



Occupational Health and Safety Amendment (Crystalline Silica) Regulations 2021

Regulatory Impact Statement

WorkSafe Victoria
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Deloitte
Access **Economics**

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Glossary

Acronym or term	Meaning
BRV	Better Regulation Victoria
CALD	Culturally and Linguistically Diverse
GBD	Global burden of disease
Hierarchy of controls	The hierarchy of controls generally provides that ideal way to manage health and safety is first <i>to eliminate the risk</i> . If this cannot be achieved, the next best alternative is to reduce the risk through <i>substitution, isolation or engineering controls</i> . Where this is not possible, the risks should be reduced through <i>administrative controls</i> . Finally, risks should be reduced using <i>personal protective equipment</i> (PPE). See https://www.worksafe.vic.gov.au/hierarchy-control for more information.
OHS	Occupational Health and Safety
OHS Act	<i>Occupational Health and Safety Act 2004</i>
OHS Regulations	Occupational Health and Safety Regulations 2017
RCS	Respirable crystalline silica
Reasonably practicable	The OHS Act provides that in determining what is <i>reasonably practicable</i> , regard must be had to: <ol style="list-style-type: none"> the likelihood of the hazard or risk concerned eventuating; the degree of harm that would result if the hazard or risk eventuated; what the person concerned knows, or ought reasonably to know, about the hazard or risk and any ways of eliminating or reducing the hazard or risk; the availability and suitability of ways to eliminate or reduce the hazard or risk; the cost of eliminating or reducing the hazard or risk.
RIS	Regulatory Impact Statement
SHCS	Silica hazard control statement
SWA	Safe Work Australia
TWA	Time-weighted average
WES	Workplace Exposure Standard

Executive summary

Reforms to the Occupational Health and Safety (OHS) Regulations are being considered in order to adequately protect the health and safety of those employed within industries which have a high risk of exposure to respirable crystalline silica (RCS).

Many materials used to fabricate products, such as stone benchtops, contain varying levels of crystalline silica. The cutting, grinding, trimming, sanding or polishing of these materials produces very small particles of dust, including RCS. If inhaled, RCS can cause serious and fatal diseases, including silicosis and auto-immune diseases.

The OHS Act and accompanying OHS Regulations require employers to, so far as is reasonably practicable, eliminate any risk associated with hazardous substances or, where the risk cannot be eliminated, reduce the risk so far as is reasonably practicable. This has previously been expressed in general terms and has provided limited specification in relation to the management of processes involved with working directly with crystalline silica.

In August 2019, the Victorian Government made amendments to the OHS Regulations to introduce interim measures for specific activities involving engineered stone. This involved introducing Part 4.5 – Crystalline silica, which specifically addresses processes that, if undertaken with engineered stone, generate concentrations of RCS dust that present a high risk of causing adverse health effects. These regulations impose a duty on employers, self-employed persons and people who manage or control a workplace to ensure that a power tool is not used for cutting, grinding or abrasive polishing of engineered stone unless appropriate control measures are properly used. In effect, this imposes a ban on the uncontrolled dry cutting of engineered stone in Victoria. However this ban sunsets on the 19th of February 2021.

The problem of silica dust

Silicosis is a lung disease caused by inhalation of dust containing very fine particles of crystalline silica. Typically, benchtop materials such as marble, granite and concrete contain between 2 - 40 per cent crystalline silica, while engineered stones can contain as much as 95 per cent. Other construction materials like bricks, tiles and concrete also contain crystalline silica, although typically at lower levels than engineered stone. Whilst silicosis has been around for a long time, increased use of engineered stone with its higher concentration of crystalline silica has meant exposure to silica dust has increased. This presents a significant risk to anyone who is regularly working with or around these materials. Whilst this is most prevalent in the stonemason industry, where the cutting of engineered stone is a core activity, work with materials containing silica also occurs across the earth resources, manufacturing and construction industries. There is value in taking a precautionary approach and implementing a framework that addresses the risks of RCS exposure in these industries given the history of past silicosis cases and recent spike in cases in the stonemason industry.

In 2019, there were 96 silicosis related claims received by WorkSafe's Agents, the largest number of silicosis related claims received in a single year since 1985 (the earliest year for which claims data was available). This recent increase in claims is correlated with a range of factors, primarily being the increasing use of engineered stone in recent times, a greater awareness of the risks of exposure to silica dust, and WorkSafe's health assessment program. WorkSafe is aware of 13 recorded fatalities in Victoria associated with silica-related illnesses in the last twenty years (i.e. from the year 2000 to 2020), since engineered stone was first introduced.

However, the WorkSafe data does not reflect fatalities that may subsequently be associated with the recent spike in diagnosis, nor does it reflect illnesses or fatalities that may occur in those who do not make a claim. It is considered likely that there are cases of chronic silicosis for which a claim is not made, particularly where the symptoms present later in life and may be masked by a range of other co-morbidities (for example, smoking), meaning the silicosis may not be detected. This is particularly the case for workers in the construction industry where there has not been

widespread awareness campaigns regarding the risks of exposure to crystalline silica leading to silicosis. As a result they are less likely to associate their symptoms with silica exposure.

Whilst it has been established that the significant rise in silica-related illnesses correlates with increased usage of a higher silica content material, engineered stone, it is important to note that a lack of understanding of silica exposure and appropriate health and safety procedures is also a significant factor. Without adequate understanding of the risk of silica exposure, employees may underestimate the risk involved with processing materials such as engineered stone, bricks, concrete, and tiles, and therefore fail to implement risk assessment or effective control measures to mitigate risks. This is particularly true for industries where work with materials containing silica is less frequent, or the amount of silica in the materials is typically lower, like the construction, manufacturing and earth resources industries. Given this lack of awareness of the risks of silicosis, stakeholders working with the construction sector, including employee representatives and health practitioners, supported a risk-based approach in extending controls to the construction, manufacturing and earth resources sectors.

Further, historical regulation of hazardous substances has provided limited prescription for employers and employees, which appears to be resulting in insufficient controls being put in place to adjust to the changing nature of products that contain crystalline silica.

Additionally, industry stakeholders noted a general history of non-compliance within the stonemason industry in part due to a lack of strict enforcement of employer's OHS obligations. As a result, stakeholders considered that the lack of visible consequences has reduced the overall incentive for businesses to change their practices.

Options

Given the nature of the problem, the key objective of the potential changes to the OHS Regulations is **to eliminate the risk of adverse health effects from work involving materials containing crystalline silica.**

Two sets of options are considered in this RIS. The first set relates to the implementation of a licensing or notification scheme for employers and self-employed persons who work with engineered stone. The options include:

- Option 1: introduce a mandatory requirement for any employer or self-employed person to hold a licence if they are to work with engineered stone
- Option 2: introduce a negative licensing scheme where an employer who breaches the Regulations could be prohibited from working with engineered stone until compliance can be demonstrated
- Option 3: introduce a notification scheme whereby an employer must notify WorkSafe when an 'engineered stone process' is undertaken and the exposure standard is likely to be exceeded.

A second set of options is being considered in order to regulate activities that pose a high risk of silica exposure. The chosen option will be implemented in addition to the chosen option for a licensing or notification scheme. The two options are:

- Option 1: introduce a package of reforms to improve risk assessment and information provision relating to the control measures for reducing exposure to silica dust, as well as maintaining the ban on dry cutting of engineered stone
- Option 2: Retain the ban on dry cutting of engineered stone only.

These options will be considered against the base case, whereby the general duties that apply to employers, employees, manufacturers, importers and suppliers of hazardous substances under the OHS Regulations will remain the only regulatory mechanism and the interim Regulations are not re-made.

Impact analysis and preferred option

This RIS uses a break-even approach to analyse the impacts of the proposed Regulations. The break-even analysis estimates the number of fatalities that would need to be prevented for an

option to generate the level of benefits that would offset or equal the costs of the option. A judgement is then made as to how achievable these benefits are in practice.

The analysis estimates the costs of the Options by assessing:

- Costs to businesses of complying with the proposed Regulations compared to the base case, and
- Costs to the Government of implementing and administering the Regulations compared to the base case.

WorkSafe data on silica-related claims has been analysed and combined with a value of life estimation in order to estimate the value of lives saved and illness avoided under each option.

Table i outlines the costs (combining costs to industry and government) for each of the option combinations. These costs are then divided by the value of average non-fatality with illness, to give the required avoided non-fatality for this option to breakeven. This is indicated in the third column.

Table 1.1 Breakeven analysis results (over ten years)

Option	Cost	Required avoided non-fatality
Licensing plus a ban on dry cutting	\$4.2 million	0.8
Licensing plus the full package of reforms	\$171.5 million	32.1
Licensing plus the full package of reforms for stonemasons only.	\$27.2 million	5.1

Given that there have been 13 known fatalities related to silicosis over the past 20 years, and considering the recent spike in illnesses diagnosed (with serious outcomes including potential fatalities), it is likely that there will be a significant decrease in illnesses and deaths as a result of introducing licensing and the package of reforms. However there is significant uncertainty about the size of the decrease in illnesses and deaths.

For the option where businesses other than stonemasons under the proposed Regulations are excluded from coverage, the cost of the licensing scheme plus the full package of reforms is \$27.2 million. To justify this cost, only 5.1 silicosis illnesses over 10 years would need to be avoided. This is very likely to be achieved when considering the number of fatalities over the last 20 years, as well as the spike in recent silicosis diagnoses which is not yet fully reflected in fatalities data.

For the option where there is a licensing scheme plus the full package of reforms, the estimated cost is \$171.5 million. This option would need to result in the avoidance of approximately 32 silicosis illnesses over 10 years to breakeven.

A key driver of the breakeven point of 32 illnesses is the high number of construction businesses potentially impacted. These businesses account for 80% of the total costs to business. This cost on the construction industry is disproportionate to where the costs of silicosis are known currently to exist, with most illnesses in Victoria in the last 20 years occurring in stonemason businesses. If the regulations applied to a narrower construction cohort or only stonemasons, the breakeven point is more likely to be achieved. However, while a large amount of costs are borne by the construction industry, there is value in taking a precautionary approach to this industry that recognises the historic illnesses in the stonemason industry and the risk of increases in cases in other industries that work with silica products. The spike in cases in the stonemason industry demonstrates the potentially high costs associated with an increase in illnesses that was not anticipated.

It is unlikely but not implausible that the Regulations could avoid 32 illnesses over the next 10 years, which is the point at which the benefits of the regulations exceed the cost. Given that the

extent of latent illness associated with past exposure is not fully known, and the benefit estimation is considered to be conservative, there is merit in taking a precautionary approach to the issue.

Preferred option

The preferred option is considered to be the Licensing scheme plus the full package of reforms.

This option will cover the stonemason, construction, mining and manufacturing sectors. WorkSafe has identified 24 sub-industries within these four sectors that are most likely to be exposed to silica dust and therefore be affected by this package of reforms. This includes bricklayers, carpenters and joiners, cement manufacturing, concreters, plasterers, and tilers, along with stonemasons.

Noting the significant uncertainty around potential avoided illnesses and deaths, particularly in non-stonemason industries such as construction, this option has been chosen because:

- There is merit in taking a precautionary approach to the issue, given that there has been a recent spike in illnesses and that the extent of latent illness associated with past exposure is not fully known. In the absence of this knowledge, and noting that the consequences of silicosis and related diseases are extremely serious and irreversible, it is wise to err on the side of caution.
- The quantification of the benefits of avoided silicosis illness has been estimated conservatively in this RIS. This includes the fact that some illnesses and deaths may be occurring but are not attributed to silicosis.
- There are a range of qualitative benefits of reducing exposure to silicosis, which are not captured in the breakeven analysis, such as employment impacts and psychological impacts.

Implementation strategy

WorkSafe will prepare a full implementation and communications strategy for the proposed Regulations. Two of the most critical elements of implementation are transition and enforcement.

Some provisions will have a 12 month transition period, commencing from the date the Regulations are made, including the requirement to hold an engineered stone licence and the requirement for suppliers not to provide engineered stone to a person who does not hold an engineered stone licence. This transition period reflects the reality that it will take some time for businesses to prepare and submit a licence application and for WorkSafe to assess the expected 300 licence applications. Irrespective of these transitional arrangements, parties required to hold an engineered stone licence will need to apply for a licence as soon as practicable after the proposed Regulations come into effect

Other elements of the proposed Regulations that directly relate to worker safety will come into force earlier than those provisions identified above, including:

- The requirement for suppliers to provide written information about crystalline silica products
- The requirement for wet-cutting or on-tool dust extraction system or exhaust ventilation
- Restrictions on the use of compressed air for cleaning
- The requirement to identify high risk silica work and prepare a silica hazard control statement
- The requirement to provide information on health risks to job applicants and employees.

A strong enforcement and compliance program will accompany implementation of the proposed Regulations. WorkSafe already has an established compliance and enforcement workforce, systems and processes, around the risks to health posed by exposure to silica dust. The compliance program that was 'ramped up' as part of the Silica Action Plan and following the August 2019 reforms will generally continue.

Evaluation of the Regulations

In accordance with good regulatory practice, WorkSafe is developing an evaluation strategy to measure the efficiency and effectiveness of the proposed Regulations, and its broader strategy to prevent illnesses and deaths from exposure to silica dust. The proposed evaluation strategy is set

out below and will be refined during 2020 and prior to the proposed Regulations coming into effect.

The broad evaluation approach to evaluation will involve two parts:

- The collation, analysis and review of **annual data** on the efficiency and effectiveness of the proposed Regulations. This annual data will include:
 - Shorter-term input and output based measures largely focussing on the proposed Regulations themselves
 - Longer term measures of incidence of silicosis in the community, and its harms and effects. These measures will reflect the impact of the proposed Regulations as well as other actions.
- A more formal **mid-term review** of the proposed Regulations to be conducted after three full years of operation of the Regulations. Given the uncertainty of some of the benefits, and that the preferred option will impose new costs on a large number of businesses, it will be important to review data and conduct an early assessment of the effectiveness of the Regulations.

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1 Background

This chapter outlines the purpose of the Regulatory Impact Statement, background to the Regulations being proposed, and how the key steps in the RIS process will be applied to the development of the Occupational Health and Safety Regulations 2017 for working with crystalline silica.

1.1 Introduction

Reforms to the OHS Regulations are being considered in order to adequately protect the health and safety of those employed within industries which have a high risk of exposure to respirable crystalline silica (RCS).

Many materials used to fabricate products, such as stone benchtops, contain varying levels of crystalline silica. The cutting, grinding, trimming, sanding or polishing of these materials produces very small particles of dust, including RCS. If inhaled, RCS can cause serious and fatal diseases, including silicosis and auto-immune diseases.

Whilst the impact is greatest in the stonemason industry, due to the high proportion of work involving engineered stone, RCS also presents a significant risk to workers employed within extraction and construction industries who regularly work with substances containing crystalline silica. Here, the risk of exposure is determined by the silica content within each substance as well as the nature of each production process. On construction sites, exposure to crystalline silica can occur during routine construction, installation and demolition tasks involving engineered stone, concrete, bricks, mortar or other masonry. Similarly, in quarrying industries, common tasks such as drilling, excavating, crushing and mobile plant movement on unsealed roads can also generate significant levels of RCS dust.

A nationwide surge in silica-related illnesses and deaths in recent years is associated with high levels of demand for engineered stone over other benchtop materials within the Australian market. Additionally, increasing awareness of the risks associated with RCS and the importance of health monitoring has contributed to the climbing number of silicosis diagnoses, some of which may otherwise have gone undetected for some time.

The increasing number of silicosis-related WorkCover claims has created an imperative for the OHS Regulations to be reviewed to better protect people working with crystalline silica. In addition to a number of non-regulatory measures, the current OHS Regulations were amended in August 2019, to introduce a prohibition on using power tools with engineered stone without appropriate control measures, i.e. prohibiting 'dry-cutting'. However, these interim regulations will sunset on the 19th of February 2021.

WorkSafe Victoria has engaged Deloitte Access Economics to prepare this Regulatory Impact Statement (RIS) in accordance with the Commissioner for Better Regulation's Victorian Guide to Regulation (2016) and the *Subordinate Legislation Act 1994*. This RIS considers the impact of different options for replacing the interim regulations. Any proposed regulations that impose a significant burden should be subject to a RIS in accordance with the provisions of the *Subordinate Legislation Act 1994*. The rigorous assessment of regulatory proposals within a RIS ensures that regulation best serves the Victorian community. This RIS is subject to independent assessment by Better Regulation Victoria (BRV) and a public consultation process.

1.2 Legislative and regulatory framework

The *Occupational Health and Safety Act 2004* (OHS Act) sets out general duties that apply to employers, employees, manufacturers, and suppliers of substances. These duties require employers to provide and maintain a working environment that is safe and without risk to health.¹ To fulfil their duties, employers must eliminate or reduce risks to health *so far as is reasonably practicable*.² These duties extend to any independent contractors engaged by the employer and any employees of the independent contractor but are limited to matters over which the employer has control. Under the OHS Act, employers must also monitor conditions at any workplace under the employer's management or control.³ Employers and self-employed persons also have a duty to ensure that persons other than employees are not exposed to health and safety risks arising from conduct undertaken by the employer.^{4,5} In addition, employees must take reasonable care for their own health and cooperate with their employers' efforts to make the workplace safe.⁶ Meanwhile, under sections 29 and 30, manufacturers and suppliers have a duty to provide adequate information to each person to whom they provide any substance that is to be used at a workplace.

The OHS Regulations specify the way that duties in the OHS Act must be performed. Provisions relating to the use of hazardous substances in workplaces are listed in Part 4.1 – Hazardous substances of the OHS Regulations. Part 4.1 applies to any substance that meets the definition⁷ of a hazardous substance in the OHS Regulations; however, these are not explicitly listed. Division 3, subdivision 2 of Part 4.1 imposes duties on employers in relation to the use of hazardous substances, including RCS dust (see Regulation 154(1)(b)). These duties include:

- Reducing the risk of RCS exposure by implementing controls in accordance with a hierarchy of controls⁸
- Ensuring the workplace exposure standard (WES) of 0.05mg/m³ TWA is not exceeded
- Undertaking atmospheric monitoring under certain circumstances
- Conducting health monitoring of employees under certain circumstances.

In August 2019, the Victorian Government made amendments to the OHS Regulations to introduce interim measures for specific activities involving engineered stone. This involved introducing Part 4.5 – Crystalline silica, which specifically addresses processes that, if undertaken with engineered stone, generate concentrations of RCS dust that present a high risk of causing adverse health effects. These regulations impose a duty on employers, self-employed persons and people who manage or control a workplace to ensure that a power tool is not used for cutting, grinding or abrasive polishing of engineered stone unless appropriate control measures are properly used. In effect, this imposes a ban on the uncontrolled dry cutting of engineered stone in Victoria. This ban sunsets on the 19th of February 2021.

¹ OHS Act s21

² OHS Act s20. S20(2) of the OHS Act provides that in determining what is *reasonably practical*, regard must be had to:

- a. the likelihood of the hazard or risk concerned eventuating;
- b. the degree of harm that would result if the hazard or risk eventuated;
- c. what the person concerned knows, or ought reasonably to know, about the hazard or risk and any ways of eliminating or reducing the hazard or risk;
- d. the availability and suitability of ways to eliminate or reduce the hazard or risk;
- e. the cost of eliminating or reducing the hazard or risk.

³ OHS Act s22

⁴ OHS Act s23

⁵ OHS Act s21 and s35

⁶ OHS Act s25

⁷ Hazardous substance means a substance that satisfies the criteria for hazard classification set out in Part 3 (Health Hazards) of the Globally Harmonized System of Classification and Labelling of Chemicals; however, substances which meet the criteria solely for certain prescribed hazard classes are excluded

⁸ The hierarchy of controls generally provides that ideal way to manage health and safety is first *to eliminate the risk*. If this cannot be achieved, the next best alternative is to reduce the risk through *substitution, isolation or engineering controls*. Where this is not possible, the risks should be reduced through *administrative controls*. Finally, risks should be reduced using *personal protective equipment* (PPE). See <https://www.worksafe.vic.gov.au/hierarchy-control> for more information.

Under Part 4.5 of the OHS Regulations, power tools may only be used to cut, grind or abrasively polish engineered stone if the tool is used with:

- an integrated water delivery system that supplies a continuous feed of water; or
- a commercially available on-tool extraction system connected to a Dust Class H Vacuum or other suitable system that captures the dust generated; or
- if neither of the above are reasonably practicable, local exhaust ventilation.

The person who is using the power tool must also be provided with respiratory protective equipment that complies with Australian Standard 1716 – Respiratory protective devices.

In 2019, Safe Work Australia (SWA) announced a reduction in the WES for RCS from a time-weighted average (TWA) airborne concentration of 0.1mg/m³ over an 8-hour working day to 0.05mg/m³.⁹ Victoria became the first state to implement the reduced WES in December 2019.

In February 2020, WorkSafe Victoria published a *Compliance code: Managing exposure to crystalline silica – engineered stone*, to provide practical guidance for those who have duties or obligations under the OHS Act and the OHS Regulations, in relation to exposure to crystalline silica as a result of working with engineered stone¹⁰. While the guidance provided in the Code is not mandatory, a duty holder who complies with the code will (to the extent that it deals with their duties under the OHS Regulations or OHS Act) be taken to have complied with their duties or regulations under the OHS Act or OHS Regulations. Failure to observe the Code may be used as evidence in proceedings for an offence under the OHS Act or OHS Regulations; however, a duty holder will not fail to meet their legal duty simply because they have not followed the Code.

