



Management of storm damaged asbestos

Damaged asbestos cement sheeting, corrugated or flat, poses a management concern when storm damaged. Depending on the strength of these forces they may damage asbestos in-situ or break and disperse that material elsewhere. In the case of a cyclone such as Vance which hit Exmouth in 1999, the spread of broken asbestos cement pieces affected a large downwind area of the town.

The Guidance Note on the management of fire damaged asbestos, www.healthywa.wa.gov.au/-/media/Files/Corporate/general-documents/Asbestos/PDF/Guidance-note-Management-of-fire-damaged-asbestos.pdf also includes information relating to cyclones, flooding and hail storms as per **Attachment 1**.

The general principles included in this document can also apply to other disaster type situations, noting that fire damaged asbestos is normally a much greater risk than that posed by other severe natural events because fire can cause the asbestos sheeting to shatter and disperse poorly bonded material some distance from the source site.

The level of associated risk will increase as asbestos material gets more broken but wetting associated with rain or floods can reduce the risk somewhat.

Some of the more relevant pieces of information in relation to storms from the fire guidance note are included in this document.

The general process in relation to addressing possible storm damage to asbestos is outlined below.

Attachment 2 provides a detailed checklist that applies in relation to asbestos fires but has some relevance for cyclones.

Management Sequence

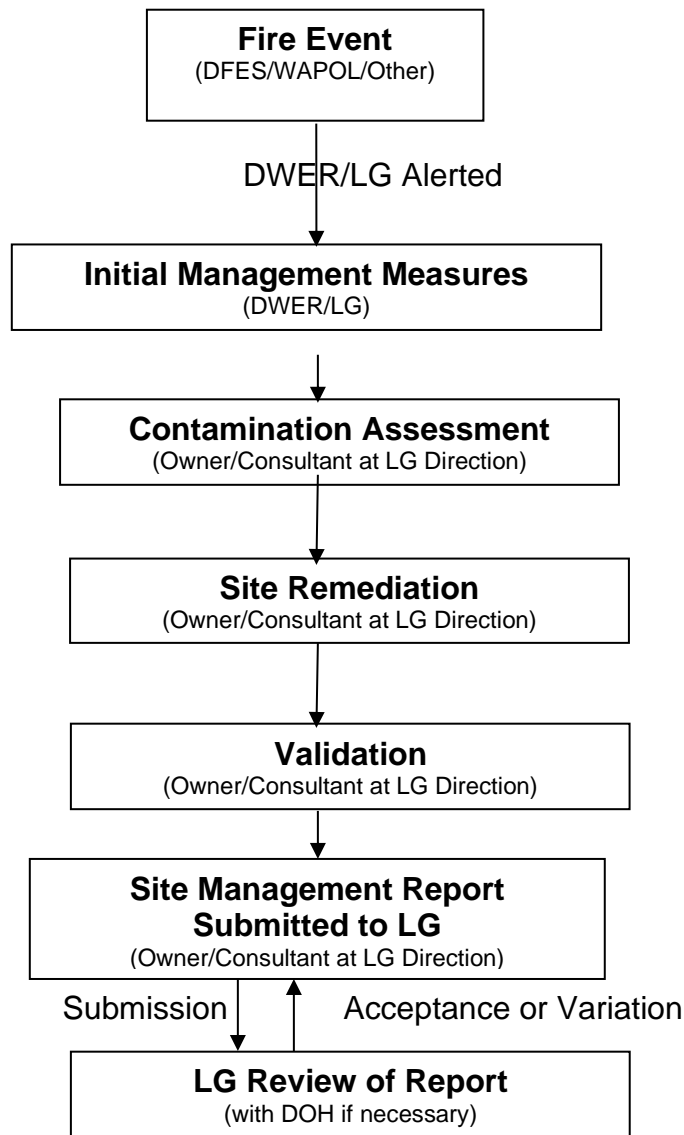
Figure 1, taken from the Fire Guidance Note indicates the normal sequence associated with major asbestos damaging events.

First responders will be initially involved in saving human life and to the extent practical in containing the damage.

The Department of Water and Environmental Regulation (DWER) Pollution Response (PRU) and LG EHOs would follow-up to help deal with environmental and public health concerns.

For the EHOs, they with various other stakeholders, may be involved in the subsequent asbestos identification, assessment, interim and final management, validation and reporting.

FIGURE 1 - Asbestos fire response and management process



Identification

Identification of damaged asbestos material will initially need to take account of the location of pre-1990 buildings and the destructive character of the storms, particularly if they have the potential to cause material to migrate.

EHD has published an identification guidance note for asbestos, although it would be most suitable for asbestos in-situ: www.healthywa.wa.gov.au/-/media/Files/Corporate/general-documents/Asbestos/PDF/GuidanceNoteIdentificationofasbestoscontainingmaterial.pdf

Information from first responders, PRU or LG records may assist in this regard.

