



Guideline for the Safe Control, Processing, Storing, Removing and Handling of Asbestos and Asbestos Containing Materials and Articles for the Southern African Power Pool

CONFIGURATION MANAGEMENT

DOCUMENT GUIDELINE FOR SAFE CONTROL, PROCESSING, STORING, REMOVING AND HANDLING OF ASBESTOS AND ASBESTOS CONTAINING MATERIALS AND ARTICLES FOR THE SOUTHERN AFRICAN POWER POOL

NUMBER

TYPE Guideline

LAST UPDATE 12 July 2004

Author Environmental Sub-Committee

Date 12 July 2004

FILE NAME

REVISION	DATE	AUTHOR	REASON	SIGNATURE
Final	2004-07-12	SAPP Environmental Sub-committee	Occupational Health and Safety	

FINAL

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Introduction

SAPP Members will take whatever steps, which is reasonably practicable in order to prevent the exposure of any person, including members of the public, to asbestos.

This guideline has been developed:

1. To conform to relevant legal requirements. (Based on individual SAPP members' country legislation and/or contract conditions).
2. To set requirements for the management of risks associated with asbestos and asbestos related products and articles, including protecting of employees, liability to the organization as well as the "preserving" image of SAPP members.
3. To control asbestos exposures based on the principle of controlling at the lowest level reasonably practicable.
4. To assist SAPP members in developing their own asbestos phase-out plan for example to phase out asbestos and asbestos material in a formalized manner over a period of 30 years.

1.1 Purpose

This guideline provides direction for identification, evaluation and control of any work that exposes or is likely to expose any person to airborne or settled dust containing regulated asbestos fibers and for compliance with the requirements of applicable legislation.

1.2 Applicability

This guideline is applicable in all work areas throughout SAPP members' utilities.

2. Normative references

1. ISO/ IEC FDIS 17025. General Requirements for the Competence of Testing and Calibration Laboratories.
2. HSG 173 means the Monitoring Strategies for Toxic Substances, HSG 173, published by the Health and Safety Executive of the United Kingdom;
3. MDHS 39/4: The Methods for the Determination of Hazardous Substances 39/4 of the Health and Safety Executive of the United Kingdom: Asbestos fibres in air, sampling and evaluation by phase contrast microscopy (PCM) under the Control of Asbestos at Work Regulations, 1995 HSE ISBN 0 7176 0913 8, as revised from time to time.
4. "OESSM" means the Occupational Exposure Sampling Strategy Manual, published by the National Institute for Occupational Safety and Health (NIOSH), United States of America: Department of Health, Education and Welfare.
5. SANS 0228: means the Code of Practice for the Identification and Classification of Dangerous Substances and Goods, SABS 0228, published by the South African Bureau of Standards (SABS);
6. SANS 0229: means the Code of Practice for Packaging of Dangerous Goods for Road and Rail Transportation in South Africa, SABS 0229, published by the South African Bureau of Standards (SABS).

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3. Definitions and abbreviations

- 3.1 Government approved inspection authority: means an inspection authority approved by the relevant authority (inspector) for the monitoring of asbestos concentrations in the air as may be applicable.
- 3.2 ACP: Asbestos cement products.
- 3.3 Asbestos related activities: includes demolition, alteration, stripping, cleaning, cutting, removing, repair, collecting any spilt asbestos or high-pressure water jetting of any structure containing asbestos lagging or insulation.
- 3.4 Measurement programme: means a programme according to the monitoring strategy as contemplated in HSG 173.
- 3.5 Monitoring: means the planning and carrying out of a measurement programme and the recording of the results thereof.
- 3.6 OEL: (Occupational exposure limit) means a limit value of 0.2 asbestos fibres per milliliter of air.
- 3.7 "reasonably practicable" means practicable having regard to-
- the severity and scope of the hazard or risk concerned;
 - the state of knowledge reasonably available concerning that hazard or risk and of any means of removing or mitigating that hazard or risk;
 - the availability and suitability of means to remove or mitigate that hazard or risk; and
 - the cost of removing or mitigating that hazard or risk in relation to the benefits deriving there from.
- 3.8 The Time-Weighted Average (TWA) exposure for asbestos, which should not be exceeded at any time during the working day even if the 4-hour. TWA is within the OEL-TWA.