1.3 Context

Stonemasons have worked with materials which contain crystalline silica for many years. However, while traditional materials such as marble, granite and concrete contain between 2-40% crystalline silica, engineered stone contains up to 95%.¹¹ The cutting, grinding, trimming, sanding or polishing of these materials produces very small particles of dust, including RCS. If inhaled, RCS can cause serious and fatal diseases such as silicosis, chronic bronchitis, emphysema, lung cancer, kidney damage and scleroderma. This presents a significant risk to any workers regularly working with or around the materials when they are being processed in a way that will generate RCS.

Over the last 15 years or so, engineered stone has increasingly become the preferred material for kitchen benchtops in Australia for reasons including lower cost and lower propensity to wear. Stakeholder consultations undertaken for this RIS have revealed that upwards of 70% of projects within stonemason businesses involve working directly with engineered stone. Accordingly, stonemasons are currently at a higher risk of exposure to higher concentrations of RCS than they have ever been. Workers in other industries including bricklaying, concreting, plastering, and tiling are also exposed to crystalline silica in the materials they work with. While the risk of silicosis is lower in these industries due to lower silica content in the materials, these trades are more widespread with many more workers, most likely also with lower levels of knowledge about the potential risks of silica exposure.

Historically, silicosis manifested predominantly in its chronic form, over a period of 10 to 20 years, due to gradual exposure to lower levels of crystalline silica within traditional materials. However, increased demand for engineered stone has seen a rise in both acute and accelerated silicosis diagnoses, manifesting within workers who have been exposed to RCS for less time (see Chapter 2).¹² This is resulting in a greater impact on younger workers.

⁹ Safe Work Australia 'Workplace exposure standards for airborne contaminants. (Report, 16 December 2019)

¹⁰ Victoria 'Managing exposure to crystalline silica: engineered stone compliance code' (2020)

¹¹ Queensland Government Office of Industrial Relations. *Code of Practice for managing respirable crystalline silica dust exposure in the stone benchtop industry*. Qld. Govt. 2019.

¹² The Royal Australasian College of Physicians, *Frequently asked questions: Accelerated Silicosis* <<https://www.racp.edu.au/advocacy/division-faculty-and-chapter-priorities/faculty-of-occupational-environmental-medicine/accelerated-silicosis/faqs>>

Silicosis is incurable. Once symptoms manifest there is no known treatment to halt the progression of the disease.¹³ These symptoms are delayed in nature and can often go undetected for years without rigorous tests and screening. The Centre for Disease Control estimate that the average years of potential life lost due to silicosis is 11.8 years.¹⁴

In September 2018, the Queensland government issued a safety alert for engineered stone benchtop workers after 22 claims for silicosis were received by WorkCover Queensland within a three-week period. Since then over 300 cases have emerged nationally.¹⁵ The Victorian Government responded by introducing a Silica Action Plan which involved:

- strengthening the OHS legislative framework
- raising awareness and providing education
- increasing focus on enforcement and compliance
- early intervention and support for affect workers
- research and consultation.

These steps, along with those taken by the Queensland Government, contributed to increased media coverage, which has driven industry awareness and encouraged workers to undertake health assessments. While it is unclear what proportion of engineered stone benchtop workers may have contracted silicosis, a health practitioner consulted in developing this RIS estimated that it may be as high as 30% for those working with engineered stone. The risks are not limited to those working directly with engineered stone. Workers in surrounding areas (i.e. physically near) are also at risk of exposure. A recent study estimates that 6.6% of Australian workers are exposed to RCS and 3.7% are highly exposed when carrying out tasks at work.¹⁶ This includes workers within the construction industry, due to the range of materials used, and the wide range of tasks performed. One study showed that the majority of workers in the construction industry as a whole, across trades and tasks, can be exposed to levels above 0.025mg/m³, or half the workplace exposure standard, which is a level of exposure at which occupational hygienists generally recommend actions such as reviewing controls and/or health monitoring should be considered.¹⁷ Additionally, in the quarrying and tunnelling industries, materials containing quartz, such as sand, stone and gravel, can lead to moderate to high silica exposure.

1.4 RIS process

1.4.1 RIS process

This RIS has been prepared in accordance with the *Victorian Guide to Regulation*,¹⁸ which provides a best practice approach to analysing any proposed regulatory intervention. This RIS estimates the impact of the proposed Regulations on Victorian businesses and community. Key steps in the process to introduce the proposed Regulations are:

- Preparation of the RIS (this document)
- Public comment on the proposed Regulations
- Addressing public comment.

These steps are discussed in more detail below.

1.4.2 Preparation of the RIS

The key purpose of this RIS is to assess the impact of different options for replacing the sunseting regulations. The general approach to the assessment is as follows:

¹³ National Dust Disease Taskforce 'Interim Advice to Minister for Health' (Report, December 2019)

¹⁴ Center for Disease Control and Prevention 'Silicosis-Related Years of Potential Life Lost before Age 65' (2008)

¹⁵ National Dust Disease Taskforce 'Interim Advice to Minister for Health' (Report, December 2019)

¹⁶ Si Si et al, 'The Australian Work Exposure Study: Prevalence of Occupation Exposure to Respirable Crystalline Silica' (2016) 60(5) *Annals of Occupational Hygiene* 631

¹⁷ Beaudry C., Jérôme Lavoué, Jean-François Sauvé, Denis Bégin, Mounia Senhaji Rhazi, Guy Perrault, Chantal Dion & Michel Gérin (2013) Occupational Exposure to Silica in Construction Workers: A Literature-Based Exposure Database, *Journal of Occupational and Environmental Hygiene*, 10:2, 71-77, DOI: 10.1080/15459624.2012.747399.

¹⁸ Commissioner for Better Regulation (2016). *Victorian Guide to Regulation: A handbook for policy-makers in Victoria*, Accessed at: <http://www.betterregulation.vic.gov.au/Guidance-and-Resources>

(1) Identification of the nature and extent of the problem

This involved consideration of the nature and extent of the problem that the proposed Regulations aim to address, including the need for government intervention, the risks of non-intervention and the objectives of such intervention.

(2) Identification of the options to achieve the objectives of the proposed Regulations

The proposed Regulations and alternative options were developed by WorkSafe in consultation with stakeholders (employer representatives, employee representatives, health experts, supplier representatives and businesses) and informed by the RIS consultation (see Appendix A for details of consultation undertaken). The establishment of options allowed possible costs and benefits to be examined as part of the stakeholder consultation.

(3) Stakeholder consultations

Stakeholder consultation was undertaken to gather relevant information on the impact of the proposed Regulations and possible alternatives for different groups. The consultation process included:

- 9 structured phone calls with businesses
- 2 individual consults with supplier representatives
- 2 focus groups with employer representatives
- 1 focus group with employee representatives
- 1 consultation with a respiratory diseases health expert

(4) Assessment of the costs and benefits

Assessment of the costs and benefits under all options, relative to a base case, was undertaken consistent with the requirements of the *Victorian Guide to Regulation*. The analysis included the quantification, where possible, of benefits to businesses, employees and the Victorian community from improved management of working with crystalline silica. It also included the costs to businesses of complying with regulations, and costs to Government of implementing and administering regulations. The analysis reflects data held by WorkSafe Victoria, data gathered through independent research and information provided by stakeholders.

(5) Assessment of the other impacts

We have considered the likely impacts of the preferred option on small businesses and general competition among firms. This part of the RIS draws on stakeholder consultations.

(6) Implementation, enforcement and evaluation

These sections describe the arrangements for implementation, enforcement and evaluation of the preferred option.

1.4.3 Public comment

The proposed Regulations and this RIS will be released for a 28 day public comment period to provide employers, employees, other interested parties and members of the public with the opportunity to consider and provide feedback on the proposed Regulations and RIS. The process for public comment is outlined in the Foreword to this report. The process for public comment is outlined in the Foreword to this report.

WorkSafe Victoria will consider all submissions received during public comment and prepare a formal Response to Public Comment document which will detail the submissions received, and WorkSafe Victoria's response.

1.5 Structure of the report

The remainder of this report is structured as follows:

Chapter 2 – Problem analysis

Chapter 3 – Identifying the options

Chapter 4 – Options analysis and preferred option

Chapter 5 – Implementation plan

Chapter 6 – Evaluation strategy

2 The problem of silica dust

This section outlines the nature and extent of the problem, which provides the case for regulation.

The OHS Act and accompanying OHS Regulations require employers to, so far as is reasonably practicable, eliminate any risk associated with hazardous substances or, where the risk cannot be eliminated, reduce the risk so far as is reasonably practicable. This has previously been expressed in general terms and has provided limited specification in relation to the management of processes involved with working directly with crystalline silica. This has resulted in a broad range of responses by duty holders that have not adequately addressed the level of risk.

In addition to the increased risk of exposure to RCS resulting from the increased use of engineered stone, an overall lack of understanding of the risk and appropriate control measures associated with working with crystalline silica has also contributed to the extent of the problem. Engineered stone is a relatively new product and given that the health issues associated with its use may not be observable for some time, it is only in recent years that the extent of the problem has become more apparent. This lack of understanding can be exacerbated by information constraints, a lack of formal training undertaken by workers, a lack of available information regarding health impacts and miscommunication due to variable levels of English Language proficiency within the industry.

Further, although this level of awareness is rising as a result of a concerted effort by government, there still exists some non-compliance within the industry, particularly in relation to the practice of dry-cutting and adequate health and air monitoring despite existing regulations being in place.

2.1 The need for additional regulation

Whilst the current regulatory framework provides general duties obligations and other requirements for employers when working with crystalline silica, the large increase in silicosis cases in recent years makes it clear that the existing regime has been insufficient to prevent harms.

Some stakeholders are of the view that improved enforcement, of either the pre-August 2019 Regulations, or the silica-related provisions in the existing Regulations would be sufficient to avoid these harms. These views are noted, and WorkSafe has significantly increased its compliance and enforcement regime since October 2018 and as part of the Victorian Government's Silica Action Plan. WorkSafe will continue to place a strong focus on compliance and enforcement under the proposed Regulations.

Nevertheless, the current Regulations for hazardous substances provide limited prescription for employers and employees, which appears to contribute to insufficient controls being put in place to adjust to the changing nature of products that contain crystalline silica. Other reasons for additional regulation noted by stakeholders include:

- Businesses indicating that they need additional specificity to ensure they are undertaking actions to increase compliance and protect worker's health
- Irreversible harms to workers may already be occurring by the time compliance and enforcement action is taken
- Prevention of harms in relation to silicosis is more complex than in some other areas of OHS, thus requiring more prescriptive detail
- Some businesses appear to be relying on the lack of detail to justify inadequate control measures.

Therefore, additional regulations are required to address the residual harms that will still exist if only the OHS Act and existing provisions in the OHS Regulations are in place.

2.2 The increased risk of silicosis

Silicosis is a lung disease caused by inhalation of dust containing very fine particles of crystalline silica. Typically, benchtop materials such as marble, granite and concrete contain between 2 - 40 per cent crystalline silica, with engineered stone containing as much as 95 per cent. Whilst silicosis has been around for a long time, increased use of engineered stone with its higher concentration of crystalline silica has meant exposure to silica dust has increased. This presents a significant risk to anyone who is regularly working with or around these materials.

In October 2018, WorkSafe commenced the first phase of a new program of inspections targeting all stonemason businesses, following increases in the number of silicosis diagnoses. These inspections followed a safety alert for stone benchtop workers issued by the Queensland Government in September 2018. In May 2019, the Victorian Government announced an action plan to prevent and respond to the health risks associated with crystalline silica dust exposure. There are 12 actions in the plan, grouped into five focus areas:

- Strengthening the OHS legislation framework
- Compliance and enforcement
- Education and awareness raising
- Early intervention and support for affected workers
- Research and consultation

Interim regulations imposing a ban on the uncontrolled use of power tools to cut, grind or abrasively polish engineered stone were introduced in Victoria in August 2019. In December 2019, the Victorian Government reduced the WES for RCS from 0.1mg/m³ for an 8-hour working day, to 0.05mg/m³, following a review by SWA as part of a broader review of the WESs for airborne contaminants used in Australian workplaces.^{19,20}

The increased popularity and use of engineered stone in the last 15 years has driven the prevalence of silicosis in Australia. Increased knowledge and testing have subsequently led to an exponential increase in the number of observed cases since 2018.

2.2.1 Exposure risks across relevant industries

Exposure to RCS is an occupational hazard across many Victorian industries, including manufacturing, construction, mining and quarrying. The crystalline silica content of common materials used across industries can vary significantly, ranging from 5 to 95 per cent, as outlined in Table 2.1. With engineered stone and sand recording crystalline silica content levels of up to 95 percent, industries that utilise a larger proportion of these materials in processes that generate dust have a higher risk of exposure to RCS.

Whilst some crystalline silica containing materials present a higher risk than others, if processed correctly by complying with the OHS Regulations, the risk of exposure and the development of silica-related illnesses are reduced significantly.

¹⁹ Safe Work Australia (2020) *Workplace exposure standards review methodology*, Accessed at: <https://www.safeworkaustralia.gov.au/workplace-exposure-standards-review-methodology>

²⁰ Safe Work Australia, *Workplace exposure standards for airborne contaminants* (2019).

Table 2.1: Crystalline silica content of common products and materials

Type of stone	Crystalline silica content
Engineered stone	Up to 95%
Sand	80 to 95%
Ceramic tiles	5 to 45%
Granite	25 to 40%
Autoclaved aerated concrete	20 to 40%
Concrete	Less than 30%
Brick	5 to 15%

Source: WorkSafe Victoria (2020).

Engineered stone benchtop manufacturing industry

Engineered stone, which is typically used for kitchen benchtops, has become increasingly popular over the last 15 years as an alternative to natural stones which are more expensive. The two distinct methods that are used when cutting, grinding or polishing engineered stone are typically referred to as dry and wet methods.²¹ Compared to dry methods, wet methods utilise on-tool water suppression, which reduces the quantity of dust being exhausted into the air.

Uncontrolled dry cutting, grinding or abrasive polishing of engineered stone in Victoria was banned in August 2019. Dry techniques can now only be used based on the requirements from the interim regulations.

Air monitoring of 20 workplaces involved in benchtop manufacturing funded by WorkSafe Victoria recorded airborne concentrations of RCS up to 0.05mg/m³ in workplaces that employ wet cutting methods. By comparison, recorded airborne concentrations of RCS in workplaces undertaking dry cutting without engineering controls (on-tool water suppression, on-tool dust extraction, etc) were greater than 0.1mg/m³.²²

Construction industry

Like other industries, the sources of RCS exposure for construction workers can vary significantly across workplaces. This is because the industry uses a range of materials, each with different levels of crystalline silica content. Exposure to crystalline silica can occur during common construction, installation and demolition tasks involving a range of materials including engineered stone, concrete, bricks, mortar or other masonry.

RCS exposure levels of 0.01mg/m³ were recorded for plumbers and activities involving sand and electronical maintenance, whilst much higher levels were recorded for tunnel construction (0.30 mg/m³) and abrasive blasting (1.59mg/m³).²³ For this reason, industry stakeholders are of the view that effective regulations must be designed based on the risk associated with specific tasks, as this risk often varies significantly within construction and quarrying industries. However, the size of the construction industry and the variance in trades and tasks can make it challenging to identify, manage and communicate potential exposure risks on a trade-by-trade or task-by-task basis.

²¹ WorkSafe Victoria, Uncontrolled dry cutting of engineered stone banned (2019). Accessed at < <https://www.worksafe.vic.gov.au/news/2019-08/uncontrolled-dry-cutting-engineered-stone-banned>>.

²² WorkSafe Victoria

²³ Beaudry C., Jérôme Lavoué, Jean-François Sauvé, Denis Bégin, Mounia Senhaji Rhazi, Guy Perrault, Chantal Dion & Michel Gérin (2013) Occupational Exposure to Silica in Construction Workers: A Literature-Based Exposure Database, Journal of Occupational and Environmental Hygiene, 10:2, 71-77, DOI: 10.1080/15459624.2012.747399.

Quarrying industry

Quarry operations, specifically tasks such as the processing of sand, stone and gravel, can lead to various levels of RCS exposure.²⁴ Like the construction industry, these levels of exposure are dependent on the trade and task undertaken.

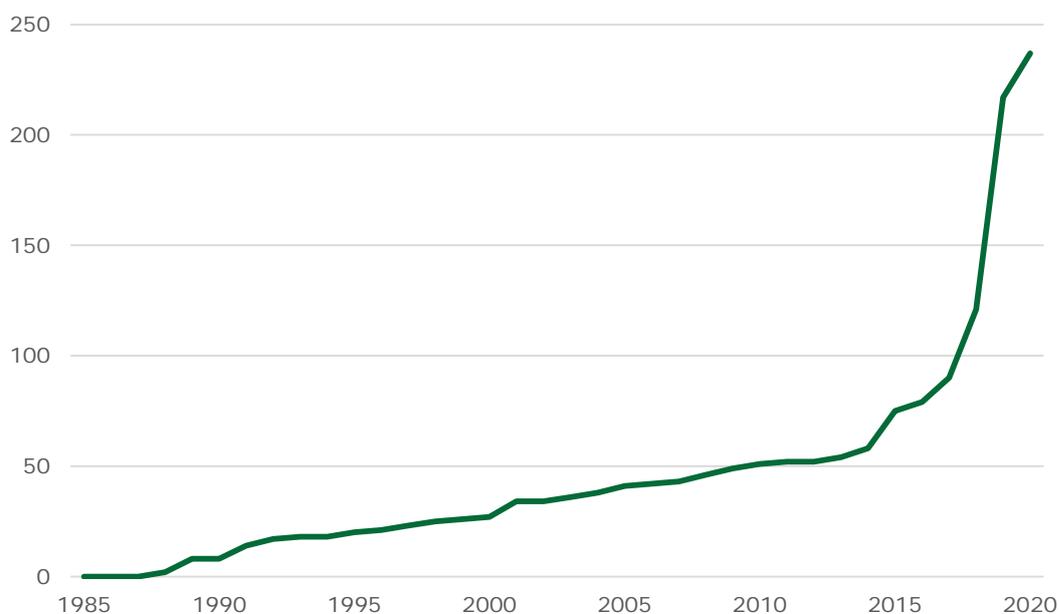
Industry representatives are of the view that health risks differ depending on the quarrying process being undertaken. As an example, extracting crystalline silica from the ground does not carry a high risk as the substance is not hazardous in its solid form. Other processes, such as milling sand, have been identified to carry a higher risk of exposure to RCS.

2.2.2 Prevalence of silicosis

As noted, silicosis can go undetected for years and for this reason the prevalence of silicosis amongst stonemasons and other workers exposed to RCS is difficult to estimate. However, one indicator of the prevalence of silicosis is the number of WorkCover claims.

In 2019, there were 96 silicosis related claims received by WorkSafe's Agents, the largest number of silicosis related claims received in a single year since 1985. This recent increase in claims is correlated with a range of factors, primarily being the increasing use of engineered stone in recent times, a greater awareness of the risks of exposure to silica dust, and WorkSafe's health assessment program (see box below).

Chart 2.1: Total number of silicosis-related claims by date of claim (cumulative)



Source: WorkSafe Victoria (March 2020).

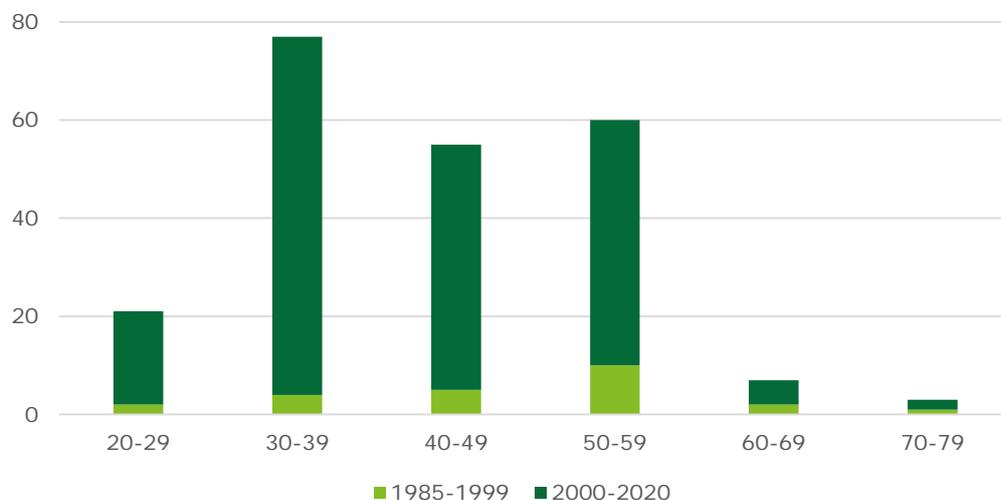
Previously, silicosis was typically associated with those who had spent most of their career in a profession that involved direct RCS exposure. Of the total claims since 1985, the greatest number arise from those who were aged 30 to 39 years old at the age of injury. The majority of these claims (73) occurred post-2000, with only a small number (4) occurring between 1985 and 2000.

Those submitting a claim from lower age groups, by definition, have had less years of RCS exposure before making a claim. The increased risk of silicosis can occur due to short term exposure to high levels of silica dust (i.e. acute silicosis). Specifically, when cutting, grinding, or polishing stone that has high silica content without the appropriate health and safety controls in place.

²⁴ WorkSafe Victoria, *Crystalline Silica Discussion Paper* (2019).

There has been a growing number of claims submitted to WorkSafe by those less than 50 years old that relate to illnesses occurring in the last twenty years.

Chart 2.2: Total claims by age at date of injury, 1985-2020



Source: WorkSafe Victoria (March 2020).

