

**ALG Memo 1/04
Asbestos Licensing Unit**

To: Members of the Asbestos Liaison Group

From: James Skilling
Head of ALU

Date: 9 February 2004

Subject: Laundering of asbestos contaminated towels and coveralls

Background

1 HSE commissioned the Health and Safety Laboratory to undertake an investigative study, the aims of which were to:

- investigate the contamination of towels and coveralls used in asbestos removal hygiene units;
- investigate the effectiveness of the laundering process when decontaminating these towels and coveralls;
- investigate the laundries used to clean contaminated towels, particularly with regards to the safe handling of asbestos contaminated materials.

2 The report of this work has now been published and copies have been provided to Asbestos Licensing Principal Inspectors (ALPIs) and members of the Asbestos Liaison Group (ALG). A copy of the report is also available on the HSE website. As a result of the report's findings, HSE policy on this issue is still developing and the previous guidance on this issue has been reviewed. This memo reflects the latest guidance and recommended best practice.

3 The HSL investigation has shown that clean towels used in asbestos removal operations can become contaminated with asbestos. It was not part of the study to determine the cause or source of the contamination. However, as the towels had been used by asbestos workers, HSE's view is that the possible sources of contamination may have arisen as a result of:-

- "drying off" when the individual has not washed all the asbestos off themselves;
- wiping/drying contaminated RPE;
- cleaning/wiping/drying the DCU and shower; or
- splashes of contaminated water during the washing process.

Effective decontamination

4 As the study has shown that towels may become contaminated, the key factor that must be taken into consideration is how well the decontamination procedures are being followed by asbestos removal personnel.

5 If asbestos workers follow the proper decontamination procedures and do not misuse towels, then the likelihood of asbestos contamination being transferred onto towels will be

remote. **The main emphasis therefore should be on having a management system robust enough to ensure that workers apply the full and proper decontamination procedures.**

6 On returning via the dirty end of the DCU all workers should shower thoroughly and properly, by taking sufficient time (a minimum of 5 minutes), care and attention. In particular, hair should be thoroughly washed and fingernails should be thoroughly scrubbed.

Towels

7 After thorough decontamination in the shower cubicle, the next step is to ensure that employees follow their company's system for the use of towels for drying after showering. There are two options which employers can use:

- (i) - thorough drying in the shower cubicle **or**
- (ii) - total drying in the clean end of the DCU.

8 Employers must decide which of these options to use – they cannot mix both. Irrespective of which option is used, employers need to ensure that their employees follow the system, by instructing them in the procedures, monitoring their compliance and by taking remedial action as necessary.

Option 1 - Thorough drying in the shower cubicle

9 Having thoroughly showered, employees should:-

- dry themselves as thoroughly as possible whilst still in the shower cubicle including their feet and toes;
- treat the towel used in the shower cubicle as contaminated and either dispose of it as asbestos waste or bag it up for washing at a laundry which has facilities and expertise to launder asbestos contaminated items;
- if necessary, finish off drying in the clean end of the DCU, using a fresh towel, which if it has never progressed beyond the clean end of the DCU, can be deemed to be uncontaminated.

Option 2 - Thorough drying in the clean end of the DCU only

10 Having thoroughly showered, employees should:-

- step into the clean end of the DCU and using a clean towel (ie one that has never progressed beyond the clean end) carry out the entire drying process there;
- treat the towel as uncontaminated and either dispose of it as non asbestos waste or bag it up for washing with normal laundry (taking care not to cross contaminate with any asbestos contaminated laundry) using the employer's systems.

11 Employers using this option will need a system to test that towels used solely in the clean end of the DCU have not become contaminated. One way to do this might be by periodic testing (eg 5% of jobs) **using a suitable method** to check for asbestos contamination on towels. This can be carried out using a standardised fibre/dust release test. The equipment for a dust release test is described in MDHS 81 and HSL have modified this for asbestos releases from materials, such as towels and fabrics. The findings should be recorded.

Misuse of towels

12 As a means of preventing towel misuse, anti slip matting (eg PVC) can be used in the shower section, which should assist in preventing towels being used on the floor of the shower cubicle to absorb waste water. The matting should be lifted up and hosed down as part of the normal cleaning of the shower area at the end of each day. With regards to RPE, this should be thoroughly cleaned in the shower. If necessary, a separate cloth can be assigned for drying/wiping RPE in the shower, providing it is disposed of or laundered appropriately.

General

13 If a towel is taken into the shower area, and for any reason is not used, while it is unlikely to be contaminated, there is a potential risk and so for consistency reasons, the towel should be treated as contaminated. **Towels should not be taken back into the clean area of the DCU.**

14 If reusable towels are utilised, then it is the employer's responsibility to ensure that these are cleaned. For towels used under option 1, this will be either at a laundry that accepts asbestos contaminated items or at an in-house facility which has the same standards as a commercial laundry. Alternatively, the employer can implement a system that provides a supply of clean, dry towels without the need for laundering. As a minimum no employee should either supply their own towels or take them home to launder.

