Working safely around asbestos pipes

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This briefing note outlines a good international practice approach to managing work with and around asbestos pipes and does not constitute legal advice or replace professional advice from national labour inspectorates and/or other competent authorities. We strongly encourage our clients to seek information from these entities to ensure that the contents of this briefing note do not conflict with or contradict any legal requirements. The European Bank for Reconstruction and Development (EBRD) is not responsible for the content of any external references.

Introduction

Exposure to asbestos fibres may result in diseases such as lung cancer, mesothelioma, cancer of the larynx and asbestosis (fibrosis of the lungs). The World Health Organization (WHO) estimates that around 125 million workers globally could be exposed to asbestos-containing materials (ACMs) in their workplaces (WHO, 2014), increasing the risk of premature death.

The WHO also estimates that asbestos is responsible for more than 100,000 premature deaths a year and around 1.5 million disability claims for lung-related cancers and diseases (WHO, 2014). The use of asbestos is prohibited in many countries, however, workers often come across buried cement pipes that contain asbestos fibres. These ACMs may require attention by maintenance workers and expose other workers nearby to asbestos fibres.

Asbestos fibres are naturally occurring minerals that are resistant to heat and electricity. They are commonly used in cement products, such as pipes and roofing sheets. However, they can also be found in insulation and fire-protection materials, such as gaskets, fire blankets and fire doors. To a lesser extent, asbestos can be found in building plastics and insulators in electrical switchgear.

Risk assessment

Asbestos fibres are usually bonded within cement pipes to give them strength and durability. If these cement pipes become damaged or cut, asbestos fibres can be released into the air and potentially inhaled by people in the work area. Individual asbestos fibres are so small that they are invisible to the human eye. If inhaled, they can penetrate deep into the lungs, causing serious medical conditions. Because of their great tensile strength, asbestos fibres do not break down, so retain their needle-like structure for many years, causing inflammation of the lung tissue and creating scar-tissue damage. This scar tissue reduces the amount of oxygen that can enter the body and increases the risk of cancer. Bonded asbestos-containing materials pose little risk until disturbed or damaged, when asbestos fibres can be released into the air and inhaled.

Before conducting any work, a risk assessment must be undertaken. If asbestos cement pipes are discovered at any stage thereafter, work must stop and the risk assessment must be revised. If any uncertainty exists over the presence of asbestos and there is no means of testing the material in the pipe, it should be assumed that the pipe contains asbestos and appropriate safe work practices should be adopted. Any risk assessment should concentrate on eliminating the release of fibres. It is important to note that drilling or sawing through an asbestos-containing cement pipe will result in a significant release of fibres and should be avoided.

All workers should be provided with training to help them identify pipes that could contain asbestos. They also need to be made aware of the health risks associated with these materials. Training should include:

- the hazards of released asbestos fibres
- safe working methods
- the correct use of personal protective equipment (PPE)
- cleaning and disposal methods.

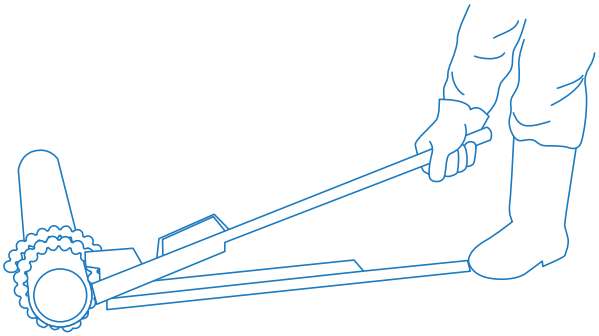
If significant amounts of ACMs have been identified and the material is damaged, specialist contractors should be used to remove it.

Pipe cutting

In the water sector, cutting asbestos-containing cement pipes is a high-risk activity due to the potential release of asbestos fibres.

