

17 July 2024

Office of the NSW Chief Scientist & Engineer

Via: asbestosreview@chiefscientist.nsw.gov.au

Dear Sir/Madam,

The Australasian Land and Groundwater Association (ALGA) Asbestos Specialist Interest Group is pleased to provide our Submission for the Management of Asbestos in Recovered Fines and Recovered Materials for Beneficial Reuse in NSW Discussion Paper (the 'Discussion Paper').

Our submission includes the following items:

- **Attachment A – Feedback on the Discussion Paper**
- **Attachment B – Discussion Paper Submission Form**

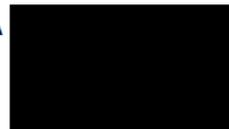
Please don't hesitate to contact us if you have any questions.

Sincerely,

Matt Potter
CEO
ALGA



Ian Gregson
Co-chair of Asbestos SIG
ALGA



Attachments: Attachment A - Feedback on the Discussion Paper
Attachment B - Discussion Paper Submission Form



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Attachment A - Feedback on the Discussion Paper

The following table provides our comments and suggested amendments to the discussion paper for your consideration. We appreciate that this does not form part of the 12 questions on which OCSE has requested feedback. However, we presume the discussion paper will continue to exist in some form in the future to provide context to the questions, and we consider it important that any factual errors or ambiguities in the discussion paper are corrected or clarified, as appropriate, so that the basis for feedback on the questions is clear, and future readers are not misled in any material way.

Section / page	ALGA Feedback – comments	Suggested amendments
2.1 / p.5	<p>Paragraph 3 – current wording mixes the regulatory concepts of bonded and friable asbestos with the NEPC (2013) definition of asbestos fines. Although Table 6 of NEPC (2013) Schedule B1 states “Asbestos fines, AF” is equivalent to WHS terminology for “Non-bonded / friable asbestos”, this is not strictly correct. The text following Table 6 states “Bonded ACM is equivalent to ‘non-friable’ asbestos in Safe Work Australia (2011), which is defined therein as ‘material containing asbestos that is not friable asbestos, including material containing asbestos fibres reinforced with a bonding compound’”. SafeWork NSW has clarified that for WHS purposes, the legislative definition in the WHS Regulation applies, that is “friable asbestos means material that - (a) is in a powder form or that can be crumbled, pulverised or reduced to a powder by hand pressure when dry, and (b) contains asbestos. This definition is reflected in the corresponding Codes of Practice. Under this definition, asbestos fines (AF) may be bonded (or non-friable) asbestos.</p> <p>This is clear in WA DoH (2021) s.1.5.3 which states “AF includes loose fibre bundles of asbestos as well as small pieces of friable and non-friable material such as asbestos cement fragments mixed within the soil” [emphasis added].</p> <p>The discussion paper should avoid mixing up definitions, and should clearly present both the regulatory definitions (including friable / non-friable asbestos, and asbestos contaminated dust (ACD) in their own context, and not confuse these with the NEPC (2013) definitions. The WA DOH (2021) definitions should be adopted over the NEPC (2013) definitions, where the WA DoH (2021) definitions are clearer.</p>	<p>Delete “that is greater than 7mm x 7mm and in good condition (NEPC, 2013b) from paragraph 3.</p> <p>Insert after amended paragraph 3 the WHS regulation description of friable and bonded asbestos. Add the asbestos-contaminated dust (ACD) definition here, and don’t conflate ACD with the WA DoH / contaminated site terminologies (i.e. keep reference to ACD out of paragraph 4).</p> <p>Revise paragraph 4 to reflect the definitions used for the purposes of describing asbestos as a contaminant. The definitions from WA DoH (2021) should be adopted, i.e. “Bonded (non-friable) asbestos-containing material (bonded ACM); Fibrous asbestos (FA) and Asbestos fines (AF), as these are the clearest and most contemporary definitions.</p> <p>ALGA would be pleased to provide specific revised wording at your request.</p>

