Queensland

Workers' Compensation and Rehabilitation and Other Legislation Amendment Regulation (No. 1) 2005

Regulatory Impact Statement for SL 2005 No. 308

made under the

Workplace Health and Safety Act 1995

Title

Workplace Health and Safety Regulation Amendment – extension of licensing requirements for the removal of asbestos containing material

Background

What is asbestos?

Asbestos is a mineral rock made out of naturally occurring mineral silicate fibres, which belong to either the serpentine or amphibole mineral groups. The three main types of asbestos are:

- Chrysotile ("white" asbestos – belonging to the serpentine group);
- Crocidolite ("blue" asbestos – belonging to the amphibole group); and
- Amosite ("brown" or "grey" asbestos – belonging to the amphibole group).

Fibrous actinolite, fibrous tremolite and fibrous anthophyllite are less common types of the amphibole group. Asbestos types cannot be identified by colour alone.

Asbestos is known for its strength and resistance to chemicals and heat. These properties have resulted in asbestos becoming a component of thousands of different products including in asbestos-cement sheeting, as an insulator on pipes and in buildings, as a fire retardant in textiles and as a filtering material in the chemical and food industries.

Asbestos was used in a variety of workplaces and homes from the 1940s up until the early 1980s when the dangers to health inherent in exposure became more widely acknowledged. Crocidolite was progressively banned from 1980 onwards and amosite from 1990. From 31 December 2003, Queensland (as part of a nationally agreed program) declared a prohibition on all uses of chrysotile (white) asbestos, subject to a very limited range of exemptions, and confirmed earlier prohibitions on the use of amosite (brown) and crocidolite (blue) asbestos.

Despite the prohibition on the use of all types of asbestos since 2003, significant quantities of asbestos remain *in situ* in workplaces and houses across Queensland. Provided this material is not disturbed and is maintained in good condition, it poses no risk to public health and safety.

What are the risks of asbestos exposure?

Inhalation of airborne asbestos fibres can cause death and therefore concentrations of airborne asbestos are a risk which must be controlled. Airborne asbestos fibres can result from:

- the release of asbestos fibres through renovation, maintenance or demolition of buildings containing asbestos (e.g. asbestos-cement sheeting or thermal insulation);
- accidental contact with friable asbestos causing fibres to break free; and
- failure to adequately maintain non-friable asbestos containing material resulting in the release of asbestos fibres.

Inhalation of asbestos fibres has been linked to three respiratory diseases - asbestosis, mesothelioma and lung cancer. Exposure may also relate to other cancers, however, there is no conclusive evidence to support this. The three identified diseases are characterised by long latency periods, that is, 20-40 years from exposure to the onset of disease.

Asbestosis is a chronic lung disease that can lead to respiratory impairment and to diseases such as lung cancer. It results from the inhalation of asbestos fibres which are deposited in the lungs causing scar tissue. The pulmonary changes resulting from the scar tissue are irreversible. It has been found to occur in workers exposed to prolonged and heavy concentrations of asbestos fibres. Asbestosis cannot be effectively treated.

Mesothelioma is a cancer and is known to occur in two types: pleural which is a tumour of the lung; and peritoneal, which is a cancer of the abdominal cavity. The higher the level of exposure, the greater the risk of developing mesothelioma. However, the level of exposure does not affect the length of the latency period, which is usually between 30 and 40 years before the disease is identified. Mesothelioma cannot be effectively treated. Lung cancer caused by asbestos cannot be distinguished from those cancers that are caused by other agents such as tobacco smoke. While persons who have been exposed to asbestos who develop lung cancer are usually tobacco smokers, it is generally accepted that asbestos is capable of causing lung cancer, and the tumour may develop where there is no co-existing asbestosis. Lung cancer related to asbestos exposure usually has a latency period of 20 to 40 years between the first exposure and the onset of cancer.

There were 19 asbestos related fatality workers' compensation claims in Queensland in 2003-04, comprising 6 asbestosis and 13 mesothelioma claims. There were also 37 Medical Expenses Only (MEO) workers' compensation claims related to asbestosis and 4 MEO workers' compensation claims related to mesothelioma in 2002-03.

Asbestos related fatality claims

Year	Disease		Total
	Asbestosis	Mesothelioma	
1993-94	4	3	7
1994-95	6	6	12
1995-96	3	3	6
1996-97	3	3	6
1997-98	3	8	11
1998-99	11	6	17
1999-00	9	11	20
2000-01	16	6	22
2001-02	14	8	22
2002-03	13	6	19
2003-04	6	13	19

Source: Queensland Employee Injury Database

Given the recent increase in home renovation and the length of time that some ACM has been in situ, it is likely that asbestos removal will increase in coming years.

Current regulation

The Queensland Government currently regulates these risks through the *Workplace Health and Safety Regulation 1997* [the Regulation] and an Asbestos Code of Practice (2004). The Regulation categorises asbestos as follows:

- asbestos product – anything that contains asbestos; and
- asbestos materials – installed thermal or acoustic insulation materials comprising or containing asbestos.

The Regulation currently requires the removal of asbestos materials from workplaces to be undertaken by holders of a certificate to perform the prescribed activity of asbestos removal. Applicants for a certificate must demonstrate to an assessor that they are competent in order to qualify. Certificates are issued for two years and cost $47.10 (plus an assessment fee set by the assessor).

While there are no licensing requirements for the removal of asbestos products, the Regulation and Code of Practice prescribe the manner in which these products should be managed and removed. There is an

obligation for building owners and employers to comply with these provisions.

Declaration of new National Codes of Practice

In April 2005, the National Occupational Health and Safety Commission (NOHSC) declared a new Code of Practice for the Safe Removal of Asbestos 2nd Edition [NOHSC: 2002 (2005)] and a new Code of Practice for the Management and Control of Asbestos in Workplaces [NOHSC:2018 (2005)]. Copies of the two new Codes are attached.

Extensive consultation was undertaken on the requirements of the draft Codes as part of a National Regulation Impact Statement (RIS) released by NOHSC in April/May 2004. Stakeholder comments in response to the RIS were taken into consideration in the development of the final Codes.

In line with the Queensland Government's commitment to adopt NOHSC Codes and Standards to facilitate national consistency in occupational health and safety regulation across Australian States and Territories, it is proposed that these new Codes on the management and removal of asbestos be adopted without amendment.

While the national Codes largely mirror the existing regulatory regime in Queensland, the adoption of the Codes will lead to some changes including:

- the replacement of 'asbestos material' and 'asbestos products' with the concept of asbestos containing material (ACM) in either friable or non-friable forms;
- workplaces being required to conduct audits and keep a register which lists the existence and location of all ACM at the workplace – the current Queensland system only requires the identification of asbestos material;
- requiring ACM to be labelled;
- requiring a 'competent person' to remove any ACM – Queensland currently only requires a licensed asbestos removalist to remove asbestos material (but not asbestos products);
- requiring that air monitoring take place whenever ACM is being removed; and
- requiring final clearance certificates for all asbestos removal work.

To implement the requirement that only a 'competent person' remove ACM, Queensland is proposing to extend the existing licensing regime for the removal of asbestos. This Queensland RIS will consider the costs and benefits to the community, business, and government of this extended licensing regime.

All of the other changes identified above were considered by the national RIS released by NOHSC in 2004.

