

Hazardous Materials Management Plan

1 October 2021



When you
think with a
global mind
problems
get smaller

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Hazardous Materials Management Plan

Prepared for
Richard Crookes Constructions

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Table of Contents

1	Purpose of Document.....	1
1.1.	Document Retention	1
1.2.	Re-inspection and Review Requirements.....	1
2.	Introduction.....	2
2.1.	Objective	2
2.2.	Project Background.....	2
2.3.	Site Inspection.....	3
2.4.	Legislative Requirements.....	3
3.	Statement of Limitations	4
4.	Risk Assessment and Priority Ratings System	6
4.1.	Risk Assessment Factors for ACMs	6
4.2.	Asbestos Materials Risk Assessment	6
4.3.	Risk Assessment Factors for Suspected Asbestos Containing Materials	8
4.4.	Risk Assessment Factors for SMF.....	9
4.5.	Risk Assessment Factors for PCB.....	9
4.6.	Risk Assessment Factors for LBP	10
4.7.	Risk Assessment Factors for LCD	10
4.8.	Risk Assessment Factors for ODS	10
5.	Managing in-situ Asbestos	11
5.1.	Asbestos Identification	11
5.2.	Asbestos Monitoring.....	11
5.3.	Asbestos Material Labelling and Signage.....	11
6.	Record Keeping.....	12
7.	Asbestos Removal Control Plan.....	13
8.	Asbestos Permit to Work.....	13
9.	Tools and Equipment	14
10.	Approvals, Notifications and Licences.....	14
10.1.	Asbestos Related Licences.....	14
10.2.	Regulator Notification.....	14
10.3.	Community Consultation	15
11.	Removal of Asbestos Containing Materials	15
11.1.	Removal Requirements.....	15
11.2.	Summary of Responsibilities.....	15
11.3.	Control Measures	16
11.4.	Inductions	18

11.5. Toolbox Talks	18
11.6. Barricades and Signs	18
11.7. Occupational Exposure Monitoring	18
11.8. Air Monitoring Requirements for Asbestos Removal Work.....	18
11.9. Storage and Disposal of Asbestos	20
11.10. Asbestos Decontamination	20
11.11. Project Supervision	21
12. Removal of Hazardous Materials	22
12.1. Lead Based Paint and Lead Containing Dust	22
12.1.1. Removal Requirements.....	22
12.1.2. Lead Dust Air Monitoring.....	22
12.1.3. Removal Contractor Requirements.....	22
12.1.4. Lead Health Surveillance	23
12.1.5. Handling and Disposal	23
12.1.6. Inductions	23
12.1.7. Toolbox Talks	23
12.1.8. Project Supervision	23
12.2. Synthetic Mineral Fibres.....	24
12.3. Polychlorinated Biphenyls	24
12.4. Ozone Depleting Substances.....	24
13. Personal Protective Equipment (PPE)	24
14. Occupational Exposure Standards.....	25
14.1. Asbestos Air Monitoring	25
14.2. Lead Dust.....	26
15. Contingency Plan and Unexpected Finds	26
16. Emergency Procedures	26
17. Training and Awareness.....	28
18. Glossary	28
19. References	31

Appendices

Appendix A – RCC ACM Register

Appendix B - Legislative Requirements and Additional Information

Appendix C – RCC Asbestos Removal Permit

Appendix D - Asbestos Removal Control Plan Checklist

1 Purpose of Document

1.1. Document Retention

This Hazardous Materials Management Plan (HMMP) is to be held at the workplace and in the Premise's Property File. The asbestos and hazardous materials register and HMMP are to be available for use by the following:

- Authorised SafeWork NSW Inspectors;
- Property owners;
- Employers and workers;
- People intending to conduct business at the premises; and
- Health and Safety Representatives.

Any contractor or service person required to undertake works at the premises must examine the Register of Asbestos and Hazardous Materials and determine whether their work activity will involve handling, replacing or potentially disturbing the materials as noted in the register. If ACM is identified at the site then the HMMP must also be referred to.

Should a contractor or service person handle, replace or carry out works that may disturb an item in the Asbestos and Hazardous Materials Register, there must be compliance with all workplace regulations and procedures covering the handling of such materials.

If the person conducting a business or undertaking (PCBU) with management or control of a workplace relinquishes management or control of the workplace, the person must ensure that the Asbestos and Hazardous Materials Register Report is given to the person/s that will be assuming management or control of the workplace.

The recommendations, conclusions or stability of asbestos materials contained in this report shall not abrogate a person of their responsibility to work in accordance with Statutory Requirements, Codes of Practice, Guidelines, Material Safety Data Sheets, Work Instructions or reasonable work practices.

1.2. Re-inspection and Review Requirements

In accordance to Work Health and Safety Regulation 2017, if there is ACM or suspected ACM identified at the time of the survey, then a site-specific HMMP has to be compiled to outline the management practices for the ACM at the site. Re-inspections of the ACM should be as specified within the HMMP.

The Asbestos and Hazardous Materials Register must be maintained and updated if the following circumstances:

- If the HMMP is under review;
- If further ACM is identified at the premises;
- If ACM is removed or encapsulated; and or
- If the condition of the ACM changes i.e. by being damaged physically or by weathering.

2. Introduction

Coffey Services Australia Pty Ltd (Coffey) was engaged by Richard Crooks Constructions (RCC) to develop a hazardous materials management plan (HMMP) for the management of hazardous materials identified at the Sydney Modern Art Gallery Development site (the site). This HMMP will assist RCC with managing hazardous materials related health and environmental risks at this site.

For the purposes of this HMMP, Coffey included the following hazardous materials and will be referred to hereafter as 'hazardous materials':

- Asbestos-containing materials (ACMs);
- Synthetic mineral fibre (SMF) materials;
- Polychlorinated biphenyls (PCBs) containing capacitors in electrical fittings;
- Lead-based paint (LBP);
- Lead-containing dust (LCD); and
- Ozone depleting substance (ODS) within air-conditioning units and chillers.

This HMMP has been developed in accordance with current New South Wales state legislation, industry standards, codes of practice and guidance documents for the management of hazardous materials in workplaces.

2.1. Objective

The objective of this HMMP is to manage hazardous materials at the site and minimise the risk of exposure to hazardous materials for employees, contractors and subcontractors that work at the site. To accomplish this objective, the HMMP specifies work practices and procedures to:

- Maintain the hazardous materials in good condition;
- Ensure the implementation of control strategies;
- Monitor the condition of the hazardous materials;
- Minimise the possibility of accidental damage or exposure of personnel and others, to hazardous materials; and
- Ongoing management strategies for hazardous materials at the site.

The HMMP has been developed for the site and all site occupants. The HMMP is to be referred to and after a suitable training program, RCC expects all site personnel to understand their responsibilities with regards to the HMMP. This HMMP has been developed solely for the use of RCC at the site.

The HMMP must be made available to, and understood by, all persons involved in the management and operation of the site. Personnel at the site, nominated to have responsibilities under this HMMP, should be aware of the presence of hazardous materials at the site and the associated management requirements.

The HMMP should be referred to regularly and updated and maintained by the Management Plan Controller when any hazardous materials are disturbed, removed or repaired. The HMMP should be updated on a regular basis by a competent person or hygienist/asbestos assessor, as nominated by the Management Plan Controller.

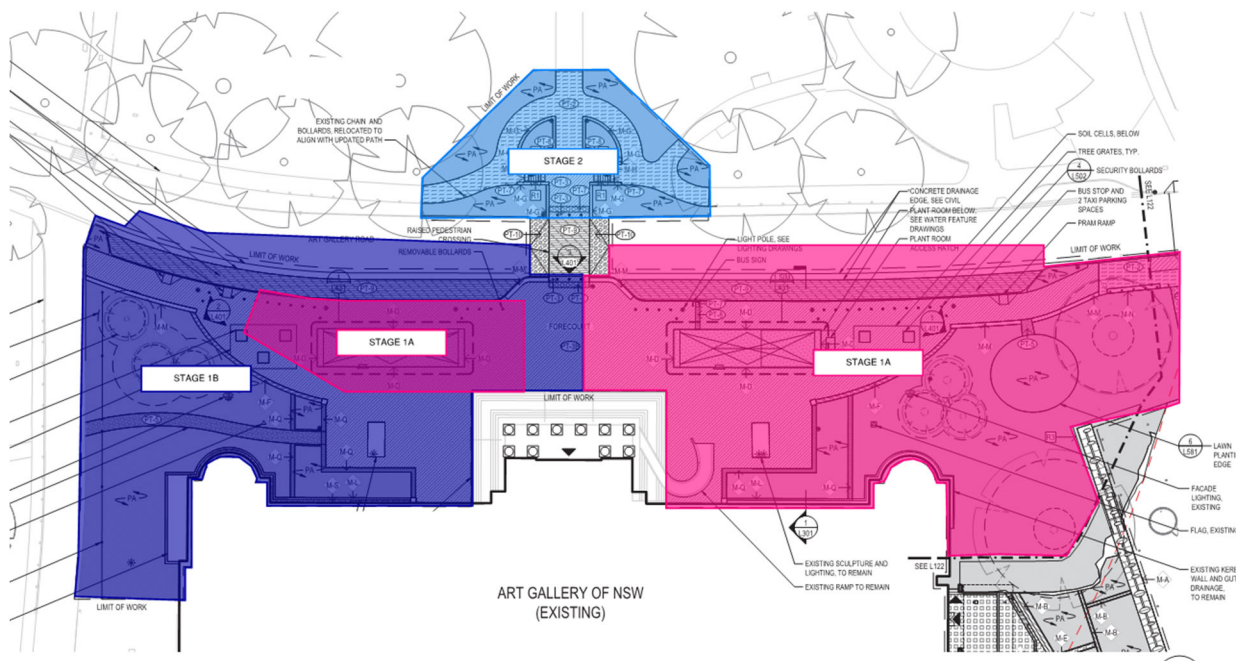
2.2. Project Background

The Sydney Modern Project (SMP) is a planned major expansion of the existing Art Gallery adjacent to the Phillip Precinct of the Domain. The expansion is a separate building located north of the Eastern Distributor Motorway (EDM) in an area largely occupied by a disused Navy fuel bunker that was

excavated into the hillside in the 1940's. The proposed gallery building will include several levels with different footprints that will involve further excavation west of the bunker adjacent to the EDM.

The site comprises the existing Gallery, the land bridge above the Cahill Expressway, and the land to the immediate north east of the Cahill Expressway. The majority of the land proposed to be developed lies on either the Cahill Expressway land bridge, or on Royal Botanic Gardens and Domain Trust land. The site's context and boundary is shown in Figure 1 below. The site is bounded by the Cahill Expressway (other than where the land bridge lies), Cowper Wharf Roadway and Lincoln Crescent (a local road). To the west, the site is bounded by the land bridge and Art Gallery Road.