WorkSafe Victoria has been providing free health assessments to current and former workers in the stonemason industry to identify if they have been adversely affected by exposure to RCS. As of March 2020, 529 workers had completed a health assessment, with a further 138 workers registered to complete one. Approximately 13 per cent of those who undertake health assessments have received a positive diagnosis of a silica-related disease and have subsequently submitted a WorkCover claim to one of WorkSafe's Agents.

Health assessments

WorkSafe's free health assessment to identify any crystalline silica related disease is available for all workers in the stonemason industry in Victoria. This assessment extends to former workers.

The health assessment is undertaken by a registered medical practitioner, who needs to be a fellow of the Australasian Faculty of Occupational and Environmental Medicine (AFOEM), with expertise in respiratory and silica exposure health monitoring. The test involves a respirator test, a chest x-ray and an assessment by the occupational physician.

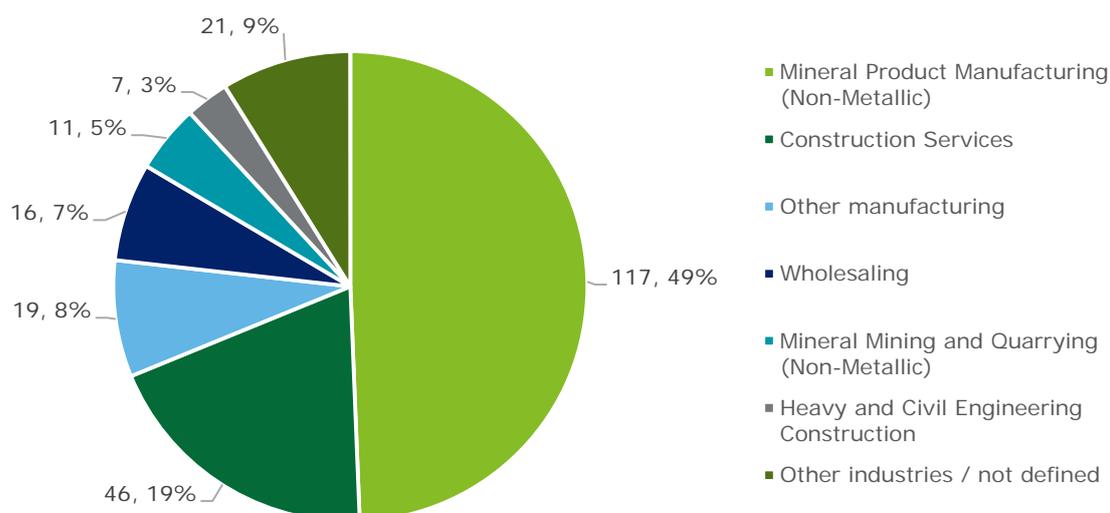
Early identification of respiratory disease, including silicosis, can improve health outcomes due to earlier treatment.

Source: WorkSafe, Free crystalline silica health assessments and your health monitoring duties, retrieved 12 February 2020, <<https://www.worksafe.vic.gov.au/free-crystalline-silica-health-assessments-and-your-health-monitoring-duties>>

WorkSafe data suggests the ratio of silicosis claims to the number of people working in the stonemason industry is significantly higher than for any other industry in Victoria.

Since 1985, approximately half of all silicosis claims are made by workers involved in manufacturing of non-metallic mineral products, which includes stonemasons. In March 2020, this industry represented 49 per cent of total claims. Other industries where silicosis-related claims are most prominent include construction services (19 per cent) and other manufacturing (8 per cent). This data is in line with existing research that manufacturing and construction industries are more likely to use products containing crystalline silica in processes and/or tasks that will generate RCS.

Chart 2.3: Total silicosis and related claims by ANZSIC industry classification, 1985-2020



Source: WorkSafe Victoria (March 2020).

Importantly, data on the number and value of RCS-related WorkCover claims does not fully reflect the impact of RCS on individuals and the community. For some claimants WorkCover claims may only cover time off work and costs of medical treatment. For these claimants their compensation will not reflect such things as:

- potentially significant adverse mental and physical health impacts
- impacts on individuals' families and friends
- more limited employment prospects
- the loss of satisfaction from working with engineered stone

While some claimants with silica-related WorkCover claims may be able to access impairment benefits or common law compensation, which do provide compensation for non-economic loss, any amount of compensation will be determined in accordance with legislated formulas and/or maximums which may not fully account for the non-economic loss experienced by the individual.

It is also the case that some illnesses and diseases may go undiagnosed or not correctly attributed to silicosis, and hence may never be subject to a claim. It is considered likely that there are cases of chronic silicosis for which a claim is not made, particularly where the symptoms present later in life and may be masked by a range of other co-morbidities (for example, smoking), meaning the silicosis may not be detected. This is particularly the case for workers in the construction industry where there has not been widespread awareness campaigns regarding the risks of exposure to crystalline silica leading to silicosis. As a result they less likely to associate their symptoms with silica exposure.

2.2.3 The nature of the disease over time

Exposure to RCS can lead to several different diseases relating to the lungs or auto-immune system, including cancer. In early stages of silica-related diseases, individuals may show limited or no symptoms. In addition, silicosis can take either an acute, accelerated or chronic form which varies based on the time and severity of exposure an individual has to RCS.²⁵

²⁵ Safe Work Australia, Crystalline silica and silicosis (2020). <<https://www.safeworkaustralia.gov.au/silica>>

- Acute silicosis is associated with short term exposure (less than a few years) to high levels of silica dust. This type of silicosis causes severe inflammation, and large amounts of protein to build in the lung.
- Accelerated silicosis relates to a protein build up and inflammation of the lungs that is typically associated with 3 to 10 years of moderate to high levels of RCS exposure.
- Chronic silicosis is associated with permanent damage to the lung after long-term exposure to low levels of RCS, leading to lower lung capacity and a constant shortage of breath.

Whilst these diseases have tangible costs associated with exposure to RCS, there are also associated employment and lifestyle impacts to consider. Health practitioners have asserted that the health impacts on workers have both severe and devastating consequences. Whilst physical implications involve progressive deterioration of lung function and increased risk of respiratory illness and lung cancer, among many workers with a diagnosis, there is also a serious psychological impact. Health practitioners have noted the large amount of uncertainty that a silicosis diagnosis carries and the toll this can take on a worker's mental health. This is intensified by the serious nature of the disease, forcing workers to prepare themselves for major surgeries, such as lung transplants, and in some cases, imminent death. Further, as workers are being diagnosed earlier, this is having a large impact on the lives of families who must support their family member through trauma. There is potential for an increased probability for this cohort to make a secondary WorkCover claim related to the psychological impacts of their diagnosis.

Health practitioners have noted an element of fear toward testing within the industry as workers are concerned with the implications that may accompany a diagnosis if they are no longer able to keep working in the industry. If diagnosed with silicosis, individuals are unable to continue employment in any industry or workplace where there is any risk of dust exposure. This leads to limited employment prospects and often periods of unemployment following a silicosis diagnosis.

The employment effect is compounded by the fact these workers may not be qualified in other areas, so therefore need to spend time out of the workforce to re-skill or undertake work which may not align to their interests and skills.

These factors are extenuated by those with young families or others who are dependent on their income. For example, other family members may be required to look for employment or step out of the workforce to care for those affected.

2.3 Information and knowledge constraints

Whilst it has been established that the significant rise in silica-related illnesses correlates with increased usage of a higher silica content material, engineered stone, it is important to note that a lack of understanding of, or compliance with, appropriate health and safety procedures is also a significant factor.

As a result, there are a number of additional challenges which exist due to the limited capacity and capability that has existed across the relevant industries to assess the risk of working with crystalline silica. Due to the severity of this risk, it is imperative that those working with any material containing silica clearly understand their specific obligations with regards to providing information and implementing the necessary control measures. This is to ensure all relevant parties are fully informed when making decisions involving high risk activities which are associated with working with engineered stone or other silica products.

2.3.1 Information constraints

There is reported confusion among suppliers and manufacturers related to a discrepancy between the OHS Act and OHS regulations regarding the duty for suppliers to provide adequate information to their customers. Under the OHS Act, a supplier of a substance holds the duty to provide adequate information to each person to whom they supply the substance, including all conditions necessary to ensure that the substance is safe and without risk to health. However, application of Part 4.1 of the OHS Regulations exempts hazardous substances that are generated from non-hazardous substances from the safety data sheet requirements. As a result, manufacturers or suppliers have more flexibility in how they provide information on non-hazardous substances. Consequently, some stonemason businesses have reported that sufficient information in regard to

necessary safety controls is not being consistently provided by the suppliers of engineered stone. This becomes detrimental to both employers and employees who then process the supplied material without an awareness of the level of risk and relevant safety control measures which are involved in activities that generate RCS dust.

Historically there has been no requirement for employers to provide any information to prospective employees regarding undertaking a job that has a high risk of silica exposure. This has led to an inconsistency about the level of information that is provided to employees across different businesses, which in some cases can be very little. Lack of information for potential employees is a barrier to making informed decisions about working in high risk industries, and to taking appropriate control measures regarding the protection of their personal health.

2.3.2 Lack of formal training and experience in the workforce

Many of the employees in the stonemason industry who are directly engaged in activities with a high risk of exposure to RCS enter the industry without undertaking formal qualifications or training. Over time the barriers for workers seeking to enter the stonemason industry have decreased due to the ease of working with engineered stone compared to traditional stone products.²⁶

Employees new to the industry frequently rely on on-the-job training which can result in their knowledge of risk-control measures being dependent upon the preferred practices of an employer or workplace. Informal training processes may be influenced by cultural factors rather than an industry-approved mandated health and safety standard.²⁷ Whilst stonemason businesses have indicated that an apprenticeship is often preferred, employee stakeholders have noted that the prerequisite of a formal qualification is sometimes relaxed depending on the sector and size of business operations. Evidence suggests that this has resulted in a loss of professional knowledge across high risk industries, such as stonemasonry, including how to identify hazards, maintain equipment and correctly wear personal protective equipment.²⁸ This loss of professional knowledge extends beyond employees directly involved in processing engineered stone, to the office staff who may be involved in workplace OHS management. Stakeholders consulted for this RIS have expressed that the ability for workplaces to provide adequate training to employees is often dependent upon the size of the business, industry conditions and the availability of resources. As a result, there may be inconsistencies in the level of professional knowledge that exists and is required by employees working across relevant industries.

2.3.3 Lack of information regarding health impacts

Industry stakeholders have noted that there is an overall lack of awareness regarding the severity of the health impacts resulting from silica dust across all relevant sectors.²⁹ Whilst employers have indicated that awareness has increased significantly in response to the ban on dry cutting in August 2019, the high priority the disease has now been given by WorkSafe, as well as the increase in diagnoses of silicosis, anecdotal information suggests there is still some employee uncertainty toward what constitutes a hazardous level of silica dust exposure in the workplace and how to effectively control it.³⁰ Employee representatives have indicated that employees' awareness of health impacts is more likely to be lower within businesses with smaller operations, limited financial resources or higher proportions of non-English speaking workers.

Without adequate understanding of the risk of silica exposure, employees may underestimate the risk involved with processing materials such as engineered stone, and therefore not appreciate the importance of utilising effective control measures to mitigate risks. Business consultations have revealed that some employers may believe that updating to wet cutting processes eliminates all health risks, leaving other control measures redundant such as respiratory protective equipment. However, while these processes significantly reduce the level of exposure in the workplace, employee representatives have asserted that a combination of control measures is required to

²⁶ National Dust Disease Taskforce, *Interim Advice to the Minister for Health* (2019).

²⁷ *Ibid.*

²⁸ *Ibid.*

²⁹ *Ibid.*

³⁰ *Ibid.*

adequately protect workers. As this misinformation is passed on, employees may be unaware of the notable health risks still associated with wet cutting techniques such as the disposal and treatment of contaminated water or the cleaning of contaminated work areas.³¹ Use of recycled water that has not been adequately treated in an integrated water delivery system, and the use of compressed air for personal or area cleaning have been reported by occupational hygienists to lead to unacceptably high risk of exposure to RCS. This suggests that some employers may have a lack of understanding about how to fulfil their duties under the current OHS Regulations to reduce risk as far as is reasonably practicable

A lack of understanding of health impacts has led to differing views emerging with respect to the most appropriate health screening methods. As outlined in the National Dust Disease Taskforce Report, stakeholders have been critical of the minimum health monitoring processes required under the regulations as this has led to inconsistencies in the level of health services provided by employers. The Taskforce heard that the use of conventional chest X-rays and spirometry may not detect the early stages of silicosis. There was a general view that there needed to be a nationally consistent and comprehensive program to make screening available to all exposed workers and that there must be consistent national standards in the methodology of screening and case detection.³²

Smaller businesses with less financial resources tend to provide less health monitoring services to employees. This also has an impact on health practitioners and their ability to accurately assess the fitness of employees to work within high risk industries. This is of particular importance due to the delayed nature of silicosis symptoms which may go undetected without extensive professional health screenings.³³ In addition, employees may not prioritise their own health until they see the effect that poor health and safety practices, combined with RCS exposure, has on others.³⁴

Stakeholder consultations also revealed that employees may be reluctant to seek health information and attend health screening appointments out of fear of the consequences which may accompany a positive diagnosis.³⁵ These consequences may include loss of immediate employment, forced exit from the industry in which they have been trained, and personal trauma associated with undergoing treatment.

2.4 Poor compliance levels

High levels of non-compliance exist, particularly within the stonemason industry, despite the increasing awareness of the nature of the problem. From October 2018 through to March 2020, WorkSafe visited 307 stonemason workplaces and issued 452 silica-related notices for non-compliance with OHS legislation and regulations.

Initially there were high numbers of non-compliance notices issued, with 83 per cent of inspections in October 2018 resulting in a non-compliance notice being issued, as shown in Chart 2.4. However, the number of stonemason workplaces issued with a silica-related notice as a proportion of total inspections has been trending downwards, to 10 per cent as of October 2019. In the six months following the introduction of the 12-month dry grinding ban in August 2019, the average proportion of silica-related compliance notices has remained relatively consistent (43 per cent), compared to the six months prior to the ban (39 per cent).

³¹ Ibid.

³² Ibid.

³³ National Dust Disease Taskforce, *Interim Advice to the Minister for Health* (2019).

³⁴ ThinkPlace, *Exploring dust exposure in the stone industry* (2018).

³⁵ National Dust Disease Taskforce, *Interim Advice to the Minister for Health* (2019).

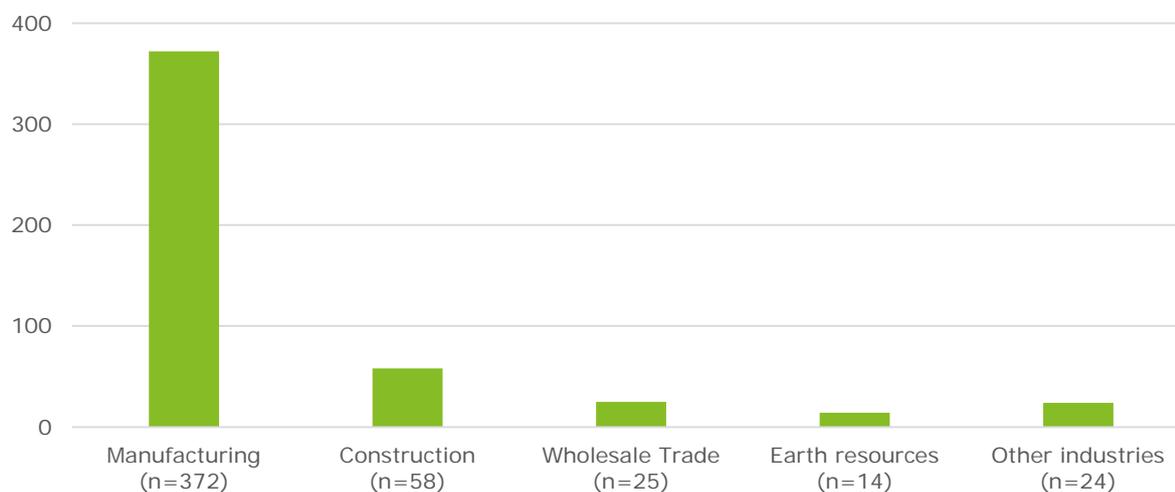
Chart 2.4: Silica notices over time for stonemason businesses, October 2018 to March 2020



Source: WorkSafe Victoria (March 2020). Note: The percentage of silica-related notices in December 2019 is excluded due to the low number of monthly inspections (15 or less per month).

The manufacturing industry, of which the stonemason industry is a part, accounts for the majority of total silica-related compliance notices, at 372 notices or 80 per cent, as shown in Chart 2.5. Of these most relate to non-compliance with requirements under OHS Act and OHS Regulations on health monitoring (33 per cent) and dry grinding (31 per cent).

Chart 2.5: Silica notices by industry (all businesses), October 2018 to March 2020



Source: WorkSafe Victoria (March 2020).

Across all relevant industries, the largest number of notices have been issued for lack of compliance with health monitoring requirements, representing just over 200 since October 2018 (41 per cent). Health monitoring notices could relate to a failure to provide health monitoring in general or a failure to undertake health monitoring to the extent required. For example, health monitoring notices may be issued for workplaces failing to obtain a report of the health monitoring undertaken or the report not containing the required information.

Dry grinding, housekeeping and appropriate respiratory training are also common reasons for notices to be issued, as shown in Chart 2.6. Dry grinding and housekeeping relate to failures to

control risks associated with these activities. Whereas notices issued for respiratory training relate to a failure to provide information, instruction, training and supervision in the correct use of respiratory protective equipment. These issues are present in many industries including manufacturing, construction, wholesale trade and earth resources.

Chart 2.6: Silica notices by industry by WorkSafe Victoria notice theme, October 2018 to March 2020

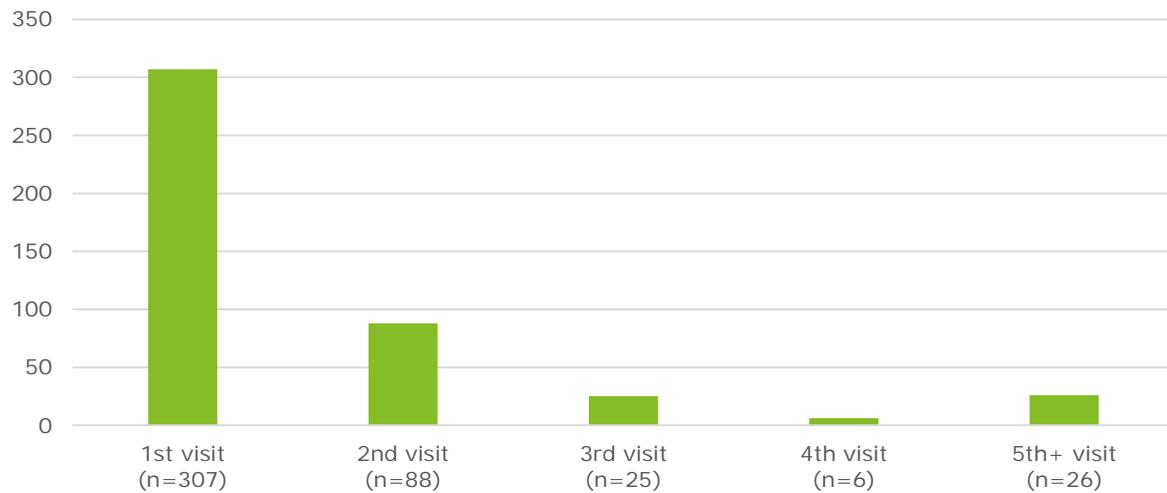


Source: WorkSafe Victoria (March 2020).

The majority of silica-related notices were issued during a first visit by WorkSafe Victoria; however around 32 per cent of notices were issued on a second or subsequent visit to the same workplace. Whilst silica-related notices issued at subsequent visits may not relate to the same issue as previous notices, continued non-compliance at subsequent visits could indicate that there exists a culture of non-compliance in a small part of the industry or a lack of awareness of what is required to meet their obligations under the OHS Act and OHS Regulations.

It would be reasonable to expect that workplace inspections have a behavioural impact on the duty holder as it is a strong reminder of their obligations under the OHS Act and OHS Regulations and that they are subject to compliance and enforcement activities by WorkSafe. Notices received on subsequent visits within a short timeframe may indicate that for some duty holders, being subject to compliance and enforcement activities by WorkSafe is not a strong enough deterrence. This suggests that stronger regulations and enforcement powers (e.g. licence suspension) may be required to address this ongoing risk.

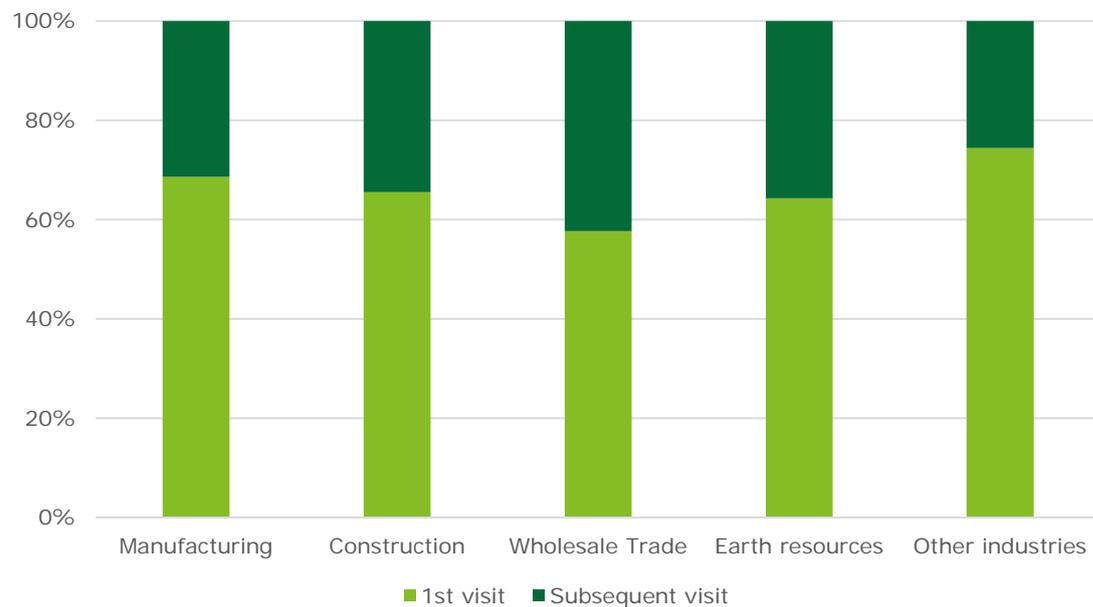
Chart 2.7: Silica notices issued to stonemason businesses by number of visits, October 2018 to March 2020



Source: WorkSafe Victoria (March 2020).