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Section / page	ALGA Feedback – comments	Suggested amendments
2.1 / p.6	Figure 1 “Asbestos fines (AF)” photo is incorrect. This photo is actually the Fibrous asbestos (FA) photo from WA DoH (2021). WA DoH (2009) as referenced in the Figure 1 photos and caption does not actually have any photos of asbestos materials.	Correct references (i.e. should be to WA DoH, 2021). Move current “Asbestos fines (AF) photo up to fibrous asbestos (FA) section, and provide more representative photo(s) of AF, which may either be friable or non-friable. Don’t mix up “friable asbestos” with “Fibrous asbestos” - the terminologies are not wholly consistent.
2.2 / p.6	Paragraph 2, 3 rd sentence states “This means there is no identified dose or exposure level below which cancer will not occur.” While strictly correct, “cancer <u>will not</u> occur” suggests the converse – that cancer <u>will occur</u> regardless of dose or exposure. While the next two sentences explain the dose / risk relationship appropriately, the 3 rd sentence may seem contradictory.	Suggest changing the sentence to wording like that on p.11 paragraph 2 of the Guidelines for communicating about asbestos risk to the public (ASEA 2021), i.e. “This means that any exposure to asbestos may eventually lead to a disease”.
2.2 / p.7	It may be worth adding after paragraph 1, the principles of WHS laws. Paragraph 2 should also explain action levels from airborne asbestos fibre monitoring (i.e. 0.01 f/mL prompts cease work and a review of controls before work recommences, as per the Code of Practice, How to safely remove asbestos.	Paragraph 1 – e.g. Follow with wording such as p.9 of ASEA 2021, “Under work health and safety laws, preventing exposure is expressed as ensuring that exposure to airborne asbestos fibres at a workplace is eliminated so far as is reasonably practicable, and if not reasonably practicable, is minimised as far as is reasonably practicable”.
2.3 / p.7	Paragraph 4, “contaminate” should be “contaminant”.	
2.3 / p.8	Table 1- it should be noted somewhere that there may be legislative cross-overs – i.e. even if a threshold is adopted for re-use, WHS may impose requirements.	SafeWork NSW were considering a “minor contamination” clause for asbestos in soils, analogous to the management of ACD.
2.3 / p.8	Table 1, 2 nd row below heading (Soil – Australia), 3 rd column “bonded asbestos:” is unclear.	Add a space below the AF and FA threshold, and underline “Bonded ACM” to clearly indicate this is the heading for the following thresholds. 4 th column first paragraph should add (NEPC, 2013) at the end.
2.3 / p.8	Table 1, 3 rd row below heading (Soil – WA), is incomplete.	Add heading for bonded ACM and the other HSL thresholds as for the preceding row, add WA DoH (2021) as reference, and basis for derivation. Note that WA DoH (2021) has been updated since the 2009 version on which NEPC, 2013 is based.
2.3 / p.8	Table 1, 4 th row below heading (Occupational / workplace exposure standard – Australia)	Add the action levels which apply to airborne asbestos monitoring. (i.e. the 0.01 f/mL action level is not only applicable to clearance monitoring, as indicated in the next row).
2.3 / p.9	Table 1, last row, 3 rd column.	Add the method detection limit based on AS4964 (i.e. what is it, both in mg/kg and % w/w equivalent). 4 th column, typo in “custons”.

