Consultation Regulation Impact Statement:

Workplace exposure standards framework under the model Work Health and Safety laws



safe work australia

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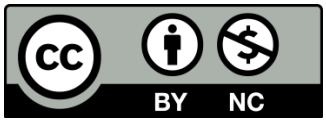
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Abbreviations, Acronyms and Definitions

AIHA – American Industrial Hygiene Association (United States)

ACGIH – American Conference of Governmental Industrial Hygienists (United States)

APVMA – Australian Pesticides and Veterinary Medicines Authority (Australia)

Business survey – Duty holder survey to investigate the impacts of the current regulatory framework on business (2017; Appendix D)

Chemical – for the purposes of this statement is equivalent to the definition of a hazardous chemical under the model Work Health and Safety laws; these encompass chemicals, substances, compounds, dusts, fibres and biological substances present in the workplace

Consultation RIS – Consultation regulation impact statement

DALY – Disability-adjusted life years

Decision RIS – Decision regulation impact statement

DECOS – Dutch Expert Committee on Occupational Safety (Netherlands)

DFG – German Research Foundation (Deutsche Forschungsgemeinschaft; Germany)

Discussion paper – *The role of chemical exposure standards in work health and safety laws* (2015)

GHS – The Globally Harmonisation System of Classification and Labelling of Chemicals (United Nations)

HSE – Health and Safety Executive (United Kingdom)

NICNAS – National Industrial Chemicals Notification and Assessment Scheme (Australia)

NOAEL – No observed adverse effect level

NOHSC – National Occupational Health and Safety Commission (Australia)

OARS – Occupational Alliance for Risk Science (United States)

OBPR – Office of Best Practice Regulation

OSHA – Occupational Safety and Health Administration (United States)

PCBU – Person conducting a business or undertaking

Peak limitation – a maximum or peak airborne concentration of a particular substance determined over the shortest analytically practicable period that does not exceed 15 minutes

PPE – Personal protective equipment

ppm – Parts per million

PwC – PricewaterhouseCoopers Consulting (Australia) Pty Limited

Regulator – for the purpose of this statement is equivalent to a work health and safety authority

SCOEL – Scientific Committee on Occupational Exposure Limits (European Union)

SME – Small and medium enterprise

STEL – Short term exposure limit

SWA – Safe Work Australia

TWA – eight-hour time-weighted average

WES – Workplace exposure standard

WES list – the list of hazardous chemicals and values within the *Workplace exposure standards for airborne contaminants*

WES values – the corresponding value (airborne concentration) listed with a hazardous chemical in the *Workplace exposure standards for airborne contaminants*

WHS – Work Health and Safety

WHS ministers – Commonwealth, state and territory ministers responsible for work health and safety

About this regulation impact statement

Background

The workplace exposure standards are designed to protect workers against adverse health effects from exposure to airborne hazardous chemicals.

There is evidence that the hazardous chemicals and values within the *Workplace exposure standards for airborne contaminants*[1] (WES list) are outdated.

Outdated workplace exposure standard values (WES values) can lead to:

- workers being exposed to unnecessary risks to health when a WES value is too lenient, and
- businesses incurring unnecessary compliance costs when a WES value is too stringent.

Purpose

Safe Work Australia has prepared this consultation regulation impact statement (consultation RIS) to assist Work Health and Safety (WHS) ministers to determine the impact of, and best way to implement, an update to the workplace exposure standards. This is so the workplace exposure standards will reflect current scientific knowledge and will adequately protect workers from adverse health effects resulting from exposure to airborne hazardous chemicals.

This consultation RIS outlines and tests the current state of knowledge regarding the costs and benefits of the status quo, and presents potential options to address the problems identified with the current framework.

In addition to enabling the revision of all current and future WES values, the proposed options will facilitate hazardous chemicals to be added to the WES list and the removal of hazardous chemicals considered to be unnecessary (i.e. those without evidence of ongoing use in Australia or those where another method of measuring exposure is more appropriate).

The proposed options will contribute to reducing workers' risk of exposure and may require action by affected duty holders (for example employers), industry professionals and other stakeholders.

This consultation RIS also explores whether the workplace exposure standards should continue to be mandatory under the model WHS laws or whether an advisory status is more appropriate.

Safe Work Australia is seeking stakeholder feedback on the baseline assumptions and the proposed options presented in this consultation RIS to test the identified impacts of changing the framework and to collect further information on the expected costs and benefits of the proposed options.

Following the finalisation of the regulatory impact analysis process, WHS ministers will be approached to approve the preferred option.

[1] Safe Work Australia (2013a).

Providing your feedback

Safe Work Australia welcomes submissions from workers, duty holders (for example employers), regulators, government departments, unions, members of the public and other parties that have an interest in, or use, store, handle, generate, or dispose of hazardous chemicals or substances that can become airborne.

This consultation RIS includes questions that are designed to elicit feedback and information on the proposed options. Respondents may answer some or all of the questions posed in this consultation RIS, or can raise a matter not explicitly addressed, as long as it is relevant to the regulation of workplace exposure standards.

Consultation questions have been provided throughout the statement and collated in Appendix E.

Making a submission

Submissions are requested by **11.59 pm on 13 September 2018**. Submissions can be made using Safe Work Australia's online Engage consultation platform available at, https://engage.swa.gov.au/cris-workplace-exposure-standards

If you are unable to lodge your submission using Engage, please email, WESconsult@swa.gov.au.

Demographic data will be collected as part of this process. Please refer to the demographic questions in Appendix E.

Respondents may choose how their submission is published on the Safe Work Australia website by choosing from the following options:

- submission published
- submission published anonymously, or
- submission not published.

For further information on the publication of submissions on Engage, please refer to the Safe Work Australia Privacy Policy and the Engagement HQ privacy policy.

Further consultation

Safe Work Australia may consult further on the workplace exposure standard framework by conducting targeted interviews with interested stakeholders. The purpose of the targeted interviews is to provide the opportunity for stakeholders to discuss any specific issues they may have and seek any clarification on the proposed changes to the regulatory framework.

Executive summary

Introduction

1. Under the model work health and safety (WHS) laws a workplace exposure standard:
    - means an exposure standard listed in the *Workplace exposure standards for airborne contaminants* (WES list), and
    - represents the airborne concentration of a particular substance or mixture that must not be exceeded.
2. Under the model WHS laws, duty holders[2] must ensure the airborne concentration of a hazardous chemical on the WES list does not exceed the corresponding workplace exposure standard value (WES value).
3. The workplace exposure standards are enforced under the WHS Regulations in the Commonwealth and all states and territories (other than Victoria and Western Australia).
4. The National Occupational Health and Safety Commission (NOHSC) established the workplace exposure standard framework in 1995 and adopted the WES list and WES values directly from an international source. Safe Work Australia was established in 2008 and in its role as the national policy body for WHS matters, Safe Work Australia maintains the WES list and WES values.

What is the problem?

5. Industry stakeholders and WHS regulators have raised concerns that the workplace exposure standards are outdated and placing workers at increased risk of illness or disease from exposure to hazardous chemicals.
6. The Australian Institute of Health and Welfare (AIHW) has estimated that in 2013, 1.9 per cent of the total burden of illness, disease and death in Australia was attributable to workplace exposures and hazards, approximating to 85,500 disability-adjusted life years (DALY) [3,4]. While these impacts are broader than those caused by workplace exposure to hazardous chemicals, they provide an indication of the potential scale of the problem. Based on AIHW data the estimated burden of workplace respiratory disease is $708 million.
7. Safe Work Australia has recently reviewed the workplace exposure standards framework and the effectiveness of the current workplace exposure standards in modern workplaces. These reviews and the associated stakeholder feedback have highlighted a number of problems with the current workplace exposure standards framework:
    - The current review process does not enable workplace exposure standards to be effectively added to or removed from the WES list. This has resulted in a WES list that is not reflective of the use, handling, storage, generation or disposal of hazardous chemicals in contemporary Australian workplaces.

[2] A person conducting a business or undertaking (PCBU) is the main duty holder under the WHS Act. They are usually the employer and may be a partnership, company, unincorporated body or association, a sole trader, a government department or statutory authority.

[3] A disability-adjusted life year represents the years of life lost and the quality of life lost due to an illness or disease.

[4] Australian Institute of Health and Welfare (2016).

- Individual WES values are outdated and do not reflect the most relevant scientific data or comparable exposure standards from international jurisdictions. A preliminary evaluation[5] found that:
    - 13 per cent of the workplace exposure standards are likely to require a new parameter
    - 35 per cent may require a reduced value, and
    - 4 per cent may need an increased value.

  The relatively large number of WES values that are outdated indicates that the current review process cannot keep up with the scientific data and information.
- Outdated workplace exposure standards can result in:
    - an increase in workplace risks which can result in adverse health outcomes for workers such as illness and disease if the WES values are too lenient; thereby increasing the overall burden of disease on Australian society, and
    - unnecessary compliance costs being imposed on duty holders when the current WES values are too stringent and where there is no evidence of a corresponding reduction in health risks.
- The current process for reviewing and determining a WES value is not standardised or formalised. This has resulted in ad hoc reviews and updates to the workplace exposure standards. Secondary to the cost to duty holders and the risk to workers, this process can take up to 10 years to review and update a single workplace exposure standard and costs an estimated $825,000 for Safe Work Australia and WHS regulators.

8. These problems highlight the importance of having up-to-date workplace exposure standards that reflect the scientific data available.

Objectives

9. The objective of the proposed government action is to reduce the risk of harm to workers in the workplace and protect them from exposure to potentially harmful airborne hazardous chemicals in line with current scientific knowledge and community expectations.

Options

10. Safe Work Australia has developed policy options to address the identified problems. These were informed by feedback received from *The role of chemical exposure standards in work health and safety laws*[6] (discussion paper) and subsequent consultations with industry stakeholders. The options considered in this Consultation RIS are:

    Option 1: Maintain the status quo and continue to update the workplace exposure standards individually on an ad hoc basis.

    Option 2: Maintain mandatory workplace exposure standards and implement a streamlined methodology to review and update the workplace exposure standards, and add or remove hazardous chemicals to the WES list as indicated.

    Option 3: Make the workplace exposure standards advisory and implement a streamlined methodology to review and update the workplace exposure standards, and add or remove hazardous chemicals to the WES list as indicated.

11. The streamlined methodology outlined for options 2 and 3 provides a formalised process to review and update WES values and WES list in a sustainable manner. It will involve the

[5] Commissioned by Safe Work Australia in 2016

[6] Safe Work Australia (2015a).

collection and analysis of several trusted key data sources. Safe Work Australia will then utilise the data from these trusted sources to recommend amendments to the workplace exposure standards, retaining the checks and balances currently applied.

12. Under the streamlined methodology, Safe Work Australia would undertake an interim review of the WES list and WES values every two years. This review would involve assessing the changes made to equivalent exposure standards by trusted sources. Using the findings from the interim reviews, Safe Work Australia would then undertake a five yearly comprehensive review and recommend amendments to the WES values and the hazardous chemicals on the WES list.

Impacts of the options

13. Any changes to the workplace exposure standards resulting from proposed options are expected to impact stakeholder groups including, workers, duty holders (for example employers), government and regulators and the broader community.

14. Summarised below is a high-level overview of the cost and benefit impacts of each option.

Option 1 – the status quo

15. Based on the *Duty holder survey to investigate the impacts of the current regulatory framework on business* (business survey)[7], it is indicatively estimated that over 175,000 businesses in Australia use the workplace exposure standards.

16. High-level analysis undertaken as part of the Consultation RIS has estimated that the current framework:

- imposes a regulatory burden on duty holders of $621 million per annum relating to the costs of purchasing and maintaining control measures
- costs approximately $3.2 million in workers' compensation per annum and $25 million per annum in total economic costs, and
- costs of $708 million to workers, businesses and the Australian community from the burden of workplace respiratory injury, illness and disease.

17. It is unknown how much the current framework costs duty holders to comply with over-protective workplace exposure standards or to research and apply standards for airborne hazardous chemicals without a current listing. The purpose of this consultation RIS is to seek information from stakeholders to test the baseline estimations of the status quo and estimate the impacts of the proposed policy options.

18. It is estimated that government (Safe Work Australia and WHS regulators) incurs, on average, an estimated $825,000 per workplace exposure standard in resourcing, contract, consultation and other costs. Updating a WES value takes, on average, 2.5 years, but can take up to 10 years.

Option 2 – streamlined methodology and mandatory workplace exposure standards

19. Option 2 is expected to improve the health and safety of workers by in effect reducing their exposure to hazardous chemicals.

20. Under the streamlined methodology and the interim and comprehensive review schedules, workplace exposure standards will be more frequently updated and the most relevant scientific data incorporated into the WES values. Over time, this is expected to:

- reduce the burden of disease in Australia

[7] Safe Work Australia and PricewaterhouseCoopers Consulting (Australia) Pty Limited (PwC) conducted the business survey in 2017 and is provided in Appendix D. The survey was aimed at duty holders and was designed to collect data on the use and understanding of workplace exposure standards in Australian workplaces.

- reduce the number and cost of workers' compensation claims
- reduce average hospital treatment costs for workplace incidents, and
- improve the quality of life of workers in Australia.

21. Option 2 may also lead to lower substantive and administrative compliance costs for some duty holders as some WES values are expected to become less stringent (i.e. higher).

22. This option may lead to some duty holders experiencing an increase in annual compliance costs, particularly where a WES value becomes more stringent (i.e. lower), or if a new hazardous chemical is added to the WES list. A more stringent or new workplace exposure standard may require duty holders to implement additional or higher level risk controls, thus increasing costs. Updates that are more frequent can result in duty holders incurring higher administrative costs related to understanding the changes made to the workplace exposure standards.

23. In applying the streamlined methodology, government may face increased regulatory and operational costs. The streamlined methodology is indicatively estimated to increase these costs by around $205,000 per year over a ten year period in comparison to the status quo. This additional cost reflects that an increased number of workplace exposure standards being regularly updated. On a 'per workplace exposure standard' basis, the costs are expected to fall significantly.

24. These additional government costs may be offset by the reduction in health costs expected to be experienced by workers as a result of this option. On average, the individual health costs (as measured by value of life quality lost) incurred by Australians that suffered from moderate respiratory disease in 2017 is estimated at $3,090 per year[8]. Therefore, to offset the additional government costs of option 2, an additional 667 workers would need to be protected from adverse health outcomes due to exposure to hazardous chemicals over 10 years. This offset is based on indicative estimates and excludes the additional costs of the option to duty holders and the broader community.

Option 3 – streamlined methodology and advisory workplace exposure standards

25. Under option 3, it is expected that some duty holders will experience lower compliance costs if they choose not to comply with advisory workplace exposure standards.

26. Based on the business survey, approximately 30 per cent of respondents using workplace exposure standards indicated they expected to reduce their compliance costs by up to half if the workplace exposure standards were advisory. This equates to an indicatively estimated reduction in compliance costs of over $150 million per annum.

27. Importantly, however, those duty holders that use fewer controls, or controls lower in the hierarchy of controls would likely increase the risk of exposing their workers to hazardous chemicals. This could lead to increased reported cases of illness and disease, resulting in increased workers' compensation claims and payments, reduced quality of life for impacted worker's and increased health costs to society. Further, workers that face an increased risk of exposure to hazardous chemicals may feel less safe in the workplace, leading to reduced business productivity and lower economic output.

28. Government is expected to face a minimal increase in operational costs under this option due to the adoption of the streamlined methodology. These costs are indicatively estimated to increase by an average of $61,000 per year over a ten year period relative to the status quo. Under this option, there is a reduced impact on government when changing

[8] Based on information from Australian Institute of Health and Welfare (2016); Salomon et al. (2015); Office of Best Practice Regulation (2014a).

a workplace exposure standard because it is anticipated that there will be a reduction in consultation costs.

Conclusion

29. On balance, option 2 (streamlined methodology and mandatory workplace exposure standards) is considered the preferred option based on the available information as it is expected to provide greater health and safety protection for workers in comparison to the other options and over time, this is expected to lead to a reduction in the overall burden of disease on Australian society.

30. To offset the estimated additional government costs of option 2, the associated average health costs of an additional 667 workers would need to be protected over a 10 year period.

31. This offset estimate does not include the costs imposed on the broader community or additional benefits needed to offset any increased compliance costs incurred by duty holders to meet revised workplace exposure standards. This is because the extent of the impacts on the broader community and duty holder compliance costs is not yet known.

Next steps

32. Safe Work Australia is seeking feedback from stakeholders on the proposed options and their expected impacts. Submissions from stakeholders will be used to inform a further cost impact analysis for a decision regulation impact statement (decision RIS).

33. Submissions from this consultation RIS will further inform the baseline costs of the status quo. The decision RIS will investigate and calculate the costs and benefits of the proposed options and recommend the preferred approach for consideration by WHS ministers.

1. Introduction

About Safe Work Australia

Safe Work Australia is an independent Australian Government statutory agency, jointly funded by the Commonwealth and state and territory governments through an Intergovernmental Agreement.

Safe Work Australia was established by the *Safe Work Australia Act 2008* (Cth) with primary responsibility to develop, maintain and revise national policy relating to work health and safety (WHS) and workers' compensation across Australia. It performs its functions in accordance with corporate and operational plans agreed annually by WHS ministers.

Safe Work Australia is not a regulator and is not responsible for matters of compliance or enforcement in relation to the model WHS laws. The Commonwealth, states and territories retain responsibility for regulating and enforcing WHS laws in their jurisdiction.

Safe Work Australia is governed by a tripartite body comprising 15 Members, including:

- an independent Chair
- nine Members representing the Commonwealth and each state and territory
- two Members representing the interests of workers
- two Members representing the interests of employers, and
- the Chief Executive Officer of Safe Work Australia, who is responsible for managing Safe Work Australia's administration and leading it in the performance of its statutory functions.

Managing risks to health and safety

34. Australia's model WHS laws are designed to provide the framework for protecting the health, safety and well-being of workers and others, that may be negatively affected by work activities conducted by a business or undertaking. The model WHS Regulations provide the enforcement mechanisms to assist in the elimination and minimisation of risks in the workplace.

35. The model WHS Act (section 17) requires duty holders to eliminate risks to health and safety, so far as is reasonably practicable; and if it is not reasonably practicable to do so, to minimise those risks so far as is reasonably practicable.

36. Under the model WHS Regulations (regulation 36), duty holders must minimise risks to health and safety using the hierarchy of controls. These requirements contribute to reducing workplace injury and illness and the corresponding impact on individuals, families, community and economy.

37. Deciding what is 'reasonably practicable' to protect workers requires consideration of all relevant matters, including:

    - the likelihood of the hazard or risk concerned occurring
    - the degree of harm that might result from the hazard or risk
    - knowledge about the hazard or risk, and ways of eliminating or minimising the risk
    - the availability and suitability of ways to eliminate or minimise the risk, and
    - after assessing the extent of the risk and the available ways of eliminating or minimising the risk, the cost associated with available ways of eliminating or

minimising the risk, including whether the cost is grossly disproportionate to the risk[9].

38. The model WHS Regulations further specify that persons conducting a business or undertaking (PCBUs) must ensure that no person at the workplace is exposed to a substance or mixture in an airborne concentration that exceeds the workplace exposure standard (regulation 49). The regulations specify air monitoring is to be carried out where there is uncertainty as to whether the workplace exposure standard has been exceeded or to determine if there is a risk to health (regulation 50).

39. Unlike the duty to eliminate or minimise risks, the duty to ensure the workplace exposure standard is not exceeded is absolute and not qualified by '*so far as is reasonably practicable*'.

The workplace exposure standards

40. A workplace exposure standard represents a concentration of an airborne hazardous chemical within a workers breathing zone that should not cause adverse health effects nor undue harm.

41. The full list of hazardous chemicals and their associated workplace exposure standard, formally referred to as the *Workplace exposure standards for airborne contaminants*, is called up by the model WHS Regulations via the definition of a workplace exposure standard.

42. A workplace exposure standard can take three forms (parameters):

- eight-hour time-weighted average (TWA):
  - the average airborne concentration of a particular substance permitted over an eight-hour working day and a five-day working week
- peak limitation:
  - a maximum or peak airborne concentration of a particular substance determined over the shortest analytically practicable period of time which does not exceed 15 minutes, and
- short term exposure limit (STEL):
  - the time-weighted maximum average airborne concentration of a particular substance permitted over a 15 minute period.

43. Workplace exposure standards play a key role in helping to minimise the risks of workplace illness and disease by:

- providing information to businesses, unions and workers about the health risks of workplace exposures to chemicals
- providing benchmarks for WHS professionals, and
- assisting in selecting effective control measures or checking the effectiveness of controls.

How are workplace exposure standards regulated?

Safe Work Australia is not a WHS regulator and does not administer the WHS laws in the Commonwealth, states or territories.

44. In Australia, workplace exposure standards are mandatory under the model WHS laws and are implemented through the model WHS Regulations that reference the *Workplace*

[9] Safe Work Australia (2013c)

exposure standards for airborne contaminants. Most jurisdictions (except Victoria and Western Australia) have adopted the model WHS laws.

45. Safe Work Australia is responsible for improving WHS and workers compensation arrangements across Australia by developing policy and guidance for the model WHS laws to enable a nationally consistent approach.

46. The *National Compliance and Enforcement Policy* (2011) sets out the principles endorsed by the Workplace Relations Ministers' Council and underpins the approach WHS regulators take to monitoring and enforcing compliance with the model WHS Act and WHS Regulations.

47. The Commonwealth, state and territory WHS regulators play a crucial role in encouraging and assisting compliance with the WHS Regulations by providing information, guidance, education and advice to duty holders and workers.

