



City of Ottawa

**REPORT
DESIGNATED SUBSTANCES SURVEY REPORT
FOR Navan Memorial Centre & Arena**

1295 Colonial Road
Navan, ONTARIO



Completed: April 2008



**DRAFT REPORT
DESIGNATED SUBSTANCES SURVEY**

**1295 Colonial Road
Navan, ONTARIO**

REF: 216.08771.00

Submitted by:

SLR Consulting (Canada) Ltd.

for:



City of Ottawa

April 2008

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1 copy – SLR Consulting (Canada) Ltd.

EXECUTIVE SUMMARY

The designated substances survey fieldwork was completed March 26, 2008.

Key Information Summary

Work Objectives

Designated Substances Survey:

- To assist the City of Ottawa (City) by identifying potential hazardous materials in the subject building and compile an inventory of such materials prior to renovation;
- To comply with Ontario Regulation 278/05 "Regulation Respecting Asbestos on Construction Projects and in Buildings and Repair Operations".
- To conduct inspection and sampling of potential hazardous materials within the building in areas that could be reasonably accessed by field personnel;
- Document the condition and location of potential hazardous materials and estimate quantities;
- Submit representative samples of potential hazardous materials for laboratory analysis; and,
- Provide a report documenting the activities of the work completed.

Work Location

- Navan Memorial Centre and Arena
- 1295 Colonial Road, Navan, Ontario

EXECUTIVE SUMMARY (continued)

Provincial / Federal Guidelines	
Acrylonitrile	<u>O. Reg. 835/90 as amended by O. Reg. 101/04</u>
Arsenic	<u>O. Reg. 836/90 as amended by O. Reg. 102/04</u>
Asbestos	<u>O. Reg. 837/90 as amended by O. Reg. 103/04</u> <u>O. Reg. 278/05</u>
Benzene	<u>O. Reg. 839/90 as amended by O. Reg. 105/04</u>
Chlorofluorocarbons / Ozone Depleting Substances (CFCs and ODSs)	<u>O. Reg. 189/94 as amended by O. Reg. 180/07</u>
Coke Oven Emissions	<u>O. Reg. 840/90 as amended by O. Reg. 106/04</u>
Ethylene Oxide	<u>O. Reg. 841/90 as amended by O. Reg. 107/04</u>
Isocyanates	<u>O. Reg. 842/90 as amended by O. Reg. 108/04</u>
Lead	<u>O. Reg. 843/90 as amended by O. Reg. 109/04</u> <u>SOR/2005-109</u>
PCBs	<u>SOR/92-57</u>
Mercury	<u>O. Reg. 844/90 as amended by O. Reg. 110/04</u>
Silica	<u>O. Reg. 845/90 as amended by O. Reg. 111/04</u>
Vinyl Chloride	<u>O. Reg. 846/90 as amended by O. Reg. 112/04</u>
Substances Investigated & Analytical Results	
Asbestos Containing Materials (ACMs)	<p>The following materials were confirmed to contain asbestos;</p> <ul style="list-style-type: none"> • Mechanical Insulation on Pipe Fittings; and, • Duct Flex Connector.
CFC's	<ul style="list-style-type: none"> • Two cooling units are located within the arena area. No access to the unit platforms was obtained. The units are likely to contain an ODS.
Lead	<ul style="list-style-type: none"> • Three paint samples exceed the (600ppm) criteria for lead based paint. • Lead may be present in solder joints, glazing on ceramic finishes and on all copper piping throughout the subject building.
Mercury	<ul style="list-style-type: none"> • Mercury may be present within fluorescent light tubes and High Intensity Discharge (HID) light bulbs, located within the facility.
Polychlorinated Biphenyls (PCBs)	<ul style="list-style-type: none"> • Inspected Ballasts did not contain PCBs. • Due to the age of the facility it is possible other ballasts may contain PCBs. Upon decommissioning the ballasts should be compared to the information outlined in the Environment Canada document "Identification of Lamp Ballasts Containing PCBs".

Silica	<ul style="list-style-type: none">• Crystalline silica is assumed to be present in the building within concrete structures such as walls, and floors Silica can also be found in cement blocks, plaster, and acoustic tiles.
Closure	
	<ul style="list-style-type: none">• Known and potential hazardous materials at the subject properties have been identified.• Hazardous materials were detected by visual identification included possible, CFC's / ODSs, Mercury, PCBs (potential), and Silica.• Hazardous materials detected by visual identification and laboratory analysis included asbestos and lead.• Removal of any hazardous material should be completed with appropriate personal protective equipment and be completed as per the applicable Regulations, Guidelines and/or Codes of Practice suitable for that material.



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LIST OF ACRONYMS & ABBREVIATIONS

TERM	DESCRIPTION	TERM	DESCRIPTION
ACM	Asbestos Containing Material	PCBs	Polychlorinated Biphenyls
CFC	Chlorofluorocarbon	Pb	Lead
cm²	Centimeters squared	PLM	Polorized Light Microscopy
CAEAL	Canadian Association of Environmental Analytical Laboratories	ppm	Parts Per Million
DUP	Duplicate	ppb	Parts Per Billion
EPA	Environmental Protection Agency	PVC	Polyvinyl Chloride
ESA	Environmental Site Assessment	QA/QC	Quality Assurance/Quality Control
ESI	Environmental Site Inspection	RPD	Relative Percent Difference
GW	Groundwater	SLR	SLR Consulting (Canada) Ltd.
HASP	Health and Safety Plan	T	Metric Tonnes
Hg	Mercury	TEM	Transmission Electron Microscopy
Ha	Hectare	µg/g	Micrograms/gram
HID	High Intensity Discharge	µg/L	Micrograms/Litre
LMRAV	Last Minute Risk Assessment Verification	u/g	Underground
m	Metre		
mg/kg	Milligrams per kilogram		
MDL	Method Detection Limit		
NS	No Standard		
ODS	Ozone Depleting Substances		

GLOSSARY OF TERMS

Adjacent Property – Any properties that are contiguous or adjoining to the property being assessed.

Approved – Used in reference to a substance or system that has been investigated by a testing agency, accredited by the Standards Council of Canada, or is acceptable to the authority having jurisdiction and has been found to comply with specific requirements and is identified with an authorized marking of the testing agency, as appropriate.

Asbestos Containing Material (ACM) - any building material containing that contains 0.5% or more asbestos is recognized as ACM.

Client – City of Ottawa

Commercial Property – any property where the primary activities of the land use is commercial (e.g., shopping mall) and not residential or manufacturing. This does not include operations where food is grown.

Contaminant – A substance that causes or may cause an adverse effect.

Contamination – The presence in soil, surface water, groundwater, air, or structures of a substance of concern, or a condition, in concentrations above appropriate pre-established criteria.

Criteria – Limits or levels for substances of concern that are established by regulating bodies.

Canadian Standards Association (CSA) – The Canadian Standards Association (CSA) is a membership association serving industry, government, consumers and other interested parties in Canada and the global marketplace. A leading developer of standards and codes, CSA enhances public safety, improves quality of life, preserves the environment and facilitates trade.

Dangerous Goods – Under the Transportation of Dangerous Goods Act (TDG) a dangerous good is a product, substance or organism included by its nature or by the regulations in any of the classes listed in the schedule of the ACT (Part 2 of the Transportation of Dangerous Goods Act).

Dangerous Goods Carrier – Under the Transportation of Dangerous Goods Act a carrier is a licensed transporter of dangerous goods. A transporter is a hauling firm that picks up properly packaged and labeled hazardous wastes from generators and transports it to designated facilities for treatment, storage, or disposal. Transporters are subject to TDG hazardous waste regulations.

Delineation – The physical and chemical assessment of all affected media at a site in three dimensions (length, width and depth) to the applicable criteria by sampling and analysis to determine the contaminant impact boundaries in a minimum of four horizontal directions.

Designated Substance – any material that is designated as such in any act or set of regulations.

Detection Limit – The smallest concentration or amount of a substance that can be reported as present in a sample with a specified degree of certainty by a definite complete analytical procedure.

