

Part 1 General

1.1 GENERAL

- .1 Comply with requirements of this Section when performing following Work:
 - .1 Removal of lead-containing coatings or materials using a power tool with an effective dust collection system equipped with a HEPA filter. Effective implies that the dust collection system should be capable of controlling airborne lead concentration levels to below 0.05 mg/m³.
 - .2 Removal of lead-containing coatings or materials with non-powered hand tool, other than manual scraping and sanding.

1.2 RELATED REQUIREMENTS

- .1 Section 02 41 16.01 – Structure Demolition
- .2 Section 05 12 33 – Structural Steel for Bridges
- .3 Section 09 97 19 – Painting Exterior Metal Surfaces

1.3 REFERENCES

- .1 Department of Justice Canada
 - .1 Canadian Environmental Protection Act, 1999 (CEPA).
- .2 Human Resources and Social Development Canada (HRSDC)
 - .1 Canada Labour Code Part II, - SOR 86-304 - Occupational Health and Safety Regulations.
- .3 Transport Canada (TC)
 - .1 Transportation of Dangerous Goods Act, 1992 (TDGA).
- .4 Provincial Legislation
 - .1 Ontario Occupational Health and Safety Act, R.S.O. 1990
 - .1 Ontario Regulation 490/09 – Designated Substances (O.Reg. 490/09).
 - .2 Ontario Regulation 213/91 for Construction Projects (O.Reg. 213/91).
 - .2 Ontario Environmental Protection Act, R.S.O. 1990
 - .1 Ontario Regulation 347, General – Waste Management (R.R.O. 1990, Reg. 347)
 - .3 Quebec An Act Respecting Occupational Health and Safety, c. S-2.1
 - .1 Quebec Regulation Respecting Occupational Health and Safety, c. S-2.1, r. 13
 - .4 Quebec Environmental Quality Act, c. Q-2
 - .1 Quebec Regulation Respecting Hazardous Materials, c. Q-2, r.32
- .5 U.S. Environmental Protection Agency (EPA)
 - .1 EPA 747-R-95-007-[1995], Sampling House Dust for Lead.

- .6 U.S. Department of Health and Human Services/Centers for Disease Control and Prevention/National Institute for Occupational Safety and Health (NIOSH)
 - .1 NIOSH 94-113 - NIOSH Manual of Analytical Methods (NMAM), 4th Edition (1994).
- .7 U.S. Department of Labour - Occupational Safety and Health Administration (OSHA) - Toxic and Hazardous Substances
 - .1 Lead in Construction Regulation - 29 CFR 1926.62-[1993].
- .8 Underwriters' Laboratories of Canada (ULC)

1.4 DEFINITIONS

- .1 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with a filter system capable of collecting and retaining fibres greater than 0.3 microns in any direction at 99.97% efficiency.
- .2 Authorized Visitors: Departmental Representative or designated representative(s).
- .3 Action level: employee exposure, without regard to use of respirators, to airborne concentration of lead of 50 micrograms per cubic meter of air (50 ug/m³) calculated as 8-hour time-weighted average (TWA). Minimum precautions for lead abatement are based on airborne lead concentrations less than 0.05 milligrams per cubic meter of air for removal of lead based paint by methods noted in paragraph 1.1.
- .4 Competent person: individuals capable of identifying existing lead hazards in workplace taking corrective measures to eliminate them.
- .5 Spent Material: means the spent abrasive, removed coating material, rust, or other debris or a mixture thereof generated during coating removal and surface preparation.

1.5 INCLUSIONS

- .1 The work under this section will not be measured and is deemed to be included in the cost for the work associated to Section 05 12 33 – Structural Steel for Bridges. The costs shall assume that the waste material will be non-hazardous (spent material that is tested to be non-leachate toxic). In the event that the spent material is tested to be leachate toxic, payment of any costs for the disposal of the spent material as hazardous waste, that are additional to those for disposal as non-hazardous solid industrial waste, shall be paid as Extra Work after receipt of disposal weigh ticket(s).

1.6 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Provide test results from testing for management of spent materials to Departmental Representative a minimum of 2 days prior to shipment of the material tested.
 - .1 For each sample tested, provide original documentation from the selected Canadian Association for Environmental Analytical Laboratories (CAEAL) accredited laboratory indicating the following:
 - .1 Laboratory name and address and identification of the individual responsible for accuracy of test results.