48. Although the model WHS laws have not been adopted in Victoria and Western Australia, mandatory workplace exposure standards exist under their respective WHS laws:

    - Victoria references the *Workplace exposure standards for airborne contaminants* and is given effect under the Victorian Occupational Health and Safety Regulations 2017.
    - Western Australia is taking steps towards harmonising with the model WHS laws and it is expected that WHS Regulations will follow at some time in the future. Currently the relevant workplace exposure standards are those referenced in the older workplace exposure standard document, *National Exposure Standards* [NOHSC:1003 (1995)] and are implemented through the Occupational Safety and Health Regulations 1996 (WA).

Who uses workplace exposure standards?

49. All duty holders with workers that are at risk of exposure to hazardous chemicals, be it through their use, handling, storage, generation or disposal, are required to comply with the relevant workplace exposure standards.

50. Submissions to the business survey indicated that most industries in Australia regularly use chemicals that have a workplace exposure standard. Given the nature of their business practices, duty holders operating in the agricultural, mining, manufacturing, construction, professional services, health care and social assistance, and education and training industries regularly use the workplace exposure standards.

51. Evidence also indicates that duty holders may engage the services of specialists or occupational hygienists to measure and assess worker exposure to airborne hazardous chemicals on either an ad hoc or a regular basis. Occupational hygienists can also assist duty holders develop effective practice and policy on preventing and controlling exposures and educate workers on how and why workplace exposure standards are used.

52. Occupational hygienists may use workplace exposure standards as benchmark levels to assess risk and provide advice to duty holders on the effectiveness of control measures. Occupational hygienists may also use workplace exposure standards to develop action strategies to assist duty holders to maintain compliance with the relevant WHS laws.

53. WHS regulators use the workplace exposure standards to assist in their education, monitoring, compliance and enforcement activities. Other industry specific WHS regulatory bodies (e.g. mining and natural resources sector) also use and reference the workplace exposure standards.

Achieving compliance with workplace exposure standards

54. Compliance with a workplace exposure standard can be demonstrated only when the exposure of individual or groups of workers is known, with an accepted degree of certainty, to be below the WES value.

55. Compliance issues can be addressed with an education strategy for duty holders, WHS regulators and workers. However, education alone is not going to be sufficiently protective for Australian workers unless the WES values are based on the most up-to-date scientific data.

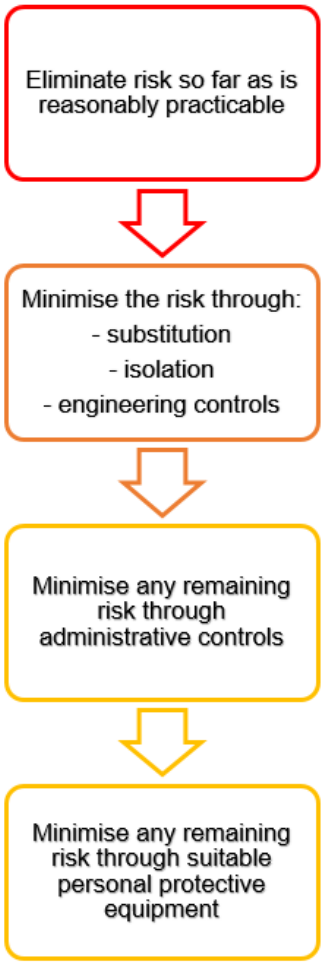
56. The most effective means of complying with a WES value is through eliminating the hazardous chemical from the workplace in the first instance.

57. It may not be practical to eliminate the hazardous chemical if doing so means a duty holder cannot produce a good or service. If this is the case, a duty holder must seek to minimise the risks associated with the hazardous chemical through implementation of the hierarchy of controls.

58. The hierarchy of controls is a list of measures implemented to control risks in the workplace (outlined in Figure 1). The control measures are ranked from the highest level of protection and reliability to the lowest.

59. Duty holders are required to apply the hierarchy when considering control measures such that the highest order control practicable is implemented. Often two or more control measures are implemented to provide a robust system of control.

Figure 1 - The hierarchy of control according to the model WHS Regulations



60. A description of the controls included in the hierarchy is as follows:

- Substitute the hazard with something safer – This involves the substitution of a hazardous substance for a less hazardous alternative. For example, replacing solvent-based paints with water-based ones.
- Isolate the hazard from people – Physically separating the hazardous chemical from people by distance or by using barriers. For example, storing chemicals in a fume cabinet.
- Use engineering controls – An engineering control is a control measure that is physical in nature, including a mechanical device or process. For example, using local exhaust ventilation to capture and remove airborne contaminants before they have a chance to be inhaled.

Should a risk remain:

- Use administrative controls – Administrative controls are work methods or procedures designed to minimise exposure to the hazardous chemical. For example, limiting exposure time to a hazardous chemical.

Should there still be residual risk:

- Use personal protective equipment (PPE) – Examples of PPE include, respirators, face masks, gloves, aprons and protective eyewear. PPE limits exposure to the harmful effects of a hazardous chemical but only if it is suitable, maintained in good condition and workers are trained to wear and use the PPE correctly.

61. Administrative control measures and PPE do not control the risk at the source and rely on worker behaviour, training and supervision to manage the risks of exposure. When used independently, they tend to be the least effective in minimising risks and should only be used:

- when there are no other practical control measures available (as a last resort)
- as an interim measure until a more effective way of controlling the risk can be used, or
- to supplement higher level control measures (as a back-up).

62. After implementing controls, duty holders may need to monitor workers' exposure to an airborne hazardous chemical (air monitoring) if:

- there is uncertainty whether or not the workplace exposure standard has been or may be exceeded, and
- it is necessary to assess whether there is a risk to health.

63. An effective air monitoring program requires training, specialist knowledge and a high level of competency and experience. Engaging the services of an expert in air monitoring, such as an occupational hygienist, to design, perform and interpret the results of an air monitoring program may be needed to determine compliance with the workplace exposure standards.

64. Under the model WHS laws, records of air monitoring must be kept for a minimum of 30 years and must be made available to workers who may be exposed.

How are the workplace exposure standards established, reviewed and updated?

65. Before Safe Work Australia was established, the National Occupational Health and Safety Commission (NOHSC) managed a formal function and process to establish and update the workplace exposure standards.

66. In 2008, Safe Work Australia assumed responsibility of the workplace exposure standards framework.

67. In order to update a workplace exposure standard, Safe Work Australia undertakes a review process that is dependent on the hazardous chemical it is examining. The review process can take between two and 10 years, depending on the workplace exposure standard being reviewed.

68. To date, Safe Work Australia has not had a process for adding or removing hazardous chemicals and their corresponding WES value from the WES list.

2. Statement of the problem

69. Exposure to hazardous chemicals via any route (inhalation, skin absorption or ingestion) can lead to death, disease and illness, poisoning symptoms, irritation or sensitisation (allergies). In particular, contaminated air that workers breathe may lead to:

    - respiratory diseases like asthma, pneumoconiosis and silicosis
    - cardiovascular diseases, and
    - cancers like mesothelioma, leukaemia and lymphoma.

    In some cases these diseases are terminal.

70. The workplace exposure standards are designed to protect workers from these adverse health effects.

71. As new toxicological and epidemiological evidence becomes available, the foundation upon which a WES value has been determined can change. For example, chemicals that were initially thought to have predominantly irritant effects can later be found to cause chronic disease.

72. In addition to this, contemporary Australian workplaces have evolved and older chemicals are being replaced with newer ones. The use, handling, storage, generation and disposal of chemicals in Australian workplaces is also subject to change over time.

What is the problem?

73. Without an adaptable workplace exposure standard framework and a consistent process for reviewing and updating the WES values and the WES list, Safe Work Australia is unable to routinely incorporate the most up-to-date scientific data and information. This has resulted in outdated workplace exposure standards, in the sense that the most up-to-date data and information may indicate a different WES value.

74. The current framework is not considered fit-for-purpose and prevents the workplace exposure standards from remaining up-to-date and relevant to Australian workplaces. This results in a number of significant costs to workers, businesses and the broader community.

75. Workplace exposure standards that are outdated or not reflective of contemporary Australian workplaces can have implications for the health and safety of Australian workers. In addition, businesses can be subjected to unnecessary regulatory burden, resulting in significant health and economic costs.

76. Based on a preliminary review of the workplace exposure standards in 2016 and feedback from stakeholders, many of Australia's workplace exposure standards are outdated. This has resulted in some WES values being:

    - under-protective, where the WES value is too lenient, or
    - over-protective, where the WES value is too stringent.

77. In addition, the review found some chemicals on the WES list were:

    - no longer relevant to the WES list, where the hazardous chemical is no longer used in Australian workplaces, and
    - absent from the WES list, where newer chemicals have been introduced into the Australian workplace.

Rationale for government involvement

78. Under the model WHS laws, duty holders must, so far as is reasonably practicable, take all steps to eliminate or minimise exposure to workplace hazardous chemicals and ensure that the WES value is not exceeded.

79. The workplace exposure standards framework helps ensure workers are protected by attempting to resolve two distinct market failures that may transpire in the absence of any regulatory framework; namely, negative externalities and information failures.

Market failure #1:

Negative externality as businesses do not bear the full cost of any adverse health impacts from workers' exposure to hazardous chemicals.

80. In the workplace, exposure to hazardous chemicals can cause adverse health effects to workers in the short or long-term. When a worker develops a disease or suffers from an illness because of exposure to a hazardous chemical, significant economic, health and social costs can occur. These costs are primarily borne by the individual, their family and the broader community and not directly borne by the business whose activities gave rise to the disease or illness.

81. When a business does not incur the full cost of an adverse event within its control, such as harmful exposure to a hazardous chemical, it may under-invest in the management or prevention of such exposure.

82. Australia's common law provides for a general duty of care. This is supplemented by the general duties of care as prescribed in the model WHS Act and specific duties in the model WHS Regulations, which provides the legislative framework to protect the health and safety of workers. The workplace exposure standards leverage the model WHS Regulations to provide targeted protection for workers against exposure to airborne hazardous chemicals.

83. While the model WHS laws provide for the general duties, the specific nature of the workplace exposure standard framework is expected to facilitate greater internalisation of the costs of chemical exposure than through the general duties of care prescribed by common law and the model WHS Act. This is because the framework requires duty holders to adequately invest in eliminating and minimising exposure to hazardous chemicals and ensuring a workplace exposure standard is not exceeded. As a result of the specific protection requirements under the workplace exposure standards framework, there is greater transparency of breaches and subsequent penalties.

Market failure #2:

Prohibitive transaction costs as a result of the complexity and limited accessibility of the relevant information required by individual businesses to research, understand and apply appropriate maximum levels of exposure for their workers.

84. In the absence of centrally determined workplace exposure standards, individual duty holders, in particular small and medium-sized enterprises (SMEs) would not likely have the time, financial capacity or technical expertise to collect and analyse the necessary information to determine the appropriate maximum level of exposure to hazardous chemicals in their workplace.

85. The WES list includes the WES values for 653 hazardous chemicals that were established based on extensive research and analysis. In their absence, it would likely be prohibitively costly for each duty holder, occupational hygienist, or worker, to obtain and understand the most suitable WES value for each of the hazardous chemicals used in the workplace.

86. Difficulties in the enforcement of workplace exposure standards that have not been centrally determined may also exist for the WHS regulators across jurisdictions.

87. Establishing a WES value from available data is a highly technical process that requires access to current toxicological and epidemiological evidence and the ability to interpret this information. The amount of time and level of expertise it would take a duty holder to gather and scrutinise this information for its applicability, may be prohibitive.

88. Ultimately, it is more efficient and effective for government (or a central-body) to determine the workplace exposure standards for hazardous chemicals rather than a decentralised approach that inherently includes significant duplication of effort and inefficiencies. This centralised approach avoids any unnecessary burden placed on individual businesses or workers to determine their own WES values.

The problems with the current framework

The aim of amending the workplace exposure standard framework is to have a responsive and effective framework in Australia that protects the health of workers, reflects best practice and is able to adapt to changes in scientific and technical knowledge.

89. In 1995, Safe Work Australia's predecessor, NOHSC, established the initial list of workplace exposure standards. This was adopted directly from the list of occupational exposure limits published by the American Conference of Governmental Industrial Hygienists (ACGIH).

90. The current version of the workplace exposure standards (2018) primarily contains the limits established in 1991 by the ACGIH with some revisions.

91. The ACGIH establish Threshold Limit Values (TLV®; equivalent to a workplace exposure standard) through a scientifically rigorous analysis. Although the values are largely relevant to Australian conditions, the TLV®s were never intended for regulatory purposes and can be at odds with other equivalent values.

92. Whilst the ACGIH annually publish a select number of revised TLV®s that can be indiscriminately adopted by Australia, this results in a lack of control over how and what TLV®s are revised, and does not provide the opportunity to incorporate and consider valuable scientific data and information from other sources.

Workplace exposure standards that are under-protective

93. If a WES value is not sufficiently protective, adverse health effects can become evident at airborne concentrations below the published WES value.

Example: Formaldehyde

Formaldehyde is a known sensory irritant commonly used to produce resins found in wood products.

As further research and data on formaldehyde exposure levels has become available, additional adverse health effects have been confirmed including, nasopharyngeal cancer.

The Australian WES value for formaldehyde is 1 part per million (ppm).

Other international standard setting agencies have set an exposure limit of 0.3 ppm.

The Australian WES value is less stringent and is associated with an additional respiratory cancer risk in the workplace of 50 in one million.

94. The costs associated with suffering from an illness or disease due to under-protective workplace exposure standards can be significant for an individual and for the community as a whole:

- workers that spend time away from work in recovery, or are less efficient at work because of the illness or disease, can have a negative impact on the economy's productivity, and
- there are costs on the healthcare system because of an increased number of patients seeking treatment for adverse health effects from exposure to a hazardous chemical in the workplace.

95. Ultimately, the burden of disease in Australia can increase resulting in larger health costs and a lower quality of life for the broader community.

Workplace exposure standards that are over-protective

96. An over-protective WES value can place an unnecessary cost burden on a duty holder in terms of the additional costs incurred to comply with the workplace exposure standard, without necessarily providing any additional health benefits.

97. Additional costs may relate to implementing expensive control measures, such as isolation booths or automated processes, or carrying out air monitoring more regularly to ensure compliance. While this may be considered a best practice approach, it increases the compliance costs where simpler control measures such as local exhaust ventilation may be just as effective.

> ***Example: Acetaldehyde***
>
> Acetaldehyde is an organic compound and a known carcinogen to humans. It is used in the manufacture of perfumes, air deodorisers, resins and vinyls.
>
> The current WES value for acetaldehyde in Australia has a TWA of 20 ppm.
>
> This compares to an equivalent exposure standard of 50 ppm in Germany.
>
> The Australian WES value is over-protective and may be associated with the implementation of higher level controls and additional air monitoring to achieve compliance.

98. The costs associated with implementing control measures varies based on the profile of the hazardous chemicals used in the workplace and the control measures implemented. Information provided by duty holders in the business survey indicates that implementing isolation measures costs approximately twice that of engineering measures such as ventilation[10].

The current list of hazardous chemicals does not reflect contemporary Australian workplaces

99. There are hazardous chemicals with established international exposure standards that are used in Australian workplaces and are not included in the WES list. This may result in some hazardous chemicals not being appropriately controlled in the workplace and impacting on the health outcomes of workers.

> ***Example: 1-bromopropane (1BP)***
>
> 1BP is used as a solvent in degreasing, dry cleaning and spray adhesive products and services. 1BP is used commonly throughout Australian cleaning businesses (such as dry cleaners) and in the aviation industry for maintenance purposes, and in the production of asphalt.
>
> The current WES list does not include 1BP.
>
> However, there is an international exposure standard available for 1BP that could be potentially added to the WES list.

The current review process is not standardised and is costly

100. Since the adoption of workplace exposure standards in Australia, the NOHSC and Safe Work Australia have updated a limited number of workplace exposure standards. The processes that were used are discussed below.

[10] See Appendix A for details. Large business costs for isolation controls in comparison to engineering controls.

The NOHSC 'fast track' update process

101. The NOHSC utilised a 'fast track' process to review WES values and relied primarily on recommendations from the United Kingdom Health and Safety Executive (HSE) and National Industrial Chemicals Notification and Assessment Scheme (NICNAS).

102. This resulted in the adoption or amendment of approximately 80 workplace exposure standards over ten years.

103. This fast track process is no longer available primarily because the HSE no longer sets its own exposure standards and is not in a position to share the necessary information previously provided.

Safe Work Australia current review process

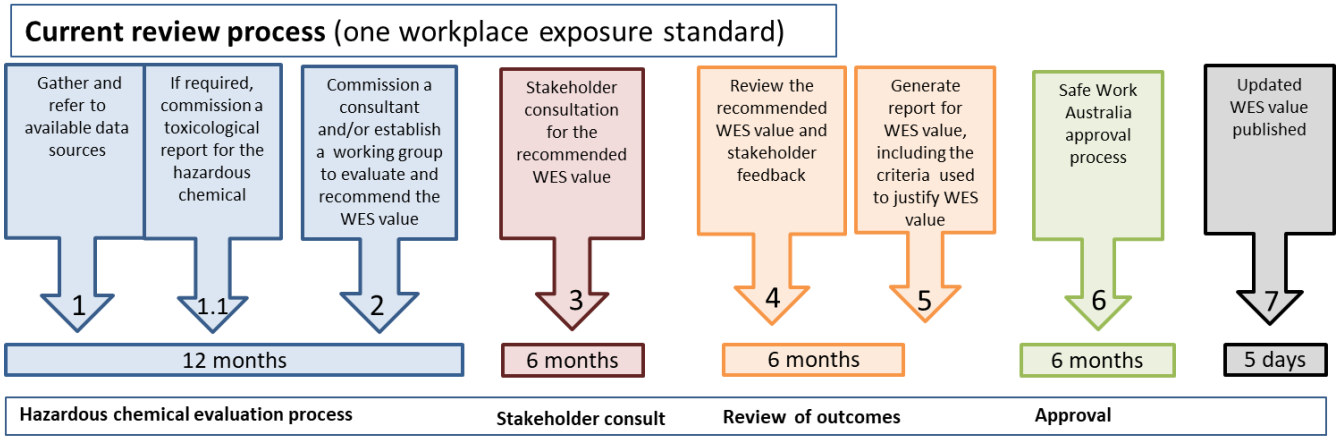
104. Safe Work Australia currently takes an ad hoc approach to updating workplace exposure standards. This approach is not proactive in protecting worker health and safety, and relies on stakeholders including, unions, WHS regulators and industry groups to alert Safe Work Australia of any potential issues.

105. This approach is largely non-standardised with no consistent approach to the number of sources investigated. Safe Work Australia may commission a toxicology report for a chemical undergoing review to assess the health risks posed to workers, or consult with existing NICNAS resources including the Inventory Multi-tiered Assessment and Prioritisation (IMAP) assessments, if available.

106. Under this review process, Safe Work Australia may facilitate expert working group meetings, contract consultancies to evaluate and review an updated WES value, undertake stakeholder engagement and prepare regulatory impact documents. Expert working groups and consultancies can assist in the assessment of toxicological reports and other relevant information.

107. Figure 2 illustrates the typical steps undertaken to evaluate one workplace exposure standard under the current review process.

Figure 2 - Current review process



108. In some cases, depending on the complexity, the review and update of one workplace exposure standard can take several years with significant costs. For example, the review of the workplace exposure standard for:

- crystalline silica took more than six years
- man-made vitreous fibres (MMVF) took over two years, and
- lead (inorganic) took more than 10 years.

109. The above reviews are representative examples of how the current review process has ultimately resulted in outdated WES values and a WES list that is not reflective of the

hazardous chemicals used in contemporary Australian workplaces. The timing outlined in Figure 2 is reflective of process failure of the review of the standards, including that the process:

- was reactive and only responded to one identified issue, generally with one chemical resulting in a lack of capability to review multiple chemicals in parallel
- did not identify and harness existing available information from trusted sources
- is costly in terms of resourcing and review timing, and
- did not contemplate removing or including hazardous chemicals on the WES list.

110. The costs incurred by Safe Work Australia and the jurisdictional WHS regulators in undertaking the current review process can exceed $3 million over a 10 year period[11].

Industry compliance with workplace exposure standards

Based on the business survey, the indicative estimate of the baseline regulatory burden of the workplace exposure standards framework is $621 million per annum[12].

111. Larger businesses tend to be more aware of regulatory requirements in relation to the workplace exposure standards. Many employ occupational hygienists or have the capacity to engage consultants to undertake this work and ensure compliance. These businesses may also set their own internal workplace exposure standards to align with international best practice and emerging health and toxicological information.

112. A Safe Work Australia limited literature review found that SMEs appear to have lower levels of use, awareness and understanding of workplace exposure standards than larger business. Studies involving inspection campaigns reveal that SMEs are often less compliant than larger businesses.

113. A Swedish study[13] investigated the awareness and understanding of Occupational Exposure Limits (OEL; equivalent to a workplace exposure standard) by business size. A significant association was found between increased awareness of OELs and larger business size. In terms of awareness of OELs, respondents from workplaces with 500 or more employees were 1.6 times more likely to identify that OELs are binding according to law compared to respondents from workplaces with one to 25 employees.

114. This research is supported by results from the business survey. The survey found that approximately 35 per cent of respondents potentially do not use or are unaware of the workplace exposure standards. However, the perceived level of duty holder compliance with the workplace exposure standards averages 62 per cent across all industries based on the survey responses. When broken down by business size the average perceived compliance was 57 per cent for small business, 58 per cent for medium sized business and 72 per cent for large business.

115. Based on the survey responses, approximately 68 per cent of respondents aware of the workplace exposure standards, are perceived to comply. Figure 3 summarises the rates of perceived compliance with the workplace exposure standards by business size for the duty holders aware of the workplace exposure standards.

116. Based on these survey responses, large businesses have the highest level of perceived compliance with the workplace exposure standards; SMEs have a lower but similar level of perceived compliance.

