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Total Number of Pages: 17

December 8, 2017

*Via e-mail*

## **DISTRICT OF LILLOOET**

**Attention: Bain Gair, Manager of Recreation**

615 Main Street

P.O. Box 610

Lillooet, BC

V0K 1V0

## **RE: PRE-RENOVATION HAZARDOUS MATERIALS ASSESSMENT LILLOOET COMMUNITY CENTER POOL CHANGE ROOM RENOVATION**

As requested, we have performed a pre-renovation assessment of the pool change room areas of the noted facility to determine if asbestos or lead containing applications in addition to mould contamination are in way of pending interior renovation work. Samples of suspect asbestos building materials were collected and forwarded for laboratory analysis to ascertain their potential asbestos content. For this project, inspections for PCBs (polychlorinated biphenyls), mercury containing electrical equipment, devices containing ozone depleting substances, and toxic, flammable or explosive materials was not performed.

A review of the change room areas revealed all interior finishes were a mixture of wood and ceramic tile. Ceramic tiles were mortared on to plywood subflooring. A sample of mortar was collected and analysed to determine if asbestos was present in this material, with none being identified.

To identify if lead was present in paint applications of the shower room, swab samples were collected of painted materials with the use of Lead Check Kits. When activated, the swabs turn red in the presence of lead in concentrations greater than 600ppm, a level where uncontrolled removal could release airborne lead concentrations in excess of one half of the WorkSafeBC exposure limit. Swab results of white painted wooden surfaces in the change rooms revealed lead paint was present as the primer on all tested surfaces. To ensure lead was not present in the glaze used in ceramic tile, samples were collected of white wall and grey floor tiles to determine their lead content. Lead, in excess of 90mg/kg, a level that is harmful to pregnant women and children, was identified in the white wall tiles. Lead concentrations in the floor tile were less than the level of lead classification.

An inspection of the crawlspace was initiated to determine if asbestos or mould was present in this space. Our inspection of the crawlspace revealed several conditions which restrict access to this space. Upon entering the crawlspace area our multi-gas meter began registering a drop in the available oxygen content. From the access point, the O<sub>2</sub> level dropped from 20.9 to 19.0% and further dropped to 18.7% at a distance of 10 feet from the crawlspace access hatch – it was at this point (approximately 30 feet from the area beneath the pending renovation work) that we ceased further entry into the crawlspace.

From our limited inspection of the crawlspace, poor condition asbestos insulation was identified on redundant heat piping in addition to asbestos debris identified in the dirt throughout the inspected crawlspace area.

Mould was also identified on the wooden building structure where water leakage from the shower room as entered the crawlspace area.

## **SUMMARY**

Due to the lack of oxygen in the crawlspace and the presence of mould and poor condition asbestos, the crawlspace is to be considered a confined space with no entry permitted unless moderate risk asbestos and confined entry procedures are utilized.

### **ASBESTOS CONTAINING MATERIALS**

- Asbestos is present within corrugated paper pipe insulation and insulating cement (pipe fittings) located on redundant piping and within the dirt under the change room area. High risk asbestos work procedures will be required to remove asbestos containing materials from this space

### **LEAD CONTAINING MATERIALS**

- Lead is present on painted wood and within ceramic wall tiles within the pending renovation area. As these materials will be impacted through pending renovation work, moderate risk lead abatement work procedures will be required to remove lead containing materials from this space prior to renovation work.

### **BIOLOGICAL CONTAMINATION**

- Mould is present on wood structure and framing materials within the crawlspace area of the building. Full containment and appropriate worker protection will be required to remove contamination materials.

