

Regulatory Impact Statement

Proposed Dangerous Goods (Explosives) Regulations 2011

March 2011

Responding to the proposed Dangerous Goods (Explosives) Regulations 2011 regulatory package.

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

Submissions will be received by WorkSafe Victoria up to the close of business on Friday 15 April 2011.

Important:

The proposed Dangerous Goods (Explosives) Regulations 2011 and the Regulatory Impact Statement (RIS) are being released for the purposes of consultation only. They should not be used for any purpose other than as the basis for providing WorkSafe Victoria with comment.

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FOREWORD

This Regulatory Impact Statement (RIS) has been prepared by WorkSafe in relation to the proposed Dangerous Goods (Explosives) Regulations 2011 (proposed regulations). The RIS has been prepared in accordance with the requirements of the *Subordinate Legislation Act 1994*.

This RIS should be read in conjunction with the proposed regulations, which are presented in the appendix.

The proposed regulations will replace the existing Dangerous Goods (Explosives) Regulations 2000. These regulations were originally due to expire on June 27, 2010. However, in April 2010 the Minister for Workcover endorsed a proposal to extend their operation for a period of 12 months to June 26, 2011.

This RIS sets out the objectives of the proposed regulations and assesses the nature and scope of the problem that the proposed regulations seek to address. It identifies the main changes being proposed, sets out the likely costs, benefits and impacts of the proposed regulations and considers other alternatives.

Copies of the RIS and proposed regulations are available at **www.worksafe.vic.gov.au**.

How to respond to the proposed regulatory package

Public comments are invited on the RIS and the proposed regulations. Submissions should be posted to:

**Manager
Legislative and Regulatory Services Branch
WorkSafe Victoria
GPO Box 4306
Melbourne VIC 3000**

Alternatively, comments can be emailed to explosivesregs_review@worksafe.vic.gov.au.

All submissions received in response to this RIS or the proposed regulations will be treated as public documents unless clearly identified as being confidential.

Submissions must be received by **5 pm on Friday 15 April 2011**.

SUMMARY

The proposed Dangerous Goods (Explosives) Regulations 2011 (proposed regulations) will replace, with limited amendments, the Dangerous Goods (Explosives) Regulations 2000 (current regulations), which are due to sunset on June 26 2011 as a result of the operation of the *Subordinate Legislation Act 1994*.

The current and proposed regulations constitute the main means of ensuring the safety of people and property in the context of the manufacture, transport, storage, sale, use, disposal and import of explosives. They also provide for the management of risks arising out of security concerns associated with explosives. New inclusions in the proposed regulations are also intended to address national security issues by reducing the likelihood that explosives can be diverted for terrorist purposes.

The explosives industry has been closely regulated in Victoria since the mid-19th century. All developed countries adopt stringent approaches to the regulation of this industry and have done so for more than a century. This is because there is potential for catastrophic consequences from major incidents in connection with the operations of the industry. While these events are rare (which is a reflection of the effectiveness of regulation), major explosives-related incidents are likely to cause many deaths and injuries, as well as significant property damage. The average cost of a major incident has been estimated at more than \$1 billion. Even a modest reduction in the likelihood of such a major incident occurring yields expected benefits sufficient to justify the costs of the proposed regulations.

The proposed regulations are estimated to impose costs of approximately \$2.0 million per annum, plus one-off costs estimated at \$1.3 million. These costs are equivalent to \$18.1 million in present value terms over 10 years. The sales sector bears the largest proportion of the total (net) compliance costs of the proposed regulations, incurring additional costs estimated at \$4.6 million, or 25 per cent of the total. The manufacturing sector bears the next largest proportion of the costs, with costs to this sector totalling \$4.1 million. The fireworks sector bears total costs equivalent to \$3.7 million over 10 years.

There is a public expectation that governments will take a strong role in ensuring the risks of such catastrophic harms occurring are systematically minimised. Where risks of catastrophic harm exist, even at low probability levels, there is a strong argument that populations are risk averse in their preferences and are therefore prepared to accept relatively high costs in order to minimise risk level. In this context, it can be noted that the identified costs are equivalent to around 38 cents per annum per Victorian resident. This amount is considered by Worksafe to be well within the bounds of what residents would be prepared to pay in exchange for a high level of assurance as to the safety of the operations of the explosives industry.

The proposed regulations are, for the most part, a translation of the current regulations. However, there are some substantive changes proposed that relate to public safety including changes to lower the risks associated with the storage of explosives within the community, and to address persistent security concerns in relation to the potential for the intentional misuse of explosives by terrorists.

It is proposed that lawful activity under the existing regulations be lawful activity under the new regulations for a period of 12 months. This gives a 12 month transitional period for people to comply with the new requirements under proposed regulations.

Key regulatory changes proposed are as follows:

Focus on community safety

- removal of temporary storage provisions that currently allow pyrotechnicians to effectively create permanent storage facilities of fireworks in a garage or shed located on a residential premise;
- upgrading of requirements applicable to medium scale and fireworks storage in recognition of the risks to the community often posed by these facilities;
- extension of existing requirement for safety management to all manufacturing in recognition that SMS is equally applicable to manufacture in a non-factory setting;
- extending the required notification period for fireworks displays from seven days to 10 working days to ensure local councils, emergency services and WorkSafe can make adequate assessments and responses (such as ensuring that residents have adequate warning);
- adoption of 'blast management plans' to ensure those undertaking blasting adopt a risk management-based approach.

Enhanced provisions on national security

- the introduction of the requirement for background checking of people with unsupervised access to explosives;
- proposed changes to improve 'tracking' of the movement of explosives for security purposes.

Increased national consistency

- greater reliance in the regulations on key Australian Standards covering explosives (eg AS 2187.2 *Explosives – storage and use. Part 2: Use of explosives*).

Cutting red tape

- there is a streamlining of existing licensing types and changes to more closely align administrative licensing provisions with other dangerous goods or occupational health and safety regulations where appropriate;
- changes to threshold quantities of distress signals triggering licence requirements, which will mean smaller operators will no longer need to be licensed.

Fee increases

The fees charged under the current regulations have not been increased since their passage a decade ago. Consequently, it has been decided to increase the fees by 25% in all cases in which cost recovery is not currently being achieved. This means that the fees will remain slightly lower, in real terms, than was the case at the time of the adoption of the current regulations and will continue to result in a significant under-recovery of licence processing costs. However, given that nationally uniform regulations will be adopted within the next few years, and fee policy will be reviewed in that context, it has been determined that the size of the fee increases to be undertaken should be limited in the interim. Table S1, below, summarises the existing and proposed fees.

Table S1: Existing and proposed licence fees

Licence	Proposed fee	Existing fee
Manufacture at factory	\$5000	\$4,000
Manufacture not at a factory	\$312.50	\$250
Store explosives	\$500	\$500
Sell explosives	\$62.50	\$50
Explosives vehicle	\$62.50	\$50 ¹
Explosives vehicle driver's licence ²	\$62.50	\$50
Transport by rail	\$62.50	\$50
Use blasting explosives	\$62.50	\$50
Use fireworks	\$62.50/\$125/300 ³	\$50
Import explosives	\$62.50	\$50
Authorise explosives	\$150 ⁴	\$53/hr ⁵
Exemption	\$300	\$54/hr ⁶

Table S2, below, provides a summary of the identified incremental compliance costs due to the proposed changes to the current regulations.

Table S2: Summary of incremental costs - present values over 10 years

Cost item	Cost (PV over 10 years)
Safety management systems	\$0.3 million
Storage upgrades	\$2.5 million
Recording of sales data	\$0.6 million
Total	\$3.4 million
Licence fees (transfer)	\$0.5 million

¹ Per fleet. New fee will apply per vehicle.

² Note that, in addition to the Worksafe costs of \$42.31 set out in Appendix 6, Australia Post charges a \$40 processing fee, which has been included here.

³ Higher fees apply where an assessment of competency is required and where an exam is required to be undertaken.

⁴ Fee to test or examine explosives for authorisation. Fee also applies to amendments of authorisations of explosives and conducting tests for classification of explosives.

⁵ Current fee is \$53 per hour or part thereof, with a maximum of \$540. This is being replaced by a flat fee of \$150.

⁶ Current fee is \$54 per hour or part thereof, with a maximum of \$2,160. This is being replaced by a flat fee of \$300.

The table shows total incremental costs have a present value (PV) equal to \$3.4 million over 10 years. The major element of this expected cost increase relates to the changes in storage requirements and, in particular, to the abolition of medium-scale storage licences.

Given the identified costs of the proposed regulations, and the average cost of a major accident, the proposed regulations can be calculated to impart an expected benefit on society if they are capable of reducing the probability of major accidents by a factor of around one in 500 years. It is considered the regulations are highly likely to be at least this effective.

Additional significant benefits can be identified, although it has not been possible to quantify them. These benefits relate to reductions in deaths and injuries of people working with explosives and to improvements in national security, particularly in relation to reducing the likelihood of terrorist activities being successfully carried out.

The proposed regulations have been assessed in the light of two alternatives. The first is adopting a more performance-based approach, while the second is lengthening licence renewal periods from five to 10 years.

In relation to the first alternative, the proposed regulations already contain substantial process and performance-based elements (as do the current regulations). While additional performance-based requirements could be possible in a small number of areas, the potential savings to the industry from this additional regulatory flexibility must be weighed against the need to maintain a high level of certainty of compliance and public confidence on this issue.

WorkSafe's view is that the proposed regulations represent the optimum mix of process-based, performance-based and prescriptive regulatory requirements which have regard to the capacities of the regulated parties, the need to maintain public confidence in the regulations and the need to promote national uniformity. A move toward a more performance-based regulatory alternative is less preferred than the proposed regulations, even though it has not been possible to assess the benefits and costs of this alternative quantitatively.

The alternative of adopting a 10-year licence renewal period, in preference to the proposed five-year renewal period, is estimated to reduce compliance costs by approximately \$0.25 million in PV terms over 10 years. This can be considered a modest cost reduction when compared with the costs of the proposed regulations (amounting to less than 5 per cent). However, it is believed the use of such a long licence renewal period would have the potential to significantly compromise the reliability and usability of the licence database. Additional control measures would need to be implemented to safeguard against this outcome, potentially offsetting the cost savings identified above. Consequently, this alternative was also considered to be less preferred than the proposed regulations.

The proposed regulations are expected to have a limited life span due to the progressive implementation of national uniform occupational health and safety legislation in accordance with the June 2008 agreement of the Council of Australian Governments (COAG). However, the project as it relates to explosives regulation is currently only in the scoping state and the implementation of national regulations in this area not currently anticipated to occur until 2013. Thus while the proposed regulations may have a limited lifespan it remains essential to proceed with their making.

1. INTRODUCTION

1.1. The regulatory context

Dangerous goods are substances that are corrosive, flammable, explosive, spontaneously combustible, toxic, oxidising or water-reactive. Examples of commonly used dangerous goods are petrol, LPG, paints, pesticides and acids. The specific definition of dangerous goods is essentially uniform throughout Australia, as the definition adopted by the *Dangerous Goods Act 1985* (DG Act) and used in the Australian Dangerous Goods Code⁷. Explosives are a particular class of dangerous goods that pose specific risks because they are a concentrated form of energy.

The DG Act is the primary basis for regulating dangerous goods in Victoria. It sets out a range of regulatory provisions that are applicable to all dangerous goods. In addition, some dangerous goods that pose specific risks – including explosives and high consequence dangerous goods (HCDG)⁸ - are subject to specific regulatory provisions. There are several sets of regulations made under the authority of the DG Act that deal with risks posed by specific types of dangerous goods or with risks that arise in specific contexts. The regulations currently in effect are:

- Dangerous Goods (Explosives) Regulations 2000
- Dangerous Goods (HCDG) Regulations 2005
- Dangerous Goods (Storage and Handling) Regulations 2000
- Dangerous Goods (Transport by Road or Rail) Regulations 2008

The proposed Dangerous Goods (Explosives) Regulations 2011 (proposed regulations) will replace, with some amendments, the current Dangerous Goods (Explosives) Regulations 2000 (current regulations).

1.2. National regulatory reforms

The broader context for the proposed regulations is the development of national model occupational health and safety legislation, resulting from a July 2008 agreement by the Council of Australian Governments (COAG)⁹. The national model legislation project currently underway is the responsibility of Safe Work Australia. According to Safe Work Australia:

*The model legislation will consist of a principal OHS Act, supported by model regulations and model codes of practice that can be readily adopted around Australia. This requires each state and territory to pass their own laws that mirror the model OHS laws and adopt them by December 2011.*¹⁰

The model Act was presented to the Workplace Relations Minister's Council (WRMC) for approval in late 2009, while model regulations in all areas currently regulated in one or more jurisdictions have been developed during 2010. Codes of Practice are to be developed during 2011 and all jurisdictions are expected to adopt the model Act and regulations. This is likely to happen during 2011 or 2012.

⁷ Australian Dangerous Goods Code (7th Edition): www.ntc.gov.au/ViewPage.aspx?documentid=01147

⁸ HCDG are those dangerous goods declared to be HCDG via an order-in-council made under the authority of Section 9B of the *Dangerous Goods Act 1985*.

⁹ www.coag.gov.au/coag_meeting_outcomes/2008-07-03/docs/OHS_IGA.pdf

¹⁰ www.safeworkaustralia.gov.au/swa/ModelLegislation/Model+OHS+Legislation/

The specific legislative changes that will be made in Victoria during 2008-2011 to give effect to national agreements on the harmonisation of chemical legislation include:

- the adoption into Victorian law of the Australian Dangerous Goods legislative package for the nationally harmonised transport of dangerous goods by road and rail
- the Hazardous Chemical Standard currently under development by Safe Work Australia. This will form the basis for drafting instructions for the model regulations
- the harmonisation of explosives legislation across Australia by the Australasian Forum of Explosives Regulators which reports to WRMC¹¹. This project aims to develop and implement a common set of requirements for explosives-related licensing, authorisation, competencies, security and transport. The Intergovernmental Agreement for Regulatory and Operational Reform in Occupational Health and Safety states that: 'the primary role of the WRMC ... is to work cooperatively to harmonise OHS legislation by 2011 or earlier if agreed by COAG ...'.

The harmonisation of explosives laws is now on the national reform agenda of WRMC however national model legislations is not expected until at least 2013. The proposed regulations are therefore expected to have a limited lifespan, however, it is essential to proceed with their making. The sunseting of the current regulations in mid 2011 would result in an unacceptable regulatory hiatus, during which no specific regulation would be in place.

One step in the reform of explosives laws was made with the release of the third edition of the *Australian Code for the Transport of Explosives by Road and Rail* (also known as the Australian Explosives Code or AEC). The third edition of the Code was endorsed by WRMC on April 3, 2009. The Australian Forum of Explosives Regulators updated technical provisions and operational content, and improved security arrangements relating to the transport of explosives. The purpose of the AEC is to regulate the transport of explosives by road and rail and it is intended to be adopted in jurisdictions' explosives legislation.

Victoria's existing explosives regulations adopt the AEC as it is amended so the new edition of the AEC is already adopted in Victoria.

Another area of national reform has been regulation to manage risks arising from security concerns associated with certain dangerous goods.

In June 2004 COAG agreed to a national approach to control access to security sensitive ammonium nitrate. The approach was set down in a set of national principles for the regulation of ammonium nitrate. To meet this commitment Victoria amended the DG Act and made a new set of regulations – the Dangerous Goods (HCDG) Regulations 2005 (HCDG Regulations).

The DG Act was amended to implement the national principles and establish a framework to regulate other substances subsequently identified as being a security concern (collectively called high consequence dangerous goods or HCDG). HCDG Regulations provide for a licensing regime and security arrangements consistent with the national principles. As part of the licence process, persons have to undergo security and background checks to determine if they are a security risk. The regulatory regime ensures these substances still remain available to legitimate users while managing the risk posed by their continued ready

¹¹ WRMC has assumed responsibility for coordinating national uniform explosives laws in Australia since 2005.

availability. Ammonium nitrate and calcium ammonium nitrate are currently the only goods regulated by those regulations.

The national principles also stated that because of the measures to be introduced for security sensitive ammonium nitrate (which in some cases were more stringent than those for the control of explosives), states and territories should review their explosives regulations. Implementing security checking for persons having access to explosives was identified as one particular area where jurisdictions should quickly move to introduce. Consequently, the amendments to the DG Act also provided for the management of risks arising out of security concerns associated with explosives.

The current regulations were amended in 2005 to strengthen security arrangements. This included introducing background checks¹² for all explosive licence applicants and making provision for security plans.

2. OBJECTIVES OF THE PROPOSED REGULATIONS

The principal objective of the proposed regulations is to minimise the risks of incidents involving explosives and the consequent incidence of deaths, injuries and property damage.

An additional objective is to respond to security concerns by regulating the availability of explosives in ways that will reduce the risks of their use to inflict harm intentionally. The DG Act and current regulations were amended in 2004-05 to address security concerns. Further security enhancements are proposed for the proposed regulations.

¹² Under both the HCDG Regulations and current explosives regulations, licence applicants are required to undergo police and security checks. These checks are undertaken at the request of WorkSafe and provide WorkSafe with information to assist it ascertain whether or not the applicant is a 'suitable person' to hold a particular licence. A security assessment by ASIO is a PMV (politically motivated violence) check. They determine whether or not an applicant is known to ASIO in a politically motivated violence context. The police check entails a search of state and federal police databases. Security checks are a one-off requirement (unless the person changes his/her name). Police checks are required at licence renewal.

3. NATURE AND EXTENT OF THE PROBLEM

3.1. Overview of the explosives industry

Explosives are a special class of dangerous goods that have a long history of regulation in all developed countries. In Victoria, explosives have been regulated for more than 160 years, with the first legislation to regulate explosives being the *Port Philip Gunpowder Act 1848* which prescribed a series of specific safety requirements in relation to importation, handling, storage and transport of gunpowder. The scope of explosives regulation and the range of activities regulated has broadened over time at the same time the range of explosives available and the contexts in which they are used has grown.

The explosives industry in Victoria is relatively small and narrow (it has reduced in recent decades), especially when compared to the industries that store and handle other dangerous goods. It is the severity of risks posed by explosives which has meant the explosives industry has always been tightly regulated, both in Victoria and in comparable jurisdictions.

The explosives industry consists of manufacturing¹³ sales, storage, transport, import, disposal and use of explosives. All of these activities are subject to the current regulations and will remain subject to the proposed regulations.

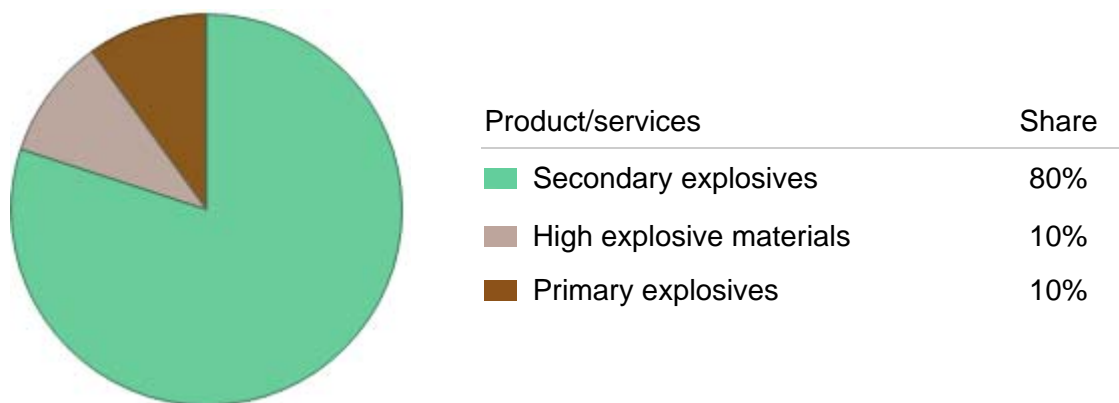
Industry production

Explosives are chemical compounds or mixtures that generate large amounts of gas, heat and pressure when they burn or decompose rapidly. They may be broadly divided into three types as follows (see Graph 3.1):

- primary explosives – substances used in detonators to initiate the explosion and include fireworks (10 per cent share)
- secondary explosives – the main form of commercial explosives with an 80 per cent share. They predominantly rely on ammonium nitrate (AN) as the major active ingredient. AN-based explosives come in a number of formats including ammonium nitrate fuel mixtures, emulsions and water gels and can be sold in either bulk or packaged form
- high explosive materials – such as RDX and HMX, mainly used for military purposes.

Dynamite is no longer as important as its use has been largely replaced by explosives such as slurry explosives or a mixture of ammonium nitrate and fuel oil (ANFO).

¹³ A wide range of explosives products are produced and/or imported, including blasting powder, cap, detonating fuses, detonators, dynamite, fireworks, fuse explosives, gelignite, match, propellant powder, pyrotechnics (ie fireworks), safety fuses and signal flares.

Graph 3.1: Explosive products¹⁴

Industry location

The chemical industry has changed significantly in Victoria since 1985 when the DG Act was first introduced. No longer a significant manufacturer of base chemicals, Victoria is now mainly a supplier of specialty chemical products from smaller manufacturers. While explosives are manufactured in all mainland states except South Australia, the three most important states are NSW, Queensland and Western Australia. These three states account for more than 80 per cent of the total number of manufacturers.¹⁵ This geographical distribution of manufacturing largely reflects the location of major consumers of the industry's products, which include the thermal coal industry in the Hunter Valley, NSW, and the iron ore industry in the Pilbara region of Western Australia. The metallurgical coal industry located in the Bowen Basin region in Queensland is another key geographic market.

The decline in chemical manufacturing in Australia and the consequent rise in imports has also reduced the amounts of chemicals arriving in bulk quantities. The majority of imports now arrive as packaged, finished, goods in shipping containers or as larger packages for repacking by smaller downstream distribution and marketing businesses.

3.2 The risk profile

Explosives are regarded as dangerous substances during the whole of their lifecycle, from manufacture and import, through to use and disposal. The evidence from domestic and international sources indicates the potential for deaths, injuries and property damage, as a result of fires and explosions involving explosives. Such incidents are extremely rare – this could be because of the commercial need to maintain high safety standards in the industry as well as the long-term existence of a substantial regulatory structure governing industry operations.

¹⁴ IBIS World Industry Report, Explosive Manufacturing in Australia: C2541, 09 June 2009, p.7.

¹⁵ IBIS World Industry Report, Explosive Manufacturing in Australia: C2541, 09 June 2009, p.9.

It is important to note the risk profile of explosives combines low probabilities of an incident occurring with a high probability that any incident that does occur will result in a highly damaging and potentially catastrophic outcome.

The production, distribution and use of explosives pose significant risks to employees, the public and the environment. Because explosives are a highly concentrated form of energy, explosives incidents have the potential to cause multiple deaths, serious injuries (eg loss of limbs and burns) to workers and people close to the explosion and substantial property damage.

Many fireworks are also high explosives and regulated in the same way as high explosives, particularly with fireworks such as aerial shells which are designed to be projected from a mortar and burst high in the air.

These potential hazards are more serious than those posed by other classes of dangerous goods. The availability of explosives can also pose risks to public security because terrorists can use explosives in bomb making. Explosives therefore represent a serious hazard to people who work with them or are entertained by them in the case of fireworks, and to the community. The role of regulation is to ensure the risks are reduced.

It is not sufficient to rely on the general duties of the DG Act. Regulations controlling explosives need to be specific and contain a range of requirements of a practical nature due to the potential for loss of life and serious injury. The DG Act, in section 52 and Schedule 2, clearly makes provision for regulations to be made.

The proposed regulations will ensure high levels of safety are maintained in the production, distribution, handling, use and disposal of explosives, and assist industry in the safe utilisation of explosives while ensuring security and access to the products.

There is a strong presumption by employers and employees, emergency service organisations and the community that comprehensive safety controls will be implemented by government in relation to all aspects of the explosives industry. The proposed regulations will provide the necessary means of exercising these controls. Stakeholders consulted during the preparation of the regulatory proposal and of this RIS all accepted that explosives pose a risk to the community, and did not raise any opposition to their strict regulation continuing.

3.3. Extent of market incentives for ensuring safety performance

While the long history of explosives regulation and the general support for its continuation show a widespread view of the need for government intervention to ensure risks are adequately controlled, the explosives industry in Victoria has other incentives to encourage safe operations. They include:

- for explosive industry owners/operators, incidents lead to significant harm to staff, and damage to assets and continued business operations
- for companies covering the whole range of the industry, legal liability arising where their customers or third parties have suffered harm as a result of their operations – particularly if negligently conducted
- the industry is subject (like other industries in Victoria) to the costs of accident compensation claims which, like all costs, an explosives firm would seek to minimise
- reputational risk, in terms of safety concerns negatively affecting the ability of explosives companies to market their goods.

The potential for prosecution for breaches of other relevant legislation and regulation, notably the *Occupational Health and Safety Act 2004* (OHS Act), the DG Act and the current regulations, provides additional incentives for safe operation.

Substantial data and analysis suggests these business incentives may not be strong enough to be relied upon without regulation. Of general relevance are the findings of the Productivity Commission which, in its 1992-93 inquiry into Work, Health and Safety¹⁶ found employers typically bear only around 30 per cent of the true costs of workplace accidents, with the remaining costs being borne by workers (approximately 30 per cent) and by the community (approximately 40 per cent). Table 3.1 is reproduced from the report and summarises the types of costs associated with workplace accidents that are typically borne by each party.

Table 3.1: Indirect costs borne by the employer, the worker and the community

<i>Parties</i>	<i>Indirect costs</i>
Employer	Loss of productivity Consequential overtime and cost of over-employment Legal penalties Investigation of incidents and claims Rehabilitation Damage to a machine, tools, or other property or spoilage of material Replacement of equipment and other materials Employee turnover and training costs Cost of retraining Loss of goodwill and corporate image
Worker	Medical and rehabilitation Loss of income Loss of future earnings Travel to doctors and other health professionals Expenditures consequential to a new lifestyle Loss of leisure opportunities and general decline in the quality of life of the worker and their family Loss of self esteem Reduced social interaction and social status Cost to family members of caring for injured workers
Community	Health and medical Social welfare payments Inspection and investigation Rehabilitation Loss of human capital Community services Travel concessions for workers permanently incapacitated

Source: Industry Commission. Work, Health and Safety.

In terms of economic theory, it can be expected that where costs of investing in improved safety are substantially reduced (due to the implicit subsidy provided by the community and workers themselves), the amount of investment in risk reduction will also be reduced.

¹⁶ Industry Commission Work, Health and Safety, An Inquiry Into Occupational Health and Safety, Volume 2: Appendices, Report No. 47, 11 September 1995.

This may be particularly acute for the explosives industry, as the Productivity Commission found the proportion of the costs of workplace accidents borne by the employer declines progressively as the severity of the incident increases. Given that explosives-related incidents tend to be high consequence events, this implies a higher than average proportion of the costs incurred will be borne by parties other than employers.¹⁷

This analysis suggests that, while employers have important incentives for achieving high levels of safety, these incentives will not be enough on their own to ensure a sufficient degree of risk reduction. This provides a fundamental justification for regulatory intervention. Other reasons that regulatory intervention is required (which are of relevance to the explosives regulations) include:

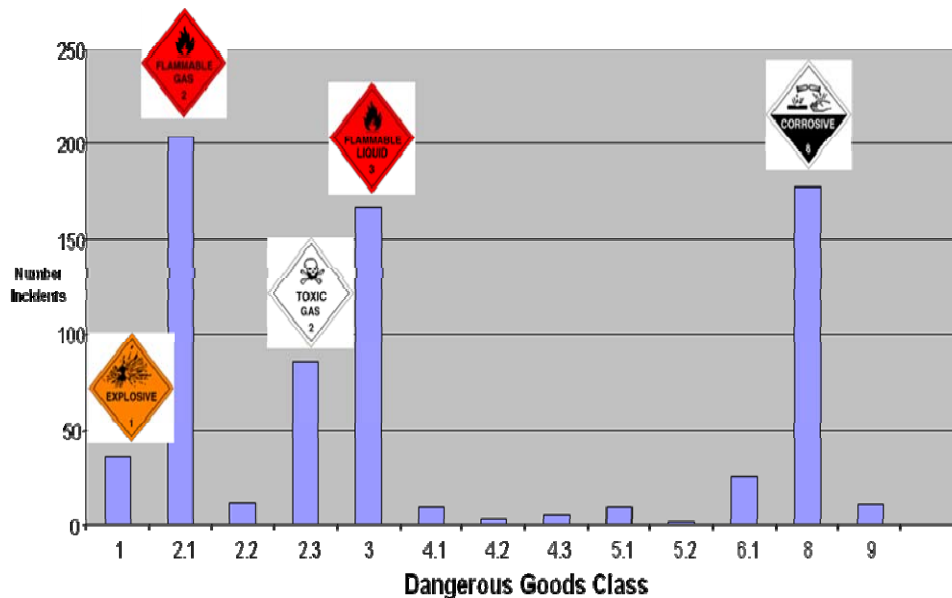
- imperfect information at the workplace about workplace hazards and the management of the risks
- uncertainty about the costs and benefits to the workplace, and the rest of the community, from preventing injury and disease
- lower search costs in determining some preventative solutions applicable to many workplaces (rather than by each workplace having to action its own).

3.4 Extent of the problem: evidence from WorkSafe data on explosive incidents

WorkSafe's dangerous goods incident notifications database shows the frequency and nature of explosives-related incidents in recent years. The observed number of incidents are occurring in an environment where extensive regulatory controls are in place and have been for an extended period. This data must be seen as representing the 'residual risk' or extent of harm that continues to occur even in a highly regulated environment.

Graph 3.2 shows dangerous goods incident notifications from 1997 to 2009 by type of dangerous good. The table shows the number of reported incidents relating to explosives is the fifth highest among the different types of dangerous goods over the period. However, it is also apparent the number of incidents notified has been relatively low over the period, averaging fewer than four incidents per year.

¹⁷ The Productivity Commission found that major determinants of the actual incidence of the costs of workplace accidents included the availability, size and duration of social welfare payments (including both WorkCover and other general payments). The above estimates of the extent of the costs borne by employers, employees and the community reflected their interpretation of the welfare and workers' compensation systems as they existed in Australia at the time of the report in 1992-93.

