

Guidelines for Identification of Asbestos Cement Pipes

Power and Water Work Instruction

Hazards	Personal Protective Equipment	Tools & Equipment
Asbestos Trip / fall	<ul style="list-style-type: none"> Disposable half-face particulate respirators with P2 filters (see below) Safety footwear 	Water for wetting AC pipe Safety barriers & signs Plastic bags for samples Plastic or rubber mat Asbestos waste bags

Based on information contained in Sydney Water 'Working with Asbestos' procedure CP-KP-013

Asbestos cement pipes have been installed in water and wastewater systems operated by Power and Water. This includes water transmission mains and sewer rising mains.

Production of asbestos cement pipes in Australia commenced in 1926.

Asbestos cement pipe was commissioned in parts of Darwin as early as 1954 and sections of Alice Springs as early as 1955.

The production of asbestos cement pipes ceased in 1985, however FIS records indicate that new asbestos cement pipelines were commissioned up to 1992. Repairs using asbestos cement pipe appear to have continued until 2000.

Some asbestos cement pipes as large as DN750 exist in the water system and up to DN600 in the sewerage system, however most of the asbestos cement pipes in the various systems are DN225 or smaller.

Suggested disposable respirators include:

- MSA Affinity Pro P2
- 3M 8822 P2 valved disposable
- 3M 4000 series disposable half face respirator 4277 P2
- Drager Piccola FFP2 with valve (fold flat disposable)



High speed abrasive power or pneumatic tools such as angle grinders, sanders, saws and high-speed drills shall never be used on materials containing asbestos (eg. asbestos cement). Use only handtools.



Danger



Caution

Tag



Environmental




Permit



Document

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Identification of Pipes	
	1. Use FIS to determine whether the pipe to be repaired or removed is for sewerage, water or another purpose.
	2. Use FIS to determine if electricity cables are buried adjacent to the pipe to be repaired or removed.
	3. If FIS indicates the pipe is asbestos cement, apply and follow the procedures outlined in the work instruction for Repair / Removal of Asbestos Cement Pipes.
	4. Where FIS indicates the pipe is not asbestos cement, this should be confirmed by manual checks prior to cutting or breaking into the pipe.
	5. Excavate the ground to expose the pipe. Use due care to avoid damage to other services.
	6. Disposable half-face particulate respirators with P2 filters must be worn. Remove the soil from the pipe surface and wash a small area with clean water. Place plastic or rubber mat on the floor of the trench under the pipe or adjacent to the exposed area. Scrape the washed surface to expose a clean surface. Keep the pipe surface wet whilst scraping to prevent fibres being released into the atmosphere if the pipe is asbestos cement. Take care not to scratch the surface of plastic pipes.
	7. From the colour and texture of the surface, the following identification should be possible: <ul style="list-style-type: none">• Metallic Surface: the pipe will be cast iron, mild steel, ductile iron or copper. Excluding copper, a magnet will be attracted to the surface.• Golden-Brown / Terracotta Surface: vitrified clay (VC)• Orange Surface: electricity conduit or low voltage cable. Report damaged conduits to Power Networks and if cable surface appears damaged, report to Power Networks.• Blue or White or Lilac Surface: the pipe is plastic and should have markings at some point on the circumference at one metre intervals along the pipe to identify material, manufacturer, class of pipe, year of manufacture.

- **Black Surface – Uncoated:** high voltage electricity cable or polyethylene pipe. High voltage cables are installed with a minimum cover of 900mm and are normally installed with orange marker tape. In the early days, high voltage cables usually had concrete slabs installed above them for mechanical protection. Request a cable location from Power Networks if an uncovered service is suspected to be a high voltage cable. Report damaged cables to Power Networks. Cables should have raised lettering at some point on the circumference at one-metre intervals along the cable. Polyethylene water pipe should have two narrow blue lines running along the pipe at some point on the circumference. Polyethylene sewerage pipes may be unmarked.
- **Black Surface – Coated:** the pipe may be covered with an asbestos-bitumen material and could be made from cast iron, mild steel, ductile iron, or asbestos cement. Alternatively, the pipe may have a polyethylene coating, which is normally used in Power and Water systems on spiral welded mild steel piping. Keeping the pipe surface wet, lightly scrape the black coating off to reveal the underlying surface. If the underlying surface is grey and non-magnetic, then follow the guidelines below for 'Grey Surface'. If the black coating is not polyethylene and is thick, treat as containing asbestos. Repair damaged non-asbestos coatings.
- **Grey Surface:**
Water Pipes
If the pipe is grey, it is either asbestos cement or a 'gunite' (concrete) coated steel pipe. There are fibres that can be seen in the asbestos cement pipes and the pipes have a softer texture than concrete. Few, if any, 'gunite' pipes have been installed in Power and Water systems.

Sewerage Pipes
If the pipe is grey, it could be either asbestos cement or concrete. Pipes over DN375 are more likely to be concrete. There are fibres that can be seen in the asbestos cement pipes and the pipes have a softer texture than concrete. When scraped, concrete feels more abrasive.

8. If there is any doubt remaining on the pipe material, seek specialist advice.

OPTIONAL: Scrape off a small sample of the pipe material and place it in a sample bag for laboratory testing. Label the bag with the location and date of sampling.



9. All material scraped off pipe (excluding any samples taken for laboratory analysis) must be collected and placed in an asbestos waste bag. Seal asbestos waste bags such that no air can get out.



10. After completion of inspection, wash down tools and plastic or rubber mat or wipe tools with a wet cloth (and the wet cloth placed in an asbestos waste bag). Whilst still wearing a respirator, footwear should be wiped with a wet cloth and the wet cloth placed in an asbestos waste bag. Finally, respirators can be removed and placed in an asbestos waste bag. After removing the respirator, wash face and hands, paying attention to fingernails. If necessary, wash hair.

11. Wherever asbestos cement pipes or pipes with a thick black asbestos-bitumen coating are identified, apply and follow the instructions outlined the work instruction QDOC2006/899 - Repair / Removal of Asbestos Cement Pipes.

Definitions

Word	Definition
Asbestos	The fibrous form of mineral silicates belonging to the serpentine and amphibole groups of rock-forming minerals, including actinolite, amosite (brown asbestos), anthophyllite, chrysolite (white asbestos), crocidolite (blue asbestos), tremolite, or any mixture containing one or more of the mineral silicates belonging to the serpentine and amphibole groups
Asbestos-Bitumen	A bitumen based corrosion inhibitor reinforced with asbestos fibres
Asbestos-Cement (AC)	Products consisting of sand aggregate and cement reinforced with asbestos fibres
Asbestos Containing Material (ACM)	Any material, object, product or debris that contains asbestos <i>Note: Information for determining if a material contains asbestos is provided in Part 9 of the National Code for the Management and Control of Asbestos in Workplaces [NOHSC: 2018(2005)]</i>
FIS	Facilities Information System – a computer-based asset inventory management system used by the power and Water Corporation
Friable (Asbestos)	Asbestos-containing material which, when dry, is or may become crumbled, pulverised or reduced to powder by hand pressure