Authorising law

Section 38 of the *Workplace Health and Safety Act 1995* provides the head of power for the making of regulations under that Act. Part 11 of the *Workplace Health and Safety Regulation 1997* provides the framework for the control and management of asbestos in workplaces, with other sections of the Regulation addressing issues such as licensing requirements for the removal of certain types of asbestos and prohibited uses of asbestos.

The Asbestos Code of Practice 2004 (previously the Asbestos Advisory Standard 2004) supports the regulation in setting out requirements for the management and removal of asbestos products and materials.

Policy objectives

The primary objective of the proposed legislation is to further reduce exposure to asbestos fibres and ensure that people removing asbestos are competent and employ safe work methods. Subordinate legislation is required to ensure there are legal ramifications associated with unsafe or unlawful asbestos removal practices.

The proposed legislation will contribute towards achieving the Queensland Government Priority of improving "workforce management by putting people, safe jobs and workplaces first".

National consistency in occupational health and safety regulation is also an important objective of the Queensland Government. This reduces confusion for businesses operating across state boundaries and can lead to more efficient work practices among these businesses.

Legislative intent

It is the intention of the Queensland Government to ensure that a robust regulatory regime is in place to minimise the risks of asbestos exposure to workers and the general public. A significant part of this is ensuring that all persons removing asbestos have the appropriate knowledge and experience to undertake this activity safely. The Government's policy objectives will be achieved by extending the existing licensing regime for the removal of asbestos material to the removal of non-friable ACM in quantities greater than 10 square metres (approximately six asbestos-cement sheets). This will ensure that any removal of asbestos in its most dangerous forms and quantities will be undertaken by competent persons.

It is proposed to introduce two classes of asbestos removal licences: "A" and "B". "A" licenses would be for the removal of friable asbestos (of any quantity) and would be equivalent to the current certificate for asbestos removal. Friable asbestos includes materials such as lagging and thermal or acoustic insulation materials comprising or containing asbestos.

The "B" class licence would be a new licence required for the removal of any non-friable ACM of more than 10 square metres. Non-friable asbestos is where asbestos fibres are held in a matrix of other materials such as asbestos cement sheet. Any person removing non-friable ACM of more than 10 square metres would require a licence therefore extending the requirements to the removal of asbestos from workplaces and private residences.

Assessment of both "A" and "B" class licences would be on a competency basis with a transition foreshadowed to the VET sector once appropriate courses have been developed. As "A" class licences would require a higher level of competency than the "B" class licence, persons holding an "A" class licence would also be permitted to remove any non-friable ACM.

Until asbestos removal training courses are available in Queensland, an applicant for a "B" class licence must satisfy an authorised departmental officer or an accredited provider (assessor) appointed under the *Workplace Health and Safety Act 1995*, that they have appropriate knowledge and experience of safe working methods and practices appropriate to the prescribed activity of removal of ACM other than friable asbestos, including Parts 1 to 9 and Appendix A of the National Code. An assessment instrument will be developed by Workplace Health and Safety Queensland (WHSQ) for "B" class licences.

The proposed legislation is considered a reasonable and appropriate method of achieving the policy objectives because it provides greater certainty to the Government and community that those undertaking removal have demonstrated competence in this area, than alternatives such as education campaigns.

Extending the current licensing regime for asbestos removal is also anticipated to reduce the number of future cases of asbestos exposure, thereby leading to a reduction in workers' compensation claims and the costs to the individual and community of illnesses such as asbestosis and mesothelioma.

The proposal to introduce licensing requirements for the removal of non-friable ACM in quantities greater than 10 square metres also contributes to the Queensland Government's commitment to achieve national consistency in occupational health and safety regulation where possible. Currently, Victoria and the Northern Territory require a licensed person to remove asbestos in quantities greater than 10 square metres and a number of other jurisdictions are considering introducing or amending their licensing requirements to reflect this standard.

Consistency with authorising law

The proposed amendment to the Regulation is anticipated to contribute to a further reduction in the incidence of asbestos exposure as a result of removal only being undertaken by people who have demonstrated competence in this area. This is consistent with the overriding objectives of the *Workplace Health and Safety Act* to prevent a person's death, injury or illness being caused by a workplace, by work activities or by specified high risk plant and to establish a framework for preventing or minimising exposure to risks.

Consistency with other legislation

The *Health Act 1937* regulates public health issues in Queensland, including potential risks associated with exposure to asbestos fibres. A new *Public Health Bill 2005* is also currently before Parliament for consideration and provides the head of power for regulations to be made concerning the management of public health risks, including asbestos.

The proposed amendment to the *Workplace Health and Safety Regulation* relating to asbestos removal licensing is consistent with both the existing public health regulatory regime and the new regime included in the *Public Health Bill 2005*.

Fundamental legislative principles

The *Legislative Standards Act 1992* outlines fundamental legislative principles that require legislation to have sufficient regard to the rights and liberties of individuals and the institution of Parliament. It is considered that the proposal to extend the licensing regime to the removal of ACM in quantities greater than 10 square metres has sufficient regard for these principles. The drafting of any legislation about the licensing requirements for the removal of asbestos would include an assessment of whether the legislation has sufficient regard for fundamental legislative principles.

Proposed option and other alternatives

Consideration has been given to three potential options of achieving the policy objectives:

1 maintaining the status quo – retain the existing licensing requirements for the removal of asbestos material and have no licensing requirements for the removal of non-friable ACM;

2 requiring a licence to remove non-friable ACM in quantities greater than 10 square metres; and

3 requiring a licence to remove non-friable ACM of any quantity.

A summary of the anticipated costs and benefits of each of the above options is provided in an impact matrix at Attachment 1.

Options one and three have been eliminated by the Department of Industrial Relations in favour of option two as this option is considered by the Department to be the most appropriate and effective means of achieving the policy objectives.

Option one will not lead to a further reduction in the number of people potentially exposed to asbestos fibres during removal of non-friable materials. It also fails to address public concern about the manner in which

asbestos removal is currently undertaken. Option one is inconsistent with national trends in asbestos licensing regulation.

Option three would be an onerous requirement for workplaces and private residences, requiring a licensed person to be engaged for maintenance or renovation work which may involve asbestos of any quantity. Exposure to asbestos is dependent on the volume of fibres and the duration of exposure. It is therefore acknowledged that it is unlikely that an asbestos related disease would result from infrequent contact with small quantities of asbestos. Option three is also inconsistent with national trends in asbestos licensing regulation.

Option two presents a balanced approach to achieving the policy objectives. It is estimated to result in a reduction in the number of people potentially exposed to asbestos fibres, and contributes towards achieving national consistency.

Costs and benefits

The actual or potential costs and benefits of the proposed legislation are derived from the analysis of the cost associated with adverse health effects from asbestos exposure, the extent of exposure, and the risk of disease and death contained in Attachment 1.

It is important to differentiate between existing costs of the occupational health and safety regulation and additional costs arising as a result of the proposed regulatory amendment. For example, a business that currently undertakes work involving the removal of 'asbestos material' (friable ACM) already incurs asbestos training and permit costs. Similarly, businesses that currently remove 'asbestos products' (non-friable ACM) are assumed to already incur costs associated with asbestos removal equipment and signage, sampling material for the presence of asbestos (or presuming a material contains asbestos), and safe disposal of asbestos. Therefore, these costs cannot be attributed to the regulatory amendment.