Figure 1: Site Context and Boundary



2.3. Site Inspection

SafeWork recommends a pre-demolition survey must be carried out (fuel bunkers & substation) and a register produced in accordance with relevant state guidelines and code of practices. Access into the pump room/substation & fuel bunker should be restricted until the site is established. Where there are fuel bunkers/chemical installations, these must be removed by an appropriately licensed demolition contractor (unrestricted license or a restricted license with chemical installation restriction This management plan has been developed and will be updated after a pre-demolition survey has been completed.

2.4. Legislative Requirements

This HMMP has been designed to ensure compliance with the following legislative requirements:

- Work Health & Safety Act 2011;
- Work Health & Safety Regulation 2017;
- NSW Code of Practice *How to Manage and Control Asbestos in the Workplace* (2019);
- NSW Code of Practice *How to Safely Remove Asbestos* (2019);
- NSW Code of Practice Demolition Work (2019);

- NSW Code of Practice Construction Work (2019);
- Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd edition (NOHSC:3003(2005));
- AS 4964-2004 Method for the qualitative identification of asbestos in bulk samples;
- AS 2985-2009 Workplace atmospheres - Method for sampling and gravimetric determination of respirable dust;
- AS 3640-2009 Workplace atmospheres - Method for sampling and gravimetric determination of inhalable dust;
- Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC:2006(1990)];
- Polychlorinated Biphenyls Management Plan Revised Edition April 2003, published by the Australian and New Zealand Environment and Conservation Council (ANZECC);
- ANZECC Identification of PCB-containing Capacitor's information booklet – 1997;
- AS 4361.2 – 2017 Guide to Hazardous Paint Management – Part 2: Lead Paint in Residential, Public and Commercial Buildings;
- Code of Practice for the Control and Safe Use of Inorganic Lead at Work [NOHSC:2015(1994)];
- Protection of the Environment Operations Act, 1997;
- Protection of the Environment Operations (Waste) Regulation ,2014;
- Ozone Protection and Synthetic Greenhouse Gas Management Amendment Regulation, 2012;
- Australian Chlorofluorocarbon Management Strategy October 2001;
- Australia and New Zealand Refrigerant Handling Code of Practice, 2007 Part 1 – Self-Contained Low Charge System;
- Australia New Zealand Refrigerant Handling Code of Practice, 2007 Part 2 – Systems Other than Self-Contained Low Charge System;
- Code of Practice for the Control of Workplace Hazardous Substances, 2006;
- Australia/New Zealand Standard (A/NZ) 4360:2004 Risk Management;
- AS 1319-1994 Safety signs for the Occupational Environment;
- AS/NZS 60335.269 – 2003 Household and similar electrical appliances – safety – particular requirements for wet and dry vacuum cleaners, including power brush for industrial and commercial use;
- AS 4260 – 1997 High efficiency particulate air filters (HEPA) classification, construction and performance;
- AS/NZS 1716 – 2012 Respiratory Protective Devices; and
- AS/NZS 1715 – 2009 Selection, use and maintenance of respiratory equipment.
- Managing asbestos in or on soil, SafeWork NSW 2014.

3. Statement of Limitations

Coffey has conducted work concerning the environmental status of the property which is the subject of this report and has prepared this report on the basis of that assessment.

Investigations have been based on inspections conducted in accordance with relevant guidelines and standards, and normal industry practice, and interpretations of conditions are based on the data from those inspections and, where relevant and conducted, testing. To the best of our knowledge, they represent a reasonable interpretation of the condition of the site as able to be inspected. However, there

can be no guarantee that conditions at specific points not able to be inspected do not vary from the interpreted conditions based on the available observations/data.

It is also noted that sub-surface conditions can change with time, and the report is based on data that was gathered at the time of the report. Coffey will update the report upon inspection of the previously inaccessible areas.

This inspection and report may not include the following areas:

- Beneath building;
- Roof of building; and
- Removal of fittings e.g. kitchen or bathroom cupboards

Internal building materials should be assumed to contain asbestos until otherwise assessed by a competent person and proved to be otherwise.

Subsurface drains and pipes may be constructed of asbestos cement, but this could not be assessed. Any subsurface pipes, particularly those constructed of fibrous-cement or concrete, should be assumed to contain asbestos until otherwise assessed.

This report has been provided by Coffey for the sole use of the client and only for the purpose for which it was prepared. Any representation contained in the report is made only for the client.

Assessments that are effectively Compliance Surveys are non-destructive and as such are not intended for use or referral for the purpose of demolition, refurbishment, renovations or structural alterations. In the event of future demolition, refurbishment, renovation, decommissioning or structural alterations further investigation, which may entail intrusive testing, shall be required.

No inspection can be guaranteed to locate all asbestos in a specific location. The assessment cannot be regarded as absolute, without extensive invasion of structures. Future demolition and or renovation to site structures may expose situations, which were concealed or otherwise impractical to access during this assessment.

All quantities referenced in this report are estimates and should not be relied upon for the purpose of calling tenders and the like.

Coffey assessors take samples at any situations known, or suspected, to contain Asbestos. Where the analysis determines that No Asbestos is Detected (NAD) the samples are listed in the report to provide information for future assessments.

Where no samples are taken, the situation is considered "asbestos free". This assessment is based on the knowledge and experience of Coffey Assessors, or on research conducted by Coffey.

Representative sampling is defined as one like sample per consistent material type, situation or item. In these instances, only one test sample will be collected for analytical confirmation and the results expressed as consistent and typical of the building.

Due to the very low concentration of asbestos fibres and the non-homogenous matrix of vinyl floor tiles, false negative results may be obtained. Therefore, the accuracy of all results cannot be guaranteed.

Notably, with some asbestos containing bulk material it can be very difficult, or impossible to detect the presence of asbestos using the polarised light microscopy analytical method, even after ashing or disintegration of samples. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or attributed to the fact that, very fine fibres have been distributed individually throughout the materials.

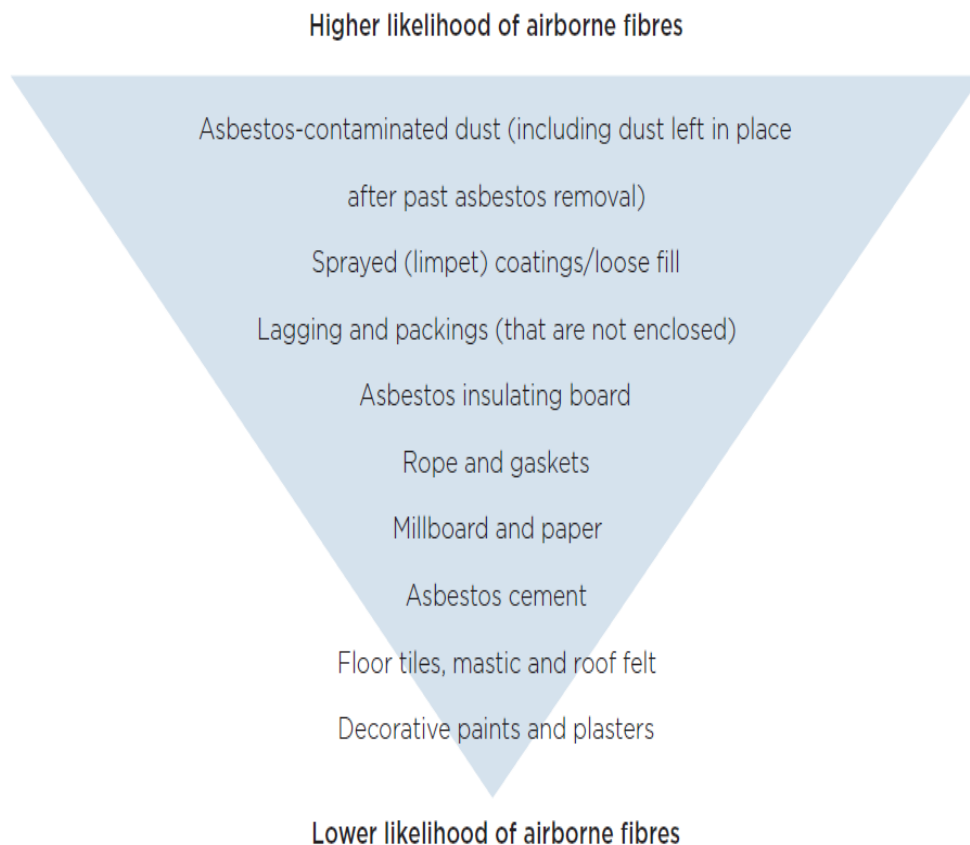
The analysis of many asbestos products used as a component of insulation materials, may be compromised in instances where the material has been heat affected, as heat may alter the morphology of the fibrous material.

The Client must not rely on an inspection or report as indicating that a site or a building is “asbestos free”. All that the report can be relied upon to show is that no asbestos was found (or that only such asbestos was found as was reported to be found) in the course of the inspection. The findings of the report must be considered together with the specific scope and limitations of the type of inspection undertaken.

4. Risk Assessment and Priority Ratings System

4.1. Risk Assessment Factors for ACMs

From the findings of the asbestos materials survey, an individual risk assessment is conducted on each ACM. The following figure outlines the general likelihood of fibre release potential (Source: NSW Code of Practice *How to Manage and Control Asbestos in the Workplace* (2019)).



4.2. Asbestos Materials Risk Assessment

Coffey adopts the following risk assessment algorithm in order to assess the risks associated with individual asbestos containing materials identified.

Friable

Variable	Score	Description
Friability	Y	Asbestos cement debris, or material which when dry may become crumbled, pulverised or reduced to powder by hand pressure.
	N	Bonded i.e. non-friable material

Materials Assessment

Variables	Scores	Examples of Score Descriptions
Asbestos Type	0	No asbestos
	1	Chrysotile only
	2	Amphibole asbestos (excluding crocidolite)
	3	Crocidolite
Product Type	0	No asbestos detected
	1	Bonded asbestos in good condition
	2	Friable asbestos in good condition or cement in poor condition
	3	Friable asbestos in poor condition
Extent of Damage	0	No visible damage
	1	Minor scratches or mark, broken edges
	2	Significant breakage, many small areas of damage to friable material
	3	High damage, visible debris
Surface Treatment	0	Bonded Asbestos including encapsulated asbestos cement
	1	Enclosed laggings, sprays and boards or bare cement
	2	Bare board or encapsulated lagging/spray or cement debris
	3	Unsealed lagging/spray

Location Assessment

Variables	Scores	Examples of Score Descriptions
Occupant Activity	0	Rare disturbance, e.g. little used store room
	1	Low disturbance, e.g. Office type activity
	2	Periodic disturbance, e.g. industrial or vehicular activity which may contact ACMs
	3	High levels of disturbance e.g. fire door with AIB sheet in constant use
Likelihood of Disturbance	0	Usually inaccessible or unlikely to be disturbed
	1	Minimal likelihood for disturbance
	2	Likely disturbance
	3	Frequent disturbance

Human Exposure	0	Infrequent
	1	Monthly
	2	Weekly
	3	Daily
Maintenance Activity	0	Minor disturbance (e.g. possibility of contact when gaining access)
	1	Low Disturbance (e.g. changing light bulbs in AIB ceiling).
	2	Medium disturbance (e.g. lifting one or two ceiling tiles to access a valve)
	3	High level of disturbance (e.g. moving a number of AIB ceiling tiles to replace a valve or for re-cabling)

Risk Score

The asbestos containing material risk score is a quantitative assessment determined by the sum of the scores based on the Materials and Location Assessments; i.e. Risk score = Material Score + Location Score (out of as possible 24).