Graph 3.2: Dangerous goods incidents notified to WorkSafe by Class 1997-2009

The following incidents have been investigated by WorkSafe since the introduction of the current regulations.

- In 2001, approximately 200kg of blasting explosives and about 600 detonators were stolen from a licensed magazine at a quarry and recovered by Victoria Police at a private residence.
- In 2002, a youth was killed when he was struck in the forehead by a small aerial shell which he, or a companion, had ignited. The aerial shell and some other fireworks had been purchased illegally.
- In 2004, a large quantity (more than 1100 kg) of display and prohibited fireworks was found stored in a dilapidated, wooden farm shed. The quantity was such that they were required to be stored in a licensed magazine. The owners of the fireworks (one was a licensed pyrotechnician) were successfully prosecuted.
- In 2005, during a blasting operation in a housing development, rocks were thrown onto the nearby road and a house.
- In 2006, there was an explosion at a metal recycler when partially flattened small arms cartridge cases were being emptied from a bin. These cartridge cases were believed to be inert, but some still contained live primers (which is an initiating explosive) and loose primer composition. One person received burns.

In addition, WorkSafe's explosives authorised officers are frequently required to collect, store, transport, and destroy explosives of various types. These explosives include blasting explosives (such as gelnite, powergel, detonating cord and detonators), fireworks, marine distress signals, safety ammunition and propellant powders. On numerous occasions, WorkSafe and/or Victoria Police have seized prohibited fireworks and/or display fireworks, from persons who were transporting and/or storing and/or selling them in contravention of the regulations.

Box 3.1 describes a recent Victorian example of an incident that demonstrates the potential dangers of the use of explosives.

Box 3.1: Article on safety breaches from a blasting operation

Safety breaches have explosive consequences

A Magistrate has blasted a company after its use of explosives to clear the way for pipes in a housing estate resulted in a vehicle and worker being pelted in rock. The magistrate stated the company was paid for its expertise in a specialised field and that it was unfortunate it took a serious incident to prompt safety improvements. He convicted the company and fined it \$80,000.

The blasting was being carried out to prepare trenches for sewer lines because the land contained rock, but the court was told a blast management plan required by the Australian Standard was not produced and the shot firer was working outside his qualifications. Blast management plans identify risks and hazards, and what has to be done to mitigate them. They specify the proposed dates and times of blasting, warning procedures as well as details of traffic management plans and exclusion zones.

The magistrate was told a number of workers were sent out of the blast zone before a series of charges were detonated, but communications between sentries posted to prevent access to the site and the shot-firer was inadequate. When an asphalt truck entered the area where blasting was to be done, a sentry drove out to warn the other driver who immediately left the area. WorkSafe's investigation found the shot firer saw the asphalt truck leave, but that he could not see the entire blast zone because parts of it were obscured by piles of earth.

The charge was detonated without warning, rock flew through the air striking the sentry's vehicle and smashing the windscreen. The vehicle was about 55 metres from the source of the explosion.

The utility driver who was walking back to it ran and was lucky not to be hurt.

Source: WorkSafe news release, August 2009.

Canberra hospital implosion

One Australian example of an explosives-related incident with major consequences happened in the ACT. In June 1997, an attempt was made to demolish the former Canberra Hospital building via 'implosion' using explosives. The event was promoted as a public spectacle and about 100,000 people attended.

As a result of the explosion, debris was hurled several hundred metres into parts of the crowd, killing one person and injuring nine others. The Coroner found the explosion had not been conducted in accordance with ACT's *Demolition Code of Practice* and the actual processes followed had deviated from the original demolition work plans¹⁸.

The failure to use explosives correctly extended to the demolition itself – the building didn't fully disintegrate and required manual demolition.

3.5 Australian data on injuries from explosives

¹⁸ The Coroner also found that ACT Workcover had contributed to the outcome in several ways, including by its failure to issue appropriate prohibition notices in accordance with the OHS Act to ensure the methodology was safe. See: Madden (ACT Coroner), Shane G. (1999). www.courts.act.gov.au/magistrates/dec/bender/Sect01.htm *The Bender Coronial Decision*. ACT Magistrates Court and Tribunals (Coroner's Court).

Given the low number of recorded explosives-related incidents (see Figure 2.2) and the broadly similar nature of the regulation of the explosives industry around Australia, it is useful to consider national data to obtain a more complete picture. Case data from the Australian Institute of Health and Welfare's 'National hospital morbidity database' for the two years to June 30, 2004 were analysed and published in the context of the National Occupational Health and Safety Strategy and are reproduced in Table 3.2. The table summarises the number of injuries caused by explosions that required hospitalisation over this two year period.

Table 3.2: Injuries due to explosions incurred while working for income and requiring hospitalisation (2002–03 and 2003–04)

Total Australian hospitalisations	Male	Female	Total
Hospitalisations due to explosions	127	5	132
Percentage of total hospitalisations in Australia	0.3 %	0.06%	0.24%

The table shows that explosions represent a low proportion of workplace injuries, with less than one quarter of one per cent of all worker hospitalisations due to this cause. Some of these injuries would not be caused by the use of explosives as such - for example, some relate to explosions of pressure vessels.

While the data shows a relatively small number of hospitalisations from explosions in the community, it does not indicate the overall severity of such accidents. This is shown below in Section 3.6.

Victorian data on compensation costs due to explosives-related accidents

WorkSafe's standard claims database for the 10 years to 2009 includes claims from blasting accidents, a bomb explosion, detonator usage and firework accidents.

This data shows there were 20 claims, with aggregate claims of \$886,626, and fully developed costs expected to be \$1,519,600 or approximately \$75,980 per claim. Given uncertainties relating to the definition of an explosion, it is likely this underestimates the true costs involved, as well as the incidence of accidents. The total cost to date of claims for all explosions is \$1,611,352 with a developed cost of \$3,648,000 which, for 20 claims, is an average of \$182,400 per incident. It is likely the real impact of explosives accidents involves real outcomes somewhere between these two sets of data.¹⁹

The data referred to in table 3.3 provides a comparison of the costs of fireworks-related claims with those relating to other explosives-related accidents (see Table 3.3, below).

¹⁹ WorkSafe has a training program for the inspectorate to improve the data capture from accidents but this will not solve problems with the historical data.

Table 3.3: Standard claims fireworks v other explosives

Industry	Standard claims to date	Fully developed cost	Average fully developed cost
Fireworks	\$183,880	\$237,000	\$39,500
Other explosives	\$702,747	\$1,237,000	\$95,000

The table shows that, while the average cost per claim is lower for fireworks than other types of explosives, it remains substantial. Which means there is a clear basis for continuing to regulate fireworks in a rigorous manner, as discussed in more detail below.

3.6. International experience with explosive incidents

International experience illustrates the potentially catastrophic consequences of explosives-related incidents that have been avoided in Victoria and Australia. While a sound regulatory structure and industry cooperation are key factors in minimising the risk, that such events have occurred in similar, developed countries highlights the significant risks that exist. This underlines the continued need to maintain and improve regulatory standards.

Table 3.4 shows more than 3000 deaths and 4000 injuries from 22 accidents. It must be noted that most of the incidents reported happened in less developed countries where manufacturing and transport technology, scope and effectiveness of regulation, and population densities is quite different to Australia.

The following catastrophic incidents happened in developed countries.

- A fireworks factory in Enschede, Netherlands, exploded on May 13, 2002, killing 23 people and injuring 947. More than 2000 people, who didn't know the factory existed, had to be evacuated and hundreds of homes were destroyed.²⁰
- An explosion of an ammonium nitrate plant in Toulouse, France, in 2001 caused 29 deaths, injured more than 2000 people and caused major disruptions to the city. Telephone lines were down as far as 100km away, more than 500 homes were made uninhabitable and about 85 schools were damaged (11,000 students had to be evacuated).
- A large fireworks storage facility in Halland, East Sussex, UK, exploded on December 3, 2006, killing two fire-fighters and injuring 12 people at The Festival Fireworks store. The explosion cleared an area large enough for 10 soccer fields.
- Four people were killed and one injured during the unloading of fireworks from a truck in preparation for a display in Ocracoke, North Carolina, in 2009.

Table 3.4 shows international data on explosives-related accidents from 1991 to 2002. This data does not represent all accidents but only those known to the United Nations. The table refers *only* to harm arising from accidents and does not include incidents arising from the intentional misuse of explosives (ie terrorism).

²⁰ www.unep.fr/scp/sp/disaster/technological.htm

Table 3.4: International explosives-related incidents

Date	Country	Origin of accident	Products involved	Deaths	Injuries
1991	Malaysia	Explosion	Fireworks	41	61
1991	Thailand	Transport accident	Dynamite, detonators	171	100
1991	Ethiopia	Explosion	Ammunition	100	200
1991	India	Explosion in fireworks factory	Fireworks	38	
1991	India	Market explosion	Fireworks	>40	
1991	Korea	Explosion	Dynamite	>120	
1992	Lebanon	Explosion	Explosives	30	
1992	Libya	Explosion at a factory	Fireworks	17	143
1992	India	Explosion, fire	Fireworks	>25	100
1993	China	Explosion	Fireworks	27	2
1993	China	Explosion, fireball	Fireworks, gunpowder	26	
1994	India	Explosion (storage)	Firecrackers	30	100
1995	Argentina	Explosion at a plant	Munitions	13	
1996	China	Explosion at a storage	Explosives	125	400
1997	Turkey	Explosion ammunition	Ammunition, fireworks	1	1
1997	Ecuador	Explosion at a store	Ammunition	3	187
1998	China	Road accident, explosion	Fireworks	40	100
2001	India	Explosion at a plant	Dynamite	25	3
2001	Thailand	Explosion at a plant	Ammunition	2	70 (5000 evacuated)
2001	Peru	Fireworks spark	Fireworks	282	134
2001	France	Explosion as ammonium nitrate plant	Explosives	29	2442
2002	Nigeria	Explosion and fire at depot	Explosives	2000	Unknown (20,000 evacuated)
Total deaths and injuries reported				More than 3185	More than 4043

Source: United Nations www.unepie.org/scp/sp/disaster/recent/htm and www.unepie.org/scp/sp/casestudies/france/index.htm

The reported number of deaths from these accidents exceeds 3185 over a 12-year period, while the reported number of injuries exceeds 4043. It should be noted the exact number of deaths was unreported in several cases, while no estimate of the number of injuries was available in other cases. Which means these figures underestimate the actual number of deaths and injuries due to explosives. At a minimum, the data shows an average of 265 people die worldwide each year and more than 336 are injured due to explosives-related

accidents. The fact there were six accidents that each killed more than 100 people over the period highlights the risk of a single catastrophic event.

Table 3.4 shows most accidents have occurred in less developed countries. Given that such countries generally have less stringent regulatory requirements and less sophisticated regulatory compliance and enforcement arrangements, this might be regarded as evidence of the effectiveness of regulation in achieving risk reduction.

It is arguable that the consequences of a major incident can be expected to be greater in a less effectively regulated environment. For example, in the absence of well-developed planning laws, explosives manufacturing plants may be located close to major population centres, leaving larger numbers of people exposed to potential harm if there was an explosion. To the extent this dynamic operates, the above evidence of the size of harm as a result of major incidents in less developed countries could be regarded as having limited relevance to the Victorian context.

While plausible, a review of the data in Table 3.4 does not support this. The one major incident occurring in a developed western country (Toulouse, France) clearly ranks highly among those listed in terms of its consequences. Review of the other incidents occurring in non-western countries also indicates no correlation between the degree of economic development (and hence, presumably, regulatory sophistication) and the size of the consequences recorded. For example, the incidents occurring in Peru in 2001 and in Thailand in 1991 were among the highest consequence incidents on the table, despite these countries having a relatively high level of economic development, when compared with other countries such as India, Ethiopia and even China.

The conclusion the consequences of a major incident are likely to be equally severe in a developed country is also supported by the major explosives accident in the Netherlands. The major explosion at a fireworks depot in Enschede in 2000 involved 177 tons of fireworks, with contributing factors thought to include the storage of two containers of fireworks outside the main building, contrary to regulatory requirements.²¹

Given this, it is believed the incidents recorded in Table 3.4 provide a relevant basis for estimating the average consequence of major explosives-related incidents and potential harm in the Victorian context.²² : It should be noted that the low frequency of these major incidents means data from countries normally regarded to be directly comparable to Australia couldn't be compiled.

3.7. Fireworks versus other explosives accidents

It is a common view that fireworks are a relatively safe form of explosives because they were mostly used by children before they were banned in Victoria in the 1970s. Table 3.4 shows that accidents involving deaths can occur due to fireworks. In particular, two of the three major explosives-related accidents in developed countries involved fireworks.

²¹ The final report of the government enquiry into this incident is available at www.emergency-management.net/enschede1.pdf

²² Despite this tentative conclusion, it remains arguable that due to less well-developed regulatory systems, the consequences of major accidents may be smaller on average in developed countries. To the extent this were true, it would have implications for the breakeven analysis considered below.

Table 3.5 highlights the risks associated with fireworks by analysing the incidents reported in Table 3.4 in terms of whether the explosion involved fireworks or other kinds of explosives and calculating the average number of deaths and injuries in each case. Given the potentially distorting effect of the one explosion in Nigeria in 2002 which accounted for almost two-thirds of the total number of deaths recorded, an adjusted average has been included which excludes this explosion.

Table 3.5: Total and average deaths from fireworks and ‘other’ explosions.²³

Type of explosion	Number of incidents	Total deaths	Average deaths	Adjusted average
Fireworks	10	542	54.2	54.2
Other	13	2655	204.2	50.4

Overall, around one-sixth of all explosives-related deaths were due to fireworks. If the Nigerian explosion is excluded, almost half of the remaining deaths (542 vs 655) are fireworks-related. The average number of deaths per accident involving fireworks is approximately one quarter of that involving other forms of explosives. If the Nigerian accident is excluded, the adjusted average number of deaths in fireworks-related accidents is slightly higher than for accidents involving other explosives. This analysis clearly supports WorkSafe’s approach to regulating fireworks in the same manner as other explosives.

International comparative data on fatalities and injuries due to fireworks accidents is extremely limited. Abdulwadud and Ozanne-Smith²⁴ compared fireworks-related deaths and hospitalisations in Australia, the Netherlands, New Zealand and the United States. They found that from 1991 to 1995 there were 22 deaths involving fireworks in the United States, five in the Netherlands and none in Australia or New Zealand. In 1994, the Netherlands had higher hospital admission rates from fireworks injuries than Australia, New Zealand and the United States and, overall, Australia experienced the lowest hospital admission rates. While hospital admission rates in the United States were lower than the Netherlands, US Consumer Products Safety Commission data shows that almost 7000 people in the United States had to go to hospital in 2008 because they sustained a fireworks injury. At least 11 people were killed in fireworks accidents in 2007 in the United States.

These statistics suggest the relatively strict regime of fireworks regulation adopted in Victoria, and in Australia, has been successful in reducing deaths and injuries from fireworks. Data from the United Kingdom further highlights the potential for less rigorous regulation of fireworks to lead to high rates of injury. According to the EIDAS database published by the Health and Safety Executive, there were 37 cases of fireworks explosions from 2000 to 2006, which resulted in one fatality and 246 injuries.²⁵

3.8. Data on international explosive transport accidents

²³ Data from Table 2.5 was not allocated to fireworks if there was another explosive present and the data that was indicated by a ‘greater than’ sign were aggregated by the minimum amount noted.

²⁴ Omar Abdulwadud and Joan Ozanne-Smith (2000). *Deaths And Hospitalisations From Fireworks Injuries International Journal of Injury Control and Safety Promotion*, Volume 7, Issue 3, September 2000, pages 187 - 193

²⁵ <http://webcommunities.hse.gov.uk/inovem/inovem.ti/explosives/page/eidassearch>

A further international dataset relates to transport accidents involving explosives. This data, summarised in Table 3.6 shows that for 1998-2007, 494 people were killed and 1802 injured due to such accidents. Accidents of particular note were:

- In northeast Iran, 2004, a runaway train with 17 cars of sulphur, six cars of petrol, 10 cars of cotton wool and seven cars of ammonium nitrate derailed, burned and exploded, killing more than 300 people and injuring 450. It was reported that emergency services suffered losses of 182 people which suggests they were trying to fight the fire and got caught by the explosion.
- In Ryongchun, North Korea, 2004, a train shunting operation brought together a train carrying 80 MT of ammonium nitrate with a train carrying fuel oil and an exposed live electrical wire. The resulting explosion levelled everything within a 500m radius; 54 people were killed, including 7 children, and around 1300 people were injured.
- In Romania, 2004, a truck carrying more than 20 MT of ammonium nitrate overturned 50km northeast of Bucharest. The truck exploded killing 20 people including fire-fighters and people watching the fire.
- In Shengangzhai, China, 2005, a truck carrying 18 MT of ammonium nitrate exploded, killing 12 villagers and injuring 43. The explosion produced a crater 18.5m wide and 5.6m deep.

Table 3.6: Notable explosive transport accidents over the past decade

Location	Date	Product	Outcome	Comments
Walden, Ontario	1998	Truck and trailer accident with 18,000kg of blasting explosives.	Fire and explosion.	Two minor injuries with debris thrown some 2470m.
Neyshabur, Iran	2004	Train cargo including petrol and ammonium nitrate.	Explosion.	More than 300 killed and 450 injured from a runaway derailed train.
Ryongchon, North Korea	2004	Two trains, one with cargo of 80 MT of ammonium nitrate and the other carrying fuel oil.	Fire and explosion.	154 killed including 76 children, 1300 injured and severe damage to the town. Trains shunting at the city train station where the ammonium nitrate came into contact with the fuel oil and a live electrical wire.
Mihailesti, Romania	2004	Truck overturned with 20 MT of ammonium nitrate.	Fire and explosion.	17 killed and six injured. Damage to 20 houses.
Gwinnett County, Georgia, US	2004	Ammonium nitrate.	No fire or explosion.	1-85 interstate highway closed. Cleared 150m radius around accident site.
Wells, Maine, US	2005	1360kg of an ammonium nitrate liquid and detonation devices.	No fire or explosion.	Nearby homes and businesses evacuated. 30km of Maine Turnpike road closed.
Salt Lake City, Utah, US	2005	16,102 of boosters.	Explosion.	11 injured with four hospitalised.

				Crater 9m deep and 20m wide created.
Shengangzhai, China	2005	Truck load of 18 MT of ammonium nitrate.	Explosion.	12 killed and 43 injured.
Ouray, Utah, US	2006	Truckload of 18,200kg of ammonium nitrate, 10,000 blasting caps and several hundred kilograms of dynamite.	No fire or explosion.	Sparsely populated area but authorities evacuated homes within a 3.3km radius.
Mesa, Arizona, US	2006	10,000kg of ammonium nitrate, 1466 blasting caps and eight cases of dynamite.	No fire or explosion.	
Tumbarumba, NSW, Australia	2007	Truckload of ammonium nitrate.	No fire or explosion.	Truck rolled over into creek.

Source: Mainiero-RJ, Rowland-JH, A Review of Recent Accidents Involving Explosives Transport in the Proceedings of the 34th Annual Conference on Explosives and Blasting Technique, New Orleans, Louisiana, January 27-30, 2008. Cleveland, OH: International Society of Explosives Engineers, 2008 Jan; 2:1-12, Table 1, Available from: www.cdc.gov/niosh/mining/pubs/pubreference/outputid2697.htm.

3.9. Conclusion on the need for regulation of explosives

Several conclusions can be drawn from the analysis. First, the incidence of accidents involving explosives is significantly higher in less developed countries and the consequences of these accidents is usually more severe. This suggests the substantial regulatory structures in place in Victoria, Australia and other developed countries are effective in reducing risks and harm.

Second, while there aren't many explosives-related accidents in Victoria or Australia, they do still occur, as in other developed countries, and remain a public policy concern.

Third, accidents involving explosives retain the potential to be catastrophic. Governments generally adopt highly stringent approaches where catastrophic outcomes are possible, as this is consistent with the expressed preferences of their populations. An example is given by the airline industry, where extensive and expensive regulation has reduced risk far below the levels considered acceptable in other forms of transport. Public demands to avoid catastrophic accidents is a major factor in this approach being adopted.

The information in Table 3.5 also demonstrates risks posed by fireworks are of a similar magnitude to those posed by other forms of explosives. This validates the approach of applying the same regulatory approach to these products.

Finally, government cannot legislate for best practice. Only the actions of management and workers within enterprises can produce best practice. However, governments can elevate poorly performing workplaces to meet community standards by enforcing the responsibilities of employers and employees through regulation. The relatively low level of explosives incidents and the absence of a major catastrophe in Victoria are mainly due to the long term

regulatory approach adopted in Victoria and the cooperation of most of the industry in minimising the likelihood of a serious incident.

3.10. Rationale for specific changes contained in the proposed regulations

The previous sections have established the general rationale for the regulation of the explosives industry. The following highlights the specific rationales underlining the main regulatory changes to be introduced by the proposed regulations.

Inadequate notification times for fireworks displays

The proposed regulations would increase the required notification times for fireworks displays, from seven days to 10 business days. The regulations will also extend the notification duty to indoor theatrical firework displays. Under the current regulations this type of display does not trigger a notification requirement.

The purpose of notification is to ensure all potential hazards to public safety and amenity posed by the intended display are identified and adequately addressed, usually through conditions being imposed or affected parties being given specific warnings. In general terms, fireworks displays may be associated with hazards due to the risk of uncontrolled explosions; the risk of fire; and the risks and concerns associated with noise.

The hazards or problems that may be caused by fireworks displays include:

- hazards to aircraft, where a display occurs near an airport or fireworks will be exploded at relatively high altitudes
- risks of burns or impact injuries to spectators, where adequate clear areas may not be maintained or other safety precautions such as fire suppression systems are inadequate
- fire hazards, where a display may occur in a high fire risk locations (eg dry vegetation)
- hazards to the health of the ill or elderly, where a display occurs near a hospital or retirement home
- noise pollution
- hazards to animals, where displays occur near farms, horse studs, kennels etc.

Examples of most of these problems were identified during a program of visits to local authorities in 2007 by WorkSafe to assess these issues. These included:

- fires:
 - grass
 - buildings and vehicles in close proximity
- burns from direct impact due to:
 - misdirection or
 - close proximity
- burns from falling embers
- disturbance to pets, stock
- smoke
- noise
- impact injuries due to close proximity.

WorkSafe receives numerous complaints relating to inadequate notification of fireworks displays. Examples include:

- In 2004 livestock was disturbed in a rural area as a result of a pyrotechnician testing fireworks. The owners of the livestock had not received adequate notification.
- In 2005 a petition was received from residents in Morwell asking for compulsory notification of forthcoming events by event holders or local councils.

The move to a longer notification period is supported and promoted by local councils and fire services. Most of these bodies, which must respond to notifications, believe the current notification period is too short to allow adequate assessments and responses to be made. For example, a comprehensive survey of local councils conducted by WorkSafe in 2007 found 75 per cent thought the current seven-day notification period is too short to allow them to adequately carry out their responsibilities. The Country Fire Authority has also raised the issue of notification times with WorkSafe and believes that the current 7 day notification period is inadequate.

Local councils will frequently respond to notifications by determining an appropriate set of conditions for a fireworks display, encompassing matters such as the time of the display, location, time of the year, public liability insurance and requirements for further notification of affected parties. Fire services frequently undertake site inspections and make assessments of the specific proposal for the display from a fire safety response perspective.

The extended notification period is expected to allow these tasks to be carried out more thoroughly and therefore reduce risks and problems associated with fireworks displays. The proposed changes in part reflect councils, fire services and other responsible entities frequently indicating they need more time to carry out their roles thoroughly. In addition, councils have argued that residents have frequently complained they need more notice of fireworks displays in order to take appropriate action, for example to prevent disruption to animals.

The proposed notification period of 10 working days represents a compromise outcome. Consideration was initially given to extending the required notification period to 21 days. However, substantial consultation with industry indicated that a number of operators held concerns that an extension of this length would have a significant negative impact on their businesses, as well as effectively preventing many people from having fireworks displays. Consequently, a more modest extension to the existing notice period is proposed. It should be noted that the change to a 10 working day period will approximately double the existing notice period and is expected to largely address the concerns that have been expressed to date by local councils and fire services.

Problems with the 14-day temporary storage concession for fireworks licence holders

The current regulations include a concession from the requirement to hold a storage licence that is applicable to pyrotechnicians under certain circumstances. This concession allows pyrotechnicians to store fireworks for not more than 14 days in a building that is kept securely locked and is not used as a dwelling. There is no limit on the amount of fireworks that can be stored under this concession.

In practice, it is difficult for WorkSafe inspectors to determine how long fireworks have been stored on the premises. This is particularly true when amounts of fireworks are cycling through the premises on a regular basis. Anecdotal evidence from inspectors indicates this

concession is being abused and a number of premises are effectively being used as permanent storage facilities for large quantities of fireworks.

The amount of explosives being stored in these premises would often, in the absence of the concession, trigger the requirement for the person to hold a storage licence. Instead, the current situation allows for these quantities of explosives to be stored in domestic garages and sheds that do not comply with appropriate safety and security requirements under AS 2187.2 *Explosives - Storage and use - Use of explosives*. WorkSafe proposes to discontinue this concession in the interests of community safety.

Extension of safety management system requirements

Factory-based manufacturers are already required to prepare a safety management system (SMS) by the current regulations. The SMS describes how a licensee manages the risk relating to explosives. The proposed changes would extend the requirement for an SMS to other types of licensed manufacturers (that is, mobile manufacturing units and those licensed to manufacture explosives near the point of discharge). This recognises the logic of the SMS requirement is also applicable to manufacturing occurring outside the factory context and it is possible to adopt an appropriate and proportionate approach to an SMS in respect of these non-factory-based manufacturing operations. In practice, mobile manufacturing units (MMU) will only be affected by the need to complete an SMS on the rare occasions they enter a site that does not already have an established SMS. Where an SMS for the site has already been established, the MMU would simply need to comply with that existing SMS.

Blast management plans

The implementation of the blast management plan (BMP) requirement is in response to significant accidents in recent times. Examples include:

- In 2003, during blasting operations to clear a forestry road, an employee was struck and killed by flyrock. The employee was acting as a guard to prevent public access to the blast area.
- The example in Box 3.1 (on page 18).

The BMP requirement will mean those undertaking blasting will have to adopt a risk management-based approach to their operations. In doing so, they will increase safety awareness in their day-to-day activities. It's also worth noting that AS 2187.2 relies heavily on BMPs as a safety tool.

Security of explosives

Explosives are a group of dangerous goods that have the potential for misuse in a terrorist incident or other violent or criminal situation. Such misuse may produce serious consequences such as mass casualties and destruction. The potential for explosives to be misused for violence is evidenced by the recent firebombing of an insurance and banking office in Darwin (February 2010). Jerry cans of fuel and firecrackers in a shopping trolley were allegedly lit, causing an explosion and fire in which 19 people were reportedly injured.²⁶

²⁶ Herald Sun, February 05, 2010, www.heraldsun.com.au/news/man-accused-of-firebombing-darwins-tio-building-faces-court-in-handcuffs-and-a-spitting-gag/story-e6frf7jo-1225827125418

The potential for explosives to be misused is of particular concern in the current security environment.

The Australian Government's Counter-Terrorism White Paper, which was released on February 23, 2010, reports the threat of terrorism to Australia is real and enduring – it states that terrorism has become a 'persistent and permanent feature of Australia's security environment'.²⁷

Since 2001, numerous terrorist attacks have been thwarted in Australia.²⁸ Thirty-eight people have been prosecuted or are being prosecuted as a result of counter-terrorism operations and 20 people have been convicted of terrorism offences. More than 40 Australians have had their passports revoked or applications denied for reasons related to terrorism.²⁹

A range of counter-terrorism measures have been introduced by Commonwealth, state and territory governments to protect Australia, its people and interests from terrorism. The potential for hazardous materials to be used for terrorist activities has been one focus. In December 2002, COAG agreed to a national review of the regulation, reporting and security around the storage, sale and handling of hazardous materials. Ammonium nitrate was given priority within the COAG review, and in 2004 COAG agreed to control access to security sensitive ammonium nitrate. As previously discussed, Victoria amended the DG Act and made HCDG Regulations to give effect to the 2004 COAG agreement.

The existing regulations when made in 2000 included provisions directed at ensuring the security of explosives and reducing the risk of theft and misuse. The regulations were amended in 2005 to strengthen arrangements in line with the HCDG Regulations. The proposed regulations respond to national security concerns by introducing further measures to control access to explosives. This provides for greater alignment with arrangements under the HCDG Regulations.

The proposed regulations maintain alignment with HCDG with respect to background checks of applicants (and providing for security plans) and propose further alignment by requiring background checks of persons with unsupervised access to explosives. It is proposed this be achieved by placing a duty on all licensees to ensure anyone given unsupervised access to explosives has undergone a security assessment and police check. This new requirement is not expected to impact on many licensees as most access to explosives must be under supervision of a licensee. WorkSafe however has identified that some people working in manufacturing, magazines or sales with unsupervised access to explosives will need to have police and security checks if they are to continue to have unsupervised access. The requirement will not apply to low risk situations such as access to safety cartridges, distress signals etc. WorkSafe estimates about 50 people currently working in the industry will need to undergo such checks.

²⁷ Australian Government, 2010. Counter-Terrorism White Paper: *Securing Australia – Protecting Our Community*, Department of the Prime Minister and Cabinet, Canberra, p. 7.

²⁸ As noted in the White Paper (p.7), terrorism affected Australia before the September 11, 2001 attacks against the United States. For example, in 1986 there was a bombing at the Turkish Consulate in Melbourne.

²⁹ Australian Government, 2010. Counter-Terrorism White Paper: *Securing Australia – Protecting Our Community*, Department of the Prime Minister and Cabinet, Canberra, p. ii.

Tracking the movement of explosives for security purposes

Other changes to improve security arrangements relate to record-keeping to track access to explosives. This includes implementing a requirement to record details of explosives transferred in and out of storages and expanding the current requirement for sales records to all explosives. Such record-keeping requirements are consistent with national principles for the regulation of ammonium nitrate.

