
PART 1 – GENERAL

1.1 REGULATORY REQUIREMENTS

.1 An investigation into the presence of designated substances for the Fire Alarm Replacement Project at 3545 Leirtrim Road, Ottawa, Ontario was performed in order to meet the requirements of the Canada Labour Code under Part II, section 124 which stipulates that every employer shall ensure that the health and safety at work of every person employed by the employer is protected and those employees are made aware of every “known or foreseeable health or safety hazard” in the work environment. Also, it was performed to meet the requirements of Section 30 of the *Ontario Occupational Health and Safety Act, Revised Statutes of Ontario, 1990, Chapter O.1*. By having a Designated Substances Report (DSR) conducted, the Departmental Representative will be able to inform his or her employees, contractors, and tenants of any designated substances that may be present and possibly disturbed throughout the duration of the project. The informed Departmental Representative will then be able to impose appropriate health and safety precautions for all applicable personnel as required.

.2 The designated substances identified in the *Occupational Health and Safety Act* and its corresponding regulations are:

- .1 **Acrylonitrile:** “Designated Substance – Acrylonitrile” O.Reg 835 (as amended by O.Reg 490/09)
- .2 **Arsenic:** “Designated Substance – Arsenic” O.Reg 836 (as amended by O.Reg 490/09)
- .3 **Asbestos**
 - .1 “The Regulation Respecting Asbestos” O.Reg 837 (as amended by O.Reg 490/09)
 - .2 “General – Waste Management” O.Reg 347 (as amended by O.Reg 337/09)
 - .3 “Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations” O.Reg 278/05 (as amended by O.Reg 493/09)
 - .4 PWGSC Departmental Policy DP 057 – “Asbestos Management”
- .4 **Benzene:** “Designated Substance – Benzene” O.Reg 839 (as amended by O.Reg 490/09)
- .5 **Coke Oven Emissions:** “Designated Substance – Coke Oven Emissions” O.Reg 840 (as amended by O.Reg 490/09)

- .6 **Ethylene Oxide:** "Designated Substance – Ethylene Oxide" O.Reg 841 (as amended by O.Reg 490/09)
- .7 **Isocyanates:** "Designated Substance – Isocyanates" O.Reg 842 (as amended by O.Reg 490/09)
- .8 **Lead:**
 - .1 "Designated Substance – Lead" O.Reg 843 (as amended by O.Reg 490/09)
 - .2 "General – Waste Management" O.Reg 347 (as amended by O.Reg 337/09)
 - .3 Hazardous Products Act's Regulations Amending the Surface Coating Materials Regulations SOR/2010-224
- .9 **Mercury:**
 - .1 "Designated Substance – Mercury" O.Reg 844 (as amended by O.Reg 490/09)
 - .2 "General – Waste Management" O.Reg 347 (as amended by O.Reg 337/09)
- .10 **Silica:** "Designated Substance – Silica" O.Reg 845 (as amended by O.Reg 490/09)
- .11 **Vinyl Chloride:** "Designated Substance – Vinyl Chloride" O.Reg 846 (as amended by O.Reg 490/09)
- .3 All contractors requesting tenders from subcontractors shall furnish this report to subcontractors.

1.2 VALIDITY DATE

- .1 Cyprien Amani, Environmental Analyst of the Environmental Services Directorate of the Real Property Branch, PWGSC, conducted the on-site survey for this report on 2013/04/10 and 2013/04/12.
- .2 The work area is located at the 3545 Leirtrim Road, in OPS Room Ottawa, Ontario. The scope of the work proposed consists of dismantling the current partition to have an open space .
 - .1 The scope of work for this report involved a visual inspection of building materials and contents for the presence of suspected designated substances in the project area on 2013/04/10 and 2013/04/12.

- .2 From the visual inspection suspect materials were sampled and analyzed, where appropriate, for the above substances. On the basis of this inspection, a total of fifteen (15) bulk samples of suspected asbestos-containing materials (ACMs), and six (6) bulk samples of suspected lead-containing paint were collected. Bulk ACM samples were collected in order to satisfy the requirements of *O. Reg. 278/05*, as amended.
- The samples were then submitted for analysis to the EXOVA Laboratory (an accredited CAEAL lab) located at 146 Colonnade Road, Nepean, Ontario, K2E 7Y1.
- The bulk asbestos samples were analyzed using Polarized Light Microscopy (PLM). This analytical method complies with the United States Environmental Protection Agency (U.S. EPA) Method 600/R-93/116.
- The lead analysis of the paint samples was completed using Inductively Coupled Plasma – Mass Spectrometry (ICP-MS) in accordance with U.S. EPA Method 6010-C.
- .3 The visual inspection and sampling was limited to readily accessible areas. Destructive testing was not included in the investigation, but is recommended prior to any major demolition. Due to the nature of building construction, some inherent limitations exist as to the possible thoroughness of the designated substance survey. The survey did not include the demolition of floors, floor finishes, plaster ceilings or walls or other areas to examine concealed conditions. No confined space was accessed for the purpose of this report.
- .4 It is possible that the designated substances aforementioned are present in non-accessible areas and concealed spaces (i.e., wall and ceiling cavities), or confined spaces. No other areas outside the defined work boundaries have been assessed.
- .5 Prior to beginning work, it must be confirmed with the Departmental Representative that no additional designated substances have been brought to the project area.
- .6 In addition, the survey refers to PCBs and halocarbons; however, it does not refer to other substances that may be present in the day-to-day usage for specialized equipment

or areas in buildings (i.e. lead shields, fume hoods, etc.).