Should no asbestos be detected then the register will indicate a risk score of 0.

Variable	Scores	Examples of Score Descriptions
Risk Score	0 - 6	Very Low Risk - Action Score A4
	7 - 12	Low Risk – Action Score A3
	13 - 18	Medium Risk – Action Score A2
	19 - 24	High Risk – Action Score A1

4.3. Risk Assessment Factors for Suspected Asbestos Containing Materials

Should materials of unknown composition, or materials suspected of containing asbestos be encountered on site and are not documented in the existing asbestos register, asbestos management plan and unexpected finds procedure, such materials should be treated as if they are ACM until sampled and NATA accredited laboratory analysis confirms otherwise. In the event that additional ACM are identified, a risk assessment shall then be conducted by an appropriately qualified and competent person. For example, in the event that demolition or refurbishment works are to be carried out in areas previously not inspected for the presence of ACM - such as inaccessible wall cavities or beneath floors, an inspection and risk assessment should be performed by a competent person prior to the commencement of the planned demolition/ refurbishment works.

The risk assessment of the ACM is to be reviewed when:

- The HMMP is reviewed;
- Further asbestos or ACM is identified at the Workplace;
- There is evidence that control methods are not effective;
- A significant change is proposed for the workplace or for work practices or procedures relevant to the risk assessment such as major refurbishment or demolition;
- There is a change in the condition of the ACM;

- The asbestos material has been removed from or disturbed, enclosed or sealed.

The frequency of the inspections will also take into consideration whether the ACM:

- Has a high propensity to release airborne asbestos fibres;
- Is in poor condition;
- Is likely to be damaged or further deteriorate;
- Likely to be disturbed due to work practices in the Workplace; and
- Is in an area where workers are exposed to the material.

In any case a risk assessment review for asbestos is to be conducted at least once every five years to ensure it is kept up to date. This is to be organised by PCBU with management or control of a workplace and must be performed by a Competent Person.

4.4. Risk Assessment Factors for SMF

SMF building materials are defined as either being un-bonded or bonded. Un-bonded SMF materials are defined as those manufactured without the use of any binding agents, facing/cladding or other sealants or the binder as deteriorated. There are two main applications of manufactured un-bonded materials, wet spray and loose fill. Un-bonded SMF also refers to severely deteriorated thermal insulation, batts and debris, and any other instance of SMF where fibres can be released with only minimal disturbance. Bonded SMF materials are defined as those manufactured using binding or sealing agents to hold the fibre in a batt or blanket form.

The selection of the most appropriate control measure for SMF material should be determined through a risk assessment process that includes a detailed knowledge of the workplace and activities likely to be conducted in the area containing the SMF material. The following principles may be applied:

- If the SMF material is un-bonded or deteriorated, in a poor/unstable condition and accessible with risk to health from exposure, then immediate access restrictions should be applied and removal is required as soon as practicable.
- If the SMF material is un-bonded or deteriorated, in a poor/unstable condition but in inaccessible areas (i.e. ceiling space), then removal is preferred. Nevertheless, if removal is not immediately practicable, short-term control measures (i.e. restrict access, or provide personal protective equipment to personnel required to access the area) may be employed until removal can occur.
- If the SMF material is bonded and in a poor/unstable condition; then minimising disturbance, removal or encapsulation may be appropriate controls.
- For bonded SMF material in a good and stable condition, ongoing maintenance and periodic inspection of the material to ensure it is not deteriorating would be appropriate controls.
- Prior to any demolition, partial demolition, renovation or refurbishment works, SMF materials likely to be disturbed by these works should be removed in accordance with the *Code of Practice for the Safe Use of Synthetic Mineral Fibres* [NOHSC:2006 (1990)].

Airborne SMF monitoring of the area containing the material can provide the basis of a risk assessment to address the most appropriate control measures and the urgency required for the implementation of the measures.

4.5. Risk Assessment Factors for PCB

For the purpose of this HMMP only capacitors within electrical equipment, such as fluorescent light fittings and ceiling fans were included.

To assess the health and environmental risk posed by the presence of PCB-containing capacitors within electrical equipment and transformers, the relevant factors must be considered. These factors include:

- **Demolition/refurbishment works** that are likely to disturb the PCBs;
- The **condition** of the capacitor is determined by a visual inspection of the fitting, and internal capacitor where safe access is available. This will determine the level of priority and control measures required during removal of the fittings from service;
- The **accessibility** to PCB-containing capacitors is determined by the priority of the area in which the materials are located;
- The **likelihood** of human and/or environmental exposure to PCBs during occupational activities; and
- Quantity of PCB-containing capacitors at the site. The quantity is based on the aggregate weight of all PCBs on the premises.

4.6. Risk Assessment Factors for LBP

In accordance with Clause 392 of the *NSW Work Health and Safety Regulation, 2017* a lead process is commenced, when using a power tool, including abrasive blasting and high-pressure water jets to remove a surface coated with paint containing more than 1%, by dry weight, of lead and handling waste containing lead resulting from the removal.

The selection of the most appropriate control measure for lead exposure should be determined through a risk assessment process that includes a detailed knowledge of workplace activities likely to impact on lead-containing paints. Risk of lead exposure through lead-containing paint is based on the following factors:

- **Demolition/refurbishment works** that are likely to disturb the LBPs;
- The **condition** of the lead-containing paint. Paint that is flaking or in a poor condition is more likely to be ingested than paint that is in a good and stable condition; and
- The **likelihood** of inhalation or ingestion by people working in the vicinity of the paint.

4.7. Risk Assessment Factors for LCD

Confirmed lead containing dust within the ceiling spaces and throughout the refinery should be removed prior to demolition works in accordance with Australian Standard (AS4361.2); 2017, Guide to Hazardous Paint Management Part 2: Residential, public and commercial buildings.

Any work processes involving lead containing dust must be undertaken in a manner to ensure that no worker is exposed to lead at concentrations above occupational exposure standard (OES) of 0.05 mg/m³ over an eight-hour day for Lead, inorganic dusts and fumes (as Pb).

Lead-containing dust removal works should include the use of High Efficiency Particulate Air (HEPA) filtered vacuum cleaners and wet wiping techniques by a licensed contractor under controlled lead-containing dust conditions, along with appropriate PPE and personal decontamination procedures in place.

4.8. Risk Assessment Factors for ODS

For the purpose of this HMMP only ODS within in air conditioning units and chillers were included.

The inspection visually identified stored refrigerants in accessible areas. The status of suspected ODSs were compared to the United Nations Environment Programme's Division of Technology, Industry and Economics (UNEP DTIE) *Inventory of Trade Names of Chemical Products Containing Ozone Depleting Substances and their Alternatives* and the Australian Institute of Refrigeration Air Conditioning and Heating Inc (AIRAH) *Air Conditioning and Refrigeration Industry Refrigeration Selection Guide* 2003. The risk assessment factors utilised in this report relate to the potential of exposure of personnel (excluding programmed hazardous material removal works). This assessment is based on the following factors and properties of the ODS, particularly:

- Risk potential;
- Condition;
- Location and accessibility; and
- Potential of disturbance and ongoing deterioration.

5. Managing in-situ Asbestos

The management of in-situ asbestos is important to ensure ACMs are not damaged or deteriorate to such an extent that employees, patients, external contractors, or visitors are unnecessarily exposed to airborne asbestos fibres.

5.1. Asbestos Identification

Products suspected of containing asbestos and requiring identification are to be referred to the Site Manager who will arrange for sample analysis to be undertaken.

**WHEN IN DOUBT TREAT THE PRODUCT AS ASBESTOS CONTAINING MATERIAL
UNTIL IDENTIFIED AS OTHERWISE.**

The results of all samples analysed for asbestos identification will be recorded on the Asbestos Materials Register.

5.2. Asbestos Monitoring

Monitoring is to occur before, during and after planned asbestos removal work in accordance with the asbestos removal control plan.

5.3. Asbestos Material Labelling and Signage

A labelling system (stickers) is established and must be maintained on site to enable the visual and legible identification of ALL asbestos materials recorded on the Asbestos Materials Register. The labels are fixed to the area and are to be maintained in-situ at all times.

The labels used must comply with AS 1319 Safety Signs for the Occupational Environment, and a competent person is to determine their required location. The labels are to be affixed in a secure manner and checked annually to ensure they are not damaged, missing, obscured or faded.

If a risk assessment suggests an ACM might be disturbed or persons might be exposed and it is not practical to label the ACM (e.g. ceiling panels, furnaces or a friable ACM such as lagging) a prominent warning sign, specifying the ACM, is to be posted in the immediate vicinity. If floor tiles have been identified as containing asbestos, an appropriate warning sign, displayed on an adjacent wall might read, "WARNING FLOOR TILES CONTAIN ASBESTOS. DO NOT DISTURB WITHOUT PROPER TRAINING AND EQUIPMENT." Warning signs should be placed at the main entrance to the work areas

where asbestos is present. This will ensure that asbestos is not unknowingly disturbed without the correct precautions being taken.



6. Record Keeping

A complete record of all activities and work permits relating to asbestos and hazardous materials works, which have been undertaken at the site is to be maintained. The records that are to be kept include:

- Copies of all asbestos and hazardous materials survey reports, including updates and amendments
- Copies of all permit to work documents
- Site induction records pertaining to the information disseminated to contractors
- Prior to conducting work onsite
- Induction records pertaining to the information disseminated to employees regarding the presence of asbestos onsite
- Asbestos Removal Control Plans for asbestos removal works
- Records of any removal or other asbestos related works onsite
- Clearance certificates indicating areas are safe to reoccupy after asbestos removal works

- Asbestos fibre air monitoring results
- All versions of the asbestos register
- Records dealing with Regulated and Trackable Waste and landfill disposal documentation.

Re-inspections of all ACM remaining on site are to be conducted by a suitably qualified person only. The re-inspection process will involve a visual assessment of the materials to determine if there has been any deterioration since the last inspection and, if so, what course of action should be taken i.e. temporary encapsulation, isolation or immediate removal.