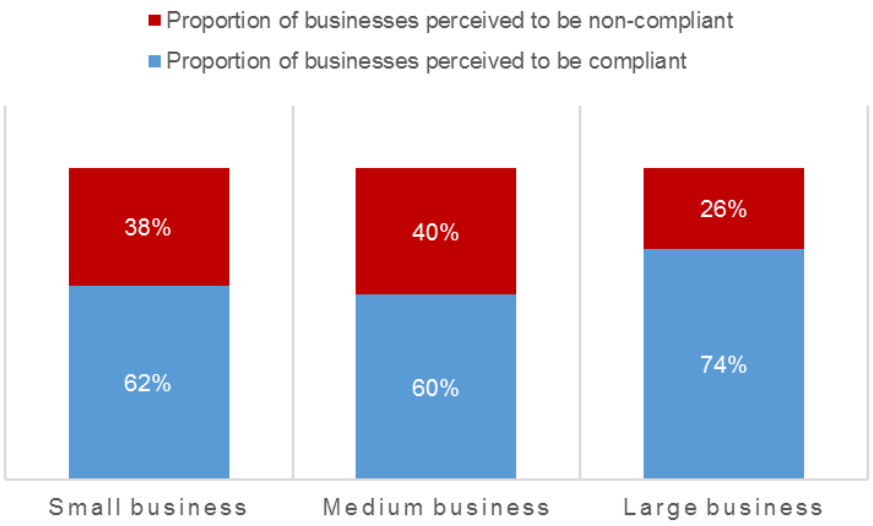
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[11] See Section 5 – Impact analysis, for details of these cost estimates.

[12] The full methodology, analysis and intermediate estimates, including all analysis assumptions are available in Appendix A – Methodology for estimating the baseline regulatory burden.

[13] Schenk (2011).

Figure 3 - Perceived compliance with the workplace exposure standards by business size (duty holders aware of the WES only)



117. The regulatory burden incurred by businesses in complying with workplace exposure standards relates to the costs incurred for the use of the various controls to minimise exposure to hazardous chemicals.

118. The cost information used to estimate the regulatory burden has been obtained from the business survey. Due to the nature of the survey (i.e. self-reporting of costs by duty holders), the estimates of regulatory burden should be treated as indicative only.

Consultation questions

1. Do the estimated rates of compliance with the workplace exposure standards align with your experience? Please explain.
2. Are there any particular issues that make it difficult for you to comply with the workplace exposure standards? Please provide examples.

Magnitude of the problem

119. In order to estimate the magnitude of the problem, the number of outdated WES values can be used to indicate the degree of systemic failure that exists within the workplace exposure standards framework.

How many workplace exposure standards are potentially outdated?

120. In 2016, Safe Work Australia commissioned a consultancy to undertake a preliminary evaluation of the 653 hazardous chemicals in the WES list. It provided an indication of the WES values that may need updating and highlighted that:

- toxicological knowledge and recommendations of airborne hazardous chemicals have advanced significantly since the workplace exposure standards were first adopted in 1995
- there are significant differences across international bodies in the science policies used to determine an exposure standard value, and
- the evaluation process used to review and determine a workplace exposure standard must be timely, applicable to contemporary Australia and adaptable to advancements in toxicological knowledge.

This preliminary evaluation of the hazardous chemicals and WES values on the WES list has revealed approximately:

- thirteen per cent (95) of the WES values are likely to receive a new parameter [14]
- four per cent (26) are expected to receive a revised WES value that is higher than what is currently published
- thirty five per cent (229) are expected to receive a revised WES value that is lower than what is currently published
- forty per cent (261) of WES values have no forecasted change, and
- eight per cent (52) of WES values are proposed for removal from the mandatory list.

121. The relatively large number of WES values that are outdated indicates that the current review process cannot keep up-to-date with the most relevant scientific data and information.

122. Additionally, duty holders and workers may be at risk of incurring an unnecessary health or economic burden given the WES values may not be adequately protective, or may be over-protective.

Costs associated with outdated workplace exposure standards

Under-protective workplace exposure standards

123. As discussed earlier, an under-protective WES value signals that workers may be inadequately protected from exposure to hazardous chemicals. At these concentrations, workers may suffer a potentially preventable illness or disease.

124. Individuals that suffer from a workplace illness or disease can incur substantial costs in relation to their treatment and rehabilitation, which in some cases can last several years.

125. The economic burden also extends to the broader community as those seeking treatment and rehabilitation often utilise the medical services provided by the public healthcare system. Under-protective WES values may result in additional hospital admissions and treatment, generating further pressure and costs to the public healthcare system which otherwise could have been prevented if the WES values were adequately protective. As an example, the community in general bears an additional four-dollar expense for every one dollar spent on the use of asbestos, largely due to the costs generated by asbestos-related diseases such as mesothelioma[15].

126. The Australian Institute of Health and Welfare (AIHW) estimates that in 2013, 1.9 per cent of the total burden of illness, disease and death in Australia was attributable to workplace exposures and hazards. This approximates to 85,500 disability-adjusted life years (DALY) [16,17]. A proportion of this burden may be the result of an under-protective WES value where workers experienced illness, disease, or death from exposure to a hazardous chemical without adequate controls in place.

[14] This includes proposed WES values for 76 chemicals not currently on the WES list

[15] The Cancer Council (2016).

[16] A disability-adjusted life year represents the years of life lost and the quality of life lost due to an illness or disease.

[17] Australian Institute of Health and Welfare (2016).

127. The AIHW also estimates that approximately 16,500 DALY are incurred each year from respiratory illnesses caused by workplace exposures and hazards, resulting in the cost to society of injury and disease incurred in the workplace is approximately $708 million[18,19].

128. Exposure to hazardous chemicals can lead to cardiovascular health issues. Studies have indicated that the exposure of workers to hazardous chemicals can increase the risk of a heart attack or other cardiovascular disease[20]. The average cost of a heart attack based on treatment, productivity loss and the burden of disease is approximately $335,000[21], with over 55,000 heart attacks reported in 2009. Even if one per cent of these heart attacks were attributable to exposure to a hazardous chemical in the workplace, the cost to the broader community would be approximately $181.5 million.

129. Workplace illness or disease can also result in increased economic costs in relation to workers' compensation payments. It is not known how many workers' compensation claims are made as a direct result of non-compliance with the workplace exposure standards, though national workers' compensation data indicates that there were a total of 5,915 workers' compensation claims accepted involving exposure to chemicals or other substances that resulted in illness or disease (2010/11 to 2015/16), equating to 986 claims per year over this period[22].

130. During the same period, the average total compensation paid for these serious claims was $10.9 million per year, equating to an average of $29,990 per claim between 2000–01 and 2014–15[23]. This resulted in an average of approximately $3.2 million per annum in compensation paid and an estimated $25 million per annum in total economic costs[21]. The total estimated cost may be larger given workers' compensation data are known to underestimate the true number of fatal and non-fatal cases from workplace causes.

131. In 2012-2013, it is estimated that injury and disease as a result of exposure to chemicals and other substances cost the Australian economy over $2 billion. This equates to an average cost of approximately $2 million for each of the 1,035 serious claims made in this time.

132. Some diseases such as asbestosis and mesothelioma are compensated through separate mechanisms, while many other diseases go unreported or uncompensated leading to an under-estimate of the number of people that develop workplace illness, disease or related deaths.

133. Other reasons for this underestimation may include:

- diseases (such as cancers) can have long latency periods
- it can be difficult to associate an illness or disease that becomes evident later in life with exposure to a particular hazardous chemical used in the workplace many years earlier

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[18] Salomon, J. et al. (2013).

[19] Using the global disability weight for moderate respiratory disease of 0.225 and the value of a statistical life in Australia in 2017 of $190,750.

[20] Kim, Won, Ko, Heo, & Chung (2012).

[21] Based on figures from the Access Economics report (2009). Figures inflated to 2016 dollars.

[22] Safe Work Australia (2015b).

[23] Safe Work Australia (2018).

- the causal relationship between disease and workplace exposure may be difficult to establish because:
    - a disease can have multiple causes, one of which is work-related
    - signs and symptoms of most workplace diseases are not uniquely related to workplace exposure
    - medical and epidemiologic knowledge may be insufficient to clearly distinguish a disease of workplace origin from one of non-workplace origin
    - some physicians can have difficulty in identifying workplace disease, or a work history was not recorded, and
- many workers (including farmers, subcontractors, and sole traders) are not covered by workers' compensation.

134. According to the preliminary evaluation of the current WES values, potentially 35 per cent are under-protective. This means duty holders may not be aware that they are not adequately protecting their workers from adverse health effects and workers using these hazardous chemicals may not be aware of the risks to their health.

> ***Example: Sulphuric acid***
>
> Sulphuric acid exposure is known to increase the risk of developing lung cancer, particularly if exposure to the acid occurs for an extended period of time[24].
>
> In Australia, the WES value for sulphuric acid has a TWA of 1 mg/m^3.
>
> In comparison:
>
> - DFG recommends a TWA of 0.1 mg/m^3, and
> - SCOEL recommends a TWA of 0.05 mg/m^3.
>
> The SCOEL value is 20-times lower than the comparable Australian WES value.
>
> Australian workers exposed to sulphuric acid may be inadequately protected from the risks associated with exposure. This may result in these individuals and the Australian community as a whole bearing an unnecessary risk of workplace illness and disease and additional costs of treatment and rehabilitation because of exposure to sulphuric acid.

Over-protective workplace exposure standards

135. As identified earlier, an over-protective workplace exposure standard signals that the WES value is more stringent than other international exposure standards, or lower than what the most relevant scientific data would support. In these cases, duty holders may invest in a range of unnecessarily high-level control equipment and implement specific management practices to minimise exposure to hazardous chemicals.

136. The additional cost incurred by the business to comply with over-protective WES values may not necessarily produce any additional benefits to the health and wellbeing of workers.

137. Safe Work Australia estimates that approximately four per cent of Australia's WES values are more stringent than what current scientific data indicates is sufficient to protect the health and safety of workers.

[24] Beaumont et al. (1987).

Example: Xylene

Inhaling xylene vapour leads to a depression of the nervous system. In concentrations of 100 ppm, xylene can lead to a loss of balance, nausea and headaches. High concentrations of xylene or repeated, long-term exposure can lead to vomiting, weakness, dizziness and loss of balance[25].

The current WES value for xylene in Australia is a TWA of 80 ppm.

In the USA, Germany, Canada, Switzerland and South Korea, the equivalent exposure standard is 100 ppm. Some European countries set a standard of 50 ppm.

The dangerously harmful side-effects of xylene exposure occur at concentrations well above 80 ppm and exposure to xylene may be effectively managed using less sophisticated control equipment.

The current Australian exposure standard for xylene may therefore lead to unnecessary additional compliance costs for duty holders.

Costs associated with an outdated WES list

Chemicals that are not reflective of contemporary Australian use patterns

138. There is evidence that the WES list does not reflect current hazardous chemical use patterns in Australia.

139. It is reasonable to expect that chemicals used in Australia are listed in the databases published by NICNAS and the Australian Pesticide and Veterinary Medicines Authority (APVMA). A comparison of the WES list with these databases has shown that there are approximately 50 chemicals in the WES list with no apparent evidence of use Australia.

140. In addition, there are over 70 chemicals with evidence of use or potential exposure in Australia that do not have a corresponding workplace exposure standard, but do have an international equivalent published by more than one credible source.

141. Feedback from the discussion paper noted that if there is no workplace exposure standard available for a hazardous chemical in Australia, duty holders and occupational hygienists often consult the international lists for an exposure standard. However, due to various reasons including scientific approach and different interpretations of the data, not all international values are the same, resulting in potential confusion around which value is the most appropriate for providing adequate protection against adverse health effects.

142. Duty holders could incur unnecessary costs in researching the appropriate international source and exposure standard value to use. The time taken to consult the international sources could be significant and additional costs are likely to occur in reviewing the scientific data and understanding the applicable information for the exposure standard.

143. If a workplace exposure standard is not readily available for a particular hazardous chemical used by an Australian duty holder, workers may not receive adequate protection because duty holders may not adopt the appropriate control measures. Additionally, a duty holder may not be aware of the existence of other international exposure standards that could be used. As such, workers may incur health costs related to the adverse health effects suffered from exposure to a hazardous chemical.

144. Having a workplace exposure standard available for these hazardous chemicals in Australia would eliminate confusion for duty holders, provide clarity for regulators and enable the consistent protection of workers exposed to hazardous chemicals irrespective of work processes.

[25] Kandyala, Raghavendra & Rajasekharan (2010).

Consultation questions

3. Are there any other costs to your organisation relating to the workplace exposure standards framework not discussed here?
4. If there is not an Australian workplace exposure standard available for a particular chemical, how do you manage the risk of exposure? Please describe.

3. Objective of Government action

145. Safe Work Australia's role is to provide the regulatory framework to protect workers from the risks of work. Under this framework, the workplace exposure standards assist in enabling duty holders to discharge their health and safety duties effectively.

146. Therefore, the objective of government action is to reduce the risk of harm to workers in the workplace and protect them from exposure to potentially harmful hazardous chemicals in line with current scientific knowledge and community expectations.

4. Policy options

The options considered to address the identified problems with the workplace exposure standards framework are:

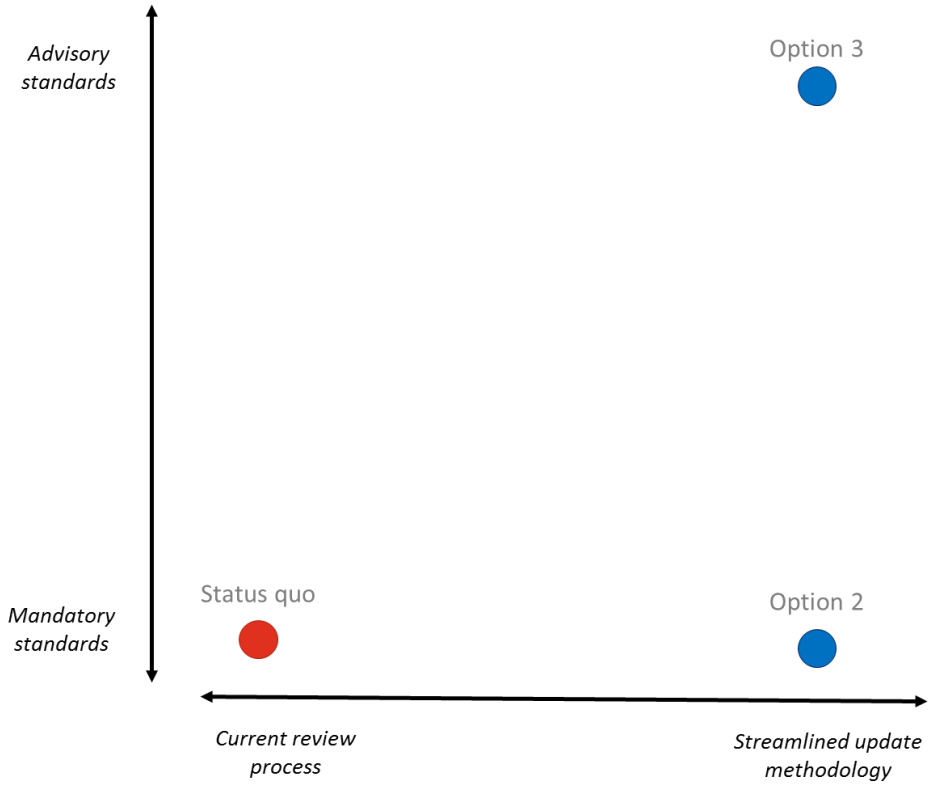
1. Maintain the status quo and continue to update the workplace exposure standards individually using the current review process.
2. Maintain mandatory workplace exposure standards and implement a streamlined methodology for updating the WES values and WES list to reflect current scientific knowledge and contemporary use of hazardous chemicals in Australian workplaces.
3. Amend the status of all workplace exposure standards to advisory and implement the same streamlined methodology for updating the workplace exposure standards to reflect current scientific knowledge and contemporary use of hazardous chemicals in Australian workplaces.

147. These options have been informed by stakeholder submissions received from *The role of chemical exposure standards in work health and safety laws* [26] (discussion paper).

148. The options focus on distinct aspects of the identified problems and if the workplace exposure standards should have a mandatory or advisory status. Figure 4 summarises the high-level differences between the proposed options.

149. The options proposed are not necessarily mutually exclusive. Elements of options 2 and 3 could be combined in a preferred option.

Figure 4 - Comparison of proposed options



[26] Safe Work Australia (2015).

Option 1 – Maintain the status quo

150. The status quo is the continuation of the current review process and arrangements to manage the review and update of a WES value currently included in the WES list. Specifically, the status quo entails:

- ad hoc updates to individual WES values as evidence indicates
- no bulk change to the WES list, and
- maintain the current regulatory requirements outlined under regulations 49 and 50 of the model WHS Regulations.

151. Under this option, the current estimated annual regulatory burden cost of over $621 million per annum and burden of disease cost of $708 million would continue to be incurred by duty holders, workers, WHS regulators and the Australian community.

Option 2 – Maintain mandatory workplace exposure standards and implement a streamlined methodology

All workplace exposure standards remain mandatory under the model WHS laws.

Implement a streamlined methodology[27] to update the WES values and the WES list.

152. Option 2 has been developed to specifically address the adverse health outcomes to workers due to the inefficiencies that are present in the current review process. Under this option, a standardised streamlined methodology to review and update WES values will be implemented. This streamlined methodology will also allow for the addition and removal of hazardous chemicals from the WES list.

153. This option represents a practical, cost-effective approach with a streamlined evaluation process that utilises relevant exposure standards and supporting assessments that are publically available and derived using a systematic, scientific evaluation.

154. The key features of this option are:

- workplace exposure standards remain mandatory under the model WHS laws, and
- implementation of a streamlined methodology to update the WES values and the WES list aligning with the Australian Government's principle of adopting trusted international risk assessment and standards.

155. Many of the submissions to the discussion paper favoured retaining the mandatory status of workplace exposure standards. Concerns have been raised that removing workplace exposure standards from regulation would lead to a diminution in health and safety protection.

156. Conversely, some stakeholder groups do not support workplace exposure standards being used as black and white numbers to delineate compliance, noting that historically exposure standards were not developed in this way and the numbers were not intended for regulation but as indicators of approaches to minimise risk.

Streamlined methodology to review, update and maintain the workplace exposure standards

157. Figure 6 outlines the frequency of the two-yearly interim review and five-yearly comprehensive review in comparison to the frequency of the status quo.

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[27] The streamlined methodology is available at the Safe Work Australia website, https://www.safeworkaustralia.gov.au/collection/workplace-exposure-standards-review-methodology

158. The streamlined methodology would enable the future update of individual WES values on a regular rather than ad hoc basis. The streamlined methodology would utilise available risk assessments, exposure standards and data from trusted domestic and international bodies. This new process will see workplace exposure standard review and update times cut by up to 50 per cent.

159. The streamlined methodology provides a standardised process for collecting information rather than the non-standardised approach currently used, whereby information is gathered sporadically. This can overcome the inefficiencies in data collection in the current review process.

160. Sources will be categorised as either 'primary' or secondary' according to the streamlined methodology. To evaluate a WES value, the relevant primary sources are considered followed by the secondary sources, if necessary.

161. The adoption of the streamlined methodology retains all checks and balances currently used by Safe Work Australia in updating a WES value but in a shorter period of time.

162. Figure 5 summarises at a high-level, the key differences between the current review process and the streamlined methodology[28].

163. The streamlined methodology will also allow Safe Work Australia to implement a program for scheduled updates to workplace exposure standards in the future (see Figure 6). Under this option, Safe Work Australia would initially undertake a full review and update of the current workplace exposure standards in 2018-19. Safe Work Australia currently estimates that up to 60 per cent of the WES values could be updated. This initial review is likely to result in the addition or removal of a number of hazardous chemicals in the current WES list[29].

164. Following the initial review, Safe Work Australia will review the changes trusted sources have made to their exposure standards. This will be known as the interim review and will occur at years two and four of a five year cycle (see Figure 6). An expert working group may be formed to assist in recommending outcomes for these reviews.

165. The interim reviews will enable Safe Work Australia to identify and shortlist hazardous chemicals for update in a five-yearly comprehensive review of the workplace exposure standards. The comprehensive review will utilise evaluation and peer review consultancies to assist in updating the relevant workplace exposure standards. Safe Work Australia will also undertake stakeholder engagement and the preparation of regulatory impact documents as indicated.

166. Compared with the status quo, where one workplace exposure standard is updated per review, the streamlined methodology will allow multiple workplace exposure standards to be updated at the same time.

167. In addition to the interim and comprehensive reviews, Safe Work Australia expects to undertake priority reviews using the methodology as needed. Priority reviews have been included to allow flexibility so should an emerging issue for a particular chemical arise, it can be addressed at any time during the five year review cycle using comparable timeliness and data. A priority review will only be conducted if a workplace exposure standard requires immediate review outside of the scheduled review process.

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[28] Currently there is no single standardised approach to update a WES value, so the steps outlined for the current review process are generalised and may not apply to every hazardous chemical.

[29] The hazardous chemicals that have been proposed for addition or removal from the current WES list are published on the Safe Work Australia website and are available in Appendix C – List of hazardous chemicals for proposed addition or removal.