The extension of existing requirements for the recording of sales data in the proposed regulations responds to persistent national security concerns about terrorist activity. A number of recent convictions of persons planning terrorist acts within Australia highlight the nature and extent of these concerns, while access to explosives is a fundamental issue. The requirement to record sales data is also crucial to law enforcement.

This proposed change is considered to constitute a small cost to affected parties, especially considering the substantial legislative changes that have been made in a number of areas in response to this issue.

Changes to licensing arrangements

The proposed changes to existing licensing arrangements address a number of distinct issues, as follows:

Duplication/overlap of licences. The current licensing arrangements have resulted in a number of circumstances arising in which a person is required to hold multiple explosives licences. For example, the holder of a licence authorising the manufacture of explosives may also need to be licensed to store, sell and/or import explosives. The proposed changes will address this issue, providing for certain licences to be endorsed to allow the holder to carry out activities for which a separate licence would be required under these regulations. For example, a licence authorising storage (above prescribed quantities) may also carry an endorsement authorising the holder to sell explosives.

Alignment with related licensing systems. Under current arrangements a single licence to transport explosives by road includes all vehicles in a licensee's fleet. This causes two problems. First, if there are problems with an individual vehicle, it is not possible to suspend or withdraw the licence for that vehicle while leaving the remaining vehicles in the fleet licensed. Second, the 'fleet based' licence approach is inconsistent with the licensing scheme for dangerous goods, which is based on the licensing of individual vehicles.

The proposed move to license individual vehicles (rather than the fleet) will address both of these issues. The change from a 'fleet' licence to individual vehicle licences will increase safety and security because WorkSafe will be able to record activities associated with each vehicle transporting explosives rather than just the parent company.

Safety of medium-scale storages in the community. This proposal reflects increased recognition of the risks often posed by medium-scale storage facilities. This kind of storage is often found in urban locations, such as shopping centres where there may be gun shops and hardware stores, for example. Under the current regulations, these facilities could house quite large quantities of explosives (eg up to 30kg of blasting explosives) in built-up areas without meeting the separation distances that are specified in the Australian Standard in order to protect life and property in the event of an explosion. It should be noted that 30kg of blasting explosives is enough to destroy several buildings. The proposal to remove this licence category will require current licensees to either:

- reduce the maximum amount of explosives they store (ie to levels authorised under new thresholds for small-scale storage, which will not be subject to separate licensing but able to be done under the cover of another licence, such as a licence to use explosives), or
- meet the safety-based requirements in relation to large-scale storage.

By doing so, the current risk of harm due to explosions occurring in these medium-scale facilities will be substantially reduced. Seeking to enhance security arrangements for storage is in line with developments for transport (the third edition of the AEC has increased security requirements) and is consistent with a COAG decision regarding the need for increased security in relation to explosives. This decision is being implemented nationally, with jurisdictions moving towards alignment with storage requirements set out in Australian Standards.

4. SUMMARY OF THE PROPOSED REGULATIONS

A copy of the proposed regulations has been released with this RIS for public comment. The following provides a summary of the major substantive elements of the regulations, while Section 4.2 highlights the major changes proposed to the current regulations.

4.1. Summary of the proposed regulations

The proposed regulations, like the current regulations, cover all persons engaged in activities involving explosives, including manufacture, storage, transport, sale, use, import and disposal of explosives, including fireworks. The key features of the proposed regulations are outlined below, the majority of which reflect the existing regulatory requirements.

Scope

The regulations apply to explosive substances and articles that are classified by the United Nations as dangerous goods of Class 1.

General provisions relating to explosives

The proposed regulations include general provisions relating to the control of risks associated with explosives. These include requirements in relation to security of explosives (ie controlling access), fire precautions, adequate lighting and the placement, visibility and maintenance of signs. In addition there are requirements to:

- report certain incidents involving explosives to WorkSafe and report theft, loss or attempted theft of explosives to WorkSafe and the police
- for persons under 18 years of age, not to purchase, store, supply, sell or use any explosives, subject to prescribed exemptions
- refrain from using or handling explosives or being on premises where they are being made or stored or on vehicles that are transporting them while under the influence of alcohol or drugs.

The proposed regulations set down machinery provisions in relation to documents that have been incorporated into the regulations, such as the *Australian Explosives Code (AEC)*³⁰, and include a provision that establishes the date of effect of amendments to incorporated documents.

The proposed regulations provide for a person to apply to WorkSafe for an exemption from compliance with a requirement in the regulations, except a provision that requires a person to be licensed. WorkSafe may also on its own initiative grant an exemption to a class of activities, premises, licence holders or other persons.

Packaging and marking

Like the current regulations, the proposed regulations require explosives to be packaged and marked in accordance with the AEC, subject to specified exemptions.

³⁰ The third edition of the *Australian Explosives Code* is currently the relevant edition of the Code (notice of the release of the third edition of the AEC was published in the Government Gazette of the Commonwealth on April 15, 2009).

Duties applying to manufacture

Persons who manufacture explosives will continue to be required to be licensed, subject to specified exemptions. One of those exemptions relates to a person who holds a licence authorising the use of explosives and the licence is endorsed for ANFO. Such a licensee (shot firer) does not need to also hold a licence authorising manufacture, provided they do not make more than 50kg of ANFO at a time and the ANFO is for their own use.

The licence specifies requirements in relation to safe work practices, locations of manufacturing sites and emergency procedures. The proposed regulations will apply to the making of explosives in any context, including at a factory; at a central mixing point within a mine, quarry or other place where explosives are used; or with a mobile manufacturing unit near the place of intended use.

All persons who hold a licence authorising manufacture of explosives will need to prepare a safety management system (SMS), subject to certain prescribed exclusions. The proposed regulations specify minimum requirements for the SMS. An emergency plan prepared in conjunction with the appropriate fire authorities must also be included in an SMS. If the premises which explosives are manufactured is a permanent location, the SMS must provide for consultation with employees and contractors in relation to implementing the SMS and preparing the emergency plan. Note: an SMS is not required from a person making not more than 50kg of ANFO at a time for their own use under the authority of a licence to use. However, the requirement for a blast management plan applies to use.

Prescribed information must be provided to the relevant fire authority, except where the manufacture is with a vehicle. This requirement ensures the fire authority has information about the explosives at the premises, including storages and manufacturing areas.

The proposed regulations specify requirements for manufacturing explosive mixtures and manufacturing safety cartridges. Explosive mixtures must be manufactured in accordance with *AS2187.2 Explosives - Storage and use - Use of explosives* and other specific requirements relating to signage, keeping people clear of point of manufacture, cleaning up and storage of unused explosive mixtures. The manufacture of safety cartridges for commercial purposes and cartridge ammunition for personal use must be carried out safely and in compliance with other specific requirements set out in the regulations, including requirements to prevent accidental initiation of explosives.

Duties applying to storage

This part of the proposed regulations covers the storage of explosives but does not apply to storage of cartridge ammunition by a licensed firearms dealer.

A person must not store explosives without holding a licence authorising that storage (whether that be a storage licence for larger quantities, or another licence for the storage of smaller quantities), unless they are subject to certain exclusions to the general requirement to hold such a licence. One exclusion is a person operating a major hazard facility (MHF) that is licensed under the Occupational Health and Safety Regulations 2007 (OHS Regulations). Such a licensee does not need to obtain a licence to store (or manufacture) explosives, however the MHF licensee would need to comply with all of the requirements the proposed regulations places on a person who holds a licence authorising storage of explosives (similarly, such a licensee must comply with requirements for manufacture of explosives under the proposed regulations).

Requirements applying to all storages of explosives include duties relating to the packaging of the explosives, security of the storage, keeping storages clean and storing minimum

quantities necessary for lawful use. Additional duties are imposed on licensees, including a duty to keep a record (for at least five years) of all explosives received or transferred and a duty to establish and maintain an emergency management plan. Specific requirements for storage are also imposed including requirements relating to fire-fighting equipment, receptacles, signage, storage of detonators, dealing with damaged or deteriorated explosives, and compatibility storage of explosives.

Further requirements apply where explosives are stored in quantities above prescribed quantities. Such storage must be done in accordance with AS 2187.1 *Explosives - Storage, transport and use - Storage*, including the requirements for safety distances specified in the Standard. Other requirements prescribed in the proposed regulations relate to the provision of security fencing, training of persons involved in such storages, posting of notices and use of portable lighting. There is also a requirement to provide the relevant fire authority with information about the storage.

Duties applying to transport

The proposed regulations require a person to have a licence for land transport of explosives except in very specific circumstances (eg marine flares, cartridge ammunition, and consumer fireworks). The type of licence may not always be a transport licence, as other licences may provide for the transport of explosives up to a certain threshold. The proposed regulations impose safety duties in relation to the loading and unloading of ships in ports and harbours, and the transport of explosives by road and rail.

Road and rail

Like the current regulations, the proposed regulations call up the AEC for rail and road transport of explosives. Transport must be done in accordance with the requirements of the AEC. The AEC requirements must be observed in respect of matters over which the person has management or control. Clause 3.5 of the AEC requires rail carriages carrying more than a threshold quantity of explosives to be marked with appropriate placarding on each side of the carriage. Every wagon carrying more than 1000kg of explosives must also be marked on each side with emergency information panels. This ensures that, in the event of an emergency, vital information can be provided to emergency services. Placarding on each side of the wagon is necessary so that if there is a roll over, the information will still be visible on the other side.

All land transport of explosives must be carried out under the authority of a licence, subject to limited prescribed exceptions. Not all transport requires a specific transport licence – some limited transport may be allowed under the cover of another licence such as a licence authorising a person to use explosives. Transport of explosives above prescribed quantities (ie quantities greater than those specified in AEC risk category 1) will trigger the requirements for:

- licensing of a road vehicle used to transport the explosives
- licensing of a person to drive a road vehicle transporting explosives
- licensing for rail transport
- notification for transport by a boat.

Equivalent licences for road or rail transport of explosives and equivalent explosives driver's licences issued in other jurisdictions are recognised.

The proposed regulations set out prohibitions or restrictions on the transport of explosives through prescribed areas or on prescribed routes. For example, transport of explosives

through the CBD is prohibited (subject to certain exclusions) and there are restrictions on the transport of certain explosives through designated tunnels and approach roads. Requirements are also specified for explosives held at a rail yard or siding.

Ports and harbours

The proposed regulations impose requirements on the master of a vessel carrying explosives and the port manager in relation to the loading and unloading of explosives to and from vessels, and the movement of vessels carrying explosives into Victorian ports. There is a duty on both parties not to allow a vessel carrying more than 25kg of explosives to enter a port unless it is moving to a berth that provides the separation distances specified in AS 3846 *The handling and transport of dangerous cargoes in port areas*. There is also a requirement imposed on the master of a vessel carrying explosives to provide the port manager with advance notification before arriving at a port or harbour. If more than 25kg of explosives is being loaded onto or unloaded from a vessel at berth, the master of the vessel and the port manager must comply with AS 3846 for the transfer and handling of explosives.

The relevant requirements of AS 3846 must also be met:

- if other goods are being loaded or unloaded from a vessel at berth and that vessel has onboard more than 25kg of explosives
- in relation to compatibility and mixed stowage requirements
- the duty imposed on the port manager to develop an emergency plan.

Duties applying to sale

The proposed regulations require a person selling explosives be licensed (except for specified exclusions). The proposed regulations only allow a licensee to sell (or supply) explosives to a person who holds a licence authorising that person to store, use, sell, transport or manufacture explosives. In addition the licensee must ensure the explosives sold or supplied are the type authorised by the person's licence. The licensee must not sell unless satisfied the other person will transport the explosives in accordance with the regulations. There is a duty imposed on a person not to give the licensee any false or misleading information.

The licensee must make written records for each purchase or supply of explosives by or to the licensee. The information to be recorded is prescribed in the regulations. The record requirement does not apply to the sale of cartridge ammunition, consumer fireworks, industrial safety cartridges or distress signals in a consumer package.

Duties applying to importation of explosives

A person must not import explosives into Victoria from overseas unless the person holds a licence that authorises them to import explosives. This licence is not required if the person holds a firearms licence under the *Firearms Act 1996* and is importing safety cartridges for their own use.

Duties applying to use of blasting explosives

A person who uses blasting explosives is required to hold a licence to use blasting explosives. Licences are issued on a competency basis and competency is demonstrated by completing an approved training course and passing an approved form of assessment. The validity of any licence is limited to methods and types of blasting operations specified in the licence. A licence may be endorsed to allow the licensee to manufacture a maximum of 50kg

of ANFO at any one time for their own use. Note: Manufacture of ANFO in quantities above 50kg will require a licence authorising manufacture.

The proposed regulations require a licensee (ie a shot firer) to use explosives in accordance with the applicable requirements of AS 2187.2 *Explosives - Storage and use - Use of explosives* (Part 2). The requirement for a blast management plan (prepared in accordance with AS 2187.2) has been made explicit in the proposed regulations. The regulations also set out safety requirements including requirements relating to keeping explosives at a blasting site, charging and firing charges, and precautions to be taken after a blast.

Duties applying to fireworks

This part applies to the possession and use of fireworks. The use of fireworks (other than consumer fireworks such as sparklers and party poppers) requires a licence. To use fireworks, a person must hold a licence that authorises the use of fireworks (this person is called a pyrotechnician in the regulations) or a person must be under the supervision of such a licensee. The licence will specify the type of fireworks – display fireworks, Chinese firecrackers or theatrical fireworks – that the licensee is authorised to use.

The proposed regulations have requirements for the management of fireworks displays and prescribe separation distances for displays. Provisions relating to the security of the display site, fire protection, firing of display fireworks and misfired fireworks, require compliance with AS 2187.4 *Explosives - Storage, transport and use - Pyrotechnics - Outdoor displays* (Part 4). The proposed regulations also specify safety requirements for the use of Chinese firecrackers and theatrical fireworks.

A notification requirement applies to pyrotechnicians who intend to discharge display fireworks, Chinese firecrackers or theatrical fireworks. It is proposed the notification must be made to WorkSafe and appropriate municipal and fire authorities at least 10 business days before the intended display. The proposed regulations allow inspectors and the police to seize any unauthorised fireworks.

The proposed regulations require persons disposing of explosives to do so safely, to take precautions against injury or damage and to seek and act on the advice of the manufacturer or WorkSafe if an appropriate and safe method of disposal is not known. Fireworks may only be disposed of in accordance with the directions of the supplier, a licensed pyrotechnician or WorkSafe.

Duties relating to disposal, destruction and rendering harmless

Persons disposing of explosives, destroying or rendering explosives as harmless are required to ensure they do so safely and without causing injury to any person or damage to property. The method they use must be appropriate to the type and condition of the explosive and they must have regard to the manufacturer's instructions (where provided). If the explosive is a blasting explosive, compliance with AS 2187.2 is required and, if the explosive is a firework, compliance with AS2187.4 is required. If a particular type of explosive requires a person to hold a licence to use it, the explosive may only be disposed of, destroyed or rendered harmless, by a person licensed to use that particular type of explosive or by a person under their direct control.

The proposed regulations also set out specific requirements for distress signals to be disposed of safely.

Licences

This part sets out the administrative provisions relating to licences. It covers applications for licences, including the matters to be included in applications, and the issuing, refusal, renewal, amendment, suspension and revocation of licences. It sets down matters that must be satisfied before a licence can be issued, including security requirements to be satisfied (ie security assessments and searches of other known information). It also sets down the terms and conditions WorkSafe may impose on licences.

Under the DG Act, WorkSafe may require an applicant for a licence to manufacture, transport or store an explosive, or the holder of such a licence to provide a security plan. What needs to be covered in a security plan is set out in a schedule to the regulations.

All licences issued under the proposed regulations will be generally issued for a five-year period.

A separate part of the regulations sets out the fees that will be charged for licences and other matters, such as an exemption application.

Review of decisions

There are provisions for an internal review of decisions made by WorkSafe under the proposed regulations. They include, for example, a decision to issue or refuse to issue a licence, or to amend, suspend or revoke a licence. A person whose interests are affected by a reviewable decision is defined as an eligible person who may apply to WorkSafe for a review of a reviewable decision.

Savings and transitional provisions

The proposed regulations include transitional provisions to assist duty holders comply with new requirements.

Under the regulatory proposal, a person does not commit a breach of the regulations if, within a 12-month period after the commencement of the regulations, the person does anything in relation to explosives that would have been lawful under the current regulations. This provides a 12-month transitional period for compliance with new requirements imposed by the regulations. For example, persons who hold a licence to store explosives at a medium-scale facility will have 12 months to comply with the changes to the storage part of the regulations.

Licences issued under the current regulations will continue as if they were issued under the new regulations until their expiry date. The exception will be existing licences to store at a medium scale facility – those licences will be revoked 12 months after the proposed regulations commence operation. By that time, those licensees who wish to store quantities of explosives above the prescribed quantities must have obtained a licence to store under the new regulations.

Approvals made under the current regulations will be carried over under the proposed regulations with the exception of approvals for training courses for pyrotechnicians, the use of blasting explosives and drivers of road vehicles transporting explosives. Approvals for those training courses will sunset 12 months after the regulations commence, by which time the courses will need to be re-approved and be consistent with the new regulations.

Other

The proposed regulations make two amendments of a machinery nature to the Dangerous Goods (Transport by Road or Rail) Regulations 2008. Two references to “authorised officer” have been changed to “inspector”.

4.2. Detailed summary of changes

The proposed changes to the current regulations fall into the following main groups:

- greater reliance on the referencing of Australian Standards for technical requirements and detail
- changes to the licensing scheme - there is a streamlining of existing licensing types and changes to more closely align administrative licensing provisions with other dangerous goods or OHS regulations where appropriate
- changes to enhance security arrangements for explosives
- changes to improve community safety in respect of the storage of explosives and the use of fireworks
- revisions to some of the language of the current regulations in order to achieve simplification in a range of areas
- measures to address some anomalies and unintended consequences of the current regulations.

The rationale for some of these changes has been made in Section 3. Rationale for other changes is provided below.

Referencing of Australian Standards

Under the regulatory proposal there is greater reliance on the referencing of Australian Standards, rather than prescribing required behaviour in detail in the body of the regulations. This means the key Australian Standards covering explosives that are referenced in the current regulations are applied to a greater extent in the proposed regulations.³¹ As a result of this change, a number of provisions of the current regulations that duplicate Australian Standards will be removed. This will address the issue that the regulations are seen as a hybrid document in that they reference Australian Standards for technical detail but also contain provisions that duplicate Australian Standard requirements.

WorkSafe considers referencing of Australian Standards as justified in the regulation of explosives. The Australian Standards covering explosives reflect the state of knowledge of a very small and tightly segmented industry and their increased incorporation systemises what is already happening in the industry.

The change to greater referencing of the relevant Australian Standards moves the regulations toward national uniformity. Referencing Australian Standards occurs in some other jurisdictions for definitional purposes and for complying with the regulations. NSW, Queensland and Western Australia directly reference AS 2187 – *Explosives - Storage, transport and use* for requirements covering explosives storage and use.

This approach means the body of the regulation is more clearly focussed on key duties and requirements. Technical details and requirements are still retained by the incorporation of the Australian Standards.

³¹ The four key Australian Standards referenced in the proposed regulations are AS 2187.1, AS 2187.2, AS 2187.4 and AS 3846.

Transport of explosives

The licensing scheme for the road transport of explosives has been aligned with the licensing scheme for the road transport of dangerous goods as far as possible. This will make it easier for people with duties under both sets of regulations.

This alignment means the proposed regulations will require each road vehicle used to transport explosives (above prescribed quantities) to be licensed under the regulations. Currently an operator is licensed to transport by road, with each vehicle used to transport being specified on the licence. This is essentially a fleet licence. If one road vehicle on a transport licence is non-compliant, the entire fleet licence is potentially in jeopardy of being suspended or revoked. The change from a 'fleet' licence to individual vehicle licences will increase safety and security because WorkSafe will be able to record activities associated with each vehicle transporting explosives rather than just the parent company.

Alignment of the licensing scheme for drivers and road vehicles transporting explosives with the scheme for road transport of other dangerous goods, has included aligning some administrative provisions. These include prescribed matters to be included in an application for a licence, conditions that may be attached to a licence and the grounds for WorkSafe to revoke, suspend or amend a licence. For example, evidence of medical fitness that must be included in an application for an explosive driver's licence is the same as that prescribed in the Dangerous Goods (Transport by Road or Rail) Regulations 2008 (Transport Regulations) for an application for a driver's licence.

Storage of explosives

Under the proposed regulations, licences for medium-scale storage will be discontinued with only one licence type being issued for storage. The proposed regulations prescribe new thresholds for 'small-scale storage' which can be done under the cover of another licence, such as a licence to use explosives. Quantities above the prescribed threshold will need to get a 'storage licence' and comply with requirements for storage under AS 2187.1. The proposed discontinuation of the medium-scale storage facility licence stems from the proposal that all storages should be done in accordance with AS 2187.1 *Explosives - Storage, transport and use - Storage*, except for small amounts where it would be impractical to comply with the Standard. Reasons for the proposed changes to the requirements for storage of explosives are outlined in Section 3.10.

Licensing scheme

The licensing scheme has been streamlined by reducing the number of licence types. Activities involving explosives will still require a licence (subject to limited specified exclusions) but there are changes to the type of licence required to be held. Appendix 2 provides details on the differences between the existing licence scheme and the proposed licence scheme.

The new scheme has been designed to reduce the incidence of persons being required to hold multiple licences. For example, the proposed licence authorising manufacture of explosives would allow the holder to store, sell and import explosives, if required by an applicant. The scheme also provides for certain licences to be endorsed to allow the holder to carry out activities for which a separate licence would be required under the current regulations. For example, a licence authorising storage (above prescribed quantities) may also carry an authorisation for the holder to sell explosives. Note: an additional fee would be

charged for an optional authorisation and would be set at a percentage of the fee that a separate licence would have cost.

The change to the scheme also aligns with administrative provisions for licensing in other dangerous goods regulations administered by WorkSafe, including the Transport Regulations as noted earlier. Alignment with arrangements in the OHS Regulations has also been pursued where possible however the potential for alignment is, in some cases, restricted due to the different powers under the primary Acts. There is greater prescription of licensing matters in the DG Act, particularly in relation to explosives and high consequence dangerous goods.

Changes made include the insertion of a provision specifying general matters that may be inserted as a condition, limitation or restriction on a licence. The provision has been modelled on a provision in the OHS Regulations but modified for a licensing regime under the DG Act. Another provision provides alignment with the Transport Regulations by setting out conditions that may be inserted on an explosives vehicle licence. These provisions provide transparency as to the matters that WorkSafe may impose on an individual's licence.

Any licence issued under the regulations may be amended, suspended or revoked if the Authority is satisfied that the licensee is unsuitable to continue to hold the licence. In the interests of greater transparency, the proposed regulations specify the grounds on which WorkSafe may amend, suspend or revoke a licence. Further transparency is provided by specifying matters that the Authority may have regard to when considering to amend, suspend or revoke a licence.

All licensing provisions have been relocated to a separate part of the regulations. This is consistent with the approach in the OHS Regulations and Transport Regulations.

Preliminary and duties applicable to all persons

The proposed regulations remove specific exemption provisions applying to major hazard facilities (MHF) as there are general exemption provisions that can be used if an exemption is sought.

Some duties or requirements that are common to multiple parts of the current regulations (such as requirements for ignition sources and fire precautions) have been consolidated and streamlined as general duties under the proposed regulations. While this means there will be additional general duties under the proposed regulations, the duties being extended are made more specific to reduce uncertainty.

There are changes to the restrictions concerning young people involved in various activities with explosives. The proposed regulations apply a uniform restriction to all activities – a person under 18 must not purchase, store, supply, sell or use any explosives (including fireworks). Limited exemptions are specified in relation to consumer fireworks, distress signals, industrial safety cartridges and cartridge ammunition. But generally, working with explosives is dangerous, specialised work that is not suitable for minors. .

The existing incident reporting provisions will not be continued in the proposed regulations and will instead rely on the

- incident reporting requirements in the DG Act (section 32) for the reporting of incidents to the police or fire authority
- incident reporting provisions in Part 5 of the OHS Act for reporting of incidents to WorkSafe.

The duties in those Acts for the preservation of incident sites would also be relied upon. As the OHS Act does not cover incidents that only involve damage to property, the proposed regulations include a provision to address this gap.

Manufacture

A safety management system (SMS) will now be required for *all* manufacture and not just manufacture at a factory. The complexity of an SMS will be equal to the types of manufacturing undertaken. An SMS prepared for the manufacture of explosives with a mobile manufacturing unit (MMU) would therefore usually be a simpler document than an SMS prepared for the manufacture of explosives at a factory. The 12-month transitional period means licensees who are newly impacted by the requirement to prepare an SMS will have sufficient time to comply.

MMU are usually owned and operated by companies with an SMS or the mobile units are operated at sites covered by an SMS. To avoid duplication of SMS requirements, the proposed regulations recognise that an SMS doesn't need to apply in certain circumstances – that is, where a person is making an explosive mixture at a site using an MMU and an SMS is in place (for the explosives or OHS regulations), and the SMS addresses the risks associated with explosives at the site.

To avoid duplication of SMS requirements, the obligation for an SMS does not apply to a person who operates an MHF that is licensed under the OHS Regulations, if the SMS is in place for those regulations addresses the risks associated with explosives at the premises.

Storage

The proposed regulations establish a new duty requiring duty holders to ensure the quantity of explosives being stored is kept to the minimum needed for their legitimate need. A duty to keep records of explosives transferred in and out of storages is proposed as part of additional arrangements to enhance security. This part has also been restructured as a result of the proposal to make existing medium-scale storages comply with the requirements of AS 2187.1.

The proposed regulations incorporate changes to the current threshold limits for storage requirements for explosives. There will no longer be reference to 'small-scale storage', 'medium-scale storage' or 'magazine storage'. The regulations propose two levels of storage. There are base storage requirements that apply to all storage and additional requirements for 'storage above prescribed quantities'. The rationale for the removal of the medium storage category is to improve security and safety of explosive storages in the community. Seeking to enhance security arrangements for storage is in line with developments for transport (the third edition of the AEC has improved security requirements) and is consistent with a 2004 COAG decision regarding the need for increased security in relation to explosives and security sensitive ammonium nitrate.

The threshold for 'storage above prescribed quantities' is different to that of 'small' or 'medium' storage in the current regulations. The levels are in line with AEC3 risk levels and equate to anything above category 1 (low risk) and include category 2 (medium) and category 3 (high) risk. This is a risk-based approach that is designed to reduce the likelihood of an incident involving explosives.

The proposed regulations require that storages of explosives above prescribed quantities meet the requirements in AS2187.1, including security fencing, separation distances, training

of persons involved in such storages, posting of notices and use of portable lighting. There is also a requirement to give the relevant fire authority information about the storage

The proposed regulations also remove the current concession for fireworks use licence holders which allows for the temporary storage of fireworks. This will eliminate the ability for pyrotechnicians to store large quantities of fireworks in domestic sheds and garages without the need to hold a storage licence.

Sale

The proposed regulations expand the current provisions in relation to the sale of blasting explosives to cover all explosives except for prescribed exclusions. These changes are to address security concerns and align with HCDG Regulations.

There will be additional regulatory control over the sale of explosives consistent with principles of controlling access to those with legitimate need. A licensed person will only be able to buy the type of explosives permitted by their licence. The proposed regulations also require that explosives are only sold to people who are licensed under the regulations.

To ensure the movement of explosives can be tracked, the requirement for records of sale and supply will need to be kept for all explosives. This record-keeping requirement applies to all persons who hold a licence authorising them to sell explosives. The proposed new requirement for records of explosives received or transferred out of storages complements the sales record. Again, these measures primarily relate to the need to address security concerns.

Transport

The key changes proposed to transport part of the regulations relate to closer alignment with AEC when transporting explosives or, as discussed previously, the licensing regime for the transport of dangerous goods under the Dangerous Goods (Transport by Road or Rail) Regulations 2008.

There has been a change to threshold quantities that trigger the requirement for a licensed vehicle and a licensed explosives driver to transport. Quantities of explosives greater than those specified in AEC risk category 1 will trigger the requirements for:

- a licensed road vehicle and a driver holding an explosives driver's licence
- licensing for rail transport and notification for transport by a boat.

The proposed regulations change the provisions setting out restrictions on the various routes of transport of explosives by road. There are some changes proposed to threshold quantities of explosives that trigger a restriction on road transport through the CBD. Notably, the regulations would allow transport of display fireworks in a quantity less than 250kg by a pyrotechnician for use at a display site in the CBD. Under the current regulations, an approval must be obtained for that transport. It is also proposed that the CBD, designated tunnels (eg CityLink) and Melbourne metropolitan area will be defined by determinations published in the Government Gazette. This enables WorkSafe to make determinations to redefine areas as, for example, street names change.

Use of blasting explosives

The proposed regulations require compliance with the AS 2187.2 *Explosives - Storage and use - Use of explosives*, mainly in relation to the use of blasting explosives. This has enabled

the removal of a number of provisions that duplicate the requirements in the Australian Standard.

The requirement for a blast management plan (BMP) to be prepared for all blasting uses has been made explicit in the proposed regulations. The complexity of the BMP will reflect the size and complexity of the operation. WorkSafe considers it appropriate that shot firers plan how they will manage risks associated with the intended use of blasting explosives so that blasts are carried out safely.

Fireworks

The proposed regulations discontinue the current provision for a single occasion fireworks licence to be issued for the use of theatrical fireworks or Chinese firecrackers. This means that with the exception of consumer fireworks, only a licensed pyrotechnician may use fireworks. As single use licences have not been issued for three years, little practical impact is expected.

New clearance distances are proposed to ensure optimum safety. In general, the new distances will align with AS 2187.4 distances. While these distances are larger in some cases than those required in the current regulations, the distances set out in AS 2187.4 generally reflect industry standards. In some instances where they require greater clearance distances, the provisions of the current regulations have been retained in lieu of moving to the AS2187.4 equivalents. This decision reflects the results of detailed studies of potential dangers that have been carried out in Victoria by Worksafe as part of research undertaken in response to previous fireworks-related incidents.