Once the re-inspection has been completed, the Asbestos and Hazardous Materials Register is to be updated accordingly.

7. Asbestos Removal Control Plan

As outlined in the NSW Code of Practice *How to Safely Remove Asbestos* (2019), an Asbestos Removal Control Plan (ARCP) is required to be prepared prior to undertaking asbestos removal work. When preparing the asbestos removal control plan, the licensed asbestos removalist should consult with the person who commissioned the work, the person with management or control of the workplace (if not the same person), workers and their health and safety representatives.

Once the asbestos removal control plan is prepared, a copy must be:

- given to the person who commissioned the licensed asbestos removal work
- readily accessible on-site for the duration of the licensed asbestos removal work to: a person conducting a business or undertaking at the workplace
- workers and their health and safety representatives

The asbestos removal control plan must also be made available for inspection under the WHS Act.

Refer to Appendix D for Asbestos Removal Control Plan Checklist.

8. Asbestos Permit to Work

If it is determined, after consultation with the asbestos register, that ACM is present in the vicinity of the planned works, an Asbestos Permit to Work (PTW) will be required.

The Asbestos PTW is designed to ensure appropriate work practices are employed in the vicinity of ACM. The Asbestos PTW will document what ACM is to be removed, encapsulated or otherwise protected prior to the contracted maintenance or building works proceeding. The Asbestos PTW will also indicate other requirements such as the need for personal protective equipment (PPE), barricading and airborne fibre monitoring.

An Asbestos PTW will only be issued to competent, licensed (class A or B) asbestos removalists. When the work is completed, the permit will be signed and returned to the permit officer who will cancel it after ensuring that a clearance certificate is provided. The Building Manager will retain copies of all Asbestos PTW removal plans, JSEAs and work method statements with the site asbestos register.

Refer to Appendix C for the Asbestos Permit to Work Form.

9. Tools and Equipment

Tools and equipment to be used for asbestos removal work are required to generate a minimum amount of airborne fibres during use. High-speed abrasive power or pneumatic tools such as angle grinders, sanders, saws, and high-speed drills **MUST NEVER** be used. Hand tools only are permitted.

At the end of the removal work all tools are to be either:

- Decontaminated (i.e. fully dismantled and cleaned under controlled conditions);
- Placed in a sealed container and used only for asbestos removal work; and
- Disposed of as asbestos waste

Prohibited Practices

The following work practices are prohibited and RCC must ensure that no one must use or direct or allow a worker to use any of the following equipment on asbestos or ACM unless the use of the equipment is controlled:

- Power tools;
- Brooms; and
- Any other implements that cause the release of airborne asbestos into the atmosphere.

10. Approvals, Notifications and Licences

Prior to asbestos removal commencing, all relevant licences and approvals shall be obtained from the relevant authorities.

10.1. Asbestos Related Licences

Based on the classification of the asbestos containing material (i.e. friable/bonded), A SafeWork NSW Class A Licensed Asbestos Removal Contractor (LARC) will be required to conduct the asbestos removal works. The Class A LARC supervisor will be required to be present at the site during asbestos related works.

As friable asbestos has previously been identified on-site, a NSW Licenced Asbestos Assessor (LAA) will be required on-site during asbestos removal for supervision, air monitoring and to perform visual clearances and air clearances.

10.2. Regulator Notification

The Class A LARC will be required to notify SafeWork NSW prior to commencement of asbestos related works (5 days notification required). An Asbestos Removal Control Plan (ARCP) will be required to be prepared by the LARC and submitted with the notification. The ARCP must be aligned with this HMMP and include:

- Details of the asbestos which will and may be encountered, including the location, type and condition of the asbestos.
- Details of how the removal works will be carried out and how asbestos containing materials will be handled, including the method to be used and the tools, equipment and personal protective equipment to be used.

10.3. Community Consultation

As per the NSW WHS Regulations 2017, RCC must ensure that the following persons are informed that asbestos removal work is to be carried out at the workplace and when the work is to commence, before the work commences:

- RCC staff and contractors onsite;
- anyone conducting a business or undertaking at, or in the immediate vicinity of, the workplace; and
- anyone occupying premises in the immediate vicinity of the workplace

11. Removal of Asbestos Containing Materials

11.1. Removal Requirements

For all licensed asbestos removal works a detailed site-specific Asbestos Removal Control Plan (ARCP) is to be developed by the asbestos removalist prior to commencing the ACM removal work and a copy must be given to the person who commissioned the work and be readily accessible on-site to PCBU, workers, their health and safety representatives and any occupants. The removal work shall be performed in accordance with the NSW Code of Practice *How to Safely Remove Asbestos* (2019). Where applicable, the regulator will be notified in writing five days prior to the commencement of the works.

11.2. Summary of Responsibilities

Each individual involved in removal works will be responsible for complying with all relevant Work Health and Safety legislation, regulations and guidelines including, but not limited to those outlined in the table below.

Coffey understands that a contractor will be engaged by Richard Crookes Constructions to carry out the removal works, and the following additional parties may also be required to complete the works:

- A Class A Licensed Asbestos Removal Contractor (LARC), as discussed in Section 12.
- A Licensed Asbestos Assessor, as discussed in Section 12.
- Other subcontractors and labourers as required.

Position/ Organisation	Reports to	Summary of Responsibilities for Asbestos Removal
Principal Contractor / Appointed Removal Works Contractor	Richard Crookes Constructions	Ensure works are completed in accordance with this HMMP. Ensure contractors engaged in removal works are inducted to this HMMP prior to the commencement of works. Ensure that removal works are carried out or overseen by a SafeWork NSW Class A LARC. Ensure that asbestos fibre air monitoring, and clearance inspections, including visual and air clearances, and certificates, are carried out by a Licensed Asbestos Assessor.

		Review and update records as required and implement corrective actions where necessary. Control access to asbestos work areas. Ensure workers involved in asbestos removal work have undertaken the relevant VET course and those workers carrying out asbestos-related work have minimum asbestos awareness training.
Class A Licensed Asbestos Removal Contractor (LARC)	Principal Contractor	Hold a SafeWork NSW issued Class A Asbestos licence for asbestos removal. Develop an Asbestos Removal Control Plan (ARCP) for the removal, handling and disposal of asbestos impacted materials and give written notice to SafeWork NSW at least 5 days before licensed asbestos removal work commences. The asbestos removal supervisor must be onsite whenever the work is being carried out. Provide appropriate training to workers carrying out licensed asbestos removal work to ensure that the work is carried out in accordance with the ARCP and this HMMP. Ensure that workers engaged by the person, whom the person reasonably believes may be involved in asbestos removal work or in the carrying out of asbestos-related work, are trained in the identification and safe handling of, and suitable control measures for, asbestos and ACM. Keep a record of the training undertaken by a worker carrying out licensed asbestos related work and ensure that the training record is readily accessible at the site and available for inspection. Ensure workers have fit testing of RPE and undertaken health monitoring.
Asbestos Removal Worker	Class A LARC and Principal Contractor	Workers removing friable asbestos must have friable asbestos removal training. The LARC's 'supervisor' must be present at all times on site Limit access to asbestos work area. Dispose of asbestos waste and contaminated personal protective equipment appropriately. Carry out works in accordance with the ARCP and this HMMP.
Licensed Asbestos Assessor	Principle Contractor or Class A LARC	Conduct asbestos fibre air monitoring. Carry out visual clearance inspections and air clearances for friable removal Wear appropriate PPE and have fit testing of RPE and undertaken health monitoring.

11.3. Control Measures

The selection of the most appropriate control measure is determined from risk assessments and detailed knowledge of the workplace and activities. The following general principles may be therefore applied:

If the ACM is friable, in a poor/unstable condition and accessible with risk to health from exposure, immediate access restrictions should be applied and removal is required as soon as practicable using a licensed removalist;

If the ACM are friable but are in a stable condition (e.g. rope seals) and are accessible, serious consideration should be given to their removal. If removal is not immediately practicable, short-term control measures, such as sealing, enclosure or similar and labelling may be able to be used until removal is possible;

If the ACM are not friable and are in a good, stable condition (e.g. cement panel) minimising disturbance, ongoing maintenance and periodic inspection would be appropriate controls. All damaged edges should be appropriately sealed and the installation labelled;

All known or suspected ACM remaining on site should be appropriately labelled, where possible, and regularly inspected to ensure they are not deteriorating resulting in a potential risk to health;

Prior to any demolition, partial demolition, renovation or refurbishment, asbestos containing materials likely to be disturbed by those works must be removed as far as is reasonably practicable in accordance with Clause 452 of the WHS Regulations 2017 and the NSW Code of Practice *How to Safely Remove Asbestos* (Safe Work NSW 2019).

If any unknown ACM's are discovered during any works on the property or there is a change in the condition of the known ACM situations all work should be stopped immediately, and the building/project manager notified. A Licensed Asbestos Assessor or Competent Person should be engaged to assess the potential risk from the materials, undertake asbestos air monitoring to determine the potential for further contamination from the materials and advise of the appropriate control measures.

It is the responsibility of the contractor undertaking any works on ACM to ensure:

- Workers who may be exposed to ACM are sufficiently protected to avoid personal injury or harm and to prevent asbestos fibre becoming airborne which may potentially contaminate other areas or affect others;
- Ensure there is project supervision by responsible persons to ensure employee exposure assessments, air monitoring, hygiene facilities, work barriers etc. are in place;
- Undertake project specific risk assessment of potential employee exposure to asbestos fibres and work methods to reduce the potential exposure to asbestos;
- Workers have undertaken health monitoring;
- Workers removing friable asbestos materials should be clean shaven wearing a full face P3 respirator and have fit testing of RPE;
- Workers removing asbestos-contaminated soil that has been assessed as friable in accordance with the *Managing asbestos in or on soil* guidance published by SafeWork NSW should be clean shaven wearing a P3 respirator and have fit testing for RPE. It is recommended that exposure monitoring is carried out so that the RPE requirements (use of P3 respirators) can be reviewed/downgraded based on the air monitoring results;
- Safe Work Method Statements are prepared in consultation with workers;
- Obtain appropriate license to undertake the removal/ remedial works;
- Maintain documentation including building permits, safety plans, work processes and environmental controls;
- Utilise appropriately trained employees;
- Undertake all work activities to protect the health of employees, tenants and members of the general public;
- Inform the PCBU, workers, the person who commissioned the work, and any occupants in the vicinity of the workplace of any potential hazards associated with the work activities;

- Written evidence of employee training and information;
- Provision of adequate ventilation (where applicable); and
- Transport and handle all ACM as contaminated waste and dispose at a licensed contaminated waste disposal facility.

11.4. Inductions

Relevant personnel involved in asbestos related works shall be inducted into this HMMP. Details of contractors or other personnel who have attended the induction are to be kept on the site in Appendix F of this HMMP.