Figure 5 – Current review process vs. streamlined methodology

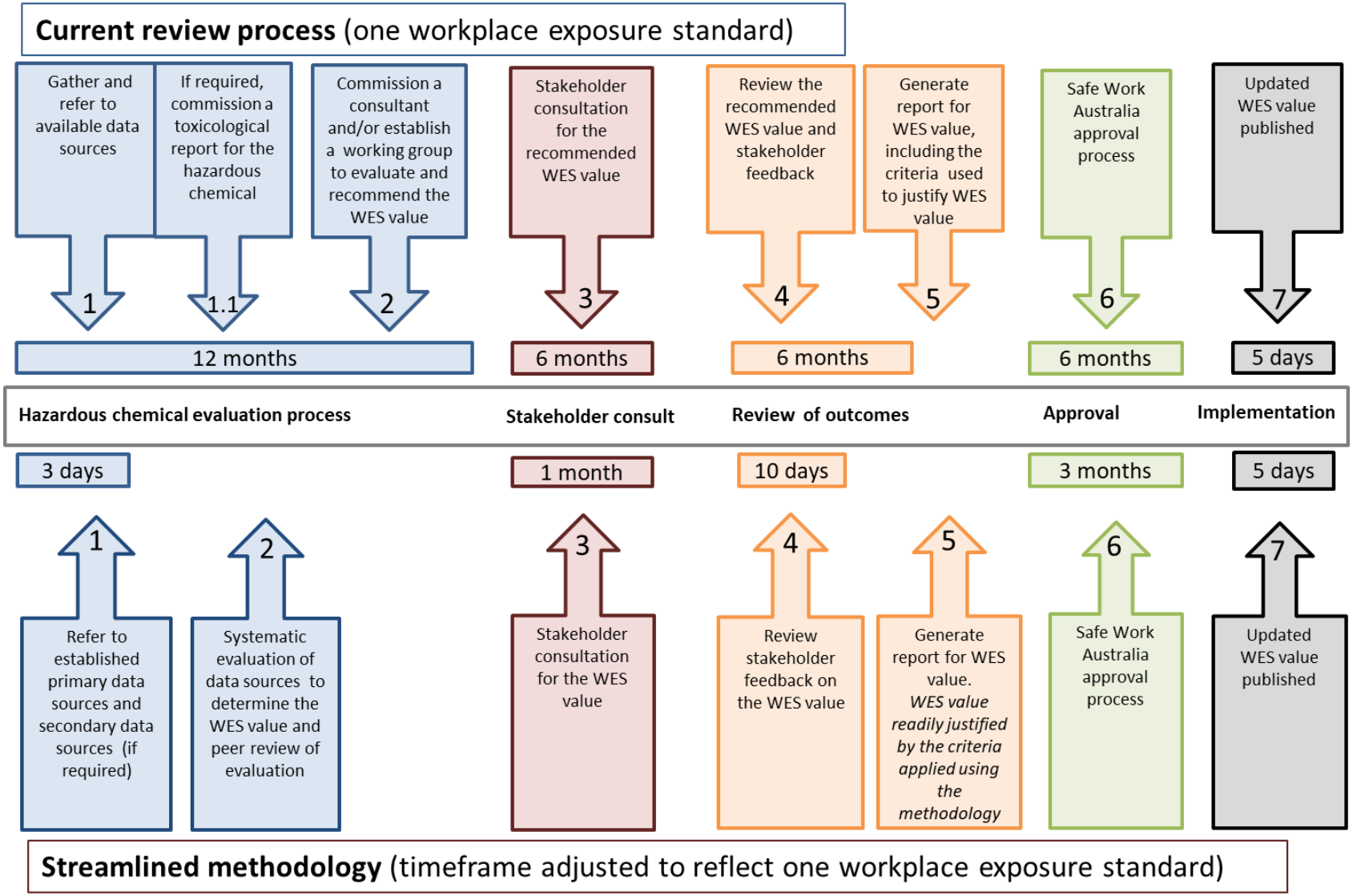
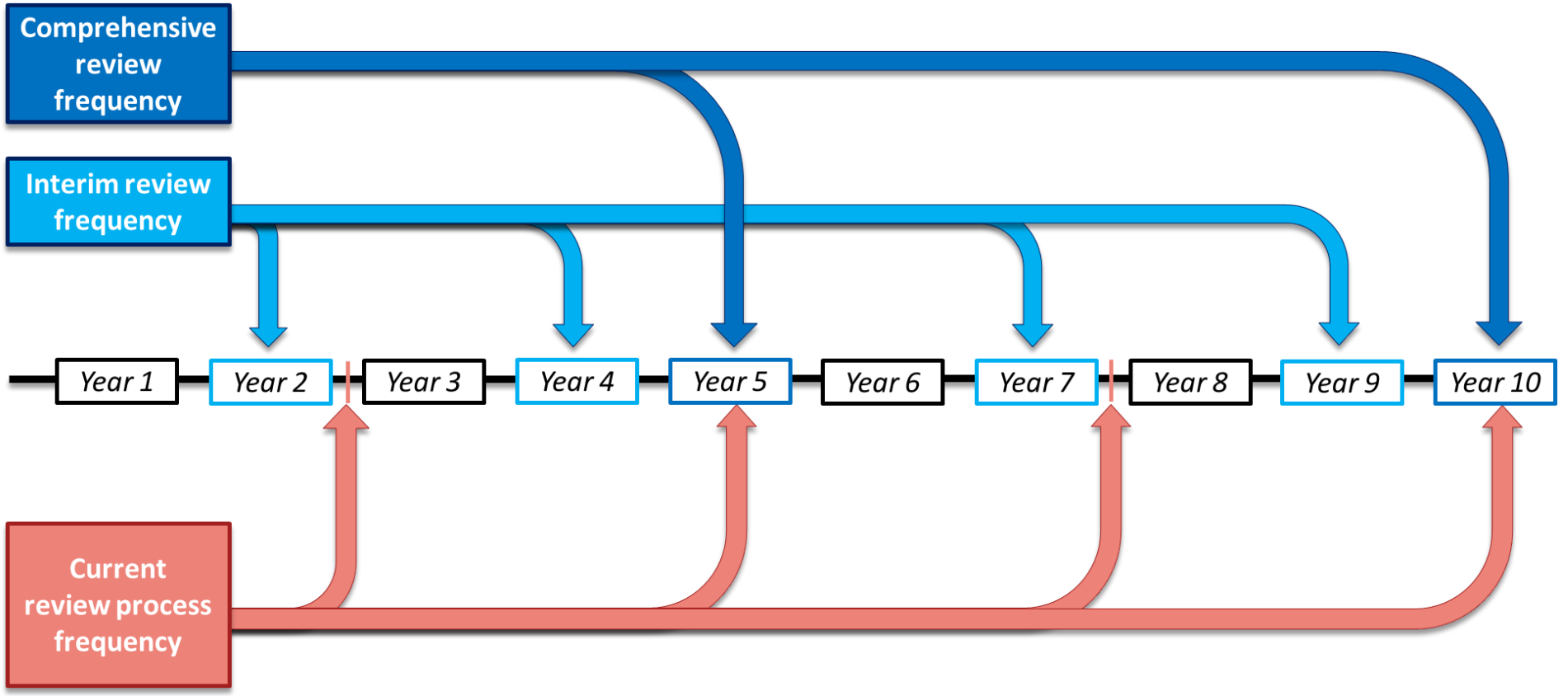


Figure 6 – Current review process vs. streamlined methodology update frequency



Option 3 – Change workplace exposure standards to advisory status and implement a streamlined methodology

The status of all workplace exposure standards will change to advisory under the model WHS laws (i.e. remove model WHS regulation 49 to not exceed the workplace exposure standard).

Implement a streamlined methodology to update the WES values and the WES list (as per Option 2).

168. Option 3 has been developed as a possible non-regulatory policy solution and is informed by stakeholder feedback received from the discussion paper. Some stakeholders indicated that the WES values could be more frequently updated and maintained if they were advisory or indicative of best practice. The key features of this option are:

    - all workplace exposure standards would become advisory
    - implementation of the streamlined methodology to update the WES values and the WES list (as per option 2), and
    - the provision of guidance material to support duty holders in reducing hazardous chemical exposure risks.

169. The streamlined methodology as outlined in option 2 would be used to update the WES values and WES list under this non-regulatory option.

170. The model WHS Regulations would be amended so that duty holders would no longer need to comply with the requirement to not exceed the workplace exposure standards (model regulation 49).

171. This option would retain the requirement for air monitoring to determine whether there is a risk to the health of workers (model regulation 50) and duty holders would still be required to retain and have readily accessible air monitoring records.

172. There would be no limitation to how many hazardous chemicals could be added to an advisory list and chemicals without evidence of use, handling, storage, generation or disposal would be retained as there is no regulatory burden associated with the listing.

173. Scheduled reviews and evaluations would still occur and they could be conducted with a frequency based upon availability of information from trusted sources.

174. This option would result in the workplace exposure standards reflecting best practice. It is expected there would be reduced regulatory burden for duty holders to comply with the workplace exposure standards, given there would be no legal obligation to do so.

175. Updating the workplace exposure standards to advisory status may result in an increased risk to workers particularly in SMEs, as the degree of safety and knowledge surrounding the use of hazardous chemicals in the workplace is generally not as sophisticated as in large business. As such, workers in SMEs, particularly in industries where airborne hazardous chemicals are present, may be at a higher risk of adverse health effects due to exposure.

176. This option would be supported by overarching guidance material developed for duty holders to assist in understanding and characterising best practice when minimising exposure to hazardous chemicals.

Consultation questions

5. Are there other options that could be considered to achieve the government's objectives? Please provide details.
6. Are there any practical issues to consider in relation to any of the proposed options? Please provide examples.
7. Would making the workplace exposure standards advisory (rather than mandatory) lead to changes in the level of compliance in your industry? Please explain.
8. Beyond these options, what else could be done to help your business understand and comply with the workplace exposure standards?

Proposed name change – workplace exposure limits

177. For each option, it is proposed that the term 'workplace exposure standard' be renamed 'workplace exposure limit' to more accurately reflect that the values published are limits not to be exceeded, as opposed to standards which are generally something a duty holder should aim for as best practice.

178. Workplace exposure standards were originally named 'national exposure standards' under the NOHSC which had a function to develop standards. When Safe Work Australia was established, these standards were adopted under the model WHS framework and were subsequently renamed 'workplace exposure standards'. The proposed name change to 'workplace exposure limits' will align with the function of Safe Work Australia under the *Safe Work Australia Act* (2008) to develop, monitor and revise the model WHS legislative framework and related materials.

179. Internationally, the equivalent of a workplace exposure standard is almost universally described as a 'limit'. The proposed change will bring Australia in line with terminology used internationally for equivalent and interchangeable parameters. This may help clarify any potential confusion that may arise when comparing Australian workplace exposure standards with workplace exposure limits published by trusted international agencies.

180. The proposed name change, while technical in nature, will be a part of this consultation process and an appropriate education strategy will follow to assure relevant stakeholders that there are no additional changes to their duties for this minor technical terminology change. As such, the term 'workplace exposure standard' will be used throughout this statement until the final transition to the new terminology becomes effective.

Consultation questions

9. What impact, if any, would the proposed name change from 'workplace exposure standard' to 'workplace exposure limit' have on your organisation?

5. Impact analysis

181. This chapter identifies the groups of stakeholders likely to be affected by each proposed option and outlines the expected impacts of each option. The benefit and costs of each option are assessed in relation to the key stakeholder groups.

Option 1: The status quo

182. Under the status quo there is no change to the current workplace exposure standard framework. The current review process used to update the workplace exposure standards will continue to be used and all workplace exposure standards will remain mandatory.

183. This means that should this be the preferred option, the current costs and benefits incurred by key stakeholders remain unchanged into the future.

184. The costs and benefits incurred under the status quo will be considered as the baseline against which the incremental impacts of options 2 and 3 will be assessed.

> ***Baseline costs***
>
> Duty holders would incur an estimated $621 million in costs attributable to the workplace exposure standards each year moving forward including:
>
> - isolation controls
> - engineering controls
> - administrative controls
> - personal protective equipment
> - conducting air monitoring, and
> - engaging an occupational hygienist[30].
>
> When an update to a workplace exposure standard does occur, duty holders may incur additional or reduced costs, depending on the nature of the change to the workplace exposure standard.
>
> The current workers' compensation payouts of $3.2 million per annum and broader economic costs of $25 million per annum will remain, with a burden of illness, disease and death attributed to exposure to hazardous chemicals of 85,500 disability-adjusted life years (DALY).
>
> The estimated cost to workers, business and the broader Australia community from workplace respiratory illness is $708 million[31].
>
> Government is indicatively estimated to incur a total 10 year cost of approximately $3.30 million, or $824,705 per workplace exposure standard.

185. Maintaining the status quo would see the workplace exposure standards continue to be updated irregularly and remain primarily outdated. As such, workers and the community as a whole will continue to experience the risks and lower level of benefit associated with outdated workplace exposure standards.

[30] Refer to Appendix A for details.

[31] Using the global disability weight for moderate respiratory disease of 0.225 and the value of a statistical life in Australia in 2017 of $190,750.

Consultation questions

10. Please provide details of the types of costs that are incurred by your organisation when a WES value is updated. For example, do you update any policies or procedures to reflect changes in the WES value?
11. Survey respondents indicated that, on average, a quarter of their control costs are directly attributable to the current workplace exposure standards framework. Is this consistent with your experience? Please provide details.
12. Are there any other significant regulatory costs that you incur because of the workplace exposure standards that have not been included in the consultation RIS?

Option 2: Maintain mandatory workplace exposure standards and implement a streamlined methodology

186. Option 2 proposes the introduction of a streamlined methodology[32,33] to update the WES list and values.

187. In comparison to the status quo, option 2 proposes the following specific changes:

- introduction of a standardised, documented process to update a WES value
- introduction of a standardised, documented process to add or remove a hazardous chemicals from the WES list
- an interim review to identify changes made to the documentation of trusted sources every two years, and
- a comprehensive review every five years to update the workplace exposure standards identified under the interim reviews.

188. Under option 2, all workplace exposure standards would remain mandatory as under the status quo. However, the updates to the workplace exposure standards will occur more frequently and in greater numbers relative to the status quo.

189. Every five years, Safe Work Australia would conduct a comprehensive review and update of the workplace exposure standards. To assist in identifying which workplace exposure standards should be in the comprehensive review, Safe Work Australia would conduct an interim review every two years to identify the changes made to all exposure standards by trusted sources. Within any five-year period, two interim reviews of changes made to exposure standards would be conducted.

Benefit impacts

190. Three key benefits have been identified under this option:

1. decreased likelihood of workplace illness and disease
2. reduced compliance costs for duty holders (for certain hazardous chemicals), and
3. benefits for the community.

[32] The full streamlined methodology can be found on the Safe Work Australia website.

[33] Further details on the steps for the streamlined methodology are described in Figure 5.

These benefits are discussed below.

Decreased likelihood of workplace illness and disease

191. The streamlined methodology is designed to ensure that when any particular WES value is updated or a hazardous chemical and its value(s) are added to the WES list, it becomes more reflective of the contemporary use of hazardous chemicals in Australia and incorporates the most relevant scientific data.

192. Workplace exposure standards that are reflective of the most relevant scientific data and their use in the workplace arguably better protect workers from suffering harmful hazardous chemical exposure through the adoption of more effective control measures.

193. When workers are protected from exposure to hazardous chemicals, they are less likely to experience workplace illness and disease, therefore resulting in lower health costs. This can encourage improvements in quality of life for workers and also lead to a decrease in deaths attributable to exposure to hazardous chemicals in the workplace.

194. Option 2 is expected to reduce the estimated cost burden of disease of $708 million[18,19] by updating the WES values to reflect the most relevant scientific evidence. Workers can experience an improvement in their quality of life and life expectancy through reducing the risk of exposure the hazardous chemicals at work.

195. Respiratory diseases caused approximately six per cent of deaths attributable to disease or injury in 2011[34]. Approximately 81 per cent of mesothelioma cases and 10 per cent of lung cancers are attributable to workplace exposures, of which each have a fatality rate of over 97 per cent[35]. Reducing worker exposure to airborne hazardous chemicals can reduce the incidence of particularly severe diseases and ultimately reduce the number of deaths and years of life lost attributable to respiratory disease.

196. A reduction in workplace illness and disease is expected to reduce the frequency and total cost of workers' compensation claims for exposure to hazardous chemicals.

197. Furthermore, reducing the number of people that suffer from a workplace illness or disease can lead to a lower number of hospitalisations, and thus lower total treatment costs and hospital wait-times. Diseases that can occur from exposure to a hazardous chemical often require more expensive treatments. For example, the treatment cost for an individual diagnosed with mesothelioma in 2017 dollars is, $82,378[36]. This is significantly larger than the average hospitalisation cost of $5,078[37]. This example is illustrative only, but indicates the potential impact of exposure to certain hazardous chemicals.

Reduced compliance costs for duty holders (for certain hazardous chemicals)

198. The preliminary evaluation commissioned by Safe Work Australia estimates that approximately four per cent (26 of the 644) workplace exposure standards are likely to become less stringent if reviewed and updated.

199. The introduction of a more regular and streamlined updating process under option 2 would enable these WES values to be reviewed and potentially revised upwards.

200. When scientific evidence is available that can support a less stringent WES value, this may result in duty holders spending less on purchasing or maintaining unnecessary control equipment or procedures to protect workers from hazardous chemical exposure.

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[34] Australian Institute of Health and Welfare (2016).

[35] Ibid.

[36] National Occupational Health and Safety Commission (2001). Value has been converted to 2017 dollars using the RBA Inflation Calculator.

[37] Australian Institute of Health and Welfare (2012). Value has been converted to 2017 dollars using the RBA Inflation Calculator.

201. For every one control no longer utilised there is potential for an estimated average cost saving of:

- $2,045 per annum for small business
- $10,889 per annum for medium business, and
- $248,596 per annum for large business.

These estimates are indicative only, but provide a broad sense of the potential cost savings[38].

202. If a WES value is made less stringent, a duty holder may still require the use of control equipment or procedures where it manages exposure to other hazardous chemicals. As such, the number of businesses that would no longer implement particular control equipment or procedures if a WES value is made less stringent is not known at this stage and the corresponding cost saving cannot be accurately estimated.

Benefits for the community

203. An incident that has occurred from exposure to a workplace hazardous chemical is not just a burden to the business due to the reduced productivity of the organisation, but also to the affected worker, their family and the community in general.

204. Experiencing a workplace incident can be very stressful for both the worker and their family. Besides trying to regain strength and normality as they were prior to the incident, a workplace incident could be financially damaging; especially if the workers income supports the household and they are required to stop work temporarily or even at times, permanently. They may be unable to return to work, need a change of job or a change of role to accommodate any new restrictions with continuing their particular role.

205. A lower incidence of workplace illness and disease may reduce the need for full-time carers. A full-time carer provides assistance to someone with a severe disability or illness. A carer can receive from the Australian Government a Carer Payment as a means of financial support and a Carer Allowance as an income supplement in the event the carer can no longer work full-time.

206. A single person can receive each fortnight $894.40 in Carer Payment and $127.10 in Carer Allowance, totalling $26,559 per annum.[39] These costs could be avoided if workplace exposure standards are kept up-to-date and workers receive the most appropriate level of protection in the workplace. If the workplace exposure standards were updated more regularly using the streamlined methodology, workers will be better protected from adverse health effects, with their families and the broader community less likely to endure the associated impacts.

207. Additionally the broader community will experience increased confidence that workplaces are safer by observing a lower number of workplace illness or disease. Improved confidence can encourage greater productivity in the workplace, boosting economic activity.

Cost impacts

208. Three key cost impacts have been identified for option 2 and include an increase in:

1. administrative costs for duty holders
2. compliance costs for duty holders, and

[38] Estimates are based on the business survey results in Table 15 of Appendix A.

[39] Based on information collected from the Department of Human Services at https://www.humanservices.gov.au/individuals/subjects/payments-carers.

3. costs to government.

These cost impacts are discussed below.

Increased administrative costs for duty holders

209. In the event that a workplace exposure standard is updated, added or removed from the WES list, duty holders may incur additional administrative costs. These costs relate to the duty holder understanding the changes made to the workplace exposure standard, updating internal documentation or policies, and planning and initiating additional training for workers.

210. Based on the preliminary evaluation commissioned by Safe Work Australia, approximately 39 per cent (251) of the WES values may be outdated and would potentially be changed should the streamlined methodology be introduced. These changes would occur in the initial full review, with subsequent updates scheduled every five years under the comprehensive review. However, it is important to note that the number of individual WES values changed will be significantly less in subsequent comprehensive reviews.

211. Under this option, the workplace exposure standards will be updated more frequently relative to the status quo. As such, duty holders are likely to incur additional administrative costs associated with an updated WES value. These costs relate to time spent understanding the changes, preparing any internal documentation for the changes, conducting additional worker training and updating any compliance tasks.

212. The total administrative cost burden incurred by duty holders under option 2 will be greater than under the status quo, consequentially increasing the current regulatory burden incurred by duty holders. The cost will depend on the specific WES value being updated and the number of duty holders using that specific workplace exposure standard.

Increased substantive compliance costs for duty holders

213. The preliminary evaluation commissioned by Safe Work Australia estimates that approximately 35 per cent (225) of the current WES values are likely to become more stringent after applying the streamlined methodology.

214. If these WES values do become more stringent, duty holders may initially experience additional costs in ensuring they comply with the revised WES value. These substantive compliance costs relate to the purchase and maintenance of equipment that is required to control hazardous chemical exposures.

215. The duty holder must consider the hierarchy of controls (elimination, substitution, isolation, engineering, administrative and personal protective equipment) to determine the appropriate control measures for their workplace. Duty holders also apply the practice of air monitoring and use occupational hygienists to determine compliance with a workplace exposure standard.

216. Using the data compiled from the business survey in 2017, Table 1 summarises the average estimated costs incurred for each control type and practice, ranging from small to large business[40].

217. In the event that a WES value becomes more stringent, the change in compliance costs incurred will depend on the magnitude of the change for the WES value, the number of businesses affected, the size of businesses affected and the types of controls adopted.

