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# Guidance for Personal Air Monitoring

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**GN013-V0316-Personal Air Monitoring**

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## GUIDANCE FOR PERSONAL AIR MONITORING

### 1. BACKGROUND

- 1.1 ARCA is aware of concerns raised about the way personal air monitoring is routinely being carried out in the asbestos industry. Licence holders are advised to review
- Why they are collecting personal monitoring data
  - How data is being collected and
  - What is being done with the data.
- 1.2 Personal monitoring can be carried out for a variety of purposes. Many licensed contractors may be gathering data in a way that cannot be used to compare exposures with other jobs and cannot demonstrate meaningful personal exposure data. Licence holders also may be using sampling strategies that do not reflect a representative sample of their work and therefore cannot demonstrate effective performance.
- 1.3 Where this is the case, licence holders may be wasting significant time and money on sampling that adds little benefit or reassurance. This could also be seen as a wider failure of health and safety management when licence assessments are carried out.

### 2. KEY POINTS

Planning work	Personal monitoring requirements must be considered when planning a job. The contractor should give the analyst clear instructions about the purpose of the sampling.
Sufficient sampling duration	Sampling should be carried out for sufficient durations: shift duration (preferably 2-4 hour periods) or the duration of specific tasks being observed. Use the correct flow rate
4-hour TWA	When considering personal exposure, results should be reported as a 4-hour, time weighted average.
Record the activity	Sampling records need to clearly describe the activities being undertaken and the control measures in place at the time of monitoring ("AIB removal" is not enough detail).
Sampling strategies	Strategies for organising sampling need to capture a representative sample of work ("50% of AIB work" is unlikely to be precise enough).
Use the data	When measuring site performance When assessing future work As a record of personal exposure

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### 3. LEGAL REQUIREMENTS

- 3.1 The Control of Asbestos Regulations 2012 (CAR) contain numerous references to the requirement for personal and background monitoring.
- Regulation 19 requires employers to arrange regular monitoring of airborne fibres and keep records of the results. Assessments of any proposed work must consider the results of this monitoring (regulation 6). The significant findings of asbestos assessments should be reflected in the plan of work (required by regulation 7).
  - An organisation's arrangements for providing information, instruction and training must include detail of any air monitoring results (regulation 10).
  - Employers must ensure that personal exposure to asbestos is prevented, so far as is reasonably practicable (regulation 11). Licensed work, by definition, is likely to produce airborne concentrations that exceed the control limit: where exposure cannot be prevented, it must be kept as low as reasonably practicable. Respiratory Protective Equipment (RPE) provided must ensure that concentration of asbestos fibres within the respirator is kept below the control limit.
  - The spread of asbestos must be prevented or reduced (regulation 16).
  - Exposure records form part of the health records that must be kept for any employees engaged in licensed asbestos work (regulation 22).
- 3.2 Regulation 5 of the Management of Health and Safety at Work Regulations require employers to have effective arrangements in place for managing health and safety. **Personal monitoring records *should* be an excellent indicator of performance and an aid to comparing and assessing removal situations. To achieve this, sampling must be planned and recorded in a meaningful way.**

### 4. PURPOSE OF PERSONAL AIR MONITORING

- 4.1 Personal air monitoring can provide invaluable performance information: it should provide an accurate record of actual concentrations of airborne fibre generated by particular types of work in particular circumstances, and give licence holders confidence (and clients, regulators etc) that control methods are working, in practice.
- 4.2 In summary, CAR, the Approved Code of Practice and existing guidance give the following reasons for carrying out personal air monitoring:
- To check the effectiveness of the controlled method or removal (i.e. by comparison to previous concentrations of airborne fibre in similar situations and to the control limit.
  - To provide data for personal exposure records.
  - To guide assessment (and planning) for future, similar jobs.
  - To confirm that appropriate RPE has been chosen.