The proposed regulations also include greater reliance on AS 2187.4 in outdoor displays and for firework storages. However, as the Standard does not cover small firework stores, this issue will continue to be addressed directly in the proposed regulations.

The required notice period for an intention to carry out a fireworks display is proposed to be extended from seven days to 10 business days because seven days is considered insufficient to allow for the application to be assessed by WorkSafe, local councils and emergency services. In addition, the anomaly under which theatrical fireworks are not currently required to be notified will be removed and such displays will need to be notified. However, in cases where theatrical shows run for a season, only one notification will be required per season. The testing of firework products will also be subject to the notification requirement.

Disposal

This part makes it clear that disposal may involve destruction or rendering the explosive harmless.

The proposed regulations remove the specific requirement not to discard explosives unsafely because it overlaps with a general duty in the DG Act. There are some other refinements to this part, including the introduction of a general requirement to follow the manufacturer's instructions (where provided) when disposing, destroying explosives or rendering explosives harmless. In the case of fireworks, there will be a specific requirement for these actions (ie disposing, destroying) to be done in accordance with AS 2187.4.

There will be a general requirement that persons must not dispose of explosives unless the person is licensed to use that type of explosive or is under the supervision of such a licensee. This extends an existing requirement applying to the disposal of blasting

explosives to all explosives. There will also be an option in the proposed regulations for disposal via a return to the manufacturer or supplier; or via a destruction facility approved by WorkSafe.

Import

There is a change to the existing exclusion from the requirement to be licensed. The proposed regulations will exempt a person who holds a licence under the *Firearms Act 1986* from needing to obtain a licence to import cartridges for their own use. The existing cap on the amount of cartridges that can be imported has been replaced by the requirement that the person holds a firearms licence. This is on the basis that issuing a firearms licence should provide the holder with authority to obtain and use ammunition suitable for the firearm.

Ports and harbours

The key change proposed to this part is greater reliance on AS 3846 *The handling and transport of dangerous cargoes in port areas*, rather than including specific requirements. AS 3846 must be complied with for the handling of explosives including when dealing with spillages and deteriorated explosives. An emergency plan must comply with AS 3846 and be developed in conjunction with the relevant fire authority.

There are changes to the net explosive quantity (NEQ) of explosives that can be handled in an 'ordinary berth'. It will be that prescribed in AS 3846, which is 25kg for all hazard divisions and 25kg for the maximum quantity of explosives that can be carried in a vessel at an ordinary berth if other goods are being loaded/unloaded. The previous system of 'approved berths' will be substituted by the requirement that the berth meet the separation distances specified in AS 3846. This change reflects that port authorities are now fully informed about the content of all cargos and can implement the relevant import requirements for explosives without WorkSafe input.

There is a proposed change in terminology with the regulations placing duties on the 'port manager' as opposed to the 'port operator'. The port manager is defined as having the same meaning as in the *Port Services Act 1995*.

Review of decisions

A new part in the proposed regulations makes provision for internal review of specified decisions of the Authority, such as decisions to impose a condition, limitation or restriction on a licence. Having internal review of specified reviewable decisions is consistent with the approach in the Transport Regulations.

5. EXPECTED BENEFITS OF THE PROPOSED REGULATIONS

The main benefit sought by regulation of explosives is a reduction in accidents from the use of explosives and a consequent reduction in deaths, injuries, and property damage. The following analysis considers this issue from two perspectives: that of major, or catastrophic, accidents and that of other, less serious accidents and incidents. This two-part approach recognises there are some clear distinctions to be made between major, catastrophic events and other accidents in terms of societal views and preferences and, as a result, of regulatory considerations.

A further benefit from the regulation of explosives relates to national security. Regulating to restrict access to explosives and precursor chemicals minimises harm arising from the deliberate misuse of explosives, as distinct from their accidental misuse. National security concerns have remained persistent and driven a number of recent regulatory changes.

The issue of community attitudes to risk is also important in assessing the benefits from regulation in this area and the appropriate nature and extent of regulation. These attitudes – and their perceived changes in recent years – are also discussed below.

5.1. Reductions in frequency of serious accidents

The risk profile of this industry is one of high consequence/low probability accidents. Because of this, a significant proportion of the expected benefits of the proposed regulations consist of reductions in the probability, or expected frequency, of these major accidents.

The actual probability of these events in an unregulated scenario – which is the base case against which the benefits and costs of these regulations must be measured – is not able to be observed directly or estimated with any confidence. This reflects that all developed countries have long histories of implementing comprehensive regulation of the explosives industry.

The approach taken to estimate expected benefits starts by generating an estimate of the average cost of a major incident and using this cost estimate and the estimated costs of the proposed regulations as the basis for a break-even analysis. The break-even analysis will indicate the reduction in the probability of a major accident required for the regulations to demonstrate a positive net benefit.

Cost of a serious accident

Table 3.4 provides data on major explosives-related accidents that have happened around the world in the 1990s and early 2000s. The table is not comprehensive, but was published by the UN using all available press reports. It is considered to be reasonably complete and likely to be the best available data source. The table includes 22 major incidents which accounted for a minimum of 3185 deaths. Data on the number of injuries occurring is available in respect of only 16 of these accidents, with the minimum number of injuries occurring due to these 16 accidents being 4043. These death and injury figures almost certainly under-estimate the true totals, so can be taken as representing a very conservative view of the true costs of major accidents.

Based on the above figures, the average number of deaths due to a serious accident is at least $3185/22 = 144.8$, while the average number of injuries is at least $4043/16 = 252.7$.

Standard estimates of the value of a statistical life (VSL) are used to derive an average cost per incident from data. There are two meta-analyses relevant to Australia³² which have VSL figures of \$6 million (Access Economics) and \$3.5 million (Abelson). The following calculations use three scenarios – one based on the Abelson figure, one based on the Access Economics figure and a third, midpoint figure of \$4.75 million. The RIS takes the view that midpoint VSL is the appropriate base case figure in assessing cost of life.

In assessing the cost of injuries, two approaches are possible. The first uses an estimate that represents a proportion of the VSL figure. A review of sources indicates that accepted values are in the range of 0.2 to 0.23 times the estimated VSL³³. The most common alternative approach is based on summing the tangible costs of an injury, including medical treatment costs, loss of income etc with an allowance made in some cases for the intangible costs of pain and suffering. Calculations of injury costs are generally less comprehensive and, arguably, substantially understate true costs.

It is considered methodologically preferable to adopt a ‘willingness to pay’ approach to valuing injuries as it is superior in calculating VSL figures. This values injuries at 0.2 times the VSL figure.

Major accidents caused by explosives will almost invariably result in substantial property damage such as damage to the assets of explosives industry participants, public infrastructure assets and private property. Data on the average extent of this property damage is not available specifically in relation to explosives accidents. However, a recent paper³⁴ reviewed the property damage costs associated with 279 major energy industry accidents over the last century and estimated the total was \$41 billion, which is equal to \$147 million per accident. This estimate has been adopted in relation to major explosives accidents.

Table 5.1 estimates the average cost per serious accident in terms of lives lost and injuries sustained, using the above approach.

Table 5.1 Average cost of a serious accident – fatalities and injuries

VSL	\$3.5 million	\$4.75 million	\$6.0 million
Deaths (average)	140.2	140.2	140.2
Injuries (average)	252.7	252.7	252.7
Cost of deaths	\$490.7 million	\$665.9 million	\$841.2 million
Cost of injuries	\$176.9 million	\$240.1 million	\$303.4 million
Property damage	\$147 million	\$147 million	\$147 million
Cost of deaths/injuries	\$667.6 million	\$906 million	\$1,144.6 million

³² See Access Economics (2008) *The Health of Nations: The Value of a Statistical Life*. Report prepared for the Office of the Australian Safety and Compensation Council. Abelson, P. (2007). *Establishing a Monetary Value for Lives Saved: Issues and Controversies*. Paper prepared for the Office of Best Practice Regulation.

³³ Soby, BA., Ball, DJ. & Ives, DP. (1993). *Safety Investment and the Value of Life and Injury*. Risk Analysis, Vol. 13, No. 3, June 1993, pp 365-370.

³⁴ Sovacool, B.K., 2008. *The cost of failure: a preliminary assessment of major energy accidents, 1907–2007*. Energy Policy 36, 1802–1820, cited in Felder, FA. *A critical assessment of energy accident studies* Energy Policy 37 (2009) 5744–5751.

Total costs (incl. property damage)	\$814.6 million	\$1,053 million	\$1,291.6 million
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Table 5.1 shows that, in the base case, the average cost of a serious accident, in terms of deaths and serious injuries, is \$1,053 million. The cost is \$814.6 million in the lower bound scenario and \$1,291.6 million in the upper bound scenario.

This implies that even a 1 per cent reduction in the probability of a major accident has expected benefits of $\$1,053.1/100 = \10.53 million. That means that if the annual risk of a major accident occurring is reduced by 1 per cent, the expected benefit of that risk reduction is equal to \$10.53 million. This can be used to calculate a 'break-even' point in terms of the identified costs of the proposed regulations.

5.2. Reduction in other accidents and incidents

The proposed regulations can also be expected to reduce the incidence of less serious accidents and incidents. Where major, catastrophic accidents are concerned, it is clear that a substantial part of the risk is borne by members of the public, as distinct from those working in the explosives industry and/or their customers. Therefore, decisions made by persons operating within the explosives industry have a potentially catastrophic impact on a large number of third parties. When smaller scale accidents and incidents are considered, the larger part of the risks involved are likely to be borne by workers in the explosives industry and related industries.

The distinction between major or catastrophic accidents and small-scale accidents is difficult to draw, since many less serious accidents would have had the potential to develop into major catastrophes and may not have due to chance factors or early and appropriate interventions to manage the initial incident. While major catastrophes are only likely to occur where substantial quantities of explosives are present, the risk of death and/or injury can be real and substantial even when much smaller quantities of explosives or related substances are present. Consequently, the proposed regulations cover a substantially larger field than the area of handling major quantities of explosives. It is essential to note there is a wide variety of legitimate uses of explosives in the community, including:

- mines and quarries
- construction and demolition work
- pyrotechnicians
- gun shops
- hardware stores.

Regulatory benefits are expected to come from improving safety performance in all of these areas.

WorkSafe data, as cited in Section 3, provides an indication of both the frequency with which this harm arises and the nature of the risks that are being regulated.

5.3. National security-related benefits

The discussion in Sections 5.1 and 5.2 has related exclusively to the benefits from reducing the risk of accidents in manufacturing, importing, transporting, storing selling and using explosives. However, a significant benefit that is increasingly a focus of regulation is preventing access to explosives by those who wish to use them deliberately to cause harm. This factor is the main reason behind some of the proposed changes to the regulations,

notably the enhanced provisions for background checks of people with unsupervised access to explosives; records to track movement of explosives; and restricting sale of explosives to those who hold a licence authorising them to store, use, sell, transport or manufacture explosives.

Quantifying the size of these benefits has the same low probability/high consequence characteristics but is also unpredictable in nature. The amount of resources devoted by many countries to improve national security initiatives in response to the threat of terrorism in recent years indicates the importance populations and governments have placed on the need to act in this area. The proposed regulations should be seen as yielding significant benefits in this regard, by introducing additional security-related measures such as the requirement to record sales and purchases and the requirement for records of explosives being moved in and out of storage.

5.4. Risk aversion

The discussion of the expected benefits of reductions in the probability of major accidents is based on an assumption of risk neutrality. However, it is clear that populations are significantly risk averse in many areas, particularly major accidents with potentially severe consequences that they have no control over. This implies the actual benefit of reducing the probability of major accidents is substantially higher than the expected value-based calculations suggested in Section 5.1.

While it is not possible to derive a quantitative adjustment factor to take this issue of risk assessment into account in this specific context, the benefits of regulation must be valued significantly higher than the implicit 'risk neutral' calculation (see page xx) if there is a realistic consideration of society's preferences in this area.

6. EXPECTED COSTS OF THE PROPOSED REGULATIONS

6.1. Industry consultation and data collection

The following discussion of the expected costs of the proposed regulations is based on three data sources. These are:

- results of an industry survey done during the development of this RIS
- results of focus groups and informal consultation with stakeholders
- expert advice from WorkSafe staff involved in regulating the explosives industry (including the results of a telephone survey undertaken after the industry survey).

The industry survey was carried out between August and October 2009. A survey (see Appendix 3) was sent to 100 of approximately 2100 current licence holders in the industry. The survey sought responses about:

- costs of compliance with the current regulations
- expected incremental costs of moving from the current regulations to the proposed regulations
- costs of initially reaching compliance with the regulations as well as the ongoing (ie annual) costs of compliance.

Questions covered all of the substantive elements of the regulations and were divided according to the different licence types required to operate in various parts of the industry.

Response rate to the survey was low (12 replies received) and not all questions were answered by all respondents. With the exception of a small number of 'outlier' (ie observations different to others in the group) responses in a few areas, the answers were generally consistent, which to some degree enhances confidence in the result.

A number of factors are likely to explain the poor response to the survey. The explosives industry has long been regulated and those operating in the industry are believed to be generally comfortable operating within the current regulatory environment. This, along with the limited, substantive changes proposed for the regulations, suggests that those receiving the survey did not use the opportunity to raise concerns. The higher response rate of participants in the fireworks industry shows this group have some concerns regarding proposed changes to this aspect of the regulations.

Because regulations have been in place for a long period also implies that companies with long histories in the industry will be poorly placed to respond to questions about the cost of achieving initial compliance. They may also have difficulty in assessing the extent to which their costs are attributable to the regulations rather than 'business as usual'.

Limited reliance can be placed on the data from the survey but because the data has been collected directly from regulated parties, it has been used to produce the following estimates.

The focus groups were held to gather more qualitative information to enhance understanding of the survey responses. Focus groups were held for each sector of the explosives industry - manufacture, use, sales, imports, fireworks and transport. There was no focus group specifically dealing with storage as this issue was relevant to all sectors of the industry. Victoria Police were also consulted about proposed changes including sales records to address security concerns, as were local councils on issues of concern and cultural groups on fireworks issues.

The objectives of the focus groups were to:

- gather information on the costs and benefits of the regulations and discuss possible impacts of the proposed changes
- check the position of duty holders on achieving compliance with the proposed regulations
- explain the surveys and data required for the preparation of this RIS
- determine if duty holders are able to breakdown their costs of compliance to the level required in the industry surveys.

Given the relatively poor response to the survey and the limited range of participants represented at the focus groups, it was determined that additional data collection and estimation activities were needed. WorkSafe conducted further telephone surveys to collect information on industry structure within each of the licence categories and views on compliance costs in key areas.

The following analysis integrates these various data sources to provide a clear picture of the expected cost impact of the proposed regulations. However, given the difficulties encountered during data collection, the cost estimates provided must be taken as indicative.

It should also be noted that WorkSafe believe the limited degree of participation in the consultation and data gathering exercise is because the industry is comfortable operating within the existing regulatory requirements.

A specific issue in accurately estimating the costs of the proposed regulations is 'attributability'. This is the extent certain expenditure is a consequence of the need to comply with regulatory requirements, as opposed to representing 'business as usual' (BAU). BAU means expenditure firms would incur in the absence of any specific regulation to meet commercial imperatives and discharge their general legal duties (eg the common law issues of tort and negligence). Because firms in this industry conduct business that gives rise to substantial risks, large expenditure on risk reduction could be expected to occur even in the absence of any specific regulatory requirements. To this extent, it is important to focus on the degree which the specific regulations increase costs over BAU. The costs attributable to the regulations, from the RIS perspective, are these net costs (ie costs that exceed the expected level of costs in the notionally unregulated, or BAU, base case).

Consequently, the survey requested details of both gross costs and the extent to which these costs exceeded the respondent's estimate of costs they would incur in the BAU scenario. Such estimates are imprecise given that the BAU scenario is a 'counter-factual' one – no respondent has experience of operating in an environment where there are no explosives regulations and are therefore being asked to hypothesise. This was the only way of getting net regulatory cost estimates from the industry and, as a result, the most credible available means of estimation.

Analysis of the responses received showed that, in some cases, compliance with a regulatory requirement did not increase BAU costs at all, while in other cases the whole of the compliance cost was attributed to the regulations. In most cases, the net compliance cost fell between these two extremes.

Size of the industry

Table 6.1 provides a general picture of the explosives industry in Victoria by listing the number of licences of each category currently on issue.

Table 6.1: Explosives licences in Victoria (as at 25 February 2009)

Licence type	Number
Licence to use blasting explosives	1177
Licence transport explosives by road	22
Licence to drive a vehicle transporting explosives	168
Licence to transport explosives by rail	1
Licence to sell explosives	336
Licence to store explosives in a medium scale storage facility	79
Licence to store explosives in a magazine	47
Licence to make an explosive mixture at or near the place of use	2
Licence to make an explosive mixture with mobile manufacturing unit	17
Licence to fill or cap safety cartridges other than at a factory	3
Licence to manufacture explosives at a factory	4
Licence for a pyrotechnicians to discharge fireworks	261
Licence to import explosives	40
Total	2097

This table shows there are approximately 2100 explosive licences on issue, with the largest single category of licence being for use of blasting explosives (56 per cent of the total). The other major categories of licence are the licence to sell explosives (16 per cent) and the licence for pyrotechnicians to discharge fireworks (12.4 per cent of the total). The total number of licences to store explosives (both in a magazine and in a medium-scale storage facility) is 6 per cent of the total.

6.2. Cost estimates

Manufacturing

Only two surveys were received from holders of a licence to manufacture explosives at a factory.³⁵ One contained qualitative statements regarding regulatory compliance costs. The other included estimates of the ongoing (annual) costs of maintaining compliance with the regulations and estimates of the extent these costs represented increases on BAU costs. No estimates of the extent to which the regulations affect the costs of reaching initial compliance (versus the BAU case) were provided.

The estimates indicated the proposed regulations would have a relatively minor impact on increasing costs over BAU. The estimated annual cost of doing business in compliance with the regulations – including carrying out risk management and control functions for all purposes – was \$1.54 million, of which \$111,000 was believed to represent increases on

³⁵ These four licensees would account for the bulk of Victorian explosives manufacturing activity, but it should be noted there are also two licences to make an explosive mixture at or near the place of use and 17 licences to make an explosive mixture using a mobile manufacturing unit. The explosives industry has been moving to the emulsion form of explosives that are made directly on site by a mobile manufacturing unit.

BAU costs attributable to the regulations. The regulations were estimated to increase BAU costs by only 7.7 per cent.

Table 6.2 summarises the major elements of the identified costs.

Table 6.2: Major cost items – manufacturing firm

Cost item	Annual cost	Increase over BAU
Duties related to manufacture (includes building related costs, fire protection, machinery, signage)	\$400,000	\$25,000 (6.25%)
Licence to manufacture (includes SMS, emergency management plans, tools, equipment and protective clothing)	\$884,000	\$76,000 ³⁶ (8.6%)
Duties related to storage (includes building related requirements and signage)	\$205,000	\$2,500 (1.2%)
Licence to store (includes training and protective equipment)	\$20,200	\$2,000 (9.9%)
Sales related duties (ie document and recording systems)	\$10,000	\$5,000 (50%)

Attributability of costs

It has been argued that only the net costs of regulation (ie the extent to which costs are increased above BAU levels) are properly attributed to the regulations for RIS purposes. However, the issue of attributability has a second aspect in relation to the manufacturing sector. This relates to the overlap between major hazard facilities (MHF) legislation and explosives regulations. WorkSafe notes that the requirements cited above also constitute compliance obligations under MHF legislation and that many factory-based explosives manufacturers will be subject to this legislation. Therefore, a firm that is already compliant with MHF legislation will not face additional substantive compliance costs to achieve compliance with the explosives regulations³⁷.

Aggregate costs

Extrapolating from the above cost estimates to obtain an aggregate annual cost figure for the manufacturing sector as a whole is problematic due to the lack of available information on

³⁶ WorkSafe believes that this cost is unduly high and should be treated with caution, particularly given that more than half of the net cost has been attributed to maintenance costs for SMS. No alternative data is available.

³⁷ Note that MHF are exempt from the requirement to hold a manufacture or storage licence but the MHF licence holder is required to comply with the requirements of the explosives regulations.

the extent to which regulatory costs vary with scale of operations, as well as concerns over the appropriateness/accuracy of some of the cost estimates. There is also the need to avoid identifying respondents, particularly in the context of there being only a small number of manufacturers operating in Victoria.

To provide an indicative estimate, the annual cost of \$111,000 can be multiplied by the number of holders of a licence to manufacture at a factory. This yields an estimated annual cost (above BAU) of around \$444,000 per annum, which is equivalent to approximately \$3.7 million in present value (PV) terms over 10 years. These costs can be considered relatively small in relation to the turnover of the Victorian explosives manufacturing sector. According to the Australian Bureau of Statistics, the turnover of the explosives manufacturing industry Australia-wide was \$1.4 billion in 2007³⁸. State-based data is not available but WorkSafe estimates Victoria accounts for between 10 and 20 per cent of this total production, implying a turnover of between \$140 million and \$280 million per annum. This suggests the aggregate regulatory costs estimated above would be between 0.16 per cent and 0.32 per cent of industry turnover.

Incremental costs - Streamlining of licences

The regulations distinguish between four different types of manufacturing licences: the licence to manufacture at a factory, the licence to manufacture at or near the place of use, the licence to manufacture at a mobile manufacturing facility and the licence to fill and cap safety cartridges. All together there were 26 manufacturing licences on issue at February 25, 2009.

Under the proposed regulations these licences will be consolidated into a single manufacturing licence, with the type of manufacturing activity that is authorised to be specified on the licence. This formal change to the structure of licence types is not expected to have any substantive cost impact on those required to hold these licences. A substantial proposed change is the requirement on all holders of a licence to manufacture (as opposed to only those manufacturing at a factory) to prepare a safety management system (SMS) and undertake all manufacturing activities in conformity with the SMS.

Incremental costs - Safety management systems

The cost of compliance with the new SMS requirements will vary widely with the type and scale of manufacturing undertaken. As shown in Table 6.1, only four holders of a manufacturing licence conduct manufacturing operations at a factory. The cost to this group of complying with the SMS requirement is expected to be significantly higher than for the remaining groups of licensees because of the greater complexity of the SMS required.

A survey respondent who manufactures in a factory estimated the cost of maintaining an SMS as required under the current regulations at approximately \$150,000 annually. The respondent estimated that \$45,000 of this cost would represent an increase over BAU costs that would be applicable in the absence of the regulations. That is, the respondent would continue to operate an SMS system in the absence of a regulatory requirement but would face additional costs of around \$45,000 per annum as a result of the specific regulatory requirements. Using the approach adopted above to obtain an indicative estimate of the

³⁸ Access Economics (2008). *Regulatory Impact Statement: Australian Code for the Transport of Explosives by Road and Rail - 3rd Edition*.

aggregate costs, this suggests that factory-based manufacturers as a whole currently face incremental costs in the vicinity of \$180,000 per annum as a result of the imposition of the SMS requirement in the current regulations. This is equal to approximately \$1.5 million in PV terms over 10 years³⁹. These costs are not expected to change under the proposed regulations, as the SMS requirement will not be substantially altered.

No direct estimates of the cost of the SMS requirements to the holders of other kinds of manufacturing licences are available, as none of the survey responses received came from holders of these types of licence. However, as noted above, it is expected the extent and complexity of the SMS requirement will be proportional to the complexity of their operation. Therefore, the size of the SMS requirements they will face will be much smaller than those applying to persons manufacturing at a factory. The expected costs of complying with this requirement are also expected to be much lower.

WorkSafe estimate that, for manufacturing not being undertaken a factory, compliance with the SMS requirement would probably amount to a two-page document, although it must be noted the regulations require the emergency plan component to be prepared in conjunction with the fire authority.

Given the lack of survey data, an indicative estimate of the potential costs of the SMS requirements to these non-factory-based manufacturing licence holders has been derived on the basis of WorkSafe's estimates of the inputs required to meet the required standard. It should be noted the time inputs required in this area are costed at a rate equal to twice the AWE-based hourly rate used elsewhere in this RIS. This reflects the development of an SMS requires significant input from highly skilled and experienced staff likely to be paid at executive levels, with the final product also likely to require review by directors, given their legal responsibilities in this area. This has been costed as follows:

Table 6.3: Indicative cost estimate for SMS development

Item	Time	Cost (@\$102.10/hr)
Development of draft SMS	4 hrs	\$408.40
Consultation with fire service	2 hrs	\$204.20
Revision and documentation of final SMS	2 hrs	\$204.20
Total	8 hrs	\$816.80
Total for 22 licensees	176 hrs	\$17,969.60

The proposed regulations do not specify a particular frequency of review for SMS, instead requiring they be reviewed whenever necessary and after any incident. For the purpose of these cost estimates, it is assumed that SMS are reviewed on average every two years and the review process takes four hours per SMS or half the average amount of time devoted to

³⁹ WorkSafe believe this estimate may be unduly high, given its experience with implementation of SMS in other circumstances. Moreover, an SMS requirement already exists as part of the Major Hazard Facilities regulations.

the initial development of the SMS. This means an aggregate cost of approximately \$8,985.20 will be incurred in years three, five, seven, and nine.

On the basis of these estimates, the PV of the SMS requirement for manufacturers, other than those operating in a factory, is expected to total \$49,250 over 10 years. Given there are currently 22 holders of a manufacturers licence in one of these categories, this implies aggregate costs with a PV of \$1,083,500 over 10 years.

However, the actual costs incurred are expected to be substantially lower. This is because the requirement to prepare an SMS does not apply in relation to a person who makes an explosive mixture at a site using a mobile manufacturing unit (MMU) if an SMS that has been prepared in compliance with the explosives regulations or the OHS Regulations is already in place and addresses the risks associated with explosives at the site. It is believed most MMU operate primarily at sites that are already covered by an SMS.

The 17 currently licensed MMU are owned and operated by only three companies. If an MMU operates at a site not covered by an SMS, those companies owning the MMU would only need to make minor adjustments to their existing SMS. The regulations have been drafted to avoid duplication in SMS requirements.

It is considered appropriate to reduce the estimated cost of \$1,083,500 by 75 per cent to obtain a more realistic estimate of the cost of this proposed regulatory change. Consequently, the incremental costs associated with the extension of the SMS requirement are estimated at \$270,975 in PV terms over 10 years.

Combined with the estimated costs in respect of factory-based manufacturers, this suggests the incremental costs of the SMS requirement for the manufacturing sector will be approximately \$1.7 million in PV terms over 10 years.

Incremental costs - Recording of sales data

The remaining substantive change to the current regulations which applies (*inter alia*) to the manufacturing sector is a requirement to record sales data. All businesses must maintain a range of sales-related data for commercial purposes. However, the specific requirements being implemented by the proposed regulations may lead to a need to record additional information. Reflecting this, a survey respondent, who was a factory-based manufacturer, estimated they would face annual costs in this area of approximately \$10,000, of which \$5000 was estimated to be attributable to the proposed regulations (ie the increase above BAU is \$5000). This suggests incremental costs of around \$20,000 per annum, or \$166,332 in PV terms over 10 years, will be incurred by factory-based manufacturers.

No data is available on the costs to be incurred by holders of other kinds of manufacturing licences in this respect. It is considered that few, if any, of this group are likely to be engaged in the sale of explosives.

Cost summary for the manufacturing sector

The costs of the proposed regulations to the explosives manufacturing sector can be summarised as:

- total costs to factory based manufacturers: \$444,000 pa (PV = \$3.7 million)
- incremental costs of SMS requirements for non-factory based manufacturers of \$0.3 million over ten years in PV terms

- incremental costs of recording sales data of \$20,000 annually or \$166,332 in PV terms over 10 years.

Total costs to the manufacturing sector are therefore estimated at \$4.1 million in PV terms over 10 years, of which \$0.4 million are incremental costs due to the addition of SMS requirements and requirements for the recording of sales data..

Focus group comments

The views of the manufacturers attending the focus groups was that cost impacts of the proposed regulations will be limited and that to regulate will not create significant compliance issues. Indeed, the proposed regulations are generally supported as containing substantial improvements over the current regulations.

Major comments were:

- the proposed changes constitute a positive move and are supported. Greater ease of use and increased safety will be the key benefits of the proposed regulations
- when questioned about whether any of the proposals would force them to change their current practice, manufacturers responded they already currently adhere to best practice. They also noted the proposed regulations would provide increased regulatory clarity
- manufacturers supported the expansion of referencing of Australian Standards, and considered that more referencing to them would simplify compliance. They also noted that, as firms tried to comply with a number of different requirements depending on what state they worked in, they considered the adoption of the relevant Australian Standard by WorkSafe would lead to lower operational costs.

In relation to specific changes in the proposed regulations, the following comments were noted:

- record-keeping requirements being extended beyond blasting explosives was an appropriate step given persistent security concerns
- the issue of high turnover in the industry was raised and the associated costs regarding licenses for the staff. They noted this is a business cost and the proposed regulations wouldn't increase or decrease this burden
- a licensing scheme that provided for ease of mutual recognition across Australia was supported. It was noted that mutual recognition was not the same as national uniformity and the best outcome was one licence that was issued as Australia-wide because mutual recognition has some administrative costs
- issue of provisions covering persons under the influence of drugs and alcohol was raised. It was accepted there was no real change in the proposed regulation and they were comfortable with the new wording of these requirements
- continuation of the five-year renewal period was supported as was common licence renewal dates, but WorkSafe noted this was difficult to achieve in some areas given the need for police checks at two levels of government and the administrative costs of common renewal dates for all firms given different starting dates.

Fireworks sector

There are 261 holders of licences to discharge fireworks (ie pyrotechnicians' licences). Four relatively complete surveys were received from firms operating in the fireworks sector and were used to generate cost estimates for this sector. Major cost items identified were the

cost of developing and maintaining emergency management plans and the costs of obtaining and renewing relevant licences. The following estimated costs were reported:

- cost of reaching initial compliance (ie setup and establishment costs) ranged from \$17,500 to \$181,000, with an average cost of \$79,875
- annual cost of remaining compliant ranged from \$5,400 to \$142,000, with an average of \$41,125
- cost increase over BAU ranged from \$2,400 to \$82,000.