Option 1: Maintaining the status quo

This option would see the retention of the existing licensing requirements for the removal of asbestos material; i.e. the removal of (friable) asbestos materials from workplaces is to be undertaken by holders of a certificate to

perform the prescribed activity of asbestos removal. There would be no requirement to engage a licensed person to remove non-friable asbestos. However, removal of non-friable ACM would have to be undertaken in accordance with the National Code of Practice for the Safe Removal of Asbestos once adopted.

Costs of option 1

1.1 Cost to business

The current regulatory regime requires licensed removal of 'asbestos material' (friable ACM), rather than the removal of non-friable ACM such as asbestos cement sheeting, which, although considered to be a lesser risk than friable materials, is also more commonly encountered.

It is estimated that maintaining the status quo, may result in at least 330 persons contracting an asbestos related disease due to exposure based on estimates contianed in Attachment 1. As a result of this, the costs to business could be expected to be between $3.00 million and $11.00 million over the next 30 years. The net present value of the above costs[1] is between $1.40 million and $5.14 million.

1.2 Cost to government

The maintenance of the current regulation could lead to a sustained incidence of asbestos related diseases and subsequent resources required by governments to manage these diseases.

1.3 Cost to general community

Maintaining current regulations will not further reduce potential exposures to asbestos. However, due to the current rate of removal of ACM from domestic dwellings, it is reasonable to expect that all ACM will be removed from domestic dwellings in approximately 30 years.

It is estimated that the cost to the community of maintaining the status quo could be at least 330 lives over 30 years, at a cost of between $57.12 (NPV

1 Future costs are discounted using a rate of 6% in line with Queensland Treasury guidelines.

$26.69) million and $209.10 (NPV$97.70) million, of which between $21.04 (NPV$9.83) million and $77.04 (NPV$36.00) million (35%) will be borne by employees, their families and carers, and between $36.08 (NPV $16.86) million and $132.07 (NPV $61.71) million (60%) will be borne by the community (Government) at large.

In addition to the costs above, due to the large amount of asbestos still present in buildings in Queensland, fear and concern still exist in the community about persons being exposed when in contact with ACM. The family and friends of asbestos exposed workers incur social costs associated with this fear and concern about potential danger to loved ones. These social costs cannot be calculated.

Benefits of option 1

1.4 Benefit to business, government, and the community

While the current regulatory regime prescribes safe asbestos removal practices, there are no perceived additional benefits of maintaining the status quo in terms of achieving the key policy objectives of further reducing the incidence of asbestos exposure and working towards national consistency in asbestos regulation.

Option 2: Requiring a licence to remove non-friable ACM in quantities greater than 10 square metres

Option 2 would require a ("B" class) licence to remove non-friable ACM in quantities greater than 10 square metres. This equates to the removal of approximately six sheets of asbestos-cement sheeting.

Costs of option 2

2.1 Cost to business

2.1.1 "B" class asbestos licence fees

Assuming that industry already complies with existing regulations for the control and maintenance of asbestos, the costs of adopting the new licence regulation will be limited. Under the proposed regulation, businesses or individuals which already hold a certificate for the prescribed activity of asbestos removal will automatically receive an "A" class licence which will also permit them to remove non-friable ACM in quantities of greater than 10 square metres.

The direct costs to business associated with complying with the new licence regulation if a business does not already hold a certificate for the prescribed activity of asbestos removal, will consist of:

- $110 (approximately) per person for an asbestos awareness course – assume 2 people per business;
- 1 day of wages (or 'lost' work time if self-employed) is equivalent to $199.72[2] per worker or $399.44 for 2 workers;
- $47.10 [for a 2 year licence issued by WHSQ].

Based on the above, the total cost of obtaining a "B" class licence will be $670 (rounded). Spread over the longer term (a 30 year period), the net present value of the above costs[3] is about $2,300 per business (or about $75 per year).

The costs provided are only indicative of the potential costs that may arise and will vary between workplaces. Aspects which may affect the actual costs in different work places include:

- size of the workplace and number of work sites;
- number of employees;
- degree of occupational health and safety training previously provided;
- training provider costs;

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2 Average weekly earnings in the construction sector is $998.60 for August 2004 (ABS catalogue 6302.0). This is equivalent to $199.72 per day (assuming 5 day week).

3 Assumes that personnel turnover will require each business to face the full cost of training and obtaining a licence for 2 workers every 5 years in line with current turnover rates of at risk occupation in the construction industry (future costs are discounted using a rate of 6% in line with Queensland Treasury guidelines) and that licence costs are incurred every two years.

- degree of reliance on external consultants to undertake the required work;
- extent to which non-friable ACM are present in domestic dwellings in Queensland.

To estimate the total potential cost of the regulatory amendment to business, the individual business costs are multiplied by the number of businesses affected.

In practice, only a proportion of businesses would seek to obtain a licence themselves. Rather businesses would either:

- contract out necessary work to a licence holder; or
- not bid for work where a licence is required (likely to apply to a minority only).

The existing situation concerning asbestos licence holders implies that the extent of contracting out is very large. For example, there are only about 50 asbestos demolition/asbestos removal licences but there are nearly 26,000 licensed builders including licensed bathroom/laundry/kitchen renovators, roofers, plumbers, tilers, etc. Even assuming that every asbestos licence is held by a licensed builder, this constitutes less than 0.2% of the total licensed population.

It is likely that bathroom/laundry/kitchen renovators, roofers, and plasters (approximately 4,000 businesses) will consider whether to seek a licence. If every business seeks a licence (an 80-fold increase), the additional cost will be about $17.69 million over 30 years or about $0.59 million per annum. The net present value of the above cost[4] is about $9.14 million (or about $0.30 million per year).

However, the experience in Victoria where licence registrations increased from around 200 to 400 when it introduced a 10 square metre threshold suggests that an 80-fold increase is a significant overestimate of the likely business response.

Notwithstanding the strong implication that there will be a minimal increase in the number of licences sought, for the purposes of this analysis, it is assumed that there will be a tenfold increase in the number of licences applied for – from 50 to about 500. This is made on the assumption that Queensland has a relatively low number of licences per capita basis

4 Future costs are discounted using a rate of 6% in line with Queensland Treasury guidelines.

compared to the other states, as such this regulation will bring Queensland in line with the other states.

Using this assumption, the additional cost of new licences will be about $1.99 million over 30 years or just over $66,000 per annum. The net present value of the above cost[5] is about $1.03 million (or just over $34,000 per year).

2.1.2 Compliance costs with occupational health and safety regulation

Compliance costs, in theory, should not increase as a result of extending the asbestos licensing regulation. Under the current occupational health and safety regulation, employers are responsible for ensuring risks and hazards to workers are identified and eliminated (or reduced as far as is practicable). This requirement holds regardless of the type of asbestos containing material involved. Therefore, businesses compliant with the occupational health and safety regulation will not incur any additional costs of compliance.

In terms of the cost to workplaces of having to engage a licensed person to remove non-friable asbestos in quantities greater than 10 square metres, costs are anticipated to be comparable with the current costs associated with engaging a builder to undertake renovation or maintenance work that may involve asbestos. Such businesses will already factor the costs of safety equipment, safe asbestos removal practices, and disposal into the prices they charge consumers. The only additional cost will be that of obtaining a licence which, as estimated in section 2.1.1 will be approximately $670 per licence. When this cost is spread across the business, it is unlikely to have a significant impact on any one consumer.