As a proportion of all silica-related notices issued by WorkSafe Victoria, the wholesale trade industry has the greatest proportion that relate to a second or subsequent visit. However, as of March 2020, the notices issued to wholesale trade represent just 5 per cent of all silica notices issued. Differences in compliance across workplaces and industries may be explained by variation in factors such as workplace culture or communication of the health and safety issues associated with RCS exposure. These differences are discussed in further detail in the following section.

Chart 2.8: Silica notices issued by industry and number of visits, October 2018 to March 2020



Source: WorkSafe Victoria (March 2020).

2.4.2 Lack of targeted regulation

Prior to the commencement of the interim regulations in late August 2019, a lack of visible, targeted regulation may have contributed to businesses underestimating the impact of silica exposure on their employees' health, particularly in the long term.³⁶

Whilst a lack of targeted regulation may explain some older cases of non-compliance, it does not provide an explanation of recent cases of non-compliance. During consultation undertaken for this RIS, employee representatives noted a general history of non-compliance within the stonemason industry in part due to a lack of strict enforcement of employer's OHS obligations. As a result, the lack of visible consequences has reduced the overall incentive for businesses to change their practices. Industry stakeholders confirmed this notion, adding that enforcement of targeted regulations becomes even more difficult in relation to small independent operations, which regularly enter and exit the industry on a project by project basis.

2.4.3 Workplace culture and financial drivers

Workplace culture and financial considerations may also contribute to low compliance levels. Many workplaces face time and budget constraints which can impact the prioritisation of health and safety processes. Analysis by the National Dust Disease Taskforce indicated that the safety culture in the relevant industries is disproportionately influenced by factors such as financial rewards and historical practices.³⁷ Pressure to finish a job, or take one on, can lead to the adoption of poor techniques and a lack of consideration for personal safety.³⁸ Employee representatives have noted that dry cutting anecdotally occurs during on-site installation in instances where small adjustments or trimming is required. Businesses have stated that it is often very costly, in terms of time and labour, to return large pieces of engineered stone to their factories where appropriate control measures are in place. It is businesses who often bear the full burden of these costs, having not factored them into their initial quotes in order to remain competitive. As a result, businesses may be financially motivated to improvise and engage in poor techniques under such circumstances. Industry stakeholders have noted that this impacts small businesses disproportionately, whereas larger employers with greater resources, tools and processes are better equipped to react appropriately in line with regulations.

Alongside the pressures associated with the work, consultations with the stonemason industry in 2018 research suggested that many in the industry considered a low level of dust exposure is unavoidable.³⁹ Whilst this can be addressed using the proper equipment and techniques, less severe exposure may historically have been accepted as 'part of the job'.

2.4.4 Communication and English language issues

Education and training are important elements to ensure both employers and employees understand the health risks associated with workplace practices. Ensuring consistent delivery of education can be difficult in an industry that can be transient, or where there is a large proportion of Culturally and Linguistically Diverse (CALD) employees, such as the engineered stone benchtop industry.

There are anecdotal stories of CALD employees having less awareness of the problems associated with RCS. While employers have an obligation to provide this information to all employees, language barriers can allow the nature of silicosis to become 'lost in translation'. In these instances, employers' compliance with their OHS duties becomes difficult to assess as there is limited evidence to confidently establish that this information has been passed on from employer to employee.

The National Disease Taskforce's interim findings report found that less experienced workers, especially younger workers and apprentices, casual hire and temporary workers (inc. CALD), can

³⁶ National Dust Disease Taskforce, *Interim Advice to the Minister for Health* (2019).

³⁷ National Dust Disease Taskforce, *Interim Advice to the Minister for Health* (2019).

³⁸ ThinkPlace, *Exploring dust exposure in the stone industry* (2018).

³⁹ ThinkPlace, *Exploring dust exposure in the stone industry* (2018).

have a lower awareness of the risks of RCS exposure.⁴⁰ In addition, this group may feel less confident pushing back against workplace practices.

As a result of the above there is a disproportionate increase in risk amongst CALD workers.

⁴⁰ National Dust Disease Taskforce, *Interim Advice to the Minister for Health* (2019).

3 Options

This chapter outlines the feasible set of options considered in this RIS, an explanation of how feasible options were selected, and why other options were considered infeasible.

3.1 Options development

As part of the RIS process, it is necessary to consider different options that could achieve the Victorian Government's objectives. The *Subordinate Legislation Act 1994*, the *Subordinate Legislation Act Guidelines*,⁴¹ and the *Victorian Guide to Regulation* recommend that this includes considering a range of approaches, including co-regulation and non-regulatory approaches, and those that reduce the burden imposed on business and/or the community.

As noted in Chapter 1, a range of legal, legislative, regulatory and non-regulatory mechanisms currently exist to reduce the risk of exposure to silica dust, including:

- The OHS Act
- The OHS Regulations
- The compliance code for working with crystalline silica
- The interim ban on dry cutting of engineered stone
- The free health assessments program
- Information and education materials provided by WorkSafe and employers

The range of feasible options for addressing the problem is considered within this broader legal context.

3.1.1 Potential changes to the OH&S regulations

Given the nature of the problem described in Chapter 2, the key objective of the potential changes to the OHS regulations is **to eliminate the risk of adverse health effects from work involving materials containing crystalline silica.**

This reflects the objectives of the OHS Act which are:

- a) to secure the health, safety and welfare of employees and other persons at work; and
- b) to eliminate, at the source, risks to the health, safety or welfare of employees and other persons at work; and
- c) to ensure that the health and safety of members of the public is not placed at risk by the conduct of undertakings by employers and self-employed persons.

3.1.2 Base case

The base case is the general duties that apply to employers, employees, manufacturers, importers and suppliers of hazardous materials under the OHS Regulations currently. This includes existing initiatives such as WorkSafe's free health assessment program, Victoria's adoption of Safe Work Australia's new exposure standard of 0.05 mg/m³ and the new Compliance Code for managing exposure to crystalline silica (introduced by WorkSafe February 2020).

The base case does not include the current ban on dry cutting of engineered stone, which is due to expire in February 2021. This RIS has, therefore, assumed that there would be some level of reversion to practices in place prior to the ban being introduced.

⁴¹ Office of the Chief Parliamentary Counsel, *Subordinate Legislation Act Guidelines*.

The costs of the proposed Regulations are assessed against this base case as a point of comparison.

3.2 Feasible options

Two sets of options are being considered through this RIS. The first set relates to the implementation of a licensing or notification scheme for employers and self-employed persons who work with engineered stone. Three regulatory options are being considered in this context.

The second set of options relates to changes to Part 4.1 and Part 4.5 of the OHS Regulations, which involves a number of proposed reforms to prohibit or limit certain high-risk work involving crystalline silica. There are two regulatory options being considered in this context.

These options have been developed following consultation with industry, the community and experts including WorkSafe's Silica Stakeholder Reference Group (SRG), comprised of members from relevant industry bodies, employee representative groups, and health practitioners. (A list of members of the SRG is provided in Appendix B).

3.2.1 Licensing or notification of engineered stone

The following options are being considered in order to regulate the stonemason industry:

- Option 1: introduce a mandatory requirement for any employer or self-employed person to hold a licence if they are to work with engineered stone
- Option 2: introduce a negative licensing scheme where an employer who breaches the Regulations could be prohibited from working with engineered stone until compliance can be demonstrated
- Option 3: introduce a notification scheme whereby an employer must notify WorkSafe when an 'engineered stone process' undertaken and exposure standard likely to be exceeded.

These options are discussed in more detail below:

Option 1: Introduce a mandatory licensing scheme

Under this option, all employers or self-employed persons who undertake processes with engineered stone that generate RCS will be required to hold a licence. In order to be granted a licence, the business or self-employed person would have to meet a strict set of requirements, including providing training to employees, undertaking air monitoring, conducting risk assessments, and undertaking health monitoring. Furthermore if the conditions of the licence are found to be breached, the employer could have their licence removed and be prohibited from working with engineered stone. This approach would ensure that the conditions of the licence are targeted to the specific risks associated with working with engineered stone.

Introducing a mandatory licensing regime for engineered stone would require amendments to the OHS Regulations to set out the:

- circumstances and/or activities for which an employer or duty holder must be licensed
- requirements that need to be satisfied in order to be granted a licence
- term for which the licence would be granted
- grounds for suspension, cancellation or non-renewal of a licence.

The licensing scheme would require employers or self-employed persons to:

- develop an engineered stone control plan identifying the control measures that the employer or duty holder will put in place to manage the risks associated with engineered stone in the workplace
- provide all employees with mandatory information, instruction and training on safe work practices when working with engineered stone, or in the case of self-employed persons, undertake mandatory training on safe work practices when working with engineered stone
- undertake to comply with all the regulatory controls for engineered stone prescribed under the OHS Regulations, including health and air monitoring requirements and the prohibition on uncontrolled dry-cutting of engineered stone

- report information to WorkSafe, including the health and safety information and the results of any required air monitoring health monitoring, examination or testing
- where a sub-contractor is engaged, ensure that the sub-contractor has undergone training on safe work practices when working with engineered stone before they commence work
- retain records regarding health information of employees and subcontractors
- provide employees and sub-contractors with a statement of work upon leaving the employer. This statement of work would set out the period during which the employee worked with engineered stone and advise the employee to have periodical health assessments and set out the types of tests that are relevant.

This option would also include a restriction on supply of engineered stone to employers who do not hold a current licence, including any existing licence holder who has their licence suspended or cancelled due to non-compliance.

Option 2: Introduce a negative licensing scheme

This option involves implementing a licensing scheme whereby an employer who breaches the Regulations could be prohibited from working with engineered stone until compliance with the Regulations can be demonstrated to WorkSafe's satisfaction. Introducing this option would require:

- setting out the requirements and/or standards that, if breached, could result in a facility being issued with a negative licence; and
- conditions that a negative licence would impose (such as duration of ban and/or the actions that could be taken by the employer for the ban to be revoked).

This option is a performance-based approach to regulation, which aims to reduce risks by directing attention to poorly performing employers who are continuing to operate in a non-compliant manner. This option would require adequate resources from WorkSafe in order to identify and prosecute non-compliance, as there is no mandatory requirement for either the employer or the supplier to notify WorkSafe of this fact. This would include the development of internal policies and procedures regarding how WorkSafe will exercise its discretion to determine if a notified facility should be restricted from using engineered stone.

Option 3: Introduce a notification scheme for working with engineered stone

Under this option, employers would be required to notify WorkSafe when undertaking an 'engineered stone process' where:

1. an employer has a business that engages in "engineered stone processes" which is defined as either the cutting, grinding or abrasive polishing of engineered stone; or
2. the respirable crystalline silica exposure standard prescribed by the OHS Regulations has or is reasonably likely to be exceeded in the workplace.

Under this option, employers would be required to prepare a silica hazard control statement when undertaking an engineered stone process, which outlines the risks involved and the control measures they have in place.

3.2.2 Changes to Part 4.1 and Part 4.5 of the OHS Regulations

The following options are being considered in order to regulate activities that pose high risk silica exposure. The chosen option will be implemented in addition to the chosen option for a licensing or notification scheme.

Option 1: Package of reforms

A package of reforms to the OHS Regulations Part 4.1 and Part 4.5 would be made including:

- Retaining the prohibition of uncontrolled dry cutting of engineered stone – the current interim ban would be re-made in the regulations to prevent it from lapsing.
- Prohibit additional activities deemed unacceptably high risk to workers, including:
 - Banning the use of recycled water that has not been adequately treated in an integrated water delivery system
 - Banning the use of compressed air for personal or area cleaning.

- Introducing a requirement for employers to undertake a risk assessment where prescribed silica processes are to be undertaken to determine if it is high risk, and for those deemed high risk, to prepare a silica hazard control statement.
- Amending information provision requirements to require employers must provide written information about crystalline silica products, and the relevant risks and control measures, to all current and prospective employees. Additionally, manufacturers or suppliers must outline these details to workplaces when supplying products containing crystalline silica.

Risk assessment: An employer must undertake a risk assessment to determine if a silica process or combination of silica processes are reasonably likely to result in a risk to the health of employees; or exceed half the exposure standard for RCS. In undertaking such a risk assessment, an employer must consider the tasks or processes that will be undertaken, the silica content of materials to be used, results of atmospheric monitoring, the frequency and duration of an employee's exposure to RCS and any information about incidents, illnesses or diseases associated with RCS at the workplace. If an employer is unable to undertake a risk assessment, the silica process or combination of silica processes must be treated as high risk work.

Silica hazard control statement (SHCS): A hazard control statement is a document that identifies work that is high risk silica work, states the hazards and risks associated with that work and sufficiently describes measures to control those risks and how to implement them. Where the SHCS relates to a quarrying or tunnelling process, the SHCS must also include the results of an analysis of a representative sample of the range of materials that will be used at the workplace that identifies the silica content present in those materials.

Engineered stone control plan: An engineered stone control plan must be prepared by an engineered stone licence holder. The engineered stone control plan must identify activities undertaken that require an engineered stone licence, states the hazards and risks associated with that work and sufficiently describes measures to control those risks and how to implement them.

Option 2: Retain the prohibition of uncontrolled dry cutting of engineered stone only

Under this option the ban on dry cutting would be re-made in the OHS Regulations to prevent it from lapsing. However there would be no additional changes to Part 4.1 and Part 4.5 of the regulations for working with crystalline silica.

3.3 Options considered but assessed as infeasible

3.3.1 Ban on the supply and use of engineered stone

Some stakeholders observed that the most effective way to reduce the incidence of silicosis, would be to entirely remove engineered stone from the market. However, a ban on engineered stone would not be within the regulation making power of the OHS regulations.⁴² State and territory ministers can also only impose interim bans that apply in their state or territory. Interim bans last for 60 days unless extended by the relevant minister for up to another 60 days. Only the Commonwealth Minister has the power to declare a permanent ban on a product or product-related service.⁴³ Furthermore, if appropriate control measures can be implemented to ensure that those working with engineered stone are not exposed to levels of RCS that will have adverse health effects then the benefits of banning the product (compared to alternative approaches) are unlikely to outweigh the costs.

3.3.2 Additional compliance and enforcement

WorkSafe has recently undertaken increased compliance and enforcement activities. From October 2018 through to March 2020, WorkSafe visited 307 stonemason workplaces and issued 452 silica-

⁴² Noting asbestos prohibitions are given effect through the *Dangerous Goods Act 1985* but engineered stone is not a dangerous good

⁴³ Australian Competition and Consumer Commission, <https://www.productsafety.gov.au/product-safety-laws/safety-standards-bans/product-bans/about-product-bans>.

related notices for non-compliance with OHS legislation and regulations. Whilst WorkSafe will continue to undertake compliance and enforcement activities, they do not consider that these activities alone will be sufficient in addressing the problem. They should be supported by additional regulatory and non-regulatory mechanisms.

3.3.3 Education and awareness campaigns

Education and awareness is often considered as a feasible alternative to regulatory options.

The OHS Act requires WorkSafe to promote public awareness and discussion of OHS matters and understanding and acceptance of the principles of health and safety. WorkSafe currently delivers broad public awareness campaigns as well as targeted campaigns in relation to specific hazards such as silica. Key elements of WorkSafe's education and awareness program in relation to silica include:

- Non-statutory guidance, available in both English and other languages, such as the information sheet *Working with engineered stone*⁴⁴
- Increased awareness through WorkSafe's free Health Assessments Program
- Education seminars for stonemasons and health professionals that have been delivered across Victoria
- A Silicosis Summit held in February 2020 about safe work practices to protect workers and employers from silicosis and related diseases.

Given that the education and information provided by WorkSafe is already extensive, and that stakeholders indicated during consultation that employer and employee awareness is generally high (with some exceptions such as workplaces with high non-English speaking employees), additional investment in education and awareness campaigns by WorkSafe are expected to have a diminishing impact in addressing the problem.

3.3.4 Market instruments

Consideration was also given to the inclusion of an option involving the use of market-based instruments such as taxes, subsidies, and tradeable permits. However, no viable approaches could be identified for reasons such as they would not deter the harmful activity or would involve significant cost to government rather than the businesses that are responsible for the harm. Additionally, the Minister for Workplace Safety does not have the regulatory power to give effect to these types of approaches.

It is important to note that a market-based approach to managing occupational health and safety risks already exists to a certain extent in the form of the Victorian workers' compensation insurance scheme. This is akin to a market-based instrument as it provides financial incentives for employers to manage health and safety risks in the workplace. The legislative framework provides for:

- Workers' compensation and the rehabilitation of injured workers under the *Accident Compensation Act 1985* and the *Workplace Injury Rehabilitation and Compensation Act 2013* (WIRC Act)
- Employer insurance and premiums under the WIRC Act
- Return to work obligations under the WIRC Act.

Premiums are paid by employers to fund compensation to injured workers and the costs of medical treatment. Employer premiums are risk rated based on industry and for large employers, their claims performance. For large employers there is a monetary incentive to reduce injuries in the workplace as this can reduce their premium. In addition to these arrangements, employers can be liable through Common Law for damages where an employee has suffered a 'serious injury' and where it can be shown that the employer is at fault. This acts as an incentive for employers to comply with health and safety practices and standards in the workplace.

⁴⁴ <https://www.worksafe.vic.gov.au/resources/working-engineered-stone>.

These mechanisms, however, provide only a limited deterrence against unsafe practices and weak incentives to improve risk control measures, particularly for risks that have a long latency like silicosis. Furthermore, any premium increases may not reflect the total cost of injuries arising from the premium payers undertaking. Small business premiums are not adjusted to take account of their own claims history while any industry-wide premium adjustment is also subject to a cap for existing operations. Finally, premium rate increases do not directly prevent the problem from occurring.

4 Impact analysis and preferred option

4.1 Approach to impact analysis

This RIS uses a break-even approach to analyse the impacts of the proposed Regulations. This approach has been used as:

- It was possible to quantify the costs of the proposed Regulations relative to the base case with a reasonable degree of certainty
- There is limited data available to quantify the benefits associated with the proposed Regulations with a reasonable degree of certainty. This is particularly the case in relation to forecast number of illnesses and fatalities.

The break-even analysis estimates the number of fatalities that would need to be prevented for an option to generate the level of benefits that would exactly offset or equal the costs of the option. A judgement is then made as to how achievable these benefits are in practice.

Based on the evidence, there are clearly positive health and safety outcomes from reducing exposure to silica dust, which will therefore decrease the incidence and resulting deaths due to silicosis. However, the benefits – in particular the specific number of avoided illnesses and deaths – are difficult to quantify across each of the options.

Further, some of the benefits are difficult to estimate in monetary terms and so are discussed qualitatively.

This RIS considers the costs and achievable benefits of the Regulations over the next 10 years.

4.2 Approach to estimating costs

The analysis estimates the costs of the Options by assessing:

- Costs to businesses of complying with the proposed Regulations compared to the base case, and
- Costs to the Government of implementing and administering the Regulations compared to the base case.

The estimated costs include those costs that are relevant and attributable to the specific Regulations in Victoria. Costs to businesses include costs to adhere to the new proposed Regulations, as well as costs of increased compliance with existing regulatory requirements, based on current rates of non-compliance. The cost estimates developed for this RIS are based on information on costs collected through consultation with relevant businesses, representative industry groups and WorkSafe. Analysis of the data has been undertaken to identify, assess and, where appropriate, correct for data issues such as outliers. The total cost was estimated by extrapolating the results across all relevant businesses working with engineered stone and other high-risk silica processes.

4.2.1 Approach to estimating benefits

The analysis assessed the benefits to society from improved health and safety outcomes as a result of the reduction in the exposure to silica dust when working with engineered stone or engaging in other high-risk silica processes.

Again, the benefits are in comparison to the base case.

The benefits that have been estimated as part of this analysis include the prevention of fatalities and avoided serious illnesses. The benefits realised from avoided fatalities under each of the options is measured using the global burden of disease (GBD) methodology,⁴⁵ as well as the Value of Statistical Life Year benchmark.⁴⁶ The benefits realised from avoided serious illness relates to those who are exposed to RCS, resulting in a diagnosis that significantly reduces a victims' physical and mental health for their lifetime. This is also evaluated using the GBD methodology.

The breakeven point expresses how many avoided deaths or illnesses would be required to justify the cost of each of the proposed options.

4.2.2 Relationship between options being assessed

The assessment of costs and benefits of options needs to take into account any interactions/interdependencies between each option. The benefits to be derived from the licensing scheme and the measures in the package of changes to Part 4.1 and Part 4.5 are closely related. This is important for assessment of the effectiveness of options and highlights the need to avoid double counting of benefits.