218. More stringent WES values may lead to duty holders purchasing more sophisticated control equipment and may increase the cost burden on duty holders. The size and extent of compliance costs will depend on which WES values are updated and the relative change in the level of the WES value. However, it could be predicted that:

[40] Due to a lack of available quantifiable information for substitution controls, costs have not been estimated.

- a significant change to a WES value would require:
    - an additional engineering control, isolation control and air monitoring, or
    - application of PPE, and
- a minor change would require:
    - an additional administrative control.

219. The extent of the changes will be modelled based on the information provided through submissions to this consultation RIS.

Table 1 - Average estimated cost ranges of control types and management practices based on data from the business survey (2017)

Control types/practice	***Average estimated cost range***
Isolation control	$5,893 - $620,881
Engineering control	$6,835 - $298,027
Administrative controls	$11,706 - $361,509
PPE	$653 - $171,830
Air monitoring	$1,071 - $220,002
Occupational hygienists	$2,592 - $260,055

Increased costs to government

220. Safe Work Australia is indicatively estimated to incur increased operational costs in the adoption of the streamlined methodology, particularly when communicating amendments to the workplace exposure standards to relevant stakeholders across Australia.

221. WHS regulators may experience additional costs in developing and revising their procedures and in training staff to understand the amendments.

222. In comparison to the estimated cost of the status quo of $3.30 million, the streamlined methodology is estimated to cost a total of $5.35 million over 10 years, or approximately $534,595 per year.

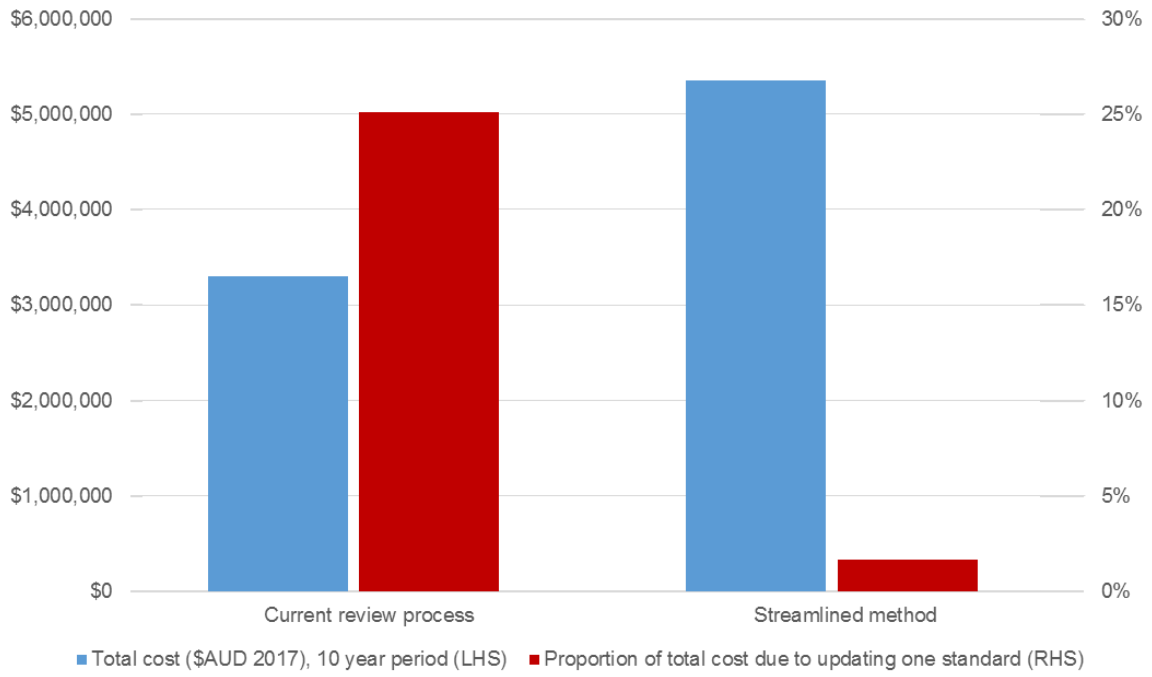
223. The total approximate additional cost incurred by Safe Work Australia and the WHS regulators over a 10 year period is estimated to be $2.05 million. The increased cost is due to a larger number of workplace exposure standards being reviewed, increased resourcing, evaluation and consultation requirements.

224. There are expected to be efficiency gains as more workplace exposure standards are updated and maintained using the streamlined methodology.

225. Over a 10 year period, between 60 and 120 workplace exposure standards are expected to be updated using the streamlined methodology. Therefore, the cost of using the streamlined methodology over the 10 year period is, on average, between $44,550 and $89,099 per workplace exposure standard. By comparison, the process under the status quo has updated up to four workplace exposure standards over 10 years. On a ‘per workplace exposure standard’ basis, the status quo process costs an estimated $824,705 per workplace exposure standard. This cost difference is driven by the economies of scale the streamlined methodology provides due to the greater number of workplace exposure standards that can be updated over a 10 year period.

226. The differences in total and per workplace exposure standard costs between the current process and streamlined methodology (with 30 workplace exposure standards updated per comprehensive review) over a 10 year period are highlighted in Figure 7.

Figure 7 - Comparison of current review process and streamlined methodology estimated costs, total and per workplace exposure standard



Option 2 summary

227. Option 2 is expected to bring health benefits to Australian workers through improved health outcomes. This option is also expected to:

- decrease the cost to society through reducing the burden of injury, illness and disease
- improve productivity and confidence in what could be perceived as a healthier workplace
- reduce total hospitalisations and costs for workplace incidents, and
- reduce the frequency and total costs of workers' compensation claims.

228. The introduction of the streamlined methodology will allow more frequent update to the workplace exposure standards and incorporate the most relevant scientific data. This will help ensure the updated WES values provide adequate protection for workers, ultimately reducing unnecessary health costs incurred from exposure to hazardous chemicals and the overall burden of disease in Australia.

229. In using the streamlined methodology, government may incur estimated cost increases of around $2.05 million over a 10 year period. The additional costs may also result from communicating updated workplace exposure standards to duty holders.

230. There are expected to be efficiency gains from using the streamlined methodology. Depending on the number of workplace exposure standards that are updated using the streamlined methodology, the estimated cost saving over 10 years is between $735,606 and $780,155 per workplace exposure standard.

231. More frequent update to workplace exposure standards are also likely to impose greater administrative costs on duty holders. In addition, potentially 225 WES values could become more stringent. This can increase compliance costs for duty holders, particularly if

they have to purchase more control equipment or undertake additional processes to manage exposure levels.

232. In order to breakeven with the additional government costs incurred under this option, the updated workplace exposure standards would need to reduce the burden of disease on Australian society from exposure to hazardous chemicals by 48 DALY over 10 years[41,42].

233. On average, the DALY attributable to respiratory disease per 1,000 people in Australia is approximately 72[43] and equivalent to a per person rate of 0.072. Therefore, to breakeven with the additional government costs, the updated workplace exposure standards would need to protect, on average, approximately 667 additional workers from suffering harm from hazardous chemicals in the workplace over a 10 year period[44]. This represents approximately 0.03 per cent of the estimated workforce in the agricultural, mining, manufacturing and construction industries[45].

234. These DALY breakeven estimates do not include the additional benefits of improved worker health outcomes or those needed to offset any increased compliance costs incurred by duty holders to meet revised workplace exposure standards. This is because the extent of compliance costs is not yet known.

Consultation questions

13. Do you think awareness of the workplace exposure standards will improve if they are updated more frequently? Please explain.
14. What impact would more frequent updating of the workplace exposure standards have on your organisation? In your response, please consider the possible addition of the chemicals listed in Appendix C.
15. To understand and implement option 2, what would this cost your business or organisation?
16. What benefits would option 2 provide for your business or organisation, and community?

Option 3: Change workplace exposure standards to advisory status and implement a streamlined methodology

235. Under option 3, the workplace exposure standards would become advisory and no longer considered mandatory under the model WHS laws and consequently under WHS laws implemented by the Commonwealth, states and territories (except WA and Victoria). Legally, duty holders would not be required to comply with the workplace exposure standards.

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[41] This figure is based on a $190,750 value of a statistical life and a disability weight of 0.225 for moderate respiratory disease.

[42] Salomon et al. (2015).

[43] The average DALY rate per 1,000 in Australia in 2011 was approximately 900. Approximately 8 per cent, or 72 DALY per 1,000 people, of the total burden of disease is attributable to respiratory disease. This is based on inference of statistics from the Australian Institute of Health and Welfare (2016) study 'Australian Burden of Disease Study: Impact and causes of illness and death in Australia 2011'.

[44] This is based on the value of life quality lost that occurs when an individual is exposed to hazardous chemicals. This health cost is estimated at approximately $3,090 and is based on the value of a statistical life year of $190,750 and a disability-weight of 0,225 for moderate respiratory disease.

[45] Based on data sourced from Australian Bureau of Statistics (2016). Findings based on use of ABS TableBuilder data.

236. The streamlined methodology will be used to review and update the workplace exposure standards. The anticipated timeline for conducting the interim and comprehensive reviews is illustrated in Figure 6[46].

Benefit impacts

237. Two benefit impacts have been identified in relation to this option and include:

    1. Reduced compliance costs for duty holders.
    2. Reduced costs for government.

    These benefits are discussed below.

Reduced compliance costs for duty holders

238. If the workplace exposure standards became advisory, duty holders may experience a reduction in administrative and substantive compliance costs.

239. The extent to which duty holders would experience a reduction in compliance costs depends on how duty holders change the number and type of controls they use in the workplace.

240. Duty holders may incur lower substantive compliance costs by using fewer controls, or using controls that are less sophisticated and lower in the hierarchy of risk controls[47]. Administrative compliance cost savings may also exist for duty holders that no longer have to invest time in understanding changes to existing workplace exposure standards, or implementing updated procedures or controls to accommodate a change to a WES value.

241. Based on responses to the business survey, the annual regulatory burden on duty holders directly attributable to workplace exposure standards is indicatively estimated to be $621 million. This is based on data that suggests 25 per cent of control costs are directly attributable to the workplace exposure standards.

242. It is not known how many businesses would choose not to comply with the workplace exposure standards if they were made advisory. To estimate the indicative compliance cost savings for duty holders if the workplace exposure standards were made advisory, data on the number of businesses that may reduce their costs has been estimated.

243. Of the duty holders surveyed in the business survey, approximately 31 per cent of small businesses, 28 per cent of medium businesses and 26 per cent of large businesses indicated they would reduce costs by at least half in the event workplace exposure standards become advisory. If 31 per cent of the 165,636 small businesses estimated to be impacted by the workplace exposure standards in Australia reduced their compliance costs by 50 per cent, the total cost saving would be approximately $52.9 million. Assuming the 28 per cent of the 9,157 medium businesses and 26 per cent of the 734 large businesses impacted by the WES will indicatively reduce their compliance costs by half, an estimated total of $13.9 million and $24.1 million would be saved in costs respectively[48].

244. These figures only represent the proposed scenario where certain proportions of businesses reduce their costs by 50 per cent. The actual compliance cost saving may be smaller or larger depending on the number of duty holders that choose to reduce their compliance costs and the degree to which these costs are reduced.

245. The duty holders that continue to comply with workplace exposure standards may face additional costs once the WES values are updated with the streamlined methodology. This

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[46] This could be adjusted based on the availability of data.

[47] Refer to Figure 1.

[48] For details on the estimated average compliance cost per business size in Australia, refer to Appendix A – Methodology for estimating the baseline regulatory burden

cost impact would be the subject of a separate analysis. It would be affected by whether the WES value increased or decreased, the magnitude of the change, the types of additional controls that may be required to meet a new workplace exposure standard, the number of businesses that adopt the workplace exposure standard and the number of workers that are likely to be impacted.

246. The assumptions on the extent to which business may or may not change their behaviour should the workplace exposures standards become advisory will be tested and measured based on the feedback received from this consultation RIS.

Reduced costs to government

247. If the workplace exposure standards are made advisory, WHS regulators may experience cost savings from reduced focused enforcement or compliance activities.

248. As duty holders would not legally be required to comply with the workplace exposure standards, WHS regulators may cease conducting some enforcement activities or compliance checks on duty holders in relation to the workplace exposure standards. The WHS regulators may consequentially incur lower costs in relation to these activities.

249. However, WHS regulators would still enforce the other requirements of duty holders under the model WHS laws, including the general duties, so there would be no cost saving in regards to these activities under this option.

250. Given the advisory nature, Safe Work Australia may spend less on communicating changes to the workplace exposure standards to duty holders. Consequentially there may be less cost incurred in preparing and initiating plans for stakeholder engagement when a WES value is updated.

Cost impacts

251. Three key cost impacts have been identified in relation to this option. These are:

    1. increased likelihood of workplace illness and disease
    2. lower community confidence, and
    3. increased regulatory and operational costs from updating the workplace exposure standards.

The costs are discussed below.

Increased likelihood of workplace illness and disease

252. As discussed under the benefits section of this option, if adopted, some duty holders may save up to 50 per cent in compliance costs by using fewer controls or controls that are less sophisticated and lower in the hierarchy of control[49]. Less prevalent use of controls in the workplace may lead to a cascade effect due to a potential increase in the risk of harm to workers, and consequently an increase in health costs. However, some duty holders are unlikely to change their work practices and the extent to which they use existing control measures.

253. The potential health costs for workers may increase under this option. Workers may be at greater risk of exposure to a hazardous chemical if less protective control equipment or procedures are in place. Relative to the status quo, it has been assumed that this option may result in a greater number of workplace illness, diseases or deaths. Workers may suffer a decrease in quality of life and the consequential burden of disease on society, as measured by the DALY, would likely increase. The extent of this increase depends on the severity of the illness or disease.

[49] Based on the data provided from the business survey.

254. An increase in worker illness and disease is assumed to have a corresponding increase in the total number and value of workers' compensation claims for exposure to hazardous chemicals.

255. Furthermore, a higher incidence of workplace illness or disease can lead to greater hospital admissions and an increase in average hospitalisation costs. The average cost of hospitalisation is $5,078[50] and may increase under this option if inadequate controls are used in the workplace. This may result in more frequent and serious illness or disease that require treatment that is more sophisticated.

256. Workers may also be at greater risk of death in the event that inadequate control measures are used. Many workplace illness and disease can have long latency periods and will not be obvious until many years after a worker was exposed to the hazardous chemical.

257. The cost to society of a premature death can be measured using the value of a statistical life. The value of a statistical life is an estimate of the value society places on reducing the risk of premature death. The Australian Office of Best Practice Regulation estimates the value of a statistical life at approximately $4.4 million[51].

258. Alternatively, developing a severe illness or disease may decrease the number of years of life for an individual. In 2011, a total of 92,143 years of life lost were accumulated because of workplace exposures and hazards[52].

259. Current estimates suggest a person that develops lung cancer, mesothelioma, sinonasal carcinoma or non-Hodgkin lymphoma (diseases that can result from exposure to hazardous chemicals) can expect to lose, on average, 15.1 years of life[53]. With the value of a statistical life year of $190,750 in 2017, the equivalent cost to society of one person developing any of these diseases because of workplace exposure is approximately $2.88 million.

260. It could also be argued that an increase in work-related illness and disease may result in additional costs for duty holders. Costs to duty holders may be incurred from increased sick leave, decreased productivity and increased workers compensation premiums.

261. This assumption will be tested and measured based on the feedback received from this consultation RIS.

Lower community confidence

262. Option 3 may lead to a lower degree of confidence that Australian workplaces are safe environments.

263. A greater number of workplace illness, disease or deaths may leave workers concerned for their health and safety in their own workplace, particularly in an industry that uses hazardous chemicals.

264. Workers may be discouraged from remaining in a job where they feel concerned for their own health and safety. In addition, workers may become more risk-averse in the workplace and determine their own WES value that is more stringent than the corresponding advisory WES value. As a result, productivity in the workplace may decrease as workers may refuse to undertake certain tasks when there is uncertainty regarding a WES value.

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[50] National Occupational Health and Safety Commission (2001). Value has been converted to 2017 dollars using the RBA Inflation Calculator.

[51] Office of Best Practice Regulation (2014a). Figure quoted in 2017 dollars and adjusted for inflation using the RBA Inflation Calculator.

[52] Australian Institute of Health and Welfare (2016).

[53] Rushton et al. (2010).

Increased regulatory and operational costs from updating the workplace exposure standards

265. As with option 2, government is indicatively estimated to incur increased operational costs in relation to the use of the streamlined methodology. Over a 10 year period, the estimated additional cost of using the streamlined methodology under this option is $614,697. An estimated total cost of $3.91 million over 10 years represents an increase in regulatory costs of $614,697 compared to the status quo.

266. Stakeholder engagement costs for this option are lower in comparison to option 2. Each WHS regulator is anticipated to spend half the time involved in stakeholder engagement because it is assumed that duty holders are less likely to seek workplace exposure standard information from WHS regulators.

267. The net effect of the change in regulatory costs to government and WHS regulators is not currently known due to a lack of information on cost savings. Costs may decrease over this time if the cost savings from reduced enforcement and regulatory activities are larger than the cost increases associated with using the streamlined methodology.

Option 3 summary

268. Option 3 is expected to bring reduced costs predominantly for duty holders. If a duty holder chooses not to apply the advisory workplace exposure standards, costs may be reduced as they may not purchase and implement the equipment needed to control exposure to hazardous chemicals. However, duty holders would still broadly be required under the model WHS laws to control risks associated with exposure to hazardous chemicals.

269. In addition, WHS regulators may incur lower regulatory and enforcement costs. With advisory workplace exposure standards, workplace inspections and air monitoring to determine compliance will no longer be required.

270. However, if duty holders reduce their focus on control measures and risk management activities, then workers may be at increased risk of exposure to hazardous chemicals. As a result, workers may experience greater health costs by suffering from workplace illness or disease. Workers may experience a decrease in their quality of life, an increase in years of life lost, or experience a premature death. The overall burden of illness and disease in Australia is therefore likely to increase under this option.

271. The assumptions made under option 3, including the likelihood of increased workplace illness and disease, will be tested and measured based on the feedback received from this consultation RIS.

Consultation questions

17. To understand and implement option 3, what would this cost your business or organisation?
18. What benefits would option 3 provide for your business or organisation, and community?
19. If workplace exposure standards were advisory (rather than mandatory), would your business continue to seek information or guidance from a WHS regulator?

Overall summary of benefits and costs for options 2 and 3

272. Table 2 summarises the key cost and benefit impacts of options 2 and 3. The estimated impacts have been assessed relative to option 1 (the status quo) and grouped by the key stakeholder groups. These benefits and cost will be further refined and quantified within the decision RIS.

273. The impact analysis indicates option 2 may produce the greatest benefit across the stakeholder groups. This option, where the workplace exposure standards remain

mandatory and are updated using the streamlined methodology, is likely to generate the greatest level of benefit to workers and the community. In comparison to the status quo and option 3 it ensures the workplace exposure standards reflect the most relevant scientific evidence and contemporary use. This can result in a greater degree of protection from risks in the workplace, and likely to reduce the overall burden of disease on Australian society.

274. Option 2 is also expected to result in the largest cost increase for duty holders and government, but this would be outweighed by the identified benefits. Duty holder cost increases would occur where an updated WES value becomes more stringent than previously, requiring a greater use of controls or those that are more sophisticated. Government costs are estimated to increase by $2.05 million over 10 years due to the introduction of the streamlined methodology and the associated interim and comprehensive review procedure.

275. It is possible that costs to duty holders may decrease under option 3 if some duty holders choose not to comply with advisory workplace exposure standards. Government costs under this option are estimated to rise by approximately $615,000 over 10 years due to the use of the streamlined methodology.

276. In addition, workers may face greater costs under option 3 particularly where some duty holders may decrease their use of controls. It is assumed that a decrease in the use of controls may increase the risk of workers suffering from an illness or disease due to exposure to a hazardous chemical, increasing health costs.

277. Given the workplace exposure standards are designed to protect the health and safety of Australian workers, option 2 is considered the preferred option based on this initial impact analysis.

Table 2 - Summary of expected benefits and costs for policy options 2 and 3

	BENEFITS		***COSTS***	
	Option 2 (Streamlined methodology adopted, mandatory workplace exposure standards)	**Option 3 (Streamlined methodology adopted, advisory workplace exposure standards)**	**Option 2 (Streamlined methodology adopted, mandatory workplace exposure standards)**	**Option 3 (Streamlined methodology adopted, advisory workplace exposure standards)**
WORKERS	Decreased likelihood of workplace illness and disease due to reduced risk of exposure.	Nil identified.	Nil identified.	Increased likelihood of workplace illness and disease.
DUTY HOLDERS	Reduced compliance costs for some duty holders in those instances where WES values become less stringent (approximately 4 per cent).	Reduced compliance costs for duty holders if a reduction in their use of controls.	Increased administrative costs for duty holders to understand any changes to WES values. Increased compliance costs for adapting to any WES values which become more stringent (approximately 35 per cent).	Increased administrative costs for duty holders to understand any changes to the workplace exposure standards.
GOVERNMENT / REGULATORS	Efficiency gains from using the streamlined methodology and review schedule.	Efficiency gains from using the streamlined methodology and review schedule. Reduced compliance and regulatory costs related to less enforcement activities.	Increased operational costs to government in using the streamlined methodology of an estimated $2.05 million over 10 years.	Increased operational costs to government in using the streamlined methodology of an estimated $614,697 over 10 years.
COMMUNITY	Burden of disease in Australia likely to fall and greater community confidence in the effectiveness of the workplace exposure standards.	Nil identified.	Nil identified.	Burden of disease in Australia likely to increase and lower community confidence in the effectiveness of the workplace exposure standards.

Consultation questions

20. For each option are there any other costs, benefits and/or unintended impacts which have not been considered in this consultation RIS? Please provide details.