Assessment

The major concerns are the breakage of asbestos containing materials and potential damage and weakening of the bonding material (more likely with fire) holding the asbestos fibres.

Other considerations are the amount of material, its potential to be further disturbed and dispersed such as in dust emissions or, to a lesser extent, in surface water flows along roadways or drainage systems; and the access that the public or unprotected people may have to it.

This should be all recorded, preferably also using a map.

Depending on that assessment some immediate management measures may be necessary.

Immediate Management Measures

Some management measures that could be implemented if justified by the risk can include:

- Securing or fencing off an area
- Warning signage
- Wetting down
- Localised clean-up

In some cases, improvised procedures and equipment may be necessary.

Full Contamination Assessment and Management

In slower time and in conjunction with other stakeholders, a more detailed assessment of the damage, the associated risks and their long -term management will follow.

This will of course include dealing with non-asbestos damage and risks and they should all be dealt with as a package.

As outlined in the Fire Guidance Note, communication and support for affected owners and communities will be critical.

That Guidance Note also includes key lessons learned for LG on pages 13-15.

In Conclusion

At this time the nature and extent of the current storm damage is not clear.

The rationale and procedures set out above provide a process for assessing and managing asbestos impacts which are both responsive, proportionate and pragmatic.

In the event that storm damage is found to be minor in nature resources should prioritise the safety of locals and addressing their immediate emotional and physical well-being and needs.

Attachment 1 - Asbestos contamination resulting from disaster events

In the case of asbestos impacts resulting from other disasters the management process may be often simpler and in some cases different from what is experienced with fire, especially major fires. Some of the features that may be associated with disaster related asbestos impacts are provided in the accompanying table. Also listed below are some of the situational factors that may require a more rigorous assessment and management process in regard to any asbestos contamination problem:

- Uncontrolled recovery demolition and soil disturbance
- Larger quantities of material
- Asbestos present as roofing and therefore elevated
- Poorer condition of the pre-existing asbestos material
- Dry and windy conditions
- Presence of amosite (brown asbestos) and in particular crocidolite (blue asbestos)
- Nearby undamaged residences, schools or buildings containing sensitive populations

Asbestos Contamination Event	General Contamination Features	Contamination Management Aspects
Cyclone/major wind storm	On site & potentially widespread downwind scatter of asbestos fragments, pieces & sheets Largely well bonded asbestos debris, so lower risk	Building fabric & footprint Scatter remediation by visual mechanical /manual removal and handpicking unless inadvertent burial
Earthquake	Likely in-situ contamination, except possibly any toppling multi-storey buildings Largely well bonded asbestos debris, so lower risk	Largely building fabric & footprint specific remediation
Explosion (without fire)	Potentially larger area of circular contamination Possibility of brittle material but not in the form of flakes	Building fabric & footprint Also focus on visible scattered possible brittle fragments
Fire (urban or bush)	See Guidance Note	See Guidance Note
Flood Damage	Potentially widespread down flow spread of asbestos pieces & sheets Possibility of material being buried in other areas under debris & sediment	Building fabric & footprint Scatter remediation by visual mechanical /manual removal and handpicking Possibly sampling & excavation related to buried material
Hail Storm	Largely damage to asbestos roofing resulting fragments in roof space & roof compromise	Handpicking & preferably roof replacement rather than repair

Attachment 2 - Asbestos fire contamination management checklist

This checklist outlines the main steps that should be taken when possible and appropriate in managing contamination and protecting the public from health risks resulting from an asbestos fire. Greater detail is provided in the main text of the Guidance Note as per page number references.

Fire asbestos contamination usually consists of: the building skeleton and footprint; close surrounding area of coarse fragment scatter; surface deposits of fine material from smoke plume deposition; and airborne free fibre and small fibre bundles. In the case of asbestos cement, the latter are usually too dispersed by the fire to present a significant risk unless subsequently generated by disturbance of the other types of contamination. Sometimes there may also be asbestos contamination as a result of firefighting water run-off.

Other hazardous fire residues should be managed in conjunction with the asbestos, such as CCA treated timber.