4. Guideline

4.1 General

Asbestos work could vary between tasks and could include handling of asbestos containing lagging or insulation material that may be disturbed by the demolition of or structural alterations of buildings or structures to gleaning of large asbestos spills. It includes work performed on asbestos cement products (ACP) for example sheeting and other related products as well as asbestos that forms part of a structure of a workplace, building, plant or premises.

The inhalation of regulated asbestos fibers can cause serious lung diseases including asbestosis, cancer of the lungs and mesothelioma. These diseases usually become apparent only some years after exposure to asbestos and sometimes not until 40 or more years after the first exposure. Cigarette smokers who are occupationally exposed to asbestos exhibit a marked increase in the incidence of lung cancer when compared to non-smokers.

The way to prevent these diseases is to limit the generation of asbestos dust and to avoid inhaling asbestos fibers. The fewer asbestos fibers inhaled, the less danger there is to health.

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4.2 Notification of work

Prior to the commencement of any asbestos-related work the utility shall notify, in writing, the relevant authority of such work as may be applicable. This notification will allow the relevant authority to respond accordingly. Asbestos-related work refers to any work involving asbestos, irrespective of the extent of the work. The notification could be for a specific work or for a long-term project for example stripping of asbestos lagging in a power station.

This includes for example inspections conducted at sites where substandard conditions in relation to asbestos or where the potential of exposure to asbestos dust exist.

4.3 Inventory

All asbestos and asbestos containing material must be identified and recorded on an inventory by the utility. If such material does not belong to the utility, the owner could provide the inventory but in such a case the onus is on the utility to verify the correctness and applicability of the information on the inventory.

Asbestos refers to any of the following minerals: Amosite, Chrysotile, Crocidolite, Fibrous actinolite, Fibrous anthophyllite, Fibrous tremolite or any mixture containing any of these minerals.

If one is not sure if a particular material is or does contain asbestos it must be handled as if it is asbestos material until such a time that it is confirmed not containing asbestos material. A representative sample of the actual material could be taken and analysed to confirm the fact that it is asbestos material. A swipe sample of dust collected on work surface areas or on identified marked areas could be collected and scanned under a Contrast Phase Microscope for recognition of the presence of asbestos fibres. This to be undertaken by an appropriate specialist in the field.

A representative sample of the asbestos material (i.e. lagging or insulation material) should be obtained. A sufficient number of small core samples should be taken from a minimum of three separate positions because some structures may have been repaired with different materials over the years. The core samples must be taken in such a manner as to include material from all depths of the insulation. A ten-millimetre cork punch can be used as a sampling tool. Approximately ten cubic centimeters of material from each sampling point should be packed in a plastic bag, sealed and labeled appropriately.

Asbestos is of a fibrous form that is often clearly visible as straight colourless to grey/brown fibres curly white to gray fibres that are difficult to separate straight dark blue fibres; or a finely powdered fibre dust.

Visual inspection of the sample shall only be regarded as a guide and must not be used for identification purposes, as cases are known where the insulation or lagging has been painted over or bound with cotton or some other textile. In other cases the insulation or lagging may already have been treated with specialized encapsulation materials.

Laboratory identification by means of Scanning Electron Microscopy is the only method regarded as confirming asbestos material. For positive identification, a competent laboratory using X-ray diffraction techniques (calibrated for asbestos identification) as indicated by the utility's AIA - shall analyze the sample.

The inventory must be specific with regard to the location, description and amount of asbestos or asbestos containing material (see Part A of Annexure 1).

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It is recommended that the inventory be kept on record for a period of 40 years.

4.4 Assessments

Utilities must assess the exposure of their employees to hazardous environmental conditions relating to asbestos work in the workplace. Assessment should be carried out at regular intervals, not exceeding once every second year, provided that a reassessment is not required. Reassessment should be conducted once the process change or there is any doubt in the validity of the previous assessment results.

Where this assessment indicates a risk or a possible of exposure, the air should be measured, compared with prescribed standards and control measures should be implemented.

Applying these requirements, it should be within what is understood and defined as "reasonable practicable". It is therefore for the utility to provide the reasons for what they regarded as reasonable practical in a particular given situation.

The purpose of the assessment is to recognize the hazards or potential hazards and to evaluate the extent of the risk to health of the exposed persons for a particular asbestos work to be performed and to record this information. This will also assist the utility to make decisions with regard to further actions to be implemented if the risk to health is not obvious after the assessment has been conducted.