Photographs of identified materials are included in Appendix A with laboratory analysis reports for asbestos and lead samples included in Appendix B

## **REMEDIAL WORK**

To facilitate remedial work of structure repair, the following procedures must be implemented:

- 1) Create a fully enclosed, sealed and exterior vented HEPA filtered work area both within the change rooms and at access points to crawlspace area.
- 2) Utilizing Moderate Risk asbestos work procedures, remove lead painted and ceramic tile covered materials to extent of the scope of remedial work. Remove all surfacing and substrate materials back to building structure. Ceramic tile and unpainted wood materials may be disposed of as regular waste.
- 3) White painted wood materials must be TCLP tested to determine if the lead content renders the materials a special waste. A sample of collected paint and substrate material must be forwarded for analysis to determine if it has a leachable lead concentration in excess of the BC Ministry of Environment's Special Waste Classification of 5 mg/L. Materials found to be in exceedance of this criterion must be transported to the Swan Hills Treatment Centre in Alberta for treatment and disposal as hazardous waste.
- 4) Utilizing high risk asbestos work procedures, remove asbestos containing insulation from redundant piping and pipe fittings in the crawlspace area under from the change room back to the crawlspace access hatch. Further remove asbestos insulation debris from the dirt crawlspace through hand picking and rake scarification. Dispose of all created waste as asbestos containing materials.

- 5) Utilizing high risk asbestos work procedures, remove all mould contaminated materials to a point 2 feet past any signs of visible contamination or to where remedial work has been specified to be performed. Clean all wooden materials remaining in the work area to remove all signs of contamination and apply an anti-microbial coating to prevent mould regrowth.
- 6) Utilizing high risk asbestos work procedures, install a poly ground seal in the abated work area, sealed to all perimeter walls with butyl sealant to prevent air movement from the asbestos abated dirt to the general crawlspace area. As the removal of asbestos is visually performed, there still remains the potential for microscopic asbestos fibres to remain within the dirt. Unless protected with a concrete cap or some other suitable barrier, these fibres could be aerosolized from the dirt if persons enter the space without a suitable barrier.

If further clarification of these results is required or if we can be of any further assistance please do not hesitate to contact the undersigned. Thank you for allowing Peak Environmental the opportunity to provide our services in this regard.

Sincerely

**Peak Environmental Ltd.**



Stephen Ferguson, AScT.

*President*

*AHERA Certified Building Inspector No. CABIR-12-018*

*Cell:250-862-0971*

[steve@peakenvironmental.ca](mailto:steve@peakenvironmental.ca)

*File: 4167 R01sf Hazmat Assessment - Lillooet Pool Change Room Renovation*

# **APPENDIX A**

## **SITE PHOTOGRAPHS**



Picture No. 1: Sample 1 of white ceramic wall tile for lead analysis – results indicate lead is present in the glaze at a concentration of 292mg/kg



Picture No. 2: Sample 2 of grey ceramic floor tile for lead analysis – results indicate lead is present in the glaze at a concentration of 15.9mg/kg



Picture No. 3: Sample 1 of mortar for asbestos content – results indicate no asbestos was present in the tested mortar



Picture No. 4: Swab analysis of painted wood – results indicate lead is present in the primer at a concentration greater than 600mg/kg



Picture No. 5: Corrugated asbestos paper on redundant piping in the crawlspace



Picture No. 6: Section of redundant corrugated paper asbestos paper pipe insulation



Picture No. 7: Asbestos paper pipe insulation debris within crawlspace dirt



Picture No. 8: Asbestos paper pipe insulation debris within crawlspace dirt



# **APPENDIX B**

## **LABORATORY RESULTS**

## TSS PACIFIC - RECORD OF ANALYSIS

**Report Number:** 10427-63788

**Client:** Peak Environmental

**Address:** Lilloet Pool  
Lilloet BC

**Reference:**

**Report Date:** 01-Dec-17

**Contact:** Steve Ferguson

Please find enclosed our laboratory's results for the bulk sample(s) submitted to our office for identification.

Sample examination was conducted in accordance with the NIOSH 9002 analytical method using polarized light microscopy and dispersion staining techniques.

A result of 'Asbestos–Not detected' means no asbestos fibres were detected. When asbestos is detected, the minimum quantitation limit is 1%. Levels of asbestos present but below 1% based on visual estimation will be described as TRACE.