The interpretation of the key figure – ‘cost increase over BAU’ was problematic as the respondents did not make clear what part of the figures reported under this heading related to annual costs and what part related to one-off costs of reaching compliance. Specifically:

- the response with the highest cost estimates provided no estimates of the cost increase over BAU
- the response with the next highest estimates provided data that suggested the increases over BAU were predominantly related to the initial costs of achieving compliance. Notably, initial compliance costs were estimated at \$103,500, annual costs at \$20,200 and cost increases over BAU at \$82,000
- two respondents both provided data that suggested the increase over BAU estimates were annual costs. An annual cost of remaining compliant of \$5,400 was estimated, with an increase over BAU of \$2,400. By contrast, costs of reaching initial compliance of \$17,500 were estimated.

The BAU figure for the latter two suggests net regulatory costs in this area are equal to around 44 per cent of gross regulatory costs. If this percentage is applied to the average annual cost of remaining compliant of \$41,125, this suggests the average net regulatory cost in this sector is approximately $\$41,125 \times 44.4\% = \$18,260$.

It is estimated that approximately 245 of the 261 holders of fireworks licences are contracted to work occasionally by the small number of corporate entities operating in the field. The majority of licensees therefore do not incur any of the compliance costs highlighted above. The number of corporate entities providing pyrotechnics services in Victoria that would face costs of the kind estimated above is estimated at no more than 16.

This suggests that the annual net regulatory cost in this sector may be:

$$\$18,260 \times 16 = \$292,160$$

This is equal to approximately \$2.4 million in PV terms over 10 years. However, this must be regarded as an indicative estimate only, given the low response rate to the survey.

The costs of achieving initial compliance for new entrants must also be summed. As previously noted, the average cost for this was estimated at \$79,875. If the 44.4 per cent increase on the BAU figure for annual compliance costs is used for these ‘one-off’ costs, this suggests net costs of reaching initial compliance of \$35,465. These costs are faced only by new entrants and those developing new facilities. No data on the rate of entry to the industry is available. However, if a 10 per cent entry rate is assumed, this suggests annual costs of achieving initial compliance, industry-wide, will be:

$$\$35,465 \times 16 \times .1 = \$56,744.$$

This is equal to approximately \$0.5 million in PV terms over 10 years.

The total (net) compliance costs to companies operating in the fireworks sector can be expected to be \$2.9 million in PV terms over ten years.

Therefore, total costs to the fireworks sector as a whole (including individual licence holders) of compliance with the current regulations are approximately \$2.9 million in PV terms over 10 years.

Incremental costs for the fireworks sector

Companies operating in the fireworks sector will potentially incur incremental costs due to the proposed change requiring advance notification times when submitting applications for approval of a fireworks display, and due to changes in fencing requirements for major storages (ie storage in a magazine). WorkSafe advises that the requirement for aligning with the provision in the Australian Standard for major storage facilities (ie those storing more than the prescribed quantities of explosives) will not impact on a pyrotechnician that already has a major storage (magazine), as this is an existing requirement. The impact will therefore be limited to those pyrotechnicians currently storing fireworks in garages, sheds etc.

Changes to notification times for fireworks

The proposed regulations would extend the required time to notify intention to conduct a fireworks display from the current seven days to 10 business days. This change is being made as WorkSafe and stakeholders (in particular, local councils and fire authorities) believe the current period of seven days provides insufficient time for the notification to be considered and for all parties to be given time to plan and take appropriate action.

It was originally proposed that the required time to notify authorities of an intention to conduct a fireworks display would be extended to 21 days. However, as a result of stakeholder feedback, this was changed to 10 business days.

In September 2010 WorkSafe sent a survey requesting feedback on the proposal of a 10 business day notification to a sample of 56 of licensed pyrotechnicians, representing approximately 20% of licensees in this area. The survey was designed ascertain the impact of both the proposed changes to notification requirements and the proposed change to explosives storage requirements for pyrotechnicians. 22 completed surveys were returned, giving a response rate of 39.3%.

In relation to notification requirements, pyrotechnicians felt that the largest impact would arise from the application of these arrangements to indoor theatrical displays for the first time.. Respondents felt that these types of displays were more likely to be requested on a 'spur of the moment' basis and that requiring advance notification would severely reduce the number of displays able to be conducted. The proposed extension to notification times for all fireworks displays underlined this concern. That is, it was considered likely that much of the expenditure currently devoted to these displays could be diverted toward other entertainments.

Worksafe believes that, even in relation to smaller theatrical events, it is not clear the imposition of a 10 business day notice period would be particularly difficult to accommodate. While concern has been expressed that clients do not tend to plan displays as far in advance as would be required under the proposed regulations, it is entirely plausible that awareness of the changed requirements will lead to earlier planning of displays, rather than any major drop-off in demand. This seems likely since there is no discernible direct cost impact of a longer notification period, therefore the effective price to consumers would not change.

Feedback in relation to the proposed extension to notification times for outdoor displays was mixed. A number of pyrotechnicians felt that outdoor displays are generally planned well in

advance and therefore the increase in required notification times would not have much of an impact. One pyrotechnician stated that the impact on outdoor displays that he organises would be nil as he is required to lodge a council permit 28 days in advance of a proposed display in any case.

However, a number of respondents argued that outdoor displays would be significantly affected by the proposed extension in the notification period and anticipated substantial negative impacts on this aspect of their businesses. One respondent suggested that regular clients would adjust their behaviour to accommodate the proposed change and that the impact would be predominantly felt in relation to "one-off" displays.

In relation to this issue, it is notable that WorkSafe data indicates the current level of compliance with the seven-day notification requirement for outdoor events is extremely high, with only one late notification having been received in the last year out of more than 500 total notifications. The apparent ease with which the industry is currently achieving compliance with the 7 day notification period may suggest that problems caused by a longer notification period are likely to be limited.

Worksafe believes that most companies or persons who wish to stage a fireworks display plan the display well in advance. A high proportion of fireworks displays occur at regular major events such as Chinese New Year, Greek Easter, the Spring Racing Carnival, Moomba, New Year's Eve, Australia Day. These events are planned well in advance and a 21-day notification period would not be expected to cause any difficulties.

Nonetheless, despite the substantial consultation undertaken, uncertainty remains as to the likely size of any negative impacts of the proposal to increase notification periods. It is in this context that the decision has been made to modify the original proposal for a 21 day notification period, replacing it with a notification period of 10 working days. Moreover, to minimise the expected impacts of this change, WorkSafe will undertake a program to notify clients of pyrotechnicians of the proposed change to notification times well in advance of the change.

In any event, it can be noted that any such losses in business are not conceptually regarded as economic costs, since the expenditure involved would be expected to be diverted to other options. For example, at a wedding, expenditure that would have been made on fireworks might be diverted to some other item connected with the wedding celebration. In economic terms, the real cost involved is the loss of consumer surplus from the consumer being forced to move to a less preferred expenditure. This is only a very small proportion of the actual change in expenditure. It is not considered feasible to quantify this potential cost.

Changes to the use of Australian Standards.

The proposed changes to the existing regulatory requirements in relation to fireworks are as follows:

- the proposed regulations would remove the current concession that enables short term (ie up to 14 days) storage of fireworks to be undertaken in circumstances which the storage arrangements do not meet the applicable regulatory requirements. The removal of that concession, along with changes to the general requirements for storage of

explosives⁴⁰ (see Part 4 of the proposed regulations) will mean some pyrotechnicians will have to comply the storage requirements in AS 2187.1 if they wish to store fireworks in quantities that exceed the new thresholds that trigger the requirement for a storage licence

- clearance distances are proposed to change to ensure optimum safety and align with distances set out in AS 2187.4. In some instances, existing clearance distances will be preserved. This reflects WorkSafe's view, based on experimental testing done in the early 1990s, that distances exceeding those set out in the Standard are required in some circumstances
- there will be greater use of AS 2187.4 in relation to outdoor displays, in contrast to the current regulations which directly prescribe requirements for the conduct of display fireworks outdoors.

The changes to storage requirements are essentially the result of decisions to rely more heavily on the standards set in AS 2187. While these Standards are appropriate to larger storages, they do not cover small firework stores. The standard applicable to this activity will therefore continue to be set out in the proposed regulations.

The effective result of these storage-related changes is that some current small-scale pyrotechnicians will not meet the new 'small-scale' storage requirements. If this affected group is to continue to store fireworks, they would be required to invest in a magazine, an investment which may also involve the purchase of land to meet the new setback requirements.

It can be noted that WorkSafe believes the overall cost imposed as a result of these changes will be small. Only 10 to 15 (approximately) of the 261 holders of pyrotechnicians licences are actual corporate entities, with the remainder being individuals who work for these organisations on a contract basis. Therefore, only a proportion of these corporate entities will be affected by the proposed changes.

Removal of the concession for short-term storage

The removal of the existing concession for short-term (ie up to 14 days) storage of fireworks in facilities that do not meet the general regulatory requirements in relation to security of storage of explosives is considered by WorkSafe to be an essential change to the current regulations. This is because the current concession has been found to be unworkable in practice. Given there are, in many cases, frequent movements of fireworks into and out of these 'temporary' storage facilities, it is in many cases, impossible to verify that fireworks have not been stored in these facilities for more than 14 days.

While this concession was initially intended as a way that relatively small quantities of fireworks could be stored on an ad hoc basis without the need to meet the usual security of storage requirements, there is no practical limit applied to the quantity of fireworks that can be stored under this concession. This means it is possible for large quantities of fireworks to be stored in facilities that are sometimes little more than garden sheds and for extended periods. This situation can give rise to very substantial hazards and, as a result, WorkSafe believes this issue must be addressed in the proposed regulations.

⁴⁰ That is, removal of the provisions relating to 'medium-scale' storage.

In proposing this regulatory change, WorkSafe is of the belief that changes to operational practices within the industry can be expected to prevent the need for construction of new storage facilities in most cases. The most likely outcome is believed to be that larger operations that currently import, sell and use fireworks, will modify their operations to allow delivery/collection of fireworks on the day of use by their clients. Therefore, WorkSafe believes that relatively few holders of pyrotechnicians licences would be likely to incur the cost of construction of a magazine as a result of the implementation of the proposed regulatory change and that, equally, it is unlikely that there will be any instances of pyrotechnicians licence holders choosing to exit the industry as a result of inability to comply with the regulatory changes in this area.

However, during the consultations undertaken to date, significant numbers of pyrotechnicians have expressed different views. The following estimates of the potential costs of the proposed changes were obtained via the survey of licence-holders carried out in 2009. WorkSafe also undertook a supplementary survey of a sample of licensed pyrotechnicians in September 2010 in order to confirm the earlier survey findings as they related to this specific group and attempt to obtain more specific feedback. The responses received generally confirmed those obtained from the 2009 survey, with a number of respondents stating their belief that, given current operational practices within the industry, moving to just-in-time deliveries would be difficult to organise and costly. However, no respondents were able to quantify this assumed additional cost.

Survey responses

A number of respondents to the 2009 survey addressed the issue of the proposed changes to the storage requirements as they applied to the fireworks sector. Average costs of \$7500 were reported as 'one off' in nature. Average costs in relation to outdoor displays were \$1700 in 'one off' costs and \$3333 in annual costs. Average costs in relation to the proposed changes in clearance distances were estimated at \$2167 plus annual costs. These costs are summarised in Table 6.4.

Table 6.4: Compliance costs resulting from changes to storage and outdoor display requirements.

	Storage⁴¹	Outdoor displays	Clearance distances	Total
Year 1	\$7500	\$2000		\$9500
Annual		\$3333	\$2167	\$5500
PV (per firm)				\$54,920
PV (16 firms)				\$878,720

⁴¹ Note that one respondent suggested they could only comply with the proposed changes to the storage requirements by building a magazine at a cost of over \$600,000, including the purchase of additional land. This estimate has been excluded from the data used in calculating the above, as it is not considered this regulatory response would, in fact, occur. Rather, an operator in such a situation would be expected either to relocate or withdraw from the industry.

Table 6.4 indicates the PV of the incremental costs to individual pyrotechnics companies is estimated to average \$54,920 over the expected 10 year life of the proposed regulations. Costs are comprised of an average year one cost of \$9500 and annual costs averaging \$5500.

With a maximum of 16 corporate entities operating in the fireworks sector, the PV of these costs for the pyrotechnics sector is estimated at \$878,720 over 10 years.

As noted above, WorkSafe believes that modifications in business practices within the sector are likely to occur as a result of the regulatory changes and these changes are likely to minimise the compliance costs incurred. Consequently, it is believed the survey-based estimates of compliance costs are likely to overestimate the costs that will actually be incurred.

Summary of total cost impacts for the fireworks sector

The total cost impact of the proposed regulations on the fireworks industry is expected to be as follows:

- cost of existing requirements, estimated at \$2.9 million in PV terms over 10 years
- incremental costs due to the adoption of AS 2187 requirements for storage, outdoor displays and clearance distances totalling approximately \$0.9 million in PV terms over 10 years.

The expected cost to the fireworks industry of the proposed regulations is equal to \$3.8 million in PV terms over the expected 10-year life of the proposed regulations. \$0.9 million of this cost represents the incremental costs of the proposed changes to the existing regulatory requirements.

Focus group comments

A total of 11 representatives of the fireworks sector attended the focus group meetings in September 2009. This group was generally comfortable with the proposed regulations. However, there was significant concern about the proposed change from the current seven-day to a 21-day notification period, with the majority of the discussion around this issue.

The concerns expressed related specifically to indoor displays. In relation to outdoor displays, it was noted that local councils often had longer amenity-related notice periods so the proposed extension of the notice period would have little impact. However, they argued that many customers commissioning indoor displays made the decision to commission a display at the last minute and as a result, adoption of the proposed 21-day notification period could lead to the loss of this business.

One stakeholder raised the example of large international concerts, stating that promoters often delayed a decision to hold a pyrotechnic display until they sold enough tickets to justify the cost. In such cases, a 21-day notification would often mean the display could not go ahead.

Given these concerns, the stakeholders argued that keeping the current notice period of seven days would be more workable for the industry. They also speculated that the adoption of a longer notification period could have perverse impacts, as some customers deciding on a display at less than 21 days notice may 'shop around' for a pyrotechnician willing to conduct a display without a permit, with potential adverse impacts on safety.

WorkSafe notes the current seven-day notification period is insufficient to enable a proper assessment of the application to be carried out in many cases. It is also considered likely the adoption of a longer notice period would lead to behavioural changes of those seeking indoor pyrotechnics displays and that such changes would be expected to reduce the impact of the extended notification period. However, based on stakeholder feedback, WorkSafe has change the proposed notification period to 10 business days.

A second issue was the proposed requirement for notification of testing of fireworks. Stakeholders did not have a general objection to this requirement, but considered the adoption of notification should depend on what is being tested and in what quantities. It was argued that testing of smaller quantities of fireworks did not necessarily warrant a notification requirement.

The proposed removal of the current exemption that allows 14 days temporary storage of explosives was also discussed. Concern was raised that this change could have a very large impact on small-scale pyrotechnicians. However, WorkSafe believes that changes to industry practice are likely to enable this change to be accommodated without affected parties incurring significant additional costs. In particular, it is expected that major importers/sellers of fireworks will move toward 'just-in-time' delivery of explosives to accommodate the needs of affected parties. Worksafe undertook a survey of pyrotechnicians in September 2010. Feedback from this survey confirmed that this change would predominantly impact smaller pyrotechnicians. None of the respondents were able to quantify the cost of increased just-in-time deliveries, or the development of a large scale storage facility.

Changes to the transport requirements

The key changes in relation to transport involve bringing the licensing requirements into line with the current Dangerous Goods (Transport by Road or Rail) Regulations 2008. This will require each vehicle used to transport dangerous goods to be licensed, instead of the current system of issuing a single licence per fleet of vehicles.⁴² The additional costs of this requirement should be seen in relation to the expected benefit it brings, which is that if any vehicle is non-compliant, the non-compliance affects the individual vehicle, rather than the whole fleet covered under the single licence. This move is also one which promotes national uniformity.

The change to a requirement for each vehicle to be licensed, from the current 'fleet' licence (ie a licence to transport) is expected to have only a relatively limited impact. Currently, there are 23 licences to transport explosives by road on the issue. The number of parties affected will be smaller than this because some licence holders operate only one vehicle. WorkSafe's records show that of the 23 licensed companies, only five have multiple vehicles. The total number of vehicles operated by these five licensees is approximately 50, while the remaining 18 licensees operate only one vehicle each.

The number of licences issued for road transport explosives can be expected to increase from the current 23 to approximately 68 - an increase of 45 licences in total.

⁴² Note that under current arrangements those with fleets incur costs in having their transport licences amended when they add or remove vehicles from the licence (other than at licence renewal time). A fee of 25 per cent of the initial licence cost is payable for these amendments.

The cost increases from the change to licensing of individual vehicles is expected to be very limited. The key change will be the need to apply for separate licences for each vehicle, so an increase in the administrative costs associated with completing and submitting licence applications.

Survey responses indicate the cost of completing and submitting a licence application in this area is approximately \$50. This is consistent with the estimates received for a number of other licences. As noted, an additional 45 licences will need to be issued for the current fleet of vehicles. These administrative costs will be incurred in the first year of operation of the regulations and again in year six (given the requirements for renewal of licences after five years). The increase in administrative costs borne by persons licensed transport explosives by road will therefore be:

$$\$50 \times 45 = \$2250 \text{ (in year one, with a similar cost occurring incurred in year six)}$$

This is equivalent to \$4274 in PV terms over the expected 10-year life of the proposed regulations.

The total administrative cost of the new licensing requirement is, on this basis:

$$\$50 \times 68 = \$3,400 \text{ (equivalent to \$28,276 in PV terms over 10 years }^{43}\text{)}$$

No substantial increase in the licence administration costs incurred by WorkSafe as a result of the proposed change in licensing arrangements is expected. This reflects the data required to be recorded and verified by WorkSafe will not change, as details of all vehicles covered by the fleet licences are currently required to be recorded. WorkSafe already inspects all vehicles listed on a fleet licence as a matter of course.

The above simply represents the administrative costs associated with vehicle licensing. The cost of complying with the standards that must be met to be eligible for a vehicle licence must also be added. Specifically, regulation 610 requires licensees to transport explosives in accordance with the AEC. The proposed regulations will not lead to any substantive changes to the existing regulatory requirements. Consequently, it is not anticipated there will be any incremental costs in this area as a result of the adoption of the proposed regulations.

Based on survey responses received, the average annual cost of remaining compliant with this requirement was estimated at \$7500 in gross terms. Respondents differed widely in their estimates of the extent to which this expenditure exceeded BAU levels, with estimates ranging from 0 to 100 per cent. Consequently, 50 per cent of this estimate of ongoing compliance cost has been estimated as being due to the regulations. This implies an estimated annual cost of \$3750 per licensee. It should be noted this cost is necessarily a 'cost per fleet', given the current licensing arrangements are administered on this basis. Therefore, the net annual cost of remaining compliant with the requirements of the vehicle licensing regulations is estimated at:

$$\$3750 \times 23 = \$86,250$$

This is equal to approximately \$0.7 million in PV terms over 10 years.

⁴³ Note that these costs do not include the costs to WorkSafe of licence processing. These costs are to be fully recovered from licence fees and are discussed separately.

These costs are not expected to change as a result of the adoption of the proposed regulations. They constitute the costs of remaining compliant, as incurred by incumbent firms. New licensees necessarily incur additional costs. These costs were estimated by survey respondents, with the average cost estimated at \$63,333. Applying the estimate of 50 per cent of these costs as being additional to BAU, as used in respect of the costs of remaining compliant, this is equivalent to a net cost of reaching compliance with the regulations of approximately \$31,667. If it is assumed that entry into the industry is equal to 10 per cent of the number of existing licensees annually, the expected annual cost of new firms complying with the proposed regulations would be equal to:

$$23 \times 10\% \times \$31,667 = \$72,834$$

This is equal to approximately \$0.6 million in PV terms over the expected 10 year life of the proposed regulations.

Table 6.4 summarises the above costs of complying with vehicle licensing requirements of the proposed regulations.

Table 6.5: Net cost of compliance with proposed vehicle licensing requirements

	Annual cost	PV (over 10 years)
Administrative costs	\$3,400	\$28,276
Substantive compliance costs	\$86,250	\$0.7 million
- Existing firms	\$72,834	\$0.6 million
- New entrants		
Total	\$159,084	\$1.3 million

These costs are unchanged from the current regulations as the only change in the substantive requirements governing licensing is replacement of fleet licences with individual vehicle licences.

Sales

The third major licence category is sales. This category accounts for 336 of the approximately 2100 explosives licences on issue. The approach taken to estimating costs in this area is to identify those regulatory requirements relevant to holders of sales licences and obtain average costs for these aspects of the regulations.⁴⁴ Requirements relating to licences to sell include those relating to sales, purchase and storage. These are largely contained in Parts 4 and 5 of the regulations. Table 6.6 summarises these costs.

Table 6.6: Cost estimates - sales and related sectors

Cost item	One-off cost	Annual (gross) cost	Net cost (ie increase over	PV (net cost)

⁴⁴ The response from the manufacturer was excluded from the calculation of average costs as the cost estimates provided were substantially higher than those provided by other firms. It was considered likely that inclusion of these responses would bias the averages by inclusion of a data point that did not relate directly to the experience of firms engaged in sales but not manufacture.

			BAU)	
Storage requiring magazine	NA	\$3000	\$3000	\$24,950
Signage/placarding	\$1500	\$800 ⁴⁵	\$400	\$3327
Recording of sales data	\$1500	\$300	\$300 ⁴⁶	\$2495
Total	\$3,000	\$4,100	\$3,700	\$30,772

Table 6.6 shows the average annual cost of the regulations for firms licensed to sell explosives, net of BAU costs is estimated at \$3,700. This is equivalent to \$30,772 in PV terms over 10 years.

WorkSafe estimates approximately 50 per cent of the 336 licences are held by small hardware stores and similar businesses that sell small amounts of ammunition in addition to their main businesses, while a further 10 per cent are believed to be held by gun clubs which, similarly, conduct only the activity of selling small quantities of ammunition. It should be noted that the requirement for a record of sales does not apply to the sale of cartridge ammunition, consumer fireworks, industrial safety cartridges, or distress signals in a consumer package.

Therefore the costs set out in Table 6.6 are not believed to be representative of the costs these types of businesses would face. Rather, these businesses are believed to incur only the costs of recording the required information in relation to all sales and the costs associated with licence renewals.⁴⁷

If the above costs are incurred by only 40 per cent of the 336 licensees or 134.4 licence holders, the annual costs involved are:

$$134.4 \times \$3,700 = \$497,280$$

This is equivalent to \$4.5 million in present value terms over 10 years.

For the remaining 60 per cent of holders of use licences (eg small hardware stores, gun clubs and the like), substantially lower costs will be incurred than those estimated above. Given that the requirement for a record of sales does not apply to the sale of cartridge ammunition, consumer fireworks, industrial safety cartridges or distress signals in a consumer package, the costs to this group (who are believed only to sell cartridge ammunition) are expected to be limited to the costs of direct licence costs. Licensees are expected to incur costs of \$250, while a total of one hour at \$29.17 is expected to be required to complete the required form and lodge the application. This implies total licensing costs of \$279.17 will be incurred every five years, plus annual costs of \$300 for recording sales data. Total costs for this group are therefore:

⁴⁵ Note that this estimate appears very high in relation to be estimated 'one-off' cost of initially installing signage. WorkSafe believes the annual maintenance costs for signage would constitute a significantly smaller proportion of the initial cost than that suggested here.

⁴⁶ Note this cost increase over BAU may be overstated, since it implies that no sales recording would be done in the absence of the regulations.

⁴⁷ Note that the requirement for a record of sales does not apply to the sale of cartridge ammunition, consumer fireworks, industrial safety cartridges or distress signals in a consumer package

licence costs averaging $\$279.17 \times (336 \times .6 \times .2)^{48} = \$11,256$ per annum.

This is equivalent to approximately \$0.1 million in PV terms over 10 years.

For the sales licence holders as a whole, expected costs are equal to \$4.6 million in PV terms over 10 years.

These costs are unchanged from those incurred in complying with the current regulations, with the exception of the costs imposed by the inclusion of the proposed regulations of specific requirements for recording sales data. As per table 6.4, the incremental costs (above BAU) of these requirements for existing businesses are estimated at \$300 per annum, or \$2495 in PV terms over 10 years. This is equivalent to \$335,328 for the sector as a whole. In addition, the incremental costs for new entrants are estimated at \$30,240 per annum, or \$251,494 in PV terms over 10 years. In total, the incremental costs of the proposed regulations in this sector are equal to approximately \$0.6 million in PV terms over 10 years.

Changes to storage requirements

WorkSafe data indicates there are currently 89 holders of medium-scale storage licences. These licenses will no longer be issued under the proposed regulations. Existing licence holders must choose between reducing the amount of explosives they store to levels consistent with the revised thresholds in relation to small-scale storage or bringing their operations into compliance with the requirements for a large-scale storage licence.

A review of data in relation to existing medium-scale storage licence holders indicates seven are licensed to store quantities of explosives that would fall under the proposed threshold for small-scale storage contained in the proposed regulations. A further five are licensed to store quantities of explosives less than 50 per cent above this threshold. These two groups are considered unlikely to be significantly affected by the proposed change. No change in current activities will be required by the first group, while the second group is expected to be able to reduce its maximum storage quantity by the amount required without significant disruption to their operations.

This implies the remaining 77 holders of medium-scale storage licences will be more affected by the proposed change. This group will have to choose between changing their operations in such a way that they are able to meet the proposed small-scale licence conditions or constructing a compliant facility to enable them to obtain a large-scale storage licence. Worksafe has been of the view that, for a significant number of the affected medium scale storage licence holders, it would be possible to reorient their operations in such a way that they will be able to avoid the need to construct a magazine in order to comply with large-scale storage requirements. In particular, the adoption of "just in time" delivery practices is believed to have the potential to allow many of the affected licence-holders to meet the small-scale storage requirements will maintaining their operations at current levels.

In order to verify this view, an additional survey was undertaken of medium scale storage licence holders by WorkSafe in September 2010. The survey results confirmed that approximately half of the 77 medium scale storage facilities would be likely to respond to the

⁴⁸ That is, one in five of the affected businesses on average will need to renew their licences each year, given the five-year duration of the licences.

removal of the medium scale storage licence by developing a storage facility that meets the large scale storage facility requirements.

Based on its experience in dealing with regulated parties, WorkSafe estimates the cost involved in constructing a basic facility to a standard sufficient to comply with the proposed regulatory requirements for large-scale storage would be in the range \$15,000 to \$50,000⁴⁹.

Adopting a midpoint estimate of \$32,500, a total one-off cost of compliance with this proposed regulatory change would be:

$$77/2 \times \$32,500 = \$1,251,250$$

Use of blasting explosives

No survey responses were received from users of blasting explosives. However, given that substantial changes are proposed to be made to this aspect of the regulations, WorkSafe conducted a telephone survey of the sector, receiving four responses. Three of the four respondents were also industry trainers who indicated they had a high level of familiarity with the nature of the operations of the industry in general. The results of this survey are summarised in Table 6.7.

Table 6.7: Regulatory costs associated with the use of blasting explosives

	One-off costs	Recurring costs
Equipment	\$2490	
Licensing		
- training	\$962.33	\$335 (coaching cost)
- applications	\$89.34 (1.75 hrs x \$51.05)	\$51.05 (one hr)
- other		\$587.08 ⁵⁰ (11.5 hrs x \$51.05)
Blast management plan		One hr – two days per BMP

As shown in table 6.7, initial compliance costs totalling \$2490.00 were identified. These costs related to the purchase of necessary equipment. Respondents indicated the regulations imposed virtually no costs in addition to those that would be incurred under the BAU scenario. Therefore none of these costs are considered to be attributable to the regulations.

Initial licensing costs of \$1051.67 were identified. The majority of these costs were training-related costs and the remainder were the time costs of preparing and submitting licence applications. Again, while the application-related costs are clearly attributable to the regulations, it was generally agreed the majority of the training costs are business imperatives that would be incurred even in the absence of regulatory requirements. The

⁴⁹ Note that a commonly used method of constructing a complying facility involves the purchase or lease of either a relocatable steel magazine or for large volumes of explosives a dedicated facility that meets the requirements of AS 2187.1. This will require sufficient land to contain the safety distances

⁵⁰ Time comprises exam time (three hours) plus study time and travel.

licence application costs noted here are included below under the category of licence administration costs.

Costs associated with licence renewal included the time required to sit the necessary exam, associated travel costs and the time required to complete adequate study to enable the exam to be passed. The time required to complete these tasks was estimated to average 11.5 hours, while coaching costs averaging \$335 were also identified. It was also estimated that an average of one hour is required to complete and submit the licence renewal application form. This latter cost is accounted for separately in the 'licence administration' section below. The remaining costs equal \$922.08. The average total cost of completing the licence renewal process is therefore estimated at \$922.08.⁵¹ This cost would be incurred at five-year intervals, given the duration of a licence is five years. As there are 1177 licences on issue and the duration of these licences is five years, an average of 235.4 of these licences would be expected to be renewed each year. The annual costs associated with renewal of licences is estimated at:

$$235.4 \times \$922.08 = \$217,057.63$$

This is equal to \$1.8 million in PV terms over 10 years.

The final cost item identified is the cost of developing a blast management plan (BMP). Respondents indicated costs would be likely to vary widely in proportion to the scale and scope of the job being undertaken. It was estimated it would take one to two hours to develop a BMP for a small-scale blast. Conversely, it was considered that up to two days would be required to develop a BMP for major blasts. When questioned whether they currently used BMP, one respondent replied yes, while two stated they did not. Two holders of licences who attended the focus groups stated they believed a BMP represents 'good industrial practice' and would be done as a matter of course by most licence holders.

Two respondents also noted they would expect the average time required to develop a BMP would probably decline over time as they became familiar with the BMP development process and relevant requirements. They also noted there would be substantial scope for the use of generic BMP in relation to certain kinds of blasts.