In the short term, there may be a limited supply of persons licensed to perform the removal of non-friable ACM in quantities greater than 10 square metres which may initially increase the costs of this type of work. However, as more tradespeople become licensed as a necessity to undertake their work, costs would be expected to plateau or reduce (assuming a competitive environment in the renovation sector).

2.1.3 Summary of costs to business

The total cost that may be expected from implementation of option two will be $1.99 million over 30 years or just over $66,000 per annum, with the net

5 Future costs are discounted using a rate of 6% in line with Queensland Treasury guidelines.

present value of the above cost[6] being about $1.03 million (or just over $34,000 per year).

2.2 Costs to government

Since the Queensland Government already enforces removal of asbestos there will be no change in inspectorate costs. The introduction of the proposed regulation will result in costs associated with awareness programs and training courses for persons seeking an asbestos removal licence. Such costs will be diminished by the extent of costs that would have been expended on awareness of safe asbestos removal practices regardless of a change in the regulation.

The Queensland Government will incur administrative costs associated with the processing of licence requests. These costs will be charged to applicants at cost recovery rates ($47.10 for a 2 year licence) and have been counted as costs incurred by businesses.

As most government departments responsible for building maintenance already require tradespeople to demonstrate that they are trained in the safe removal of asbestos (if this is relevant to the project), it is anticipated that engaging a licensed removalist will not involve additional costs (see section 2.1.2). Departments may also wish to consider paying for selected staff to acquire a "B" class licence as opposed to contracting out non-friable asbestos removal work. As discussed in 2.1.1, this would cost approximately $670 per licence.

Direct costs to the Queensland Government associated with developing a one to two day asbestos identification and removal course (or equivalent) through the Vocational Education and Training sector (VET), consist of:

- cost of product development –
    - $250 to adopt an existing asbestos course operating in another jurisdiction;
    - $42,000 (based on 6 months work by an AO6 office) to develop a brand new asbestos course;
- cost of product delivery –

6 Future costs are discounted using a rate of 6% in line with Queensland Treasury guidelines.

- \$100 for an existing Registered Training Organisation (RTO) to extend their scope of registration to include the asbestos course;
- a minimum of \$1,500 to set up a brand new RTO solely dedicated to delivering asbestos courses; and

- cost of product maintenance –
  - \$600 every 5 years.

Therefore, the Queensland government will face an up-front cost between \$350 and \$43,500. Spread over the longer term (a 30 year period), total cost of such an asbestos course will be between \$3,350 and \$46,500. The net present value of the above costs[7] will be between \$1,633 and \$44,783.

2.3 Cost to general community

The costs to the general community cannot be quantified as these depend on the employer and market response to the increased costs that will result from the introduction of the proposed regulation. Two scenarios could result.

Under one scenario, the introduction of the proposed regulation may lead to increased costs to the community through increased fees for services where asbestos is involved. Given that industry must already comply with asbestos removal regulations, these costs are expected to be minimal.

Domestically, increased costs could apply to situations such as maintenance work or removal of household non-friable ACM. In these situations the cost of engaging a licensed asbestos removalist may be marginally higher than the cost of engaging a builder if the tradesperson passes on the licence and training costs to the consumer. The likely costs could be minimised and spread across the business, thereby reducing the cost impact on any one consumer.

Alternatively, the costs incurred by business could be absorbed by business as a result of market pressures to maintain pricing.

7 Assumes that personnel turnover will require each business to face the full cost of training and obtaining a licence for 2 workers every 5 years in line with current turnover rates of at risk occupation in the construction industry (future costs are discounted using a rate of 6% in line with Queensland Treasury guidelines) and that licence costs are incurred every two years.

Benefits of option 2

2.4 Benefit to business

Several benefits can be derived for business by implementing the proposed regulations. These benefits include:

- national consistency (section 2.4.1); and
- decreased employee exposure and compensation premiums (section 2.4.2).

In addition to these benefits, business could also be expected to benefit through other factors such as decreased down-time due to industrial action sparked by workplace asbestos concerns. However, it is not possible to place a monetary value on the benefits these factors may incur.

2.4.1 National consistency

A nationally consistent approach to the management, control and removal of asbestos will mean that businesses working across state boundaries will only need to comply with one set of regulations. This will result in financial, time, and labour savings which would otherwise be required to ensure compliance with individual State and Territory regulations.

2.4.2 Decreased employee exposure – compensation premiums

Based on the estimates of the risk of disease and death resulting from asbestos exposure (see Attachment 1), under the proposed regulatory arrangements at least 330 persons could be saved from contracting an asbestos related disease. As a result of this, the benefit to business could be expected to be between $3.00 million and $11.00 million over the next 30 years. The net present value of the above costs[8] is between $1.40 million and $5.14 million.

In general terms, workers' compensation insurance premiums are based on past industry and individual workplace experience. Fewer claims mean a lower workers' compensation premium for that business. A business may influence the premium by introducing occupational health and safety management systems and prevention strategies.

8 Future costs are discounted using a rate of 6% in line with Queensland Treasury guidelines.

2.5 Benefit to government

A component of the Government's overall aims are to support and encourage business growth. Introduction of the proposed regulation will provide a nationally consistent occupational health and safety model for businesses to adopt. National consistency promotes business growth and investment in the State.

Benefits to Government, arise primarily from the avoidance of increased health, legal and social costs from the incidence of asbestos related diseases.

Also, the introduction of a nationally consistent regulation will enable the Queensland Government to share expertise and the costs of developing training packages, awareness campaigns, etc.

2.6 Benefit to general community

The benefit to the general community will be a greater consistency in the management, control and removal of non-friable ACM, leading to improved health and safety outcomes.

Based on the estimates of the costs of asbestos related disease (see Attachment 1), the benefits to the community associated with prevention of asbestos exposures could save at least 330 lives over 30 years, at a benefit of between $57.12 (NPV $26.69) million and $209.10 (NPV$97.70) million, of which between $21.04 (NPV$9.83) million and $77.04 (NPV$36.00) million (35%) which otherwise would have to be borne by employees, their families and carers, and between $36.08 (NPV $16.86) million and $132.07 (NPV $61.71) million (60%) which otherwise would have to be borne by the community (Government) at large.

In addition to the benefits above, due to the large amount of asbestos still present in buildings in Queensland, fear and concern which exists in the community about persons being exposed when in contact with ACM will be reduced. However such social benefits cannot be calculated.

Option 3: Requiring a licence to remove non-friable ACM of any quantity

Option 3 would see the introduction of a requirement to have a ("B" class) licence for the removal of all non-friable ACM of any quantity.

This option is not consistent with other jurisdictions existing, or proposed, asbestos removal licensing requirements and would be an onerous requirement given the widespread use of asbestos in Queensland buildings. Under this option, an asbestos removalist would be required for any maintenance work which may involve the removal of a panel of asbestos-cement sheeting, replacement of an asbestos roof tile, etc.

Research indicates that maintenance activities such as these would lead to minimal exposure to asbestos fibres (0.00 – 0.228 fibres/ml which equates to a 0 – 39 in 100,000 lifetimes chance of developing lung cancer[9]). Also, higher incidences of asbestos related diseases are evident in professions where there would be prolonged exposure to significant quantities of asbestos (e.g. carpentry, electricians, and metal fitters and machinists).