Situations where the possibility exists of asbestos dust becoming airborne as a result of working conditions, like air movement or vibration of plant / equipment or work to be performed. Examples include asbestos containing dusts collected on top of surface areas like ceilings, beams or structures which could become airborne due to disturbances by wind, vibration or work processes.

During the assessment various options have to be considered by the utility. If it is obvious that a health hazard does or is likely to exist, control measures should be implemented as soon as reasonable possible. Where uncertainty exist with regard to the fact that a particular situation could be hazardous or not, it should be dealt with as hazardous to health until such a time that it is confirmed by means of air sampling results as not hazardous.

A government approved inspector could verify the assessment results as part of occupational hygiene monitoring and have the right to change the outcome of an assessment, provided that the approved inspector give a written motivation for the change in assessment result and that such change is recorded.

The assessment results should be recorded and must be kept for a period of at least 40 years from assessment date.

The assessor should complete Part B of Annexure 1 during an assessment.

The focus is on control of asbestos exposures. The steps to be taken to reduce exposure must be based on the principle of to control at the lowest level reasonably practicable.

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4.5 Monitoring strategy

An air monitoring strategy should be based on the principle of controlling the asbestos fibre concentration to levels as low as reasonable practicable. This could be based on spot sampling results, previous results of previous similar work (if NIOSH is applicable to the utility/country).

In terms of MDHS 39/4 there are various sampling applications that could be followed. These applications are as follows:

1. Compliance sampling used to assess whether or not the personal exposure of workers is in compliance with the 4 hour OEL (TWA) or 10 minutes Short Term OEL.
2. Background sampling use to establish fibre levels prior to any activity which may lead to airborne asbestos contamination.
3. Leak / enclosed check sampling use to check that the environmental control systems are adequate. This measurement is taken outside the enclosed area during asbestos removal work is performed.
4. Assessment of respiratory protection sampling use to assess the effectiveness of dust suppression measures and the suitability of respiratory protecting. This measurement is taken inside the enclosure area during asbestos removal work is performed.
5. Clearance indicator sampling is use to indicate the extent to which an area has been cleared after asbestos has been removed or encapsulated.
6. Reassurance sampling is used to confirm that the residual asbestos fiber concentrations are < 0.01 f/ml of air sampled. The monitoring may be conducted in certain circumstances such as when an enclosure has been removed.

Note: The result of the clearance sample should not exceed the result of the background sample.

4.6 CONTROL OF EXPOSURE TO ASBESTOS

The onus is on the utility to ensure that exposure of employees are prevented or controlled.

Control of the exposure refers to the lowering of the airborne asbestos level to levels below the OEL. This should happen as soon, as is reasonably practicable.

In terms of what is regarded as reasonably practicable, the utility should have a strategic plan dealing with asbestos related areas in his areas of control with the aim of controlling asbestos where there is an immediate need but also looking into long term possibilities.

This could include a phasing out program. Phasing out of asbestos refers to

- the removal of asbestos and asbestos containing material; or
- the removal of asbestos and asbestos containing material and replacement with non-asbestos material over a period of 30 Years.

The phasing out program should be done in a formalized manner taking into account the needs of the utility and should be done either: -

- When the material create an immediate risk should be removed and
- As part of the normal maintenance schedule.

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4.6.1 Defining of respirator zones

The principle with preventing exposures and possible occupational diseases is to control asbestos dust to levels as low as reasonable practical below the OEL (TWA) of 0,2 regulated asbestos fibers per milliliter of air. Each utility must therefore set a standard, which is regarded as a safe level, which is reasonable to maintain, and which have been agreed with the utility's relevant management and employee (staff) representative forum.

All areas where asbestos work is performed must be clearly demarcated and identified by notices. The wearing of protective clothing and respiratory protective equipment must be enforced.

The utility must ensure that the respiratory protective equipment issued to any person for the protection against asbestos exposure should only be of the type suitable for asbestos and has been approval by the relevant authority.

4.6.2 Selling or donation of asbestos containing structures or articles

No asbestos containing material, structure or article shall be sold or donated until such time as it has been made safe.

4.6.3 Information and Training

All asbestos and asbestos containing material and articles must be labeled.