The costs and benefits associated with the proposed licensing Regulations have been calculated under the assumption that not all businesses are fully compliant with the prescribed requirements in the Regulations (such as direct control measures and information requirements). It is assumed that businesses would achieve a greater level of compliance with control measures with licensing regulations in place. This is because the licensing framework is primarily designed to increase the compliance of high-risk activities with requirements set out in the Regulations, rather than impose additional restrictions. A licence will not be granted unless the compliance standards are deemed to be met in the licence assessment process. Therefore, licensing should increase compliance because licence holders will need to have demonstrated compliance at the time the licence was granted.

The licensing framework is expected to increase compliance with prescribed requirements because it will provide a structured and transparent framework to address areas where there is a significant risk of harm (e.g. request a business to prepare hazard control statement or undertake atmospheric monitoring). Specifically, the conditions of a licence will provide specificity and certainty to licence holders about what they must do in order to retain their licence. Setting licensing requirements for certain activities also allows WorkSafe to better enforce the Act and Regulations against poor performers or those who may deliberately not comply with their obligations. It will also allow for greater oversight by WorkSafe to help identify areas where understanding of OHS obligations and compliance with the OHS framework may be poor and helps WorkSafe target its response to drive compliance.

Therefore, in our analysis we have adopted the following approach:

- The cost of the licensing scheme does not include the cost of complying with the changes to Part 4.1. and 4.5. It only includes the cost of administration, having to undertake a site visit, and the fee.
- The effectiveness of the licensing scheme relies on the prescribed measures being established, and vice versa. It is too difficult to allocate benefits between these, and to undertake separate analyses that are meaningful.
- Reflecting this, the preferred licensing scheme, or notification approach, is first assessed qualitatively on the evidence available, against the following considerations:
 - Effectiveness in meeting the objective of eliminating the risk of adverse health effects from work involving materials containing crystalline silica. Effectiveness will depend on the potential for the option to lead to increased compliance with prescribed requirements.

⁴⁵ Murray, Christopher J. L, Lopez, Alan D. *The Global burden of disease: a comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020*. World Health Organization, World Bank & Harvard School of Public Health. (1996).

⁴⁶ The Australian Government's *Best Practice Regulation Guidance Note: Value of statistical life* (August 2019) recommended that a statistical life year be valued at \$213,000 in 2019 dollars.

- Costs: costs to government of implementing the scheme plus cost to business of complying with the scheme, including any delay costs or prohibition costs. (Note this does not include costs of complying with prescribed requirements).
- The breakeven analysis is then undertaken at an aggregate level for the preferred licensing scheme or notification scheme option **plus** either:
 - The package of options (Changes to Part 4.1 and 4.5)
 - Only the ban on dry cutting.

4.2.3 Base case

All options outlined in this section have been assessed against the base case. The base case assumes no new regulations will be made, and the ban on dry cutting will lapse. Consultation with business indicates that an increased awareness of the risks associated with RCS, as well as the investment that a number of businesses have now made in order to implement wet cutting, means there will not be an immediate return to dry cutting in many cases. Despite this, analysis of recent compliance data, as outlined in Chapter 2, suggests that there is still evidence of non-compliance across the stonemason industry. In 2020, since the ban on dry cutting was introduced, 45% of stonemason businesses inspected by WorkSafe were issued a silica related non-compliance notice. Additionally, over time it is expected that, without a ban, some businesses may revert to dry cutting if they deem it to be more efficient or if practices change in the business (for example due to personnel change), and there may be new entrants to the market who do not implement wet cutting processes due to the costs involved or lack of knowledge. Therefore, under the base case scenario it is assumed that the rate of non-compliance across the industry will be at least 45%.

4.3 Costs of options

4.3.1 Base case

There are no incremental costs to business, government or community under the base case.

4.3.2 Costs to businesses

There are a number of businesses that undertake processes with materials that contain high risk silica, including stonemasons but also businesses in the construction industry, and those in earth resources such as quarrying and mining.

There are two components of the proposed regulations, which will affect different businesses in different ways. The licensing and notification elements only apply to stonemason businesses, with these costs considered first. The changes to Part 4.1 and Part 4.5 of the OHS Regulations would apply to all businesses that deal with high risk silica products (see section 4.3.2.2).

4.3.2.1 Costs to stonemason businesses – licensing and notification schemes

The cost to the Victorian stonemason industry will differ across options one, two and three: the mandatory licensing scheme, the negative licensing scheme and the notification scheme.

Option one is expected to be the costliest option, as all Victorian stonemason businesses that work with engineered stone must apply for a licence and undertake the associated activities in order to obtain the licence. Comparatively, the negative licensing scheme proposed in option two is expected to cost less than option one as it will only apply to a segment of businesses – those that have been found by WorkSafe to be non-compliant. Lastly, the notification scheme proposed in option three is expected to be the least costly of the three options, as it only requires businesses to notify WorkSafe of high-risk activities.

The cost of the proposed licensing and notification schemes to the Victorian stonemason industry is calculated using a bottom up approach. This approach first considers the individual cost to businesses, based on data gathered during stakeholder consultations. These costs are then extrapolated to the entire Victorian stonemason industry.

Estimated cost per business of each option

To be issued with a licence, businesses must complete the application process and pay the licence fee.⁴⁷ The application process will require businesses to demonstrate measures they have in place to comply with the Regulations and to reduce the risks of exposure to silica dust. This may include:

- Providing details of the training and PPE provided to employees
- Providing details of the atmospheric monitoring undertaken by the business
- Providing details of the health monitoring undertaken by the business
- Preparing an engineered stone control plan and providing this to WorkSafe
- Providing details of previous licences held for 'like' processes.

Businesses may be required to undertake other activities as part of their licence application, including participating in site inspections, if this is deemed necessary by the officer assessing the licence application.

It is possible that there would be other impacts of the licensing scheme, such as the costs to individual businesses if they are delayed or prohibited or unable to operate due to not having a licence or not being supplied engineered stone. The impact on individual businesses is potentially high and in some cases could lead to business closure. However, for the purpose of assessing costs and benefits at an overall level, this impact is considered to be minimal or neutral, as other businesses in the industry will expand to pick up any unmet demand; while there could be additional costs such as overtime labour costs, it is not considered that these would be material.

The estimated costs associated with the licence application are outlined below. There is expected to be a cost of \$1,090 per business to prepare a licence application, \$1,045 to prepare an application to become registered under a negative licensing scheme, and \$50 per business for notification.

⁴⁷ As discussed in Chapter 5, there will be a licence fee exemption in the first year of the scheme. Thereafter, businesses will be required to pay the licence fee, including when they reapply for the licence after five years.

Table 4.1 Cost to business of licence scheme and notification options (per business)

Estimated cost per business			
	Option 1: licensing scheme	Option 2: negative licensing scheme	Option 3: notification scheme
<p>Cost of applying for a licence</p> <p>Providing documentation relating to:</p> <ul style="list-style-type: none"> • Training and PPE equipment provided to staff • Atmospheric monitoring • Health monitoring • Risk assessments and hazard control documents 	<p>The application is estimated to take a business 2.5 days to prepare, based on an assessment of WorkSafe process mapping. If one person is assigned this task, this is assumed to have a cost of \$50 per hour, including the average Victorian hourly wage rate of \$34, plus overheads and on-costs of 50%. This will cost businesses an estimated \$1,000.</p> <p>This cost is in addition to any fees payable.</p>	<p>This cost is assumed to be the same as for Option 1 but for fewer businesses.</p>	<p>No cost</p>
<p>Costs of other control requirements</p> <ul style="list-style-type: none"> • Participating in a site inspection 	<p>A two-hour site visit is assumed for businesses where non-compliance has been noted. This is a cost above the base case, as an additional site visit is assumed for non-compliant businesses over and above the site visits that occur for all businesses under the base case. Under the base case site visits are assumed to continue as per current requirements.</p> <p>This two hour visit is assumed to have a cost of \$50 per person per hour for the business, including the average Victorian hourly wage rate of \$34 per hour plus overheads and on-costs of 50%. Typically, 2 employees would be involved.</p> <p>A site visit will therefore cost the business \$200. Interruption to a work schedule of business, if any, has not been costed.</p> <p>Using an assumed rate of non-compliance as a proxy for those businesses that will</p>	<p>This cost is assumed to be the same as for Option 1 but for fewer businesses. It is assumed only 22.5% of businesses would require an additional site visit, at a weighted average cost of \$45 per application.</p>	<p>No cost</p>

	require a site visit (see below), it is assumed that 45% of applications will require a site visit. This means a weighted average cost of \$90 per application.		
Cost of licence fee	The cost, as discussed in section 5 of this RIS, is \$302 per licence issued and per renewal. However to avoid double counting this is not counted in the total cost of the licensing scheme as this cost is included in the costs to WorkSafe.	As per Option 1.	No cost
Cost of supply restriction	Suppliers will incur costs of checking engineered stone licences and documentation, however this is not expected to be material.		
Notifying WorkSafe of work being undertaken with high risk silica products.	No cost	No cost	We estimate that the cost of notifying WorkSafe of high-risk silica work would be one hour per notification, which is equivalent to \$50 at a cost of \$34 per hour, plus overheads. Noting this does not include any other costs that might arise as a result of notification e.g. audit costs.
Total cost per application	\$1,090⁴⁸	\$1,045⁴⁹	\$50

⁴⁸ This excludes the cost of the licence fee, which is included in the cost to government

⁴⁹ As above

Number of businesses impacted

There are an estimated 299 stonemason businesses in Victoria as of March 2020 that work with engineered stone. All of these businesses will require a licence under Option 1.

For Option 2, it is necessary to estimate the number of businesses that will need to be licensed under a negative licensing scheme. Historical compliance data can inform the development of an assumption for this, although noting there is significant uncertainty. Data provided by WorkSafe indicates that 32% of Victorian businesses inspected as part of a program of strategic visits focused on hazards associated with RCS were fully compliant over a 17 month inspection period.⁵⁰ This includes compliance with regulations relating to safely managing crystalline silica products and other OHS regulations. A further 15% of inspected businesses were compliant with regulations to control silica dust, but were non-compliant in other areas. Nevertheless, over half of the businesses inspected (54%) were issued silica non-compliance notices, indicating that they did not have adequate controls in place to manage the risks associated with silica dust.⁵¹

Inspections conducted in the first three months of 2020 indicate that the level of compliance has slightly improved among stonemason businesses, with only 45% of businesses issued silica non-compliance notices (down from 54%). A further 12% of businesses complied with the silica dust regulations, but were issued a notice for non-compliance in another area (down from 15%). The number of businesses visited that were fully compliant had increased to 42% (up from 32%).

This 45% rate of non-compliance is used to estimate the cost to the industry of the proposed regulations. While the data provided by WorkSafe is current as of April 2020, it is possible that more businesses that were issued non-compliance notices have since complied. As such, these costs likely represent an upper bound of overall compliance costs to the Victorian stonemason industry.

It is also important to consider the impact of introducing the negative licensing scheme on business behaviour. It is assumed that some businesses will respond by becoming fully compliant with the silica regulations in order to avoid having to become licensed. We have assumed 50% of previously non-compliant businesses fit into this category. Overall then, it is assumed that 23% of businesses will be required to become licensed under the negative licensing scheme, equal to 69 businesses.

Under Option 3, it is assumed that each of these businesses will need to make a notification to WorkSafe of high risk work being undertaken with high risk silica products.

Assessment of total cost

The total estimated costs to Victorian stonemason businesses over ten years are outlined below for each option.

Option 1:

The total cost to the industry of the proposed regulations in option 1 is estimated to be \$651,820 which is the cost of \$1,090 per business for 299 businesses, twice over ten years. This assumes that the licences will need to be renewed every five years, so twice over the period of analysis in this RIS.

Option 2:

The total cost to the industry of the proposed regulations in option 1 is estimated to be \$70,302 which is the cost of \$1,045 per business for 67 businesses. This assumes that the licences do not need to be periodically renewed, as a licence is only required after an assessment of non-compliance.

⁵⁰ Data provided by WorkSafe relates to workplace inspections conducted from 8 October 2018 through to 8 March 2020.

⁵¹ The ban on uncontrolled dry cutting of engineered stone was implemented in August 2019.

Option 3:

Under option three, all businesses that work with engineered stone must notify WorkSafe of this activity, at an estimated total cost to stonemason businesses of \$50. The total cost for 299 businesses is \$14,950⁵².

4.3.2.2 Costs to stonemasons, construction and earth resources businesses – changes to 4.1 and 4.5 of the OHS regulations

In addition to stonemasons, a range of businesses work with materials containing crystalline silica and will be affected by the Regulations, including businesses in the mining or quarrying industries. These businesses will need to comply with the risk assessment/high risk silica hazard control statement requirement and information requirements, but not the other direct control measures unless they work with engineered stone.

It is difficult to precisely quantify the number of businesses that may be impacted by the Regulations, however using ANZSIC categories provided by WorkSafe, as well as ABS business numbers, it estimated there are 55,798 of these businesses across the earth resources (319), manufacturing (1,604) and construction (53,875) industries that likely undertake processes involving exposure to RCS.⁵³ Combined with the number of Victorian stonemason businesses, it is therefore estimated that there are 56,097 businesses in Victoria that undertake processes involving crystalline silica.

However it is likely that not all businesses in each industry would undertake silica processes which would warrant the comprehensive risk assessment, hazard control documentation and information provision under the Regulations. In the earth resources industry, WorkSafe has provided data to indicate that 37% of the industry work with high risk resources, therefore for the purposes of the RIS, it is considered that only 37% of businesses in this industry will be required to undertake more comprehensive processes to manage risk under the Regulations. In the manufacturing and construction industries, a lower rate of 10% has been applied in the absence of more robust data. The remaining businesses across these three industries would be required to undertake basic assessment of risks and hazards related to RCS exposure on the sites they are working. While this assumption is based on WorkSafe inspection data, and the nature of activities undertaken across these industries, these numbers are very uncertain and indicate the need for further work to estimate the expected coverage of the Regulations.

Throughout the life of the Regulations, it is expected that there will be some change in the number of businesses that are required to hold a licence. However, given the uncertainty around the potential growth or decline in stonemason industry, no change in the number of businesses is forecast.

Under the potential changes to Part 4.1 and 4.5 of the OHS regulations, there are two options being considered. The likely costs to businesses for each option are discussed below.

Option 1: package of reforms

Retaining the prohibition of uncontrolled dry cutting of engineered stone – the current interim ban would be re-made in the regulations to prevent it from lapsing. This aspect of the regulations would apply to any business that uses a power tool to cut, grind or abrasively polish engineered stone. It is assumed that all 299 stonemason businesses undertake this work. It is also possible that other businesses in the construction industry will be captured by this requirement, but this figure is not known.

The estimated cost to become compliant with the ban on dry cutting can be as low as \$1000-\$2,000 for a hand tool device. Depending on the size of the business, this could cost between \$25,000 - \$70,000 to fully fit out a business. For more sophisticated, automated wet cutting

⁵² This is based on one notification per business, however it may occur that more notifications are required. This has not been costed as there is no impact on the results of the analysis in this RIS.

⁵³ ABS Cat 8165.0, <https://www.abs.gov.au/ausstats/abs@.nsf/mf/8165.0>

machinery, the estimated cost ranges from an average of \$350,000, up to \$4,000,000 for a fully automated large volume machine. However, these costs represent the purchase of new machinery, that largely automates the process of cutting stone.

One business noted that they upgraded to a wet cutter for \$10,000, but it is unknown whether other businesses can retrofit existing machinery and therefore comply at a lower cost. One employer representative estimated that the total cost of compliance with the control measures would be a minimum of \$25,000 for smaller business and \$600,000 for larger businesses.

Based on a recent assessment of compliance data from the first three months of 2020, an assumption has been made that 54% of businesses are already compliant with this requirement, and therefore there would be no additional cost under the regulations. Therefore, this cost would apply to 135 stonemason businesses who are not currently compliant, totalling \$3.36 million (assuming \$25,000 per non-compliant business). This assumption is based on the fact that stonemason businesses employ 8.7 workers on average, according to WorkSafe data. Therefore, the small business cost estimate of \$25,000 is a reasonable cost assumption for non-compliant businesses to achieve basic compliance.

Banning the use of recycled water that has not been adequately treated in an integrated water delivery system – a water treatment system is required to treat the water used in the wet cutting process if the business elects to recycle water (rather than purchase fresh water and discharge it to the sewer system). Based on feedback from consultation, where businesses have already implemented wet cutting practices, many appear to have invested in water treatment systems. Therefore, the cost of implementing a water treatment system alongside the wet cutting equipment would only apply to businesses who are not currently compliant with wet cutting processes (assumed to be 135 businesses) and decide to recycle their water rather than purchase fresh water. It is estimated that the cost of purchasing water treatment or filtration unit is approximately \$50,000 for a basic unit, based on consultation with a supplier of wet cutting machinery. Given the difficulty in estimating the annual volume of water used by a stonemason business and the difference in cost between recycled water and fresh water, the water filtration unit has conservatively been assumed to apply industry wide, at a cost of \$6.7 million.

Banning the use of compressed air for personal or area cleaning – Whilst a change to wet cutting would significantly reduce the amount of dust in workplaces, two of the 9 businesses consulted indicated they still use compressed air to dust some surfaces and clean clothes. If this was banned entirely, businesses estimated the cost would be approximately \$25 per person for 1 hour per day. WorkSafe's internally commissioned survey of stonemason business estimated that the average number of employees per business was 8.7. This equates to approximately \$218 per day per businesses. Assuming 252 working days per year this is \$55,000 per business. With 25% of businesses currently using compressed air for cleaning this would cost \$4.1 million industry wide.

Requirement for employers to undertake a risk assessment where prescribed silica processes are to be undertaken to determine if it is high risk, and for those deemed high risk, to prepare a silica hazard control statement - According to WorkSafe, the requirement to undertake a risk assessment under the proposed Regulations would involve reviewing current processes to consider whether, in an uncontrolled environment, these processes would result in a risk to the health of employees due to exceeding the exposure standard, and therefore be considered high risk. It is assumed that this would take approximately two hours of employee time at a cost of \$50 per hour, per person for the business, including the average Victorian hourly wage rate of \$34 per hour, plus overheads and on-costs of 50%.

However, as outlined above, undertaking a comprehensive risk assessment is only likely to apply to a proportion of businesses outside the stonemason industry. Therefore, this cost of \$100 has only been applied to 37% of the total earth resources businesses, and 10% of the manufacturing and construction industries. This requirement would need to be undertaken for any new or altered process, which in industries where there is more variability in the tasks undertaken, such as construction, this would be more frequent and has therefore been costed annually across ten years. Where processes are more stable, including for earth resources and stonemason businesses, this cost has been applied twice over 10 years. This gives a total cost of \$2.8 million over ten years.

For the remaining businesses, it is likely that a basic assessment and documentation of the potential risks related to RCS on the site they are working will fulfil the requirements under the Regulations. This is anticipated to take approximately one hour at a cost of \$50 per hour, for one employee. This is assumed to be undertaken annually across the ten-year period, with a total cost of \$12.5 million over ten years.

Across all businesses undertaking silica processes, it is estimated that 50% of businesses already have either formal or informal risk assessment processes in place, based on consultations undertaken. Therefore, the above costs will apply to 50% of all businesses.

Where a process is deemed to be high risk, and preparation of a hazard control statement is required, this is considered to be less of a burden for businesses, as a number mentioned in consultation that while they may not undertake regular risk assessments, there are standard operating manuals or procedure documentation in place at the workplace, which would meet the requirements of a hazard control statement. Therefore, it is likely to impact 30% of businesses who currently do not have this documentation in place currently, and who undertake high risk processes.

It is estimated that the cost to prepare a hazard control statement is approximately \$200 per document. This is based on advice from WorkSafe, considering the process to complete a Safe Work Method Statement which is an equivalent document. The \$200 includes 2 hours of employee time, as well as a \$100 template fee. Once again, this requirement will apply to all stonemason businesses as well as 37% of the total earth resources businesses, and 10% of the manufacturing and construction businesses. Assuming this will take place annually across the ten year period, this has a total cost of \$3.6 million over ten years.

The risk assessment process will require all impacted businesses to undertake atmospheric monitoring. Businesses indicated that average cost to undertake atmospheric monitoring is \$4,000. It is expected that currently non-compliant businesses would face this additional cost under the Regulations, as this is a current requirement of the OHS Regulations. Once again, this requirement will apply to all stonemason businesses as well as the 37% of the total earth resources businesses, and 10% of the manufacturing and construction businesses who undertake more direct processes involving exposure to RCS. However whilst this would be a requirement for stonemasons to complete every 6 months, for non-stonemason businesses this will only be necessary when there is uncertainty as to whether the exposure standard may be exceeded for a certain process. Therefore, it is assumed that for non-stonemason businesses this will align with the frequency of the risk assessments. In total, the cost of atmospheric monitoring is of \$112.8 million over ten years.

The Regulations will also require mandatory health assessments for employees of businesses undertaking high risk silica processes. The cost of health monitoring differs based on the size of a business. Of those businesses consulted, four of the nine pay for regular health assessments (in addition to the WorkSafe program). For smaller businesses with roughly 10 employees, the annual cost is \$3000, while large businesses with 30 employees, the annual cost is \$8000+. For the purposes of this analysis, a conservative estimate of \$300 per employee has been used, with an average business size of 8.7 employees. This is expected to be a yearly cost. As with air monitoring, it is expected that currently non-compliant businesses would face this additional cost under the Regulations, as this is currently a requirement of the OHS Regulations. Between October 2018 and April 2020, 15 per cent of businesses inspected were issued a 'Health monitoring' themed notice. When applied to all stonemason businesses as well as the proportion of businesses in other industries who undertake more direct processes involving exposure to RCS, the total cost is \$23.4 million over 10 years.