Actions	Agencies
<p>1. Fire Event (page 6)</p> <ul style="list-style-type: none"> Site public exclusion and possible local evacuation due to all hazardous emissions 	<p>DFES, WAPOL (DPW, VBFB possibly)</p>
<p>2. Initial Management Measures (page 6)(within <u>24hrs to several days depending on particular action and site circumstances</u>)</p> <ul style="list-style-type: none"> Identify possible presence of asbestos, based on age, type, condition, appearance (and 'burn test') - assume presence, subject to laboratory confirmation Apply PPE and safety access restrictions. See Safety Checklist – Attachment 2 Delineate and isolation of possible asbestos contaminated areas Erect warning signage and fencing if necessary. Minimise disturbance, e.g. vehicles Wet down (ongoing) Undertake some emergency clean-up if necessary e.g. for major roads Advise owners about the fire and undertake public communication. See Attachment 6 brochure Consider possible actions for adjacent residences or buildings, e.g. evacuation Consider the need for air monitoring for asbestos fibre 	<p>DER (if present) <input type="checkbox"/> LG (including briefing)</p>
<p>3. Detailed assessment (page 8)(a <u>few days to a week or two to complete</u>)</p> <ul style="list-style-type: none"> LG initiate formal management process by owners and/or WANDRRA, invoking OHS, health or environmental legislation if necessary. See Attachment 3 for group roles Appointment of competent person, occupational hygienist or environmental consultant (depending on contamination circumstances) as asbestos management leader If possible, the same asbestos professionals should be employed throughout the assessment and management process using suitable standardised procedures <p>Asbestos professionals:</p>	<p>LG Owner/Insurer WANDRRA (bushfires) Asbestos professionals</p>

<ul style="list-style-type: none"> • Use NOHSC 2005 and/or Asbestos Guidelines as external main references • Consider parallel assessment and management of other hazardous materials • Compile available site asbestos information including from initial survey and records • Undertake site visit with suitable PPE and safe procedures. See Safety Checklist – Attachment 2 • Upgrade the initial management measures if necessary e.g. fencing • Develop a detailed agreed assessment and sampling (if necessary) plan including: <ul style="list-style-type: none"> ○ treating certain specified types of asbestos contamination as friable ○ delineating visible material contamination boundaries using a grid-based walkover ○ delineating invisible material boundaries by context, and sampling if necessary • Implement the plan, adapting as necessary to site circumstances and developments • Provide details of the assessment methodology, results and recommended remediation actions in a written report, quoting guidance material used 	
<p>4. Remediation and Validation (page 10)(may take <u>from several days to many months to complete</u>)</p> <ul style="list-style-type: none"> • All agencies should agree on a remediation and validation approach as outlined in an Asbestos Removal Control or Management Plan prepared by the competent person etc. See Attachment 4 <p><i>4.1 General considerations (page 10)</i></p> <p>Asbestos professionals:</p> <ul style="list-style-type: none"> • The consultants who conducted the contamination assessment should be used for the remediation and validation stages • Use NOHSC 2005 and/or Asbestos Guidelines as external main references for plan • The plan should include, among other topics: <ul style="list-style-type: none"> ○ employ a standardised procedure, subject to site differences ○ include contingency arrangements e.g. for unexpected impacts ○ include communications and complaints arrangements ○ outline public risk management measures • All remediation and validation should be staged, sector-based with recontamination prevented • Special arrangements may be necessary for very large or remote fires <p><i>4.2 Remediation (page 11)</i></p> <ul style="list-style-type: none"> • The asbestos removalists for friable material must have an unrestricted license • Removalists must be consultant supervised and work to an agreed plan • A decontamination zone and truck loading area should be established 	<p>LG Owner/Insurer WANDRRA (bushfires) Asbestos professionals</p>

<ul style="list-style-type: none"> • Ongoing dust management measures and asbestos air monitoring to be implemented • Scattered still bonded larger fragments should be subject to a grid based hand pick and, if necessary, a soil surface skim • Possible asbestos free fibre or fibre bundles on hard surfaces should be subject to HEPA vacuuming followed by wet mopping • Smoke plume asbestos flake deposits should be handpicked or HEPA vacuumed • The building structure and footprint material should normally be subject to mechanical removal followed by final clean-up • Special procedures may be necessary for impacted adjacent roofs or potential impacted adjacent properties • Any soil excavation should done wet and systematically in stages • Any excavated contaminated material should be wetted and immediately removed from the site • Bulk contaminated material for practical reasons can be placed directly into properly lined skips or truck trays and fully enclosed during transport - dust control is critical • There should be no recycling of non-asbestos parts of the building unless non-contamination is demonstrated • Asbestos contaminated materials should be contained, transferred and disposed of in accordance with OHS and environmental requirements <p>4.3 Validation (page 12)</p> <ul style="list-style-type: none"> • All remediated areas should be validated visually and, in the case of friable or fine material, also by sampling and analysis • A clearance certificate should be issued by a competent person • The LG EHO may conduct a final visual check 	
<p>5. Reporting (page 13)</p> <ul style="list-style-type: none"> • A remediation and validation report should be submitted to LG demonstrating the adequacy of the work - further clarification and/or more work should be undertaken if necessary 	<p>LG Owner/Insurer WANDRRA (bushfires) Asbestos professionals</p>