Environment – The components of the earth and includes

- (i) air, land, and water;
 - (ii) the layers of the atmosphere;
 - (iii) organic and inorganic matter and living organisms;
 - (iv) the interacting natural systems that include components referred to in subclasses (i) to (iii);
- and,

may refer to, the socio-economic, environmental health, cultural and other items referred to in the definition of environmental effect.

Environmental Audit – a systematic process of objectively obtaining and evaluating evidence regarding a verifiable assertion about an environmental matter to ascertain the degree of correspondence between the assertion and established criteria, and then communicating the results to the client. A verifiable assertion is a declaration or statement about specific subject matter that is supported by documented data.

Exposure – The amount of a physical or chemical agent that reaches a target or receptor through ingestion, dermal adsorption, and inhalation.

Exposure Pathway – The course a chemical or physical agent takes from a source to an exposed population or organism; it describes a unique mechanism by which an individual or population is exposed to chemicals or physical agents at or originating from a site.

Hazardous Material – A material that may, upon exposure, constitute an identifiable risk to human health or the natural environment. Hazardous material criteria are established with regard to appropriate regulatory requirements.

Ingestion – An exposure type whereby chemical substances enter the body through the mouth and into the gastrointestinal system.

Inhalation – The intake of a substance by receptors through the respiratory tract system.

Lead – An inorganic substance that is hazardous to health if breathed or swallowed. Its use in gasoline, paints, and plumbing compounds has been restricted or eliminated by federal laws and regulations. Lead is a criteria pollutant that is regulated under provincial legislation and the National Pollution Release Inventory.

Mercury – An inorganic substance that can accumulate in the environment and that is highly toxic to humans if breathed or swallowed.

Monitoring – Measurement of concentrations of chemicals in environmental media or in tissues of humans and other biological receptors/organisms over time.

Mould - a growth of minute fungi forming on vegetable or animal matter, commonly as a downy or furry coating, and associated with decay or dampness.

Municipality – A city, an incorporated town, a municipality of a county or district or village commissioners. Environmental Act.

Ozone Depleting Substance (ODS) - A family of man-made compounds that includes, but are not limited to, chlorofluorocarbons (CFCs), bromofluorocarbons (halons), methyl chloroform, carbon tetrachloride, methyl bromide, and hydrochlorofluorocarbons (HCFCs). These compounds have been shown to deplete stratospheric ozone, and therefore are typically referred to as ODSs.

Pathway – Any specific route by which a potential receptor or individual may be exposed to an environmental hazard, such as the release of a chemical material.

Polychlorinated Biphenyls (PCBs) – A family of 209 congeners of structurally similar chemicals which are known to suppress the immune system, disturb behaviour and reproduction, contribute to population declines in wildlife, have toxic effects on the developing nervous systems and on liver enzymes, act as a cancer promoter, and cause birth defects.

ppb (parts per billion): An amount of substance in a billion parts of another material.

ppm (parts per million): An amount of substance in a million parts of another material; also expressed by mg/kg or ml/L.

Property – Land and any improvements to land consisting of any physical object attached to the land with some degree of permanence, including buildings and other fixtures. The terms “property” and “site” are used interchangeably.

Property Owner – the owner of a property by legal title.

Remediation – The management of a contaminated site to prevent minimize, or mitigate damage to human health or the environment. Remediation may include both direct physical actions (e.g., removal, destruction, and containment of contaminants) and institutional controls (e.g., zoning designations or orders).

Residential Property – Any property where the primary activity of the land use is residential or recreational activity.

Risk – The chance of injury or loss, defined as a measure of the probability and severity of an adverse effect to health, property, the environment, or other things of value.

Risk Assessment – A set of scientific methods for defining and estimation the probability and magnitude of undesired effects to receptors resulting from a specific event, such as a human action, a natural catastrophe, or an exposure to a substance.

Storage – The holding of a substance for a temporary period at the end of which it is intended to be processed, used, transported, treated or disposed of. Environmental Act.

Subject Building – Navan Memorial Centre and Arena, 1295 Colonial Road, Navan, Ontario.

Urea Formaldehyde Foam Insulation (UFFI) - A type of foamed in-place insulation that releases formaldehyde gas. Under the *Hazardous Products Act updated in 1985*, the use of UFFI was banned in Canada.

These definitions were based on those obtained from the Canadian Council of Ministers of the Environment, Canadian Standards Association, Environment Canada, U.S. EPA, Transport Canada dictionaries and Federal and Provincial Agencies.

1.0 INTRODUCTION

SLR Consulting Canada Ltd. (SLR) was retained by the City of Ottawa to conduct a designated substances survey at the building located at 1295 Colonial Road, Navan, Ontario. The program was managed by Mr. Dave Morroz, CET, National Manager, HAZMAT Operations, located in SLR's Ottawa office. This report details the results of the designated substances survey completed at the site on March 26th, 2008.

2.0 SITE DESCRIPTION

The subject building is owned and operated by the City of Ottawa and is located at 1295 Colonial Road, Navan, Ontario. The age of the facility is unknown, however it was reported to SLR by City of Ottawa personnel on site, that a major renovation was completed in approximately 1982. The current use of the facility is mainly an arena. A community hall is located on the second floor of the facility.

3.0 OBJECTIVE

The objective of the designated substances survey was to identify potential hazardous materials and compile an inventory of such materials in preparation for a renovation / upgrade of the existing building structure in order to comply with Ontario Regulation 278/05 "Regulation Respecting Asbestos on Construction Projects and in Buildings and Repair Operations". SLR expanded the survey in order to include all other designated substances as outlined in the Occupational Health and Safety Act, enforced by the Ontario Ministry of Labour.

4.0 SCOPE

The scope of work included the following activities:

- Prepare a Health and Safety Plan (HASP) prior to conducting the field work;
- Conduct inspection and sampling of potential hazardous materials within the building in areas that could be reasonably accessed by field personnel;
- Document the location of potential hazardous materials and estimate quantities;
- Submit representative samples of potential hazardous materials for laboratory analysis; and
- Provide a report summarizing the designated substances survey.

5.0 METHODOLOGY

The field survey included the visual identification of potential hazardous materials and collection of samples for laboratory analysis to confirm the absence/presence of hazardous materials.

The potential hazardous materials typically requiring visual identification included:

- Acrylonitrile;
- Arsenic;
- Benzene;
- Chlorofluorocarbons (CFCs / ODSs): refrigeration, air conditioning, coolers;
- Coke Oven Emissions;
- Ethylene Oxide;
- Isocyanates;
- Mercury (Hg): thermostats, fluorescent light tubes, electrical switches and equipment;

- Polychlorinated Biphenyls (PCB): fluorescent lamp ballasts, transformers;
- Silica;

The potential hazardous materials requiring visual identification and laboratory analysis included:

- Asbestos Containing Materials (ACM); (i.e. insulation, duct flex connectors)
- Lead (Pb): painted surfaces.

5.1 Visual Identification

Rooms which represent the majority of the rooms present at the Navan Memorial Centre & Arena were inspected and observations were made regarding materials that may contain Acrylonitrile, Arsenic, Asbestos, Benzene, CFC/ODS's, Coke Oven Emissions, Ethylene Oxide, Isocyanates, Lead, Mercury, PCBs, Silica, and Vinyl Chloride.

5.2 Materials Sampling

5.2.1 Asbestos Containing Materials

A brief summary of all the ACMs identified is presented below. A more detailed explanation of the observed ACM's location, quantity and condition can be found in section 7.3.

- Mechanical Insulation on Pipe Fittings; and,
- Duct Flex Connector.

5.2.2 Lead Containing Materials

Samples of paint were collected from surfaces such as walls and doors to determine if paints contain lead concentrations exceeding the criteria outlined in SOR/2005-109. A minimum of 1g, or approximately 8 square centimetres (cm²) of paint and associated substrate, when possible, was collected for each sample and submitted to Paracel Laboratories Ltd., a CAEAL certified laboratory in Ottawa, Ontario for analysis.

Three samples of paint were found to exceed the 600ppm criteria outlined in regulation SOR/2005-109. A more detailed explanation of the observed ACM's location, quantity and condition can be found in section 7.9.

