

STANDARD PROCEDURE INSTRUCTION

Title		SPI
Lead Management and Disposal		# 36-11
Department	Supersedes SPI Dated	Effective Date
Safety, Health & Environment	NEW	June 19, 2013

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1. PURPOSE

To provide recommendations on lead remediation at Vale MB Operations.

2. SCOPE

- 2.1. The procedure was developed to identify, sample and manage lead on VALE Manitoba Operations plant sites and mines.
- 2.2. The Industrial Hygiene Coordinator will initiate review of the Lead SPI and communicate any improvements to be made to the Manager of Safety, Health & Environment or a designate.
- 2.3. Additional forms, appendices, work instructions among others that are or might become part of this SPI will be updated separately and will be reviewed and approved by the Manager of the Safety, Health and Environment (S.H.E.) department or a designate.

3. LEGAL REQUIREMENTS

- 3.1. Manitoba The Workplace Safety and Health Act W210.
- 3.2. Manitoba The Environment Act E125.
- 3.3. Surface Coating Materials Regulations (SOR/2005-109), Canada 2011.
- 3.4. The Toxic Substances List, Schedule 1 of the Canadian Environmental Protection Act (CEPA), Canada 1988.
- 3.5. Transportation of Dangerous Goods (TDG).

4. DEFINITION

- 4.1. Lead belongs to the heavy metals group. It is odorless, soft and malleable. Occurs naturally. Metallic lead has a bluish-white color in dry atmosphere. It tarnishes to a dull grayish color when exposed to air and has a shiny chrome-silver luster when it is melted into a liquid.

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4.2. Common applications of lead are lead-acid batteries, paint, bullets and weights, pipes, cables, PVC heat stabilizers with lead additives among others.

4.3. Lead is poisonous (as defined in CEPA 1999, the *Toxic Substances List*) and can accumulate in soft tissue, bones and blood.

5. INSPECTION

5.1. An IH Coordinator or a designate in conjunction with USW representative shall perform an inspection prior to remediation to identify and recommend the elimination of the main source of lead problem.

5.2. Prior to sandblasting or maintenance, painted tanks, rail cars, pipelines or other steel structures should be sampled for lead concentration. Allow sufficient amount of time to receive sample results¹ back before project commencement.

6. SAMPLING AND TESTING

6.1. A technically competent person shall evaluate the area and results.

6.2. The occupational exposure limit for lead shall be as low as reasonably practical, and shall not exceed **0.05 mg/m³** for all forms as put forth in ACGIH TLV®'s and BEI®'s and/or no more than **90 mg/kg** of total lead for surface coating material according to the federal *SOR/2005-109*.

6.3. The above mentioned limit of 90mg/kg does not apply to:

- a) anti-corrosive or an anti-weathering coating applied on the interior or exterior surface of any building or equipment that is used for an agricultural or industrial purpose; or
- b) anti-corrosive or an anti-weathering surface coating applied on any structure that is used for an industrial or public purpose;
- c) as a touch-up coating for metal surfaces;
- d) on traffic signs, for graphic art on billboards, for identification marks in industrial buildings etc, or
- e) surface coating that cannot be easily chipped or chewed.

¹ Test will be analyzed in an external laboratory and may take up to 8 weeks.

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6.4. If exposure limit for lead is more than **90 mg/kg** of total lead for surface coating material according to the federal SOR/2005-109 then “danger” sign shall be posted.

6.5. Sample analysis:

- Certified laboratory personnel shall analyze lead containing samples. The National Institute for Occupational Safety and Health (NIOSH) approved method or an equivalent shall be used to identify lead type, concentration and content in the accredited laboratory. Collect paint sample (chip) of a minimum of 300mg.
- Chemical test kit for exposed (top layers) paint. Indicates only presence or absence of lead.
- Measurement of the amount of lead with XRF spectrometry device.

7. REMEDIATION

- Lead paint removal. Build a hoarding to protect workers from lead exposure.
- Use polyethylene sheeting on walls and floors.
- Wet spray area that is being remediated to minimize dust. All water used during remediation shall be collected and treated as hazardous and must be disposed of as such.
- Wear disposable coveralls and powered air purifying respirators (PAPR). Thoroughly wash the respirator and dispose of cartridges once the job is complete.
- Remediation worker shall take shower after the job is completed to eliminate lead dust exposure.

7.1. Leaded pipes, cables and structures removal:

- All lead containing structures, pipes, cables shall be disposed of as hazardous waste or recycled when feasible.
- Use gloves when handling lead-containing materials.

7.2. Lead-acid batteries shall be stored separate from other wastes and disposed of as hazardous waste.

8. DISPOSAL

8.1. Dispose of all lead contaminated waste as hazardous waste:

- Consult with the Environment of the SHE department to discuss leaded water disposal.

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- Improperly disposed industrial quantities may leach and contaminate groundwater.
- “*Hazardous Waste*” form must be submitted to the Safety, Health and Environment department prior to disposal.

8.2. Do not mix lead waste with strong acids and/or hydrogen peroxide while storing or awaiting disposal.

8.3. Lead containing cables, jackets, pipes may be recycled.

9. TRAINING

9.1. Employees, supervisors, planners and inspectors engaged in lead abatement projects must have adequate training on the abatement procedures.

9.2. In consultation with the SHE department all training on-site shall be arranged by and entered into a system by the Valer Education Center.

9.3. Contractors shall provide valid training certification to a Project Coordinator. Copy of a certificate shall be delivered to the SHE department.

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Approved By	Title
	Vice President, Vale Manitoba Operations
Date	

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APPENDIX

1. [Hazardous waste form](#)
2. **Lead remediation checklist**

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Lead Remediation Inspection Form The Form #1 Page 1 of 2

Classification Form September 1, 2012

Date and location of activities _____

Site location _____

Project Coordinator _____

OSH representative _____

UWB representative _____

Index Facilities _____

Name of assigned Contractor _____

Pre-Project Check off items apply:

Test for air or water from HSOA regulated substance (as collected best sample)

Copy of Complete Employee/Contractor training available

Method statement provided (change to incident as listed on sheet 4 of this page)

Permitting requirements

Lockout/Tagout

Working permit of task in adjacent area

Area testing

Personal protective equipment

Training and personal protection in remediation in work area

Work areas in restricted enclosure that prohibit entry into work area with separate entrance

Plans to be used in work area are current and approved

All signs in the work area are current and approved

All work in the work area is approved and planned

Employees in the work area are trained

Material in the work area is controlled (separate off load from work area. Plastic enclosed in holding area) or removed to designated collection area

Work contained in one end of a job being transported off-site

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