WorkSafe views

Additional research conducted by WorkSafe suggests that, in most cases, the time taken to develop a BMP will be between one hour to five hours. It is also believed that major users of blasting explosives (such as mines and quarries) currently have standard BMP which are fully documented. Where this is the case, the shot firer will simply need to consider the standard BMP and make any adjustments that may be necessary to suit the particular circumstances of the blast. Therefore, for regular users of blasting explosives, the cost per blast of the BMP requirement is likely to be small. Similarly, it is anticipated that smaller

⁵¹ This estimate has been derived from the survey responses received during the consultation process. However, WorkSafe notes that, due to changes to the requirements proposed to the renewal of these licences, these estimates may overestimate the actual cost of compliance that will be incurred. Under the proposed regulations, the substantive relating to licence renewal will be for the applicant to present evidence of competency that has been issued by approved trainers. Consultation with trainers operating in this sector indicates this will involve completing a refresher course of up to two days duration and an approved form of assessment by the trainer. The cost of that training and assessment is estimated to be between \$300 and \$750. However, as per the above methodology, relevant travel costs and any other expenses not directly relate to the training would need to be added to this total.

users of blasting explosives (eg farmers, shot firers removing rocks for trenching operations, demolition, etc) would initially develop a generic BMP and review it within the context of the particular blast planned and determine whether any modifications were required to that particular circumstance.

WorkSafe has identified two other important factors in assessing the likely aggregate costs associated with the BMP requirement. Firstly, a range of evidence, including sales data for blasting explosives and discussions with sellers as well as some users, indicates that practices are changing in such a way that blasting is being substituted by the use of machinery.

Secondly, it should be noted that proposed BMP provisions are similar to those already in the current regulations. Part 7 (Use of Blasting Explosives) requires a person who holds a licence to use blasting explosives (shot firer) to observe a number of regulations which are codified in 'Division 4: Blasting Operations'. These provisions are considered to be broadly equivalent to the requirements of a BMP.

Aggregate costs

As previously noted, the annual costs of meeting licence renewal requirements have been estimated at \$217,057.63. This is equal to \$1.8 million in PV terms over 10 years.

The remaining cost for use licences is the cost of complying with the BMP requirements. As discussed, scale of the task involved in developing a BMP will vary substantially with the nature, circumstances and scale of the blast being undertaken. It was also noted that BMP costs could be expected to decline over time as users became more familiar with their development and the plans themselves became generic. Given these factors, estimation of the aggregate costs of this requirement is extremely difficult. However, to provide an indicative estimate of the likely scale of these costs, it is assumed the average time required to prepare a BMP is two hours. Using an hourly cost of \$51.05, this implies the cost per BMP would be approximately \$102.10.

WorkSafe estimates that approximately 500 blasts are undertaken in Victoria annually. It believes this number is declining over time as alternatives to blasting with explosives are increasingly adopted. Using this estimate, the annual cost of BMP can be calculated as:

$$500 \times \$102.10 = \$51,050$$

This is equivalent to approximately \$0.4 million in PV terms over 10 years.

Incremental costs

The provisions of the proposed regulations in relation to obtaining and renewing use licences are essentially unchanged from the current regulations and do not involve any additional costs.

The requirement for a BMP to be prepared is a new provision but as the current regulations impose similar obligations on users of explosives to those required to comply with the BMP provisions of the proposed regulations, the requirement to prepare a BMP is deemed a restatement of obligations that already exist. To the extent that this is the case, it is believed any incremental costs associated with the BMP requirement will be minimal.

Focus group comments

Two holders of licences to use blasting explosives were represented at the focus group meetings. As a general observation, these licensees stated that, even in the absence of formal regulation, they would continue to adhere to AS2187.1. Consequently, they believed the regulations imposed minimal compliance costs on them compared with the 'BAU' base case.

In relation to the proposed changes to aspects of the regulations concerning their operations, the participants stated that:

- adopting a BMP was good industrial practice and would be done as a matter of course by responsible operators. They also appreciated the need for the scale and scope of the BMP to be linked to the size of the explosion. Concern was voiced that significant cost increases could result from a perceived need to keep more detailed records in order to ensure operators could prove the duty had been met
- the proposed removal of the medium-scale storage category may affect some duty holders, and some participants argued that consideration should be given to allowing temporary medium-scale storage
- there would be little impact in relation to the proposal to remove the ability to transport (over a certain threshold) explosives under a use licence

Licence costs and revenues

Because of the streamlining of explosives licences that is being implemented as part of the adoption of the proposed regulations, the structure of licence fees has also been subject to review. Fees have not been increased since they were set in the 2000 regulations, as such the current fees do not represent cost recovery for costs associated with licensing. While the Department of Treasury and Finance Cost Recovery Guidelines (the Guidelines), generally require that these costs be recovered they provide for fees to be subsidised when the protection of the general public is a key feature of the licensing scheme, as is the case in relation to the current licences.

It has been determined that some increase in the current, low levels of cost recovery is appropriate. However, it was considered inappropriate to implement major one-off changes to the fees currently charged, particularly in a context in which the current legislation, including its licensing regime, is expected to be replaced by new, nationally uniform legislation within a few years. The structure of the licensing scheme and the overall level of licences will necessarily be considered again as part of the move to the nationally uniform legislation.

Consequently, the maximum fee increase that will be applied under the proposed regulations is 25%. Application of this increase will mean that the fees charged under the proposed regulations will be slightly lower in real terms than the fees set at the time of the introduction of the current regulations. Table 6.8, below, summarises the existing and proposed fees.

Table 6.8: Existing and proposed licence fees

Licence	Proposed fee	Existing fee
Manufacture at factory	\$5000	\$4,000
Manufacture not at a factory	\$312.50	\$250
Store explosives	\$500	\$500

Sell explosives	\$62.50	\$50
Explosives vehicle	\$62.50	\$50 ⁵²
Explosives vehicle driver's licence ⁵³	\$62.50	\$50
Transport by rail	\$62.50	\$50
Use blasting explosives	\$62.50	\$50
Use fireworks	\$62.50/\$125/300 ⁵⁴	\$50
Import explosives	\$62.50	\$50
Authorise explosives	\$150 ⁵⁵	\$53/hr ⁵⁶
Exemption	\$300	\$54/hr ⁵⁷

Assessing the cost base

In assessing the cost base to be recovered, it was determined that a 'bottom-up' approach should be taken. This reflected the views of the two units within WorkSafe that are jointly responsible for assessing and processing licence applications (Licensing Branch and Hazard Management Division) both undertake a wide range of roles in addition to these licence-related tasks. WorkSafe believes there is little prospect of accurately allocating the total resources of these two units among these various activities on a 'top-down' basis.

The two WorkSafe units completed estimates of the average time input by different personnel required to assess and process individual licence applications in various categories. These time inputs were then multiplied by the applicable wage rates, with a 16.5 per cent allowance for labour on-costs being added.⁵⁸ Appendix 6 provides details of these estimates of the cost of assessing and processing applications for each of the various kinds of licences. Table 6.8 and the proposed fee to be charged in each case, as well as provides a comparison between the proposed fee and the fee set out in the current regulations in each case.

Table 6.9 summarises these costs and provides an estimate of the expected average annual revenue that will be derived from the proposed licence fees. The expected average annual

⁵² Per fleet. New fee will apply per vehicle.

⁵³ Note that, in addition to the Worksafe costs of \$42.31 set out in Appendix 6, Australia Post charges a \$40 processing fee, which has been included here.

⁵⁴ Higher fees apply where an assessment of competency is required and where an exam is required to be undertaken.

⁵⁵ Fee to test or examine explosives for authorisation. Fee also applies to amendments of authorisations of explosives and conducting tests for classification of explosives.

⁵⁶ Current fee is \$53 per hour or part thereof, with a maximum of \$540. This is being replaced by a flat fee of \$150.

⁵⁷ Current fee is \$54 per hour or part thereof, with a maximum of \$2,160. This is being replaced by a flat fee of \$300.

⁵⁸ It is more appropriate, in the circumstances to adopt the incremental cost approach, rather than the fully distributed cost approach, in assessing the appropriate cost base for recovery of our licence fees. This reflects the fact that only a small proportion of the activities of the Hazard Management Division and the Licensing Branch relate directly to the assessment and processing of licence applications.

revenue has been derived by adjusting the current numbers of licences on issue in each category by amounts reflecting WorkSafe's best estimates of the impact of the proposed changes to the licence structure and assuming that one fifth of the resulting number of licences in each category will be renewed each year (noting that licences are renewable every five years).

Table 6.9: Expected licence processing costs and fee revenues (annual average)

Licence type	Number of applications (ann. Ave.)	Proposed fee	Expected revenue	Estimated licence processing cost	Total cost
Manufacture explosives					
At a factory	0.8	\$5,000	\$4,000	\$5,101.39	\$4,081.11
not at a factory	3.4	\$312.50	\$1,062.50	\$539.36	\$1,833.82
Store explosives	17.2	\$500	\$8,600	\$539.36	\$9,276.99
Sell explosives	60.6	\$62.50	\$3,787.50	\$272.98	\$16,542.59
Explosives vehicle	14.4	\$62.50	\$900	\$176.94	\$2,547.94
Explosives vehicle driver's licence	33.6	\$62.50	\$2,100	\$82.31	\$2,765.62
Transport by rail	0.2	\$62.50	\$12.50	\$513.09	\$102.62
Use blasting explosives	223.4	\$62.50	\$13,962.50	\$158.21	\$35,344.11
Use fireworks	52.2	\$62.50	\$3,262.50	\$153.29	\$8,001.74
Import explosives	8	\$62.50	\$500	\$224.96	\$1799.68
Authorise ⁵⁹ explosives		\$150		\$170.34	
Exemption ⁶⁰		\$300		\$340.68	
Total			\$38,188		\$82,297

⁵⁹ Data on average number of applications processed unavailable.

⁶⁰ Data on average number of applications processed unavailable.

Table 6.9 shows the expected annual revenue from licence fees is in the vicinity of \$38,000. This is compared to a notional average annual revenue of approximately \$31,000 based on the application of the same methodology to the current fee structure and an estimated total licence processing cost of approximately \$80,000. Consequently, fee revenue will continue to recover less than 50% of total licence processing costs, even given the proposed fee increases.

Interstate fee comparisons

While the proposed fees represent increases in existing fee levels in many cases, they are still broadly in line with fees being charged in a number of other Australian jurisdictions. Overall the proposed Victorian licence fees would remain the lowest of the major explosives using states in Australia. The proposed fees would continue to be lower than New South Wales and Queensland in respect to the high volume licences - [i.e blasting (1,110), fireworks (260), drivers (170) and sellers (340)]; also Victoria would be lower than Western Australia for all licence classes except for fireworks and use blasting licences. While the proposed licence fee for manufacturing is higher than the comparable fee in New South Wales and Queensland- this licence applies essentially to large multinational companies. Comparing the fee to the gross turnover/operating costs of such companies would indicate it represents a negligible impact.

Table 6.10 compares the proposed fees with those currently in place in New South Wales, Queensland and Western Australia.

Table 6.10 Interstate fee comparisons

Licence	Victoria (proposed)	NSW	Queensland	Western Australia ⁶¹
Manufacture at a factory	\$5,000	\$2,500	\$1,654.50	\$20,000 - \$75,000 ⁶²
Manufacture (other)	\$312.50	\$2,500	\$761.50	\$4,000
Sale	\$62.50	\$600	\$323.55	\$825
Import	\$62.50	\$2,350 ⁶³	\$2,685	\$800
Store	\$500	\$250	\$1,654.50 ⁶⁴	\$1,600
Road transport	\$62.50	\$1,850	\$424.25/vehicle ⁶⁵	\$4,000

⁶¹ Western Australia licences are issued either annually or for a three year period, where those in the other states are issued for five years. Fees cited here are equivalent fees for five years licensing to aid comparability.

⁶² Depending on scale. Applies to manufacturers that are MHF. Other manufacture is subject to a licence fee of \$1,020 for a three year licence.

⁶³ The NSW licence to import entitles the licence holder to import, possess, supply, including export if approved, and store, if approved, specified explosives and/or security sensitive substances. A licence to import does not authorise the transport of explosives.

⁶⁴ Refers to large scale storage (ie more than 100kg of blasting explosives or more than 250kg of propellant powders).

⁶⁵ The remaining licences are charged 'per fleet' rather than 'per vehicle' as in QLD. Victoria also currently uses a per fleet licence arrangement, but is moving to vehicle licensing in the proposed regulations.

Rail transport	\$62.50	NA	\$425.25/vehicle	\$4,000
Use blasting explosives	\$62.50	\$250	\$229.25	\$100
Use fireworks	\$62.50/\$125/\$300 ⁶⁶	\$250	\$486.75	\$100
Authorise explosives	\$150 ⁶⁷	\$100	\$109.70	\$138.00

Table 6.10 shows that fee relativities vary quite widely between jurisdictions. This means fee comparisons differ significantly across the states according to the type of licence under consideration. However, comparison of the proposed Victorian fees with those for the other jurisdictions reported in the table shows that Victoria's fees are expected to remain below those of all other jurisdictions in all cases other than the fee for a licence to manufacture at a factory. The proposed 25% increase in this fee will see the fee move to full cost recovery levels. This higher fee affects only a small number of large manufacturing plants and is believed to be appropriate in this context.

Administrative costs of licence applications

From the perspective of licensees, the administrative costs of the licensing system, as distinct from the substantive compliance costs, include both the fees payable to WorkSafe and the value of staff time required in order to complete and submit licence application forms and deal with any follow-up queries, inspection requirements etc.

Responses to the survey did not provide any useable information in relation to the size of these costs. In most cases, respondents to questions on the cost of licence renewals reported the actual licence fee payable rather than costs of staff time incurred in completing the licence application process. Consequently, no reliable estimates of these costs can be made.

The only available data on this issue derives from the telephone survey of holders of all licences to use blasting explosives, reported in Section 6.2.5. As set out in table 6.5, the average time to complete the administrative processes required for lodgement of licence application by those contacted was 1.75 hours in the case of an initial licence application, and one hour in the case of an application for licence renewal. These estimates can be regarded as a reasonable guide to the average cost that is likely to be incurred by licence holders given the use licence is the largest single licence category, accounting for more than half of all licences currently on issue (see Table 6.8). On the basis of this, even though data is limited, an indicative estimate of the administrative costs to licence applicants has been developed by assuming an average of 1.5 hours⁶⁸ is required to complete the requirements for licence renewal applications and applications for new licences and costing this time at average weekly earnings, plus on costs. Therefore, the average administrative cost per licence/renewal application is:

⁶⁶ Basic fee is \$62.50. Fee is \$125 if an assessment of competence is required and \$300 if an examination is required.

⁶⁷ Fee also applies to amendments of authorisations of explosives and conducting tests for classification of explosives.

⁶⁸ Noting that licence renewal applications will be far more numerous than initial licence applications.

$$\$51.05 \times 1.5 = \$76.58$$

As indicated in Table 6.6 it is estimated an average of 419.4 licences are renewed annually. This suggests total administrative costs to licence applicants are approximately:

$$\$76.58 \times 419.4 = \$32,117.65$$

This is equal to approximately \$0.3 million in PV terms over 10 years.

Total (net) regulatory costs

Table 6.11: Estimated (net) regulatory costs to the explosives industry⁶⁹

Affected licence-holders /cost items	Annual cost	PV over 10 years
Manufacture	\$505,000	\$4.1 million
Fireworks	\$455,000	\$3.7 million
Transport	\$162,000	\$1.4 million
Sales	\$509,000	\$4.6 million
Storage	\$1.3 million (year 1)	\$1.2 million
Use	\$268,000	\$2.2 million
Licence administration ⁷⁰	\$110,000	\$0.9 million
Total	\$1,999,000⁷¹	\$18.1 million

Table 6.11 shows the net costs of the regulations (ie the additional expenditures over BAU that can be regarded as properly attributable to the regulations) are estimated as being \$2.0 million per annum. There is likely to be an additional, one-off cost of \$1.3 million incurred in the first year in respect of compliance with changes in storage requirements. In total, the costs of compliance with the proposed regulations are estimated at \$18.1 million in PV terms over the expected 10 year life of the proposed regulations.

The sales sector bears the largest proportion of the total (net) compliance costs of the proposed regulations, incurring additional costs estimated at \$4.6 million, or 25 per cent of the total. The manufacturing sector bears the next largest proportion of the costs, with costs to this sector totalling \$4.1 million. The fireworks sector bears total costs equivalent to \$3.7 million over 10 years.

⁶⁹ Minor additional costs will be incurred as a result of the new security checking requirement for people with unsupervised access to explosives. WorkSafe has estimated that approximately 50 people will be required to get security checks, at a cost of \$20 for an ASIO check and \$40 for a police check. This implies one-off costs of approximately \$3000 in year one, and smaller ongoing costs due to the requirement for new entrants to obtain similar checks.

⁷⁰ Includes all administrative costs of applying for licences, including licence fees – which fully recover WorkSafe administrative costs.

⁷¹ Excludes year 1 cost of storage changes.

It should be noted the costs set out in table 6.11 are net costs so they represent only those costs that are incurred solely as a result of these regulations. Alternatively, this is the amount by which the costs of licensees in the industry exceed their BAU levels as a result of the existence of the regulatory requirements.

Summary of identified incremental costs

Table 6.12 provides a summary of the identified incremental compliance costs due to the proposed changes to the current regulations (i.e. it identifies cost increases expected to be incurred as a result of the changes to the current regulations that are expected to be implemented by the proposed regulations).

Table 6.12: Summary of incremental costs - present values over 10 years

Cost item	Cost (PV over 10 years)
Safety management systems	\$0.3 million
Storage upgrades	\$2.5 million
Recording of sales data	\$0.6 million
Total	\$3.4 million
Licence fees (transfer)	\$58,000

Table 6.12 shows total incremental costs have a PV equal to \$3.4 million over 10 years. When compared with the total estimated cost of the proposed regulations, as set out in table 6.11, this implies that costs will increase by approximately 23.1 per cent over those imposed by the current regulations⁷². The major element of this expected cost increase relates to the changes in storage requirements and, in particular, to the abolition of medium-scale storage licences.

Table 6.12 also notes that fees paid by licensees will increase by an estimated \$58,000 over 10 years in PV terms. This represents an additional cost increase from the perspective of the explosives industry. However, it does not represent a real increase in economic costs to society as a whole. Rather, it represents the transfer of an additional proportion of the regulatory costs associated with the industry to industry participants themselves. This move to increase licence fees toward full cost recovery levels is both consistent with the Department of Treasury and Finance Cost Recovery Guidelines and principles of economic efficiency.

⁷² i.e. Expected cost of the proposed regulations is \$18.1 million, of which \$3.4 million are new costs and \$14.7 million are currently incurred cost. Incremental costs are $\$3.4m/\$14.7m = 23.1\%$ of the current base cost.

7. ALTERNATIVES TO THE PROPOSED REGULATIONS

7.1. Adopt more performance-based regulatory approaches

Like the current regulations, the proposed regulations are prescriptive in that they specify the risks to be managed, and in many cases the approach to management of risk. Other safety-related regulations made under the DG Act, as well as other legislation administered by WorkSafe, accord wider scope for persons with duties under the Act to identify, assess and control risks pertinent to their particular situations. This necessarily gives rise to the need to consider an alternative of adopting a more performance-based regulatory approach in respect of the explosives regulations.

Expected benefits of the alternative

In general terms, performance-based regulation has the potential benefit of reducing regulatory compliance costs by enabling individual regulated parties to tailor their compliance activities and approaches in ways that suit their individual circumstances. The same dynamics also has the potential to improve regulatory effectiveness. Therefore, performance-based regulation can, at least in theory, both increase regulatory benefits and reduce regulatory costs.

Some opportunities to adopt a more performance-based approach can be identified in respect of the proposed regulations. For example, the provisions for the manufacture of explosives require the specific separation distances set out in the relevant Australian Standard (AS2178.1) to be maintained. Such provisions could be replaced with a more general requirement to ensure that separation distances are sufficient to ensure risks of death/injury and damage to surrounding property are minimised in an explosion in the manufacturing and storage facility. Such an approach could potentially allow required safety outcomes to be met at lower cost by enabling manufacturers to substitute expenditures on more secure buildings for expenditures on their land is needed to ensure the separation distances set out in the Australian Standard are maintained.

It should be noted that the proposed regulations, like the existing regulations, already contain significant process and performance-based elements. For example, the proposed regulations require all holders of a manufacturing licence have a safety management system (SMS). The SMS makes up the documentary evidence that a process of risk identification, risk assessment and risk control has been undertaken. This substantial element of 'process-based regulation' has effectively been adopted as a substitute for detailed, prescriptive regulation of safety related aspects of the manufacturing process.

Given the proposed regulations already contain substantial process and performance-based elements, the scope for the adoption of more performance-based regulation is somewhat limited in practice.

Expected costs of the alternative

WorkSafe believes the adoption of a stronger performance-based approach, including replacement of the current specification of separation distances, would be problematic due to the proposed regulations because of the public safety risks that explosives pose (including the potential for death, serious injury and property damage), and the consequent need to ensure, with a high level of confidence, that appropriate and adequate controls are put in place. In this context, WorkSafe believes there is a significant risk that enhanced reliance on performance-based standards would increase the risk of harm occurring due to failure to

correctly interpret and apply the performance-based standards. A likely corollary of this is that there would be a reduction in public confidence in the effectiveness of the regulations.

In many cases there are a limited variety of feasible means available for the control of those risks. Those means have been established through long professional and technical experience in Australia and internationally.

Comparison of expected benefits and costs

It is not possible to weigh the benefits and costs of this alternative in quantitative terms. In general, it should be noted that WorkSafe has, where feasible, endeavoured to make the proposed regulations more performance based than in the past. Where alternative approaches to risk management can be envisaged, the proposed regulations state the outcome to be achieved, leaving the means to be identified by persons and establishments taking account of their individual circumstances. The proposed regulations represent, in WorkSafe's view, the optimum mix of process-based, performance-based and prescriptive regulatory requirements, having regard to a range of factors including the capacities of the regulated parties, the need to maintain public confidence in the regulations and the need to promote national uniformity. A move toward a more performance-oriented regulatory alternative is less preferred than the proposed regulations.

7.2. Extend the licensing period to 10 years

A second alternative considered during the development of the proposed regulations was extending the licence renewal period from the current five years to ten years. While a 10 year licence renewal period is not common, there has long been precedent for such a renewal period in Victoria, with driver licence renewal periods having been set at 10 years since the 1980s.

Longer licence renewal periods necessarily reduce the administrative costs associated with the licensing scheme by reducing the number of renewals required to be undertaken over a given period. Particularly in the context of the Victorian government's *Reducing the Regulatory Burden* initiative (which is focused on achieving significant reductions in the total administrative costs of regulation), such an approach merits serious consideration.

Expected benefits of the alternative

The primary benefit of this alternative is in the reduction of administrative costs incurred by parties required to be licensed under the DG Act and the proposed regulations. An extension of the standard licensing period from the current five years to 10 years would necessarily reduce these administrative costs by 50 per cent, on the assumption the administrative requirements for licence renewal remained unchanged under such a scenario. As noted above, there are currently approximately 2100 licensees under the current regulations and this number is expected to remain approximately constant under the proposed regulations. Given the requirement for licences to be renewed at five yearly intervals, this implies approximately 420 licences are renewed, on average, each year. Adopting this alternative would reduce the average annual number of licence renewals by approximately 210.

The anticipated administrative costs savings to licensees would include the:

- implicit value of the time required to complete and lodge application forms for licence renewal, including obtaining and copying any required supporting documentation
- cost of undertaking any required practical examinations or other demonstration of competency as a condition of eligibility for renewal of the licence

- cash costs of licence fees payable to WorkSafe to recover the costs of processing the licence renewal application.

Due to the costing methodology used in this RIS, it is not possible to identify separately the administrative costs associated with renewal of each licensed site. An indicative estimate of the extent of the cost savings that would accrue under this alternative can be derived by predicting the reported average cost of preparing and submitting an application for a licence to use blasting explosives⁷³.

It was estimated that preparation and submission of this licence application required an average of one hour for completion, with the implicit value of this time being estimated at \$51.05. Therefore, a reduction of 210 per annum in the number of licence renewals required to be submitted would lead to a saving of 210 hours in staff time for licensees, with this time and being valued at:

$$\$51.05 \times 210 = \$10,720.50$$

Savings in licence fees would also be derived by licensees. The expected revenue from licence renewal fees under the proposed regulations has been calculated at approximately \$38,000 per annum. If a licence renewal period of 10 years were adopted in preference to the currently proposed five years, the expected revenue would decline by approximately 50 per cent, if it were assumed that licence renewal requirements would remain unchanged. Therefore the aggregate savings accruing to licensees due to reduced licence renewal fees would be approximately \$19,000 per annum. As licence fees have been set at a level intended to fully recover the direct costs of assessing and processing the licence applications, this reduction in fee payments by licensees would be reflected in an equivalent reduction in licensing administration costs incurred by WorkSafe.

Adding these two figures yields a total costs saving to licensees of approximately \$29,720.50 per annum. This is equal to approximately \$247,174 in PV terms over the expected 10 year life of the proposed regulations.

Expected costs of the alternative

The major cost potentially associated with this alternative is the longer licence renewal period may lead to a reduction in the degree of integrity of the licensing system (ie less regular updating of the licensed database and fewer opportunities to verify that licensees remain competent and appropriate persons to carry out the licensed activity).

In the case of explosives regulations, a longer licence renewal period may be associated with the following potential costs:

- skills may not be updated with changing work practices or in response to technological change
- there will be a higher risk that licence holders become medically unfit during the period of validity of their licences

⁷³ Note this is the most commonly issued licence, accounting for approximately 56 per cent of all licences issued under the explosives regulations.

- it would reduce WorkSafe's ability in planning, policy development and monitoring through less regular updates of their licensing data base
- it would increase the potential risk of fraud through less regular licence updates of photo identification and address information on high risk explosives including firework licences.

The combination of these factors would be expected to lead to some reduction in the effectiveness of the licensing system as a means of ensuring licensees are competent to operate in the explosives industry in the capacities to which they are licensed. As a consequence, some reduction would be expected in minimising explosives-related accidents and incidents.

A further consideration is that licences in excess of five years would be in conflict with moves to national uniformity in the regulation of the explosives industry. If Victoria moved to longer term explosive licences, it is possible other jurisdictions would not recognise Victorian licences. This would destroy one of the main benefits of national uniformity – the ability to work in other jurisdictions. The adoption of this alternative would also likely disadvantage large multi-state firms who would have to deal with different Victorian durations and perhaps assessment procedures.

A specific aspect of national uniformity is that a proposal to increase licence terms in Victoria would be inconsistent with the COAG response to the Productivity Commission's recommendation 10.2 for Chemicals and Plastic Regulatory Reform from its Report of July 2008 where it agreed, on the basis of National Security, to making licence durations nationally consistent for ammonium nitrate.

Comparison of expected benefits and costs

It is not possible to formally assess the incremental benefits and costs of this alternative in quantitative terms because the potential costs (in terms of reductions in the efficiency of the licensing system and impact on systems integrity) have not been able to be quantified. WorkSafe considers these costs are likely to outweigh the identified benefits.

As noted in Section 7.2.1, the PV of the expected benefits (ie the reductions in costs incurred by licensees) amounts to \$247,174 over 10 years. While this represents a significant proportion of reduction in the current administrative costs associated with the licensing system (estimated at approximately 50 per cent), this administrative cost reduction is small in absolute terms and, more importantly, it is extremely small in relation to the turnover of the explosives industry in Victoria. It is also arguable that a necessary corollary of the adoption of a longer licence renewal period would be some increase in the degree of stringency of the licence renewal processes that would be specified in the regulations. To the extent that it was found necessary to adopt such an increase in stringency, the actual benefits of moving to a longer licence renewal period would necessarily still be smaller than those identified. The practical size of the benefits of this alternative is believed to be very small.

Against this, the risks to the integrity of the licensing system of moving to a 10-year licence renewal cycle are believed to be significant. The adoption of a very long licence renewal period won't be appropriate for the explosives industry, particularly given the:

- potential for major disasters that inheres in aspects of the industry's operations
- increasing importance of security related concerns as a driver of regulatory approaches to the industry in recent years

- risk averse attitude the population has in relation to the operation of the explosives industry.

Given these factors, the alternative of adopting a longer licence renewal period is less preferred than the five-year renewal period in the current and proposed regulations.

8. CONCLUSION

Section 6 estimates the net costs of the proposed regulations as totalling \$2.0 million per annum, or \$18.1 million in PV terms over 10 years. Given the scale and scope of the regulations, as well as the scale of operations of the explosives industry, this can be considered an extremely modest regulatory cost figure. This reflects the substantial non-regulatory incentives for industry participants to maintain high standards of safety and security. The analysis has shown the gross costs incurred by industry participants in areas covered by the regulations are substantially larger than these net costs. The survey responses gathered for this RIS and the results of the focus group discussions also agree the extent to which the regulatory requirements cause expenditures to be made above the BAU level is relatively modest.

Despite the substantial non-regulatory incentives for good practice in the industry, the maintenance of a robust and stringent regulatory structure around the operations of the explosives industry is considered essential for a number of reasons.

There is a strong public expectation that governments will take a strong role in ensuring the risks of such catastrophic harms occurring are systematically minimised. Where risks of catastrophic harm exist, even at low probability levels, there is a strong argument that populations are risk averse in their preferences and are therefore prepared to accept relatively high costs in order to minimise risk level. In this context, it can be noted that the identified costs are equivalent to around 38 cents per annum per Victorian resident. This amount is considered by Worksafe to be well within the bounds of what residents would be prepared to pay in exchange for a high level of assurance as to the safety of the operations of the explosives industry.

While the regulation of the explosives industry has historically been focused on preventing harms from accidental occurrences, in recent years there has been increasing concern about safeguarding society from the potential for intentional misuse of explosives and explosives precursors. Aspects of the proposed changes to the current regulations (notably the requirements with regard to recording details of sales of explosives) are being adopted in response to these national security concerns. The rise of concerns regarding terrorist activity provide an additional and significant rationale for regulatory intervention in relation to the explosives industry.