Costs of Option 3

3.1 Cost to business

Due to data limitations it is not possible to identify how many domestic dwellings in Queensland have less than 10 square metres of non-friable ACM within them, hence, it is not possible to estimate with any certainty what the cost will be if the regulation is extended to include any amount of non-friable ACM.

Nevertheless it is assumed that the demand for licensed asbestos removalists may be around 15% more than under option two. Based on this assumption, it is estimated that the total cost to business that may be expected from implementation of option three will be $2.29 million over 30 years or just over $76,000 per annum, with the net present value of the above cost[10] being about $1.18 million (or just over $39,000 per year).

3.3 Costs to government

Costs to government will be the same as in option two.

9 NOHSC, 2005, Regulation Impact Statement: Codes of Practice and Guidance Note for Asbestos

10 Future costs are discounted using a rate of 6% in line with Queensland Treasury guidelines.

3.5 Cost to general community

Costs to general community will be the same as in option two.

Benefits of Option 3

3.2 Benefits to business

Benefits to business will be the same as in option two.

3.4 Benefit to government

Benefits to government will be the same as in option two.

3.6 Benefit to general community

Benefits to general community will be the same as in option two.

Conclusion

Options one and three are not seen as viable alternatives to the proposed regulation as they either, in the case of option one, do not have any impact on the existing levels of exposure to asbestos fibres in homes and workplaces or, in the case of option three, would impose excessive compliance costs on home owners.

Option two is the preferred option because it is consistent with national trends in asbestos regulation and minimises asbestos exposure without imposing unreasonable costs on home owners and workplaces.

The major groups impacted by the regulation proposed under option two would be people engaged in the removal of non-friable ACM in quantities greater than 10 square metres. Even the cost to these groups are marginal ($670 to obtain a licence), contrasted with the benefits that can be achieved by this regulation in terms of potential lives saved and greater certainty that asbestos removal is being undertaken by competent persons with an understanding of safe removal practices.

While the overall cost of introducing the proposed regulation is significant, the scientific uncertainty around the nature and risk of asbestos exposure

suggests that precautionary action is warranted in this case. The proposed regulation has the potential to save lives and minimise public concern of the risk to the community of asbestos removal.

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IMPACT MATRIX
Attachment 1

Option 1: Maintaining the status quo

	Business	**Government**	**General Community**	**Comment**
Benefit	• No additional benefit	• No additional benefit	• No additional benefit	• There are no anticipated benefits to be gained by maintaining the status quo.
Cost	• Industry costs associated with identifying and addressing shortfalls in the current guidance material. • Estimated costs of between approximately $3.00 (NPV $1.40) million and $11.00 (NPV $5.14) million associated with workers compensation and medical costs for workers contracting asbestos -related lung-cancer and mesothelioma. • It was not possible to estimate the costs of other asbestos – related diseases and conditions such as asbestosis and pleural plaques.	• The Queensland government will require to develop and maintain guidance to address shortfalls in the current guidance material. • Duplication of guidance material requires duplication of resources spent.	• 330 lives at an estimated value of between $57.12 (NPV $26.69) million and $209.10 (NPV $97.70) million. • Costs of pain and suffering to workers contracting an asbestos - related disease. It is not possible to estimate these costs. • Social costs as a result of fear and concern for family and friends exposed to asbestos. It is not possible to estimate these costs.	• By maintaining the status quo at least 330 new cases of asbestos - related lung cancer and mesothelioma could be expected to occur as a result of exposures over the next 30 years. This could cost the Australian economy between $60.13 (NPV $28.09) million and $220.11 (NPV $102.85)million.
Overall Benefit/Cost	• The average overall costs of maintaining the status quo could be as high as 330 lives and $220.11 (NPV $102.85) million over the next 30 years.			

Option 2: Requiring a licence to remove non-friable ACM in quantities greater than 10 square metres

	Business	Government	General Community	Comment
Benefit	• Increased national consistency of asbestos regulation and an associated decrease in costs relating to ensuring compliance with multiple regulations. • Savings of between $3.00 (NPV $1.40) million and $11.00 (NPV $5.14) million as a result of reduced cases of asbestos – related lung cancer and mesothelioma. • It was not possible to estimate savings from a reduction in other asbestos -related diseases and conditions such as asbestosis and pleural plaques. • Reduced insurance premiums. This value could not be calculated.	• Introduction of the proposed regulation will provide a nationally consistent occupational health and safety model for businesses to adopt. National consistency promotes business growth and investment in the State. • Benefits to Government, arise primarily from the avoidance of increased health, legal and social costs from the incidence of asbestos related diseases.	• Greater consistency in the management, control and removal of in situ asbestos, leading to improved health and safety outcomes. • Over the period 2005-2035 at least 330 cases of asbestos - related lung cancer and mesothelioma will be prevented, thereby saving at least 330 lives at a value of between $57.12 (NPV 26.69) million and $209.10 (NPV $97.70) million. Of these savings between $21.04 (NPV $9.83) million and $77.04 (NPV $36.00) million will be saved by employees, their families and carers, and between $36.08 (NPV $16.86) million and $132.07 (NPV $61.71) million by the community in general. The remaining portion is a saving to industry. • It was not possible to calculate the community benefits that may be gained as a result of decreased fear, pain, suffering and anguish for asbestos - disease sufferers, their family, friends and the community or the quality of those lives and their potential contributions to the community.	• By implementing Option Two at least 330 cases of asbestos - related lung cancer and mesothelioma could be expected to be prevented as a result of reduced exposures to asbestos over the next 30 years. This could save the economy between $60.13 (NPV $28.09) million and $220.11 (NPV $102.85) million.

Cost	• Total costs of approximately $1.99 million over 30 years or just over $66,000 per annum, with the net present value of $1.03 million or just over $34,000 per annum. • Costs for individual businesses will vary according to the size of the workplace and number of work sites; number of employees; degree of OHS training previously provided; training provider costs; degree of reliance on external consultants to undertake the required work; the extent to which ACM is present and the amount to be removed. However, the initial cost per business to be compliant with the proposed regulation will be $670, where it is assumed two workers per business.	• Nationally consistent OHS model for asbestos regulation. • As most government departments responsible for building maintenance already require tradespeople to demonstrate that they are trained in the safe removal of asbestos (if this is relevant to the project), it is anticipated that engaging a licensed removalist will not involve additional costs (see section 2.1.2). Departments may also wish to consider paying for selected staff to acquire a "B" class licence as opposed to contracting out non-friable asbestos removal work. As discussed in 2.1.1, this would cost approximately $670 per licence. • Direct costs to the Queensland Government associated with developing a one to two day asbestos identification and removal course (or equivalent) through the Vocational Education and Training sector (VET), will be between $3,350 and $46,500. The net present value of the above costs will be between $1,633 and $44,783.	• Possible increase in costs of services for asbestos removal to owners of domestic premises as a result of more stringent requirements for asbestos removalists. These costs could not be calculated.	• Implementation of Option Two is expected to incur operational costs of approximately $1.99 million over the next 30 years.
Overall Benefit/Cost	• The average overall costs from Option Two are $1.99 million over the next 30 years. • The overall benefits from Option Two are the saving of at least 330 lives and between $60.13 (NPV $28.09) million and $220.11 (NPV $102.85) million over the next 30 years.			