Amend information provision requirements, whereby employers must provide written information about crystalline silica products, and the relevant risks and control measures, to all current and prospective employees. Additionally, manufacturers or suppliers must outline these details to workplaces when supplying products containing crystalline silica – If the requirements to undertake risk assessments and prepare hazard control statements, outlined above, are met, it is assumed that the requirement to provide information to current and prospective employees will

involve minimal additional costs. This is likely to involve some time spent training staff initially, and when new processes are introduced. In consultation, businesses outlined that training provided was largely informal and occurred during regular 'toolbox' meetings that covered a number of business matters. Other businesses relied on the material information cards provided by stone suppliers to keep staff informed of the risks of silica dust, so did not provide formal or informal training. One business did estimate the cost of regular training to be \$2,000 per occasion, including labour time for employees.

Compliance data suggests that 6% of non-compliance involved failure to provide respiratory-related training between October 2018 and April 2020. This is used as a proxy for general information provision, based on the assumption that if businesses are not providing basic training, they are unlikely to be undertaking basic information provision related to the risks of exposure to silica dust. Assuming that training materials and information sheets will be updated twice within the ten-year period, to align with the licence renewal period for stonemasons, this is expected to have a total cost of \$1.4 million over ten years.

Total cost of package of reforms under parts 4.1 and 4.5

Adding across all prescribed requirements for this option, the total cost for businesses of this package of options is \$170.7 million over ten years. These costs are summarised across the relevant industry groups in Table 4.2 below.

Table 4.2 Cost breakdown across the package of reforms

Regulation	Associated cost (over 10 years)			
	Stonemasons	Earth resources	Manufacturing	Construction
Wet cutting equipment	\$3.36 million	N/A	N/A	N/A
Ban on compressed air	\$6.73 million	N/A	N/A	N/A
Ban on use of recycled water	\$4.11 million	N/A	N/A	N/A
Undertake a comprehensive risk assessment (higher risk businesses)	\$0.03 million	\$0.01 million	\$0.08 million	\$2.69 million
Assessing risks and hazards on site (lower risk businesses)	N/A	\$0.05 million	\$0.36 million	\$12.12 million
Preparing a hazard control statement	\$0.18 million	\$0.07 million	\$0.10 million	\$3.23 million
Information provision	\$0.07 million	\$0.03 million	\$0.04 million	\$1.29 million
Health monitoring	\$1.17 million	\$0.46 million	\$0.63 million	\$21.09 million
Atmospheric monitoring	\$10.76 million	\$2.12 million	\$2.89 million	\$96.98 million

Option 2: Retaining the prohibition of uncontrolled dry cutting of engineered stone only

The costs to businesses of this option are the same that apply to Option 1, if only the ban on dry cutting of engineered stone was applied. As above, this cost would apply to 135 stonemason businesses who are likely to be non-compliant in the base case, using the non-compliance rate of 45%. The minimum expected cost to upgrade to wet cutting machinery is assumed to be \$25,000 per business, giving a total cost of \$3.4 million.

4.3.3 Costs to WorkSafe

WorkSafe is expected to face upfront costs associated with implementing the package of reforms, along with ongoing costs associated with the operation and enforcement of the chosen option.

The costs associated with the licensing schemes (full licensing and negative licensing) are likely to include:

- \$750,000 in upfront costs to purchase licensing software. This cost is expected to be the same for both licensing schemes and the notification scheme as the functionality of the system is expected to be the same. While the negative licensing scheme is expected to have approximately 23% of the number of licence applications (and thus far fewer users) the cost of the software will be the same. WorkSafe does not expect any additional staffing costs to implement the software.
- \$180,488 to implement the licensing scheme and assess licence applications. This reflects 1 FTE earning \$76,478 per annum plus on costs of 18% (year 1 to year 10), for a total of two years (initial assessment year plus renewal year). In practice this cost might be spread across all years depending on when applications are received.
- The costs of maintaining the licensing database are expected to be covered by WorkSafe's existing IT budget with no incremental costs.

The costs of the full licensing scheme and the negative licensing scheme are not expected to differ significantly for WorkSafe. The only difference in costs is a lower administrative cost to assess licence applications, which is estimated in proportion to the estimated number of licence applications to be assessed under each scheme:

- \$41,651 in staffing costs per year to implement the negative licensing scheme and assess licences on an annual basis. This equates to approximately \$300 per licence application (67 licence applications expected).
- All other costs above are expected to remain the same.

Similarly, the costs associated with the notification scheme are not expected to be significantly lower than the licensing scheme and will include the same software and enforcement costs. WorkSafe has not provided data on the cost of assessing notifications.

4.3.4 Costs to the community

Costs to the community are not expected to be material. However, it is possible that businesses pass on the added cost of compliance to customers. In this case, the costs considered above would be considered community costs, rather than business costs.

It is also possible that the regulations reduce competition in the stonemason industry, which could increase the price of engineered stone for consumers. However it is not clear that the regulations will materially reduce competition, nor what the price impact would be if this were the case.

4.4 Benefits of options

4.4.1 Base case

There are no incremental benefits under the base case.

4.4.2 Assessing the benefits of licensing scheme, negative licensing or notification scheme option

The primary benefit of each of these options will be the reduction in costs associated with adverse health effects from work involving materials containing crystalline silica is being considered.

As discussed in section 4.3, in analysing the preferred option for licensing or notification the effectiveness of the option in meeting the objective of eliminating the risk of adverse health effects from work involving materials containing crystalline silica is being considered. Effectiveness will depend on the potential for the option to lead to increased compliance with prescribed requirements.

For Option 1, with a full licensing scheme in place, businesses are expected to be significantly more compliant with prescribed measures such as the dry cutting ban and other elements of the package of changes to sections 4.1 and 4.5 of the OHS Regulations (see discussion of benefits of these measures in section 4.5.3). The inclusion of a restriction on suppliers being able to supply engineered stone only to those stonemasons with a licence is a critical part of the licensing scheme and is a key incentive for businesses to become licensed (and therefore comply with prescribed measures). A supplier of engineered stone could incur a significant fine if they breach this requirement so are incentivised to comply (up to 500 penalty units with a current penalty unit value of \$165.22). Without supply of engineered stone, businesses will be prevented from working with the material.

Option 1 also provides WorkSafe with an explicit regulatory framework through which to undertake compliance and enforcement activities (e.g. imposition of conditions). It will also enable WorkSafe to focus its monitoring and enforcement activities on the non-compliant and higher risk businesses in the industry.

Option 2, negative licensing, will lead to increased compliance compared to having no scheme in place because businesses will be incentivised to comply to avoid the costs of having to be licensed including the conditions that WorkSafe may place on licences issued. However the strength of this incentive will depend on the perceived benefits of non-compliance e.g. lower operating costs. The effectiveness of Option 2 relies on WorkSafe undertaking activities to identify non-compliant businesses, particularly due to the fact that there will be no instrument such as the supplier restriction in place to incentivise compliance. This activity will be spread across the industry rather than being focused on high risk businesses as is expected under Option 1. It might also be more complicated for businesses to understand. It is noted that during consultation, stakeholders seemed to have less of an appreciation of how this scheme would work and had fewer comments on it. Overall, it is considered likely to be significantly less effective than the full licensing scheme.

Option 3, a notification scheme will also rely on significant monitoring and enforcement activity to be undertaken by WorkSafe to be effective. This activity is likely to be less effective than under Option 1 because it is not targeted at high risk businesses. Option 3 is likely to be significantly less effective than Option 1. It is also likely to be less effective than Option 2 because there is no direct enforcement framework established.

Overall, by achieving higher compliance with prescribed measures such as the prohibition on dry cutting, Option 1 is expected to lead to significantly more benefits in terms of reduced costs associated with adverse health effects from work involving materials containing crystalline silica. Option 3 is likely to lead to the fewest benefits.

4.4.3 Assessing the benefits of each individual element of the package - changes to 4.1 and 4.5 of the OHS regulations

The table below outlines how each component of the changes to 4.1 and 4.5 of the OHS regulations would achieve the benefit of reducing exposure to RCS.

Table 4.3 Benefits of regulation components - changes to 4.1 and 4.5 of the OHS regulations

Option component	Associated benefits
Prohibition on dry cutting, grinding and	Compared to dry methods, wet methods use on-tool water suppression, which reduces the quantity of dust being exhausted into the air. Stakeholders estimate that replacing dry cutting with wet cutting of engineered stone will reduce silica dust exposure by 80% to

abrasive polishing	100%. Air monitoring of 20 workplaces involved in benchtop manufacturing funded by WorkSafe Victoria recorded airborne concentrations of RCS up to 0.05mg/m ³ in workplaces that employ wet cutting methods. By comparison, recorded airborne concentrations of RCS in workplaces undertaking dry cutting engineering controls were greater than 0.1mg/m ³ .
Banning the use of recycled water that has not been adequately treated	Occupational hygiene reports have shown that using recycled water that has not been adequately treated leads to an unacceptably high risk of exposure to crystalline silica. This is due to recycled water drying out or evaporates, silica dust will be exposed. Air monitoring of engineered stone workplaces found, that when integrated water systems using recycled water were used, testing showed levels of between 0.06 – 0.15mg/m ³ – more than the exposure standard of 0.05mg/m ³ . Banning the use of recycled water will remove the risk of exposure to RCS from undertaking this process.
Banning the use of compressed air for personal or area cleaning	Occupational hygiene reports have shown this leads to an unacceptably high risk of exposure to crystalline silica. Air monitoring on the use of compressed air for cleaning showed levels of between 0.06 – 0.23mg/m ³ – more than the exposure standard of 0.05mg/m ³ . Banning the use of compressed air for personal or area cleaning will remove the risk of exposure to RCS from undertaking this process.
Preparation of risk assessments and hazard control statements	Introducing the requirement for businesses to assess the risk of any process involving materials containing silica, will ensure that businesses are aware of when a process is high risk, i.e. exceeds safe exposure levels, and therefore are able to put the relevant control measures in place. This will ensure a more consistent approach to identifying and managing risk, including frequent air monitoring, in order to reduce the levels of RCS exposure. Hazard control statements for high risk processes will ensure there are documented, formalised processes for identifying the relevant risks, and applying the appropriate control measures. This will enable a greater level of awareness of the risks of working with crystalline silica, and how to manage these in order to minimise the health impacts, for both employers and employees.
Information provision	The risk assessment process outlined above, along with the necessary training and on-boarding processes, are important for providing employees with information about the silica content of the materials they are working with, and to ensure they have an understanding of how to control the risks of exposure to RCS. Providing information to employees ensures they understand the impacts to their health if the appropriate control measures are not put in place and adhered to, and reduces any confusion and uncertainty about their precise obligations. It is likely to improve employee's willingness to comply with regulatory requirements.

4.4.4 Assessing the benefits quantitatively

4.4.4.1 Lives saved and illness avoided

WorkSafe data on silica-related claims has been analysed and combined with a value of life estimate in order to calculate the value of lives saved and illness avoided. It is important to note that calculating a quantitative value of life does not capture significant other benefits that are associated with living a long and healthy life. However it is an accepted economic method for analysing and comparing policy options for reducing fatalities and illness.

WorkSafe is aware of 13 recorded fatalities in Victoria associated with silica-related illnesses in the last twenty years (i.e. from the year 2000 to 2020).⁵⁴ As discussed in Section 2.2.3, the illness can take different forms (i.e. acute, accelerated or chronic) and can be associated with injuries that occur over short and long periods of time.

The impacts associated with these illnesses can occur across many years, from the time when an injury is diagnosed through to the recorded fatality. Individuals must live with their illness and the

⁵⁴ Whilst WorkSafe has detailed data associated with silica-related claims, it is not possible to obtain comprehensive data on all occupational disease related fatalities in Victoria. In addition, it is possible that there are silica-related fatalities that remain unknown to WorkSafe as no WorkCover claim was submitted.

associated physical and mental impacts throughout the period of their illness. In most cases, silica-related diseases will worsen over time. This means that workers who receive an early diagnosis are required to live with this burden and the increased likelihood of an early death.

The value of life saved is estimated by considering the duration an individual has the disease, and the age in which the fatality is recorded compared to a life expectancy of 80.3 years.⁵⁵

For those individuals submitting silica-related WorkCover claims to WorkSafe, with claims in the last twenty years (i.e. 2000 to 2020), the average age of injury is recorded at 43.3 years. Considering those claims with a recorded fatality in the last twenty years, the average time between injury and fatality is 9.3 years, making 52.6 years the estimated average age of a fatality.⁵⁶

Using a sample of silica-related claims from 2000 to 2010, the proportion of claims that subsequently lead to a fatality is approximately 28 per cent.⁵⁷ This proportion is estimated by considering the number of fatalities from 2000 to 2020 that relate to an injury from 2000 to 2010 divided by the number of claims submitted from 2000 to 2010. This is a conservative estimate, which is explained in further detail below.

Uncertainties in modelling future fatalities: Given the chronic nature of silica-related illnesses and the various stages that it can be identified, it can be difficult to estimate the length of time one must live with the disease and the expected reduction in life expectancy. By considering recorded fatalities up to March 2020, any fatalities that occur after this point due to historic injury claims are not captured.

In addition, analysis of the claims data in general does not capture those individuals who have silica-related injuries, that impact their health and wellbeing, and do not submit a claim. This may occur with a chronic disease such as silicosis, where the symptoms present later in life when the person may no longer be working and may have a range of other co-morbidities (i.e. smoking), which could delay detection. Individuals may also choose not to submit a claim based on the intrinsic value they place on maintaining employment or their personal health concerns.

This is particularly relevant for workers in the construction industry where there has not been widespread awareness campaigns regarding the risks of exposure to crystalline silica leading to silicosis, as there has been in the stonemason industry. These workers are less likely to associate their symptoms with potential silicosis.

To estimate the average life expectancy of those diagnosed, it is assumed that 28 per cent of those diagnosed live to the age of 52.6 years old and the remaining 72 per cent live to 80.3 years old (i.e. full life expectancy). This results in a weighted average life expectancy of 72.6 years old for those diagnosed with a silica-related illness. This assumption of normal lifespan for those with serious illness is a conservative approximation of the average life expectancy; with access to future fatality data for those injuries incurred between 2000 and 2020, it is possible that the actual average life expectancy will be lower.

In summary, for the purpose of estimating the benefit of lives saved and illness avoided in this RIS, it is assumed that on average a person who has silica-related illness becomes ill at the age of 43.3 and lives with the illness until the age of 72.6. The benefit achieved from preventing a person from becoming ill from silica-related illness is:

- The benefit achieved from a person not becoming ill for 29.3 years (from age 43.3 to age 72.6)

⁵⁵ Australian Bureau of Statistics (2019). Life Tables, States, Territories and Australia, 2016-2018.

⁵⁶ WorkSafe Victoria (2020). Claims data January 2000 to 7 March 2020.

⁵⁷ WorkSafe Victoria (2020). Claims data January 2000 to 2010.

- The benefit of not dying 7.6 years earlier than normal life expectancy (at age 72.6 instead of 80.3).

To quantify the dollar cost of this, for statistical purposes the value of an avoided fatality is estimated in this report as \$219,390 per year of life saved (in 2020 \$).⁵⁸ The value of time lived with the disease is estimated to be \$94,338 per year for the individual lives with the disability. Subtracting these two figures gives a value of \$125,042, which can be interpreted as the benefit of someone not living with the illness, compared to someone who is. This is calculated using a disability weighting of 0.43, which is the disability weighting for chronic obstructive lung disease, symptomatic cases.⁵⁹ This disability weighting is a judgement of equivalent illness but has been determined to be reasonable for the purpose of this RIS. Combining the years of life saved and not living with the illness, the value of the average illness avoided is \$5,347,238 in real 2020 dollars.

Anecdotally, the average age of silica-related injuries and fatalities is decreasing as the use of higher silica-content stone is used. This means that the total value of life saved is increasing, as an individual must live with a diagnosis for longer and possibly experience an earlier death. However, this pattern is not yet clear in the data due to some incidents not yet recorded and the lag between reporting an injury and the associated fatality. The impact of this is therefore noted, but not captured quantitatively, meaning that the estimate of benefits might be conservative.

4.4.5 Non-quantifiable benefits

It is critical when assessing measures to address the risk of silica exposure to consider associated employment and lifestyle impacts. Individuals who are diagnosed with a silica related injury are unable to continue employment in any industry or workplace where there is any risk of dust exposure. This results in the need for these individuals to find work in a new industry, which is associated with periods of unemployment, additional training in non-preferred industries (i.e. retraining or re-skilling) and lower levels of enjoyment as their new work may not align with interests/expertise. For this reason, health practitioners have noted that workers may avoid testing due to concerns with the implications that may accompany a diagnosis.

As discussed in Section 2.2.3, whilst physical implications involve progressive deterioration of lung function and increased risk of respiratory illness and lung cancer, among many workers with a diagnosis, there is also a serious psychological impact. This psychological impact can affect workers with varying degrees of the illness, as they are forced out of current employment and many need to prepare themselves for major surgeries, such as lung transplants, and in some cases, imminent death.

Alongside a material impact on families — as a WorkCover claim does not provide full income replacement — families are also likely to experience increased levels of anxiety. This anxiety stems from a reduction in household income and the knowledge that the condition is likely to worsen over time, given the degenerative nature of the illness. As some households may be able to compensate for the lower income with other family members working, it is not possible to quantify the overall impact on family income and the associated increase in anxiety levels.

In addition, workers with illness may not be able to participate in many normal activities of life that have benefits not captured in this RIS quantitatively, for example physical activities or activities that may expose the worker to dust.

In the short-term, earlier diagnosis through greater awareness of silica-related illnesses is resulting in a longer period of impact on workers and families. Stakeholder consultations also revealed that some workers are also choosing not to undertake early assessments to avoid bad news as they are concerned about how the diagnosis is likely to impact them.

⁵⁸ Victorian Government value of a statistical life year inflated by 3% p.a., <https://www.vic.gov.au/sites/default/files/2019-10/Suggested-Value-of-a-Statistical-Life-in-RISs-and-LIAs-2017-Word.docx>

⁵⁹ Murray and Lopez (1996).

4.5 Options analysis

4.5.1 Analysis of licensing scheme, negative licensing or notification scheme option

As noted in section 4.3, the benefits to be derived from the proposed Regulations need to be assessed at the aggregate level because of interdependencies. The preferred option for the licensing scheme is determined by assessing the licensing scheme, negative licensing scheme and notification scheme against the following criteria:

- 1) Effectiveness in meeting the objective of eliminating the risk of adverse health effects from work involving materials containing crystalline silica. Effectiveness will depend on the likelihood of the option to lead to increased compliance, and hence a decrease in illnesses
- 2) Costs: costs to government of implementing the scheme plus cost to business of complying with the scheme, including any delay costs or prohibition costs. (Note this does not include costs of complying with direct measures).

While the costs of Option 1 are higher, it is expected to be most effective in meeting the objective of reducing the risk of illness and death from silica exposure. The notification scheme is low cost but relatively ineffective. The negative licensing scheme is not expected to be as effective as Option 1 in driving compliance with prescribed measures because it does not include the supply restriction and monitoring and enforcement activity will not be as targeted on the higher risk/less compliant businesses in the industry.

On balance, the licensing scheme is the preferred option ahead of a negative licensing scheme and notification scheme. The higher cost of Option 1 is justified given that benefits are expected to be significantly higher. It is noted that there was support from stakeholders for a full licensing scheme rather than a negative licensing scheme or notification scheme.

The following table shows how the cost of the preferred option of the licensing scheme has been added to the cost of each of the options of prescribed measures (changes to sections 4.1 and 4.5 of the OHS Regulations). All costs are calculated over ten years.

Table 4.4 Overall cost – licensing scheme plus prescribed measures

Option	Cost of licensing scheme	Cost to government	Cost of prescribed measures package	Total
Licensing plus a ban on dry cutting	\$0.65 million	\$0.18 million	\$3.4 million	\$4.2 million
Licensing plus the full package of reforms	\$0.65 million	\$0.18 million	\$170.7 million	\$171.5 million
Licensing plus the full package of reforms for stonemasons only	\$0.65 million	\$0.18 million	\$26.4 million	\$27.2 million

In the next section, these options are assessed using a breakeven analysis.

4.5.2 Breakeven analysis

The breakeven point expresses how many avoided deaths or illnesses would be required to justify the cost of each of the proposed options. As outlined in section 4.4.4, for the purpose of assessing benefits quantitatively in this RIS, the value of the average illness avoided is estimated to be \$5.3 million.

Table 4.3 outlines the costs (combining costs to industry and government) for each of the option combinations. These costs are then divided by the value of the average illness avoided, to give the required avoided non-fatality for this option to breakeven. This is indicated in the third column.

Table 4.5 Breakeven analysis results

Option	Cost	Required avoided non-fatality
Licensing plus a ban on dry cutting	\$4.2 million	0.8
Licensing plus the full package of reforms	\$171.5 million	32.1
Licensing plus the full package of reforms for stonemasons only	\$27.2 million	5.1

4.5.2.1 Licensing scheme plus package of reforms

The cost of a licensing scheme plus the package of options is \$171.5 million. This option would need to be responsible for avoiding approximately 32 silicosis illnesses over 10 years to breakeven.

Given that there have been 13 known fatalities related to silicosis over the past 20 years, and the recent spike in illnesses diagnosed (with outcomes including potential fatalities related to some of these claims not yet known), under our underlying assumptions, it is likely that there will be a significant decrease in the risk of silica exposure as a result of introducing licensing and the package of reforms.

It is unlikely but not implausible that the Regulations could avoid 32 illnesses over the next 10 years, which is the point at which the benefits of the regulations exceed the cost. Given that the extent of latent illness associated with past exposure is not fully known, and the benefit estimation is considered to be conservative, there is merit in taking a precautionary approach to the issue.