This test report relates only to the items tested and any extrapolation by the client of the results is the responsibility of the client. For samples not collected by TSS Pacific, the accuracy of locations and material(s) is the responsibility of the client. Samples will be disposed of after one month, unless we are instructed otherwise.

**If asbestos products are identified in this report they should be remediated safely in accordance with the requirements of Part 6.0 of the Worksafe B.C. Occupational Health and Safety Regulation. In general this will require the completion of a Risk Assessment (Part 6.6.1) completed by a “Qualified Person” as defined in Part 6.1.**



- A result of 'Asbestos–Not detected' means no asbestos fibres were detected;
- When asbestos is detected, the minimum quantitation limit is 1%;
- Levels of asbestos present but below 1% based on visual estimation will be described as TRACE.



# TSS PACIFIC - RECORD OF ANALYSIS

Report Number: 10427-63788

Address: Lilloet Pool, Lilloet

Client Name: Peak Environmental

Sampled By: Peak Environmental

Reference:

Date Sampled: 01-Dec-17

Date Analyzed: 01-Dec-17

Analyst: EC

NO.	SAMPLE INFORMATION	LAYER	ASBESTOS	OTHER MATERIALS
10427-63788-001	Vinyl Floor Tile Change room	Hard grey layer 95% Grey cementitious mix 5%	Not Detected Not Detected	Non-Fibrous 100% Non-Fibrous 100%

Total Number of Samples: 1

Report Reviewed By: Tom McGrath



- A result of 'Asbestos–Not detected' means no asbestos fibres were detected;
- When asbestos is detected, the minimum quantitation limit is 1%;
- Levels of asbestos present but below 1% based on visual estimation will be described as TRACE.



Your Project #: 4166  
Site Location: LILLOOETT POOL CHANGE ROOMS  
Your C.O.C. #: 08448805

**Attention: Stephen Ferguson**

Peak Earth and Environmental Consulting Inc.  
951 Pinewood Place  
Kelowna, BC  
Canada V1Z 3G7

**Report Date: 2017/12/01**  
Report #: R2485208  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7A6543**

**Received: 2017/11/30, 11:30**

Sample Matrix: Solid  
# Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Elements by ICP-AES (acid extr. solid)	2	2017/12/01	2017/12/01	BBY7SOP-00018	EPA 6010c R3 m

**Remarks:**

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Graham Rudkin, Project Manager, Environmental

Email: GRudkin@maxxam.ca

Phone# (604)638-5926 Ext:5926

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This report has been generated and distributed using a secure automated process.

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B7A6543  
Report Date: 2017/12/01

Peak Earth and Environmental Consulting Inc.  
Client Project #: 4166  
Site Location: LILLOETT POOL CHANGE ROOMS  
Sampler Initials: SF

**LEAD IN PAINT CHIPS (SOLID)**

Maxxam ID		SO9922	SO9923		
Sampling Date		2017/11/27	2017/11/27		
COC Number		08448805	08448805		
	UNITS	ICP #01 4X4 WALL TILE	ICP #02 1X1 FLOOR TILE	RDL	QC Batch
<b>Total Metals by ICP</b>					
Total Lead (Pb)	mg/kg	292	15.9	3.0	8848543
RDL = Reportable Detection Limit					

Maxxam Job #: B7A6543  
Report Date: 2017/12/01

Peak Earth and Environmental Consulting Inc.  
Client Project #: 4166  
Site Location: LILLOETT POOL CHANGE ROOMS  
Sampler Initials: SF

### GENERAL COMMENTS

**Results relate only to the items tested.**

Maxxam Job #: B7A6543  
Report Date: 2017/12/01

**QUALITY ASSURANCE REPORT**

Peak Earth and Environmental Consulting Inc.  
Client Project #: 4166  
Site Location: LILLOETT POOL CHANGE ROOMS  
Sampler Initials: SF