It has not been possible to develop qualitative estimates of the expected benefits of the proposed regulations. This predominantly reflects two factors. Firstly, the explosives industry has been subject to substantial regulation in Victoria and Australia, as in all other developed countries, for well over a century. Consequently, there is little possibility of observing the 'counterfactual' situation of the performance of an unregulated explosives industry.

Secondly, to a substantial extent, the expected benefits of the proposed regulations relate to the avoidance of catastrophic harms which, by their nature, are events which have high consequences but low probabilities. Therefore even if it were possible to observe an unregulated or a less regulated explosives industry over a period, determining actual performance remains a substantial challenge.

Expected benefits cannot be quantified in dollar terms so alternative approaches to assessing whether the proposed regulations would be likely to yield net benefits must be adopted. One partial approach involves calculating a break-even analysis, based on the implicit average cost of a catastrophic incident of the type highlighted in Section 3.

The average cost of a catastrophic accident is estimated at more than 50 times the expected net cost of the regulations over the next 10 years (in PV terms). This implies the regulations would confer a net benefit if they were to reduce the probability of such a catastrophic accident occurring in Victoria by a factor of .002 (ie one major accident in 500 years)⁷⁴.

This simple calculus doesn't include other relevant factors, as listed below:

- It is implicitly based on an assumption of a risk neutral population, with respect to the prospect of such a catastrophic accident. In reality, it is apparent that populations generally exhibit a significant degree of risk aversion to risks of catastrophic harm, particularly when the nature and extent of the risk are little understood, and when there is little ability to control their own personal exposure to these risks. Taking this risk aversion into account further increases the probability that the proposed regulations will yield a positive net benefit.
- The calculus in the RIS refers only to the harms that may result from a catastrophic accident. Section 3 also discusses the potential for harms to arise from the activities of the explosives industry in contexts which fall well short of the definition of a catastrophic accident. While these accidents and incidents remained relatively rare in the current, highly regulated environment, the effect of the regulations in minimising these harms is also a significant benefit that should be weighed qualitatively in this context.
- All the catastrophic accidents listed in Table 3.13 were accidents; that is, they resulted from the accidental misuse of explosives. As discussed elsewhere, a secondary objective of the proposed regulations is to improve national security by minimising the prospect of explosives being misused intentionally (ie diverted to terrorist ends). While the potential benefits of acting in this area are impossible to quantify, it is clear the population places a significant value on effective government action in this area.

Given the above, it is believed these proposed regulations will confer a significant net benefit on society as a whole.

The proposed regulations have been assessed against two feasible alternatives: that of adopting a more performance-oriented regulatory approach and that of adopting a longer licence renewal period of 10 years, in preference to the proposed five year renewal period.

It was not possible to assess the first alternative in quantitative terms. Therefore a qualitative assessment was undertaken. It was noted that WorkSafe has endeavoured, where feasible, to make the proposed regulations more performance based than they have been in the past. Where alternative approaches to risk management can be envisaged, the proposed regulations state the outcome to be achieved, leaving the means to be identified by persons and establishments taking account of their individual circumstances.

The proposed regulations represent, in WorkSafe's view, the optimum mix of process-based, performance-based and prescriptive regulatory requirements, having regard to a range of

⁷⁴ However, the possibility was noted in Section 3 that the consequences of major accidents may be lower, on average, in developed countries due to better developed regulatory system. To the extent this is the case, this breakeven calculus would obviously be affected. That is, if it were considered the average cost of a serious accident was likely to be lower than \$1,048 million figure, the implicit reduction in the frequency of major accidents required to offset the costs of the proposed regulations would be somewhat greater than the one in 500 years figure cited in the text.

factors including the capacities of the regulated parties, the need to maintain public confidence in the regulations and the need to promote national uniformity. A move toward a more performance-oriented regulatory alternative was less preferred than the proposed regulations as it is believed likely to yield lower net benefits.

The alternative of adopting a longer licence-renewal period was, at least partly, capable of quantitative assessment. It was found that this alternative would entail costs that are \$29,720 per annum lower than those of the proposed regulations, equivalent to a saving of \$247,174 in costs over 10 years in PV terms. However, when compared with the expected costs of the proposed regulations of \$18.1 million over 10 years, this represents a modest saving of only around 1.4 per cent.

While it was not possible to assess the benefits of this option quantitatively, the key considerations were the risks to the integrity of the licensing system of moving to a 10-year licence renewal cycle. These are believed to be significant, particularly given the:

- potential for major disasters that inheres in aspects of the industry's operations
- increasing importance of security related concerns as a driver of regulatory approaches to the industry in recent years
- relatively risk averse attitude that the population is believed to take in relation to the operation of the explosives industry.

Given these concerns, it is considered likely that a necessary corollary of the adoption of a longer licence renewal period would increase the degree of stringency of the licence renewal processes that would be specified in the regulations. To the extent that it was found necessary to adopt such an increase in stringency, the actual benefits of moving to a longer licence renewal period would necessarily still be smaller than those identified above. The practical size of the benefits of this alternative, as they would be expected to be perceived by the industry, is believed to be very small.

Given these factors, the alternative of adopting a longer licence renewal period is less preferred than the five-year renewal period in the current and proposed regulations.

9. IMPLEMENTATION AND ENFORCEMENT

As the proposed regulations constitute a relatively minor updating of the current regulations, it is expected that existing approaches to implement and enforce the regulations will continue. WorkSafe is responsible for administering the proposed regulations and the regulations will be enforced by WorkSafe inspectors.

Licensing

Licensing constitutes a fundamental regulatory mechanism for the explosives industry and is applied to all significant industry participants. This will continue although some streamlining of existing licensing requirements is proposed.

The assessment of licence applications is fundamental to the implementation of the regulations in that it ensures the:

- competence and good character of all individuals applying for licensing can be assessed and reassessed at regular intervals
- suitability of manufacture and storage facilities can be assessed
- regulatory authority has a comprehensive and up-to-date database of industry participants to assist in its administration and enforcement functions.

Inspection activity

Inspectors are authorised under the DG Act to enter places⁷⁵ where the inspector reasonably believes there are dangerous goods.⁷⁶ Inspectors are also authorised to enter places where they believe there are containers, equipment, fittings, piping, appliances or other things that have been used, or are likely to be used, in connection with the manufacture, supply transfer, storage, transport, sale or use of dangerous goods; or for the import into Victoria of explosives. The DG Act provides inspectors with the power to inspect vehicles. An inspector may stop, detain, inspect, examine or move to a suitable place to inspect and examine any vehicle, ship or boat used, or that the inspector believes on reasonable grounds is being, or is likely to be, used for the transport of dangerous goods.

If there has been a breach of the DG Act or regulations, inspectors take action to ensure compliance. Action can include issuing improvement notices and non-disturbance notices and giving directions. In situations of immediate risk, inspectors issue prohibition notices to stop a dangerous activity until the risk is remedied (for more details on notices, see 'Notices by inspectors' on the next page). Inspectors also refer serious breaches for investigation by WorkSafe investigators that can lead to duty holders being prosecuted.

At 18 February 2010, WorkSafe had 206 inspectors appointed under the DG Act, including 9 that are deemed 'Explosives Authorised Officers'. This group are the only WorkSafe inspectors involved in the collection of explosives, disposal or transport of explosives to

⁷⁵ Place is defined in section 3 of the DG Act as including a vehicle, ship or boat.

⁷⁶ The power to enter places is limited in respect of a part of a place that is used only for residential purposes. Under section 16 of the DG Act, the powers of an inspector in relation to entering a place are not exercisable in respect of any part of a place that is used only for residential purposes except with the consent of the occupier for the time being of the place; or under the authority of a search warrant.

magazine storage.⁷⁷ Therefore explosives 'work' within WorkSafe is carried out by a group of inspectors who have undergone specialised training, are required to hold a licence authorising use of blasting explosives, and who must maintain their skills. Explosives authorised officers are based at WorkSafe's city, suburban, and regional offices.

From 18 February 2008 to 18 February 2010:

- inspectors conducted 605 visits
- there were 538 'explosives pick-ups'
- 62 notices were issued.

Compliance and enforcement policy

WorkSafe aims to improve workplace health and safety in Victoria through a combination of initiatives that balance 'encouragement' and 'deterrence'. These initiatives, such as a visible inspector presence and the risk of detection and, where necessary, provision of practical advice and information to help workplaces with compliance, are explained in WorkSafe's compliance and enforcement policy (available at worksafe.vic.gov.au).

WorkSafe inspectors are trained and instructed to provide practical advice and information to help workplaces with compliance. All inspectors have attained competency qualifications.

Notices by inspectors

Once an inspector has entered a place, they may issue three types of notices (outlined below) to help enforce compliance with the DG Act and its regulations. WorkSafe's compliance approach is that if an inspector observes a breach of the DG Act or regulations then, unless the risk can be controlled on the spot, a notice will be issued.

Non-disturbance notice

If an inspector believes it is necessary to exercise their powers, they may issue this notice that requires the occupier (or apparent occupier) of the place to stop the use, movement of, or interference with, any specified thing at the place; or prevent the disturbance of the thing or specified area of the place where the thing is located. This type of notice remains in force for up to seven days, but an inspector may issue subsequent notices for the same issue.

Improvement notice

May be issued if an inspector reasonably believes there has been a contravention or that a contravention may continue or be repeated. The notice must specify prescribed matters, including the basis for the inspector's belief; the provision of the DG Act (or the regulations) that has been, or is likely to be, contravened and a deadline for remedial action. An improvement notice may also include directions about how to remedy the breach.

Prohibition notice

⁷⁷ Collection of explosives, disposal or transport to magazine storage may either be done as a community service in relation to unwanted or abandoned explosives, or using inspector powers, seizing of explosives as evidence in relation to offences under the DG Act or the explosives regulations.

This notice is issued when an inspector reasonably believes there is an activity that may be an immediate risk. It prohibits the activity from continuing or being carried out in a specific way and may include directions on how to remedy the risk. It remains in place until an inspector has certified that the matters that give, or that will give, rise to the risk have been remedied. A prohibition notice must specify prescribed matters, including the basis for the inspector's belief; the activity the inspector believes involves (or will involve) the risk and the matters that give (or will give) rise to the risk; if the inspector believes that the activity involves a contravention (or likely contravention); the provision of the Act or the regulations; and a deadline for remedial action.

Penalties

Section 45 of the DG Act makes it an offence for a person to contravene any provision of 'this Act'. Section 3 of the DG Act defines 'this Act' to include the regulations.⁷⁸ So, any breach of a regulation for which no penalty is expressly provided is subject to the penalties set out in sections 45 (General) and 45A (Further penalties for subsequent offences).

Section 45A allows a further penalty to be imposed if the Court considers it appropriate to do so and if the convicted person has previously been convicted of *any* offence against 'this Act', (it need not be a breach of the same provision).

The section 45 penalties are:

- in the case of a body corporate, not more than 400 penalty units and a further penalty of not more than 50 penalty units for each day on which the offence continues after conviction, or
- in any other case, not more than 100 penalty units and a further penalty of not more than 10 penalty units for each day on which the offence continues after conviction.⁷⁹

The further penalties under section 45A are:

- in the case of an indictable offence —
 - if the person is a body corporate, not less than 50 penalty units and not more than 2500 penalty units, or
 - in any other case, not less than 10 penalty units and not more than 500 penalty units or imprisonment for not more than 5 years or both;
- in the case of a summary offence —
 - if the person is a body corporate, not less than 50 penalty units and not more than 400 penalty units, or
 - in any other case, not less than 10 penalty units and not more than 200 penalty units or imprisonment for not more than two years or both.

Section 46 states that if an offence committed by a body corporate is proved to have been committed with 'the consent or connivance of, or to have been attributable to any wilful neglect on the part of', an officer, or person purporting to act as an officer, of the body corporate, that person is also guilty of the offence and liable to the relevant penalties.

Section 47 permits a court to impose a prison term of not more than two years on any person found guilty of an offence against 'this Act' where the court believes that a financial penalty is inappropriate because the offence was 'dangerous' in that it 'endangered the safety of or caused personal injury to any member of the public or person employed in, on or about the premises, vehicle, boat, ship or magazine where such offence was committed, being premises or a vehicle, boat, ship or magazine in, on or in the vicinity of which there were dangerous goods' and the offence 'was committed wilfully by the act, default or negligence of the guilty person'.

⁷⁸ Section 3 also defines 'this Act' to include the register of classified explosives under section 54 and any orders made by the Governor in Council under section 55.

⁷⁹ A penalty unit is currently set at \$116.82 (as at 11 March 2010).

Finally, the DG Act permits forfeiture and disposal of items in certain circumstances and, under section 49, a court has the power to impose a further pecuniary penalty on a person in lieu of forfeiture, if it thinks fit.

Implementation activity

To raise awareness of the regulations and facilitate compliance with new or changed requirements, a number of implementation activities are planned by WorkSafe once the regulations have been made including:

- a promotional campaign directed at specific groups affected by the regulations and the associated changes, including direct mail outs to licence holders and information provided to councils for placement on their websites alerting community groups and individuals to the changes
- a number of public briefings are proposed to outline changes and give duty holders a chance to ask questions and clarify issues
- meetings with industry groups and associations affected by the regulations
- the development guidance material and information to assist duty holders to understand the new regulatory obligations.

10. EVALUATION STRATEGY

WorkSafe's Dangerous Goods Unit works closely with specific sectors of the explosives industry (such as high explosives, fireworks) to:

- monitor and ascertain how the regulations are working
- identify particular problems and areas of possible change
- develop guidelines, policies and related information material to help the industry meet their duties.

In the context of the implementation of the proposed regulations, evaluation will be particularly focused on the areas of substantive change to the current regulations. Monitoring will be undertaken to verify whether these proposed changes are operating in accordance with expectations and ensure any issues are identified in a timely manner.

11. ADMINISTRATIVE BURDEN ASSESSMENT

As a result of the Victorian government's 2006 *Reducing the Regulatory Burden* policy statement, all significant new administrative burdens created by legislation or regulation are required to be measured using a Standard Cost Model (SCM) methodology, established by the Department of Treasury and Finance. The results of this analysis are generally expected to be reported in the RIS in respect of proposed regulations that would impose significant new administrative burdens. As discussed elsewhere, the surveys developed and administered as the central element of the cost estimation process for this RIS are consistent with the SCM methodology.

Administrative burdens are defined as including all costs of gathering, storing and transmitting information to government that is required to be collected as a result of a regulatory provision. The review of the incremental costs of proposed changes to the current regulations indicates three changes, arguably, that can be regarded as involving additional administrative burdens. These are:

- requirements to record details of sales of most kinds of explosives
- extension of the requirement to prepare SMS to non-factory based manufacturers
- implementation of an explicit requirement to prepare blast management plans (BMP).

Conversely, there will be some reduction in administrative burdens as a result of:

- removal of approval requirements for ships with explosives cargo
- changes to threshold quantities of distress signals triggering licence requirements, which will mean smaller operators will no longer need to be licensed.

WorkSafe does not consider that the requirement for BMP and the extended requirement for SMS constitute administrative burdens as both of those instruments are safety measures. They are measures to ensure that persons using blasting explosives and persons manufacturing explosives, respectively, consider and address the risks associated with those activities. Consequently the BMP requirement and extended SMS requirement have not been included in this section of the RIS as administrative burden costs although the analysis in Section 6.2 quantifies the cost of these two regulatory requirements.⁸⁰

In respect of the requirement to record details of sales of most kinds of explosives, the administrative burden has been quantified in Section 6.2 as follows:

- recording sales details: \$0.3 million in PV terms over 10 years, or approximately \$40,000 per annum on average.

Therefore the total cost of new administrative burdens being imposed is \$0.3 million in PV terms over 10 years. This is equal to around \$40,000 per annum, on average. This falls significantly below the \$250,000 per annum threshold set by the Government in respect of material increases in administrative burdens and so does not trigger a requirement for a formal SCM assessment of these burdens.

⁸⁰ Extension of SMS duty equates to \$0.3m in PV terms; BMP requirement is estimated at \$0.4m in PV terms over 10 years. Hence including BPM and SMS requirements does not affect the conclusion that the estimated administrative burden of the regulatory proposal is significantly below the Government threshold of \$250,000 per annum.

These increases in administrative burdens will also be partially offset by the reductions in administrative burdens in the two areas noted above. Note: It has not been possible to quantify these expected reductions.

The net impact of the proposed regulations will increase administrative burdens to a small extent, estimated at less than \$1.8 million in PV terms over 10 years.

12. CONSULTATION

Despite the relatively limited substantive changes being made to the current regulations, a wide range of stakeholders were consulted during the course of the development of the proposed regulations.

Stakeholder engagement started in late 2008 and WorkSafe engaged with stakeholders in a number of ways. Notice of the review was communicated via a notice on the WorkSafe website, emails to peak body stakeholders, and articles in WorkSafe's electronic newsletters. An email address was established where enquires about the review could be sent and presentations to both unions and employer associations were conducted through WorkSafe's Stakeholder Reference Groups. Meetings were held with key stakeholders, including a meeting in March 2009 to get views on the operation of the current regulations and areas for improvement; and a meeting in August 2009 to provide an update and seek views on key policies (see Appendix 3 for more detail on stakeholder engagement during the development of the proposed regulations).

Focus groups with relevant stakeholders were also convened to discuss specific aspects of the regulations and a survey was distributed to get information on the costs of compliance with the current regulations and the expected incremental cost of moving into compliance with the proposed regulations. Details of the focus group processes undertaken and the administration of the survey are included in Section 6.1. Additional detail on the focus groups is in Appendix 3, while a copy of the survey distributed to industry participants is in Appendix 4.

An additional survey of a sample of licensed pyrotechnicians was undertaken in September 2010. The survey specifically sought additional information in relation to the proposed changes to notification requirements for firework displays and the removal of the 14 day temporary storage concession for pyrotechnicians.

WorkSafe also undertook visits to medium scale storage licence holders between September and November 2010. The purpose was to gather additional information on the impact of the removal of the medium scale licence.

The consultation processes undertaken, including the informal consultations, focus groups and the survey processes, have demonstrated that stakeholders are generally supportive of both the current regulations and most of the specific changes in the proposed regulations. Further details on views expressed by stakeholders can be found in Section 6, with the views of particular stakeholder groups being elaborated separately.

The next stage of the consultation process will be conducted following the release of this RIS. Consultation comments will be received for 30 days following the publication of the RIS. These comments will be taken into account prior to the finalisation of the proposed regulations.

13. STATEMENT OF COMPLIANCE WITH NATIONAL COMPETITION POLICY

The National Competition Policy Agreements (NCPA) set out specific requirements with regard to all new legislation adopted by jurisdictions that are party to the agreements. Clause 5(1) of the Competition Principles Agreement sets out the basic principle that must be applied to both existing legislation, under the legislative review process, and to proposed legislation:

The guiding principle is that legislation (including Acts, enactments, Ordinances or Regulations) should not restrict competition unless it can be demonstrated that:

- (a) The benefits of the restriction to the community as a whole outweigh the costs, and*
- (b) The objectives of the regulation can only be achieved by restricting competition.*

Clause 5(5) provides a specific obligation on parties to the agreement with regard to newly proposed legislation:

Each party will require proposals for new legislation that restricts competition to be accompanied by evidence that the restriction is consistent with the principle set out in sub-clause (1).⁸¹

Accordingly, every RIS must include a section providing evidence the proposed regulatory instrument is consistent with these NCP obligations. The recently released OECD Competition Assessment Toolkit⁸² provides a checklist for identifying potentially significant negative impact on competition in the RIA context. This is based on the following three questions:

- does the proposed regulation limit the number or range of suppliers?
- does the proposed regulation limit the ability of suppliers to compete?
- does the proposed regulation limit the incentives for suppliers to compete vigorously?

According to the OECD, if all three of these questions can be answered no, it is unlikely the proposed regulations will have any significant negative impact on competition.

The proposed regulations do not limit the number or range of suppliers, the ability of suppliers to compete or the incentives for suppliers to compete vigorously. The stricter storage requirements being applied to participants in the fireworks industry may have implications for the ability of some firms to remain in business at their current premises and could therefore have an effect on their ability to compete. However, this impact is not expected to be widespread and not expected to have any material impact on competition in the market for fireworks as a whole.

Consequently, the regulations are considered to be fully compliant with the NCP agreements.

⁸¹ Clause 5, Competition Principles Agreement, 11 April 1995 accessed at www.ncc.gov.au/pdf/PIAg-001.pdf

⁸² See *Integrating Competition Assessment into Regulatory Impact Analysis*. OECD, Paris, 2007. (DAF/COMP(2007)8).

APPENDIX 1: ABBREVIATIONS

The main abbreviations used in this RIS are listed below.

AEC	<i>Australian Code for the Transport of Explosives by Road and Rail</i> (also know as the Australian Explosives Code)
AN	ammonium nitrate
BAU	business as usual
BMP	blast management plan
current regulations	Dangerous Goods (Explosives) Regulations 2000
COAG	Council of Australian Governments
DG Act	<i>Dangerous Goods Act 1985</i>
HCDG	high consequence dangerous goods
HCDG Regulations	Dangerous Goods (HCDG) Regulations 2005
OHS Act	<i>Occupational Health and Safety Act 2004</i>
OHS Regulations	Occupational Health and Safety Regulations 2007
PV	present value
proposed regulations	Dangerous Goods (Explosives) Regulations 2011
RIS	Regulatory Impact Statement
RTO	Registered Training Organisation
SMS	safety management system
Transport Regulations	Dangerous Goods (Transport by Road or Rail) Regulations 2008
VSL	value of a statistical life
WorkSafe	WorkSafe Victoria

APPENDIX 2: COMPARISON OF LICENCE TYPES UNDER THE CURRENT AND PROPOSED EXPLOSIVES REGULATIONS

Current (2000) Regulations	Proposed (2011) Regulations.	
Licence	Proposed Licence	Characteristics of Proposed Licence
Licence to manufacture explosives at a factory	Licence authorising manufacture of explosives	<ul style="list-style-type: none"> • The licence will authorise the type of manufacture activity. The activities that can be authorised align with the four manufacturing licences specified in the current regulations. • In relation to manufacture at a factory, there are two other authorisations that may be included under the coverage of the licence for no additional fee. These are: <ul style="list-style-type: none"> ○ Storage at the site of manufacture ○ Sell or import • For all manufacturing other than at a factory there are no optional endorsements. • In respect of a MMU, there will be one licence per vehicle. (This carries over the current situation with respect to licensing of MMU.)
Licence to manufacture explosives with a mobile manufacturing unit (MMU)		
Licence to manufacture an explosive mixture at a central mixing point or other place at point of application or use		
Licence to fill or cap safety cartridges at a place other than a factory		
Licence to sell explosive	Licence to sell or import explosives	<ul style="list-style-type: none"> • Licence will authorise a person to either sell, or import explosives. • An optional authorisation will be available allowing a licensee to both sell and import explosives • If the licence authorises both sell and import an additional 35% fee will be charged • Licence will allow limited storage and limited transport.
Licence to import explosives		
Licence to store explosives at a medium scale storage facility	Licence to store explosives	<ul style="list-style-type: none"> • Licence will authorise a person to store explosives over a prescribed amount. The prescribed amounts that trigger a storage license are, for the most part, higher than those that triggered a medium scale licence under the current regulations. • As with the current magazine licence, licence holders in the proposed storage category will be required to adhere to the storage requirements in AS 2187.1 • Medium scale storage licenses will be discontinued • Quantities below prescribed amounts do not require a specific storage licence, but a person would be required to hold a licence allowing them to possess the explosives (e.g licence to use blasting, licence to sell etc) • Available optional authorisations include authorisation to sell or import explosives, this would attract an additional fee of 35% of a fee for a licence authorising a person to sell/import explosives.
Licence to store explosives at a magazine		

Licence to transport explosives by road	Licence to transport explosives by road	<ul style="list-style-type: none"> • The licence will authorise a single vehicle for the transport of explosives over a prescribed quantity. This is different to the current licence approach, which covers a fleet of vehicles. • Transport of amounts below prescribed quantities may continue to be done in an unlicensed vehicle under the coverage of another license (e.g licence to use blasting) • No optional authorisations.
Licence to transport explosives by rail	Licence to transport explosives by rail	<ul style="list-style-type: none"> • The licence will authorise a person to transport explosives by rail. • Unchanged – it is effectively an operator licence. • No optional authorisations.
Licence to drive a vehicle transporting explosives	Licence to drive a vehicle transporting explosives	<ul style="list-style-type: none"> • The licence will continue to authorise a person to drive a vehicle transporting explosives. • Unchanged - both the existing and proposed licence relates to driving a road vehicle. • No optional authorisations.
Licence to use blasting explosives	Licence to use blasting explosives	<ul style="list-style-type: none"> • Unchanged- the licence will continue to authorise a person to use blasting explosives. • The types of blasting explosives and activities under the cover of the licence continue to be authorised on the licence. • This licence will continue to authorise limited storage and limited transport. • The licence will continue authorise limited manufacture of ANFO (up to 50kgs) for the licensees own use, providing that the licence authorises the use of ANFO • No optional authorisations.
Pyrotechnician's licence	Pyrotechnician's licence	<ul style="list-style-type: none"> • This licence will continue to authorise a person to use fireworks • The types of fireworks and activities under the cover of the licence will continue to be an authorisation on the licence. • This licence will continue to authorise limited storage and limited transport. However, a key change is that the proposed regs remove a pyrotechnicians ability to store large quantities of fireworks temporarily for 14 days without a storage licence. • No optional authorisations
Licence to discharge Chinese firecrackers on a single occasion	No equivalent licence	<ul style="list-style-type: none"> • Single occasion licences are to be discontinued.
Licence to discharge theatrical fireworks on a single occasion	No equivalent licence	<ul style="list-style-type: none"> • Single occasion licences are to be discontinued.

1. Note an additional fee of 35% will be charged for each optional authorisation on, or amendment to a licence.
2. Note limited storage means the storage of explosives in quantities below the prescribed quantities that trigger the requirement for a licence authorising storage
3. Note limited transport means the transport of explosives in quantities below the prescribed quantities that trigger the requirement for a road vehicle to be licensed under the Regulations.

APPENDIX 3: STAKEHOLDER ENGAGEMENT DURING THE DEVELOPMENT OF THE PROPOSED REGULATIONS

- 10 December 08 Email sent to the liaison contacts on the Union Stakeholder Reference Group and Employer Stakeholder Reference Group. Email advised that WorkSafe had commenced a project to review the current regulations and provided a WorkSafe contact. Broadly outlined opportunities for stakeholder participation and flagged that a notice would be placed on the WorkSafe website advising of the start of the reviews.
- January 09 Notice placed on WorkSafe website advising of the review of the regulations. Notice provided a link to email address where enquiries about the review could be sent.
- February 09 Stakeholder Reference Group meetings – presentations to the Employer Stakeholder Reference Group and the Union Stakeholder Reference Group meetings. Presentations informed members of the review and outlined key steps and issues identified in preliminary analysis.
- 5 March 09 Notice of the review was placed in WorkSafe’s ‘Safety Matters’ (now called The Safety Express), a fortnightly electronic newsletter for manufacturing, logistics, agriculture and retail. Notice provided a link to the email address where enquiries about the review could be sent.
- 20 March 09 Notice of the review was placed in WorkSafe’s ‘Safety Soapbox’, a weekly electronic newsletter for construction, utilities, mining and quarrying. Notice provided a link to the website page.
- 23 March 09 **Stakeholder meeting** – the main aim of this meeting was to get early feedback from key stakeholders on how the current regulations were going and their views on areas for improvement.
Representatives from the following organisations attended: Australian Institute of Mining and Metallurgy, Central Victoria; Australian Pyrotechnics Association; Construction Material Processors Association; Hanson; Mineral Council of Australia; Prospectors and Miners Association of Victoria; Victorian Congress of Employer Associations; and Victorian Trades Hall Council (VTHC).
- 21 May 09 **Emergency Services stakeholder meeting** – this meeting was to get their views on the operation of the existing regulations and their issues. Meeting focused on Metropolitan Fire and Emergency Services Board (MFB) issues with provisions relevant to fire authorities – emergency plans and the role of fire authorities in their development and implementation, plus indoor pyrotechnics.
Members of the MFB and a representative of VTHC attended.
- 17 June 09 **Municipal stakeholder meeting** – A meeting was held to discuss the fireworks part of the explosives regulations – main point of discussion was the notification time for intended fireworks displays.
Representatives from the Municipal Association of Victoria (MAV), the City of Melbourne and the City of Bendigo attended.
- 3 August 09 **Stakeholder meeting** – This meeting was to inform stakeholders of progress with the review and get stakeholder feedback on proposed policy positions and proposed changes to the regulations. Prior to the meeting a summary of the proposed main changes and summaries of key policy papers were circulated to participants.
Representatives from the following organisations attended: Cemex;

- Country Fire Authority Victoria (CFA); Metropolitan Fire and Emergency Services Board (MFB); Plastics and Chemicals Industry Association (PACIA); Port of Melbourne Corporation; Pyrotechnics Industry Association of Australia (PIAA); Victorian Congress of Employer Associations (VCEA); and Victorian Trades Hall Council (VTHC).
- 22 September- 6 October **RIS focus group meetings** - These meetings were to inform stakeholders about the proposed regulations and gather information about potential impacts associated with the regulations. Seven meetings were held with the following groups: manufacturers, users, fireworks users, port operators, mining companies, police, local councils and community groups.
- Representatives from the following organisations attended: Victoria Police; Brimbank City Council; Chinese Youth Society of Melbourne; Bendigo Chinese Association; Ethnic Communities Council of Victoria; and a number of individual explosives and fireworks users.
- December 09 – January 10 **Contacted existing licensees for additional data** – A number of licence holders were contacted to obtain additional information and data to supplement the data obtained through the focus group and survey processes.
- September 2010 **Survey sent to pyrotechnicians-** A survey was sent to a sample of licenced pyrotechnicians requesting information on the impact of the increase of notification times and the removal of the 14 day storage concession.
- September- November 2010 **Visits to medium scale storage licence holders-** WorkSafe visited a sample of medium scale licence holders to gather more information about the impact of removing the medium scale licence.