Each employee (staff member), (including any mandatory, casual worker or person provided by agents, if applicable) involved in any asbestos related work where he or she could be exposed to asbestos dust, must be adequately and comprehensively informed and trained, prior to performing the asbestos work.

The utility is to ensure that the training should include both practical aspects and theoretical knowledge with regard to the requirements of applicable legislative regulations and its application relating to the asbestos work to be performed.

The utility shall keep a record for a period of 15 years of any training that was given to an employee, both practical and theoretical.

4.6.4 Personal protective equipment and facilities

The effectiveness of respiratory protective equipment depends on the manner in which it is used. Only respiratory protection with a protection factor of at least PP2/PF2 (personal protection /protective factor), which is specified for protection against asbestos, will be allowed. Persons with beards will not be allowed to wear such masks unless a suitable protection designed for use with a beard is used.

Regular inspections must be conducted to ensure the correct use of personal protective equipment.

Personal protective equipment issued to an employee must be decontaminated. Separate containers or storage facilities for personal protective equipment when not in use must be provided; and that all-personal protective equipment, when not in use is stored only in the place provided.

No person will be allowed to remove dirty or contaminated personal protective equipment from the premises. Where contaminated personal protective equipment has to be disposed of, it shall be treated as asbestos waste.

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4.6.5 Maintenance and Demolition work

a) Maintenance work

The onus is on the utility to ensure that all asbestos and asbestos containing structures and articles is in a good state of repair.

Where work is performed on asbestos material and asbestos cement sheeting and related products, the products that form part of the structure of a workplace, building, plant or premises, it is only regarded as purely routine maintenance work and it will not be regarded as demolition work as such.

A standardized plan of work is required for such work and must be available.

Demolition work refers to any work performed, which is not part of the routine day to day routine maintenance work. This will include demolition, alteration, stripping, removing, repair, cleaning any spilt asbestos or high-pressure water jetting of any structure containing asbestos lagging or insulation.

b) Plan of work for demolition work

If the maintenance work constitutes removal of the asbestos material, a plan of work shall be drawn up describing the measures necessary to ensure the health and safety of the persons at the workplace and to prevent the emission of fibres into the air.

At least 30 days prior to the commencement of the demolition task, the written plan of work for the demolition work is developed submitted to the relevant government approval inspector for approval.

c) Contents of the Plan of work (Specific plans or Routine work)

A plan as to how the work is to be carried out must be developed prior to activity. The plan of work should contain the following minimum information:

1. Name and addresses of the person who intends to conduct the demolition work to be carried out.
2. Certificate of approval issued by the relevant authority as an Asbestos Contractor.
3. Name and contact details of the person that is in charge of the work.
4. Name of persons undertaking the work.
5. Name and address of the approved inspection authority that will approve the plan of work and will take charge of air monitoring.
6. Air monitoring strategy.
7. The address and description of the building(s) or structure(s), including size/ area.
8. Location and amount of asbestos-containing lagging and insulation present.
9. Types of surfaces e.g. pipe sections, panels, etc.
10. Work to be performed interior or exterior.
11. Approximate mass or volume
12. Nature of work to be executed, e.g.
 - Alteration
 - Removal
 - Demolition

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13. Scheduled commencement and completion dates.
14. Site preparation plans with special reference to:
 - Demarcation of the workplace
 - Safety notices
 - Access control measures.
 - Means of draining run-off water.
15. Detailed procedures that will be employed describing step by step how the utility will demolish, alter, strip, remove, repair or gleaning of any spilt asbestos or high-pressure water jetting of any structure containing asbestos lagging or insulation.
16. Detailed procedures that will be employed describing step by step how the decontamination process for a specific application will apply.
17. Describe first-aid points and first-aiders.
18. Indicate fire or emergency escapes
19. Temporary transit site for asbestos waste.
20. Procedures that will be employed to collect and dispose of asbestos-containing waste with specific reference to the collection, transport and disposal procedures as well as procedures with respect to the protection of employees.
21. The name and address of the disposal contractor and the name and address of the disposal site must be furnished. Disposal certificates should be available for inspection purposes.
22. A book for logging of comments, complaints or incidents should be implemented and available for anyone to use.