5.2.3 Quality Assurance/Quality Control (QA/QC)

Field procedures were implemented to minimize cross-contamination during the survey. Sample handling protocols were established to track and safeguard samples. Laboratory supplied chain-of-custody forms were completed for all samples selected for submission to the analytical laboratory and accompanied the shipment.

6.0 REGULATORY FRAMEWORK

Acrylonitrile	<u>O. Reg. 835/90 as amended by O. Reg. 101/04</u>
Arsenic	<u>O. Reg. 836/90 as amended by O. Reg. 102/04</u>
Asbestos	<u>O. Reg. 837/90 as amended by O. Reg. 103/04 , O. Reg. 278/05</u>
Benzene	<u>O. Reg. 839/90 as amended by O. Reg. 105/04</u>

Chlorofluorocarbons	<u>O. Reg. 189/94 as amended by O. Reg. 180/07</u>
Coke Oven Emissions	<u>O. Reg. 840/90 as amended by O. Reg. 106/04</u>
Ethylene Oxide	<u>O. Reg. 841/90 as amended by O. Reg. 107/04</u>
Isocyanates	<u>O. Reg. 842/90 as amended by O. Reg. 108/04</u>
Lead	<u>O. Reg. 843/90 as amended by O. Reg. 109/04, SOR/2005-109</u>
Mercury	<u>O. Reg. 844/90 as amended by O. Reg. 110/04</u>
Polychlorinated Biphenyls	<u>SOR/92-57</u>
Silica	<u>O. Reg. 845/90 as amended by O. Reg. 111/04</u>
Vinyl Chloride	<u>O. Reg. 846/90 as amended by O. Reg. 112/04</u>

7.0 DESIGNATED SUBSTANCE SURVEY RESULTS

SLR personnel conducted the survey on March 26th, 2008. Appendix A presents the analytical laboratory reports.

7.1 Acrylonitrile

A clear colourless or yellow liquid which is explosive, flammable and toxic. It is used to produce polymers such as acrylonitrile-butadiene-styrene (ABS) resins. These polymers are used in the manufacture of a wide range of commercial products (i.e., automotive parts, clothing, carpets etc.). The Time-Weighted Average Exposure Limits (TWAEL) of a worker to airborne acrylonitrile is to be maintained at the lowest practical level and not exceed an eight hour average concentration of 4.3 mg/m³ of air (2 ppmv). In its hardened polymer form acrylonitrile is not expected to release emissions that would exceed the allowable limits.

Pure acrylonitrile was not identified during this assessment.

7.2 Arsenic

Arsenic can be found in minor levels in paint coating on roofing flashings, floors, walls and underside of the concrete ground floor structures of old buildings. The Time-Weighted Average Exposure Limits (TWAEL) of a worker to airborne arsenic is to be maintained at the lowest practical level and not exceed an eight hour average concentration of 10 µg/m³ of air.

Considering the age of the building, arsenic could be present in minor amounts in the above listed materials. However, the low probability and minor amounts did not justify that sampling be performed in the present assessment.

7.3 Asbestos

Interior Finishes

The interior finishes primarily consisted of drywall. Other finishes such as poured concrete, and concrete block, however are not referenced in this section.

Seven (7) samples of drywall joint compound were collected from the 2nd Floor Mezzanine and submitted for analysis. No asbestos was detected in samples W-DJC-01-A, W-DJC-01-B, W-DJC-01-C, W-DJC-01-D, W-DJC-01-E, W-DJC-01-F, and W-DJC-01-G.

Two (2) samples of drywall joint compound were collected from the Custodian's Room on the Ground Floor and submitted for analysis. No asbestos was detected in samples W-DJC-02-A and W-DJC-02-B.

One (1) sample of drywall joint compound was collected from the Change Room #2 and submitted for analysis. No asbestos was detected in sample W-DJC-03-A.

The majority of interior walls were unfinished concrete block.

Flooring

Three differing patterns and styles of 12" x 12" vinyl floor tiles were observed in the 2nd Floor Mezzanine area. Three (3) samples of the most prominent 12" x 12" vinyl tile, beige in colour, were collected and submitted for analysis. No asbestos was detected in samples F-VT-01-A, F-VT-01-B, and F-VT-01-C. No samples were obtained of the two styles and patterns of 12" x 12" vinyl tiles, which were only observed to be located in the centre of the Main Hall.

Three (3) samples of a 12" x 12" vinyl floor tile (White) were collected from the Office located at the Main North Entrance and were submitted for analysis. No asbestos was detected in samples F-VT-02-A, F-VT-02-B, and F-VT-02-C. Visually similar vinyl floor tiles were observed within the adjacent City of Ottawa Office.

Three (3) samples of a 12" x 12" vinyl floor tile (Beige) were collected from the Water Conditioning Room and submitted for analysis. No asbestos was detected in samples F-VT-03-A, F-VT-03-B, and F-VT-03-C.

Rubber sheet flooring on concrete is present throughout the Lobby, Change Room area, and portions surround the arena. No concerns with regards to asbestos.

Ceiling Tiles

Three (3) samples of a 2' x 4' acoustic ceiling tile with a pattern described as 'perpendicular fissures with pinholes' were collected from the Water Conditioning Room and submitted for analysis. No asbestos was detected in samples C-AT-01-A, C-AT-01-B, and C-AT-01-C.

Three (3) samples of a 2' x 4' acoustic ceiling tile with a pattern described as 'Random Fissures' were collected from the Main Hall on the 2nd Floor and were submitted for analysis. No asbestos was detected in samples C-AT-02-A, C-AT-02-B, and C-AT-02-C.

No other ceiling tiles were observed with the facility.

Mechanical Pipe Systems

In the Chiller Room 4 pipe fittings on the Ammonia lines were observed to be suspect asbestos containing parging cement. Two (2) samples of parging cement were collected and submitted for analysis. Sample AM-PC-01-A was confirmed to contain 65% Chrysotile. All fittings are rated in GOOD condition.

One (1) sample of parging cement was collected from a Domestic Hot Water Pipe Fitting in the Canteen Storage Room. No asbestos was detected in sample DHW-PC-01-A. Based on SLR's personnel experience the insulation is visually consistent with non-asbestos-containing parging typically applied to 'newer' pipe fittings. Only one pipe fitting was observed in the Canteen Storage Room.

Straight runs were insulated with a non-asbestos application of foam and/or fiberglass. Various pipe systems also observed to be uninsulated.

Air Handling Units and Ductwork

One (1) sample of a flex joint on an Exhaust Duct located in the Canteen Storage Room was collected and submitted for analysis. Sample D-FJ-01-A was confirmed to contain 95% Chrysotile asbestos. The single flex joint connector was observed to be in GOOD condition.

All other duct work observed was uninsulated or insulated with fibreglass.

Other

Three (3) samples of cove base (Black) were collected from the base of the walls in the arena and submitted for analysis. No asbestos was detected in samples W-CB-01-A, W-CB-01-B, and W-CB-01-C.

Three (3) samples of brown window caulking were collected from the exterior of the facility and submitted for analysis. No asbestos was detected in samples W-CLK-01-A, W-CLK-01-B, and W-CLK-01-C.

Three (3) samples of a grey window caulking were collected from the exterior of the facility and submitted for analysis. No asbestos was detected in samples W-CLK-02-A, W-CLK-01-B, and W-CLK-02-C.

No other suspect ACMs were observed.