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Section / page	ALGA Feedback – comments	Suggested amendments
3.1 / p.10	Paragraph 1 references “NSW Government, n.d.”	Please add what legislative instrument this is referring to. If this is referring to the Customs Prohibited Imports Regulation, clarify whether “use, sale and import” necessarily involves all 3, or any one of these.
3.2 / p.10	3 rd paragraph states “Therefore, there is an urgent need for proper asbestos removal and disposal ...” - it is not clear what this means.	Clarify what is meant – may be clearer to say “...there is an urgent need for appropriate management of asbestos, including removal and disposal, to ...
3.3 / p.11	Paragraph states “It is important to note that in NSW the practice of hand picking to remove visible asbestos fragments... (NSW EPA, 2023a)” - this is from the first (April 2022) Position Statement, which has prompted at least two further (draft) revisions and is widely considered inconsistent with sustainable practice.	Clarify this sentence to say that under the EPA’s April 2022 Position Statement (currently under review), the practice is not allowed. ALGA believes strongly that this position is inappropriate, as has been pointed out in various submissions in response to the April 2022 Position Statement.
4 / p.13	It should be noted that SafeWork NSW, 2014 is due for review, and in fact SafeWork NSW had made significant progress in preparing a revised guideline in 2020 in consultation with various industry bodies, including AHCA and ALGA, before being shelved in 2021 largely as a result of lack of agreement on implementation of the updated WA DoH (2021) guidelines.	It should be acknowledged that SafeWork NSW 2014 has its limitations and review has been / is being contemplated. ALGA recommends SafeWork NSW’s comment be sought in this regard.
4 / p.14	Paragraph 1, 2 nd line “tile” should be “tilled”. Paragraph 2 is incorrect where it refers to a licenced asbestos removalist being required to remove non-friable asbestos fragments “present in an area greater than 10 m ² ”. It is the area of the asbestos, not the area in which the asbestos is present.	Use wording from SafeWork NSW 2014 – where greater than 10 m ² of non-friable asbestos is to be removed “constituting greater than 10 square metres of fibro”.
4 / p.14	Table 2 reference is “(Australian Government, 2013)”	Reference should be to NEPC, 2013, consistent with other references to this guideline document.
5.1.1 / p.16	Paragraph 2 refers to “the national asbestos ban”. ALGA notes that it is commonly stated that “there is a national ban on the use of asbestos” (or similar wording), however this is seldom (if ever) accompanied by a specific reference to what legislative instrument(s) this ban comes under, and what the specific nature of the ban(s) involves under those instruments.	Please provide reference to what specific legislative instrument(s) this ban comes under, and what the specific nature of the ban(s) involves under those instruments, or revise accordingly.
5.1.1 / p.16	Paragraph 2 refers to asbestos embedded in or attached to concrete columns as if this is the only asbestos that may remain in C&S waste.	Change to something like “Asbestos that cannot readily be identified through the asbestos clearance inspection, such as asbestos embedded in or attached to concrete columns, or other asbestos materials may remain within the C&D waste”.

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Section / page	ALGA Feedback – comments	Suggested amendments
5.1.1 / p.16	Paragraph 4 states “If there is suspect friable asbestos or asbestos fines (e.g. visible <7mm debris) the load is treated as ‘high risk’, ...”. This is not from the WA guidelines, and does not represent all materials regarded as high risk.	Revise this sentence to more accurately reflect the WA guidelines.
5.1.1 / p17	Paragraph 2 appears to have mixed references “...criteria in the <i>WA Soil Guidelines</i> (WA DoH, 2009)”.	Use the correct guideline title for WA DoH, 2009 i.e. <i>Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia</i> .



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Attachment B - Discussion Paper Submission Form

Management of asbestos in recovered fines and recovered materials for beneficial reuse in NSW

Discussion Paper – Submission Form

Submitter Details

Name: [REDACTED]

Organisation: Australasian Land and Groundwater Association (ALGA) - Asbestos Specialist Industry Group

Email/phone: [REDACTED]

If this is a confidential submission, please tick here:

Responses to questions

You can respond to any questions that are relevant to you. If you only want to submit data or any other relevant information, please email them to asbestosreview@chiefscientist.nsw.gov.au.

Thresholds and screening levels

Question 1: What factors should be considered when deriving a threshold or screening level for asbestos in recovered fines and material for beneficial reuse?

- A balance of risk and sustainability
- Where and how the material will be used
- Regulatory mechanisms to ensure the material is used for an approved process
- Enforcement programs to ensure regulatory compliance
- The nature and condition of the asbestos containing material
- If material has been / will be put through a mechanical process (e.g. crusher) which has the potential of resulting in fibrous asbestos or free fibres
- Asbestos form (bonded vs friable), size of asbestos containing material
- The nature of the material potentially containing asbestos such as cohesive vs granular soils, roadmaking materials vs landscaping materials
- Background concentrations
- Reasonably achievable laboratory detection limits
- The landuse where the material is proposed to be used, potential exposure pathways, receptors and factors (time, duration). For example, materials that will have limited exposure (e.g. landfill daily cover, bulk engineering fill in transport corridors, backfill around service

- trenches) should have the threshold adjusted based on the limited exposure associated with the material (e.g. based on the assumed exposure duration/time).
- Risk based threshold/screening similar to what is used for assessment of site contamination.