5. Methods for the Handling of Asbestos-Containing Lagging or Insulation

It must be stressed that the removal of lagging or insulation may sometimes be ill-advised if this is done for no reason other than that it contains asbestos. Where adhesion to the substrate is good and the exposed surface is also in a good condition and sufficiently compacted, sealing with a suitable polymeric or bituminous coating is often just as acceptable as a solution.

Sometimes, as a result of impact, a portion of the surface may become exposed, thus releasing asbestos fibres. In such a case it may be more effective to repair the damage and seal/encapsulate the surface to prevent further releases rather than to attempt removal.

To ensure that asbestos fibres are contained during and after repairs or alterations to, or the removal of asbestos-containing lagging or insulation, the following methods can be used under controlled conditions as outlined below.

- Sealing/encapsulation
- Wet removal
- Dry removal
- Removal by high-pressure water jets
- Combination of the above methods

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5.1 Sealing/encapsulation

Encapsulation refers to the coating of asbestos-containing materials with a bonding or sealing agent or to the creation of a permanent casing covering the affected area (e.g. false ceilings and walls). This should not be considered to be a permanent solution because the sealing agent used may deteriorate or become damaged; and when the building is renovated or demolished, the containment and/or removal of the asbestos fibres will require careful attention.

Selection of the encapsulation method depends on:

- the degree of protection required (e.g. is the area vulnerable to impact or abrasion);
- the toughness and flexibility required (e.g. does the surface require to be decorated);
- the temperature to which it will be exposed;
- whether the adhesion of the asbestos containing material to the substrate is adequate; and
- whether the surface of the insulation or lagging is suitable for adhesion of the sealing agent.

5.2 Wet removal

Wet removal (subject to water availability), i.e. the suppression of dust with water containing a wetting agent, is the most commonly used method for the removal of asbestos.

The asbestos containing material must be wetted throughout its entire depth and maintained in a wet condition. The most effective means of controlling asbestos dust is by completely saturating the asbestos with water, using a special device. The water-injection device, which one can make oneself, is inserted into the asbestos material beforehand. Water that has been treated with a wetting agent is allowed to seep into the material at low pressure. Once the material is thoroughly saturated, the device is moved to the next point. Several injection devices may be used simultaneously to save time.

The saturated asbestos-containing material should be lifted off in sections and immediately placed in properly labelled containers and sealed. Abrasive techniques such as sanding should not be used because this will allow regulated asbestos fibres to become airborne.

A water spray is useful as a supplementary means of wetting the asbestos if it has not been saturated properly by the first method or if there are smaller jobs to be done. This method should be used for demolishing of prefabricated building structures. Once again, the water must be treated with a wetting agent beforehand and the spray must be directed straight onto the work.

During the removal process, all power to electric circuits shall be isolated and plugs, switches and other sources of electric current should be covered with waterproof protection so that water cannot penetrate to them. A means of draining run-off water from the workplace into containers for safe disposal is also necessary.

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5.3 Dry removal

Dry removal should only be considered when wet removal is impractical (e.g. in workplaces where water can damage equipment). This is a very specialised method. This type of removal releases excessively high concentrations of regulated asbestos fibres and may contaminate "clean" areas. Because of this, very strict protection and decontamination measures are necessary.

The following measures are recommended:

- Fully isolate the workplace where the material removed is to be removed.
- Keep the workplace under a slightly negative pressure by means of local air extraction, filtration and dust collection to minimise the release of regulated asbestos fibres to surrounding areas outside the isolated workplace.
- Remove material in small pre-cut sections.
- High speed power tools like angle grinders or similar high-speed cutting tools should not be used because of the large quantities of dust created by equipment of this nature.
- For general cleaning, use vacuum-cleaning equipment with a filtration efficiency of 99% for particles of one micrometer in size.

The removal procedure consists of pre-cutting and then lifting the small pre-cut sections of asbestos-containing lagging/insulation off the surface of the structure. This waste is then enclosed in two impermeable bags, one inside the other, or similarly effective containers properly sealed to prevent the escape of dust during handling.

5.4 Removal by high-pressure water jets

This method employs water jets operating at high pressures and is usually used for large-scale operations and at work-places where other techniques are not likely to be satisfactory. The workplace must be fully isolated and very strict protection and decontamination measures are necessary.

It is important that the asbestos-containing material be soaked through its entire depth by the introduction of water through appropriate applicators before applying the water jets.