11.5. Toolbox Talks

Prior to commencing excavation and handling of asbestos containing materials or following change in site conditions, all relevant site personnel should participate in a toolbox talk. The toolbox talk must incorporate details and instructions on how to manage asbestos containing materials in accordance with this HMMP. The toolbox talk can be combined with the Induction if practicable.

11.6. Barricades and Signs

Signs and barricades must be placed to clearly demarcate where removal and handling of asbestos containing materials is being performed and restrict access to personnel not involved in the works.

Barricades may comprise temporary fencing with wind rated mesh/geofabric. It is recommended that the general public cannot see in to the work site due of the perceived risk of exposure, which could be exacerbated when observing workers wearing asbestos related PPE/RPE.

Signs should be in accordance with AS 1319-1994 Safety signs for the occupational environment for size, illumination, location and maintenance. The following graphic is an example of a warning sign provided in SafeWork NSW *How to Manage and Control Asbestos in the Workplace* Code of Practice 2019.

11.7. Occupational Exposure Monitoring

Environmental air monitoring for airborne contaminants, such as lead, dust and crystalline silica, must be carried out by the PCBU if it is not certain whether or not the concentration of an airborne contaminant exceeds the relevant exposure standard or to determine whether there is a risk to health. Air monitoring should be carried out during removal works of hazardous materials and during demolition of structures and during any civil works where dust is being generated.

Environmental air monitoring should be carried out over a representative time period (full duration of work shift) in order to represent workers exposure to an average airborne concentration of a particular substance when calculated over a normal eight-hour working day. Results from air monitoring are then used in comparison to the Exposure Standard's listed in the *Workplace Exposure Standards for Airborne Contaminants*. If a workplace Exposure Standard for a substance has been exceeded, the PCBU must review any control measures implemented.

11.8. Air Monitoring Requirements for Asbestos Removal Work

Asbestos air monitoring is *mandatory for all friable removals* and must be undertaken in accordance with the membrane filter method and analysed by a NATA accredited company for airborne asbestos monitoring. The individual conducting the air monitoring must be an independent licensed asbestos

assessor. Air monitoring is also to be considered when more than 10 m² of bonded ACM is removed to ensure control methods are adequate and also where the removal is being undertaken in or next to a public location.

The aim of the air monitoring is to assess the area with respect to airborne asbestos fibres. Selection of location and number of air monitoring locations will be based on the following:

- The size of the enclosure/removal work area;
- The location of any decontamination unit in relation to the enclosure; and
- The nature of the material being removed.

As a **guide** the following table provides representative air sampling densities.

Area	Non-friable (Bonded) Removal	Friable (Non-bonded) Removal
<50m ²	Minimum of 3 locations	Minimum of 3 samples
51 – 200m ²	3 – 5 locations	3 – 5 locations
201 – 1,000m ²	5 – 10 locations	5 – 15 locations
>1,000m ²	>10 locations	>15 locations

Determination of a suitable monitoring density will ultimately be determined by the Licensed Asbestos Assessor, in consultation with the Project Manager.

The following table (extracted from the NSW Code of Practice *How to Safely Remove Asbestos* (2019) Section 3.11) outlines the action limits for air monitoring results.

Table 1. Action Levels for Asbestos Air Monitoring Results.

Action Level	Control	Action
Less than 0.01 fibres/ml	No new control measures are necessary	Continue with control measures
At 0.01 fibres/ml or more than 0.01 fibres/ml but less than or equal to 0.02 fibres/ml	1. Review	Review control measures
	2. Investigate	Investigate the cause
	3. Implement	Implement controls to eliminate or minimize exposure and prevent further release
	1. Stop removal work	Stop removal work

More than 0.02` fibres/ml	2. Notify regulator	Notify the relevant regulator by phone followed by fax or written statement that work has ceased and the results of the air monitoring
	3. Investigate the cause	Conduct a thorough visual inspection of the enclosure (if used) and associated equipment in consultation with all workers involved with the removal work.

11.9. Storage and Disposal of Asbestos

All asbestos waste shall be double bagged, using 200 µm (0.2 mm) thick polyethylene bags. Asbestos waste shall be bagged once at the workplace and a second time away from the workplace but prior to leaving the removal area enclosure. It is recommended that a maximum bag size of 1200 mm (length) x 900 mm (width) be used. Bags should be filled to no more than 50 per cent capacity, and contents should be wet before sealing. Consistent with good manual handling practice, bags should not exceed 16 kg in weight. The bags must be decontaminated before they are placed in waste bins. Each bag shall be labelled in accordance with Globally Harmonised System of Classification and Labelling of Chemicals (GHS) requirements on its outermost surface, with the following warning statement:

DANGER

ASBESTOS WASTE

DO NOT INHALE DUST

MAY CAUSE LUNG CANCER

Alternatively, other approved containers may be used. If waste bags are not suitable then the ACM is to be sealed in double lined heavy duty plastic sheeting before they are placed into the skip or for non-friable ACM they may be placed directly into the waste bin that has been double lined with heavy duty plastic sheeting (200 µm minimum thickness) but it must be kept damp to minimise the release of airborne asbestos fibres. To comply with GHS requirements the top and side of each bin or container should be labelled with the words 'Danger: Asbestos do not break seal'.

11.10. Asbestos Decontamination

Decontamination facilities will be required for machinery, equipment, and workers carrying out asbestos related work. Based on the asbestos related works to be undertaken and in consideration of site conditions, decontamination procedures shall include, but not be limited to:

- Establishment of a '**personal decontamination area**' and '**personal clean area**' adjacent to the asbestos work area.
- Use of the below decontamination units but not limited to:
 - Negative air pressure units; and
 - 3 stage decontamination units with shower facilities and adequate supply of hot and cold water.
- When entering the site:
 - Workers must enter the 'Personal Clean Area' and change into clean asbestos specific protective clothing.
 - Any removed personal clothing must be stored in a dust-proof container.

- Move into the site.
- When leaving the site:
 - Workers must enter the 'Personal Decontamination Area' and:
 - Remove any visible asbestos dust/residue from protective clothing by wiping down with damp cloths/wet wipes.
 - Place cloths/wet wipes into heavy duty polythene asbestos waste bags (1200mm long, 900mm wide, and 200 µm thick).
 - Carefully remove disposable protective clothing and place into asbestos waste bags (RPE must still be worn).
 - Use a footbath and/or damp cloths/wet wipes to wipe down footwear and place cloths/wet wipes into asbestos waste bags.
 - Place disposable mask into asbestos waste bags or wet wipe half face respirator.
 - Seal all asbestos waste bags with duct tape and place each into a second plastic bag.
 - Seal this second plastic bag and label/mark as 'Asbestos Waste' for subsequent off-site disposal. The bags must be twisted tightly and have the neck folded over and secured with adhesive tape (referred to as goose-necking).
 - Move into the 'Personal Clean Area' and put on personal clothes.
 - To reduce the risk of an asbestos waste bag tearing or splitting and to assist in manual handling, asbestos waste bags should not be filled more than half full (depending on the weight of the items) and excess air should be gently evacuated from the waste bag in a way that does not cause the release of dust. The 200 µm polythene sheeting which was placed on the ground in the personal decontamination area shall be disposed of as asbestos waste at the completion of the works.

Machinery and reusable equipment shall be decontaminated in a designated Decontamination Area using water and wet rags.

11.11. Project Supervision

Prior to the removal of any high-risk ACM, a Licensed Asbestos Assessor or Competent Person, with experience in asbestos materials removal works, shall be engaged, to work independently of the asbestos removal contractor. The assessor will be responsible for ensuring the asbestos materials removal contractor achieves a satisfactory level of workmanship and complies fully with statutory requirements and the requirements of the technical specification, asbestos management plan and the HMMP.

Commensurate with the above requirements, the specific duties of the supervising assessor may include:

- Inspection of the integrity of the containment prior to commencement of asbestos removal works including smoke testing of friable asbestos removal enclosures if the removal works are being carried out within a building/enclosed area (excludes removal of asbestos contaminated soil);
- Inspection of the asbestos materials removalist's equipment, including but not limited to decontamination and negative air units, water filtration systems, vacuum equipment, personal protective equipment (PPE);
- Assessment of the asbestos removalist's work methods, ARCP, SWMS, use and maintenance of PPE/RPE and decontamination procedures;
- Clearance visual inspection of the work area after the removal of ACM to ensure the ACM has been removed to a satisfactory standard. For friable removal, air clearances are also required; and

- Organising air monitoring and developing the air monitoring requirements for the particular ACM removal.

The Project Manager is to notify the Site Manager, Workers, Health and Safety Representatives, Contractors, Building Occupants and others providing details of the date, time and location of the removal works before they start as well as ensuring the Asbestos Removal Control Plan is adequate for the works to be undertaken.

12. Removal of Hazardous Materials

12.1. Lead Based Paint and Lead Containing Dust

12.1.1. Removal Requirements

Any lead paint removal and lead containing dust remediation works must be carried out with the appropriate guidelines for any lead work activity involving machine sanding, grinding, discing, buffing of surfaces coated with paint containing greater than 1% of lead by dry weight.

Lead processes involving such activities with lead paint will require:

- Enclosure to prevent escape of lead bearing dusts;
- Adequate signage around work area;
- Appropriate personal protective equipment;
- Personal hygiene – no smoking, washing of hands prior to eating etc.;
- Removal of lead paint via wet sanding or chemical stripping;
- Vacuuming of all surfaces (with a HEPA filter fitted) within and including the enclosure to remove all remaining traces of lead paint;
- Decontamination;
- Clearance testing via surface soil or dust sampling; and
- Medical surveillance of lead workers (Blood tests).

12.1.2. Lead Dust Air Monitoring

Any work processes involving lead paint must be undertaken in a manner to ensure that no worker is exposed to lead at concentrations above occupational exposure standard (OES) of 0.05mg/m³ over an eight-hour day.

Monitoring the personnel conducting these works, the Work Area and surrounds will provide documented evidence of the exposure levels at a specific point in time during the works. Exposure and atmospheric monitoring for lead dusts should be conducted by a competent person, such as an hygienist/asbestos assessor, and results are required to be produced by a NATA accredited laboratory.

12.1.3. Removal Contractor Requirements

In a lead abatement operation, it is recommended that a certified lead abatement contractor be engaged. This contractor should then perform any lead abatement work. Contractors involved in lead paint removal must have medical surveillance, including blood tests, conducted in accordance with the relevant state and territory legislation.

A detailed work procedure should be reviewed based on assessment of options available to the builder for the various painted surfaces and nature of refurbishment activities to be conducted.

12.1.4. Lead Health Surveillance

Health surveillance is required when personnel undertake work in a lead-risk environment or who undertake lead-process as defined in the NSW Work Health and Safety Regulation, 2017.