Asbestos waste management at recycling facilities

Question 2: Can you provide any data on annual volumes of C&D waste being recycled or alternatively sent to landfill? Data on rejected loads due to asbestos presence and any other data related to all TOR items is welcomed.

Other organisations (e.g. WACRA) will be able to provide this information.

Please email data together with this form to asbestosreview@chiefscientist.nsw.gov.au

Question 3: Can you provide any other information on the potential presence of asbestos in recycled C&D material?

- i. Information on the methods of separating and removing asbestos from waste that can inform alternative approaches?
- ii. What reuse scenarios are there for recycled waste, including end-products and their use?

Examples of potential asbestos contamination on C&D material are as follows:

- On recent audited site, asbestos fragments were encountered directly beneath concrete slabs, and some fragments were embedded at the bottom of the concrete slabs. For this site, the entire concrete slabs were removed as asbestos waste. However, anecdotal information from other auditors indicated they have observed some contractors attempting to manually remove asbestos fragments or sheeting from the bottom of concrete slabs (e.g. by chiselling). Remediated concrete may have remnants of asbestos.
 - Asbestos used as formwork or spacers in concrete may be successfully removed, subject to appropriate understanding of its use and presence, and careful QA of removal.
 - Pre-demolition hazmat assessments cause the identification, removal and separation of a significant amount of asbestos prior to recycling.
 - Failure to identify asbestos cement sheeting or complete removal of asbestos sheeting/ glue during demolition can lead to it contaminating plasterboard destined for recycling into soil amendments.
- i. **Methods of separating and removing asbestos from waste that can inform alternative approaches**
 - Manual removal of fragments of asbestos, followed by validation.
 - Method of removal would be highly dependent on the quantity, the size of fragments, the type and the distribution of asbestos in the C&D material, as well as the size of C&D material. For example, where asbestos comprises small fragments among large C&D boulders, mechanical screening may be an effective method to remove asbestos.
 - Mechanical screening has been successfully used in granular soils containing ACM. The screens concentrate the ACM based on particle size, enabling the fine material to be laboratory validated and the coarse material to be visually inspected.

- Soils potentially contaminated with asbestos may spread for inspection and then segregated based on observation. In short, this is a visual separation process followed by sampling and validation. Asbestos is not removed in this process and therefore the soils are not "remediated".
 - A large stockpile that is potentially contaminated may be broken into smaller stockpiles, and then each stockpile can be sampled and passed or failed.
 - Raking and removal of fragments in accordance with published guidance.
 - Manual removal on a MRF production line.
- ii. What reuse scenarios are there for recycled waste, including end-products and their use: Any scenarios as are already represented in the current resource recovery framework (which may include the following):
- Road base material that will be topped by pavement and have low exposure to users.
 - Backfill material around service trenches – this material will be present underground and has low exposure to users. Limitations may be put in place for material accessible to maintenance workers.
 - Landfill daily and intermediate cover.
 - Structural fill in major earthworks below 2m from the finished surface
 - Permanent sound barriers, with long term environmental management plan in place to manage potential disturbance.
 - Ingredients in engineered products (e.g. concrete) – provided that the end of life uses are considered.

Question 4: While this section focuses on C&D waste, are there other waste types which are suitable for beneficial reuse which have the potential to be contaminated with asbestos?

- Recycled timber
- Landscaping material (topsoil, mulch, compost)
- Soil
- Processed soil
- Skip bin fines
- Material currently assessed under Recovered Aggregate Order has been previously found as containing asbestos
- Items listed in Resource Recovery Order/Exemptions:
 - Cement fibre board
 - Excavated natural material
 - Excavated public road material
 - Plasterboard
 - Reclaimed asphalt pavement
 - Recovered aggregate
 - Recovered fines
 - Recovered railway ballast
 - Treated drilling mud

Management of asbestos in soil

Question 5: Is it appropriate for the health screening levels for asbestos in soils to apply to asbestos in waste? Note that the threshold level in this instance refers to a level where further action is required.

i. **Why or why not?**

The use of health screening levels is considered appropriate, as NO method of removal will be adequate to demonstrate there is NO remaining asbestos (i.e. zero threshold) if asbestos has been present, unless that asbestos was an isolated, intact object (e.g. piece of ACM pipe) and there were no other credible sources. Hence any material containing asbestos would have to be disposed of or managed on site (current situation) and there are no opportunities for re-use.