Since the use of high-pressure spraying is dangerous, a manual pressure control valve should control the jet so that the pressure is shut off on release.

A means of containing draining run-off water and slurry from the work- place into containers for safe disposal is required. Run-off water must be diverted from drains and collected.

6 Execution of Work

Whether the nature of the work involves repairs or alterations to, or the removal of, asbestos-containing materials, the utility shall take the following precautions.

6.1 Decontamination facilities and personal hygiene

Where demolition work involving asbestos is performed, the utility shall set up decontamination facilities outside the workplace for the exclusive use of employees exposed to asbestos. These facilities shall consist of a "clean" change-room,

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toilet/shower facilities and a "dirty" decontamination change-room with vacuum-cleaners for the preliminary de-dusting of protective clothing

All employees without exception shall:

- remove personal clothes in the "clean" change room and put on clean protective clothing, gum-boots and respirators before entering the work place; and
- use the vacuum-cleaning to re-dust before the protective clothing and gumboots are removed in the "dirty" decontamination change room when leaving the workplace. While still wearing their respirators, the employees should proceed to the showers and only remove their respirators while showering. All showering must be done using soap and water.
- Employees shall not eat, drink or smoke in the workplace. Before eating, drinking or smoking, employees shall comply with the decontamination procedure before re-entering the workplace.
- All other persons entering the workplace shall wear approved respirators for asbestos as well as protective clothing and footwear. Before leaving the workplace they must comply with the decontamination procedure before re-entering the workplace.
- All contaminated clothing and footwear shall be left in the decontamination change-room and should be immediately stored in suitable containers prior to disposal or laundering. Contaminated respirators that are removed in the showers must be removed after being washed down and stored for disposal or made good for re-use.
- The collection of protective clothing, footwear and respirators shall be strictly controlled.

6.2 Workplace isolation and preparation

The utility shall isolate the workplace for the duration of the work by completely sealing off all openings to and fixtures in the workplace, such as doors, windows, ventilation ducts and lighting. Strong plastic sheeting, with all joints carefully sealed, which is taped securely in place, provides an effective form of isolation.

Provide double barriers of plastic sheeting or other suitable means (air locks) at all entrances and exits to the workplace so that the workplace is always closed off by one barrier when employees enter or leave.

Post signs conspicuously, prohibiting people from and warning them against entering the workplace; before work is begun. Vacuum-clean all removable items and equipment that are not attached to asbestos-containing material, remove them from the workplace and only return them to the workplace after the work has been completed.

6.3 Decontamination facilities

Subject to the provisions of applicable legislation, the utility shall, where reasonably practical, provide employees using personal protective equipment with-

- a) Adequate washing facilities which are readily accessible and located in an area where the facilities will not become contaminated, in order to enable the employees to meet a standard of personal hygiene consistent with the adequate control of exposure, and to avoid the spread of asbestos fibers;

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- b) Two separate lockers separately labeled “protective clothing” and “personal clothing”, respectively, and ensure that the clothing is kept separately in the locker concerned; and separate “clean” and “dirty” change rooms.

No asbestos material should be used as part of the construction of the Decontamination unit.

6.3.1 Environmental control

The onus is on the utility to ensure that asbestos from any asbestos work performed will not expose other persons who are not employees. This is one of the reasons why asbestos in water systems could possibly be carried by the water to other areas where it could accumulate, become dry and become airborne in an uncontrolled manner.

It is for the utility to ensure that steps are implemented to prevent the release of asbestos. This could include filtration systems. Any substance, which formed part of the filtration system, when discarded, is disposed of as asbestos waste.

Attention should be given to transport practices to prevent the release of asbestos fibres into the environment arising from the transport of asbestos.

7. Disposal

All asbestos and asbestos containing material must be disposed of in an appropriate dumping site, which is suitable for asbestos waste. Where such a site for the purpose of asbestos dumping is not locally available, the utility must apply in writing to the relevant authority prior to negotiating with any site owner.

Only after the relevant authority has allocated a suitable site, should detailed arrangements for asbestos disposal be agreed upon with the appropriate site owner.

The waste shall be disposed of only on waste disposal sites specifically designated for this purpose in terms of the countries relevant legislation.

Waste shall be deposited in such a manner as to minimize dust dispersal as well as the need for further disturbance of the waste. The permit conditions for each site shall be adhered to. The waste should be covered with at least 200 mm of topsoil or sand or other suitable material capable of forming a seal to prevent the dispersal of dust.