Option 3: Requiring a licence to remove non-friable ACM of any quantity

	Business	Government	General Community	Comment
Benefit	• Increased national consistency of asbestos regulation and an associated decrease in costs relating to ensuring compliance with multiple regulations. • Savings of between $3.00 (NPV $1.40) million and $11.00 (NPV $5.14) million as a result of reduced cases of asbestos – related lung cancer and mesothelioma. • It was not possible to estimate savings from a reduction in other asbestos -related diseases and conditions such as asbestosis and pleural plaques. • Reduced insurance premiums. This value could not be calculated.	• Introduction of the proposed regulation will provide a nationally consistent occupational health and safety model for businesses to adopt. National consistency promotes business growth and investment in the State. • Benefits to Government, arise primarily from the avoidance of increased health, legal and social costs from the incidence of asbestos related diseases.	• Greater consistency in the management, control and removal of in situ asbestos, leading to improved health and safety outcomes. • Over the period 2005-2035 at least 330 cases of asbestos - related lung cancer and mesothelioma will be prevented, thereby saving at least 330 lives at a value of between $57.12 (NPV 26.69) million and $209.10 (NPV $97.70) million. Of these savings between $21.04 (NPV $9.83) million and $77.04 (NPV $36.00) million will be saved by employees, their families and carers, and between $36.08 (NPV $16.86) million and $132.07 (NPV $61.71) million by the community in general. The remaining portion is a saving to industry. • It was not possible to calculate the community benefits that may be gained as a result of decreased fear, pain, suffering and anguish for asbestos - disease sufferers, their family, friends and the community or the quality of those lives and their potential contributions to the community.	• By implementing Option Two at least 330 cases of asbestos - related lung cancer and mesothelioma could be expected to be prevented as a result of reduced exposures to asbestos over the next 30 years. This could save the economy between $60.13 (NPV $28.09) million and $220.11 (NPV $102.85) million.

Cost	• Total costs of approximately $2.29 million over 30 years or just over $76,000 per annum, with the net present value of $1.18 million or just over $3,000 per annum. • Costs for individual businesses will vary according to the size of the workplace and number of work sites; number of employees; degree of OHS training previously provided; training provider costs; degree of reliance on external consultants to undertake the required work; the extent to which ACM is present and the amount to be removed. However, the initial cost per business to be compliant with the proposed regulation will be $670, where it is assumed two workers per business.	• Nationally consistent OHS model for asbestos regulation. • As most government departments responsible for building maintenance already require tradespeople to demonstrate that they are trained in the safe removal of asbestos (if this is relevant to the project), it is anticipated that engaging a licensed removalist will not involve additional costs (see section 2.1.2). Departments may also wish to consider paying for selected staff to acquire a "B" class licence as opposed to contracting out non-friable asbestos removal work. As discussed in 2.1.1, this would cost approximately $670 per licence. • Direct costs to the Queensland Government associated with developing a one to two day asbestos identification and removal course (or equivalent) through the Vocational Education and Training sector (VET), will be between $3,350 and $46,500. The net present value of the above costs will be between $1,633 and $44,783.	• Possible increase in costs of services for asbestos removal to owners of domestic premises as a result of more stringent requirements for asbestos removalists. These costs could not be calculated.	• Implementation of Option Two is expected to incur operational costs of approximately $2.29 million over the next 30 years.
Overall Benefit/Cost	• The average overall costs from Option Two are $2.29 million over the next 30 years. • The overall benefits from Option Two are the saving of at least 330 lives and between $60.13 (NPV $28.09) million and $220.11 (NPV $102.85) million over the next 30 years.			

Attachment 2

It should be noted that all of the analysis in this document are based on the assumptions that all of industry complies with the current National Exposure Standard (NES) for asbestos (0.1 fibres/ml of air) and the current regulations for removal, control, and maintenance of asbestos. These assumptions have been made due to the lack of information regarding industry compliance with occupational health and safety regulation and the fact that WHSQ is not equipped to gather this type and amount of information.

The cost associated with adverse health effects of exposure to asbestos

Costs associated with the adverse health affects of asbestos related diseases fall into the following categories:

- treatment expenses including medication and hospitalisation;
- compensation, including statutory and common law settlements;
- pain and suffering; and
- deaths.

Treatment and compensation costs appear to vary depending on the type of data used. In attempting to establish the medical and compensation costs of asbestos related diseases, data from the 2005 RIS prepared by NOHSC on The Proposed Codes of Practice and Guidance Note for Asbestos (Table 1) was used.

TABLE 1: DISEASES LINKED TO CHRYSOTILE AND TREATMENT COSTS PER PERSON[11]

Disease	Treatment Cost (per year)	Statutory Compensation	Judgements and Settlements	Total Costs
Asbestosis	$2,200 Survival 20 years	$30,000	$150,000	$182,200 to $224,000
Lung Cancer	$57,000 Survival < 1 year	$160,000	$450,000	$667,000
Mesothelioma	$57,000 Survival < 1 year	$160,000	$450,000	$667,000
Other malignancies such as cancer of the larynx, oropharynx and upper and lower digestive track	$57,000 Survival < 1 year	$160,000	$450,000	$667,000

From Table 1, combined treatment and compensation costs were estimated at between $182,200 and $667,000 per case, assuming a survival rate of less that one year among non-asbestosis sufferers. In cases where the sufferer lives more than a year the cost of treatment could be substantially higher.

While there are statistics showing trends in the incidence of asbestos related diseases in Queensland, the long latency periods of the diseases means that many recently diagnosed cases are the result of historical exposures from sources that are no longer in place; for example, mining, processing and manufacturing of asbestos and asbestos products. For the purposes of conducting an analysis of the regulatory options for dealing with non-friable ACM it is necessary to estimate the number of deaths that may occur as a result of exposure to asbestos during home renovation which will be conducted over the next 30 years.

11 NOHSC (2005), NOHSC Regulation Impact Statement on the Proposed Codes of Practice and Guidance Note for Asbestos.

The extent of exposure to asbestos

It is difficult to reliably estimate the percentage of domestic dwelling construction workers, home renovators and by-standers that may have an actual exposure to fibres from non-friable ACM. The fact that such people may work at locations containing non-friable ACM does not in itself indicate the extent of actual exposure to fibres. In many cases the non-friable ACM may be physically directly inaccessible resulting in negligible exposure to fibres.

Domestic dwelling construction industry

Available information only provides builder licence numbers for broad occupation groupings. More detailed information on the numbers of people employed in specialist occupation, such as 'asbestos removalist', is not available. Therefore, in order to determine how many workers may be exposed to asbestos through renovation, maintenance and other building tasks, several broad occupational categories have been identified in Table 2, to provide an indication of the number of workers in Queensland that may potentially be exposed to asbestos.

Table 2 shows that in 2005, 25,893 builder licences were active in Queensland. Of those, 19,678 licences where held in occupations where there is a potential for exposure to asbestos from performing renovation, maintenance and other building tasks. Since the occupational groupings do not allow for a more detailed analysis of the numbers of persons employed in specialised occupations such as asbestos removal, and that not all workers are likely to perform the same tasks, this figure is likely to overstate the number of persons actually exposed to asbestos.

Table 2 also shows that of all the active builder licences, 19,306 where held by individuals and the remaining 6,587 licenses were issued to businesses. This is important to note as most of the current asbestos removal licenses are more likely to be held by businesses rather than individuals.