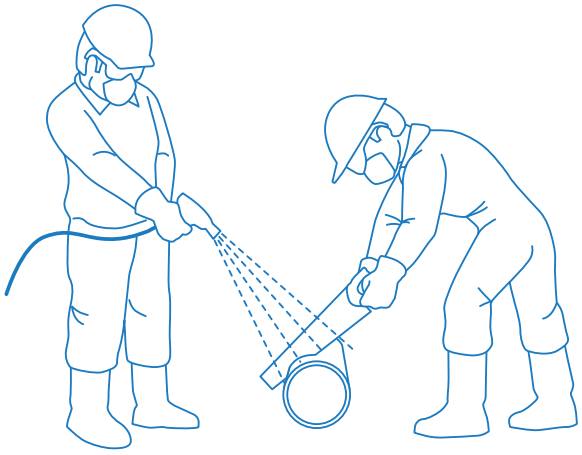
Power tools should not be used to cut these pipes due to the ensuing release of large amounts of asbestos fibre into the air.

Figure 1. A pipe breaker puts pressure on a number of points around the cement pipe at the same time, causing it to break with minimal release of fibres



To prevent asbestos fibres from entering the air during pipe cutting, heavy-gauge polythene can be placed around the pipe and the pipe can then be broken with a hammer.

Figure 2. A worker sprays a pipe with water while another cuts it with a hand tool, suppressing the release of asbestos fibres into the air



For small asbestos cement pipes, a hand saw or pipe breaker can be used. Water should be sprayed continually over the area being cut to suppress the release of asbestos fibres.

PPE

Where there is a risk of asbestos fibres being present, workers should wear suitable PPE to prevent the possibility of inhaling any fibres that might be released into the air. This should include:

Face masks: FFP3-rated (disposable) face masks offer the highest protection factor and, therefore, the greatest protection against the inhalation of asbestos fibres. This type of face mask should always be used when working with ACMs. Before starting work, is important that all workers undergo a face mask fit test prior to wearing their mask for work. This is to ensure that the mask fits the worker correctly and provides maximum protection. Face masks should not be worn over beards or facial hair.

Rubber gloves: Asbestos fibres can get caught in cloth fabric, so rubber gloves should be used.

Disposable hooded coveralls: Disposable hooded coveralls, made from materials such as Tyvek™, should be worn to prevent clothing becoming contaminated with asbestos fibres. These can be disposed of when the work is done.

Safety boots: Asbestos fibres can become attached to boot laces and potentially be released later on, away from the original work area. Therefore, safety boots that do not have laces are the preferred option when carrying out work around ACMs.

Waste and clean up

Any asbestos cement pipes removed from a work area should be sealed in heavy-gauge polythene. This should then be placed in a polythene bag (ideally double bagged). The bag should be sealed with tape to secure the contents, affixed with appropriate signage and disposed of as hazardous waste in a licensed hazardous waste facility.

The water used to suppress fibre release during pipe cutting becomes slurry. Because this slurry contains asbestos fibres, it will need to be removed as above and disposed of as hazardous waste.

Any boots and gloves exposed to ACMs should be washed down. Face masks and disposable hooded coveralls must also be placed in a polythene bag and disposed of as hazardous waste. Face masks should be the last item to be removed.

Lastly, the cutting of asbestos cement pipes should take place inside the excavation where the work is being carried out. This will ensure that the asbestos fibres are contained in one location.

Summary

Before working on asbestos pipes, ask the following questions:

- Has a risk assessment been carried out?
- Can the work be carried out in a different way to avoid disturbing the pipe?
- Can the pipe be left undisturbed?
- Can the pipe be sealed in polythene?
- Have workers been given training and information on how to hand cut asbestos pipes and the risks associated with the task?
- Can the workers keep the asbestos pipe wet during cutting?
- Do workers have the correct PPE?
- Do face masks fit workers correctly, with a tight seal around the face?
- Has a fit test been conducted?
- Does the worker have facial hair preventing a tight seal?
- Do workers understand how to seal the asbestos pipe in polythene bags for disposal?
- Do workers know the procedure for cleaning tools, equipment and the work area on completion of the task?
- Are adequate processes in place for the safe removal and disposal of hazardous waste?

For more information, see the EBRD Asbestos Awareness e-Learning Course available at https://www.ebrdelearning.com.

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