Sample Summary Table

TABLE # 1 - ASBESTOS ANALYSIS 1295 Colonial Road, Navan, ON		
Sample	Location / Description	Results (% Asbestos)
W-CLK-01-A	Window Caulking (Brown), Exterior	None Detected
W-CLK-01-B	Window Caulking (Brown), Exterior	None Detected
W-CLK-01-C	Window Caulking (Brown), Exterior	None Detected
W-CLK-02-A	Window Caulking (Grey), Exterior	None Detected
W-CLK-02-B	Window Caulking (Grey), Exterior	None Detected
W-CLK-02-C	Window Caulking (Grey), Exterior	None Detected
C-AT-01-A	2' x 4' Acoustic Ceiling Tile (Perpendicular Fissures with Pinholes), Water Conditioning Room	None Detected
C-AT-01-B	2' x 4' Acoustic Ceiling Tile (Perpendicular Fissures with Pinholes), Water Conditioning Room	None Detected
C-AT-01-C	2' x 4' Acoustic Ceiling Tile (Perpendicular Fissures with Pinholes), Water Conditioning Room	None Detected
C-AT-02-A	2' x 4' Acoustic Ceiling Tile (Random Fissures), Hall, 2 nd Floor	None Detected
C-AT-02-B	2' x 4' Acoustic Ceiling Tile (Random Fissures), Hall, 2 nd Floor	None Detected
C-AT-02-C	2' x 4' Acoustic Ceiling Tile (Random Fissures), Hall, 2 nd Floor	None Detected
F-VT-01-A	12" x 12" Vinyl Tile (Beige), Hall, 2 nd Floor	None Detected
F-VT-01-B	12" x 12" Vinyl Tile (Beige), Hall, 2 nd Floor	None Detected

TABLE # 1 - ASBESTOS ANALYSIS 1295 Colonial Road, Navan, ON		
Sample	Location / Description	Results (% Asbestos)
F-VT-01-C	12" x 12" Vinyl Tile (Beige), Hall, 2 nd Floor	None Detected
F-VT-02-A	12" x 12" Vinyl Tile (White) Office at Main Entrance, 1 st Floor	None Detected
F-VT-02-B	12" x 12" Vinyl Tile (White) Office at Main Entrance, 1 st Floor	None Detected
F-VT-02-C	12" x 12" Vinyl Tile (White) Office at Main Entrance, 1 st Floor	None Detected
F-VT-03-A	12" x 12" Vinyl Tile (Beige), Water Conditioning Room, 1 st Floor	None Detected
F-VT-03-B	12" x 12" Vinyl Tile (Beige), Water Conditioning Room, 1 st Floor	None Detected
F-VT-03-C	12" x 12" Vinyl Tile (Beige), Water Conditioning Room, 1 st Floor	None Detected
F-SVF-01-A	Sheet Vinyl Floorint, Refrigeration Roo, 2 nd Floor	None Detected
F-SVF-01-B	Sheet Vinyl Floorint, Refrigeration Roo, 2 nd Floor	None Detected
F-SVF-01-C	Sheet Vinyl Floorint, Refrigeration Roo, 2 nd Floor	None Detected
DHW-PC-01-A	Parging Cement on Domestic Hot Water Fitting, Canteen Storage Room	None Detected
AM-PC-01-A	Parging Cement on Ammonia Line Fitting, Chiller Room	65% Chrysotile
AM-PC-01-B	Parging Cement on Ammonia Line Fitting, Chiller Room	Not Analyzed – Positive Stop
W-DJC-01-A	Drywall Joint Compound, 2 nd Floor	None Detected
W-DJC-01-B	Drywall Joint Compound, 2 nd Floor	None Detected
W-DJC-01-C	Drywall Joint Compound, 2 nd Floor	None Detected
W-DJC-01-D	Drywall Joint Compound, 2 nd Floor	None Detected
W-DJC-01-E	Drywall Joint Compound, 2 nd Floor	None Detected
W-DJC-01-F	Drywall Joint Compound, 2 nd Floor	None Detected
W-DJC-01-G	Drywall Joint Compound, 2 nd Floor	None Detected
W-DJC-02-A	Drywall Joint Compound, Janitor's Room	None Detected
W-DJC-02-B	Drywall Joint Compound, Janitor's Room	None Detected
W-DJC-03-A	Drywall Joint Compound, Change Room 2	None Detected
D-FJ-01-A	Flex Joint on Exhaust Duct, Canteen Storage Room	95% Chrysotile
W-CB-01-A	Cove Base, (Black), Arena	None Detected
W-CB-01-B	Cove Base, (Black), Arena	None Detected
W-CB-01-C	Cove Base, (Black), Arena	None Detected

7.4 Benzene

Benzene is typically found in petroleum-based products such as gasoline and diesel fuels, asphalt and other hydrocarbon based products. Also, may be found in stable form in paints and adhesives. The TWAEEL of a worker to airborne benzene is to be maintained at the lowest practical level with a view to achieving an ambient air concentration lower than 3.2 mg/m³ of air (1 ppmv) and not exceed an eight hour average concentration of 16 mg/m³ of air (5 ppmv).

Direct sources of benzene emissions were not identified at the subject property.

7.5 Chlorofluorocarbons (CFC / ODS)

Chlorofluorocarbons (CFCs), also referred to as Ozone Depleting Substances (ODSs) have been widely used in many industrial, commercial and residential applications. They can be found in applications such as refrigerants in heat pumps, refrigerators, freezers and air conditioners (A/C); blowing agents for plastics, foam product and insulation; cleaning agents for metals, electronic equipment and components; and as dry-cleaning fluids.

Two cooling units are located within the arena area. No access to the unit platforms was obtained. The units are likely to contain an ODS.

7.6 Coke Oven Emissions

Coke Oven Emissions result from burning of coke. The TWAEL of a worker to coke oven emissions are to be maintained at the lowest practical level and not exceed an eight hour average concentration of 0.15 mg/m³ of air. *No coke ovens were identified at the subject property.*

7.7 Ethylene Oxide

Ethylene Oxide is a common by-product of fumigation or sterilization procedures. The Time-Weighted Average Exposure Limits (TWAEL) of a worker to airborne ethylene oxide is to be maintained at the lowest practical level and not exceed an eight hour average concentration of 1.8 mg/m³ of air (1 ppmv). *Materials or processes that may release ethylene oxide to ambient air were not identified at the subject property during the assessment.*

7.8 Isocyanates

Isocyanates are compounds that contain at least one group of atoms made of Nitrogen (N), Carbon (C) and Oxygen (O). They are usually classified by the number of NCO groups contained in each molecule (monoisocyanates, diisocyanates and polyisocyanates). Isocyanates are mainly used in the manufacture of plastics, foams and coatings. The Time-Weighted Average Exposure Limits (TWAEL) of a worker is isocyanate dust is to be maintained at the lowest practical level and not exceed an eight hour average concentration of 0.2 µmoles/m³ of air (0.005 ppmv). *Manufactured products under normal conditions do not pose a health risk. However, sawing or scraping uncured polyurethane that still contains some unreacted-NCO groups will release isocyanate dust. Uncured polyurethanes were not identified at the subject property.*

7.9 Lead

Nine (9) samples of paint were obtained and submitted for Lead analysis.

The table below summarizes the analytical results for the paint samples.

TABLE # 2 - LEAD PAINT ANALYSIS 1295 Colonial Road, Navan, ON				
Sample	Description	MDL	µg/g Lead	LBP * (Y/N)
SL-01	Green Paint on Ammonia Line, Chiller Room	50	3220	Y
SL-02	Red Paint on Ammonia Line, Chiller Room	50	5970	Y
SL-03	Grey Floor Paint, Chiller Room	50	476	N
SL-04	Blue Paint on Railing, Arena	50	<50	N

TABLE # 2 - LEAD PAINT ANALYSIS
1295 Colonial Road, Navan, ON

Sample	Description	MDL	µg/g Lead	LBP * (Y/N)
SL-05	Beige Paint on Concrete Block, Arena	50	326	N
SL-06	White Wall Paint, Change Room # 2	50	1380	Y
SL-07	Blue Paint on Door, Change Room #4	50	<50	N
SL-08	Beige Wall Paint, 2 nd Floor	50	334	N
SL-09	Brown Paint, Exterior	50	<50	N

- **Paint is considered Lead Based Paint by the Government of Canada as outlined in the Hazardous Products Act SOR/2005-109 at concentrations >600ppm.**

Three (3) paint samples submitted for analysis from the Navan Memorial Centre and Arena were found to exceed the acceptable criteria of 600ppm. The paint samples submitted for analysis represent the overall majority of paint that exists within the subject building.