The two main types of health surveillance are:

- Atmospheric monitoring – which is used to indicate the levels of exposure to lead of personnel during a lead-process i.e. exposure monitoring; and
- Biological monitoring (preferred) – which evaluates the amount of lead absorbed by personnel via absorption and/or inhalation when conducting a lead-process i.e. Blood zinc protoporphyrin (ZPP) test.

All medical surveillance should be conducted by an authorised medical practitioner in accordance with the Code of Practices for the Control and Safe Use of Inorganic Lead at Work [NOHSC:2015(1994)] Section 13 and 15

12.1.5. Handling and Disposal

Disposal and transportation of lead and lead based compounds are governed by the current state and territory acts and require Australian Government Health and Safety Regulatory Bodies licensing for transport and disposal of lead-based compounds.

12.1.6. Inductions

Relevant personnel involved in lead related works shall be inducted into this HMMP. Details of contractors or other personnel who have attended the induction are to be kept on the site in Appendix F of this HMMP.

12.1.7. Toolbox Talks

Prior to commencing demolition and handling of lead-based works or following change in site conditions, all relevant site personnel should participate in a toolbox talk. The toolbox talk must incorporate details and instructions on how to manage the lead process in accordance with this HMMP. The toolbox talk can be combined with the induction if practicable

12.1.8. Project Supervision

Prior to the removal of any lead-based paint and lead containing dusts, a qualified hygienist or competent person, with experience in lead removal works, shall be engaged, to work independently of the removal contractor. The competent will be responsible for ensuring the lead paint and dust removal contractor achieves a satisfactory level of workmanship and complies fully with statutory requirements and the requirements of the technical specification, asbestos management plan and the HMMP.

Commensurate with the above requirements, the specific duties of the competent person may include:

- Inspection of the integrity of the containment prior to commencement of removal/decontamination works;
- Inspection of the removalist's equipment, including but not limited to decontamination and negative air units, water filtration systems, vacuum equipment, personal protective equipment (PPE);

- Assessment of the removalist's work methods, use and maintenance of PPE/RPE and decontamination procedures;
- Clearance visual inspection of the work area after the removal works to ensure the lead-based paint and lead containing dust has been removed to a satisfactory standard; and
- Organising air monitoring and developing the air monitoring requirements for the particular removal works.

The Project Manager is to notify the Site Manager, Workers, Health and Safety Representatives, Contractors, Building Occupants and others providing details of the date, time and location of the removal works before they start the works.

12.2. Synthetic Mineral Fibres

- Prior to any demolition, partial demolition, renovation or refurbishment, synthetic mineral fibre materials likely to be disturbed by those works should be removed in accordance with the NOHSC Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC:2006 (1990)].
- Further assessment of risk through airborne fibre monitoring can assist with decisions on the most appropriate, and urgency of, control measures.

12.3. Polychlorinated Biphenyls

- All capacitors containing or suspected as PCB or the fluorescent light fittings likely to be disturbed during future works should be removed prior to any future demolition, partial demolition, renovation or refurbishment in accordance with Department of Occupational Health, Safety and Welfare, *Safe Handling of PCB in Fluorescent Light Capacitors* – 1993 and with the *Polychlorinated Biphenyls Management Plan, Revised Edition April 2003*.
- PCB is a potential environmental hazard and must be handled in accordance with Work Safe Guidance Notes. Post removal, provision should be made for appropriate storage/disposal of PCB-containing capacitors.

12.4. Ozone Depleting Substances

- Removal should be undertaken prior to any future demolition, partial demolition, renovation or refurbishment, where ODS's are likely to be disturbed. A licensed contractor who will recycle and reuse the refrigerant should decommission CFC and HCFC based equipment that is being disposed of in accordance with Association of Fluorocarbon Consumers and Manufacturers, *The Australian Refrigeration and Air Conditioning Code of Good Practice* – 1992 and the Australian Commonwealth Government Ozone Protection Act – 1989.

13. Personal Protective Equipment (PPE)

The personal protective equipment requirements for work involving ACM, LBP, LCD, SMFs and PCBs at the Subject Site are to be based on the risk assessment.

The National Code of Practice How to Safely Remove Asbestos (2019) should be consulted to determine the PPE needs as well as AS/NZS 1715-2009 Selection, Use and Maintenance of Respiratory Protective Devices and AS/NZS 1716-2012 Respiratory Protective Devices.

The following table outlines the respiratory protective equipment required for any process that has the potential to disturb hazardous materials:

Work Procedure	Required respirator	Filter type
Simple enclosure erection for containing undamaged asbestos materials to prevent damage – no direct handling but possible disturbance of asbestos	Disposable, half-face particulate respirators OR Half-face, particulate filter (cartridge) respirator	P1 or P2
Inspection of the condition of any installed friable asbestos, which appears in poor condition or has been disturbed	Disposable, half-face particulate respirators OR Half-face, particulate filter (cartridge) respirator	P1 or P2
Sampling material for the purpose of identifying asbestos	Disposable, half-face particulate respirators OR Half-face, particulate filter (cartridge) respirator	P1 or P2
Removal of non-friable asbestos (e.g. asbestos cement sheets, ceiling tiles and vinyl tiles)	Disposable, half-face particulate respirators OR Half-face, particulate filter (cartridge) respirator	P1 or P2
Extensive sample operations on friable asbestos	Full-face, particulate, filter (cartridge) respirator	P3
Maintenance work involving the removal of small quantities of friable asbestos (e.g. replacement of friable asbestos gaskets and insulation)	Full-face, particulate, filter (cartridge) respirator	P3
Certain forms of wet stripping in which wetting is prolonged and effective, and certain small-scale dry stripping operations	Full-face, powered air-purifying particulate respirator OR Full-face, positive pressure demand air-line respirator	P3
Certain forms of dry stripping and ineffective wet stripping (light wetting, no time given to saturate)	Full-face, powered air-purifying particulate respirator OR Full-face, positive pressure demand air-line respirator No lesser respirator will suffice	P3

Other PPE required includes, but is not limited to:

- Disposable (type 5) coveralls
- Boot protectors

Disposable PPE and RPE filters used during the asbestos removal works should be treated as asbestos waste and disposed of in approved asbestos waste bags after completion of the works.

14. Occupational Exposure Standards

14.1. Asbestos Air Monitoring

It is the aim to keep personal exposure to ACM as low as reasonably achievable. Where occupational exposure to asbestos materials is likely to occur, exposure is not to exceed half the occupational exposure standards for each hazardous building materials type or category as published by the National Occupational Health and Safety Commission (Safe Work Australia).

Occupational exposure for asbestos is measured using the Membrane Filter Method, by collecting a sample of air from the breathing zone of a person, over a minimum of four hours duration.

The current National Exposure Standards TWA for asbestos are:

- Chrysotile (white) asbestos - 0.1 fibres/ml;
- Amosite (brown) asbestos - 0.1 fibres/ml;
- Crocidolite (blue) asbestos - 0.1 fibres/ml; and
- Other forms of asbestos or a mixture of asbestos types - 0.1 fibres/ml.

14.2. Lead Dust

Any lead work processes must be undertaken in a manner to ensure that no worker is exposed to lead at concentrations above occupational exposure standard (OES) of 0.05 mg/m³ over an eight-hour day for Lead, inorganic dusts and fumes (as Pb).

15. Contingency Plan and Unexpected Finds

The conditions encountered during removal and demolition works can be uncertain. Should an unexpected find be identified, then the unexpected finds procedure should be followed.

16. Emergency Procedures

An emergency situation is most likely to entail such a scenario where hazardous materials present on site have been inadvertently disturbed through actions by employees, site users, maintenance personnel, contractors, visitors, or damaged by severe weather conditions (e.g. hail or fire damage to a corrugated asbestos cement roof). Where such damage has occurred the Health and Safety Representative shall be notified immediately.

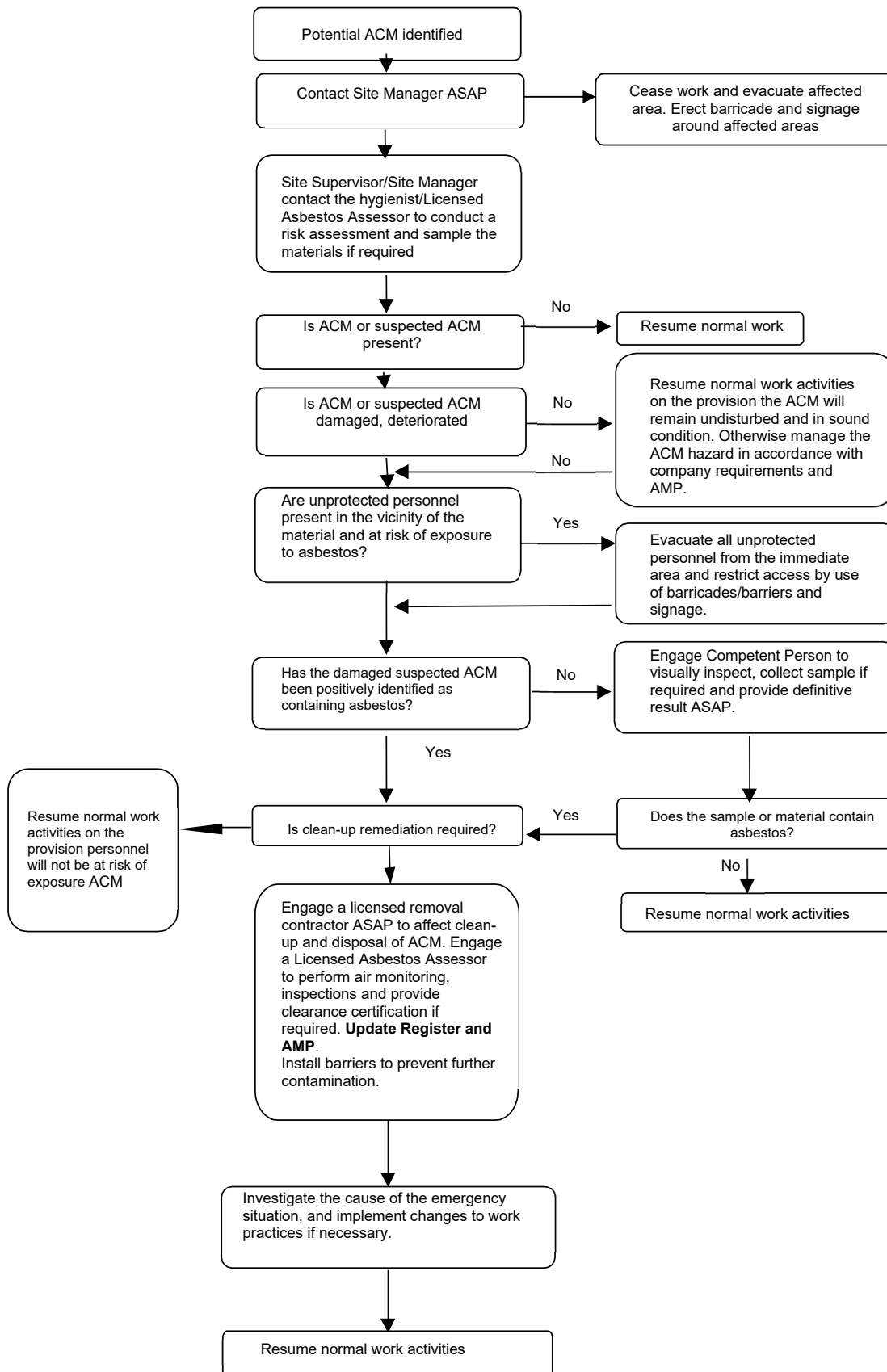
During any removal of any ACM an emergency within the building may necessitate the need to evacuate the site. The risks associated with any asbestos removal work should be assessed and include contingencies in the case of an emergency. Workers should be trained in the event of an emergency. Decontamination procedures can be temporarily waived in the event of an emergency and this is to be based on risk. The event likely to present in an emergency may include but not be limited to:

- Fire Evacuation;
- Chemical spill and contamination; and
- Gas leak/contaminated atmosphere hazardous to health.