6. Consultation

Objective

278. Safe Work Australia is engaging in extensive and ongoing consultation with parties that are affected by hazardous chemicals in the workplace and other government and non-government organisations to:

- inform the content of the workplace exposure standard framework review, and
- gauge stakeholder responses to the proposed options.

279. This consultation RIS provides an opportunity for the pubic to comment on the proposed options and to assist Safe Work Australia in testing its assumptions and understand the potential risks and impacts of the proposed options.

Consultation Plan

280. A comprehensive stakeholder engagement plan includes strategies that will bring the consultation RIS to the attention of interested parties. We will engage with audiences using a range of communication channels and messages tailored to each audience, including:

- using our consultation platform Engage, specifically:
    - Q&A – users can ask questions directly, allowing Safe Work Australia to build a bank of questions and answers
    - Brainstormer – users can leave ideas in response to thought-provoking questions prepared by Safe Work Australia
    - Guest book – users can leave their experiences, thoughts and suggestions without answering direct questions
    - Quick polls – to spark discussion and engagement, and determine 'mood' regarding specific issues, and
    - Discussion forums – for open discussion amongst individuals.
- electronic mail-outs will be sent to several Safe Work Australia subscriber lists to promote the consultation RIS. These lists have over 10,000 subscribers.
- involve Safe Work Australia Members and the Strategic Issues Group for WHS; both of which will encourage jurisdictions to publish links to the consultation RIS and public comment web page
- Safe Work Australia will work with national organisations, businesses and associations to promote the consultation process on their respective websites and through their contact lists
- web content updates
- social media, including posts on LinkedIn and Twitter, and
- direct engagement (email, phone) as required.

Key Stakeholders

281. The following key stakeholders will be contacted requesting their participation in the consultation process:

- duty holders
- WHS regulators and other regulators that implement workplace exposure standards
- Safe Work Australia Members

- industry professionals, and
- the general public.

Previous consultation

Discussion paper – *The role of chemical exposure standards in work health and safety laws* (2015)

282. This discussion paper examined the role of workplace exposure standards in the regulatory framework and how they could be reviewed and maintained. The paper specifically communicated and discussed the following issues:
    - WES values need to be updated, with research revealing that one third of Australia's WES values are outdated.
    - Workplace exposure standards are designed to protect the health of workers but when outdated, they are unlikely to sufficiently protect worker health.
    - Anecdotal evidence suggests workplace exposure standards are not used by small business and are not routinely used for compliance and enforcement.
    - With mandatory status, any review of a workplace exposure standard will generally require the preparation of a regulatory impact statement, including a cost benefit analysis of the proposed change.
    - The original intent of workplace exposure standards was to enable health and safety professionals like occupational hygienists to do their jobs more effectively. The move to make these standards mandatory has provided some clarity for duty holders. However, workplace exposure standards must still be considered in the context of the duty to eliminate or minimise exposure to hazards so far as is reasonably practicable.
    - Safe Work Australia is considering how it could review workplace exposure standards and keep them up-to-date in a timely and efficient way.
283. There were 44 submissions received from a wide array of stakeholders including:
    - workers who use or handle chemicals in their day-to-day work
    - businesses using, storing, handling or generating hazardous chemicals
    - occupational hygienists and safety practitioners who use exposure standards in determining appropriate workplace controls and ensuring compliance
    - medical practitioners and occupational physicians who monitor workers' health
    - regulators with a role in determining compliance with the WHS Regulations
    - academics and toxicologists with an interest in exposure standards, and
    - unions and industry groups.

Duty holder survey to investigate the impacts of the current regulatory framework on business (business survey)

284. The business survey was conducted by Safe Work Australia and PwC in 2017 to collect information and data to support the initial baseline and costings for this Consultation RIS and consisted of around 20 questions. There were 240 completed responses received from duty holders across Australia that use, handle store, generate or dispose of hazardous chemicals that can become airborne.

285. The survey gauged information on;

- the type of business that are impacted by workplace exposure standards
- the extent of current compliance with the workplace exposure standards
- the cost incurred by businesses complying with the workplace exposure standards
- how much preventative activity and spending businesses would undertake in the absence of workplace exposure standards, and
- any changes that businesses suggest to improve the workplace exposure standards, or compliance with them.

286. The results of this survey were segmented by business size (based on number of workers) and industry to understand the varying levels of awareness and compliance across these different types of businesses.

Future consultation

Targeted stakeholder interviews

287. Once the consultation period has closed and feedback is analysed, interviews with select stakeholders may be conducted. The purpose of the interviews is to gain further insight and any clarification required for the feedback previously collected from the consultation activities noted.

Consultation questions

21. Do you have anything further you would like to add as part of this process?

Next steps

288. Stakeholder feedback received from this consultation RIS and the other consultation activities will be used to inform government consideration of the proposed options.

289. Based on the information collected, the baseline assumptions will be adjusted and the proposed option modelled to recommend a preferred option that results in a net benefit to the Australian community.

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8. Appendices

Appendix A – Methodology for estimating the baseline regulatory burden data

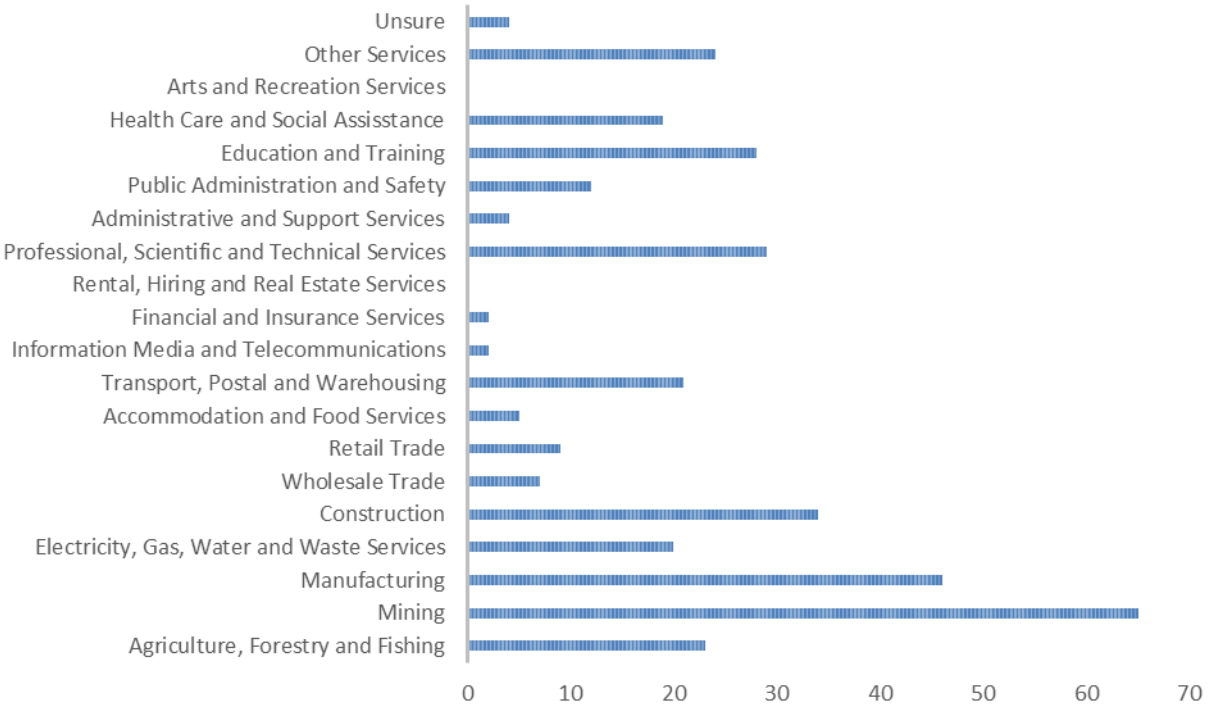
290. The results of the business survey to duty holders on their use of the current workplace exposure standards have been used as the main source of data for this analysis.

291. The business survey was delivered to approximately 12,000 businesses across Australia included in Safe Work Australia's relevant subscriber mailing lists. The survey was also circulated on Safe Work Australia's social media networks including, LinkedIn and Facebook.

292. There were 240 completed responses recorded, with 32 of the responses from small business, 73 from medium business and 135 from large business. This sample may not be representative of the general business landscape in Australia given small and medium sized enterprises (SME's) account for approximately 50 per cent of the total business counts in Australia.

293. Based on the results of the business survey, the majority of survey respondents operate in the mining, construction and manufacturing industries, as illustrated in Figure 8. Several respondents also operate in the professional, technical and scientific services, agricultural, and education and training industries.

Figure 8 - Summary of survey response counts by industry



294. The business survey sought information on the types of controls each duty holder uses to protect workers from exposure to hazardous chemicals. Specifically in relation to controls, the survey sought data on:

- purchase costs of controls
- expected life of controls, and
- annual operating cost of controls.

295. In the case of administrative controls, the survey sought information on how many staff at the business were responsible for the development of workplace policy for managing exposure to hazardous chemicals, as well as the annual per hour commitment each staff member dedicated to the development of such policy.

296. Furthermore, the business survey sought information on whether the duty holder utilised air monitoring or occupational hygienists, how frequently these services were used in a year, and the annual cost incurred by the duty holder in using each of these services.

297. In addition to the data provided by the business survey, information from the Australian Bureau of Statistics (ABS) has also been utilised in order to estimate the total count of businesses in Australia that use the workplace exposure standards. These business counts are segmented by business size, which was defined according to ABS definitions:

- small business is a business with less than or equal to 20 employees
- medium business is a business with between 20 and 200 employees, and
- large business is a business with 200 or more employees.

Affected parties

298. For the purpose of assessing the baseline regulatory burden of the current workplace exposure standards framework, the only parties identified as incurring any significant cost in complying with the workplace exposure standards are duty holders.

299. The impact on duty holders in complying with the current standards has been assessed generally across all industries. Where the general scenario is not applicable, the impact has been assessed by specific industry.

Average annual cost per control and management practice

300. In order to determine the Australia-wide impact of the current workplace exposure standards framework on duty holders, the average annual spend on each control and management practice per business, by business size, has been determined.

301. The type of controls and management practices, and the corresponding cost data collected are summarised below.

Isolation controls

302. Isolation controls are used to separate people from the chemicals or hazards via the use of barriers or other separation equipment. Four types of isolation controls have been considered in estimating the regulatory burden of the workplace exposure standards and include:

- enclosed systems
- placing part or all of a process within an enclosure which may also be fitted with exhaust extraction to remove contaminants
- isolating processed in one room with access restricted to properly protected personnel, and
- other isolation controls.

303. For each of these controls, survey respondents were asked to provide information on the purchase cost of the control equipment, the expected life of the equipment and the annual operating cost of the equipment.

304. The results of the business survey indicate that of the different types of isolation controls, exhaust extraction equipment places the largest cost on businesses of all size. Survey respondents from large business indicate that they spend on average over $1 million each year on the use of extraction equipment to manage exposure to hazardous chemicals in the workplace. Survey respondents from small or medium business indicated that they

spend on average approximately $11,200 and $26,600 per annum on the use of extraction equipment, respectively.

305. Table 3 below summarises the costing data for isolation controls received from Business survey respondents.

Table 3 - Summary of costs for isolation controls

Isolation controls	Business size	Count of survey respondents using control	Average purchase cost	Average life expectancy of equipment (years)	Average annual operating cost	Average annualised cost
Enclosed systems	Small	6	$26,375	7.75	$1,825	$5,228
	Medium	15	$30,025	10.67	$31,667	$34,482
	Large	42	$1,213,150	15.75	$138,300	$215,325
Exhaust extraction	Small	7	$71,100	12.20	$5,440	$11,268
	Medium	26	$67,778	16.50	$22,500	$26,608
	Large	61	$1,516,867	8.72	$889,503	$1,063,475
Isolating processes	Small	8	N/A	N/A	$3,038	$3,038
	Medium	28	N/A	N/A	$13,313	$13,313
	Large	61	N/A	N/A	$495,824	$495,824
Other	Small	4	$1,667	10.00	*	$167
	Medium	3	*	10.00	$1,667	$1,667
	Large	17	$21,500	15.25	$30,111	$31,521

* Data absent due to no responses.

306. Note that survey respondents were not asked to provide any information relating to the purchase cost or expected life of isolating processes.

Engineering controls

307. Engineering controls are mechanical devices or processes that suppress or contain chemicals, or limit the area of contamination in the event of spills or leaks. Five types of engineering controls have been considered in estimating the regulatory burden of the workplace exposure standards and include:

- fully-enclosed ventilation booths
- partially-enclosed and ventilated spray booths or fume cupboards
- robotics to minimise operator exposure
- local exhaust ventilation, and
- other engineering controls.

308. For each of these controls, business survey respondents were asked to provide information on the purchase cost of the control equipment, the expected life of the equipment and the annual operating cost of the equipment.

309. Table 4 summarises the costing information received from survey respondents. Large businesses that participated in the business survey tend to use engineering controls more frequently than small and medium business. The costs incurred by large business in using this type of control are also relatively large. Large business spend on average over

$1.3 million each year on the use of robotics to control for exposure to hazardous chemicals in the workplace.

Table 4 - Summary of costs for engineering controls

Engineering controls	Business size	Count of survey respondents using control	Average purchase cost	Average life expectancy of equipment (years)	Average annual operating cost	Average annualised cost
Fully-enclosed vent booth	Small	5	$16,667	10.00	$1,000	$2,667
	Medium	9	$16,250	7.50	$1,750	$3,917
	Large	34	$40,743	14.00	$11,150	$14,060
Partially enclosed fume cupboard	Small	6	$2,500	11.25	$5,075	$5,297
	Medium	17	$26,429	12.14	$21,429	$23,605
	Large	58	$324,600	12.69	$81,567	$107,151
Robotics	Small	1	*	*	*	*
	Medium	3	*	*	*	*
	Large	19	$2,968,333	12.86	$1,087,667	$1,318,537
Local exhaust ventilation	Small	9	$135,375	10.75	$3,525	$16,118
	Medium	44	$7,083	8.63	$5,444	$6,264
	Large	91	$55,674	11.08	$14,609	$19,635
Other	Small	3	$75,000	10.00	$0	$7,500
	Medium	12	$63,444	13.75	$7,763	$12,377
	Large	15	$2,732,300	6.44	$1,219,350	$1,643,328

* Data absent due to no responses.

Administrative controls

310. Administrative controls relate to the use or development of specific work policy or training. These policies would aim to reduce the amount of time a worker is exposed to a hazardous chemical, reduce the frequency of exposure to a hazardous chemical and to inform workers on how to handle hazardous chemicals or to use equipment.

311. Five types of administrative controls have been considered in estimating the regulatory burden of the workplace exposure standards and include:

- written work policies and procedures
- reducing the number of workers exposed to chemicals or substances
- reducing the duration and frequency of workers' exposure through specific work procedures
- reducing quantities of hazardous chemicals through inventory reduction, and
- other administrative controls not specified.

312. Given the challenges in quantifying the costs associated with the development and use of administrative controls, the business survey sought costing information only for written work policies and procedures. In order to quantify the costs associated with developing written work policies and procedures, business survey respondents were asked to provide information on the number of workers responsible at the business for the development of these policies and the annual number of hours each of these workers took to develop the policies.

313. Table 5 summarises this costing information by business size. In order to determine the average annual cost to business, it is assumed that each worker regardless of business size earns the average weekly wage across all industries[54].

Table 5 - Summary of costs for administrative controls

	Business size	Count of survey respondents using control	Average number of staff developing policies	Average hours per staff member to develop policies	Average annualised cost
Work policies	Small	14	3	119	$11,706
	Medium	63	8	133	$30,992
	Large	105	57	213	$361,509

Personal protective equipment

314. Personal protective equipment (PPE) refers to an item used or worn to minimise risk to workers' health and safety. Common forms of PPE are:

- chemical resistant glasses
- face shield or goggles
- respirators
- gloves, and
- long-sleeved work shirts, trousers and hats.

315. There are other types of PPE available that duty holders can use to protect workers from exposure to hazardous chemicals. However, only cost information on the PPE identified above was requested from business survey respondents. All other types of PPE are captured under the 'other' category.

316. Table 6 summarises the costing information sought from survey respondents on their use of PPE in the workplace. Despite being one of the lower levels of control, the majority of business survey respondents use PPE. PPE also represents, on average, the cheapest form of control for managing exposure to hazardous chemicals.

Table 6 - Summary of cost information for PPE

PPE type	Business size	Count of survey respondents using control	Average purchase cost	Average life expectancy of equipment (years)	Average annualised cost
Chemical resistant glasses	Small	13	$359	1.39	$257
	Medium	60	$1,852	1.18	$1,569
	Large	89	$20,452	1.18	$17,342
Face shield or goggle	Small	19	$519	3.16	$164
	Medium	61	$1,765	1.47	$1,201
	Large	109	$13,681	1.69	$8,089
Respirators	Small	15	$818	1.90	$430
	Medium	64	$2,249	1.72	$1,308
	Large	105	$70,943	1.39	$50,945
Gloves	Small	21	$635	0.92	$691

[54] Based on Australian Bureau of Statistics (2017), the average weekly earnings across all industries and age groups is $1,230.70.

PPE type	Business size	Count of survey respondents using control	Average purchase cost	Average life expectancy of equipment (years)	Average annualised cost
	Medium	71	$2,360	0.49	$4,792
	Large	117	$77,632	0.41	$190,928
Long-sleeved work shirts, trousers, hats	Small	16	$4,434	2.34	$1,892
	Medium	64	$10,293	1.46	$7,043
	Large	108	$808,013	1.42	$568,602
Other	Small	6	$380	2.20	$173
	Medium	8	$650	0.80	$813
	Large	30	$229,214	1.75	$130,980

Air monitoring

317. Under Section 50 to the WHS Regulations, duty holders must monitor workers exposure to hazardous chemicals if there is uncertainty whether or not the workplace exposure standard has been or may be exceeded, or when it is necessary to work out whether there is a risk to health.

318. To estimate the costs businesses incur each year as a result of air monitoring activities, the business survey sought information on whether each survey respondent actually undertook air monitoring activities in the workplace, how frequently these activities occur (if applicable), and how much the business spends each year on these activities (if applicable). These average costs are summarised in Table 7.

319. Based on the business survey results, large business are the most likely to undertake air monitoring in the workplace. Small and medium size businesses are less likely to undertake air monitoring, and consequently spend less money per annum on this.

320. Many of the large businesses in the business survey indicated that they operate in the mining industry. Mining regulators can require mining businesses to undertake a greater degree of air monitoring than what is specified by the WHS regulations. As such, the business survey respondents that are from the mining industry and are considered large business may incur additional air monitoring costs.

Table 7 - Summary of cost information for air monitoring activity

Air monitoring activity	Business size	Count of survey respondents using management practice	Likelihood of undertaking air monitoring	Frequency air monitoring is conducted	Average annualised cost
Air monitoring activity	Small	4	15%	Ad hoc	$1,000
	Medium	23	29%	Annually	$4,482
	Large	84	62%	Quarterly	$224,077

Occupational hygienists

321. Occupational hygienists are industry professionals that can provide assistance to duty holders in preventing workplace illness and disease by assessing the work environment and monitoring exposure to hazardous chemicals. Occupational hygienists can also help duty holders develop relevant policies to manage worker exposure and educate workers as to proper handling techniques for hazardous chemicals.

322. To understand how much it costs duty holders to engage an occupational hygienist, the business survey sought information on whether occupational hygienists are used in the

workplace, how frequently they are used (if applicable), and how much per year is spent on this service (if applicable).

323. These results are summarised in Table 8 and indicate that as with air monitoring activities, large business are the most likely to use an occupational hygienist.

Table 8 - Summary of cost information for use of occupational hygienists

Use of occupational hygienists	Business size	Count of survey respondents using management practice	Likelihood of using an occupational hygienist	Frequency of using an occupational hygienist	Average annualised cost
Occupational hygienist	Small	9	35%	Annually	$2,250
	Medium	27	34%	Annually	$11,705
	Large	98	73%	Quarterly	$269,686

Estimating the count of businesses in Australia that use controls

324. Table 9 summarises the list of sub-industries selected in which businesses are considered to have regular exposure to hazardous chemicals that have a workplace exposure standard. The corresponding industry and tier are also included in the table.

Table 9 - Count of business by industry for each tier

Tier	Industry	Business size	Count of businesses
1	Agriculture, Forestry and Fishing	Small	4,005
		Medium	338
		Large	9
	Mining	Small	2,819
		Medium	380
		Large	152
	Manufacturing	Small	31,484
		Medium	3,924
		Large	301
	Electricity, Gas, Water and Waste Services	Small	2,158
		Medium	205
		Large	25
	Construction	Small	142,466
		Medium	4,218
		Large	163
2	Wholesale trade, Retail trade, Accommodation and Food Services, Transport, Postal and Warehousing, Information Media and Telecommunications, Financial and Insurance Services, Professional, Scientific and Technical Services, Administrative and Support Services, Public Administration and Safety, Education and Training, Health care and Social Assistance, Arts and Recreational Services, Other Services	Small	29,082
		Medium	1,546
		Large	136

325. Based on these selected industries, 223,412 businesses are assumed to have regular exposure to hazardous chemicals. Of these, 212,014 are small business, 10,611 are medium business and 786 are large business.

326. Not all of these 223,412 businesses are considered to be aware of the workplace exposure standards. Based on the business survey responses, approximately 22 per cent of small businesses, 14 per cent of medium businesses and 7 per cent of large businesses

were not aware of the workplace exposure standards. This may be due to the business survey respondents operating in businesses where workplace exposure standards are not required, or due to a genuine unawareness of the workplace exposure standards. Given the business survey was circulated specifically to businesses that were registered on relevant hazardous chemical subscriber mailing lists; it is assumed that the latter is more likely. As such, of the above total businesses assumed to have regular exposure to hazardous chemicals, 78 per cent of small business, 86 per cent of medium business and 93 per cent of large businesses are assumed to use the workplace exposure standards regularly.