One sample of paint (SL-01) described as Green Paint on the Ammonia line in the Chiller Room was obtained and submitted for analysis. Sample SL-01 was found to contain 3220ppm of lead. The lead concentration exceeds the 600ppm criteria and is therefore considered lead based.

One sample of paint (SL-02) described as Red Paint on the Ammonia line in the Chiller Room was obtained and submitted for analysis. Sample SL-02 was found to contain 5970ppm of lead. The lead concentration exceeds the 600ppm criteria and is therefore considered lead based.

One sample of paint (SL-06) described as White Wall Paint in Change Room # 4 was obtained and submitted for analysis. Sample SL-06 was found to contain 1380ppm of lead. The lead concentration exceeds the 600ppm criteria and is therefore considered lead based.

Lead may be present in solder joints, glazing on ceramic finishes and on all copper piping throughout the subject building.

7.10 Mercury

Mercury may be commonly found in thermostats, fluorescent lamp tubes, and High Intensity Discharge (HID) light Bulbs.

Fluorescent lamp tubes were observed in various locations throughout the facility. Lamp tubes were observed in various locations through the facility.

No thermostats containing mercury tubes were identified during the survey.

The TWAEEL of a worker to mercury compounds is to be maintained at the lowest practical level and not to exceed an eight hour average concentration of 0.05 mg/m³ of air for all mercury except alkyl mercury oxide for which a concentration of 0.01 mg/m³ of air should not be exceeded.

7.11 Polychlorinated Biphenyls

Chlorobiphenyls (PCB's) can be found in equipment such as transformers, capacitors, electromagnets, heat transfer unit, hydraulic engine and fluorescent lamp ballasts. Two federal Canadian Environmental Protection Act (CEPA) regulations apply to the use and storage of PCB's. The **Chlorobiphenyls Regulation (SOR/92-57)** limits the quantity of out of service

PCB materials that can be stored at a facility for more than 6 months to 1 kg of PCB. There are also several government policies and guidelines that outline safe practices for the handling and storage of PCB containing material. Fluorescent lamp ballasts may contain minor quantities of PCBs (23.6 g).

Various light Ballasts were inspected and confirmed to be labeled 'non PCB'. However since it is impractical to inspect all light ballasts with the facility it is likely that other PCB containing light ballasts are present.

7.12 Silica

Free crystalline silica is expected to be present within all concrete and mortar based building materials as well as acoustic ceiling tiles. If concrete or plaster walls are to be disturbed, appropriate precautions should be taken during the renovations.

Silica occurs naturally as crystalline or amorphous material. It is normally found in concrete, mortar, acoustic ceiling tiles, and stucco finishes. Crystalline silica is more toxic than amorphous silica, and therefore, is only regulated under the Occupational Health and Safety Act. The TWAEEL of a work to silica dust is to be maintained at the lowest practical level with a view to achieving an ambient air concentration lower than 0.10 mg/m³ of air for quartz and tripoli, and 0.05 mg/m³ of air for cristobalite and tridymite.

7.13 Vinyl Chloride

Vinyl Chloride is found in many applications such as PVC pipes and fittings. The TWAEEL of a worker to vinyl chloride emission is to be maintained at the lowest practical level and not exceed and eight hour average concentration of 5.2 mg/m³ of air (2 ppmv). *Vinyl chloride in the PVC compound is bound in a solid matrix and is unlikely to become airborne. Vinyl chloride emissions are not likely to exceed the prescribed limits in the subject building.*

8.0 CONCLUSIONS AND RECOMMENDATIONS

Hazardous materials were identified through visual or laboratory analysis. These materials included ACMs, Lead, Mercury, PCBs, and Silica. The following potential conditions should be noted:

Asbestos-Containing Materials: Disturbance of friable and non-friable asbestos is regulated by Ontario Regulation 278/05.

All ACM's observed in poor condition, which includes mechanical insulation on piping and ductwork should be repaired or removed.

All ACM's observed in good condition should be monitored regularly to ensure any newly damaged materials are repaired or removed as soon as possible.

Prior to renovation or demolition, the project owner must ensure that any ACMs that have the potential to be disturbed are removed or enclosed. Workers conducting this activity must be adequately trained and supplied with sufficient personal protective equipment. In addition, the maximum allowable airborne fibre concentration for asbestos should not be approached or exceeded.

The following is a list of action items for the facility:

1. Routine surveillance of ACMs identified (i.e. Mechanical Insulation on Pipe Fittings in the Chiller Room, and Flex Joint Connector on Exhaust Fan in the Canteen Storage Room).
2. Implement an Asbestos Management Plan, as outlined in Ontario Regulation 278/05.

CFCs / ODSs: Non-base building units (i.e., Air Conditioning Units, Refrigerators and vending machines) should be relocated or reused rather than destroyed. If the units will not be relocated then a licensed technician should evacuate the refrigerants.

Lead: If work on lead containing materials is likely to produce lead dust or fumes, for example during welding, torch cutting, grinding, sanding or sandblasting, then proper precautions as outlined under Ontario Regulation 843/94 should be followed.

Please note, based on discussions with MOL representatives caution should be exercised when working on materials with even low lead concentrations <600ppm.

Mercury: Mercury vapour may be present within fluorescent light tube and should be stored in a secure container for alternate disposal arrangements once removed.

If mercury is removed or relocated, work must be completed in accordance with the Ontario Regulation 844/90 amended by 520/92. Recycling of fluorescent light tubes should be performed by a contractor.

PCBs: Prior to demolition, all ballasts should be removed and compared to the information presented in the Environment Canada publication "Identification of PCB Containing Light Ballasts". Ballasts that are not listed in this publication should contain a label identifying the date of manufacture. Several manufacturers present this information on the back of the ballast. If the ballast is not marked "PCB Free" or not clearly dated 1980 or later, it should be assumed that the ballast does contain PCBs.

Silica: Crystalline silica is assumed to be present in the building within concrete structures such as walls, floors and stairs. Silica can also be found in cement blocks, acoustic tiles and plaster. Therefore, appropriate respiratory protection and ventilation must be utilized while working with concrete in the work area.

Table #3 - Summary of Hazardous Materials			
	Material	Location/Recommendation	Quantity
Asbestos	Pipe Fittings	Ammonia Lines in the Chiller Room – Routine surveillance *Glove Bag asbestos abatement precautions are required to remove the material	4 Pipe Fittings
	Flex Joint Connector	Exhaust Fan in the Canteen Storage Room – Routine Surveillance * Type 1 asbestos abatement precautions are required to remove the material.	1
CFCs / ODSs	Air Conditioning Units	Platforms in the Arena – Relocated the Units prior to disturbance.	2

Lead	Painted Surfaces	<ul style="list-style-type: none"> • Chiller Room, Green Paint on Ammonia Line (3220ppm) – Manage • Chiller Room, Red Paint on Ammonia Line (5970ppm) – Manage • Change Room #2, White Paint on Wall (1380ppm) - Manage <p>If work on lead containing materials is likely to produce lead dust or fumes, for example during welding, torch cutting, grinding, sanding or sandblasting, then proper precautions as outlined under <u>Ontario Regulation 843/94</u> should be followed.</p>	Undetermined
	Other	<p>Lead may be present in solder joints, glazing on ceramic finishes and on all copper piping throughout the subject building.</p> <p>If work on lead containing materials is likely to produce lead dust or fumes, for example during welding, torch cutting, grinding, sanding or sandblasting, then proper precautions as outlined under <u>Ontario Regulation 843/94</u> should be followed.</p>	Undetermined
Mercury	Fluorescent Light Tubes	<p>Mercury vapour may be present within fluorescent light tube and should be stored in a secure container for alternate disposal arrangements once removed.</p> <p>If mercury is removed or relocated, work must be completed in accordance with the <u>Ontario Regulation 844/90 amended by 520/92</u>. Recycling of fluorescent light tubes should be performed by a contractor.</p>	<500 Units
PCBs	Light Ballasts	<p>Prior to demolition, all ballasts should be removed and compared to the information presented in the Environment Canada publication "Identification of PCB Containing Light Ballasts". Ballasts that are not listed in this publication should contain a label identifying the date of manufacture. Several manufacturers present this information on the back of the ballast. If the ballast is not marked "PCB Free" or not clearly dated 1980 or later, it should be assumed that the ballast does contain PCBs.</p>	Undetermined
Silica		<p>Crystalline silica is assumed to be present in the building within concrete structures such as walls, floors and stairs. Silica can also be found in cement blocks, acoustic tiles and plaster. Therefore, appropriate respiratory protection and ventilation must be utilized while working in the work area.</p>	Throughout

Note: Quantities are estimates only and should be verified by a contractor.