TABLE 2: NUMBER OF WORKERS IN THE DOMESTIC DWELLING CONSTRUCTION INDUSTRY WHO MAY BE POTENTIALLY EXPOSED TO ASBESTOS, BY OCCUPATIONAL GROUPING, 2005[12]

Broad occupational grouping	Number of licences
Individual	19,306

Business	6,587
Total	*25,893*
Occupations potentially at risk of exposure to asbestos	
Bathroom/laundry/kitchen renovators	955
Roofers	974
Plasterers Plumbers	2,064 3,024
Tilers	2,290
Electricians	5,629
Painters	4,742
Total	*19,678*

It should also be recognised that as non-friable ACM in the built work environment is removed and replaced with non-asbestos materials, the incidence of exposure to asbestos through renovation, maintenance and other building tasks will gradually decline. Based on the current rates of renovation and demolition, the number of domestic dwellings containing non-friable ACM can be expected to be zero in the next 30 years. Hence, the number of new cases of asbestos related disease due to exposure from renovation, maintenance and other building tasks of domestic dwellings could therefore be expected to be zero in the next 30 years.

Domestic dwelling renovators – high estimate

Data that precisely determines the number of houses in Queensland that contain non-friable ACM is difficult to obtain. Therefore, available data is used to develop high and low estimates of the number of dwellings with non-friable ACM and estimates of the number of dwellings on which renovations are undertaken, to be used as a proxy to determine the potential number of home renovators that may be exposed to asbestos during renovation, maintenance and other building tasks.

Data from the Australian Bureau of Statistics shows that the stock of housing in Queensland (in 1999) consists of 1,341,787 dwellings (Table 3). Of these, 50.9% (or 682,865 dwellings) are aged 20 years or older. Age of dwelling is a relevant statistic as it can act as a proxy measure for the

12 Information obtained from the Queensland Building Surveillance Authority (BSA), on 07/09/2005

presence/absence of asbestos, use of which was phased out in the late 1980s (the majority of homes built prior to this are likely to contain some form of building material containing asbestos).

TABLE 3: NUMBER OF DWELLINGS BY AGE AND TYPE OF RENOVATIONS/REPAIRS/ MAINTENANCE OVER A 12 MONTH PERIOD, QUEENSLAND, 1999[13]

	Age of dwelling (years)		
Estimated number of dwellings	**Less than 20**	**More than 20**	**Total (a)**
Type of renovations/repairs/maintenance			
Painting	151,201	219,558	370,759
Roof repair/maintenance	47,479	102,676	150,155
Tile repair/replacement	37,116	39,275	76,391
Electrical work	108,226	154,482	262,708
Plumbing	151,921	195,474	347,395
Othertypesofrenovationsrepairsor maintenance (b)	59,859	89,736	149,595
No renovations/repairs/maintenance (includes don't knows)	325,196	268,985	594,181
Total (c)	**658,922**	**682,865**	**1,341,787**

(a) Includes age of dwelling not known.

(b) Includes extension, swimming pool, and other external alterations/additions.

(c) Components do not add to total as more than one response is allowed.

Of the 682,865 domestic dwellings potentially containing non-friable ACM (i.e. older than 20 years of age) 413,880 (60.6%) undertook renovations/repairs/maintenance in the past 12 months. This is equivalent to 30.8% of the total housing stock in Queensland.

As previously indicated in the previous section, the proportion of housing containing asbestos will decline as a proportion of the total housing stock due to:

13 Australian Bureau of Statistics, Australian Housing Survey 1999

- growth in the total stock of housing due to new housing construction; and
- a reduction in the stock of housing containing asbestos as repairs may remove existing asbestos.

This trend implies that the potential for exposure to asbestos is decreasing each year. This will be countered to some extent by the fact that older properties will be more likely to require/undergo renovation and/or alteration.

For the purposes of this analysis, it is assumed that the potential for exposure to asbestos remains constant over the next 30 year period. That is, about 30.8% of all renovations, repairs and maintenance work done in Queensland each year is undertaken on domestic dwellings containing non-friable ACM. This figure is likely to be an overstatement of the total stock of domestic dwellings containing non-friable ACM in Queensland.

Hence, around 30.0% of the Queensland population may potentially come into contact with ACM during the course of performing renovations, repairs and maintenance. However, exposure to asbestos will not necessarily result in an asbestos related disease being contracted (see Table 6 below for correlation between exposure and disease). The risk is related to the dose. Most people who suffer from asbestos-related illnesses are usually those who have worked with asbestos products and been exposed to asbestos dust over a number of years.

Domestic dwelling renovators – low estimate

An estimate of the stock of housing that contains non-friable ACM can be used to validate the above estimate of renovations involving asbestos-containing housing. Data from the 1999 ABS Housing Survey (Queensland) shows the stock of domestic dwelling by main material of roof and outside walls (Table 4).

TABLE 4: NUMBER OF DWELLINGS BY TYPE OF CONSTRUCTION MATERIAL, QUEENSLAND, 1999[14]

Main material of	Number of Dwellings
Roof	
Fibro/asbestos cement	60,900
Tiles	514,000
Metal sheeting	744,700
Other material	5,400
Total	**1,341,800**
Outside walls	
Fibro/asbestos cement	151,100
Double brick	227,000
Stone	3,600
Mud brick	2,200
Brick veneer	524,600
Timber	345,700
Steel/aluminium	54,700
Concrete	12,300
Other material	19,700
Total	**1,341,800**

The total number of dwellings with asbestos is 212,000, which is about 15.8% of the total stock of domestic dwellings (1,341,800). Again, as can be seen, this is an overestimate as those dwellings with asbestos material in both roof and walls have been counted twice. This data does not capture dwellings with other forms of asbestos (e.g. where asbestos insulation is present). However, it is relevant to the analysis as renovations impacted by the proposed amendment will predominantly involve walls and roofs.

Hence, around 16.0% of the Queensland population may potentially come into contact with ACM during the course of performing renovations, repairs and maintenance. However, exposure to asbestos will not

14 Australian Bureau of Statistics, Australian Housing Survey 1999

necessarily result in an asbestos related disease being contracted (see Table 6 below for correlation between exposure and disease). The risk is related to the dose. Most people who suffer from asbestos-related illnesses are usually those who have worked with asbestos products and been exposed to asbestos dust over a number of years.

By-standers

Assuming that there is 100% compliance with the Asbestos Code of Practice 2004, exposures during the removal of non-friable ACM are expected to be next to zero over the next 30 years. This is based on the current exposure standard for all forms of asbestos of 0.1 fibre/ml of air. Furthermore, strict decontamination procedures prevent the transport of asbestos fibres outside the designated asbestos removal site. The combination of these requirements ensures that exposures are extremely low and likely only to occur as a result of accidental exposure through human error or equipment malfunction.

Risk of disease and death

The cumulative risk of lung cancer from exposure to asbestos at levels that may result from renovation/maintenance activities is 0-39 per 100,000 lifetimes. Under the 1988 exposure standard of 1 fibres/ml, it was estimated that up to 173 cases of asbestos related lung cancer could be expected per 100,000 persons exposed[15]. In 2003 a new NES for chrysotile asbestos was declared, by lowering the exposure standard to 0.1 fibres/ml, the cumulative risk of lung cancer from exposure to asbestos is reduced to an estimated 17 cases per 100,000 persons exposed[16] as shown in Table 5.