A significant driver of this result is the estimate of the number of businesses impacted, with the high number of construction businesses potentially impacted accounting for 80% of the costs to business. This cost on the construction industry is disproportionate to where the risk of silicosis lies, with most illnesses in Victoria in the last 20 years occurring in stonemason businesses. A large amount of costs are borne by the construction industry, but most of the benefits will be achieved through the regulations for the stonemasons industry. If applied to a narrower construction cohort or only stonemasons, the benefits would be more achievable.

When excluding businesses other than stonemasons from coverage under the proposed Regulations, the cost of the licensing scheme plus the full package of reforms is \$27.2 million. To justify this cost 5.1 silicosis illnesses over 10 years would need to be avoided. This is significantly more likely when considering the number of fatalities over the last 20 years, as well as the spike in recent silicosis diagnoses which is not yet fully reflected in fatalities data.

The likelihood that the benefits will outweigh the costs is increased when taking into account associated employment and lifestyle impacts. As discussed in Section 4.4.5, whilst physical implications involve progressive deterioration of lung function and increased risk of respiratory

illness and lung cancer, among many workers with a diagnosis, there are also a range of other benefits which are not as easily quantifiable. This includes:

- Individuals who are diagnosed with a silica related injury experiencing periods of unemployment or lower levels of job satisfaction due to the need to find work in a new industry
- Serious psychological impacts associated with being forced out of employment, and preparing themselves for major surgeries, such as lung transplants, and in some cases, imminent death.
- Anxiety experienced by workers' families, stemming from a reduction in household income and the knowledge that the condition is likely to worsen over time, given the degenerative nature of the illness.
- In addition, workers with illness may not be able to participate in many normal activities of life that have benefits not captured in this RIS quantitatively, for example physical activities or activities that may expose the worker to dust.

As noted in section 4.4.4, it is also important to consider that the estimated value of the average illness avoided, at \$5.3 million, is considered to be conservative (i.e. on the low side) because it is based on claims data and fatalities over the 20 years from 2000 to 2020. The assumptions applied in the estimation of the value of an avoided fatality represent a conservative estimate. With access to future fatality data, the rate is likely to be higher, translating to a direct increase in the value of an avoided fatality measure.

This value also does not capture significant benefits associated with employment and lifestyle impacts of silicosis — such as periods of unemployment, employment satisfaction, mental health and family discomfort.

4.5.2.2 Licensing scheme plus retaining the prohibition of uncontrolled dry cutting of engineered stone only

The cost of a licensing scheme plus the ban on dry cutting is \$4.2 million. This option would need to be responsible for avoiding 0.8 silicosis illnesses over 10 years to breakeven. This is considered very likely given that wet cutting is considered to be highly effective in reducing the level of exposure to silica dust to very low levels.

The likelihood that the benefits will outweigh the costs is increased when taking into account associated employment and lifestyle impacts as discussed above, and the conservative estimation of the value of the average illness avoided.

5 Preferred option

The preferred option is considered to be the Licensing scheme plus the full package of reforms.

This option includes the regulatory mechanisms outlined in Table 5.1, along with the associated cost to the relevant industries over the next ten years.

Table 5.1 Components and costs of the preferred options

Regulation	Associated cost (over 10 years)			
	Stonemasons	Earth resources	Manufacturing	Construction
Licensing scheme	\$0.65 million	N/A	N/A	N/A
Wet cutting equipment	\$3.36 million	N/A	N/A	N/A
Ban on compressed air	\$6.73 million	N/A	N/A	N/A
Ban on use of recycled water	\$4.11 million	N/A	N/A	N/A
Undertake a comprehensive risk assessment (higher risk businesses)	\$0.03 million	\$0.01 million	\$0.08 million	\$2.69 million
Assessing risks and hazards on site (lower risk businesses)	N/A	\$0.05 million	\$0.36 million	\$12.12 million
Preparing a hazard control statement	\$0.18 million	\$0.07 million	\$0.10 million	\$3.23 million
Information provision	\$0.07 million	\$0.03 million	\$0.04 million	\$1.29 million
Health monitoring	\$1.17 million	\$0.46 million	\$0.63 million	\$21.09 million
Atmospheric monitoring	\$10.76 million	\$2.12 million	\$2.89 million	\$96.98 million

This option is preferred because it takes a precautionary approach to addressing the risks of RCS exposure. The reasons for taking this approach are as follows:

The approach to measuring the benefits is conservative. Given the chronic nature of silica-related illnesses and the various stages that it can be identified, it can be difficult to estimate the length of time one must live with the disease and the expected reduction in life expectancy. By considering recorded fatalities up to March 2020, any fatalities that occur after this point due to historic injury claims are not captured. In addition, this does not capture individuals who have silica-related injuries and do not submit a claim, for a variety of reasons such as the potential impact on their employment and financial prospects, or where symptoms present later in life and

may be associated with other co-morbidities. Therefore, a fatality rate is likely to represent a 'lower-bound'.

There are a range of non-quantified benefits which are not captured in the breakeven analysis, but which would be realised by reducing workers' exposure to RCS and the associated health impacts. This includes reducing the mental health impacts that are associated with a silicosis diagnosis, and the uncertainty this carries, as well as the psychological impacts of preparing for major surgeries, and in some cases imminent death. Additionally, there is anxiety from facing unemployment and the associated family pressures that come with a silicosis diagnosis, which can be addressed by reducing the risk of developing the disease.

The regulations provide an opportunity to introduce a risk framework for the construction industry. If the regulations applied to a narrower construction cohort or only stonemasons, the breakeven point is more likely to be achieved. However, while a large amount of costs are borne by the construction industry, there is value in taking a precautionary approach to this industry, which recognises the historic impacts in the stonemason industry and the risk of similar levels of impact in other industries that work with silica products if adequate controls are not in place. There are lessons to be learnt from the stonemason industry, where there is now a greater awareness of the consequences of exposure to RCS. Recognising this, these consequences can be addressed by applying a preventative, risk-based approach in other industries where there is known exposure to this hazardous material.

Given the uncertainty of some of the benefits, and that the preferred option will impose new costs on a large number of businesses, the **mid-term review** of the proposed Regulations will be important to review data and conduct an early assessment of the effectiveness of the Regulations. This is discussed in more detail in the Evaluation Strategy (Chapter 8).

6 Cost recovery and fees

This section sets out the rationale for the licence application fee that will be imposed on users of engineered stone. It is proposed that this fee will be \$302 for a five year licence but it will be waived for the first year.

6.1 Legal authority

Under section 158 of the OHS Act, regulations may be made for or with respect to prescribing fees for doing any act or providing any service for the purposes of the Act or the regulations and prescribing the circumstances and way in which fees are to be refunded.

In particular, section [451A] of the proposed Regulations mandates that an application for an engineered stone licence must be accompanied by a licence fee.

WorkSafe therefore needs to establish the amount of this licence application fee. It is not intended that any other fees or charges will be set in relation to the proposed Regulations.

6.2 Cost recovery considerations

Broadly, the key issues in respect of cost recovery and fee setting are:

- Whether fees should be established, and if so what level of cost recovery they should achieve
- The costs base and efficiency of costs
- The structure and level of the fees.

Cost recovery principles generally support the concept that those who utilise services (or give rise to the need for a regulatory activity) pay for the cost of those services, rather than have them funded by others (typically through general taxation). Under full cost recovery, taxpayers do not subsidise those who use the service, or impose the costs, which are to be recovered.

Cost recovery can advance both equity and efficiency objectives, although in some cases these objectives may need to be balanced against each other. General Victorian government policy is that unless there is good reason not to, regulatory fees and user charges should be set on a full cost recovery basis.⁶⁰ Full cost represents the value of all the resources used or consumed in the provision of an output or activity. In particular full cost recovery:

- Promotes the efficient allocation of resources by sending the appropriate price signals about the value of all the resources being used in the provision of government goods, services and/or regulatory activities; and
- Ensures that those that have benefited from government-provided goods and services, or those that give rise to the need for government regulation, pay the associated cost (those parties that do not benefit or take part in a regulated activity do not have to bear the costs).

The principle of fully internalising the costs of regulation is supported by the Department of Treasury and Finance's *Cost Recovery Guidelines* which states that costs should be recovered directly, where possible, "from those that benefit from, or whose actions give rise to the need for, the government good/service/activity."⁶¹

⁶⁰ Office of the Commissioner for Better Regulation, 2016, *Victorian Guide to Regulation: A handbook for policy makers in Victoria*, Department of Treasury and Finance, Melbourne.

⁶¹ Department of Treasury and Finance, 2013, *Cost Recovery Guidelines*, January.

However the *Cost Recovery Guidelines* also recognise that there are situations where it may be desirable to recover less than full costs, or not to recover costs at all. Examples include circumstances where:

- Practical implementation issues make cost recovery infeasible.
- There are benefits to unrelated third parties (sometimes referred to as 'positive externalities').
- Social policy or vertical equity considerations are considered to outweigh the efficiency objectives associated with full cost recovery.
- Full cost-recovery might adversely affect the achievement of other government policy objectives.

The *Victorian Guide to Regulation* requires that, where proposed regulations impose fees or charges, the proposed fees be assessed against the principles in the *Cost Recovery Guidelines*. The *Cost Recovery Guidelines* suggest 10 key steps should be examined:

- Step 1 Is the provision of the output or level of regulation appropriate?
- Step 2 What is the nature of the output or regulation?
- Step 3 Who could be charged?
- Step 4 Is charging feasible, practical and legal?
- Step 5 Is full cost recovery appropriate?
- Step 6 Which costs should be recovered?
- Step 7 How should charges be structured?
- Step 8 Are cost recovery charges based on efficient costs?
- Step 9 What is the importance of consultation?
- Step 10 How should cost recovery arrangements be monitored and reviewed?

6.2.1 Cost base

Deriving fees that align with cost recovery principles requires:

- Establishing a cost base
- Ensuring cost recovery charges are based on efficient costs
- Activity-based costing (where possible), to help determine fee relativities (for example, an activity that takes longer should have a higher fee, and vice-versa).

WorkSafe will incur a range of costs in establishing, administering and enforcing the proposed Regulations. Some of these costs (although not all) will relate to the licensing of engineered stone businesses. Only these licensing-related costs are proposed to be recovered by the licence application fee.

To estimate costs, WorkSafe has used the fully distributed costs methodology outlined in the *Cost Recovery Guidelines*. This includes direct (e.g. staff costs) and indirect costs (e.g. on-costs and overheads).

WorkSafe has developed detailed process maps for the licensing function. Processes that have been mapped in detail and then costed include:

1. Receive engineered stone licence form
2. Assess and process application: Process for assessing and determining whether an application for an Engineered Stone Licence meets requirements for an Engineered Stone Licence to be granted.
 - a) Perform Manual (Compliance) Assessment: Process for determining whether a submitted Engineered Stone licence application has been completed correctly and meets all the legislative requirements.
 - b) Perform technical assessment: Process for the Silica Field Team conducting a desktop assessment to ascertain whether a site inspection is required, and whether or not they recommend that a licence be granted.
 - c) Perform Site Inspection: Process for the Silica Field Team Assessing whether a site is demonstrating capacity/capability to safely conduct engineered stone processes if issued a licence.

- d) Complete (Engineered Stone) Licence Application: Process for an applicant completing and submitting an engineered stone licence application
- 3. Issue licence: Process for the Licensing team issuing an Engineered Stone Licence to the applying organisation

The costs being recovered are only those directly related to the licensing function. They do not include costs of monitoring and enforcing business compliance with requirements of the OHS Act or Regulations; this includes monitoring and enforcement costs that would be incurred regardless of whether a licensing scheme is in place. WorkSafe will also be funding (not recovering) the software development costs for the licence system. These costs are being incurred as part of a broader IT transformation project. This avoids the issue of having a significantly higher charge in the establishment period to cover this cost (which would be reduced in later years) or the complexity of spreading the recovery of these costs across future years, which would mean there would be a funding deficit in the establishment period. The costs of any functions that are not a fundamental part of, or directly related to the output are excluded from the cost base. Consistent with the *Cost Recovery Guidelines*, costs associated with the broad development of policy/regulation and general parliamentary servicing roles of government are excluded.

Table 5.1 outlines WorkSafe's estimated costs for undertaking the licensing function. The total cost recoverable amount over 10 years is \$0.18 million. It is noted that the cost of the field team that undertakes technical assessment and site inspections has not been included because even in the absence of the licensing function they would be undertaking this work to monitor and enforce compliance with prescribed measures under the proposed Regulations (and the same team would also be undertaking monitoring and enforcement work under the base case). Including these costs would add an extra \$9.1 million to be recovered over 10 years.

Year	Cost assumption
Time required to assess initial licence, renewals and ongoing administration (administrative team)	1 FTE earning \$76,478 per annum plus on costs of 18% (year 1 to year 10), for a total of two years (initial assessment year plus renewal year). In practice this cost might be spread across all years depending on when applications are received.

6.2.2 Efficient costs

WorkSafe has estimated costs based on consultation with its own business units, and the development of detailed process mapping of its activities. WorkSafe believes these costs are efficient. The cost of software to manage the licensing fee comes from a market quote based on a change request to the licensing system build that WorkSafe is undertaking for its existing licensing schemes.

6.2.3 Level of cost recovery

There is a strong case that fees should fully recover WorkSafe's costs of administering the licensing framework and other regulatory activities from parties required to hold licences or that give rise to the need for these regulatory activities. This is because the costs incurred by WorkSafe and the benefits to industry should be fully internalised by the industry that gives rise to the need for the regulation in the first place.

The *Cost Recovery Guidelines* state that general government policy is that regulatory fees and user charges should be set on a full cost recovery basis because it ensures that both efficiency and equity objectives are met. Full cost represents the value of all the resources used or consumed in the provision of an output or activity.

However, there may be circumstances in which a departure from the full cost principle may be justified (which may require making a trade-off between efficiency, equity and other policy considerations):

- Where merit goods are being provided or where activities generate benefits to unrelated third parties.
- Where objectives of income redistribution or social insurance are important.
- Where concessions are deemed appropriate.
- Where full cost recovery may undermine innovation and product development.
- Where the government is providing goods and services on a commercial basis in competition with the private sector.
- Where full cost charging could undermine other objectives.

The *Cost Recovery Guidelines* also state that consideration could be given to a regime of partial cost recovery (if it can be demonstrated that a lower than full cost recovery does not jeopardise other objectives), and/or to rely on other funding sources (e.g. general taxation) to finance the government activity.

WorkSafe proposes a departure from full cost recovery in the transition year (year 1) after implementation of the proposed Regulations. It proposes that there be **no cost for applicants** that apply for a licence during this period. The reasons for this are:

- WorkSafe is keen to encourage the highest possible number of stonemason businesses to become licensed as soon as possible, and does not want licence fees to be a barrier.
- WorkSafe and the Government do not want to impose new costs on business in the current uncertain economic climate.

Therefore WorkSafe is proposing to fund the zero cost recovery for the first year from premium revenue collected from all Victorian businesses. The total cost recoverable amount over 10 years is \$0.18 million with a cost per stonemason business of \$302 (assuming that all 299 businesses stay in the industry and seek to become licensed). If all stonemasons become licensed in the first year, the internal WorkSafe funding required for the zero cost recovery in this first year is estimated to be \$0.9 million, which is the full cost recovery fee level of \$302 per business multiplied by 299 businesses. It is noted that, at full cost recovery levels, businesses would pay a \$301 licence fee and a \$301 licence renewal fee after 5 years (\$602 in total over 10 years).

A licence will last five years. After the first year of transition, 100% of costs will be recovered via a licence application fee. This incentivises businesses to become licensed in the first year after the licence scheme is established. New entrants that enter after the transition year will be required to pay the full fee.

6.3 Fee design

6.3.1 Principles of fee design

Fee design has been considered against the following principles:

- The extent to which the total fees charged reflect the total costs of providing those services
- The degree to which the parties that give rise to specific costs bear (only) those costs
- The extent to which fees take into account the ability to pay and not present a barrier to entry, particularly for small businesses
- The ability to easily determine what fee applies in various situations (including ability for businesses to understand fees in advance)
- The level of administrative costs associated with calculating and levying fees.

6.3.2 Fee design options

Possible fee design options include fees set at a flat rate, different variable structures, and a combination of these structures. These options are discussed below.

Option 1 — Flat fee, same for all parties

Flat fees are set by calculating a simple average of costs across applicants. The advantages of this approach are that it recovers all costs of delivering the services (assuming full cost recovery post transition period), and it is simple to understand and administer. Applicants are also able to easily understand fees they will pay in advance. A flat fee design is also consistent with WorkSafe's fee arrangements for asbestos and high risk work licences.

Flat fees are generally more suitable for homogenous and repetitive processes. A potential disadvantage is that the parties that give rise to specific costs might not bear those costs if some parties cost a lot more for WorkSafe to regulate than others e.g. the technical site assessment might cost a lot more for WorkSafe to undertake for some parties than others. A flat fee might also disadvantage parties that have less ability to pay - small businesses in particular - and thus may present a barrier to entry, impacting competition.

Option 2 – Variable fees

Different variable fee structures for engineered stone licences could be based on size of business, number of employees or linked to insurance premiums.

Where processes have a greater degree of variability, predicting regulatory costs becomes more difficult. Some parties may also impose substantively higher regulatory costs than others. A variable fee structure enables fees to be set that more accurately recover costs from those parties that impose the costs.

A disadvantage of a variable fee structure is that it is more difficult to design and administer. It can also be more difficult for regulated parties to understand and for applicants to predict the fee they will pay in advance (depending on the basis for the variation), which might impose a barrier to entry.

Option 3 – Fixed fee (tiered or same for all parties) plus variable fee

This option combines both a fixed fee and variable fee. The fixed fee reflects that a minimum amount of time and effort that WorkSafe usually spends on an application is known in advance e.g. a fixed admin amount plus a variable fee reflecting the complexity of process that needs to be undertaken to assess an applicant's compliance with required licence conditions. The variable fee component enables the fee charged to accurately reflect the time and effort required by WorkSafe to process each application.

The main advantage of this fee is that it enables fees to be set that more accurately recover costs from those parties that impose the costs. However it is complex to administer and more difficult to understand.

6.3.3 Assessment of fee design

An advantage of variable fees is that they enable costs to be recovered from the specific parties that impose the costs e.g. in the case of engineered stone licensing this is likely to be businesses where it takes WorkSafe more time to assess compliance with licensing requirements. However at this stage WorkSafe does not have sufficient evidence about the businesses that will impose more or less costs to be able to determine what would be an appropriate fee design e.g. variable fee based on number of employees, premium size etc.

Therefore, a flat fee, the same for all parties, is the preferred option. It is preferred because it is simple to administer for WorkSafe and applicants will know in advance what they will be charged. It is also consistent with the approach used by WorkSafe for other fees prescribed under the OHS regulations.

For these reasons a simple flat fee design is therefore considered the preferred option.

WorkSafe will collect information about the licence assessment process to inform a future review of fees.

6.4 Proposed fee

The proposed licence application fee for the first year after transition, at a 100% cost recovery level, is \$302 or 20.39 fee units (using the current fee unit of \$14.81). This fee is calculated by dividing the total cost of \$0.18 million by the expected number of applications, also taking into account that businesses will need to apply for both a new licence and then a renewal across the 10 year period. Therefore, for 299 businesses there will be a combined 598 new licences and renewals issued. \$0.18 million divided by 598 is \$302.

This fee compares with other fees currently prescribed under the OHS Regulations as follows:

- High risk work licences - an application for a high risk work licence must be accompanied by a fee of 4.5 fee units in respect of each class of work for which a licence is sought. (section 450)
- Asbestos removal licences – the 2019-20 application fee is 60.3 fee units for a Class A licence, and 52.5 fee units for a Class B licence. (section 451)
- Carcinogens licence: a fee of 7.9 fee units for each hour the application took to be processed is charged, up to a maximum of 86.9 fee units.

7 Small business and competition impacts

This section assesses the small business and competition impacts of the preferred option.

Small businesses may experience disproportionate effects from regulation for a range of reasons. This may include that the requirement applies mostly to small businesses, or because small businesses have limited resources to interpret compliance requirements or meet substantive compliance requirements compared to larger businesses. Small businesses may also lack the economies of scale that allow fixed regulatory costs to be spread across a large customer base.

The Victorian Guide to Regulation also requires a RIS to assess the impact of regulations on competition. Regulations can affect competition by preventing or limiting the ability of businesses and individuals to enter and compete within particular markets. In undertaking this assessment we have considered questions such as:

- Is the proposed measure likely to affect the market structure of the affected sector(s) – i.e. will it reduce the number of participants in the market, or increase the size of incumbent firms?
- Will it be more difficult for new firms or individuals to enter the industry after the imposition of the proposed measure?
- Will the costs/benefits associated with the proposed measure affect some firms or individuals substantially more than others (e.g. small firms, part-time participants in occupations etc.)?
- Will the proposed measure restrict the ability of businesses to choose the price, quality, range or location of their products?
- Will the proposed measure lead to higher ongoing costs for new entrants that existing firms do not have to meet?
- Is the ability or incentive to innovate or develop new products or services likely to be affected by the proposed measure?

An analysis of small business and competition impacts is provided in the following table. In summary, the proposed Regulations are expected to have a material impact, or be relatively more significant, for small businesses. Most businesses that work with engineered stone are small businesses. However, these impacts are expected to be proportionate (i.e. commensurate to risk) given the significant risks associated with exposure to silica.

