

## STANDARD PROCEDURE INSTRUCTION

Title		SPI
<b>Gas Detection Equipment</b>		#36-6
Department	Supersedes SPI Dated	Effective Date
Safety, Health and Environment	March 21, 2007	Dec 19, 2014

---

### Gas Detection Equipment

---



---

Title		SPI
<b>Gas Detection Equipment</b>		#36-6
Department	Supersedes SPI Dated	Effective Date
<b>Safety, Health and Environment</b>	March 21, 2007	Dec 19, 2014

## 1. PURPOSE

- 1.1. To ensure proper use of gas detection equipment.

## 2. SCOPE

- 2.1. This procedure applies to all gas detection equipment in Vale Manitoba Operations.
- 2.2. The Safety, Health and Environment Department will initiate review of this SPI<sup>1</sup> and communicate any improvements to be made to the Manager of Safety, Health and Environment or a designate.

## 3. LEGAL REQUIREMENTS

- *The Workplace Safety and Health Act, W210, Manitoba.*
- *Manitoba Regulation 217/2006, Part 15, Manitoba.*
- *Code of Practice for Confined Space Entry Work, Manitoba Labour and Immigration, Workplace Safety and Health Division.*

## 4. DEFINITIONS

**Gas detector** – is a device that can detect and measure presence of various gases in an area. Gas detectors may be used in confined space or as a part of a safety system. The unit alarms may be configured to warn employees before the exposure limit is reached.

**Functional or bump test** – is a brief exposure of a gas monitor to a concentration of gas(s) in excess of the lowest alarm set-point for each sensor for the purpose of verifying sensor and alarm operation.

- a) A bump test must be performed in accordance with Manufacturer’s instructions.
- b) A bump test is not intended to be a measure of the accuracy of the instrument. It does not replace required full calibration or Manufacturer’s calibration.

<sup>1</sup> As outlined in SPI 10-1 “Development and Maintenance of Health Safety and Environment SPI”, Section 5



Title		SPI
<b>Gas Detection Equipment</b>		#36-6
Department	Supersedes SPI Dated	Effective Date
<b>Safety. Health and Environment</b>	March 21, 2007	Dec 19, 2014

**Full calibration** – is the correction of the instrument’s reading that must correspond to a known concentration of certified test gas. A full calibration is done when an instrument fails a bump test or after it has been serviced. The full calibration should be conducted by the Manufacturer or by a qualified person if equipment can be calibrated in house.

**Qualified person** – someone, who by the nature of the work and by training has the required skills and knowledge to maintain and calibrate the equipment.

**Hazardous atmosphere** – is an atmosphere that may expose employees to the risk of death, incapacitation, impairment of self-rescue, injury or acute illness by toxic gases or oxygen depletion or enrichment.

**Confined space** – means an enclosed or partially enclosed space that:

- a) except for the purpose of performing work, is not primarily designed or intended for human occupancy;
- b) Has restricted means of access or egress.

## 5. ROLES AND RESPONSIBILITIES

- 5.1. Safety, Health and Environment may assist in the process of research and selection of gas detection equipment when requested.
- 5.2. Each department shall:
  - a) maintain an inventory of all gas detection equipment;
  - b) determine a person/group responsible for maintenance, inspections and calibration;
  - c) set-up inspection and calibration procedures and a logbook that shall include – date and time of bump test or calibration, name of tester, gas tested, and indication of pass or fail;
  - d) Ensure training is completed for calibration, maintenance and employees operating gas detection equipment. Training for equipment use shall compliment Confined space training;
  - e) Retain training records as per legal requirements;
  - f) Records of calibration certification must be kept for a minimum of 5 years and shall be available upon request.



Manitoba Operations



Title		SPI
<b>Gas Detection Equipment</b>		#36-6
Department	Supersedes SPI Dated	Effective Date
<b>Safety. Health and Environment</b>	March 21, 2007	Dec 19, 2014

## 6. TRAINING

- 6.1. All gas detection equipment operators, calibration and maintenance personnel shall have gas detection training.
- 6.2. Training shall be arranged by each department and shall be provided by the Manufacturer of the gas detection equipment, equipment distributor or a certified professional as determined by the department.
- 6.3. Training records shall include employee name and date completed. Records shall be kept within each department and be available upon request.
- 6.4. Confined space training shall also include information regarding remote sampling pumps, procedures and limitations.

## 7. EQUIPMENT USE AND MAINTENANCE

- 7.1. Only qualified employees shall work with gas detection equipment.
- 7.2. If unit alarms are in use they shall be set as per Manitoba regulations or ACGIH<sup>2</sup> TLV (threshold limit values) and shall be reviewed annually:
  - a) low alarm shall be set at TWA<sup>3</sup>;
  - b) high alarm shall be set at STEL<sup>4</sup> ;
  - c) If TWA or STEL are not available the SHE department shall assist in identifying alarm settings.
  - d) During confined space entry the alarms can be adjusted to values applicable to the risk based on the risk assessment completed prior to entry. All confined space entry shall follow the procedures listed in the confined space SPI 34-33.

<sup>2</sup> The American Conference of Governmental Industrial Hygienists

<sup>3</sup> ACGIH time weighted average

<sup>4</sup> ACGIH short term exposure limit



Manitoba Operations



Title		SPI
<b>Gas Detection Equipment</b>		#36-6
Department	Supersedes SPI Dated	Effective Date
<b>Safety. Health and Environment</b>	March 21, 2007	Dec 19, 2014

- 7.3. Refer to the Manufacturer's manual for care, maintenance and testing requirements:
- a) bump testing is used to verify each sensor and alarm operation;
  - b) gas used must be higher concentration than the low alarm setting on the instrument;
  - c) applied gas concentration should be high enough to trigger alarms;
  - d) If the instrument fails a bump test it shall not be used until the instrument is fully calibrated or repaired.
- 7.4. The oxygen sensor shall not be used as an indicator of toxic atmosphere.
- 7.5. Rechargeable batteries should be charged and discharged in accordance with the equipment Manufacturer.
- 7.6. In accordance with article 15.3 (c) of the Manitoba Workplace Safety and Health Regulation 217/2006, bump testing of the equipment must be done by a competent person and verified by the worker(s) being protected by the equipment.
- 7.7. Records of inspections, maintenance and calibration shall be retained for 5 years and be available upon request.

## 8. DISPOSAL

- 8.1. Recycle or dispose of gas detection equipment or its parts, such as batteries, filters, sensors, among others as per Manufacturer's recommendations and Vale MB Operations procedure(s).

Approved By	Title
	General Manager, Vale Manitoba Operations
Date	



Manitoba Operations