Laundered towels

15 The HSL study revealed that current laundering best practice removes most of the asbestos contamination. However, because of the way the asbestos fibres are interwoven into the fabric of the material and are not easily released, low levels of residual asbestos remain on some towels after laundering. The removal of all traces of asbestos from towels appears therefore to be very difficult.

16 In order to assess the level of risk that could arise from using laundered towels, tests were carried out to simulate towels being used in a DCU. The tests showed that the risks of exposure to asbestos removal operatives of using a "cleaned" towel in a DCU were very low indeed (<0.001 f/ml). This is because any asbestos fibres, which can be easily released, ("freely available fibres") had already been removed as a result of the aggressive washing and drying processes. The trace/residual asbestos fibres remaining ("not freely available" fibres) were so tightly interwoven into the fabric that they were not easily released into the air. In addition to this, asbestos workers will only handle a single dry towel at a time, for a minimal amount of time when showering, shake it for a few seconds, and use it to dry themselves in well ventilated and damp conditions. Therefore the actual risk to asbestos workers in handling laundered towels in the DCU is negligible.

Coveralls

17 The HSL investigation found that the laundering of asbestos contaminated coveralls was found to be effective, resulting in them being free from asbestos contamination.

18 Coveralls used during asbestos work should be treated as contaminated and be either disposed of as asbestos waste or bagged up for washing at a laundry which has the facilities and expertise to launder asbestos contaminated items. Contaminated coveralls should be bagged and laundered separately to contaminated towels.

Laundries

19 HSE's view is that since the residual amounts of asbestos found on laundered towels were extremely small and not easily released, their use would not give rise to a risk to asbestos workers. However there may be a potential risk to others, eg laundry workers, as depending on the circumstances, conditions and procedures in operation, these workers may handle (shake, fold and stack) large numbers of dry towels.

20 The study showed that there are few commercial laundries that will launder asbestos contaminated items. As a result more asbestos removal contractors are making their own laundering arrangements and standards are very variable.

21 Laundry operators, whether they be independent specialist commercial laundries or in house laundries operated by asbestos removal companies should assess the potential risks from laundering asbestos contaminated clothing or towels (both before and after laundering). In line with the guidance contained in paragraphs 113 - 114 of ACoP L28 (4th edition), in order to prevent exposure and spread of asbestos they should, as a minimum, arrange to: -

- provide a clearly defined, lockable room(s) containing the washing and drying machines dedicated to dealing with asbestos contaminated laundry only;
- limit access to these facilities to a minimum number of trained and equipped personnel;
- provide good mechanical air extraction (negative pressure with HEPA filtration) in the room(s);
- equip employees loading the washing machine(s) with appropriate RPE;
- operate high standards of hygiene.
- use separate wash cycles for heavily and lightly contaminated items;
- use separate wash cycles for towels and coveralls;
- filter waste water and subsequently treat the filter(s) as contaminated asbestos waste;
- discharge air from tumble drier(s) to the external atmosphere; and
- conduct regular air monitoring and record the results.

Separate discussions are taking place between HSE and the Textiles Services Association about how best to take the HSL report findings forward with the laundry industry.

Summary

22 To summarise, the recommended guidance is as follows:

- (i) employers should ensure employees follow thorough and proper decontamination procedures;
- (ii) employees should not supply their own towels or coveralls;

- (iii) employers must supply clean, dry towels (either disposable or reusable) to individuals each time they leave the work area to decontaminate;
- (iv) employees should never take used coveralls or towels home to launder;
- (v) employers should decide which system will operate for towels and the drying process either:
 - (a) thorough drying in the shower cubicle; **or**
 - (b) entire drying in the clean end of the DCU;
- (vi) under (a) the towel used in the shower cubicle should be regarded as contaminated and disposed of as asbestos waste or bagged up for specialist laundering;
under (b) the used towel should be regarded as uncontaminated, having never left the clean end of the DCU;
- (vii) under (b) employers will need a system to test that towels have not become contaminated;
- (viii) all towels used or taken beyond the clean end of the DCU should be treated as contaminated;
- (ix) any towel used solely in the clean area can be deemed to be uncontaminated and washed with normal laundry, by the employer's systems;
- (x) contaminated towels should be bagged and laundered separately to contaminated coveralls;
- (xi) laundries dealing with asbestos contaminated items should assess the potential risks arising from the work both pre and post laundering and, as a minimum, the precautions they take should include:
 - 1 provision of a clearly defined lockable room(s);
 - 2 limiting access to the room(s);
 - 3 provision of good mechanical air extraction;
 - 4 operating high hygiene standards, including provision of appropriate RPE;
 - 5 regular air monitoring.

JIM SKILLING