- .7 There is a possibility that materials which could not be reasonably identified within the scope of this assessment or which were not apparent during previous site visits may exist. Should any designated substance be encountered in the course of demolition, work must be stopped, preventative measures taken, and the Departmental Representative must be notified immediately. **Do not proceed until written instructions have been received.**

PART 2 - DESIGNATED SUBSTANCES

2.1 SURVEY RESULTS

.1 **ACRYLONITRILE:** Not Identified

.2 **ARSENIC:** Not Identified

3 **ASBESTOS:** Not Identified

Asbestos is a naturally occurring material. In general, it has historically been intentionally added to many building materials in the construction industry to increase thermal or chemical resistance properties. More common uses are thermal insulation for pipes and boilers, structural steelwork fireproofing, floor tiles and in-wall and ceiling plasters. There are two classes of asbestos-containing materials: friable and non-friable. Friable asbestos-containing materials are loose in composition or can be easily crumbled using hand pressure. Non-friable asbestos-containing materials are more durable and are held together by a binder such as cement, vinyl or asphalt.

Representative bulk samples, collected on 2013/04/12 from materials located within the project area have been analyzed for asbestos. Analytical results indicate that no asbestos has been detected in all drywall joint compounds, plaster samples collected from the project area and submitted. The results are shown in Table 1 below.

Table 1: Asbestos Sample Results

Sample number	Material	Location	Asbestos Type	Asbestos content (%)
LEITRIMROAD-AS-1A	Drywall joint compounds	From Room 109 3B , Building 250D	n/a	n/d
LEITRIMROAD-AS-1B	Drywall joint compounds	From Room 109 3B , Building 250D	n/a	n/d
LEITRIMROAD-AS-1C	Drywall joint compounds	From Room 109 3B , Building 250D	n/a	n/d
LEITRIMROAD-AS-2A	Drywall joint compounds	From Room 1090, Building 250D	n/a	n/d
LEITRIMROAD-AS-2B	Drywall joint compounds	From Room 109 0, Building 250D	n/a	n/d
LEITRIMROAD-AS-2C	Drywall joint compounds	From Room 109 0, Building 250D	n/a	n/d
LEITRIMROAD-AS-3A	Plaster	From Shower Room , Building 251	n/a	n/d
LEITRIMROAD-AS-3B	Plaster	From Shower Room , Building 251	n/a	n/d
LEITRIMROAD-AS-3C	Plaster	From Shower Room , Building 251	n/a	n/d
LEITRIMROAD-AS-4A	Drywall joint compounds	From Room 1012, Building 250D	n/a	n/d
LEITRIMROAD-AS-4B	Drywall joint compounds	From Room 1012, Building 250D	n/a	n/d
LEITRIMROAD-AS-4C	Drywall joint compounds	From Room 1012, Building 250D	n/a	n/d
LEITRIMROAD-AS-5A	Drywall joint compounds	Hallway Front, Room 1051	n/a	n/d
LEITRIMROAD-AS-5B	Drywall joint compounds	Hallway Front, Room 1051	n/a	n/d
LEITRIMROAD-AS-5C	Drywall joint compounds	Hallway Front, Room 1051	n/a	n/d

n/d = none detected, n/a = not applicable

- .4 **BENZENE:** Not Identified
- .5 **COKE OVEN EMISSIONS:** Not Identified
- .6 **ETHYLENE OXIDE:** Not Identified
- .7 **ISOCYANATES:** Not Identified
- .8 **LEAD:** Trace amounts identified

Lead is a naturally occurring metal. It was used primarily in paint prior to the 1980's to increase the drying process. Lead in paint becomes a danger when it is old or damaged, as it creates lead dust and chips. Lead can also be found in soldered joints

installed on piping up to the mid 1990s and in older cast iron bell and spigot joints.

.1 According to the Hazard Products Act's *Regulations Amending the Surface Coating Materials Regulations* SOR/2010-224 allowable concentration of lead in surface coatings is 0.009 percent by weight (weight of lead to weight of paint), which is equivalent to 90 parts per million (ppm).

