G5.54-3 Risk identification, assessment and control

Issued August 1999

Under section 5.54(2)(b), the exposure control plan must incorporate risk identification, assessment and control. When identifying and assessing risk, the requirements of sections 5.53(1) and 5.53(3) for a walk-through survey and exposure monitoring apply. Continuous monitoring of the work area may also be required, when necessary, to ensure the continuing safety of workers. For example, section 6.128 (Toxic Process Gases) requires continuous monitoring in some workplaces. For controlling risk, section 5.55 applies.

To evaluate compliance with this section, an officer will

- determine whether the hazards have been correctly identified,
- establish whether the risk assessment is acceptable,
- assess the practicability of any proposed control measures, and
- evaluate whether those measures provide an acceptable level of protection to workers.

The degree of risk will depend on the probability, the extent, and the possible consequences of exposure (an injury or disease). Some of the factors that an employer should consider when performing a risk assessment are outlined in the table below.

Factors to be considered when performing a risk assessment

General	Specific
What is the nature of the hazard?	• what are the body systems involved (e.g. lungs, skin)? • what are the possible effects of exposure (e.g. breathing difficulties, scarring of tissues)? • are there short-term or long-term effects (e.g. mild irritation, irreversible tissue damage, cancer)?
What is the nature of the exposure?	• what are the specific substances to which workers may be exposed? • what are the way(s) in which workers may be exposed (e.g. spills, during routine tasks or preventative maintenance)?

	• what are the specific work methods or procedures which may result in exposure? • who are the workers at risk for exposure (i.e. process workers, maintenance workers, outside contractors)? • how many workers are potentially exposed?
Are there control measures in place to reduce the risk of exposure?	• are there any engineering controls? (e.g. is the process enclosed or isolated?) • are there administrative controls (e.g. is work scheduled to minimize time spent in the hazardous area)? • is personal protective equipment available? (i.e. what type is available and how is it used?)

G5.54-4 Hygiene facilities and decontamination procedures

Issued August 1999; Editorial Revision February 1, 2008

Regulatory excerpt

Section 5.54(2)(e) of the *OHS Regulation* ("*Regulation*") states:

(2) The exposure control plan must incorporate the following elements:

(e) hygiene facilities and decontamination procedures, when required;

Purpose of guideline

The purpose of this guideline is to clarify that the walk-through survey required under section 5.53(1), the risk assessment performed under section 5.88, along with specific requirements in Parts 6 and 7, will help determine whether or not hygiene facilities and decontamination procedures are required.

Hygiene facilities and decontamination procedures

Section 5.54(2)(e) requires that the exposure control plan incorporate "hygiene facilities and decontamination procedures, when required." The walk-through survey required under section 5.53(1), as well as the risk assessment required under section 5.88, will determine the need for specific hygiene facilities and decontamination procedures. Certain sections of Parts 6 and 7 may also require hygiene facilities and decontamination procedures, such as for asbestos, lead, and biological agents designated as hazardous substances in section 5.1.1. Refer to the relevant OHS Guidelines for further assistance.

G5.54-5 Health monitoring

Issued August 1999; Revised June 7, 2002; Editorial Revision October 2004

Under section 5.54(2)(f), the exposure control plan must incorporate "health monitoring, when required." Health monitoring may be required explicitly (such as under section 6.79, the Board may require health monitoring for workers exposed to pesticides in non-agricultural operations), or as an element of an exposure control plan. A list of the sections in which an exposure control plan is called for is tabulated in OHS Guideline G5.54-1.

The purpose of health monitoring is to protect workers from developing occupational disease by detecting biological indicators or adverse health effects at an early stage. Action can then be taken to prevent, reverse, reduce the severity, or arrest the progression of the adverse health effect or disease. Biological Action Values (BAV) for biological indicators are established by the Board, based on current information and are reviewed periodically. For further information, consult the occupational physicians of WorkSafeBC.

Health monitoring should be considered when

- there is reasonable likelihood of a workplace exposure,
- the exposure can potentially cause an occupational disease or adverse health effect, or
- there is a means of detecting or measuring the disease, adverse health effect or its precursor or biological indicator.

The results of health monitoring are also useful in evaluating the effectiveness of the exposure control plan, particularly when it cannot be evaluated by exposure monitoring alone. This occurs when

- the skin or the gut are significant routes of absorption,
- the skin itself may be affected by contact exposure, or
- exposure control is dependent on the use of personal protective equipment.

The skin and gut could be significant routes of exposure if the skin is in direct contact with a contaminant or if the contaminant is ingested and absorbed into the gut.