327. Based on these awareness assumptions, it is estimated that 165,636 small businesses, 9,157 medium businesses and 734 large businesses are using controls to comply with the current workplace exposure standards.

328. The total number of businesses in Australia using each control is assumed to be directly proportional to the total count of businesses that noted their use of a control in the business survey. This is segmented by business size, such that if six of the 32 small businesses that completed the Business survey use enclosed systems in the workplace, then this proportion is applied directly to the total count of small businesses in Australia.

329. The use of certain controls is more prevalent in certain industries, and therefore only affect certain businesses. For example, based on the business survey results, the use of robotics is particularly prevalent in the mining industry. The relatively large estimated average annual cost of using robotics may therefore not be representative of all businesses in Australia. As such, if at least 40 per cent of business survey respondents that use a control come from the same industry, the total count of businesses in Australia that are estimated to use that control is directly proportional to the total count of businesses in that industry.

330. The total count of businesses in Australia using controls and the control types in use are summarised in Table 10 through to Table 13.

331. The average count of businesses using each control type in Australia is summarised in Table 14.

Table 10 - Estimated count of businesses using isolation controls in Australia

Control	Business size	Estimated count of businesses using control in Australia
Enclosed systems	Small	31,057
	Medium	2,662
	Large	106
Exhaust extraction	Small	36,233
	Medium	2,662
	Large	332
Isolating processes	Small	19,466
	Medium	3,512
	Large	332
Other	Small	20,705
	Medium	2,856
	Large	106

Table 11 - Estimated count of businesses using engineering controls in Australia

Control	Business size	Estimated count of businesses using control in Australia
Fully-enclosed ventilation booth	Small	25,881
	Medium	1,129
	Large	185
Partially-enclosed fume cupboard	Small	31,057
	Medium	2,133
	Large	315
Robotics	Small	5,176
	Medium	2,662
	Large	106
Local exhaust ventilation	Small	19,466
	Medium	5,520
	Large	495
Other	Small	15,528
	Medium	1,505
	Large	106

Table 12 - Estimated count of businesses using administrative controls in Australia

Control	Business size	Estimated count of businesses using control in Australia
Work policies	Small	72,466
	Medium	7,903
	Large	571

Table 13 - Estimated count of businesses using PPE in Australia

Control	Business size	Estimated count of businesses using control in Australia
Chemical resistance glasses	Small	67,290
	Medium	7,527
	Large	484
Face shield or goggles	Small	98,346
	Medium	7,652
	Large	593
Respirators	Small	77,642
	Medium	8,028
	Large	571
Gloves	Small	108,699
	Medium	8,907
	Large	636

Control	Business size	Estimated count of businesses using control in Australia
Long-sleeved work shirts, trousers, hats	Small	82,818
	Medium	8,028
	Large	587
Other	Small	31,057
	Medium	1,004
	Large	106

Table 14 - Summary of average counts of business in Australia using controls

Control type	Business size	Average count of businesses using control in Australia
Isolation	Small	26,865
	Medium	2,923
	Large	219
Engineering	Small	19,422
	Medium	2,590
	Large	241
Administrative	Small	72,466
	Medium	7,903
	Large	571
PPE	Small	77,642
	Medium	6,858
	Large	496
Air monitoring	Small	23,852
	Medium	3,009
	Large	440
Occupational hygienists	Small	53,666
	Medium	3,532
	Large	514

Calculating the baseline regulatory burden

332. To estimate the baseline regulatory burden the current workplace exposure standards place upon community, a series of weighted-averages have been calculated.

Weighted-average cost of each control type

333. Firstly, a weighted-average cost per business size for each control type has been calculated. For each control type, the total number of controls being used in aggregate for each business size has been calculated.

334. For each control type (isolation, engineering, administrative, PPE) and the management practice of air monitoring and occupational hygienist services, the total number being used is aggregated for each business size. For example, the total number of isolation controls used by small businesses equals the sum of the number of small businesses using each of the isolation controls.

335. Using these aggregated counts of the number of each business size that uses each control type and management practice, a weighted cost for each is calculated. For example, the average annual cost a small business is estimated to incur in using enclosed systems is $5,228, with the total number of small businesses using this control estimated

to be 31,057. With small business estimated to use 107,460 isolation controls across Australia, the weighted-cost of the control is:

$$\$5{,}228 \times \frac{31{,}057}{107{,}450} = \$1{,}511$$

336. This weighted-cost is reflective of the fact that only approximately one-quarter of small businesses use enclosed systems. A weighted-cost is calculated for each control in each control type for each business size.

337. The weighed-average cost for each business size to use each control type is calculated as the sum of each weighted-cost of each control. For example, the weighted-average cost of a small business to use an isolation control is $5,893, which is the sum of the weighted-costs of using enclosed systems, exhaust extraction infrastructure, isolating processes and other isolation controls.

Weighted-average cost per business size

338. With the weighted-average annual cost in using each control type calculated, a weighted-average cost per business size in using controls is then calculated. Table 15 summarises the weighted-average costs attributable to the workplace exposure standards for each business size and control type.

339. Firstly, the average number of businesses per business size is calculated for each control type. This figure is then divided by the total number of businesses per business size that is estimated to face regular exposure to hazardous chemicals. This proportion is multiplied by the weighted-average annual cost per business size in using each control to calculate the weighted-cost per business size in using that particular control type.

340. For example, an average of 26,865 small businesses use isolation controls. This represents approximately 16 per cent of all small businesses expected to face regular exposure to hazardous chemicals in the workplace. This proportion is then applied to the weighted-average cost for a small business to use an isolation control of $5,893 to give a weighted-cost of approximately $956. This calculation is performed for each control type and management practice, with each weighted-cost added to estimate the total weighted-average cost of a small business to use a control or management practice.

341. Given survey respondents indicated 25 per cent of these control and management practice costs are attributable to the workplace exposure standards, each weighted-average cost for each business is adjusted to reflect this.

342. These adjusted weighted-average costs are then multiplied by the total number of businesses expected to use the workplace exposure standards, producing the final baseline regulatory burden figure of approximately $621 million per annum.

Table 15 – Weighted-average costs of controls and management practices attributable to workplace exposure standards

Control type Management practice	Business size	Weighted-average cost of control and management practice based on number of businesses using controls within control type	Weighted-average cost of control and management practice based on number of businesses using control type	Estimated cost attributable to the workplace exposure standards per business
Isolation	Small	$5,893	$956	$239
	Medium	$18,314	$5,846	$1,461
	Large	$620,881	$185,043	$46,261
Engineering	Small	$6,835	$801	$200

Control type Management practice	Business size	Weighted-average cost of control and management practice based on number of businesses using controls within control type	Weighted-average cost of control and management practice based on number of businesses using control type	Estimated cost attributable to the workplace exposure standards per business
	Medium	$8,339	$2,358	$590
	Large	$298,027	$97,990	$24,498
Administrative	**Small**	$11,706	$5,122	$1,280
	Medium	$30,992	$26,747	$6,687
	Large	$361,509	$281,174	$70,293
PPE	**Small**	$653	$306	$76
	Medium	$3,197	$2,394	$599
	Large	$171,830	$116,138	$29,035
Air monitoring	**Small**	$1,071	$154	$39
	Medium	$4,576	$1,503	$376
	Large	$220,002	$132,001	$33,000
Occupational hygienist	**Small**	$2,592	$840	$210
	Medium	$12,206	$4,708	$1,177
	Large	$260,055	$182,038	$45,510

Appendix B – Costings for the current review process and streamlined methodology

343. To estimate the costs incurred by Safe Work Australia in using the current review process and the streamlined methodology, PricewaterhouseCoopers and Safe Work Australia undertook a costing workshop to discuss and source all required data for these analyses.

344. Figure 5 summarises the key differences between the current review process and the streamlined methodology. Despite these differences, the key functions of the current review process, such as expert working group meetings and stakeholder engagements, will be retained in the streamlined methodology.

General assumptions

345. A range of general assumptions have been made in order to estimate the costs associated with undertaking the current review process and streamlined methodology. These include:

- eight hour work day
- five day work week
- 44 work weeks per year
- on-cost and overhead multiplier of 1.75 for employment costs[55]
- nine jurisdictions are consulted in updates under both the current review process and streamlined methodology – one for each state and territory and one for the commonwealth, and
- costs are measured in 2017 dollars.

A range of other specific assumptions have been made in regards to the current review process and the streamlined methodology. These are detailed in the relevant sections below.

Current methodology costings

346. Despite the current review process lacking a formalised approach, Safe Work Australia is able to estimate the costs incurred based on the activities normally undertaken in the ad hoc updates. Safe Work Australia estimates that one ad hoc review is conducted every 2.5 years, with the cost per ad hoc update estimated at $824,704.97.

347. In undertaking an ad hoc review, Safe Work Australia and WHS regulators incur a range of costs related to resourcing, consulting working group meetings, regulatory documents and conducting stakeholder engagements. These costs are discussed further below.

348. Figure 9 at the end of this section summarises all assumptions and data used to estimate the cost of using the current review process to update a workplace exposure standard.

Safe Work Australia resourcing costs

349. Safe Work Australia estimates that one staff member at the Australian Public Service 6 (APS6) level is required for six months full-time to manage the contract and administrative process involved in the current review process.

350. To estimate this resourcing cost, the average salary of an APS6 staff member has been calculated based on the 2017/18 annual salary rates for APS6.1, APS6.2 and APS6.3 staff[56]. The average annual salary of an APS6 staff in 2017/18 is approximately $85,389.

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[55] Office of Best Practice Regulation (2014b).

[56] Salary rates sourced from the Australian Public Service Commission (2016).

351. The annual salary rate including employment costs is therefore approximately $149,431. Based on the number of hours an average employee works in a year, the equivalent hourly employment cost is $84.90 per hour.

352. With 880 hours of full-time work in six months, the total estimated resourcing cost incurred is therefore $74,715.67 per ad hoc update.

Consulting costs

353. Under the current review process, Safe Work Australia may engage consultants to evaluate and peer-review the data used to recommend an update to a workplace exposure standard.

354. Safe Work Australia expects to spend no more than $50,000 on the contract for a consultant to undertake the evaluation of the workplace exposure standard, and no more than $30,000 on the contract for a specialist to undertake a peer-review of the evaluation.

355. An estimated $80,000 in total consulting cost is incurred each time one workplace exposure standard is updated.

Stakeholder engagements

356. Under the current review process, Safe Work Australia and each WHS regulator undertake teleconference consultations with a range of stakeholders, including duty holders, industry bodies and WHS regulators to identify specific issues or impacts that should be considered for the workplace exposure standard under review. The total estimated cost of these consultations is $373,986 per ad hoc update.

357. Safe Work Australia estimates that one staff member conducts these consultations for a total of three months full-time per ad hoc update.

358. The staff member is assumed to be of Executive Level 1 (EL1). The average salary of an EL1 staff member has been calculated based on the 2017/18 annual salary rates of EL1 staff. The average annual salary of an EL1 staff in 2017/18 is approximately $107,693.

359. The annual salary rate including employment costs is therefore approximately $188,462.50. Based on the number of hours an average employee works in a year, the equivalent hourly employment cost is $107.08 per hour.

360. With 440 hours of full-time work in three months, the total estimated resourcing requirement for Safe Work Australia is $47,115.63.

361. Each jurisdictional WHS regulator is assumed to also have one staff member conduct consultations within their jurisdiction, for a total of three months full-time per ad hoc update.

362. The APS equivalent staff undertaking these consultations is assumed to be at the APS6 level. With an hourly employment cost of $84.90 per hour and 440 hours of full-time work in three months, the total estimated resourcing cost per jurisdiction is $37,357.83.

363. With nine jurisdictions in total, the total estimated resourcing cost for all WHS regulators is $336,220.50 per ad hoc update.

364. The total estimated cost incurred by Safe Work Australia and WHS regulators in conducting the stakeholder engagements is therefore $383,336.13 per ad hoc update.

Working group meetings

365. Safe Work Australia currently facilitates working group meetings three times per ad hoc update at an estimated cost of $211,653.18.

366. The working group meetings are comprised of 10 members, each assumed to be paid the equivalent of the hourly EL1 wage of $61.19 per hour. No on costs or overheads are included in this wage. Each meeting is assumed to last for one half-day, or 4 hours in total. Each member is therefore renumerated $244.76 per working group meeting.

367. Safe Work Australia requires one staff member to prepare the required documents for each working group meeting. In addition, this staff member is also responsible for progressing meeting actions and deliverables and the preparation of meeting minutes. Safe Work Australia estimate that one EL1 staff member is required full-time for two days to prepare for each meeting and two weeks to finalise meeting outcomes. This is equivalent to 96 hours of full-time work. The total estimated Safe Work Australia resourcing cost per working group meeting is therefore $10,279.77, where the hourly employment cost for an EL1 is $107.08 per hour.

368. In addition, it is estimated that each WHS regulator requires one staff member for 1.5 weeks full-time (60 hours) to progress meeting actions and deliverables. The equivalent staff is assumed to be of EL1 level, with an estimated hourly employment cost of $107.08 per hour. The total estimated cost for all nine WHS regulators per meeting is $57,823.72.

369. The three working group meetings required for each ad hoc update are estimated to have a total cost of $211,653.18.

Impact analysis of the workplace exposure standard changes

370. An impact analysis of the benefits and costs of the proposed changes to a WES value will need to be undertaken. This analysis is formally undertaken and documented using a Regulation Impact Statement document.

371. The impact analysis and related processes undertaken are estimated to cost in the order of $150,000 over a five-year period.

372. With two ad hoc updates undertaken in a five-year period, the cost per ad hoc update of undertaking the impact analysis is $75,000.

Table 16 - Assumptions and data used to cost the current review process

	Assumption	Value	Source
Current method - costs per review	Number of reviews in 10 years	4	SWA/PwC
	Staffing costs		
	SWA staff required	1	SWA
	Staff level	APS 6	SWA
	Hourly wage	$48.52	APS/PwC
	On cost, overhead multiplier	1.75	OBPR
	Total time commitment per review (hours)	880	SWA
	Consulting costs		
	Evaluation/update of standard	$50,000.00	SWA
	Peer review	$30,000.00	
	Public consultations (via teleconference)		
	SWA resource	EL 1	PwC
	Hourly wage	$61.19	
	On cost, overhead multiplier	1.75	OBPR
	Total time commitment per review (hours)	440	PwC
	Jurisdictional regulator resource	APS 6	PwC
	Hourly wage	$48.52	
	On cost, overhead multiplier	1.75	OBPR
	Total time commitment per jurisdiction per review (hours)	440	PwC
	Number of regulators/jurisdictions	9	
	Working group meetings		
	Number of meetings per review	3	SWA
	Members		
	Number of members	10	SWA
	Length of each meeting (hours)	4	
	Member hourly wage (EL 1)	$61.19	APS/PwC
	SWA resource		
	Staff	EL 1	SWA/PwC
	Hourly employment cost	$61.19	APS/PwC
	On cost, overhead multiplier	1.75	OBPR
	Preparation time per meeting (hours)	16	SWA
	Time to progress meeting actions and deliverables (hours)	80	
	Jurisdictional regulator resource		
	Equivalent staff level	EL 1	PwC
	Hourly employment cost	$61.19	APS/PwC
	On cost, overhead multiplier	1.75	OBPR
	Time to progress meeting actions and deliverables (hours per jurisdiction)	60	SWA
	Number of jurisidctions	9	PwC
	RIS		
	Likelihood of RIS requirement	50%	SWA/PwC
	Cost	$150,000	
	Standards updated per RIS	1	
	Total estimated cost per review	**$824,704.97**	
	Standards per review	**1**	

Streamlined methodology costings

373. In adopting the streamlined methodology, two different review types will be undertaken. The two-yearly interim review involves an assessment of the changes that have been made to exposure standards by trusted sources. The five-yearly comprehensive review involves the update of workplace exposure standards selected based on the outcomes of the previous interim review.

374. In undertaking the interim and comprehensive reviews, Safe Work Australia and the jurisdictional WHS regulators incur a range of costs related to resourcing, consulting working group meetings, preparing regulatory documents and stakeholder engagements.

375. The total estimated cost of conducting an interim review is $236,558.40. The total estimated cost of conducting a comprehensive review is different for option 2 and option 3. Under option 2, the total estimated costs of the comprehensive review is $2.20 million. Under option 3, this cost is estimated to be $1.48 million.

376. Figure 10 at the end of this section summarises all assumptions and data used to estimate the cost of using the streamlined methodology to update a workplace exposure standard.

Two-yearly interim reviews

377. The estimated regulatory cost incurred by Safe Work Australia and WHS regulators in conducting an interim review is $230,788.68. The details of this estimated cost are discussed below.

Safe Work Australia resourcing costs

378. Safe Work Australia estimates that one full-time staff member at the APS6 level is required for two months to undertake the interim review.

379. To estimate this resourcing cost, the average salary of an APS6 staff member has been calculated based on the 2017/18 annual salary rates for APS6.1, APS6.2 and APS6.3 staff.[57] The average annual salary of an APS6 staff in 2017/18 is approximately $85,389.

380. The annual salary rate including employment costs is therefore approximately $149,431. Based on the number of hours an average employee works in a year, the equivalent hourly employment cost is $84.90 per hour.

381. With approximately 293 hours of full-time work in two months, the total estimated resourcing cost incurred is therefore $24,905.22 per two-yearly review.

Working group meetings

382. Safe Work Australia is expected to facilitate working group meetings three times per interim review at a total estimated cost of $211,653.18.

383. The working group meetings are comprised of 10 members, each assumed to be paid the equivalent of an EL1 hourly wage at $61.19 per hour. No on-costs or overheads are included in this wage. Each meeting is assumed to last for one half-day, 4 hours in total. Each member is therefore renumerated $244.76 per working group meeting.

384. Safe Work Australia requires one staff member to prepare the required documents for each working group meeting. In addition, this Safe Work Australia staff member is also responsible for progressing meeting actions, deliverables and preparation of meeting minutes. Safe Work Australia estimate that one EL1 staff member is required full-time for two days to prepare for each meeting and two weeks to finalise meeting outcomes. This is equivalent to 96 hours of full-time work. The total estimated Safe Work Australia resourcing cost per working group meeting is therefore $10,279.77, where the hourly employment cost for an EL1 is $107.08 per hour.

[57] Salary rates sourced from the Australian Public Service Commission (2016).

385. In addition, it is estimated that each WHS regulator requires one staff member for 1.5 weeks full-time (60 hours) to progress meeting actions and deliverables within their jurisdiction. The equivalent staff is assumed to be EL1 level, with an estimated hourly wage of $107.08 per hour. The total estimated cost for all nine WHS regulators per meeting is $57,823.72.

386. The three working group meetings required for each interim review are therefore estimated to have a total cost of $211,653.18 per interim review.

Five-yearly comprehensive reviews

387. The estimated regulatory cost incurred by Safe Work Australia and the jurisdictional WHS regulators in conducting a comprehensive review is $2.20 million for option 2 and $1.48 million for option 3. The details of these estimated costs are discussed below.

Safe Work Australia resourcing costs

388. Safe Work Australia estimates that two full-time staff members at the APS6 and EL1 level are required for six months full-time each to manage the contract and administrative process involved in the comprehensive review.

389. To estimate this resourcing cost, the average salaries of APS6 and EL1 level staff have been calculated. As with the two-yearly interim reviews, the average annual salary of an APS6 staff in 2017/18 is approximately $85,389. For the EL1 staff, the average annual salary has been calculated based on the 2017/18 annual salary rates for EL1.1 to EL1.7 staff.[58] The average annual salary of an EL1 staff in 2017/18 is therefore approximately $107,693.

390. Including employment costs, the equivalent hourly employment cost is $84.90 per hour for an APS6 and $107.08 per hour for an EL1.

391. With approximately 880 hours of full-time work in six months, the total estimated resourcing cost incurred is therefore $74,715.67 for the APS6 staff and $94,231.25 for the EL1 staff per comprehensive review.

Stakeholder engagements

392. Under the streamlined methodology, Safe Work Australia and each WHS regulator currently expect to undertake ad hoc teleconference consultations with a range of stakeholders, including duty holders, industry bodies and industry regulators. The total estimated cost of these consultations is $720,915.09 for option 2 and $464,694.59 for option 3 per comprehensive review.

393. Safe Work Australia estimates that one staff member will conduct these consultations for a total of three months full-time per comprehensive review.

394. The staff member is assumed to be at the EL1 level. The average annual salary of an EL1 in 2017/18 is approximately $107,693. Including on-costs and overheads, the equivalent hourly employment cost is $107.08 per hour.

395. With 440 hours of full-time work in three months, the total estimated resourcing requirement for Safe Work Australia is $47,115.63.

396. Safe Work Australia also expects to have additional staff prepare a stakeholder engagement plan for these consultations. This plan is expected to take two weeks full-time to prepare.

397. The staff member is assumed to be at the APS level 6. With 16 hours of full-time work in two weeks and an hourly employment cost of $84.90 per hour, the total estimated cost to prepare the plan is $1,358.47.

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[58] Salary rates sourced from the Australian Public Service Commission (2016).

398. Furthermore, each WHS regulator is assumed to have one staff member assist in conducting the stakeholder engagements for their jurisdiction. Under option 2, the staff member is required six months full-time. For option 3, the staff member is required three months full-time.

399. An APS6 level equivalent staff member is assumed to undertake these consultations. With an hourly employment cost of $84.90 per hour, the total estimated resourcing cost per jurisdiction is $74,715.67 for option 2, and $37,357.83 for option 3.

400. With nine jurisdictions in total, the total estimated resourcing cost for all the WHS regulators is $672,441.00 for option 2 and $336,220.50 for option 3 per five-yearly comprehensive review.