However, the available health screening levels may not be appropriate to assess acceptability for all uses – see responses to question 1. There are currently only 4 HSLs for asbestos for 4 different types of landuses. Should a risk-based approach be considered, there may be a need to develop further HSLs depending the proposed uses of these materials. For example a specific HSL may need to be developed for material proposed to be used for roadbase, which has limited exposure potential.

Recognising health screening levels for asbestos in waste for reuse in other sites would provide a sustainable remediation approach that would meet the intent of the Waste Avoidance and Resource Recovery Act 2001, and the Recycling and Waste Reduction Act 2020. If site-won material can be assessed through a risk-based approach using health screening levels, there is no practical reason why imported material to the same site cannot be assessed using the same approach.

Asbestos is present at background levels in the environment. The use of health screening levels would recognise these background levels.

There is some precedence for this approach in the use of "management limits" for petroleum hydrocarbons that present negligible human health risk but have aesthetic issues. These are articulated in the NEPM.

While threshold levels technically relate to the level at which further consideration/assessment is needed, in the majority of cases, especially in development and construction projects, they default to being the remediation criteria.

Question 6: Health screening levels are not the only tool used for managing asbestos in soils. If threshold levels in soils were to be applied to asbestos in **waste for beneficial reuse**,

- i. what other tools can support managing asbestos in waste for beneficial reuse?
- ii. what would be the limitations, costs or feasibility of safely removing asbestos in waste?
- iii. are there certain scenarios where recycled C&D material should not be reused?
- iv. are there certain scenarios where reuse of recycled C&D material could result in land legacy issues?

i. **what other tools can support managing asbestos in waste for beneficial reuse?**

- **Long term environmental management plan (LTEMP) – For example for sites that already have a LTEMP, management of potential asbestos in the reuse material (e.g. in backfill material around service trenches) can be provided.**

- Asbestos Management Plan to manage potential asbestos in a recycled material. There is a potential disconnect between the WHS regulation and CLM/POEO approaches whereby "safe" levels of asbestos may still require a WHS overlay.
 - Dial Before You Dig Australia to document LTEMP which may include potentially asbestos impacted material beneath roads.
 - Site specific Resource Recovery Exemption/Order.
 - Legal mechanism (such as memorial on title (MOT) in WA).
 - Robust mechanism for sampling and assessment.
 - Legal framework to ensure compliance.
 - Clear and transparent guidance for managing isolated exceedances.
 - NSW Auditor Scheme or other independent certification.
 - Process-verification whereby the threshold is only part of verifying the overall process.
- ii. what would be the limitations, costs or feasibility of safely removing asbestos in waste?
- Unavailability of legal framework to do this in NSW.
 - Work health and safety considerations to process asbestos.
 - Misalignment between WHS, POEO and CLM requirements.
 - Given the ubiquitous nature of asbestos, it will be difficult to guarantee that asbestos is not present in a quantity of material (e.g. a stockpile), where asbestos has been previously encountered.
 - Asbestos is present in background concentrations. A typical adult can inhale up to 5,500 fibres/day (SafeWork Australia, 2023). Current approach of having to remove an entire stockpile where 1 asbestos fibre has been detected is often costly and is not sustainable.
 - On experience from an audit site, EPA can provide case-specific approval on remediation of a stockpile (e.g. through delineation and removal of asbestos impact within the stockpile). However, such investigation is costly and generally takes a lot of time between consultants and EPA involvement.
- iii. are there certain scenarios where recycled C&D material should not be reused?
- Where friable asbestos is detected above threshold level.
 - Sites with no previous asbestos (e.g. greenfield), i.e. where there is no current background asbestos. (Key principle – do not contaminate previously uncontaminated areas). The ASEA asbestos heatmap could be used to identify greenfield areas ([National Residential Asbestos Heatmap – Roadshows | Asbestos and Silica Safety and Eradication Agency \(asbestossafety.gov.au\)](https://www.asbestossafety.gov.au/national-residential-asbestos-heatmap-roadshows)).
 - Sensitive uses (e.g. low density residential) where feasibility of appropriate management is low.
 - Scenarios which result in an unacceptable risk given the exposure characteristics of where the material is to be used (giving due consideration of the nature of the asbestos and the recycled material).
- iv. are there certain scenarios where reuse of recycled C&D material could result in land legacy issues?
- Sites with no previous asbestos (e.g. greenfield), i.e. where there is no current background asbestos.