No asbestos waste should be left uncovered at the end of a workday.

All used air filters from, vacuum cleaners, air-conditioners and ventilation equipment must be in impermeable bags or similarly effective containers. These containers must be sealable for disposal (the outside of all containers shall be cleaned before leaving the workplace).

Liquids or sludge containing asbestos shall be collected in collecting-tanks from where it may be pumped into sealable drums or closed type tanker for transit to the waste disposal site. Transport and disposal must take place in such a way that there is no risk of the material drying out before it has been disposed of and covered as provided for above.

High-density materials such as asbestos cement products and sheets containing asbestos are not likely to release asbestos dust when handled by hand. However, a hazard may arise if the waste is subjected to pounding by vehicles passing over it, or tipping from the vehicle, and the waste should therefore also be covered.

The utility concerned with the collection, transport and disposal of asbestos waste is responsible for complying with the provisions of relevant legislation.

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8. Decontamination of the workplace

The utility shall clean all surfaces in the workplace, preferably by first using vacuum cleaning equipment with a filtration efficiency of 99% for particles of one micrometre in size and then wet mops. After cleaning the workplace, 24 hours shall be allowed for the settlement of dust before repeating the wet cleaning of all surfaces. If the clean up seems satisfactory, the utility shall take two static air samples 48 hours after completion of the clean up to ascertain whether the workplace is clean.

If the workplace is still found to be contaminated, the utility shall repeat the cleaning and air sampling until the concentration of regulated asbestos fibers is less than or equal to the background concentration + 0,01 fibers per milliliter of air.

If the workplace is found to be in compliance with the above all isolation sheeting, tape, barriers and other debris shall be carefully placed in impermeable plastic bags and dispose of as required.

9. Investigation of Incidents

The reasons why the OEL is exceeded should be identified, investigated and recorded. Steps should be introduced immediately to lower the concentration of asbestos in the air so that it does not exceed the OEL by means other than respiratory protective equipment.

All cases of asbestos related diseases should be investigated and recorded in terms of reporting, recording and investigation of incident procedures relevant to the utility and applicable legislation.

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Appendix A: Asbestos Inventory and Assessment Form

Date of assessment:		Done by:	
A) Inventory of all asbestos and asbestos containing material			
Type of asbestos or asbestos containing material.	Exact location. (including description and identification)	Quantities	
B) Assessment:			
Was the relevant health and safety representative or relevant health and safety committee consulted prior wrt the arrangements made for an assessment?			
Was reasonable time given to them to comment on the assessment programme?			
Indicate if the any material present which contains asbestos are:-			
being used?	Processed?	Handled?	or stored?
Describe where asbestos may be present, the ease with which the asbestos dust may be released and the extent to which a person may be exposed: -			
Describe the nature of the work: -		Describe the process: -	
Describe any likely deterioration in or failure of any control measures: -			
Are the expected exposure above the OEL for asbestos, Yes Value: - Not sure No		Are appropriate respiratory protective equipment required pending the implementation of engineering control measures? Yes: Specify type?..... No	
Are the exposures intermittent	Indicate duration of exposures	Indicate the number of employees exposed	and any other person who may be exposed
Yes No	Hours / day	And their expected exposure values:-.....Reg f/ml/air.	And their expected exposure values:-.....Reg f/ml/air.
Are any results available from any previous monitoring performed at this workplace? No Yes If Yes, Average value of results , and highest level?.....			
the steps to be taken to reduce exposure to the lowest level reasonably practicable and the steps to be taken to reduce the release of asbestos dust into the environment;			
Is a procedure for dealing with emergencies, available?		Is a procedure for the removal of asbestos waste from the workplace and the disposal thereof, available?	
Is it possible that any person is likely to be exposed to asbestos? Yes No Not sure.....			
Revision of assessment	Has there been a significant change in— work methods? Yes No..... the type of work carried out? Yes No..... the type of equipment used to control exposure? YesNo.....		
	Is there any reason to believe that the previous assessment is no longer valid Yes No.....	control measures are no longer efficient; Yes No.....	technological or scientific advances allow for more efficient control methods Yes No.....
Are the results of the assessment available to health and safety representative or relevant health and safety committee for comment:		Date of next assessment:	