

A. MANAGEMENT SYSTEMS STANDARDS

A3. WORKPLACE MONITORING

1.0 Scope

If a risk assessment indicates the need, a workplace-monitoring programme is used to evaluate potential exposures and to develop controls that will protect the health of all who work on our sites. This Standard applies only to monitoring, sampling and analysis conducted within the workplace. It is not intended to extend to environmental or community monitoring, although some principles will be applicable to all monitoring programmes.

2.0 Programme Design

- 2.1 The workplace-monitoring programme must be based on risk-based exposure assessments and professional judgement.
- 2.2 The programme must be consistent with site health risks, linked to employee health surveillance, and be linked to the facility's objectives and targets.
- 2.3 The programme must be designed to provide data to demonstrate compliance with legal standards.
- 2.4 The data collected must enable an annual summary of each SEG's exposures to be produced.
- 2.5 The programme must be designed to document representative and the range of work exposure conditions.
- 2.6 To the extent possible, all monitoring data must be collected such that it is statistically valid.

3.0 Monitoring

- 3.1 The workplace monitoring procedures must be adequate with regard to locations or persons monitored, parameters measured, frequency of measurements, sample collection technique used, and analytical method used.
- 3.2 Personal monitoring rather than 'static', fixed-place or area monitoring must be performed for defining potential employee exposures. Static monitoring can only be used for measuring employee exposures when found to be well correlated with personal monitoring data.
- 3.3 Monitoring must be conducted to determine potential for adverse exposure during both routine and non-routine or intermittent exposures (eg. maintenance and campaign shutdowns or turnarounds), and for the purpose of designing controls and for assessing the success of controls.

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- 3.4 For carcinogens and reproductive toxicants (known and suspected), exposure data must be statistically valid on an annual basis. Time-weighted average (TWA) measurements over several shifts, and consistent with the work-day period, must be used.
- 3.5 For progressive chronic conditions with a known cause (requiring long-term exposure for an effect to manifest; excluding noise), exposure data must be statistically valid on an annual basis. TWA measurements over several shifts, and consistent with the work-day period, must be used. If three or more years data are all low (<50% of OEL), then monitoring periodicity can go out to three-yearly, provided the process does not change.
- 3.6 For substances that manifest toxic effects after short-term exposures (eg. CO, H₂S and SO₂ gas, and some substances causing occupational asthma), a much shorter monitoring period throughout shifts will be required (in the order of seconds to minutes).
- 3.7 Where risk assessment indicates the possible presence of levels of gas or vapour sufficient to cause health effects in less than one shift, continuous monitoring is required as long as the potential for harm exists.
- 3.8 Capabilities for conducting any special air samples (eg. tank entry, incident investigations, etc.) must be available.

4.0 Reporting

- 4.1 As a minimum, site data must be summarized using descriptive statistics - typically their central tendency (mean, median and geometric mean) and their spread (range, minimum and maximum, standard deviation, and geometric standard deviation).
- 4.2 All unexpected non-conformances and OEL exceedences must be reported within 24 hours upon receipt and confirmation of analysis results to the manager of the area or department in which they occurred. All non-conformances and OEL exceedences must be reported in writing within 7 days upon receipt and confirmation of analysis results.
- 4.3 Data must be regularly reviewed, interpreted and reported. Management reports for the various hazards assessed and controlled should be regularly prepared and distributed to effected parties, including the medical adviser. Reports must include health hazard control recommendations and actions taken.
- 4.4 All personal monitoring results must be reported back to the employees concerned, and their significance explained, within a reasonable time from when results are available.

5.0 Quality Control

- 5.1 Written protocols / procedures for sampling and analysis, including quality control requirements, must be available and be regularly reviewed.
- 5.2 Measuring equipment must be appropriate with regard to precision, accuracy, reliability, data output, backups, standards and availability of servicing. Equipment must be appropriately calibrated regularly.
- 5.3 Staff carrying out workplace monitoring must have adequate training/experience and technical oversight where appropriate.
- 5.4 There must be internal procedures for checking on the quality and relevance of monitoring data. SEGs must be periodically reviewed and data should be periodically checked statistically for outlier results.
- 5.5 The analytical laboratory services used must have an active quality assurance or quality control programme in place.