In the case of the above situations requiring an emergency, Site supervisor, the Health and Safety Representative(s) should be notified immediately and the area evacuated.

Other Emergency Response Procedures shall be initiated for non-evacuation events and implemented in accordance with the flow chart diagram in **Figure 1**.

Figure 1: ACM Emergency Response Flow Chart



17. Training and Awareness

A PCBU must ensure that information, training and instruction provided to a worker is suitable and adequate, having regard to:

- The nature of the work carried out by the worker;
- The nature of the risks associated with the work; and
- The control measures implemented.

Employees, contractors and others who manage or may come into contact with ACM at the Subject Site either directly or indirectly should be provided with asbestos awareness training. Such training may include the following topics:

- Purpose of the training;
- The health risks associated with Asbestos;
- Information on the presence of ACM, including the types of asbestos, uses and typical locations/likely occurrences where ACM may be encountered;
- The PCBU and the worker's roles and responsibilities under the Hazardous Materials Management Plan;
- Where the Register is located, how to access it and understand the information contained within it;
- The timetable of asbestos materials removal;
- Process and safe work procedures to be followed to prevent exposure including accidental release;
- The correct use of PPE & RPE, implementation of controls measures and safe work methods to minimise the risks from ACM, limit the exposure to workers and limit the spread of asbestos fibres outside any asbestos work area;
- The relevant National Exposure Standards and control levels for asbestos; and
- The purpose of any exposure monitoring or health surveillance that may occur.

Records of Training must be kept whilst the worker is carrying out the work and for five years after the worker ceases the work and be made available for inspection by the regulator.

18. Glossary

Definitions

Accredited Laboratory – means a testing laboratory accredited by NATA (National Association of Testing Authorities, Australia).

Air Monitoring – means atmospheric sampling for airborne contaminants including asbestos and SMF fibres or lead dust to assist in assessing human exposure and the effectiveness of control measures. This includes exposure monitoring, clearance monitoring (asbestos) and control monitoring.

Appropriately Qualified Person – means the person possesses the qualifications and experience necessary to find hazardous materials in a building.

Approved Respirator - A respirator which complies with AS/NZS 1716 - Respiratory Protective Devices.

Approved Vacuum Cleaner - Vacuum cleaning equipment that passes all extracted air through a High Efficiency Particulates Air (HEPA) filter before the air is discharged into the atmosphere and conforms to the relevant requirements of the AS 3544 - Industrial Vacuum Cleaners for Particulates.

Asbestos – fibrous form of those mineral silicates that belong to the serpentine or amphibole groups of rock-forming minerals, including actinolite, amosite (brown asbestos), anthophyllite, chrysotile (white asbestos), crocidolite (blue asbestos) and tremolite.

Asbestos Containing Material (ACM) – means any material, object, product or debris containing asbestos.

Asbestos Removalist – means a person whose business or undertaking includes asbestos removal work or a self-employed person whose work includes asbestos removal work.

Asbestos Removal Control Plan – A site specific document to be prepared by the removal contractor based on the information in the National Code of Practice *How to Safely Remove Asbestos (Safe Work Australia 2011)*.

Asbestos Work - means work undertaken in connection with a construction work process in which exposure to asbestos may occur and includes any work process involving the use, application, removal, mixing or other handling of asbestos or asbestos containing material.

Asbestos Removal Work – means work undertaken to remove friable or bonded asbestos containing material.

Asbestos Work Area – means the immediate area in which work on ACM is taking place. The boundaries off the work area must be determined by a risk assessment.

Bonded asbestos material - means any material (other than friable asbestos material) that contains asbestos.

Bonded asbestos removal work - means work in which bonded asbestos material is removed, repaired or disturbed.

Clearance Inspection – means a mandatory visual inspection carried out by a competent person to verify that an asbestos work area has been rendered free of visible asbestos contamination and is safe to be returned to normal use after work involving the disturbance of ACM has taken place. A clearance inspection must include a visual inspection, and may also include clearance air monitoring and/or settled dust sampling.

Clearance Monitoring – means air monitoring using static or positional samples to measure the level of airborne asbestos fibres in an area following work on ACM. An area is cleared when the level of airborne asbestos fibres is measured as being below 0.01 fibres/ml.

Construction Work - include all work performed in or in connection with the installation, erection, repair, cleaning, painting, renewal, renovation, dismantling, maintenance, ornamentation or demolition of buildings, ships, structures, pipes, plant, machinery, parts, artefacts, appliances, or tools or parts thereof.

Control Actions - In the process of implementing hazardous building materials management, it is fundamental that any identified situations have control actions determined to prevent personnel from being placed at risk.

Control Monitoring – means air monitoring using static or positional to measure the level of airborne asbestos fibres in an area during work on ACM or airborne lead dust in an area of lead paint removal. Control monitoring is designed to assist in assessing the effectiveness of control measures. Its results are not representative of actual occupational exposures and should not be used for that purpose.

Exposure Standard (TWA) - represent the National Occupational Health and Safety Commission (NOHSC) maximum exposure level by inhalation of airborne concentration of atmospheric lead over an eight-hour day, for a five-day working week, over an entire working life and expressed as 8-hour TWA (Time weighed average). The TWA do not represent 'no-effect' levels which guarantee protection to every worker.

Friable Asbestos Containing Material – means asbestos containing material that, when dry, is or may become crumbled, pulverised or reduced to powder by hand pressure.

Hazard – means any matter, thing, process, or practice that may cause death, injury, illness or disease.

HEPA - High Efficiency Particulate Air. A filtering system capable of trapping and retaining at least 99.97 percent of all monodispersed particles of 0.3 micron in diameter or larger.

Membrane Filter Method - is the technique outlined in the NOHSC [*Guidance Note on the Membrane Filter Method for Estimating Method Airborne Asbestos Fibres 2nd Edition*](#) [NOHSC:3003 (2005)].

National Association of Testing Authorities, Australia (NATA) – the organization that approves the method of sampling for airborne asbestos fibres, bulk sample analysis of asbestos containing materials and hazardous materials inspections.

NOHSC - National Occupational Health and Safety Commission.

PPE/RPE - Personal / Respiratory Protective Equipment.

PM – Project Manager of the asbestos removal job. If a Principal Contractor has been appointed the Project Manager of the Principal Contractor, if no PM appointed then the owner is the Project Manager.

Person in charge of area - The person in charge of the building or area affected by the asbestos removal.

Restricted Area - A location requiring an Access/Work Permit because unprotected activity to undertake the intended purpose may expose a person to hazardous respirable (airborne) asbestos fibre. For example: Drilling a switch board containing asbestos; entry to a ceiling space containing asbestos or lead dust; entry to a riser shaft containing asbestos; access onto a fragile asbestos cement roof; a cupboard containing asbestos pipe lagging.

Risk – means the likelihood of a hazard causing harm to a person.

Safe Work Australia - An independent statutory agency responsible to improve occupational health and safety and workers' compensation arrangements across Australia.

19. References

Work Health and Safety Act 2011 and Regulation 2017 (NSW)

Association of Fluorocarbon Consumers and Manufacturers, *The Australian Refrigeration and Air*

Australian Standard AS2601, *The Demolition of Structures*, Section 1.6.

Australian Standard AS1319, Safety signs for the occupational environment

National Institute for Occupational Safety and Health [NIOSH (U.S.A.)], *Manual of Analytical Methods, Elements by ICP, Method 7300*, 4th Edition, Issue 2 - 1994

National Occupational Health and Safety Commission (NOHSC), *Approved Criteria for Classifying Hazardous Substances*, 1008 – 2002

NSW Code of Practice *How to Manage and Control Asbestos in the Workplace* (2019)

NSW Code of Practice *How to Safely Remove Asbestos* (2019)

NSW Managing asbestos in or on soil (2014);

National Occupational Health and Safety Commission (NOHSC), Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd Edition, 3003 - 2005

National Occupational Health and Safety Commission (NOHSC), *List of Designated Hazardous Substances*, 10005 - 1999

Control and Safe Use of Inorganic Lead at Work, 2015 – 1994

Safe Work Australia *Workplace Exposure Standards for Airborne Contaminants*, 2018

NSW Code of Practice Demolition Work (2019);

NSW Code of Practice Construction Work (2019);

Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC:2006(1990)];

Polychlorinated Biphenyls Management Plan Revised Edition April 2003, published by the Australian and New Zealand Environment and Conservation Council (ANZECC);

ANZECC Identification of PCB-containing Capacitors information booklet – 1997;

AS 4361.2- 2017 *Guide to Hazardous Paint Management, Part 2: Lead Paint in Residential, Public and Commercial Buildings*;

Code of Practice for the Control and Safe Use of Inorganic Lead at Work [NOHSC:2015(1994)];

Protection of the Environment Operations Act, 1997;

Protection of the Environment Operations (Waste) Regulation ,2014;

Ozone Protection and Synthetic Greenhouse Gas Management Amendment Regulation, 2012;

Australian Chlorofluorocarbon Management Strategy October 2001;

Australia and New Zealand Refrigerant Handling Code of Practice, 2007 Part 1 – Self-Contained Low Charge System;

Australia New Zealand Refrigerant Handling Code of Practice, 2007 Part 2 – Systems Other than Self-Contained Low Charge System;

Code of Practice for the Control of Workplace Hazardous Substances, 2006;

Australia/New Zealand Standard (A/NZ) 4360:2004 Risk Management;

AS 1319-1994 Safety signs for the Occupational Environment;

AS/NZS 60335.269 – 2003 Household and similar electrical appliances – safety – particular requirements for wet and dry vacuum cleaners, including power brush for industrial and commercial use;

AS 4260 – 1997 High efficiency particulate air filters (HEPA) classification, construction and performance;

AS/NZS 1716 – 2012 Respiratory Protective Devices; and

AS/NZS 1715 – 2009 Selection, use and maintenance of respiratory equipment

Appendix A – RCC ACM Register

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Appendix B - Legislative Requirements and Additional Information

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LEGISLATIVE REQUIREMENTS — ASBESTOS

This document has been produced for information only and is under regular review due to frequent changes in legislation and guidance. It contains information relating to the column headings only and not, for instance, in relation to asbestos removal. It is the duty of employers, premise owners and controllers of premises etc to ensure they are familiar with the latest applicable state legislation and guidance.