APPENDIX 4: SUMMARY OF FOCUS GROUPS CONDUCTED

Introduction

To assist in the consultation program and the development of the RIS, a number of focus group meetings were held for each sector of the explosives industry, namely manufacture, use, sales, imports, fireworks and transport. There was no focus group specifically dealing with storage as this issue was relevant to all sectors of the industry and, in particular, the fireworks sector. Victoria Police were also consulted about proposed changes including changes to sales record requirements to address security concerns, as were local councils on issues of concern and Chinese associations on fireworks issues.

The objectives of the focus groups were to:

- gather information from duty holders about the costs and benefits of the regulations and discuss possible impacts of proposed changes to the explosive regulations
- check the position of duty holders on achieving compliance with the amended explosive regulations
- explain the surveys and data required for the preparation of the RIS
- determine if duty holders were able to break down their costs of compliance to the level required in the industry surveys.

Focus group 1: Manufacturers

Three of the four companies holding manufacturer licences were represented at the focus group. Key comments included:

- the proposed changes to the regulations were generally supported
- the key benefits of the proposed changes to the regulations will be improved ease of use and increased safety
- the continuation of the five year renewal period was supported. The manufacturers supported common licence renewal dates but WorkSafe noted this was difficult in some areas given the need for police checks at two levels of government and the administrative costs of common renewal dates for all firms given different starting dates
- manufacturers were comfortable with record keeping requirements being extended beyond blasting explosives and considered this to be appropriate as a response to persistent security concerns
- when questioned about whether any of the proposals would force stakeholders to change their current practice, stakeholders responded they currently adhere to best practice. Stakeholders considered the proposed regulations provided increased regulatory clarity
- stakeholders supported the increased referencing of Australian Standards (Standards) and considered that increased referencing of them would simplify compliance. Stakeholders also noted that as firms tried to comply with a number of Standards depending on what state they worked in, the adoption of them by WorkSafe would lead to lower operational costs.
- it was considered the proposal to mandate blast management plans would be a reflection of current industry practice. It was pointed out that smaller scale operators may not be used to developing blast management plans and this could lead to increased operating costs. However, it was considered the costs associated with blast

management plans would reflect the size of the job and that a standardised approach to smaller blasts could be developed by the industry

- stakeholders supported the proposal to set up an RTO based competency recognition as a pathway to a licence. They considered this likely to provide enhanced flexibility to tailor training
- stakeholders raised the issue of high turnover in the industry and associated costs regarding licensing staff. It was noted by the stakeholders that this is a business cost and the proposed regulations won't increase or decrease this burden
- stakeholders raised the issue of provisions covering persons under the influence of drugs and alcohol. It was noted there was no real change in the substance of the regulation proposed. Stakeholders were comfortable with the new wording and thought it was an industry task to determine the risk to production given the powers in the regulation and that it is not a regulatory matter as such.
- stakeholders indicated they were able to provide the detailed costing data required by the surveys for the development of the RIS while others were less certain
- stakeholders supported a licensing scheme that would allow for ease of mutual recognition across Australia. It was noted that mutual recognition was not the same as national uniformity and the best outcome was one licence that was issued as Australia-wide because mutual recognition has some administrative costs.

Focus group 2: Users

Two stakeholder firms were represented at this focus group. Key comments included:

- development of a blast management plan was done as a matter of course for most firms and was good industrial practice. There was concern about the potential for costs to go up due to the increased record keeping that would be required to prove the duty had been met. However, users appreciated the need for the management plan to be linked to the size of the explosion
- registering as an RTO was considered to be expensive, with these costs prohibiting many from following this approach. Once stakeholders were made aware the proposed RTO is proposed to be able to provide training through an existing RTO, stakeholders considered this approach to be appropriate
- the main start-up costs under the current regulations included purchasing land that is large enough to accommodate safety distances, building storage, and provide security.
- current licensing costs of approximately \$500 per five years were not considered to be too expensive. WorkSafe noted that fees would be reviewed in the RIS and cost recovery was a government objective
- in the absence of any regulation, firms stated they would adhere to AS2187.1 *Explosives - Storage, transport and use - Storage*. They believed the regulations generally had minimal compliance costs
- in relation to the initial proposal to increase the notification period to 21 days, stakeholders considered this may impact on the ability for pyrotechnicians to provide for theatrical displays for smaller events (eg weddings). For larger displays it was considered 21 days would not be too much of an issue. Stakeholders suggested 14 days may be more appropriate. [NB: the proposed extension to notification times has now been changed to 10 working days, which is consistent with this suggestion].

- the removal of the medium scale storage category may impact some duty holders, and that consideration should be given to allowing temporary medium scale storage
- stakeholders did not consider there would be much impact in relation to the proposal to remove the ability to transport (over a certain threshold) explosives under a use licence.

Focus group 3: Fireworks licence-holders

Stakeholders representing 11 fireworks licence holders attended this focus group. Most comments related to the issues of the proposed 21 day notification period, proposed notification of testing, and proposed changes to storage requirements:

21 days notification

- the initially proposed 21 days notification was considered to be excessive. Stakeholders argued that for indoor events, this would have a big impact on profitability. Stakeholders pointed out that many of their indoor customers decide at the last minute to have a display and 21 days notification could potentially mean large business loss
- one stakeholder said large international concerts will often hold off organising a pyrotechnician display until they have sold enough tickets so a display at short notice would not be possible
- stakeholders were not as concerned with 21 days notification for outdoor displays because local councils often had longer amenity related notice periods
- there was no fundamental concern with a notification for theatrical fireworks, the issue was really to do with the time. Stakeholders thought keeping the current notice period of seven days would be better for the industry
- stakeholders argued that if longer notifications were required for theatrical displays customers would probably look for someone who was willing to do it illegally and this could have a negative impact on safety.

Notification of testing

- stakeholders considered this requirement should vary depending on what is being tested and in what quantities as the proposed arrangements may be unduly stringent in relation to smaller quantities.

Storage

- stakeholders considered the proposed removal of an exemption that allows 14 days temporary storage of explosives could have a very large impact on small scale pyrotechnicians.

Focus group 4: Mining

Four firms were represented at the focus group relating to the use of explosives in the mining industry. Key comments included:

- in relation to the proposed requirement to undertake a safety management system, stakeholders pointed out that a safety management system was already required under the mines regulations and this may lead to an overlap
- stakeholders didn't consider the proposal to rely on the Australian Standard for quantities above 'small' in relation to storage would affect them, as they already operate magazines that comply with the Australian Standards

- concerns were raised about the proposed removal of existing concessions allowing holders of other licences to drive explosives transports without holding a transport licence and committed to giving more detail about the expected impact through the survey
- stakeholders noted their vehicles for transporting explosives already complied with the Australian Standard requirements for transports of explosives
- concerns were raised about the quality of the VET sector in relation to training for the mining industry in the context of the proposed move to an RTO based training system
- the explicit requirement to prepare a blast management plan would not affect stakeholders as this is standard industry practice.

Focus group 5: Police

Two representatives of Victoria Police attended this stakeholder group. Key comments included:

- greater reliance on Australian Standards for technical requirements is a positive move that will make the regulations more streamlined and should reduce regulatory inconsistencies between states
- in relation to the proposal to exempt firearms licence holders from need for a storage licence for up to 50kg of propellant, police considered that 50kg was a substantial amount that could be used to manufacture pipe bombs but did concede they have not had specific security problems arise to date.
- the proposed requirement to keep a record of sale for classes of explosives other than blasting (including propellant) is considered a positive move
- proposed changes to existing transport provisions relating to 'one licence, one vehicle' and the requirement for all explosives to be transported in a licensed vehicle by a licence holder (except under certain circumstances) were supported
- the proposed requirement to develop a blast management plan (BMP) was supported. Police considered there should perhaps be a further duty that a BMP should be documented and kept for stakeholders present.

Focus group 6: Local councils and Chinese associations

Five representatives of these groups attended this focus group. Key comments included:

- there were no concerns about the proposed removal of the single use licence
- stakeholders pointed out that Chinese firecracker displays are more localised than large displays and should not be subject to the same notification requirements
- restaurants and other clients in Melbourne City may not know they are going to have an event 21 days in advance during busy periods such as Chinese New Year. Which meant the proposed extension of notification times for fireworks displays could be a problem.
- in this context, an increase in the notification requirement to 21 days may result in clients shopping around for unscrupulous operators who are prepared to break the law and hold a Chinese firecracker display without notification.
- lighting Chinese firecrackers is a culturally significant activity and requiring 21 days notice is likely to limit their ability to use crackers for cultural purposes

- stakeholders questioned whether it was possible for groups that meet certain criteria to be exempt from the 21 days notification during certain periods (eg Chinese New Year). Note: It was pointed out there was provision in the current regulations for an exemption under extenuating circumstances and there is no proposal to change this
- a stakeholder from a local council considered the change to a 21 day notification requirement would be beneficial from the council perspective.

APPENDIX 5: COPY OF SURVEY DISTRIBUTED TO AFFECTED FIRMS

Survey

Compliance cost estimation

Dangerous Goods (Explosives) Regulations 2011

1.0 Introduction

WorkSafe Victoria is reviewing the current Dangerous Goods (Explosives) Regulations 2000, which will expire in 2010. New regulations will be made prior to this time and will remain in place until nationally uniform regulations are adopted.

Jaguar Consulting has been contracted to write the required Regulatory Impact Statement (RIS) for the proposed replacement regulations. The attached survey seeks information on regulatory compliance costs and covers both the existing regulations and the proposed changes. The data collected will assist us in completing the RIS for the proposed regulations. The RIS will be released for public consultation and responses received will assist WorkSafe in determining the final form of the proposed regulations.

Please complete the following survey and submit it to us by email (Part 1 –Tables 1a and 1b and Part 2). Before submitting your response, please contact us by phone if you need to discuss any questions or have any concerns with the survey (see contact details below). You will also be invited to participate in a focus group meeting, at which issues relating to the costs and benefits of the regulations will be discussed in detail. You will be given the opportunity to revise your survey response after the stakeholder forum and submit this revised version. Please note that all survey responses will be treated confidentially. Responses will be used to calculate average costs and aggregate cost estimates only. No identifying material will be released.

Where compliance activities are undertaken internally, please estimate the *amount of staff time* required to complete the task⁸³. However, where cash costs are incurred (ie in purchasing equipment or professional services), we ask you to estimate these dollar costs. The survey asks you to identify the costs associated with individual regulatory requirements. Where this is not possible, please provide aggregate estimates of the costs of a particular set of tasks. Where the precise costs of compliance with a regulatory requirement are unknown, please provide a range within which you believe these costs fall. In such cases, please also provide a comment explaining the problems that arise in attempting to estimate compliance costs.

We request that you:

- estimate these costs on the basis of your historical experience in undertaking your obligations under the current regulations (ie that a new entrant to the industry would

⁸³ The RIS will multiply the average time estimates by an hourly rate comprising average weekly earnings plus a percentage for overhead to estimate total costs. This method has been specified by the Government as a standardised approach required to be used by all regulatory agencies. If you believe that the average wage cost of staff involved differs from average weekly earnings, please indicate this in your response.

face). This is represented by the column entitled 'Cost of reaching initial compliance' in Part 1 (Tables 1a and 1b)

- identify clearly the main areas in which the regulations require you to act differently from what normal 'business as usual' requirements would imply and to estimate these additional costs. To simplify this task, it could be provided in terms of a percentage decrease on business as usual costs. This is set out in the Column entitled "business as usual in Part 1(Tables 1a and 1 b) of the survey
- estimate the costs of remaining compliant with the regulations – ie the costs of reviewing and revising risk assessment, the costs of record-keeping and the costs of licence renewal processes. This is set out in the Column entitled 'Cost of remaining complaint' in Part 1 (Tables 1a and 1 b) of the survey.
- Part 2 of the survey summarises the main changes WorkSafe currently expects to make to the existing regulations and seeks your view on the likely changes in compliance costs that will result from such changes. Thus, we ask you to specify which costs are 'one off' and which are ongoing costs and to indicate the frequency with which ongoing costs are incurred. Where capital costs are incurred, please highlight these separately and estimate the expected life of the capital item in question.

Where a particular aspect of the regulations is not relevant to your operations please mark this clearly as 'NA' in the survey.

We would like, firstly, to understand the full costs of complying with the existing regulations, as faced by a new entrant to the industry. However, we need also to understand the ongoing costs of compliance. Thus, the survey asks you to specify which costs are 'one off' and which are ongoing costs and to indicate the frequency with which ongoing costs are incurred. Where capital costs are incurred, please highlight these separately and estimate the expected life of the capital item in question.

Finally, we seek general comments on your experience in complying with the regulations after Table 1b with a series of question on the benefits of the regulations. In this section, we are seeking comments on issues arising from the regulations themselves, rather than matters of regulatory administration. These comments can also include your views on how the regulations could be improved. These comments will assist us in providing a broader view of regulatory benefits and costs in the RIS context.

Problems/queries

For assistance with any problems or queries in completing the survey, please contact Mr Geoff Towns, Jaguar Consulting Pty Ltd. [ph: 9571 3278, mob: 0405 122 541, email: geoff.towns@bigpond.com]

2.0 Structure of the Firm

2.1 Table 1: Introduction: characteristics of your Firm

Business name	
Contact name and details	
Approximate turnover (FY 2007/08)	
What is your particular ASIC classification?	
Are explosives central to your company's operations?	

What is the nature of your business eg manufacturing, supply, sales, use (mining, other and fireworks), imports and transport (vehicle, train or ship)? Please provide details.

2.2 Table 2: Licence currently used

Please indicate in Table 2 below which licenses your firm currently holds.

Table 2: Summary of current licensing arrangements

Current licensing areas	Tick boxes for licenses currently utilised
Licence to manufacture explosives at a factory	
Licence to manufacture an explosive mixture at a central mixing point or other place near the point of use	
Licence to manufacture explosives in a mobile manufacturing unit	
Licence to fill and cap safety cartridges	
Licence to store explosives in a magazine	
Licence to store explosives in a medium scale storage facility	
Licence to transport explosives by road ^{SS}	
Licence for a driver to transport explosives by road	
Licence to transport explosives by rail ^{SSS}	
Licence to sell explosives	
Licence to use blasting explosives	
Licence to use fireworks by a pyrotechnicians	
Licence to import explosives	

2.3 Table 3: Standards Currently Used

Please indicate in the box below which Australian standards you use in your firm?

Standards used

Tick box for standards used

AS 2817.1

AS 2817.2

AS 2187.4

AS 3846

Other (please specify)

3.0 Cost areas to be analysed

Not all the survey needs to be completed by every type of firm and you should only complete that section that corresponds to the licences your firm has. For example, a manufacturer that supplies and sells wholesale need only complete the relevant sections on manufacturing and supply and a transporter of explosives by road is only required to fill in the relevant parts of the surveys.

There are two surveys in Part 1 of the survey on the compliance costs of the current regulations with the first part on the capital related compliance costs (Table 1a) and the second part on the license and administration compliance costs (Table 1b) while Part 2 deals with the compliance costs of the proposed changes to the explosive regulations.

Compliance cost of the current regulations

There are a number of the compliance costs of regulation which includes the direct compliance costs and the indirect costs of compliance. The direct costs include those imposed directly by the regulations including the building, storage, signage and the costs of licensing. The indirect costs include those imposed by the Act or by general regulations governing explosives that apply to premises which are required to be licensed.

3.1 Part 1 - Capital costs (Table 1a)

- This area includes the capital cost of construction of magazines and other storages for explosives required by the regulations, purchase of vehicles to transport explosives, modifications to mix explosives at the place of use, and the costs of signage and placarding and equipment to monitor the impact of blasting.
- While many of these costs have already been incurred the cost of replacements and maintenance remain and these should be recorded as the costs of regulation. Following the 2000 Explosives RIS the industry asset lives were provided by the industry and are set out below. Such an assumption is required to determine asset replacement in this RIS over the term of the 2010 regulations. Please indicate if there are any major capital upgrades likely to occur during the period 2010 to 2020 and whether the asset lives used are different from those detailed below.

Buildings	20 years
Vibration meters, fire protection equipment	10 years
Machinery for mixing explosives	10 years
Signs/placards on vehicles, ships and berths	5 years
Sales documentation systems	5 years
Receptacles for medium storage	5 years
Ancillaries (eg brooms, shoe covers)	3 years
Protective clothing	3 years

- You need to be careful about reporting costs that should only relate to the direct and indirect costs of explosives regulation and where for example the costs of buildings or storages are included these should only relate to the proportion to which they are used for explosives and are required by the regulation.

3.2 Part 1- Administration and licence related costs (Table 1 b)

- This area covers licence related costs such as licence renewals and administration costs such as the revision/updating of safety management plans for factories and emergency plans. Respondents should indicate the frequency at which such plans are updated and whether they are based on 'generic' or firm own design plans. You also need to separately include any costs of ongoing training to ensure staff can comply with the regulations.

Part 1: Cost of compliance with existing explosive regulations

Note: Where there are other compliance costs not listed below that you believe have a substantive cost, please note this in your response and provide the relevant data in tables 1a or 1b below. Please expand the boxes to the level necessary for the answers.

This survey requests you to detail what the new entrant costs would be for the type of firm in your industry. Again as set out above in the case of the current regulations the costs of the new entrant in each of the industry sectors will include both capital and licence related costs and is included in the column marked 'Cost of reaching initial compliance'.

Another area to be surveyed is the issue of the joint case of safety and business expenditures. Safety in a firm is often produced (either as the main objective of as a by-product) with many other business initiatives. For example, employers may invest in safety to improve the productivity of the workforce, to reduce worker compensation costs, to improve worker satisfaction or for expansion needs. Three types of investments can be considered in the area of safety investments:

- investments directly related to safety which also covers regulatory required costs and which may have productivity benefits
- investment designed to reduce accident compensation costs (which may entail productivity benefits if the same output value is produced with lower costs) which will also have important safety outcomes if the investment is successful
- investments designed to increase productivity (by producing more output values for the sale cost or reducing the cost of a given output) which may also have safety outcomes.

Such impacts would need to be subtracted from the 'gross compliance costs' to come to a more valid view of the actual compliance costs of regulation and this estimate is requested in survey in the column marked 'business as usual'..

Part 1 - Table 1a – Compliance costs of capital expenditures

	Cost of reaching initial compliance	Cost of remaining compliant ⁸⁴	Cost increase over 'business as usual' (\$ or %)
(Capital costs) Duties applying to			

⁸⁴ Please indicate the frequency with which costs are incurred where possible.

<p>manufacture.</p> <ol style="list-style-type: none"> 1. Buildings for the making of explosives and for capping or filling safety cartridges (Part 3, regs. 313-316). 2. Operational requirements for mobile manufacturing facilities or for central mixing points (Part 3, regs. 313-316). 3. Fire protection equipment. (Part3, regs. 319-321). 4. Machinery for mixing explosives (Part 3, regs. 314). 5. Requirements for signage and placards (Part 3, regs. 317). 6. Storage of ammonium nitrate for the making of explosives. (Part 3, regs. 326-327). <p>Duties for storage.</p> <ol style="list-style-type: none"> 1. Storage requiring a magazine (Part 4, regs.408-411 and regs. 417-432). 2. Medium storage (Part 4, regs. 426-429). 3. Signage and placards (Part 4, regs. 412 and regs. 422-427). <p>Duties for sales.</p> <ol style="list-style-type: none"> 1. Document and recording systems (Part 5, regs. 508-514). <p>Duties for imports.</p> <ol style="list-style-type: none"> 1. Signage on berth and ships, removal and replacement and maintenance (Part 11, regs.1111). <p>Duties for transport</p> <p>Vehicle transport</p> <ol style="list-style-type: none"> 1. Cost of transport vehicles. (Part 6, regs. 610). <p>Rail transport</p> <ol style="list-style-type: none"> 1. AEC restrictions on storage in yards and sidings for rails and for vehicles carrying explosives. (Part 6, regs. 618-620). 			
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Part 1 - Table 1b – Cost of licensing and administration

	Cost of reaching	Cost of remaining	Cost increase over 'business
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	initial compliance	compliant	as usual' (\$ or %)
<p>Licence-related costs (please list relevant areas and frequency of each).</p> <p>Licence to manufacture</p> <ol style="list-style-type: none"> 1. Safety management Systems. (Part 3, regs.306). Please note if you use a generic SMS or a firm specific one. 2. Emergency management plans (Part 3, regs. 307). Please note if you use a generic EMP or a firm specific one. 3. Renewal of license fee. (Part 3, regs. 303). 4. Design (purchase of) and use of tools and equipment (Part 3, regs 304, 306, 307). 5. Wearing of protective clothing while capping and filling cartridges (Part 3, regs. 304, 306, 307). <p>Licence to store</p> <ol style="list-style-type: none"> 1. Renewal of magazine licence fee (Part 4, regs.413). 2. Renewal of medium license fee (Part 4, regs. 403). 3. Operational costs including training and protective equipment (Part 3, regs. 413-425). <p>Transport</p> <ol style="list-style-type: none"> 1. Renewal of licence for road (Part 6, regs. 602 and 603). 2. Renewal of licence for rail (Part 6, regs. 602 and 603). 3. Renewal of drivers licences to transport explosives. (Part 6, regs. 604). 4. Compliance reports by road operators. 5. Drivers training and accreditation. (Part 6, regs. 602). <p>Import</p> <ol style="list-style-type: none"> 1. Renewal of license to import (Part 10, regs. 1001and 1002). <p>Sale and purchase</p> <ol style="list-style-type: none"> 1. Renewal of license to sell 			

<p>explosives (Part 5, regs. 502 and 507).</p> <p>2. Packaging requirements. (Part 5, regs. 503).</p> <p>Use of blasting explosives and fireworks</p> <p>1. Renewal of license for use (Part 7, regs. 708).</p> <p>2. Renewal of license for a pyrotechnician. (Part 8, regs. 808).</p> <p>3. Training costs for licenses (Part 7, regs. 705).</p>			
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Comments on the benefits of the current explosive regulations

1. Do you consider the Dangerous Goods (Explosives) Regulations 2000 decreased the likelihood of an explosives incident at your premise? Please explain in detail your views.
2. Have the regulations improved your capacity to work with explosives safely?
3. Below are listed a range of benefits of the regulation of explosives. Form the point of view of your firm list in priority order from most important (number 1) to least important (number 10). If a statement does not apply – do not insert a number and if you consider some benefits cannot be separated by prioritisation give the same number to both.

Table 1c: Analysis of the benefits of the explosive regulations

Please indicate the main benefits your company obtains as a result of its compliance with the Dangerous Goods (Explosives) Regulations 2000.

Benefit	Rank objectives
Ensure safety of workers	
Reduce employee turnover	
Address industrial relation issues	
Protect the public	
Satisfy insurance requirements	
Reduce WorkCover claims	
Prevent damage to property	
To maximise business efficiency	
Comply with customer requirements	
Comply with the law	
Avoid fines or other sanctions	
Other – please specify	

Part 2: Incremental costs of proposed changes to existing regulations

This part of the survey is seeking data on the expected compliance costs of the proposed changes to the 2010 Explosives Regulations as set out below. You are asked to estimate the 'one off costs' of the change and the ongoing costs and the frequency of such costs.

Proposed change	Expected costs⁸⁵
Additional general duties in Part 1	
<p>Changes to threshold quantities defining the scales of storage</p> <p>Changes to the threshold limits for defining storage requirements for explosives are proposed:</p> <ul style="list-style-type: none"> Requirements for what is currently 'medium scale storage' for detonators (of Classification Codes 1.1B, 1.4B and 1.4S) – in quantities greater than 125 in number are proposed to be stored in accordance with the requirements of AS 2187 part 2. Removal of 'medium scale storage' requirements for storage for all other explosives of Hazard Division 1.1 and all explosives of 1.2, 1.5 and 1.6 in aggregate quantities greater than 5 kg NEQ and replacement with requirements to comply with the storage requirements set out in AS 2187 part 2. 	
<p>Closure of a provision which inadvertently allowed for unlicensed persons to engage in that activity (consider to affect minimal number of licence holders)</p> <p>All storage (except for a few specific exemptions) will need to be authorised by a licence.</p>	
Security fencing mandatory for large scale storages	

⁸⁵ Please list the frequency with which costs are incurred, where possible.

Security fencing will be required for all external large scale storages of explosives (ie storages in magazines).	
<p>Introduction of record keeping for all explosives currently limited to blasting explosives</p> <ul style="list-style-type: none"> • Duty on the licensee to keep a record of all the incoming and outgoing quantities of explosives from the storage. • All non-exempt explosives will be subject to the same requirements currently in place for the sale of blasting explosives. Including record keeping and security controls. 	
<p>Licence for each transport vehicle Additional cost of licensing each transport vehicle rather than by fleet. Additional cost of licensing vehicles above AEC category 1 threshold (that are currently not licensed when the driver holds another type of explosives licence).</p>	
<p>Changes to licensing of drivers Licensing for transport of explosives greater than those specified in AEC risk category 1. Based on estimates, the number of people affected is marginal. Drivers given one year to qualify in term of accreditation.</p>	
<p>Use of blasting explosives Replacement of prescriptive regulation in 2000 regulations with AS 2187.2.</p>	
<p>Removal of single occasion firework licence Not likely to involve compliance costs as none have been issued in recent years.</p>	
<p>Changes to clearance distances for firework displays Clearance distances according to AS 2187.4 unless current regulation distance are greater.</p>	
<p>Change to outdoor display controls Replacement of prescriptive standards with AS 2187.4 to control outdoor displays.</p>	
<p>Change to notification timelines Increase in notification timelines for display fireworks and discharge of Chinese firecrackers from seven to 21 days.</p>	
<p>Notification of use of theatrical fireworks and fireworks testing This is a new notification requirement for these two areas of operation – 21 day notification timeline proposed.</p>	
<p>Changes to ports and harbours Replacement of prescriptive regulations by requirement to comply with AS3846; including a 25kg threshold before those requirements apply.</p>	

1. Comment on any aspects of the revised regulations including the likely benefits or costs of the proposed changes.
2. Do you see any benefits for your business from the proposed changes to the regulations? Please explain in detail.

APPENDIX 6: LICENCE PROCESSING COST CALCULATIONS

Cost of assessing and processing licence applications

Licence	HMD			Licensing Branch												Total	Incl oncosts at 16.5%	
	PM3			T2/T3			ADM-2			ADM-3			PM2					
	Hours	Rate	Total	Hours	Rate	Total	Hours	Rate	Total	Hours	Rate	Total	Hours	Rate	Total			
Manufacture at factory	1	\$45.11	\$45.11	104	\$41.22	\$4,286.88	1.00	\$31.73	\$31.73	0.17	\$36.59	\$6.10	0.17	\$54.32	9.06	\$9.06	4,378.87	\$5,101.39
Manufacture in MMU	1	\$45.11	\$45.11	9	\$41.22	\$370.98	1.00	\$31.73	\$31.73	0.17	\$36.59	\$6.10	0.17	\$54.32	9.06	\$9.06	462.97	\$539.37
Manuf mixture near place of use Fill or cap cartridges (not factory)	1	\$45.11	\$45.11	9	\$41.22	\$370.98	0.83	\$31.73	\$26.43	0.17	\$36.59	\$6.10	0.17	\$54.32	9.06	\$9.06	457.68	\$533.19
Store	1	\$45.11	\$45.11	9	\$41.22	\$370.98	1.00	\$31.73	\$31.73	0.17	\$36.59	\$6.10	0.17	\$54.32	9.06	\$9.06	462.97	\$539.37
Sell explosives	0.5	\$45.11	\$22.56	4	\$41.22	\$164.88	1.00	\$31.73	\$31.73	0.17	\$36.59	\$6.10	0.17	\$54.32	9.06	\$9.06	234.32	\$272.98
Transport by road	0.5	\$45.11	\$22.56	2	\$41.22	\$82.44	1.00	\$31.73	\$31.73	0.17	\$36.59	\$6.10	0.17	\$54.32	9.06	\$9.06	151.88	\$176.94
Transport by rail	0.5	\$45.11	\$22.56	9	\$41.22	\$370.98	1.00	\$31.73	\$31.73	0.17	\$36.59	\$6.10	0.17	\$54.32	9.06	\$9.06	440.42	\$513.09
Use explosives	0.05	\$45.11	\$2.26	2	\$41.22	\$82.44	1.13	\$31.73	\$35.95	0.17	\$36.59	\$6.10	0.17	\$54.32	9.06	\$9.06	135.80	\$158.21
Use fireworks	0.05	\$45.11	\$2.26	2	\$41.22	\$82.44	1.00	\$31.73	\$31.73	0.17	\$36.59	\$6.10	0.17	\$54.32	9.06	\$9.06	131.58	\$153.29
Use fireworks (assess exp.)	0.5	\$45.11	\$22.56	3	\$41.22	\$123.66	1.00	\$31.73	\$31.73	0.17	\$36.59	\$6.10	0.17	\$54.32	9.06	\$9.06	193.10	\$224.96
Use fireworks (inc. Exam)	0.5	\$45.11	\$22.56	5	\$41.22	\$206.10	1.00	\$31.73	\$31.73	0.17	\$36.59	\$6.10	0.17	\$54.32	9.06	\$9.06	275.54	\$321.00
Import explosives	0.5	\$45.11	\$22.56	3	\$41.22	\$123.66	1.00	\$31.73	\$31.73	0.17	\$36.59	\$6.10	0.17	\$54.32	9.06	\$9.06	193.10	\$224.96
Exemption	1	\$45.11	\$45.11	6	\$41.22	\$247.32	-	\$0.00	\$-	0	\$0.00	\$-	0	\$0.00	\$-	\$-	292.43	\$340.68
Authorise Explosive	0.5	\$45.11	\$22.56	3	\$41.22	\$123.66	-	\$0.00	\$-	0	\$0.00	\$-	0	\$0.00	\$-	\$-	146.22	\$170.34
Licence to drive vehicle	0	\$0.00	\$0.00	0	\$0.00	\$0.00	0.67	\$31.73	\$21.16	0.17	\$36.59	\$6.10	0.17	\$54.32	9.06	\$9.06	36.32	\$42.31