Biological monitoring of a substance, its metabolite or its biological effect can be a component of health monitoring. An appropriate biological indicator is one that can be detected before disease or an adverse health effect occurs. Preventive action can then be taken as required. Before undertaking biological monitoring, the following criteria regarding the biological test should be met. The test should

- specifically assess the exposure or the effect,
- be sufficiently sensitive to detect occupational exposure levels and effects,
- vary quantitatively with the intensity of exposure and the risk of development of adverse effects,

- provide more information on potential health risk than can be obtained from exposure monitoring alone,
- be as non-invasive as possible,
- be readily available and not be too time-consuming, complex or expensive,
- be measured by analytical techniques which are accurate, specific and sensitive, and
- have minimal storage and transport limitations.

Substances for which WorkSafeBC considers health monitoring may be appropriate include, but are not limited to

- lead,
- cadmium,
- mercury,
- respiratory sensitizers (such as cedar dust or isocyanates),
- 4,4'-methylene bis[2-chloroaniline] or MOCA, and
- organophosphate compounds.

Health monitoring does not necessarily entail sophisticated testing, requiring medical or nursing personnel. Setting up a health monitoring system should be done by an occupational health physician or nurse, although its day-to-day functioning can often be managed by a qualified person, such as an occupational hygienist or health and safety manager. For some substances, health monitoring may only require an early reporting system linked with periodic inquiries about signs and symptoms, self-checks (such as examination of the skin for signs of sensitivity) by a lay person such as a first aid attendant or supervisor). When biological or biological effect monitoring is necessary, the services of appropriate medical, nursing or technical personnel may be required for ordering tests and taking samples. A physician or nurse must interpret the results.

Health, biological and biological effect monitoring should only be carried out with the informed consent of the worker. The individual should be advised of the purpose of the tests and biological samples should be analyzed only for the substances or effects for which consent has been obtained. Informed consent should ensure that the worker is made aware of any consequences that might occur if the results of the monitoring indicate that exposure should be reduced.

Personal results of health monitoring, as well as their interpretation, should be given to individual workers. Unless the worker's written informed consent for release is obtained, only categorical results (such as a range of values rather than specific measurement values) should be released to any person other than the individual or the worker's family physician). Both the worker and the employer should be advised about the worker's fitness to work, along with any work restrictions or recommended health and safety precautions.

Records concerning health, biological and biological effect monitoring should be kept and maintained in a form, which is easily linked to job and exposure records, while still observing the rules of confidentiality.

Although this section does not stipulate the period of time that records must be retained, they should be kept as long as practicable. This is especially important for identifying and assessing work-related health changes associated with changes over time in work processes, practices or control measures, as well as for detecting occupational diseases with delayed onset. In terms of confidentiality, standard guidelines and current accepted practice of regulatory bodies and recognized occupational health organizations should be followed. These include, for example, the Royal College of Physicians and Surgeons, the Canadian Medical Association, the British Columbia Medical Association, the Occupational and Environmental Medicine Association of Canada, and the American College of Occupational and Environmental Medicine. Employers, in conjunction with worker health and safety representatives and occupational health personnel, should develop written policy regarding confidentiality. This policy, as well as any monitoring records, should be reviewed periodically.

Health monitoring programs should be reviewed and re-evaluated on a regular basis, and when

- there is a change in work processes or substance usage,
- there is a significant change in the results of air monitoring, where a significant change may indicate either that the exposure limit is being exceeded or that control measures are keeping exposure levels below 50% of the exposure limit,
- signs or symptoms of occupational ill health are reported and investigated, as required by section 5.59 of the *OHS Regulation*, or
- results of biological or biological effect monitoring exceed recommended limits.

G5.54-6 Documentation

Issued August 1999; Editorial Revision February 1, 2008; Editorial Revision consequential to May 1, 2017 Regulatory Amendment

Regulatory excerpt

Section 5.54(2)(g) of the *OHS Regulation ("Regulation")* states:

(2) The exposure control plan must incorporate the following elements:

(g) documentation, when required.

Purpose of guideline

The purpose of this guideline is to specify when documentation is specifically required under certain sections.

Documentation

Section 5.54(2)(g) provides that the exposure control plan must incorporate "documentation, when required." Documentation is specifically required under certain sections. Some examples include the following:

- Section 6.4 of the *Regulation* – inventory of asbestos-containing materials and a record of any changes made to the inventory
- Section 6.32 – records of risk assessments, inspections, air monitoring results, instruction and training of workers, and incident investigation reports

- Section 6.34(1) – records of all workers who have occupational exposure, as defined in section 6.33

Documentation is also required under section 5.2 and whenever workplace monitoring is conducted under section 5.53.