## 5. SAMPLING: PLANNING AND ENGAGING WITH THE ANALYST

- 5.1 Decisions about the type(s) of monitoring to be done (and detail about how this will be carried out) should be considered at the planning stage. This will be reflected in the plan of work produced prior to notification and supported by standard procedures etc.
- 5.2 Effective monitoring will require good liaison and engagement between the licence holder and the analyst. The service agreement between the two organisations should make expectations clear (and take into account the issues described in this document). For example, if an analyst is expected to observe work activities during the sampling period, this may limit capacity for carrying out other types of air monitoring at the same time.

## 6. SAMPLING METHODS

### 6.1 Sampling duration and flow rates

- So that sampling results can be compared between jobs, a standardised approach for gathering and recording is required. This should be specified in standard procedures and / or contractual arrangements with an appointed analyst.
- The control limit refers to a 'time weighted average' (TWA) of 0.1 fibres/cm<sup>3</sup> of air averaged over a continuous period of 4 hours. Monitoring may also be carried out to assess fibre concentrations associated with particular short duration activities ("sporadic and low intensity" (SALI)), with reference to a 10 minute sampling period.
- Where the purpose is comparison with the control limit or gathering personal exposure data, HSE will expect sampling periods to be as close to 4-hour periods as is reasonably practicable; the results should be recorded as a 4-hour TWA. Analysts might use a succession of sampling periods, or a single shorter period that is representative of the work, but where this is the case licence holders should expect a clear explanation of the assumptions being made to report results as a 4-hour TWA.
- When considering exposures in relation to the 4-hour control limit, sampling rates should be 1 litre/minute. When taking shorter samples, for example in relation to "sporadic and low intensity" assessments and exposures, sampling rates should be 4 litres/minute.

### 6.2 Activity

- In the past, contractors have typically recorded the broad category of work being undertaken at the time of personal air sampling. For example, the sampling records may state "AIB removal". This is not precise enough to allow for meaningful comparison between jobs. For example: the previous sampling might have involved a simple 'clean' activity of lifting boards from grid; this can't be compared against the removal of glued or nailed AIB. Relevant detail of the work activities should be addressed in a "suitable and sufficient" plan of work and might include:
  - The scale of the work (1 small panel or 100m<sup>2</sup> of panels?)
  - The type of fixings (screwed, nailed, glued, the presence of voids above AIB?)
  - Method of removal (Surfactant applied from above? Panels unscrewed whilst using shadow vacuum? Bagged or wrapped? etc.)

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- The condition of the tiles, surface treatments and ease of access etc.
- In addition, the analyst should also be able to give an opinion on the activity. Having observed the activity during the sampling period, did the control measures appear to be working effectively? Were there any difficulties observed?
- This level of detail about the actual activities being undertaken during the sampling period will be crucial for gathering meaningful sampling data. It is therefore important that the removal contractor gives clear instructions to the analyst: to provide meaningful data, analysts will be expected to observe what activities are taking place during the sampling period.

### 6.3 Records

- For useful comparisons, exposures should be recorded as TWA, unless the focus is on specific short-duration tasks. See the appendix for a suggested 'personal sampling' template.

## 7. STRATEGIES – PLANNING SAMPLING

- 7.1 It is common practice for licence holders to commit to sampling a percentage of jobs, depending on the type of material being removed (for example: 100% limpet jobs, 25% of AIB jobs, etc). As indicated above, this is not likely to be sensitive enough to provide a representative sample of the actual range of work being done.
- 7.2 Strategies for monitoring should be similar to strategies for targeting site visits / audits. I.e. they should ensure that a **representative range** of work is sampled. For example, the strategy should cover:
- A full range of work activities, as described above.
  - A full range of geographical locations: capturing 'close to home' **and** more remote work sites.
  - All supervisors / teams.
  - Over time, sampling should capture exposures to all operatives across a full range of activities.
- 7.3 For licensed contractors, a strategy should focus on activities expected to be higher hazard / risk. Over time, the strategy will ensure that a full, representative range of asbestos work is covered, but the focus of resources should be on activities where exposure is liable to be higher. For example:
- For 'routine' jobs, personal sampling is carried during the actual removal activities where asbestos is most likely to be disturbed, not during set up.
  - Resources should initially be directed at licensed activities, rather than for sampling the removal of bonded products such as floor tiles or asbestos cement sheeting.