- .2 Sample identification, including contract number and date sampled (i.e., yyyy,mm,dd).
- .3 Laboratory report of analysis containing the analytical results.
- .4 A certificate specifying the analysis performed, methodology used for analysis of each parameter, and instrumentation.
- .5 A quality control certificate indicating:
 - .1 The test results.
 - .2 The upper and lower limits for process per cent recovery and matrix spike recovery.
 - .3 A statement indicating that each test result is acceptable relative to the upper and lower limits.
- .2 Keep a record of all test sample numbers and sample dates and make available to the Departmental Representative upon request.
- .3 Provide proof satisfactory to Departmental Representative that suitable arrangements have been made to dispose of lead based paint waste in accordance with requirements of authority having jurisdiction.
 - .1 Provide Departmental Representative necessary permits for transportation of lead based paint waste.
 - .2 Provide Departmental Representative necessary permits for disposal of lead based paint waste.
- .4 Provide Departmental Representative proof that lead based paint waste has been received and properly disposed.
 - .1 For waste materials (spent material that is tested to be non-leachate toxic), provide weigh ticket(s), receipt(s), or where such documentation is not available, written documentation from the operator of the disposal site that the waste has been received a maximum of two (2) weeks after disposal activities are complete.
 - .2 For hazardous materials (spent material that is tested to be leachate toxic), provide weigh ticket(s) a maximum of two (2) weeks after disposal activities are complete.
- .5 Provide proof satisfactory to Departmental Representative that employees have had instruction on hazards of lead exposure, respirator use, dress, and aspects of work procedures and protective measures.

1.7 QUALITY CONTROL

- .1 Regulatory Requirements: comply with Federal, Provincial/Territorial and local requirements pertaining to lead paint, provided that in case of conflict among those requirements or with these specifications more stringent requirement applies. Comply with regulations in effect at time work is performed.
- .2 Health and Safety:
 - .1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.
 - .2 Safety Requirements: worker and visitor protection.

- .1 Protective equipment and clothing to be worn by workers and visitors in work Area include:
 - .1 Respirator NIOSH approved and equipped with replaceable HEPA filter cartridges with an assigned protection factor suitable for type of lead and level of lead dust exposure, acceptable to Authority having jurisdiction. Provide sufficient amount of filters.
 - .2 Half mask respirator: half-mask particulate respirator suitable for type of lead and level of lead dust exposure, acceptable to Authority having jurisdiction, could be provided.
- .2 Eating, drinking, chewing, and smoking are not permitted in work area.
- .3 Ensure workers wash hands and face when leaving work area.
- .4 Visitor Protection:
 - .1 Provide approved respirators to Authorized Visitors to work areas.
 - .2 Instruct Authorized Visitors procedures to be followed in entering and exiting work area.

1.8 WASTE MANAGEMENT AND DISPOSAL

- .1 Management of spent material includes sampling, testing, documenting, transporting, and disposing of spent material and may include re-use or recycling.
- .2 Separate waste materials (spent material that is tested to be non-leachate toxic) for disposal as non-hazardous solid industrial waste or reuse and/or recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .3 Handle and dispose of hazardous materials (spent material that is tested to be leachate toxic) in accordance with applicable regulations.
 - .1 Disposal of lead waste generated by removal activities must comply with Federal, Provincial, Territorial and Municipal regulations. Dispose of lead waste in sealed double thickness 6 ml bags or leak proof drums. Label containers with appropriate warning labels.
 - .2 Provide manifests describing and listing waste created. Transport containers by approved means to licensed landfill for burial.
- .4 Approval by the Departmental Representative shall be obtained prior to shipment of removed coating material and spent blasting medium from the project site.
- .5 It is the Contractor's responsibility to obtain approvals, releases, and agreements, and conditions of same, that are required to implement the Contractor's strategy for the management of removed coating material.

1.9 EXISTING CONDITIONS

- .1 Reports and information pertaining to lead based paint to be handled, removed, or otherwise disturbed and disposed of during this Project are bound into this specification, and summarized in Section 01 14 25 – Designated Substances.

Part 2 Products

2.1 MATERIALS

- .1 Lead waste containers: metal or rigid plastic type acceptable to dump operator with tightly fitting covers and 0.15 mm thickness sealable polyethylene liners.
 - .1 Label containers with pre-printed bilingual cautionary Warning Lead clearly visible when ready for removal to disposal site.