.2 The laboratory analysis results indicate that trace amounts of lead were detected in the beige paint sample collected from the wall in Rooms 109 3B, 1090, Shower Room, 1012, 1201 and 1051 (Leitrimroad-Pb-1, Leitrimroad-Pb-2 (none detected from the paint chips), Leitrimroad-Pb-3, Leitrimroad-Pb-4, Leitrimroad-Pb-5, Leitrimroad-Pb-6). The results are shown in Table 2 below.

Table 2: Lead Sample Results

Sample Number	Description	Location	Lead Content (ppm)
LEITRIMROAD-Pb-1	Beige Paint	From Room 109 3B , Building 250D	<30
LEITRIMROAD-PB-2	Beige Paint	From Room 1090 , Building 250D	n.d (from Paint Chips)
LEITRIMROAD-Pb-3	Beige Paint	From Shower Room , Building 251	50
LEITRIMROAD-Pb-4	Beige Paint	From Room 1012 , Building 250D	<30
LEITRIMROAD-Pb-5	Beige Paint	From Room 1201 , Building 251	<10
LEITRIMROAD-PB-6	Beige Paint	Hallway Front, Room 1051	<60

n.d.: None detected

.9 **MERCURY:** Not identified

.10 **SILICA:** Identified

Free crystalline silica is present in concrete within the project area.

.11 **VINYL CHLORIDE MONOMER:** Not Identified

.12 **POLYCHLORINATED BIPHENYLS (PCBs):** Not Identified

.13 **HALOCARBONS:** Not Identified

2.2 RECOMMENDATIONS

1. LEAD

If lead-containing materials are disturbed (i.e. during dry sanding, grinding, polishing and sawing operations), then proper precautions, as outlined under "Designated Substances" *O.Reg 490/09*, as amended, of the Occupational Health and Safety Act, must be followed.

Under Ontario Regulation 490/09, as amended of the Occupational Health and Safety Act, regulatory limits have been established for occupational exposure limits to airborne lead that may be present in a workplace. The Time Weighted Average Exposure Values to airborne lead dust or fumes should not exceed the Ministry of Labour's 0.05 milligram per cubic metre (mg/m³) limit during the removal of paints and products containing any concentration of lead. The TWAEV represents the time-weighted 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 health effects.

Contractors performing work that requires disturbance of lead-containing materials are responsible to ensure that the workers are not exposed to airborne lead dust levels in excess of the time-weighted average and Maximum Exposure Concentration for lead-containing paints. It should be noted that the use of mechanically-powered tools or torches on lead-containing materials increases the concentration of airborne lead dust or fumes and thereby requiring more stringent respiratory protection and controlled work procedures.

.1 Ontario Ministry of Labour (MoL) has published the document entitled "*Guideline: Lead on Construction Projects*". This document classifies all disturbances of lead-containing materials as Type 1, Type 2a, Type 2b, Type 3a or Type 3b work, based on presumed airborne concentrations of lead generated during the work each of which will have defined work practices. Although this document is not a regulation, Ministry of Labour Inspectors use it as guidance during site inspections.

.2 The disposal of construction waste containing lead is controlled by "General – Waste Management" O.Reg 347/09, as amended, under the *Ontario Environmental Protection Act*. The classification of the waste is dependent upon the result(s) of leachate test(s). The waste can be classified as "hazardous", "non-hazardous" or "registerable solid waste", depending on the results of the leachate test.

Prior to disposal, the concentration of leachable lead must be determined for waste materials with elevated lead contents following the Toxicity Characteristic Leaching Procedure (TCLP).

1. SILICA

. 1 Silica occurs as crystalline material in cement. Crystalline silica is regulated under "Designated Substance – Silica" O.Reg 845 (as amended by O.Reg 490/09) of the *Occupational Health and Safety Act* as a Designated Substance.

.2 Silica dust can be generated through such processes as blasting, grinding, crushing, and sandblasting silica-containing material. Since silica is present in the drywall within the project area, appropriate respiratory protection and ventilation must be donned during the demolition and modifications of these structures.

.3 The Occupational Health and Safety Branch of the MoL has published the document entitled "*Guideline: Silica on Construction Projects*". This document classifies the disturbance of materials containing silica as Type 1, Type 2 or Type 3 work, and assigns different levels of respiratory protection and work procedures for each classification. These work procedures should be followed when performing work involving the disturbance of silica-containing materials.

2. CONTRACTORS DUTIES

The contractor must review the designated substance report and take the necessary precautions to protect the health and safety of the workers and the environment. As per Section 30(4) of the *Ontario Occupational Health and Safety Act*, the party hiring the contractor (i.e. Departmental Representative) shall ensure that the contractor and subcontractor (if any) for the project has received a copy of the designated substance report prior to entering a binding contract for the supply of work on the project. As per Section 27(2) (a, b, and c) of the *Ontario Occupational Health and Safety Act*, while onsite, the contractor supervisor shall exercise every reasonable precaution for the protection of a worker. If you have any questions about the designated substance report, please contact the Departmental Representative.

END OF SECTION