FOUNDATION EARTH SCIENCES

Submission for the Management of Asbestos in Recovered Fines and Recovered Materials for Beneficial reuse.

I am an Environmental consultant and have worked in the area of testing for recycling centres since the original guidance was proposed and implemented by the NSW EPA.

I will endeavour to convey my experiences during this period and the successes and failings that I have noted with respect to the following posed questions.

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?

- Amount of asbestos content in asbestos containing materials (ACM)
- Material that is present in the recovered fines ie fibreglass/timber/plastic that can interfere with analysis.
- Is the asbestos friable/non friable
- Decay of asbestos materials within recovered fines over time i.e. will weathering cause the material to become friable.
- What are the end uses of the product
- Is there a market for the material end use! The most prominent disposal location is as fill materials however most are not accepted by councils.
- The heavy machinery required to be used in processing the material – often consists of trommels, screens, crushers, excavators and loaders which can make a small asbestos problem a large one.
- Is there a potential for naturally occurring asbestos to occur in certain parts of NSW.
- Would innisurance companies/regulatory authorities accept the risk

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

Can be provided.

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?**

Asbestos material generally gets introduced from the source of the C&D materials being demolition sites and household cleanups.

The main sources from these areas are:

- Poor demolition practices!!! Usually on old properties.
- Attached to old timber studs/framing on nail heads as a results of poor removal practices.
- Bathrooms walls (usually hidden behind tiles) and removed by plumbers/home DIY with limited ability to identify asbestos materials
- Old packers used under house piers and get mixed up within careless demolition processes.
- Deliberately placed into the middle of skip bins by public/unscrupulous demolition operators in order to mask its presence in order to avoid additional charges of disposal.
- Hidden in garden soils/site surface scrapes which have been buried by previous land uses and owners.
- Attached to brick or concrete walls as part of old construction processes (sometimes asbestos sheeting was used as formwork).

i. Currently the methods of separating and removing non friable asbestos involve the laborious emu picking and separation of materials followed by retesting to confirm it has been removed are the only methods. There are no methods to remove friable asbestos except segregation and even then, this is very limited in application. The best way to separate asbestos is to minimise the chance of it entering the processing stream. There is no machinery that can be used to separate without further potentially damaging the potential asbestos material. Once the material is in the mix and becomes friable it is extremely unlikely to be removed.

ii. The potential reuse scenarios are currently limited as there has never been a well developed end market from recycled products which is a major failing of the guidelines. At the moment the primary end point is as use as a filling material for construction projects. Only the concrete and brick have found a good home in the production of new roadbases/filling materials. There is potential for the soil to be used as a good quality landscaping material but would require amelioration with fertilisers or other specialised soils.

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?

Potentially in Insulations and gyprocks

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?

Health screening levels provide contaminant thresholds for varying land use exposure scenarios and therefore I think that it would be pointless as the soils (as per their current legal use) would generally be used in areas that are exposed and accessible to humans (home owners, gardeners and landscapers) meaning that only one scenario could ever really apply (likely residential) being the most stringent.

Other factors are as follows:

- Would the public accept the risk that soils may contain asbestos.
- Would the end market user accept the risk
- Would insurance companies/regulatory authorities accept the risk

Question 6: Health screening levels are not the only tool used for managing asbestos in soils. If threshold levels in soils are 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. Screening of demolition sites – Tighter regulation of demolition contractors and their disposal methods. Risk assessment of a site prior to disposal of C&D waste.
ii. The limitations would be time (take a very long time to pick and sort a pile containing asbestos). You cannot use heavy machinery without the risk of the asbestos

becoming friable. High Labour cost. Stringent PPE requirements. Can never guarantee full removal of asbestos. Costs to do this may make recycling not feasible.

iii. Recycled C&D materials should not be used in areas where human health risks are high ie Childcare Centres, Schools etc

iv. Yes, there are several scenarios such as contaminated landscaping material and other areas. This has already happened see below:
   - https://www.illawarramercury.com.au/story/4986033/calderwood-asbestos-scandal-not-bingos-only-problem/
   - https://www.theguardian.com/environment/article/2024/may/27/sydney-waste-companies-soil-contamination-landscaping-supplies-#:~:text=As%20part%20of%20an%20investigation,recycled%20construction%20and%20demolition%20waste.

There are many more.

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?

None that I'm aware of.

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?

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

ii. ii. Is there an alternative approach that could be considered?

No comment for this question.

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. ii. How reliable and accurate are these methods in ensuring that recycled waste is not contaminated?

The two mentioned guidelines AS4964 and ASC NEPM are qualitative and quantitative respectively. The only other method that comes to mind is another qualitative method using XRF.

This comes the following issues:

- Cost of the Equipment is prohibitive >50K
- Need a radiation licence to use
- Only qualitative but can screen multiple samples in same pile

This would only be relevant for quality control of a final product being produced to allow a more accurate assessment (by increasing sampling density) or pre-screening materials to confirm they do not contain asbestos.

Risk-based approaches for managing asbestos in waste

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?

i. What elements would be part of the system/approach?
ii. What would be the advantages/disadvantages of such a system?

1. Review structure to observe risk of asbestos
2. Review demolition contractor removal processes – compliance failures mean loss of demo licence.
3. Clearance of building for demolition
4. Inspect demolition waste during disposal
5. Inspect waste at weighbridge and tip off point.
6. Allowance to segregate material if unexpected asbestos is identified.
7. Increased testing regime.

Advantages – Minimise risk of asbestos contamination

Disadvantages – delays to building and construction.

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

Design of better end use markets to allow for materials that may contain asbestos traces and those that are more stringent that don't have any potential to contain.

For Example – Recovered Fines that are for deep filling only - lower stringency may have some asbestos.

Recovered Fines that are for landscaping – Very stringent parameters – no asbestos

General

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

Significant economic factors play in this market and underpin a lot of the viability of this industry. It is important to get the balance correct in order to prevent the asbestos contamination legacy and also make sure the the recycling industry remains viable.

A better look at the end markets of these products may help with designing a solution to the problem to managing asbestos within the asbestos materials.

Thanks for your consideration of these responses

Regards

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Foundation Earth Sciences