9.0 CLOSURE

This Report has been prepared and the work referred to in this Report has been undertaken by SLR CONSULTING (CANADA) LTD. for the **City of Ottawa**. It is intended for the sole and exclusive use the **City of Ottawa** and the **City of Ottawa authorized agents** for the purpose(s) set out in this Report. Any use of, reliance on, or decision made based on the Report by any person other than the **City of Ottawa**, or by the **City of Ottawa** itself for a purpose other than the purpose(s) set out in this Report, is the sole responsibility of such other person or the **City of Ottawa** respectively. SLR CONSULTING (CANADA) LTD. makes no representation or warranty to any other person with regard to this Report and the work referred to in it. SLR CONSULTING (CANADA) LTD. accepts no duty of care to any other person or any liability or responsibility whatsoever for any losses, expenses, damages, fines, penalties, or other harm that may be suffered or incurred by any other person as a result of the use of, reliance on, any decision made based on, or any action taken based on this Report or the work referred to in it.

This Report has been prepared for specific application to this site and is based on the interpretation of data collected from field investigations, which were limited to non-destructive testing, and the results of laboratory analyses, which were limited to the quantification in select samples of those substances specifically identified in the Report. Quantities stated in the Report are based on visual estimates only. Unless otherwise stated, the findings set out in this Report cannot be extended to: previous or future site conditions; portions of the site, which were unavailable for direct investigation (including wall, floor and ceiling cavities); or chemical parameters, materials or analysis, which were not addressed. Sampling may not take into account building materials that have been modified through renovations or maintenance. Substances other than those addressed by the investigation described in this Report may exist within the site; substances addressed by the investigation may exist in areas of the site not investigated, and concentrations of substances addressed which are different than those reported may exist in areas other than the locations from which samples were taken. SLR CONSULTING (CANADA) LTD. expresses no warranty with respect to the accuracy of the laboratory analyses, methodologies used, or presentation of analytical results by the laboratory. Actual concentrations of the substances identified in the samples submitted may vary according to the extraction and testing procedures used.

As the evaluation and conclusions reported herein do not preclude the existence of other chemical compounds and/or variations of conditions within the site, this Report should be used for informational purposes only and should absolutely not be construed as a comprehensive chemical characterization of the site. If site conditions change or if any additional information becomes available at a future date, modifications to the findings, conclusions, and recommendations in this Report may be necessary.

Where information obtained from reference sources or from the **City of Ottawa** is included in the Report, no attempt to verify the information was made. SLR CONSULTING (CANADA) LTD. expresses no warranty with respect to the toxicity data presented in various references or the validity of the toxicity studies on which it was based. Scientific models employed in the evaluations were selected based on accepted scientific methodologies and practices in common use at the time and are subject to the uncertainties on which they are based.

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The **City of Ottawa** may submit this Report to environmental regulatory authorities for review and comment purposes provided that SLR CONSULTING (CANADA) LTD. receives a copy of all correspondence between the **City of Ottawa** and the regulatory authorities pertaining to the Report or project in question

Appendix A
Analytical Results

Designated Substances Survey
1295 Colonial Road
Navan, Ontario
Ref: 216.08771.00

PLM Summary Report

Steve Moody Micro Services, Inc.
 2051 Valley View Lane
 Farmers Branch, TX 75234 (Phone 972-241-8460)

NVLAP Lab No. 102056
 TDH License No. 30-0084

Client :	SLR Consulting (Canada) Ltd - Ottawa, Ontario	Lab Job No. : 08B-03608
Project :	City of Ottawa, Navan Arena	Report Date : 04/01/2008
Project # :	Not Provided	Sample Date : 03/26/2008
Identification :	Asbestos, Bulk Sample Analysis	
Test Method :	Polarized Light Microscopy / Dispersion Staining (PLM/DS)	
	EPA Method 600 / R-93 / 116	

Page 1 of 3

On 3/27/2008, thirty nine (39) bulk material samples were submitted by Richard Pope of SLR Consulting (Canada) Ltd - Ottawa, Ontario for asbestos analysis by PLM/DS. The PLM Detail Report is attached; additional information may be found therein. The results are summarized below:

Sample Number	Client Sample Description / Location	Asbestos Content
W-CLK-01-A	Window Caulking (Brown), Exterior	None Detected - Caulking
W-CLK-01-B	Window Caulking (Brown), Exterior	None Detected - Caulking
W-CLK-01-C	Window Caulking (Brown), Exterior	None Detected - Caulking
W-CLK-02-A	Window Caulking (Grey), Exterior	None Detected - Caulking
W-CLK-02-B	Window Caulking (Grey), Exterior	None Detected - Caulking
W-CLK-02-C	Window Caulking (Grey), Exterior	None Detected - Caulking
C-AT-01-A	2' x 4' Acoustic Tile (Perpendicular Fissures with Pinholes), Water Conditioning Room	None Detected - Acoustic Tile
C-AT-01-B	2' x 4' Acoustic Tile (Perpendicular Fissures with Pinholes), Water Conditioning Room	None Detected - Acoustic Tile
C-AT-01-C	2' x 4' Acoustic Tile (Perpendicular Fissures with Pinholes), Water Conditioning Room	None Detected - Acoustic Tile
C-AT-02-A	2' x 4' Acoustic Tile (Random Fissures), Hall, 2nd Floor	None Detected - Acoustic Tile
C-AT-02-B	2' x 4' Acoustic Tile (Random Fissures), Hall, 2nd Floor	None Detected - Acoustic Tile
C-AT-02-C	2' x 4' Acoustic Tile (Random Fissures), Hall, 2nd Floor	None Detected - Acoustic Tile
F-VT-01-A	12" x 12" Vinyl Tile (Beige), Hall, 2nd Floor	None Detected - Floor Tile None Detected - Black Mastic
F-VT-01-B	12" x 12" Vinyl Tile (Beige), Hall, 2nd Floor	None Detected - Floor Tile None Detected - Black Mastic
F-VT-01-C	12" x 12" Vinyl Tile (Beige), Hall, 2nd Floor	None Detected - Floor Tile None Detected - Black Mastic
F-VT-02-A	12" x 12" Vinyl Tile (White), Office at Main Entrance	None Detected - Floor Tile None Detected - Yellow Mastic
F-VT-02-B	12" x 12" Vinyl Tile (White), Office at Main Entrance	None Detected - Floor Tile None Detected - Yellow Mastic

PLM Summary Report

Steve Moody Micro Services, Inc.
 2051 Valley View Lane
 Farmers Branch, TX 75234 (Phone 972-241-8460)

NVLAP Lab No. 102056
 TDH License No. 30-0084

Client :	SLR Consulting (Canada) Ltd - Ottawa, Ontario	Lab Job No. : 08B-03608
Project :	City of Ottawa, Navan Arena	Report Date : 04/01/2008
Project # :	Not Provided	Sample Date : 03/26/2008
Identification :	Asbestos, Bulk Sample Analysis	
Test Method :	Polarized Light Microscopy / Dispersion Staining (PLM/DS)	
	EPA Method 600 / R-93 / 116	

On 3/27/2008, thirty nine (39) bulk material samples were submitted by Richard Pope of SLR Consulting (Canada) Ltd - Ottawa, Ontario for asbestos analysis by PLM/DS. The PLM Detail Report is attached; additional information may be found therein. The results are summarized below:

Sample Number	Client Sample Description / Location	Asbestos Content
F-VT-02-C	12" x 12" Vinyl Tile (White), Office at Main Entrance	None Detected - Floor Tile None Detected - Yellow Mastic
F-VT-03-A	12" x 12" Vinyl Tile (Beige), Water Conditioning Room	None Detected - Floor Tile None Detected - Tan Mastic None Detected - Black Mastic
F-VT-03-B	12" x 12" Vinyl Tile (Beige), Water Conditioning Room	None Detected - Floor Tile None Detected - Tan Mastic None Detected - Black Mastic
F-VT-03-C	12" x 12" Vinyl Tile (Beige), Water Conditioning Room	None Detected - Floor Tile None Detected - Tan Mastic None Detected - Black Mastic
F-SVF-01-A	Vinyl Sheet Flooring, Refrigeration Room, 2nd Floor	None Detected - Sheet Flooring None Detected - Fiber Backing None Detected - Yellow Mastic
F-SVF-01-B	Vinyl Sheet Flooring, Refrigeration Room, 2nd Floor	None Detected - Sheet Flooring None Detected - Fiber Backing None Detected - Yellow Mastic
F-SVF-01-C	Vinyl Sheet Flooring, Refrigeration Room, 2nd Floor	None Detected - Sheet Flooring None Detected - Fiber Backing None Detected - Yellow Mastic
DHW-PC-01A	Parging Cement on Domestic Hot Water Fitting, Canteen Storage Room	None Detected - Thermal Insulation
AM-PC-01-A	Parging Cement on Ammonia Line Fitting, Chiller Room	65% Chrysotile - Thermal Insulation None Detected - Cotton Wrap
AM-PC-01-B	Parging Cement on Ammonia Line Fitting, Chiller Room	Not Analyzed - Positive Stop
W-DJC-01-A	Drywall Joint Compound, 2nd Floor	None Detected - Joint Compound
W-DJC-01-B	Drywall Joint Compound, 2nd Floor	None Detected - Joint Compound
W-DJC-01-C	Drywall Joint Compound, 2nd Floor	None Detected - Joint Compound
W-DJC-01-D	Drywall Joint Compound, 2nd Floor	None Detected - Joint Compound

PLM Summary Report

Steve Moody Micro Services, Inc.
 2051 Valley View Lane
 Farmers Branch, TX 75234 (Phone 972-241-8460)

NVLAP Lab No. 102056
 TDH License No. 30-0084

Client :	SLR Consulting (Canada) Ltd - Ottawa, Ontario	Lab Job No. : 08B-03608
Project :	City of Ottawa, Navan Arena	Report Date : 04/01/2008
Project # :	Not Provided	Sample Date : 03/26/2008
Identification :	Asbestos, Bulk Sample Analysis	
Test Method :	Polarized Light Microscopy / Dispersion Staining (PLM/DS)	
	EPA Method 600 / R-93 / 116	

Page 3 of 3

On 3/27/2008, thirty nine (39) bulk material samples were submitted by Richard Pope of SLR Consulting (Canada) Ltd - Ottawa, Ontario for asbestos analysis by PLM/DS. The PLM Detail Report is attached; additional information may be found therein. The results are summarized below:

Sample Number	Client Sample Description / Location	Asbestos Content
W-DJC-01-E	Drywall Joint Compound, 2nd Floor	None Detected - Joint Compound
W-DJC-02-A	Drywall Joint Compound, Janitor's Room	Not Analyzed - No Sample
W-DJC-02-B	Drywall Joint Compound, Janitor's Room	None Detected - Joint Compound
W-DJC-03-A	Drywall Joint Compound, Change Room 2	None Detected - Joint Compound
D-FJ-01-A	Flex Joint on Exhaust Duct, Canteen Storage Room	95% Chrysotile - Isolator Material
W-CB-01-A	Cove Base (Black), Arena	None Detected - Cove Base None Detected - Yellow Mastic None Detected - Tan Mastic None Detected - Black Mastic
W-CB-01-B	Cove Base (Black), Arena	None Detected - Cove Base None Detected - Yellow Mastic None Detected - Tan Mastic
W-CB-01-C	Cove Base (Black), Arena	None Detected - Cove Base None Detected - Yellow Mastic None Detected - Tan Mastic

These samples were analyzed by layers. Quantification, unless otherwise noted, is performed by calibrated visual estimate. Results may not be reproduced except in full. This test report relates only to the samples tested. These test results do not imply endorsement by NVLAP or any agency of the U.S. Government. Accredited by the National Voluntary Laboratory Accreditation Program for Bulk Asbestos Fiber Analysis under Lab Code 102056.



Analyst(s): Kirsten Tye

Lab Manager : Bruce Crabb

Lab Director : Steve Moody

Approved Signatory :

Approved Signatory :

Thank you for choosing Steve Moody Micro Services

Certificate of Analysis

SLR Consulting (Canada) Ltd. (Ottawa)

101-190 Stafford Rd. W
Ottawa, ON K2H 9G3
Attn: Richard Pope

Phone: (613) 828-8989
Fax: (613) 828-9404

Client PO:
Project: Navan Arena
Custody: 46580

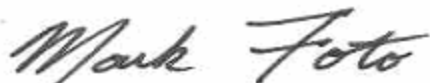
Report Date: 31-Mar-2008
Order Date: 27-Mar-2008

Order #: 0813097

This Certificate of Analysis contains analytical data applicable to the following samples submitted:

Parcel ID	Client ID
0813097-01	SL-01 Green Paint
0813097-02	SL-02 Red Paint
0813097-03	SL-03 Grey Floor Paint
0813097-04	SL-04 Blue Paint
0813097-05	SL-05 Beige Paint
0813097-06	SL-06 White Wall Paint
0813097-07	SL-07 Blue Paint on Door
0813097-08	SL-08 Beige Wall Paint
0813097-09	SL-09 Brown Paint

Approved By:



Mark Foto, M.Sc. For Dale Robertson, BSc
Laboratory Director

Any use of these results implies your agreement that our total liability in connection with this work, however arising shall be limited to the amount paid by you for this work, and that our employees or agents shall not under circumstances be liable to you in connection with this work

Certificate of Analysis

Report Date: 31-Mar-2008

Order Date: 27-Mar-2008

Client: **SLR Consulting (Canada) Ltd. (Ottawa)**

Client PO:

Project Description: Navan Arena

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Metals	EPA 6020 - Digestion, ICP-MS	28-Mar-08	28-Mar-08

Certificate of Analysis

Report Date: 31-Mar-2008

Order Date: 27-Mar-2008

 Client: **SLR Consulting (Canada) Ltd. (Ottawa)**

Client PO:

Project Description: Navan Arena

Lead
Matrix: Paint
Sample Date: 26-Mar-08

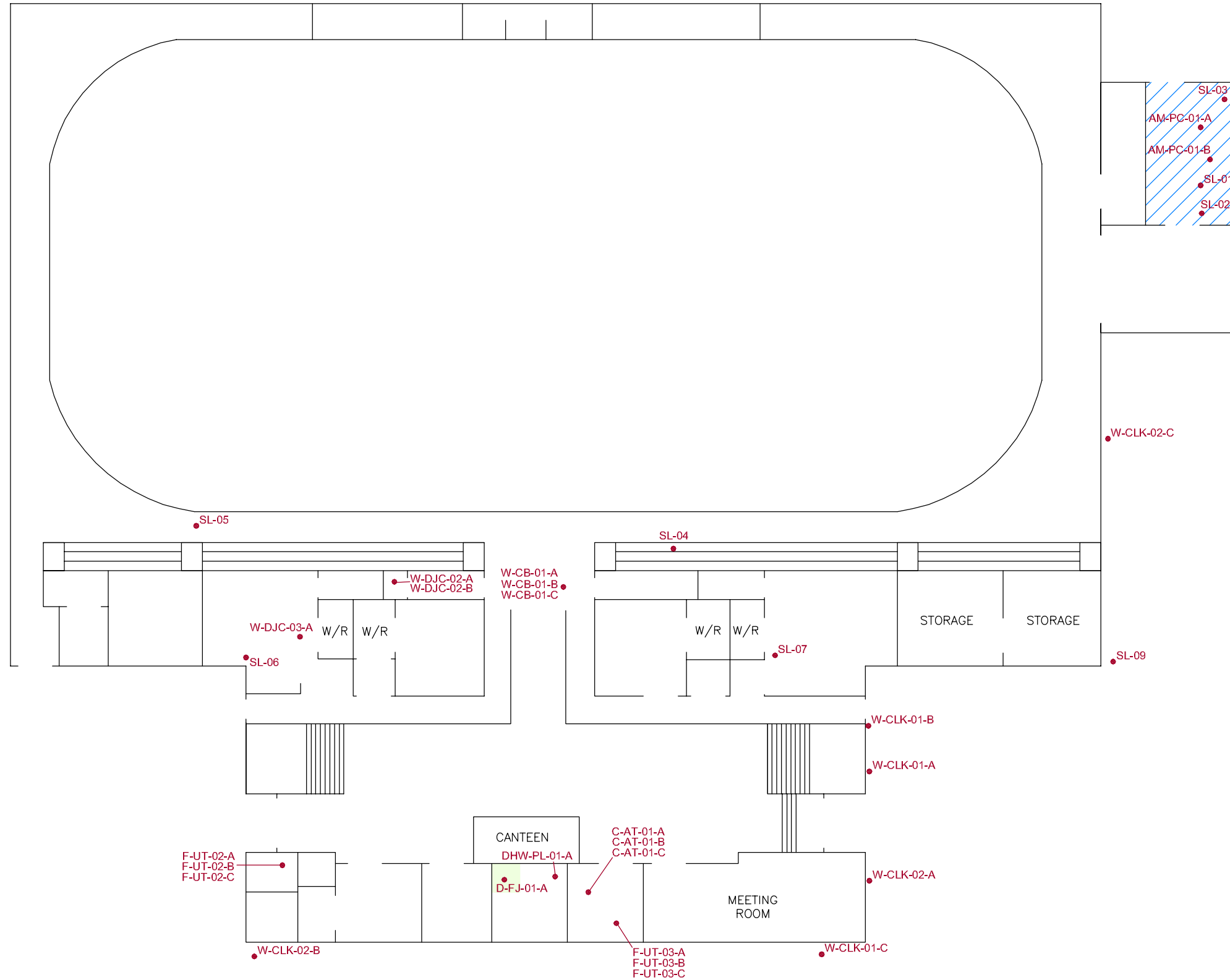
Parcel ID	Client ID	Units	MDL	Result
0813097-01	SL-01 Green Paint	ug/g	50	3220
0813097-02	SL-02 Red Paint	ug/g	50	5970
0813097-03	SL-03 Grey Floor Paint	ug/g	50	476
0813097-04	SL-04 Blue Paint	ug/g	50	<50
0813097-05	SL-05 Beige Paint	ug/g	50	326
0813097-06	SL-06 White Wall Paint	ug/g	50	1380
0813097-07	SL-07 Blue Paint on Door	ug/g	50	<50
0813097-08	SL-08 Beige Wall Paint	ug/g	50	334
0813097-09	SL-09 Brown Paint	ug/g	50	<50

Appendix B
Figure

Designated Substances Survey
1295 Colonial Road
Navan, Ontario
Ref: 216.08771.00

NOTES
 DRAWING COMPILED FROM NAVAN MEMORIAL CENTRE AND ARENA FIRE AND EVACUATION PLAN

LEGEND	
●	ASBESTOS SAMPLE LOCATION
● SL	LEAD PAINT SAMPLE LOCATION
■ (Green)	ACM – DUCT FLEX JOINT ON EXHAUST
■ (Blue Hatched)	ACM – MECHANICAL INSULATION ON AMMONIA LINED FITTINGS



CITY OF OTTAWA
 NAVAN MEMORIAL CENTRE AND ARENA
 1295 COLONIAL ROAD
 NAVAN, ONTARIO

Report
DESIGNATED SUBSTANCE SURVEY

Drawing
MAIN FLOOR PLAN

Date	April 3, 2008	Scale	NTS	Fig. No.	1
File Name	S_216-08771-00-A1 -1	Project No.	216.08771.00		

THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.

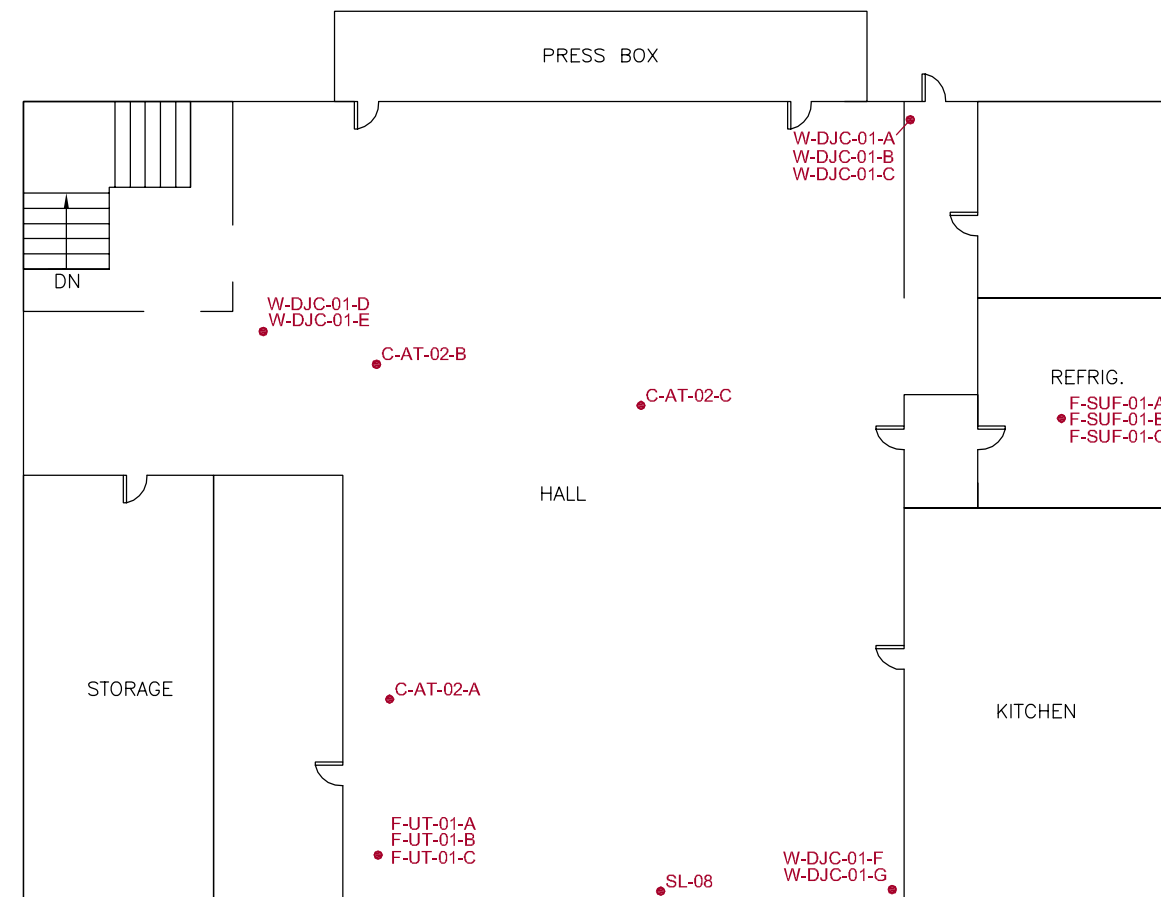


NOTES

DRAWING COMPILED FROM NAVAN MEMORIAL CENTRE AND ARENA FIRE AND EVACUATION PLAN

LEGEND

- ASBESTOS SAMPLE LOCATION
- SL LEAD PAINT SAMPLE LOCATION



CITY OF OTTAWA
 NAVAN MEMORIAL CENTRE AND ARENA
 1295 COLONIAL ROAD
 NAVAN, ONTARIO

Report
 DESIGNATED SUBSTANCE SURVEY

Drawing
 SECOND FLOOR PLAN

Date	April 3, 2008	Scale	NTS	Fig. No.	2
File Name	S_216-08771-00-A1 -2	Project No.	216.08771.00		

THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.