In other sectors where there are high risk silica processes, the impact on small businesses and competition will be small. This is because the costs of complying with the proposed Regulations will be relatively low, as well as the fact that mining, quarrying and tunnelling businesses are typically not small businesses.

For the regulations that are expected to have an impact on competition, the restriction on competition is necessary to reduce the risk of illness and death, and the benefits of the restriction are likely to outweigh the costs.

Table 7.1 Small business and competition impacts

Proposed Regulations	Impact on small business	Competition
Licensing scheme	<p>WorkSafe survey data indicates a typical stonemason business consists of 8.7 employees, and therefore most licensees will be small businesses.</p> <p>A flat licence fee will be charged, which will disproportionately affect smaller businesses. However, licence fees will be waived in the transition period and even without the waiver, the estimated licence fee of \$302 is unlikely to be material for the vast majority of businesses.</p>	<p>Licensing arrangements will impose barriers to entry (i.e. the requirement to hold a licence in order to work with engineered stone). The cost of the actions necessary to gain a licence have the potential to change the industry structure (e.g. reduce number of participants) or deter entry (compared to if there were no permissions in place).</p> <p>However, the licensing scheme is intended to exclude businesses not complying with health and safety requirements from the market. The impact on competition is considered to be a small cost compared to the potential health benefits. The restriction on competition is considered to be necessary to reduce the risks of silica exposure. In some cases, departures of non-compliant existing businesses from the industry or deterrence of rogue businesses from entering the industry will be beneficial for the community.</p> <p>The permissions framework will also help facilitate a more even and level playing field for all business as non-compliant businesses will not be able to operate at a lower cost than businesses that are complying with requirements.</p>

Proposed Regulations	Impact on small business	Competition
<p>Other reforms:</p> <ul style="list-style-type: none"> • Retain the prohibition of uncontrolled dry cutting of engineered stone • Ban the use of recycled water that has not been adequately treated in an integrated water delivery system • Ban the use of compressed air for personal or area cleaning. • Requirements for risk assessment and silica hazard control statement. • amend information provision requirements, e.g. employers must provide written information about crystalline silica 	<p>Some elements of the reforms are likely to impose relatively fixed costs on businesses. The smaller the business the greater the proportional impact they will have on business costs. Examples include:</p> <ul style="list-style-type: none"> - Atmospheric testing, which can cost approximately \$3,000 per test, will be disproportionately larger for small businesses. - Smaller business have fewer resources available to understand and ensure compliance with requirements - For the requirements relating to non-stonemason businesses e.g. risk assessment/silica hazard control statement, stakeholders indicated larger businesses are more likely to already be compliant with OHS requirements and are less likely to have to materially change their practices compared to small businesses <p>However some costs – for example those imposed as a result of the ban on uncontrolled dry cutting of engineered stone, will be relatively proportional to the number of employees in the business.</p> <p>Given the risks of silica exposure, the small business impacts are considered to be reasonable given the risk to worker health.</p>	<p>The proposed Regulations are likely to make it more costly for businesses to work with engineered stone. This is likely to impact on competition in that it might reduce the number of participants in the market if existing businesses in the market or potentially new entrants find it too costly to comply with the requirements. However, as noted previously in this report, many businesses have already improved their practices including eliminating dry cutting of engineered stone. On the other hand, there is anecdotal evidence from stakeholders that some non-compliant businesses have exited the industry as a result of the ban on dry cutting and WorkSafe’s increased enforcement activity in the last 1 to 2 years.</p> <p>The restriction on competition is considered to be necessary to reduce the risks of silica exposure. As noted above, the restriction on competition is likely to be beneficial if it deters non-compliant operators from entering or staying in the industry.</p> <p>In other sectors where there are high risk silica processes, there will be small cost increases – these will generally not be material e.g. the cost of producing a risk assessment or hazard control statement, or undertaking atmospheric testing, are not likely to be material for mining, quarrying or tunnelling businesses which tend to be quite large.</p>

8 Evaluation Strategy

This chapter outlines how WorkSafe will assess the efficiency and effectiveness of the proposed Regulations

8.1 Overview

In accordance with good regulatory practice, WorkSafe is developing an evaluation strategy to measure the efficiency and effectiveness of the proposed Regulations, and its broader strategy to prevent illnesses and deaths from exposure to silica dust. The proposed evaluation strategy is set out below and will be refined during 2020 and prior to the proposed Regulations coming into effect.

WorkSafe will be responsible for evaluating and reporting on the effectiveness of the Regulations.

8.2 Evaluation issues

8.2.1 Separating the impact of the Regulations from other actions

The proposed Regulations will take effect in February 2021. They are one component of a range of activities being undertaken by the Victorian Government in accordance with the Silica Action Plan. As discussed earlier, the Silica Action Plan includes:

- Strengthening the OHS legislative framework
- Compliance and enforcement
- Education and awareness raising
- Early intervention and support for affected workers
- Research and consultation.

In addition, the proposed Regulations will complement existing obligations under other parts of the OHS Regulations (such as Part 4.1 – Hazardous substances) and the duties prescribed in the OHS Act.

Thus, it may be difficult to separate the impact of the proposed Regulations from the impact of these other actions being taken.

8.2.2 Timing issues

The aim of the proposed Regulations is to reduce exposure to silica dust to prevent adverse health impacts from developing in workers who work with or around materials containing crystalline silica. However, the adverse health impacts from exposure to silica dust can take several years, and potentially up to several decades, to become evident. Actions taken now to minimise harm may not achieve observable reductions in the prevalence of silica-related diseases for some time.

8.2.3 Baseline data

While some baseline data - i.e. pre the proposed Regulations - is available: particularly those related to longer term outcomes, some data is either not available or not relevant. In these cases it will only make sense to start collecting data from the commencement of the proposed Regulations.

Therefore any evaluation of the efficiency and effectiveness of the proposed Regulations, particularly over the short to medium term, will need to:

- Where possible identify impacts and review the effectiveness of the proposed Regulations, separate to other impacts, as comprehensively as possible, but recognise that this may not always be possible
- Reflect the fact that measurement of inputs and outputs, as distinct from outcomes, will be the focus
- Ensure that data is collected to ensure that longer term trends in outcomes can be tracked – but recognise that in the short term this data will not reflect the effectiveness of the proposed

Regulations. Indeed, it is likely that outcomes – including the number of illnesses, deaths, claims and general impact on the community from silica related diseases – may deteriorate in the short to medium term due. This is an outcome of a range of factors, including:

- The relatively lengthy time that can elapse before symptoms become apparent
- Increases in the use of engineered stone in recent years
- A greater awareness of the potential health impacts of silica dust as a result of the campaign put in place by WorkSafe and the Victorian Government
- WorkSafe’s health assessment program for current and former workers in the stonemason industry

8.3 Approach

The broad evaluation approach to evaluation will involve two parts:

- The collation, analysis and review of **annual data** on the efficiency and effectiveness of the proposed Regulations. This annual data will include:
 - Shorter-term input and output based measures largely focussing on the proposed Regulations themselves (see Table 7.1 below)
 - Longer term measures of incidence of silicosis in the community, and its harms and effects. These measures will reflect the impact of the proposed Regulations as well as other actions. (see Table 7.2)
- A more formal **mid-term review** of the proposed Regulations to be conducted after three full years of operation (after the transition period) – once data for three full years of operation is available. The purpose of the mid-term review will be to consider whether:
 - The proposed Regulations are achieving their objectives
 - The regulatory burden and costs being placed on industry participants are higher or lower than anticipated
 - There are any unintended costs, issues or other consequences of the Regulations that need to be addressed or managed
 - Satisfactory compliance levels are being achieved
 - Changes in technology e.g. the nature of engineered stone, PPE, or monitoring equipment, require elements of the Regulations to be reviewed.

8.3.1 Annual data

Below is a list of data and KPIs that will be collected annually and which will allow WorkSafe and the Victorian Government to better understand and report on whether the objectives of the Regulations are being met. This data will support the annual and mid-term review processes.

All data will be collected by WorkSafe.

Table 8.1: Shorter term measures to evaluate efficiency and effectiveness of proposed Regulations

Measure	New data?	Notes
Number of workplaces issued with a silica-related notice ⁶² as % of workplaces visited	N	Reset in data set as new Regulations established. Indicator of compliance with Regulations.
Number of notices issued to engineered stone licence holders as % of total number of license holders	Y	Indicator of compliance with Regulations.
Number of workplaces issued with a silica-related notice on a second or subsequent	N	Reset in data set as new Regulations established. Indicator of

⁶² Notices includes improvement notices and prohibition notices

visits (within 12 months of the original visit) as % of workplaces visited		compliance with Regulations.
Number of engineered stone licences issued	Y	Indicator of size of industry
Number of licence applications received during the transition period		
Number of prosecutions for OHS offences relating to RCS	Y	Indicator of compliance with Regulations.
Average time to process licence application (after the 12 month transition period has expired)	Y	Indicator of efficiency of WorkSafe's licence application process
No of licences suspended	Y	Indicator of compliance with Regulations.
No of licences cancelled	Y	Indicator of compliance with Regulations.
No of licence applications rejected	Y	Indicator of quality of proposed measures to reduce the risk associated with silica dust
No. of licence applications where further information is sought from the applicant by WorkSafe	Y	Indicator of industry understanding of effective ways to manage risks of RCS and/or understanding of licensing application requirements

Table 8.2: Longer term measures to evaluate efficiency and effectiveness of Regulations

Measure	New data?	Notes
Number of deaths due to silicosis and related diseases (separately for engineered stone industry and other industries)	N	Indicator of effectiveness of Regulations and other actions by WorkSafe to reduce silicosis and related diseases. Will reflect actions by parties prior to establishment of Regulations
Number of new WorkCover claims accepted for silicosis and /or other silica-related diseases (separately for engineered stone industry and other industries)	N	Indicator of effectiveness of Regulations and other actions by WorkSafe to reduce silicosis and related diseases. Will reflect actions by parties prior to establishment of Regulations
Value of insurance payments made (separately for engineered stone industry and other industries)	N	Partial indicator of financial and economic impact of silicosis and related diseases. Will reflect actions by parties prior to establishment of Regulations

9 Implementation Strategy

This Chapter summarises the actions that WorkSafe will undertake to implement the proposed Regulations.

9.1 Overview

WorkSafe will prepare a full implementation and communications strategy for the proposed Regulations.

This strategy will be based on actions taken to implement the prohibition on uncontrolled cutting, grinding and abrasive polishing on engineered stone in August 2019. It will also reflect the fact that sector awareness of the incidence and harms of silicosis, and engagement with WorkSafe and the Government, is currently high due to the Silica Action Plan and:

- The broad information, education and awareness program that has been put in place, including advertising in mainstream media
- The Silicosis Summit held in February 2020 which attracted over 400 attendees
- Awareness of WorkSafe's health assessment program for current and former workers in the stonemason industry
- The increase in WorkSafe's compliance and enforcement activities targeting the hazards of silica dust in workplaces since October 2018 and following the August 2019 regulatory reforms.

At the same time WorkSafe is aware that there will be some challenges in implementing the proposed Regulations:

Table 9.1: Key challenges for implementation and communication

Challenge	Proposed WorkSafe Action
Short implementation timeframes	<ul style="list-style-type: none"> • Development of individual stakeholder and communication plans • Consultation with key industry representatives including through the Silica Stakeholder Reference Group (SRG)
Creating awareness of the proposed Regulations among key stakeholder groups	<ul style="list-style-type: none"> • Development of stakeholder engagement and communications plans outlining roles and responsibilities • Engagement and communication through the Silica SRG • Display of communications at the workplace, including the promotion of flyers, newsletters, digital channels • Information provided on WorkSafe website and through key stakeholder channels
Large number of enquiries and licence applications to be received in a short time	<ul style="list-style-type: none"> • Ensure WorkSafe team is adequately resourced to deal with large number of enquiries and applications • Ensure information provision is clear and comprehensive in order to minimise enquiries • Ensure WorkSafe systems are able to handle large volume of applications

9.2 Implementation and communications strategy

9.2.1 Finalise proposed Regulations

The proposed Regulations and the RIS will be released for a 30 day public comment period to provide employers, employees, other interested parties and members of the public with the opportunity to consider and provide feedback on the proposed Regulations and RIS.

At the conclusion of the public comment period the Victorian Government will review and consider each submission, and take account of the feedback on both the proposed Regulations and the RIS in finalising the Regulations.

WorkSafe will prepare a formal Response to Public Comment document which will detail the comments provided in the Public Comment submissions and WorkSafe's response.

The Office of Chief Parliamentary Counsel (OCPC) will review and settle the Regulations which will then be submitted to the Minister for Workplace Safety for approval as the Minister responsible for the OHS Regulations.

9.2.2 Communication

A range of communication activities will be undertaken by WorkSafe to ensure key stakeholders, including employer and employee representatives and the Victorian community, are informed about the new Regulations, what it means for them and where to get more information.

This will include:

- Direct communications with all employers who WorkSafe knows to be working with engineered stone or who undertake activities that might expose workers to silica dust. Material will be tailored to the specific sector the employer is operating in
- Ongoing communication with the Silica SRG
- Formal communications (eg notices in the Victorian Government Gazette and a state-wide newspaper) to notify the public about the new Regulations
- An update to WorkSafe's website and the Victorian Government's public consultation platform, Engage, to include information about the new Regulations and what any changes mean
- Updates of any existing guidance, including the Managing exposure to crystalline silica – engineered stone compliance code, as well as the development of any new guidance to support the new Regulations, where required.
- Presence on WorkSafe's social media channels – Facebook, twitter, Instagram and LinkedIn

9.2.3 Internal WorkSafe activities

WorkSafe will be developing a range of internal processes and systems to enable it to accept and assess licence applications immediately upon the proposed Regulations coming into effect.

9.3 Transitional arrangements

Some provisions in the Regulations will have a 12 month transition period, commencing on the day the Regulations are made, including the requirement to hold an engineered stone licence and the requirement for suppliers not to provide engineered stone to a person who does not hold an engineered stone licence. This transition period reflects the reality that it will take some time for WorkSafe to assess the expected 300 licence applications. Irrespective of these transitional arrangements, parties required to hold an engineered stone licence will need to apply for a licence as soon as practicable after the proposed Regulations come into effect.

Given the importance of not exposing workers to risks associated with silica, elements of the Regulations that directly relate to worker safety will come into force earlier than those provisions identified above, including:

- The requirement for suppliers to provide written information about crystalline silica products
- The requirement for wet-cutting or on-tool dust extraction system or exhaust ventilation
- Restrictions on the use of compressed air for cleaning
- The requirement to identify high risk silica work and prepare a silica hazard control statement
- The requirement to provide information on health risks to job applicants and employees.

9.4 Enforcement and compliance

A strong enforcement and compliance program will accompany implementation of the proposed Regulations. WorkSafe already has an established compliance and enforcement workforce, systems and processes, around the risks to health posed by exposure to silica dust. The compliance program that was 'ramped up' as part of the Silica Action Plan and following the August 2019 reforms will generally continue.

Compliance and enforcement of the proposed Regulations will also take place in accordance with WorkSafe's broader Compliance and Enforcement Policy. This includes the provision of information and guidance to assist duty holders to comply, and inspections and investigations, where appropriate, to ensure compliance with the new regulations. The preparation for implementation will include updating of all relevant WorkSafe policies and procedures, information technology systems, forms and provision of training and/or information sessions to equip all relevant WorkSafe employees with the necessary knowledge of the new regulations and their impact on operational and legal requirements and stakeholders.

WorkSafe may issue notices for non-compliance with the proposed Regulations as it currently does for breaches of the current Regulations. In addition, contravention of the many of the provisions in the proposed Regulations will be considered to be breaches of duties set out in the OHS Act which can result in strong penalties being imposed. Contraventions of the proposed Regulations that could lead to prosecution and the imposition of penalties includes regulations that require:

- Suppliers of silica containing materials to provide information to workplaces that it supplies
- Power tools used with engineered stone to incorporate water delivery, dust extraction, or local exhaust ventilation
- Respiratory protective equipment to be provided
- Appropriate information, instruction and training to be provided
- Recycled water systems to have adequate water treatment
- Compressed air not to be used for cleaning
- Records to be kept of risk assessments for high risk silica work
- A silica hazard control statement to be developed and provided to employees when high risk silica work is to be undertaken
- Information about the health risks of silica exposure to be provided to job applicants and employees, and a statement of work to be provided to departing employees
- An engineered stone licence to be held
- Engineered stone to only be supplied to engineered stone licence holders
- Health and air monitoring reports to be provided to WorkSafe
- An engineered stone control plan to be developed and provided to employees who will undertake work with engineered stone

Appendix A: Stakeholder Consultation

Consultations were held with five types of organisations relating to the stone industry: individual businesses, employee representatives, employer representatives, health practitioners and suppliers. In total, 20 consultations were undertaken from nine stonemason businesses, two employee representatives, six employer representatives, two suppliers of engineered stone and one health practitioner.

65 businesses were contacted. Nine of these businesses agreed to consultation, while the remaining 56 either declined or did not respond to follow up communication. It is possible that non-compliant businesses opted not to take part in stakeholder consultation. Similarly, some businesses that were contacted appeared to have a language barrier in understanding the purpose of this project and our request for participation in stakeholder consultation, so declined to participate. Given this, it is important to recognise that there may be a positive bias towards compliance and the proposed Regulations more generally in the findings.

All stakeholders were consulted virtually, either via a short, structured phone call or via a small focus group conducted via teleconference. The information collected during consultations has been incorporated into the RIS to provide a deeper understanding of the problem and to inform the analysis of the costs and benefits associated with the proposed OHS Regulations.

Consultations sought to ask questions about the impact of the current and proposed OHS Regulations related to silica, the cost of these regulations and the likely response to a situation where no new regulation was introduced. Stakeholders were also asked whether they believed that the proposed regulations would reduce the risk of crystalline silica exposure and increase compliance within the industry.

Themes from consultation with businesses

Awareness of risk

The businesses that were consulted were generally aware of the risks of silicosis and have implemented extensive protection measures to reduce the risks of silicosis. All except two businesses provide employees with information on the risks of working with silica dust.

Awareness of existing regulations and enforcement

All businesses spoken to are aware and supportive of the ban on dry cutting, believing that wet cutting reduces silica dust exposure by between 80-100%. Eight of nine businesses indicated that they implemented wet-cutting practices prior to and independent of this ban. While all eight businesses are aware of existing regulation, they did note that compliance is not industry-wide and encouraged WorkSafe to undertake a greater level of enforcement.

Impact of proposed regulation

Businesses did not anticipate any major costs or changes to their business practice as a result of the proposed regulations. Many believe themselves to already be compliant with wet cutting, provision of protective equipment and training requirements. It was indicated that most businesses undertake basic, informal risk assessment and hazard control processes.

Themes from consultation with employee representatives

Safety

Employee representatives asserted that there is no safe exposure level for working with crystalline silica and therefore, the only way to eliminate risk is to eliminate work with engineered stone. It was noted that industry competition can be a key driver to cut costs and sacrifice safety measures.

Enforcement of regulation

Employee representatives expressed concern about the historic lack of enforcement of existing regulation and emphasised a need for high level of control and monitoring in workplaces.

Awareness of risk

Employee representatives believe there is growing awareness in the industry. This awareness has been driven by the media and has contributed to the recent increase in the number of claims by encouraging workers to be tested.

Themes from consultation with employer representatives

Enforcement of regulation

Employer representatives believe there is a strong correlation between compliance and enforcement. Employer representatives believe that the surge in silicosis claims has occurred due to the increasing popularity of engineered stone, a failure of businesses to adequately control silica dust in the workplace, and a lack of enforcement of current regulations. All representatives expressed support toward a licensing scheme, but only if it is appropriately enforced.

Cost of compliance

Employer representatives believe there to be relatively high levels of compliance across the industry. However, it was noted that small businesses may find compliance more difficult due to the high costs associated with measures such as atmospheric monitoring, which are a requirement of the risk assessment process.

Ease of adherence to regulation

Employer representatives were supportive of a licensing scheme that is clear and specific, allowing employers to understand what actions constitute compliance. It was also suggested that, if overly complex, formal risk assessment and hazard control statements may confuse employers and take focus away from action.

Themes from consultation with suppliers of engineered stone

Supplier compliance

Suppliers believe compliance to be high across the industry, with adequate information provided to businesses about the level of silica content and associated risk in each slab of engineered stone.

Impact of proposed regulation

Suppliers expressed support toward a licensing scheme. One believed that this licensing scheme should be placed on all stone that contains crystalline silica (including natural stone). Suppliers believe there to be little impact of additional supplier duties in the proposed regulation. However, it was noted that suppliers may be adversely affect if their customers, stonemason businesses, shutdown their operations due to the high cost of compliance.

Themes from consultation with a health practitioner

Impact of diagnosis

The health practitioner emphasised the severe and devastating impact of a silicosis diagnosis on an individual both physically and mentally. It was also noted that a silicosis diagnosis can limit future employment prospects and therefore has further adverse effects on income, lifestyle and family.

Nature of disease

The health practitioner observed that the nature of silicosis claims has changed in recent years from chronic to acute. This correlated with the increased popularity of engineered stone and a lack of appropriate control measures.

Awareness of health risks

The health practitioner believed that the spike in silicosis related OHS claims is due to increased awareness around health risks of silica and a focus on undertaking health assessment.

Appendix B: Members of the Stakeholder Reference Group

- Australian Industry Group
- Australian Workers' Union
- Construction, Forestry, Maritime, Mining and Energy Union
- Department of Health and Human Services
- Housing Industry Association
- Master Builders Association of Victoria
- Monash Centre for Occupational and Environmental Health
- Victorian Chamber of Commerce and Industry
- Victorian Congress of Employer Associations
- Victorian Trades Hall Council

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