QC Batch	Parameter	Date	Method Blank		RPD		QC Standard	
			Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8848543	Total Lead (Pb)	2017/12/01	<3.0	mg/kg	23	35	94	80 - 120

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

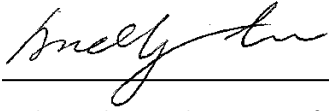
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Maxxam Job #: B7A6543  
Report Date: 2017/12/01

Peak Earth and Environmental Consulting Inc.  
Client Project #: 4166  
Site Location: LILLOETT POOL CHANGE ROOMS  
Sampler Initials: SF

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

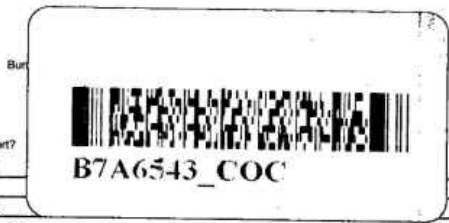


Andy Lu, Ph.D., P.Chem., Scientific Specialist

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08448805

CHAIN OF CUSTODY RECORD

Page: 1 of 1

Invoice To: Requir Report?  
 Company Name: **Peak Environmental**  
 Contact Name: **Steve Ferguson**  
 Address: **951 Pinewood place**  
**West Kelowna BC**  
 Phone / Fax#: Pn: \_\_\_\_\_ Fnc: \_\_\_\_\_ Phone / Fax#: Pn: \_\_\_\_\_ Fnc: \_\_\_\_\_  
 E-mail: **Steve@peakenvironmental.ca** E-mail: \_\_\_\_\_

PO #:	
Quotation #:	
Project #:	4166
Proj. Name:	Lilloett Pool Change Rooms
Location:	Lilloett Pool Change Rooms
Sampled by:	S Ferguson

REGULATORY REQUIREMENTS: SERVICE REQUESTED:  
 CSR  Regular Turn Around Time (TAT)  
 CCME (5 days for most tests)  
 BC Water Quality  RUSH (Please contact the lab)  
 Other  1 Day  2 Day  3 Day  
 DRINKING WATER Date Required: \_\_\_\_\_

SPECIAL INSTRUCTIONS:  
 Return Cooler  Ship Sample Bottles (please specify) \_\_\_\_\_

Lab Use Only		ANALYSIS REQUESTED										Number of Containers		Does source supply multiple households?					
Sample Identification	Lab Identification	Sample Type	Date/Time(24hr) Sampled	Pick a Volatile package from list	Pick a Hydrocarbon pkg from list	Pick a DW package from list	Pick a Salinity package from list	Pick a Leachate package from list	Pick a THM package from list	Pick a Metals pkg in tissue from list	Pick a Metals pkg in water from list	Disolved Metals (DM)	Total Metals	ICP Metals Lead	HOLD	YES	NO	YES	NO
1		ICP #01 4x4 wall tile	11/27/2017											X				1	
2		IPC #02 1x1 floor tile	11/27/2017											X				1	
3																			
4																			
5		SAME DAY RUSH PLEASE																	
6																			
7																			
8																			
9																			
10																			
11																			
12																			

Print name and sign		Print name and sign			Laboratory Use Only					
*Relinquished By:	Date (yy/mm/dd):	Time (24 hr):	Received by:	Date (yy/mm/dd):	Time (24 hr):	Time Sensitive	Temperature on Receipt (°C)	Custody Seal	Yes	No
<i>[Signature]</i>	11/29/2017	9:30	<i>[Signature]</i> M. RON HANE	2017 11/30	11:30	<input type="checkbox"/>	A) <i>[Signature]</i> B) C) <input type="checkbox"/>	Present?	<input type="checkbox"/>	<input type="checkbox"/>
							Just sampled & rec'd on ice: <input type="checkbox"/>	Intact?	<input type="checkbox"/>	<input type="checkbox"/>

IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORDS. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.