## 8. RECORDING AND COLLATING MONITORING DATA

- 8.1 Licence holders may have collected monitoring data for many years. Unless that data can be clearly linked to particular asbestos activities, it may be difficult to use as a meaningful measure of performance or for meaningful comparison with current / future work.
- 8.2 In practice, many licence holders will need to define a better strategy for sampling and build a database of results for comparison. A licence holder's strategy (as described above) should be described in company policies / procedures etc. Routine performance reviews and organisational targets etc could refer to the number (and quality) of samples being taken as well as recorded exposure levels for particular removal situations.
- 8.3 The appendix provides a suggested template for gathering individual personal monitoring data. Analysts may provide additional, supporting records (stipulated by UKAS etc).
- 8.4 Individual monitoring results must then be collated and stored in a way that makes them easy to use in the future. For example, a database / spreadsheet:
- Should enable easy access to an individual's personal exposure records.
  - Should enable easy comparison / reference to levels of exposure 'achieved' during similar activities.
- 8.5 The Approved Code of Practice (paragraph 486) stresses that personal monitoring results should be "collated and submitted to HSE" as part of the licence renewal procedure. In practice, HSE's ALPIs do not routinely ask for this information in advance. However, licence holders should expect monitoring results to feature in licence assessment meetings: they are likely to be seen as a critical indicator of how licence holders measure performance and assess risk.

## 9. SOURCES OF FURTHER INFORMATION

- [L143 Approved Code of Practice, Control of Asbestos Regulations 2012.](#)
- [HSG 247 Asbestos: The licensed contractors' guide.](#)
- [HSG 248 Asbestos: The analysts' guide for sampling, analysis and clearance procedures and the Consultation Document for the revised guide, due in 2016.](#)
- [ARCA Guidance Note GN001: Monitoring of Airborne Asbestos Fibre.](#)

**Appendix – template for personal sampling record**

HSE guidance in HSG248 lists a number of items that sampling records should address. These items are combined here with additional detail a contractor should expect analysts to record.

<b>GENERAL</b>		
Analyst		
Laboratory name, address and UKAS accreditation		
Asbestos contractor		
Location of work		
Type & scale of work		
Date		
<b>Purpose of monitoring (select all that apply):</b>		
Checking effectiveness of methods	Providing data for personal exposure records	Confirming appropriate RPE
<b>General control measures in use:</b>		
Enclosure (under negative pressure)	Shadow vacuum	Spraying
Partial enclosure	Injection	
Other		
<b>SAMPLING DETAILS</b>		
Person's name / job title		
Type of RPE worn		
Total sampling duration(s)		
Sampling start and finish times	Sampling rate (lt/min)	Volume of air sampled
Asbestos product(s) being removed including detail of fixings, size, surface treatments (eg "AIB ceiling tiles (approx. 1200 x 400mm), painted, nailed to board, no void")		
Summary of actual work activities (and location) carried out by the person during sampling period, including detail of removal methods witnessed. Where possible, reference photos of relevant work activities and area (with time & date).		
		Duration (approx. minutes)
Activity 1		
Activity 2		
Activity 3		
Specific dust suppression / control measures employed (not RPE) during <b>peak activity</b> *		
Shadow vacuum	Gel / foam	Injection
Spraying		
Other		
Other factors which may affect the result (eg approximate size of the enclosure, external location etc.)		
Comments regarding general work activity in the area, or likely effectiveness of control measures witnessed		
<b>Fibre concentrations during peak activity</b>		
<b>Exposure levels (with reference to 4-hour TWA)</b>		

\* "**Peak activity**" refers to the work activity likely to generate the highest fibre concentrations during the period being observed and sampled?

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