By assuming that the exposure standard reduces the risk of lung cancer from exposure to asbestos to a maximum of 17 cases per 100,000 the span of the calculated cumulative risk is reduced from a range of 0 to 39 cases per 100,000 lifetimes to a range of 0 to 17 cases per 100,000 lifetimes. This effectively caps the risk estimates at a maximum of 17 cases per 100,000 persons exposed.

15 NOHSC (2001), NOHSC Regulatory Impact Statement of the Proposed Phase Out of Chrysotile Asbestos.

16 NOSHC (2005), NOHSC Regulation Impact Statement on the Proposed Codes of Practice and Guidance Note for Asbestos.

TABLE 5: LEVEL OF RISK ASSOCIATED WITH VARIOUS EXPOSURE SOURES[17]

Exposure levels in fibres/ml (yearly average)	**Risk of Lung Cancer** (per 100,000 persons exposed)
1	173
0.5	86
0.1	17

It should be noted that the estimates account for deaths due to lung cancer only. There is no data available to indicate the number of cases of asbestosis likely to develop at current exposure levels. Nor is there data available to indicate the number of cases of other malignancies[18].

While dose response data in respect of mesothelioma is limited, studies are emerging, some of which have suggested that there may be as many as two lung cancers for every case of malignant mesothelioma[19].

If the cumulative risk factors for lung cancer for the respective tasks are applied to the relevant groups of people that potentially can be exposed to asbestos fibres, the lower, middle and upper estimates for the total future number of cases of asbestos related lung cancer that could be expected to occur as a result of renovations, repairs and maintenance done are 0, 8 and 17 respectively. Using the conclusion that 2 cases of asbestos related lung cancer occur for every diagnosed case of mesothelioma, the lower, middle and upper estimates of the total future cases of mesothelioma for the year 2005 could be expected to be 0, 3 and 8 respectively. Table 6 provides a summary of the figures used to determine these estimates.

Given the poor prognosis for sufferers of asbestos related lung cancer and mesothelioma, the median number of total cases of asbestos related lung cancer and mesothelioma from Table 6, it is estimated that some 11 people could be expected to contract and ultimately die from asbestos related disease under current regulatory arrangements in year average terms.

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17 NOSHC (2005), NOHSC Regulation Impact Statement on the Proposed Codes of Practice and Guidance Note for Asbestos

18 NOHSC (2001), NOHSC Regulatory Impact Statement of the Proposed Phase Out of Chrysotile Asbestos.

19 Omenn, G.S., Merchant, J., Boatman, E., Derment, J., Kusehner, M., Nicholson, W. J., Peto, J. and Rosenstock, L (1996), contribution of environmental fibres to respiratory cancer, *Environmental Health Perspectives* 70:51-56

TABLE 6: SUMMARY OF FIGURES USED FOR ESTIMATING THE FUTURE NUMBER OF LUNG CANCER AND MESOTHELIOMA CASES THAT MAY OCCUR PER YEAR IN QUEENSLAND AS A RESULT OF WORKING WITH NON-FRIABLE ASBESTOS CONTAINING MATERIAL

Type of exposure	Number of persons exposed	Risk of developing lung cancer[1] (per 100,000 lifetimes)	Number of lung cancer cases[2]	Number of Mesothelioma cases[3]	Total future cases expected from exposure to asbestos[4]
Domestic dwelling construction industry	19,678	0 to 17 (median 8.5)	Lower – 0 Middle – 2 Upper – 3	Lower – 0 Middle – 1 Upper – 2	Lower – 0 Middle – 3 Upper – 5
Domestic dwelling renovators[5] (average of high and low estimate)	913,236	0 to 1 (median 0.5)	Lower – 0 Middle – 5 Upper – 9	Lower – 0 Middle – 2 Upper – 5	Lower – 0 Middle – 7 Upper – 14
By-standers[5]	2,986,553	0 to 0.1 (median 0.05)	Lower – 0 Middle – 1 Upper – 3	Lower – 0 Middle – 0 Upper – 1	Lower – 0 Middle – 1 Upper – 4
Total		N/A	Lower – 0 Middle – 8 Upper – 15	Lower – 0 Middle – 4 Upper – 8	Lower – 0 Middle – 11 Upper – 23

[1] The risk of developing lung cancer has been capped at 17 to account for the 2003 NES of 0.1 fibre/ml.

[2] The number of cases for lung cancer is calculated by dividing the 'number of persons exposed' by 100,000 (lifetimes) and multiplying the result by the risk of developing lung cancer. Figures are rounded to the nearest whole number

[3] The number of mesothelioma cases is calculated by halving the estimated number of lung cancer cases.

[4] Total cases are calculated by adding the lower, middle and upper estimates for lung cancer and mesothelioma respectively.

[5] The risk of developing lung cancer has been decreased proportionally with the duration of exposure to asbestos fibres.

Based on data in Table 6, under current regulations approximately 330 cases of mesothelioma and asbestos related lung cancer could be expected to occur as a result of exposure to asbestos though work on renovations, repairs and maintenance of domestic dwellings in Queensland over the next 30 years. This figure is based on the current rate of renovations, repairs and maintenance of domestic dwellings and the following assumptions:

- that the average number of persons per household remains constant (i.e. 2.8 persons per household);
- the proportion of domestic dwelling construction industry workers per household worked on remains constant; and
- the incidence of mesothelioma and lung cancer is constant.

Summary of costs of asbestos related disease

Using the data from the previous sections it is possible to determine a range of potential costs associated with the adverse health effects from work with non-friable ACM. These costs are based on the assumption that there is 100% industry compliance with the Asbestos Code of Practice 2004 and, therefore, the 2003 NES of 0.1 fibres/ml.

Based on the medical and compensation costs presented in Table 1 and the median number of expected cases of mesothelioma and asbestos related lung cancer presented in Table 6, around 330 cases of asbestos related lung cancer and mesothelioma could be expected under current regulatory arrangements over the next 30 years, at an approximate cost of $2.20 billion. The net present value (NPV) of the above cost[20] is about $1.03 billion (or about $3.43 million per year).

Distribution of Costs and Benefits

The WHSQ[21] report on the economic costs of work-related injuries and illness assessed the distribution of costs between three stakeholder groups:

- employers;
- employees; and
- government (or the rest of the community).

20 Future costs are discounted using a rate of 6% in line with Queensland Treasury guidelines.

21 See WHSQ report: *Costs of Workplace injury and illness in Queensland (2004)*.

In that analysis, it was estimated that employers bore about 5% of total costs, workers bore around 35% and government bore about 60%.

In the case of asbestos illnesses (and particularly lung cancer and mesothelioma), individual workers are likely to bear the majority of the costs. Given the requirements of the occupational health and safety regulation to ensure safe working conditions, this constitutes a form of cost-shifting from the "employer" to the "employee". Employees are also the stakeholder least able to bear the costs imposed, which magnifies their impact as compared to other stakeholders.

Once diagnosed with either lung cancer or mesothelioma, a sufferer has a life expectancy of 1-3 years. Data from workers compensation payments show that total workers' compensation payments for fatalities are lower than for workers with a permanent, but non-fatal, condition.

In addition, given the long lag period between exposure and illness, it is unlikely that the employer responsible for the exposure will face production disturbance costs or increases to their premiums as the employee will have long moved on to another employer[22].

ENDNOTES

1 Laid before the Legislative Assembly on . . .

2 The administering agency is the Department of Industrial Relations.

22 Shorter durations of employment with any one employer is a growing trend in Australia that is likely to continue.