401. The total estimated cost incurred by Safe Work Australia and the WHS regulators in conducting the stakeholder engagements is therefore $720,915.09 for option 2 and $384,694.59 for option 3 per five-yearly comprehensive review.

Impact analysis of the workplace exposure standard changes

402. An impact analysis of the benefits and costs of each of the proposed changes to the WES values in the comprehensive review will be undertaken. The impact analysis is expected to require extensive stakeholder consultations and data analysis given at least 30 WES values are expected to be updated in the comprehensive review.

403. These impact analyses would be undertaken in one combined RIS. Safe Work Australia estimates that the cost of undertaking these analyses and the related processes is approximately $300,000 per comprehensive review.

Ad hoc updates

404. In addition to the interim and comprehensive reviews, Safe Work Australia expect to undertake ad hoc updates. These ad hoc updates will be undertaken when a workplace exposure standard requires an update outside of the defined review schedule.

405. Safe Work Australia expects to undertake two ad hoc updates every five years under option 2. This is reduced to one per five years under option 3 given that duty holders may be less likely to comply with the workplace exposure standards in the event they are advisory. The ad hoc updates will utilise the streamlined methodology.

406. To conduct the ad hoc updates, Safe Work Australia anticipates contracting an evaluation consultancy and peer-review analyst. The contract for the evaluation consultancy is expected to be no more than $50,000 and the contract for the peer-review is expected to be no more than $30,000.

407. Under option 2, the total cost of conducting the ad hoc reviews is $160,000 per five years. Under option 3, this cost is expected to be $80,000 over five years.

Table 17 - Assumptions and data used to cost streamlined methodology

	Assumption	Value	Source	Value	Source
		Two-yearly review		Five-yearly review	
Streamlined method - costs per review	Number of reviews in 10 years	4	SWA	2	SWA
	Staffing costs				
	SWA staff required	1	SWA	2	SWA
	Staff level	APS 6	SWA	APS 6, EL 1	SWA/PwC
	Total time commitment per review (hours)	293.33	SWA	880	SWA
	Houlry wages				
	APS 6	$48.52	APS/PwC	$48.52	APS/PwC
	EL 1	N/A		$61.19	APS/PwC
	On costs, overhead multipler	1.75	OBPR	1.75	OBPR
	Consulting costs				
	Evaluation/update of standard	N/A		$600,000	SWA
	Peer review			$250,000	SWA
	Public consultations (ad hoc, via teleconference)				
	SWA resource				
	Staff	N/A		EL 1	PwC
	Hourly wage			$61.19	APS/PwC
	On cost, overhead multiplier			1.75	OBPR
	Total time commitment per review (hours)			440	SWA
	Preparation of engagement plan				
	SWA resource	N/A		APS 6	PwC
	Hourly wage			$48.52	APS/PwC
	On cost, overhead multiplier			1.75	OBPR
	Total time commitment per review (hours)			16	SWA
	Jurisdictional regulator resource				
	Equivalent staff	N/A		APS 6	PwC
	Hourly wage			$48.52	APS/PwC
	On cost, overhead multiplier			1.75	OBPR
	Total time commitment per jurisdiction per review (hours)			880	SWA
	Number of jurisidctions			9	PwC
	Working group meetings				
	Number of meetings per review	3	SWA	N/A	
	Members				
	Number of members	10	SWA	N/A	
	Length of each meeting (hours)	4	SWA		
	Member hourly wage (EL 1)	$61.19	APS/PwC		
	SWA resource				
	Staff	EL 1	SWA/PwC	N/A	
	Hourly employment cost	$61.19	APS/PwC		
	On cost, overhead multiplier	1.75	OBPR		
	Preparation time per meeting (hours)	16	SWA		
	Time to progress meeting actions and deliverables (hours)	80			
	Jurisdictional regulator resource				
	Equivalent staff level	EL 1	PwC	N/A	
	Hourly employment cost	$61.19	APS/PwC		
	On cost, overhead multiplier	1.75	OBPR		
	Time to progress meeting actions and deliverables (hours per jurisdiction)	60	SWA		
	Number of jurisidctions	9	PwC		
	RIS				
	Likelihood of RIS requirement	N/A		100%	SWA
	Cost			$300,000	PwC
	(express as max or potential number of standards per RIS)			60	SWA
	Ad hoc updates				
	Evaluation/update of standard	$50,000.00			SWA
	Peer review	$30,000.00			
				Option 2	**Option 3**
	Total estimated cost per review	**$236,558.40**		**$2,199,862.01**	**$1,483,641.51**
	Standards per review	**30 - 60**			

Appendix C – List of hazardous chemicals proposed for addition or removal

Chemicals to be considered to be added to the WES list

Based on the criteria for considering addition of a chemical to the list, the following chemicals were identified (n=78):

Chemical	CAS No.	Chemical	CAS No.
1,2,3-Trimethylbenzene	526-73-8	Gallium arsenide	1303-00-0
1,2,4-Trimethylbenzene	95-63-6	γ-Butyrolactone	96-48-0
1,3,5-Trimethylbenzene	108-67-8	Glyoxal	107-22-2
1,3-Dioxolane	646-06-0	Hard metals (containing cobalt and tungsten carbide)	7440-48-4; 12070-12-1
1,4-Dichloro-2-butene	764-41-0	Hexachlorobenzene	118-74-1
1-Bromopropane	106-94-5	Hexahydrophthalic Anhydride	85-42-7
1H-Benzotriazole	95-14-7	Hexamethyl phosphoramide	680-31-9
2,4,5-Trimethylaniline	137-17-7	Hydroxyacetic acid butyl ester	7397-62-8
2,4-Pentanedione	123-54-6	Isopentane (2-methyl butane)	78-78-4
2-Ethylhexanoic acid	149-57-5	Man-made mineral fibres (fibrous dust)	
2-Ethylhexanol	104-76-7	Ethylene thiourea	96-45-7
2-Hydroxypropyl acrylate	25584-83-2	Flour Dust (cereal)	
2-Methylbutyl acetate	624-41-9	m-Cresol	108-39-4
3,3'-Dichlorobenzidine	91-94-1	Methyl Vinyl Ketone	78-94-4
4-Vinyl Cyclohexene	100-40-3	Natural Rubber Latex	9006-04-6
5-Nitro-o-toluidine	99-55-8	Neopentane (2,2-Dimethylpropane)	463-82-1
Benzidine	92-87-5	Nickel, insoluble	
Benzoyl chloride	98-88-4	N-Nitrosodimethylamine	62-75-9
Bisphenol A diglycidyl ether	1675-54-3	N-Phenyl-2-naphthylamine	135-88-6
Bisphenol-A	80-05-7	N-Vinyl-2-pyrrolidone	88-12-0
But-2-yne-1,4-diol	110-65-6	o-Anisidine	90-04-0
Chloromethyl methyl ether	107-30-2	o-Cresol	95-48-7
Chrysene	218-01-9	o-Tolidine	119-93-7
Cyanide salts		p-Cresol	106-44-5

Chemical	CAS No.	Chemical	CAS No.
Diacetyl	431-03-8	Peracetic acid	79-21-0
1,2-Dibromo ethane	106-93-4	2,3-Pentanedione (Acetyl propionyl)	600-14-6
Dichloroacetic acid	79-43-6	Perfluorooctanoic acid (PFOA) and its inorganic salts	335-67-1
Diesel engine emissions		Phenyl isocyanate	103-71-9
Diethyl sulfate	64-67-5	Piperazine and salts	110-85-0
Diethylene glycol monobutyl ether	112-34-5	Polyvinyl chloride	9002-86-2
Diglycidyl resorcinol ether	101-90-6	Polycyclic aromatic hydrocarbon (PAH) mixture when containing benzo[a]pyrene	
Dimethyl carbomoyl chloride	79-44-7	Propane sultone	1120-71-4
Dimethyl sulfide	75-18-3	Terephthalic Acid	100-21-0
Dimethylsulfamoyl chloride	13360-57-1	Tetrafluoroethylene	116-14-3
DMA	87-62-7	Toluene-2,4-diisocyanate	91-08-7
EDTA	60-00-4	Urethane	51-79-6
Ethyl Cyanoacrylate	7085-85-0	Vinylidene Fluoride	75-38-7
Ethylene	74-85-1	White spirit Type 3	64742-48-9

Chemicals to be considered for removal from the WES list

Based on the criteria for considering the removal of a chemical from the list, the following chemicals were identified (n=47):

Chemical	CAS No.	Chemical	CAS No.
1-Chloro-1-nitropropane	600-25-9	Methyl demeton	8022-00-2
ANTU	86-88-4	Nitrapyrin	1929-82-4
Bismuth telluride	1304-82-1	Nitrogen trifluoride	7783-54-2
Bismuth telluride, Se-doped	1304-82-1	n-Propyl nitrate	627-13-4
Bromine pentafluoride	7789-30-2	o-Chlorobenzylidene malononitrile	2698-41-1
Carbonyl fluoride	353-50-4	o-Chlorostyrene	2039-87-4
Chlorinated diphenyl oxide	31242-93-0	Oxygen difluoride	7783-41-7
Chlorine trifluoride	7790-91-2	Pentachloronaphthalene	1321-64-8

Chemical	CAS No.	Chemical	CAS No.
Chlorodiphenyl 42% chlorine (PCBs)	53469-21-9	Perchloromethyl mercaptan	594-42-3
Chlorodiphenyl 54% chlorine (PCBs)	11097-69-1	Perchloryl fluoride	7616-94-6
Crufomate	299-86-5	Phenylphosphine	638-21-1
Decaborane	17702-41-9	sec-Butyl acetate	105-46-4
Demeton	8065-48-3	Selenium hexafluoride (as Se)	7783-79-1
Diborane	19287-45-7	Sesone	136-78-7
Dioxathion	78-34-2	Stibine	7803-52-3
Emery (dust)	1302-74-5	Sulfotep	3689-24-5
EPN	2104-64-5	Sulfur pentafluoride	5714-22-7
Ferrovanadium dust	12604-58-9	Sulfuryl fluoride	2699-79-8
Fonofos	944-22-9	TEPP (tetraethyl pyrophosphate)	107-49-3
Germanium tetrahydride	7782-65-2	Tetrachloronaphthalene	1335-88-2
Hafnium	7440-58-6	Tetranitromethane	509-14-8
Hexachloronaphthalene	1335-87-1	Trichloronaphthalene	1321-65-9
Hexafluoroacetone	684-16-2	Yttrium, metal & compounds	7440-65-5
Hydrogen selenide	7783-07-5		

Appendix D – Duty holder survey to investigate the impacts of the current regulatory framework on business (business survey)

Introduction

This survey has been designed to collect data to inform the *Workplace Exposure Standards for Airborne Contaminants* Regulatory Impacts Statement.

Safe Work Australia is exploring options to revise and update the current list of 644 workplace exposure standards, which have been designed to protect Australian workers from being exposed to potentially harmful substances. Safe Work Australia has engaged PricewaterhouseCoopers Consulting (Australia) (PwC) to assist with preparing a Regulatory Impact Statement on the workplace exposure standards options.

To better understand how Australian workplaces understand and use these standards, we are seeking information from businesses on:

- the size and industry of operation for your business
- if and how often your workplace is exposed to potentially hazardous chemicals or substances,
- the compliance activities your business undertakes to monitor and protect employees from airborne contaminants.
- the costs your business incurs in managing and reducing employee exposure to substances that can cause airborne contamination.

The survey consists of 17 questions.

The information you provide in this survey will be de-identified and aggregated prior to being provided to Safe Work Australia.

Further information

For a list of all 644 substances covered by the exposure standards, and for further information on the workplace exposure standards that apply in Australia, please refer to https://www.safeworkaustralia.gov.au/doc/workplace-exposure-standards-airborne-contaminants

For more information about the purpose of this survey or the wider project this relates to, please refer to: https://www.safeworkaustralia.gov.au/exposure-standards

Section 1 – Background

This section seeks to understand the nature of your business. These questions relate to the size of your business, area of operation and use of certain substances.

1. In what state(s) and/or territory(ies) does your business operate? (please tick all that apply)
[*NSW*
VIC
QLD
WA
SA
TAS
NT
ACT]
[*tick boxes, allow multiple choices*]

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2. Approximately how many sites does your business operate across Australia? (please enter a number between 1 and 10,000)
[*number only field*]

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3. In what industry sector (or sectors) does your business operate? (please tick all that apply)
[*tick box table consisting of the following*:
Agriculture, forestry & fishing
Mining
Manufacturing
Electricity, gas, water and waste services
Construction
Wholesale trade
Retail trade
Accommodation and food services;
Transport, postal and warehousing
Information media and telecommunications
Finance and insurance services
Rental, hiring and real estate services
Professional, scientific and technical services
Administrative and support services
Public administration and safety
Education and training
Health care and social assistance
Arts and recreation services
Other services
Unsure]
If you ticked Other Services or Unsure, please describe the industry in which you operate.
[*free text box*]

Please note that the classifications above are derived from the Australian Bureau of Statistics. For more information about the meaning and coverage of each of the classifications, click on the following link:
(http://www.abs.gov.au/ausstats/abs@.nsf/0/20C5B5A4F46DF95BCA25711F00146D75?opendocument)

4. Please provide a short (1-5 word) description of your business (e.g. dry cleaner)
[*free text box*]

---

5. Approximately how many people does your business employ in Australia? (please enter a number between 1 and 1,000,000)
[*number only field*]

Section 2 – Use of substances that cause airborne contamination

This section seeks to understand whether your employees are exposed to substances that can cause airborne contamination, and the type of substances that employees may be exposed to.

6. Is your business aware of the national workplace exposure standards and the list of substances that can cause airborne contamination?

[*Yes*

Yes, but have never seen it

No]

[*tick boxes, one option only*]

7. Please describe how your workplace may be exposed to substances that can cause airborne contamination. (please tick all relevant points below).

[*My business does not manufacture or use substances that can cause airborne contamination*

My business manufactures substances that can cause airborne contamination

My business manufactures products that use substances in the production process that can cause airborne contamination

My business services equipment/machinery that manufactures or handles substances that can cause airborne contamination

My business is an importer, wholesaler or retailer of substances that can cause airborne contamination

My business is an end-user of substances that can cause airborne contamination

Other [*free text box*]]

[*tick boxes, allow multiple choices*]

8. Approximately how many workers (i.e. **employees and/or contractors)** in your business are regularly at risk of exposure to substances that can cause airborne contamination? (please enter a number between 1 and 1,000,000)
[*number only field*]

9. What type of airborne contaminants are employees in your business exposed to? (please tick all that apply) (please refer to page 2 of https://www.safeworkaustralia.gov.au/system/files/documents/1702/atmosphericcontaminants_1989_pdf.pdf for more information).

[*Dusts (e.g. silica dust, coal dust)*

Fibres (e.g. asbestos fibres)

Fumes (e.g. welding fumes)

Mists (e.g. pesticide mist, chrome-plating mist)

Smokes (e.g. emissions from coke ovens)

Vapours (e.g. paint solvent vapours, chlorinated hydro-carbons)

Gases (e.g. carbon monoxide, chlorine, hydrogen sulphide)

Biological agents (e.g. pollen, influenza virus)]

[*tick boxes, allow multiple options*]

Section 3 – Compliance with the workplace exposure standards

This section seeks to understand how your business complies with Australia's workplace exposure standards.

10. Is your business aware of the workplace exposure standards and the compliance requirements for airborne contaminants that apply in Australia?

[*Yes, I am aware of the standards and am aware of the compliance requirements*

Yes, I am aware of the standards but am not aware of the compliance requirements

No]

[*tick boxes, one option only*]

11 In your opinion, approximately what percentage of businesses in your industry would regularly comply with the workplace exposure standards? (comment is optional)

[*Percentage from 0 to 100%]*

[*optional free text box*]

12. In response to the workplace exposure standards, what **controls** does your business use to manage employee exposure to substances that cause airborne contamination? (select all controls that apply and provide approximate cost information)

Controls	[tick box]	Capital or equipment		Annual labour cost[1]	
		Cost	Expected life	Hours per person	Number of people
Engineering/Physical controls					
Ventilation system					
Separation barriers					
Other [*free text box*]					
Administrative controls					
Employee OH&S training					
Signage & instruction manuals					
Occupational hygienists/consultants					
Other [*free text box*]					

Controls	[tick box]	Capital or equipment		Annual labour cost[1]	
		Cost	Expected life	Hours per person	Number of people
Personal controls					
Personal Protective Equipment (PPE)					
Personal air monitoring devices					
Other [*free text box*]					

[1] For example, number of people trained per year, and the duration of the training course.

13. If the workplace exposure standards **did not** exist, approximately how much **less** per year would your business spend on engineering/physical, administrative and/or personal controls?

[*My business would not spend any less]*

[*Around a quarter less than what my business currently spends*]

[*About half as much as what my business currently spends*]

[*Around three-quarters less than what my business currently spends*]

[*My business would not spend any money on equipment or training for managing substance exposure*]

Section 4 – Changes to the exposure standards

This section seeks to understand how your business currently views the workplace exposure standards, and if you believe the standards should be updated or changed.

14. To what extent do you think the current list of exposure standards should be revised and/or updated? (please select a number between 1 and 5, where 1 indicates 'No change needed', and 5 indicates 'The list needs to be revised/updated'.)

[*Number from 1 to 5]*

15. To what extent do you think there is a need for greater enforcement of the exposure standards in your industry? (please select a number between 1 and 5, where 1 indicates 'Current enforcement levels are sufficient', and 5 indicates 'Greater enforcement is needed'.)

[*Number from 1 to 5]*

16. If the exposure standards were instead advisory, rather than mandatory, would your business spend any less time or money monitoring or protecting against substances that cause airborne contamination? (please enter a number from 1 to 5, where 1 indicates 'No change in effort', and 5 indicates 'Significant reduction in effort'.)

[*Number from 1 to 5*]

17. In addition to the above, do you have any other suggestions for how the risks associated with exposure to substances that cause airborne contamination can be further reduced?

[*free text box*]

Appendix E – Summary of consultation questions

1. Do the estimated rates of compliance with the workplace exposure standards align with your experience? Please explain.
2. Are there any particular issues that make it difficult for you to comply with the workplace exposure standards? Please provide examples.
3. Are there any other costs to your organisation relating to the workplace exposure standards framework not discussed here?
4. If there is not an Australian workplace exposure standard available for a particular chemical, how do you manage the risk of exposure? Please describe.
5. Are there other options that could be considered to achieve the government's objectives? Please provide details.
6. Are there any practical issues to consider in relation to any of the proposed options? Please provide examples.
7. Would making the workplace exposure standards advisory (rather than mandatory) lead to changes in the level of compliance in your industry? Please explain.
8. Beyond these options, what else could be done to help your business understand and comply with the workplace exposure standards?
9. What impact, if any, would the proposed name change from 'workplace exposure standard' to 'workplace exposure limit' have on your organisation?
10. Please provide details of the types of costs that are incurred by your organisation when a WES value is updated. For example, do you update any policies or procedures to reflect changes in the WES value?
11. Survey respondents indicated that, on average, a quarter of their control costs are directly attributable to the current workplace exposure standards framework. Is this consistent with your experience? Please provide details.
12. Are there any other significant regulatory costs that you incur because of the workplace exposure standards that have not been included in the consultation RIS?
13. Do you think awareness of the workplace exposure standards will improve if they are updated more frequently? Please explain.
14. What impact would more frequent updating of the workplace exposure standards have on your organisation? In your response, please consider the possible addition of the chemicals listed in Appendix C.
15. To understand and implement option 2, what would this cost your business or organisation?
16. What benefits would option 2 provide for your business or organisation, and community?
17. To understand and implement option 3, what would this cost your business or organisation?
18. What benefits would option 3 provide for your business or organisation, and community?
19. If workplace exposure standards were advisory (rather than mandatory), would your business continue to seek information or guidance from a WHS regulator?
20. For each option are there any other costs, benefits and/or unintended impacts which have not been considered in this consultation RIS? Please provide details.

21. Do you have anything further you would like to add as part of this process?

Demographic questions

22. Are you a:
    a. Business
    b. Individual
    c. WHS Regulator
    d. Other (please specify)
23. In which states or territories do you or this business reside? (select all that are relevant)
    a. NSW
    b. VIC
    c. QLD
    d. WA
    e. SA
    f. TAS
    g. NT
    h. ACT
24. If you identify as a business, in what industry sector[59] does this business operate?
    a. Agriculture, forestry & fishing
    b. Mining
    c. Manufacturing
    d. Electricity, gas, water and waste services
    e. Construction
    f. Wholesale trade
    g. Retail trade
    h. Accommodation and food services;
    i. Transport, postal and warehousing
    j. Information media and telecommunications
    k. Finance and insurance services
    l. Rental, hiring and real estate services
    m. Professional, scientific and technical services
    n. Administrative and support services
    o. Public administration and safety

[59] These classifications are derived from the Australian Bureau of Statistics. For more information about the meaning and coverage of each of the classifications, click on the following link: http://www.abs.gov.au/ausstats/abs@.nsf/0/20C5B5A4F46DF95BCA25711F00146D75?opendocument

p. Education and training

q. Health care and social assistance

r. Arts and recreation services

s. Other services (please specify)

t. Unsure

25. If you identify as a business, how many people are currently:

    a. employed by this business (include anyone paid a wage, salary or retainer), and

    b. do work for this business (include other workers such as contractors or sub-contractors, volunteers or non-salaried directors).

Publishing your submission

26. Do you agree for your submission to this consultation RIS to be published on the Safe Work Australia website?

    a. Yes

    b. Yes, but wish to remain anonymous

    c. No

Further consultation

27. Would you like to participate in a targeted interview and further discuss your submission or the proposed changes to the regulatory framework?

    a. Yes, please provide your preferred contact email

    b. No