Part 3 Execution

3.1 SUPERVISION

- .1 Minimum of one Supervisor for every ten workers is required.
- .2 Supervisor must remain within work area during disturbance, removal, or handling of lead based paints.

3.2 PREPARATION

- .1 Do not start work until:
 - .1 Arrangements have been made for disposal of waste.
 - .2 Tools, equipment, and materials waste containers are on site.
 - .3 Notifications have been completed and preparatory steps have been taken.

3.3 LEAD ABATEMENT

- .1 Removal of lead-containing coatings using power tools that have an effective dust collection system equipped with HEPA filters; or removal with non-powered hand tool, other than manual scraping and sanding. Effective implies that the dust collection system should be capable of controlling airborne lead concentration levels to below 0.05 mg/m³.
- .2 Remove lead based paint in small sections and pack as it is being removed in sealable 0.15 mm plastic bags and place in labelled containers for transport.
- .3 Seal filled containers. Clean external surfaces thoroughly by wet sponging. Remove from immediate working area to staging area. Clean external surfaces thoroughly again by wet sponging. Wash containers thoroughly pending removal to outside. Ensure containers are removed by workers who have entered from uncontaminated areas dressed in clean coveralls.

3.4 INSPECTION

- .1 Perform inspection to confirm compliance with specification and governing authority requirements. Deviations from these requirements not approved in writing by Departmental Representative will result in work stoppage, at no cost to the Crown.
- .2 Departmental Representative will inspect work for:
 - .1 Adherence to specific procedures and materials.
 - .2 Final cleanliness and completion.

- .3 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

3.5 SAMPLING AND TESTING OF WASTE MATERIALS

- .1 Prior to transportation from the work site, samples of spent material shall be collected and submitted to an analytical laboratory for analysis.
- .2 Samples taken to determine waste classification shall be representative of the spent material to be managed, such that they accurately characterize the variation that may exist throughout the waste pile or container (e.g., vertically and horizontally). This may be achieved by collecting multiple samples using a grain sampler, auger, or other similar sampling equipment or technique.
- .3 Prepare one 500 gram representative composite sample of spent material for the first 12 m³ or less of material. An additional sample is required for every additional 12 cubic metres or less of material.
- .4 Notify the Departmental Representative a minimum of 24 hours prior to collecting each sample of spent material.
- .5 Prepare each sample as follows:
 - a) Prior to each sampling, thoroughly clean the sampling equipment with a detergent solution; rinsed with clean water, preferably distilled water; and allow to air dry.
 - b) For every 12 m³ or less of spent material, a minimum of one 500 gram sub-sample shall be collected from each container (e.g., drums and barrels) of waste that represents the specified volume to be tested. For larger size containers (e.g., lugger bins) a minimum of two 500 gram sub-samples shall be collected (i.e., one from the centre and one from either end).
 - c) Prepare a composite sample of the specified volume of material to be tested by combining individual sub-samples into a clean plastic or steel bucket.
 - d) Thoroughly mix the combined sample.
 - e) Pile the sample into a cone while placing it on a clean plastic sheet. Place the material as it is emptied from the bucket, at the cone's apex and allow it to run down the sides of the cone.
 - f) Flatten the cone into a rough circle of uniform thickness. Divide the circle into four quarters and reject two opposite sides.
 - g) Repeat the procedure of coning and quartering (i.e., steps e) and f)) to obtain a single composite 500 gram sample for analysis.
 - h) Divide each composite sample into two halves and place into laboratory cleaned jars or zip sealed plastic bags and label with the following information:
 - .1 Sample ID (i.e., spent material from abrasive blasting of structural steel)
 - .2 Sample number.
 - .3 Date sampled (i.e., yyyy-mm-dd).
 - .4 Name of sampler.
 - .5 Name of Contractor.
 - .6 Work project number.

- .6 Submit one half of each sample to the analytical laboratory, and the other half to the Departmental Representative to be retained in a secure location.
- .7 Test the samples according to the Toxicity Characteristic Leaching Procedure to determine the concentration of lead, and any other parameter specified by applicable regulations that may be associated with the spent material.
- .8 Management of spent material shall be based on the laboratory test results and shall be subject to the approval of the Departmental Representative.

3.6 FINAL CLEANUP

- .1 Vacuum visible lead containing particles observed during cleanup, immediately, using HEPA vacuum.
- .2 Conduct final check to ensure no dust or debris remains on surfaces.

END OF SECTION