Introduction:

1. Introduction:

New (Harmonised) work health and safety laws commenced in the Commonwealth, New South Wales, Queensland, the Australian Capital Territory and the Northern Territory on 1 January 2012. The new harmonised laws commenced in South Australia and Tasmania on the 1 January 2013.

For links to these legislation and the most current information on the progress of legislative change for the other states, please access Safe Work Australia at:

<http://www.safeworkaustralia.gov.au/Legislation/Pages/ModelWHSLegislation.aspx>

2. Transitional Arrangements

Safe Work Australia has developed transitional principles that set out how arrangements under existing work health and safety legislation are intended to transition to the new harmonised system. There are transitional principles statements for both the WHS Act and Regulations. These are available from the Safe Work Australia site:

<http://www.safeworkaustralia.gov.au/Legislation/transitional-arrangements/Pages/transitional-arrangements.aspx>

Further, each state and territory work health and safety authority has also developed resources to assist their jurisdiction with the transition. If you have any questions regarding transitional arrangements in your jurisdiction please [contact your regulator](#).

3. Further Useful Resources

Safe Work Australia publishes a range of guidance material to provide information on the model work health and safety laws and to assist compliance. This information can be accessed from:

<http://www.safeworkaustralia.gov.au/Legislation/guidance-material/Pages/guidance-material.aspx>

LEGISLATIVE REQUIREMENTS — ASBESTOS

This document has been produced for information only and is under regular review due to frequent changes in legislation and guidance. It contains information relating to the column headings only and not, for instance, in relation to asbestos removal. It is the duty of employers, premise owners and controllers of premises etc to ensure they are familiar with the latest applicable state legislation and guidance.

STATE Primary Asbestos Legislation	Asbestos Survey Requirements	Asbestos Resurvey Requirements	Reporting Requirements	Management and Labelling/Signage Requirements	Other Requirements
COMMONWEALTH NEW SOUTH WALES QUEENSLAND NORTHERN TERRITORY TASMANIA SOUTH AUSTRALIA <i>Work Health and Safety Act 2011 (Cth, NSW, QLD, TAS, SA)</i> <i>Work Health and Safety Regulation 2017 (Cth, NSW, QLD, TAS, SA)</i> <i>Supported by:</i> <i>Code of Practice - How to Manage and Control Asbestos in the Workplace (2019)</i> <i>Code of Practice - How to Safely Remove Asbestos (2019)</i>	A person conducting a business or undertaking (PCBU) must, for work place buildings/ structures that are constructed prior to December 31, 2003; • survey to identify and locate any Asbestos Containing Materials (ACM); and, • compile and keep at the workplace a site specific Asbestos Register. If ACM is identified at the work place, an Asbestos Management Plan (AMP) is to be compiled for the management of the identified ACM. The Asbestos Register and the Asbestos Management Plan must be made available at the work place for workers, people intending to conduct business at the work place and to Health and Safety representatives.	Re-inspections of identified ACM is determined on a case-by-case basis depending on the risk situation and should be informed by and conducted in accordance with the site specific Asbestos Management Plan.	The site specific Asbestos Register needs to include the date, type, location, condition and ACM identified during the survey. The Asbestos Register must be maintained and also updated if: • the AMP is under review, • further ACM is identified and/or, • ACM is removed, disturbed or encapsulated. The site specific AMP must include management actions and justifications, incident and emergency response plans and record details of works carried out that involves ACM at the work place. The AMP must be maintained and updated: • when the Asbestos Register is under review, • if asbestos is removed, disturbed or encapsulated, • if the AMP is no longer adequate for managing the ACM, • if a Health and Safety Officer requests a review and/or at least • once every 5 years.	Generally, health monitoring is not required excepting for workers involved in asbestos removal works. Training is required for persons involved in asbestos removal work or carrying out asbestos related works. All identified ACM in a workplace has to be labelled to indicate clearly asbestos presence and location of the asbestos item. Before refurbishment or demolition: • ensure Asbestos Register is current • undertake necessary inspections A licenced asbestos removalist is required unless: ACM < 10m2 and non-friable and then by a competent person	WHS Regulation 419 requires A person conducting a business or undertaking (PCBU) must not carry out, or direct or allow a worker to carry out, work involving asbestos; excepting as is applicable: • managing risk; • sampling, identification and analysis; • maintenance • removal/disposal • other exemptions per s.419 (3)

Appendix C – RCC Asbestos Removal Permit

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21.11a Asbestos Removal Permit

Project Name:		Company Performing Work:	
Contractors Contact:		Position:	
Location of works:			
Description of Work:			
RCC Asbestos Register – Item Identification number:			
Asbestos Type			
Bonded Less than 10m² ☐		No License or Permit / Application required	
Bonded Greater than 10m² ☐		Copy of WorkCover Stamped, Notification to be obtained from contractor prior to start.	
AS-B Lic. No: _____			
Friable ☐		Copy of WorkCover stamped, Permit application to be obtained from contractor prior to start.	
AS-A Lic. No: _____		WorkCover Permit No: _____	
Permit begins		Permit expires	
Date: / /	Time: am/pm	Date: / /	Time: am/pm
Date: / /	Time: am/pm	Date: / /	Time: am/pm
Date: / /	Time: am/pm	Date: / /	Time: am/pm
Date: / /	Time: am/pm	Date: / /	Time: am/pm
RCC Emergency Contact information			
Name of RCC Contact:		Tel:	()
Authorisation by company representative			
The above work is authorised to proceed subject to the following action being taken prior to work starting and procedures being maintained for the duration of the work.			
RCC Representative Name:		Position:	Signature:
	Yes	N/A	
Work area has been inspected prior to works proceeding			Contractor has read the requirements of the RCC, ACM Management plan
Risk Assessment completed			Disposal method established
Will the area be occupied during the works			Air conditioning / Mechanical ventilation isolated:
Is it necessary to vacate the building during the works			Electrical isolated (Written confirmation from Electrician required)
SWMS reviewed by RCC			Signage / Barricades in place
Air monitoring required			Clearance certificate required
Weekly Review of Permit			
	Week 1	Week 2	Week 3
Signature and position of person issuing the permit:			
Signature of the person conducting the Work:			

Appendix D - Asbestos Removal Control Plan Checklist

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The document was evaluated against the minimum criteria in the *How to Safely Remove Asbestos*, NSW Code of Practice 2019 – Appendix A.

Table 1 – Components of the Asbestos Removal Control Plan

Information to be included in the asbestos removal control plan	Buildings and Structures		Appropriately Addressed
	Friable	Non-friable	
Notification			
Notification requirements have been met and required documentation will be on site (e.g. removal licence, control plan training records).	Yes	Yes	
Identification			
Details of asbestos to be removed (e.g. the locations, whether asbestos is friable/non-friable, its type, condition and quantity being removed)	Yes	Yes	
Preparation			
Consult with relevant parties (health and safety representative; workers; person who commissioned the removal work, licensed assessors)	Yes	Yes	
Assigned responsibilities for the removal	Yes	Yes	
Program of commencement and completion dates	Yes	Yes	
Emergency plans	Yes	Yes	
Asbestos removal boundaries, including the type and extent of isolation required and the location of any signs and barriers.	Yes	Yes	
Control of electrical and lighting installations	Yes	Yes	

Personal protective equipment (PPE) to be used, including respiratory protective equipment (RPE).	Yes	Yes	
Removal			
Details of air monitoring program, Control and clearance.	Yes	No	
Waste storage and disposal program	Yes	Yes	
Methods for removing the ACM (wet or dry methods)	Yes	Yes	
Asbestos removal equipment (spray equipment, asbestos vacuum cleaners, cutting tools, etc.)	Yes	Yes	
Details of required enclosures, including their size, shape, structure etc., smoke testing enclosures and the location of negative pressure exhaust units.	Yes	No	
Details on temporary buildings required by the asbestos removalist (e.g. decontamination units) including details on water, lighting and power requirements, negative pressure exhaust units and the locations of decontamination units.	Yes	May be required depending on the job.	
Other risk control measures to prevent the release of airborne asbestos fibres from the area where asbestos removal is undertaken.	Yes	Yes	
Decontamination			
Detailed procedures for workplace decontamination, the decontamination of tools and equipment, personal decontamination and the decontamination of non-disposable PPE and RPE.	Yes	Yes	
Waste disposal			
Method of disposing of asbestos wastes, including details on: • the disposal of protective clothing	Yes	Yes	

• the structure(s) used to enclose the removal area	Yes	No	
Clearance & Air Monitoring			
Name of the independent licensed asbestos assessor or competent person engaged to conduct air monitoring (if any).	Yes	No	
Consultation			
Consult with any people who may be affected by the removal work, including neighbours	Yes	Yes	

SWMS Review

Mandatory		
Item	Checklist Criteria	Complies
01	Does the SWMS set out a logical step-by-step process of all work activities to be undertaken?	Y / N
02	Does the SWMS describe how each activity will be carried out?	Y / N
03	Does the SWMS consider the environment within which the activities are to be undertaken?	Y / N
04	Does the SWMS identify safety, health and environmental hazards that may arise through the work?	Y / N
05	Does the SWMS clearly document and control risk for each hazard identified?	Y / N
06	Does the SWMS describe all plant and equipment that will be used?	Y / N
07	Does the SWMS identify relevant Standards, Codes of Practice & Legislation to be complied with?	Y / N
08	Does the SWMS identify any pre-start and in-process certifications/authorisations/permits/meetings?	Y / N
09	Does the SWMS provide for and identify consultation with the workers that will undertake the task?	Y / N
10	Has the SWMS been approved by a responsible supervisor/manager?	Y / N
11	Does the SWMS provide emergency information?	Y / N
As Applicable		
Item	Checklist Criteria	Complies
12	Does the SWMS provide for emergency procedures including rescue requirements for "high risk activities"?	Y / N
13	Does the SWMS effectively communicate any high-risk activities which may affect interfacing trades?	Y / N
14	Does the SWMS provide specific licensing and qualifications required by workers for specific tasks?	Y / N
15	Does the SWMS specify supervision, training and/or trialling required to enable the work to be done safely?	Y / N
16	Does the SWMS and risk assessment provide controls for public, people & plant in the vicinity of the task?	Y / N

Comments:

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