- In sensitive landuses where there is no control on the management of the recycled C&D material. For example, in low density residential dwelling, where material intended for trench backfill is excavated and mixed with topsoil.
- Friable asbestos is contained in recycled C&D material above threshold.
- Bonded asbestos is contained in recycled C&D material and becomes friable above threshold.
- The presence of other chemicals in C&D waste.

Standards and guidelines for asbestos in waste

Question 7: Are there other standards or guidelines that would be applicable for managing asbestos in waste for beneficial reuse that can be provided?

- **The New Zealand Demolition and Asbestos Association (NZDAA) Asbestos Sector Review 2022.**
- **NICOLE (2021) Asbestos in Soil – A Pan European Perspective.** < <https://nicole.org/wp-content/uploads/2023/05/Asbestos-in-Soil.pdf>>.

Question 8: Should the approach in the WA guideline (*Managing asbestos at construction and demolition waste recycling facilities*), be implemented in NSW and if so, why or why not?

- Are there other factors that should be considered if the WA Guideline is to be implemented?
- Is there an alternative approach that could be considered?

Yes – The WA approach provides a good framework / starting point as this is risk based instead of relying on presence/absence approach, which is often not achievable due to the presence of background concentrations.

- Are there other factors that should be considered if the WA Guideline is to be implemented?**

See response to Question 1 above

- Is there an alternative approach that could be considered?**

Utilise the NSW Resource Recovery framework, including Specific Exemptions for particular uses of materials (as well as General Exemptions for appropriate materials / uses such as landfill daily cover – which can currently be approved under EPLs).

Sampling and analysis

Question 9: Apart from AS4964 and ASC NEPM, are there other sampling and analysis methods for detecting and quantifying asbestos in waste materials or recycled products that are being received and processed at recycling facilities?

- i. Are you aware of any other methods/processes for sampling and analysis of asbestos that the Review should consider? If so, please provide details and basis for their relevance to this Review.
- ii. How reliable and accurate are these methods in ensuring that recycled waste is not contaminated?

AS4964 has been updated to AS 5370:2024.

Visual methods are used for WHS asbestos clearances.

Risk-based approaches for managing asbestos in waste

- i. **Question 10:** Would a through-chain approach to managing asbestos in waste, where each business looks to minimise or eliminate the risk from asbestos in waste for beneficial reuse, work? What elements would be part of the system/approach?
- ii. What would be the advantages/disadvantages of such a system?

Yes – it maximises the potential to appropriately remove asbestos before recycling; but should be clearer and more enforceable so that the benefit can be realised.

i. **What elements would be part of the system/approach?**

- **Certifiers / assessors at demolition stage**
- **Original supplier (generator) of the material (e.g. raw C&D waste generator)**
- **Waste transporter**
- **Recycling facility**
- **Distributor of recycled materials**
- **Retailers**
- **User**
- **Regulator**
- **Readily available technology can enable the full tracking of materials from source to destination through a waste processor, similar to transport chain of responsibility. The consulting classification reports could be appended. It is currently in use for beef tracking.**

ii. **What would be the advantages/disadvantages of such a system?**

Advantages:

- **Incentive to maximise the removal of asbestos at each stage, removing asbestos from the environment and minimising what ends up in recycled material**
- **Clarity in responsibilities**

Disadvantages:

- **Inexperienced stakeholders may miss presence of asbestos.**
- **Additional documentation costs**
- **Potential for legal conflicts**
- **Additional regulatory burden**

Question 11: Are there other risk-based approaches to managing asbestos in waste for beneficial reuse?

Consideration of end use and design the program accordingly.

In relation to the Through-chain approach, if there are any weak links in any steps, provide flexibility to increase rigour in other steps to compensate.

General

Question 12: Is there any further information you would like to provide the Review to assist us with in responding to the Terms of Reference?

N/A

Email the completed form and attach any relevant data and information to asbestosreview@chiefscientist.nsw.gov.au by 31 July 2024.