

SAFETY AND HEALTH STANDARDS

WORKPLACE MONITORING

Effective Date: 11/01/08	Standard: 10.9	Document Number: KUCSH00018	Rev: 02
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10.9.1 **INTRODUCTION**

10.9.1.1 If a risk assessment indicates the need, a workplace-monitoring program is required to evaluate potential exposures and to develop controls that will protect worker health. 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 programs.

10.9.2 **DEFINITIONS**

10.9.2.1 **TWA** – *Time Weighted Average* is defined as the average concentration for a conventional 8-hour workday and a 40-hour workweek, to which it is believed that nearly all workers may be repeatedly exposed, day after day, without adverse effect.

10.9.2.2 **SEGs**- *Similar Exposure Groups* are groups of workers having the same general exposure profile because of the similarity and frequency of the tasks they perform, the materials and processes with which they work, and the similarity of the way they perform the tasks.

10.9.3 **REQUIREMENTS**

10.9.3.1 A workplace-monitoring program shall be established on risk-based exposure assessments and professional judgment. It shall be consistent with KUCC health risks and linked to employee medical surveillance programs, and to the KUCC objectives and targets.

10.9.3.2 The program shall provide data to demonstrate compliance with OSHA / MSHA standards and enable an annual summary of each Similar Exposure Group (SEG) exposures to be produced. The program shall be designed to document representative and the range of work exposure conditions. To the extent possible, all monitoring data shall be collected such that it is statistically valid.

10.9.3.3 The workplace monitoring procedures shall be adequate with regard to locations or persons monitored, parameters measured, frequency of measurements, sample collection technique used, and analytical method used.

10.9.3.4 Personal monitoring rather than 'static', fixed-place or area monitoring shall be performed for defining potential employee exposures. Static monitoring can only be used for measuring employee exposures when found to correlate with personal monitoring data.

SAFETY AND HEALTH STANDARDS WORKPLACE MONITORING

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- 10.9.3.5 Monitoring shall be conducted to determine potential for adverse exposure during both routine and non-routine or intermittent exposures (e.g. maintenance and campaign shutdowns or turnarounds), and for the purpose of designing controls and for assessing the success of controls.
- 10.9.3.6 For carcinogens and reproductive toxicants (known and suspected), exposure data shall be statistically valid. The use of Time-Weighted Average (TWA) measurements over several shifts shall be consistent with the workday period.
- 10.9.3.7 For progressive chronic conditions with a known cause (requiring long-term exposure for an effect to manifest; excluding noise), exposure data shall be statistically valid. The use of TWA measurements over several shifts shall be consistent with the workday period. If three or more year's data are all low (<50% of OEL), then monitoring frequency shall be extended to a three-year basis, provided the process does not change.
- 10.9.3.8 For substances that manifest toxic effects after short-term exposures (e.g. CO, H₂S and SO₂ gas, and some substances causing occupational asthma), a much shorter monitoring period is required (in the order of seconds to minutes).
- 10.9.3.9 Where risk assessment indicates the possible presence of levels of gas or vapor sufficient to cause health effects in less than one shift, continuous monitoring is required as long as the potential for harm exists.
- 10.9.3.10 Site data shall 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).
- 10.9.3.11 Data shall be regularly reviewed interpreted and reported. Management reports for the various hazards assessed and controlled shall be regularly prepared and distributed to effected parties, including the medical adviser. Reports for general distribution shall not include the names of those sampled (HSEQ MS Element 14.16). Reports shall include health hazard control recommendations and actions taken.
- 10.9.3.12 Unexpected non-conformances and OEL exceedences shall be reported upon confirmation of analysis results to the manager of the area or department in which they occurred. Unexpected OEL exceedences

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shall be reported, recorded and investigated via Prospect's Incident Log with any relating actions tracked until completion. Expected OEL exceedences along with action plans shall be recorded and maintained in the IH Risk Register

- All personal monitoring results shall be reported back to the employees concerned, and their significance explained, within a reasonable time from when results are available.

10.9.3.13 There shall be internal procedures for checking on the quality and relevance of monitoring data. Similar Exposure Groups (SEGs) shall be periodically reviewed and data checked statistically for outlier results.

- Written protocols / procedures for sampling and analysis, including quality control requirements, shall be available on the KUCC Intranet and be regularly reviewed.

10.9.3.14 Measuring equipment shall be appropriate with regard to precision, accuracy, reliability, data output, backups, standards and availability of servicing. Equipment shall be calibrated regularly.

- Equipment for conducting special air samples (e.g., confined space entry, incident investigations, etc.) must be available, maintained and calibrated.

10.9.3.15 Personnel carrying out workplace monitoring shall have adequate training / experience and technical oversight.

10.9.3.16 The analytical laboratory services used shall have an active quality assurance or quality control program in place.

10.9.4 **RESPONSIBILITIES**

10.9.4.1 The Industrial Hygiene personnel are responsible for:

- Establishing an annual workplace-monitoring program (work plan).
- Reviewing, interpreting, and reporting data regularly and preparing management reports that include health hazard control recommendations and actions.
- Maintaining the employee exposure database (Medgate).
- Producing an annual summary of each Similar Exposure Group (SEG) exposures.
- Documenting representative and range of work exposure conditions and to the extent possible, all monitoring data shall be collected

Page 3 of 4	Plant: All
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SAFETY AND HEALTH STANDARDS WORKPLACE MONITORING

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such that it is statistically valid.

- 10.9.4.2 Facility management is responsible for reporting back to employees all personal monitoring results and explaining their significance, within a reasonable time from when results are available.

REFERENCE

Rio Tinto HSEQ MS Element 13 - Measuring and Monitoring

REVISION HISTORY:

MOC#	Description of Change	Prepared By	Date
9022	Revisions submitted by the HESQ MS Champion and team to comply with the Element 13 requirements. Updated format and Document number added.	KUCC Safety and Health Standards Committee	11/01/2008