exclusion to the requirement for HAZCHEM outer warning placards where the premise is a retail outlet and the dangerous goods stored and handled at the premise is used to refuel a vehicle and is either a flammable gas or flammable liquid. This would mean that a petrol station would not need to have an outer warning placard providing warning that, for example, petrol or diesel was on the premises. This will reduce regulatory burden where it is obvious as to what is being stored at the outlet.

Removal of the requirement to keep records of induction and training activities

It is proposed to remove the requirement for a record to be kept of induction and training activities carried out under the regulations. Such records are not risk control measures in themselves and they are not needed to allow others to discharge their duties. Removing this record-keeping requirement will reduce the regulatory burden on businesses.

Insertion of 'reasonably practicable' into the consultation provision

Under the regulations (Regulation 401) the occupier is required to consult with all persons engaged by the occupier to work at the premises involved in the handling and storage of dangerous goods. It is proposed that 'reasonably practicable' be inserted into this provision. This would align with the approach taken under the OHS Act. The proposal would make clear that consultation activity needs to be undertaken where it is 'reasonably practicable' to do so. This is the case for all consultation related provisions under OHS Act. WSV encourages duty holders to take a proactive role in relation to consultation and believes this clarification would increase opportunities for employers to develop consultation arrangements that comply with both schemes concurrently.

Definition of C1 combustible liquid

The current regulations define 'C1 combustible liquid' as liquid dangerous goods that have a flash point that is higher than 60°C but no higher than 150°C, and a fire point that is less than the boiling point. ACCORD points out that nationally and internationally these goods are not regulated for transport, and that the Victorian definition is unique (and inconsistent with GHS). It is proposed to change the definition of C1 combustible so that it only captures goods that have a flash point that is higher than 60°C but no higher than 93°C to align with the approach taken in the GHS. It is proposed to include a determination provision which would allow the Authority to bring other combustible liquids within the coverage of the regulations where required. The Code of Practice will be updated to include guidance on safe storage of lower risk (liquid) goods. These products, while no longer captured by the regulation, will still be covered by the duty provisions under the DGA.

Appendix D References

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WorkSafe Victoria, Workplace Chemicals Strategy, 2010, p. 5.

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