ECO ABATE
Environmental Solutions

SUMMARY LETTER

SENT: March 7, 2023

Town of Drumheller
Premier Way
Drumheller, Alberta
T0J 0Y4

ATTN: **Mark Steffler,** *Project Manager*

RE: **Hazardous Material Assessment Report**

330 2nd Ave W Lehigh, AB

Project #: E3030-E

Dear Mr. Steffler,

At your request, Eco Abate performed hazardous material sampling and assessment of the building located at 330 2nd Ave W Lehigh in Alberta. The purpose of the investigation was to identify hazardous materials on the property to permit development of a remediation scope, identify abatement procedures, and confirm disposal protocols.

During the process, Eco Abate did not identify any asbestos-containing materials prior to the planned renovations or demolition of the structure.

Various other hazardous materials were also identified including: lead-containing paints, ozone depleting substances, mercury-containing fixtures and miscellaneous chemicals.

If you have any questions, concerns or require any additional information please contact the undersigned at (403) 998-5079 or info@ecoabate.com.

Authored By:

Reid Andersen, *B.Sc.,*
Project Coordinator

Reviewed By:

Scott Blake, *B.Sc., NCSO, EP®*
Principal

EXECUTIVE SUMMARY:

Based on observations and results, Eco Abate makes the following conclusions:

1. Lead-containing paints (*See Appendix II*) were identified. Disturbance of lead-containing surface coatings must be performed following exposure prevention controls similar to those found in WorkSafeBC's Lead Containing Paints and Coatings: Preventing Exposure in the Construction Industry (2011) document and described in the Alberta Governments Lead at the Work Site (2013) bulletin.

   PLEASE NOTE: All waste which includes the paint must be disposed of as hazardous waste unless toxicity characteristic leachate procedure (TCLP) testing can confirm the levels below the hazardous waste definition in the Government of Alberta's document Alberta User Guide for Waste Managers (1996)[1].

2. Hazardous components were identified on site and will require appropriate disposal prior to demolition, including:

   a. ozone depleting substances in water cooler,

   b. mercury thermostats, and

   c. miscellaneous chemicals .

3. Should any new materials be identified throughout the process, work should stop until the materials can be assessed by a qualified health and safety professional.

PLEASE NOTE: Renovation and demolition activities involving asbestos materials identified must be performed in accordance with all laws found in the Occupational Health and Safety Act Regulation and Code (2021) and follow procedures outlined in the Alberta Asbestos Abatement Manual (2019). Asbestos abatement must be performed by a competent contractor experienced in the procedures described above and include air quality monitoring by a third-party occupational hygiene consultant. All contractors who perform work on the building must be given relevant information pertaining to asbestos-containing materials and must be given access to all records of asbestos testing, including this report.

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INTRODUCTION

At your request, Eco Abate performed hazardous material sampling and assessment of the building located at 330 2nd Ave W Lehigh in East Coulee, Alberta. The purpose of the investigation was to identify hazardous materials on the property to permit development of a remediation scope, identify abatement procedures, and confirm disposal protocols.

The site assessment and sampling portions of the investigation were performed on February 7, 2023, by Mr. Reid Andersen, *B.Sc.,* Project Coordinator at Eco Abate Inc.

SCOPE OF WORK

Eco Abate provide the following services:

- Inspection of the building for hazardous materials and conditions, including:
    - Asbestos-containing materials (ACM);
    - Lead-containing materials;
    - PCB-containing fixtures;
    - Mercury-containing fixtures;
    - Ozone depleting substances;
    - Biological hazards; and
    - Miscellaneous chemicals.
- Sampling, assessment, and photography of suspect materials;
- Interpretation of bulk sample laboratory results;
- Analysis of results in accordance with current industry standards;
- Determine mitigation and corrective actions, where needed;
- Identification of potential exposure hazards relating to asbestos, lead, PCBs, mercury, ODS; and
- Drafting of full report detailing results, conclusions, and recommendations.

REGULATIONS AND GUIDELINES

Occupational Health and Safety Code

The Alberta Asbestos Abatement Manual (2019)[1] (AAAM) outlines methods used to aid compliance with the Occupational Health and Safety Act, Regulation and Code (December 2021)[2] (OH&S Code) in the province of Alberta. The manual covers general information on asbestos, related health hazards, requirements for worker protection, safe work practices and basic principles to follow for the safe abatement of asbestos-containing materials.

Part 4 of the Alberta OH&S Code (December 1, 2021)[2], outlines requirements related to asbestos in buildings. These requirements are:

Section 31 **(1)** If it is determined that asbestos fibres may be released in a building, the building is in an unsafe condition.

(2) The employer must take all necessary steps to correct the unsafe condition.

Section 32 **(1)** A person must not use materials containing crocidolite asbestos in an existing or a new building.

(2) A person must not apply materials containing asbestos by spraying them.

Section 33 A person must not use asbestos in an air distribution system or equipment in a form in which, or in a location where, asbestos fibres could enter the air supply or return air systems.

Section 34 If a building is to be demolished, the employer must ensure that materials with the potential to release asbestos fibres are removed first.

Section 35 If a building is being altered or renovated, the employer must ensure that materials in the area of the alterations or renovations that could release asbestos fibres are encapsulated, enclosed or removed.

Section 36 **(1)** An employer who is responsible for removing or abating asbestos or for demolishing or renovating a building or equipment containing asbestos must notify a Director of Inspection of the activity at least 72 hours before beginning the activities that may release asbestos fibres.

(2) A person must not remove or abate asbestos or demolish or renovate a building or equipment containing asbestos if a Director of Inspection has not been notified in accordance with subsection (1).

All services provided by Eco Abate strictly adhere to Alberta's current occupational health and safety laws, which includes the Occupational Health and Safety Act, Regulation and Code[2].

[1] Alberta Queens Printer, *Alberta Asbestos Abatement Manual (2019)*, Retrieved from https://www.alberta.ca/alberta-asbestos-abatement-manual.aspx

[2] Alberta Queens Printer, *Occupational Health and Safety Act, Regulation and Code (December 2021)*, Retrieved from http://work.alberta.ca/occupational-health-safety/ohs-act-regulation-and-code.html

Asbestos Products Regulations

Section 1 of the Asbestos Products Regulation (December 12, 2018)[3], defines asbestos product as the following:

- A product that contains any type of asbestos, including actinolite, amosite, anthophyllite, chrysotile, crocidolite, cummingtonite, fibrous erionite and tremolite.

Section 2.2 of the Asbestos Products Regulation (December 12, 2018)[3] permits the use of non-crocidolite asbestos products if certain conditions are met. The following products and conditions are:

1) A textile fibre product that is worn on the person; if:
   a) The product provides protection from fire or heat hazards; and
   b) A person who uses the product in a reasonably foreseeable manner cannot come into contact with airborne asbestos from the product.
2) A product that is used by a child in learning or play; if:
   a) Asbestos cannot become separated from the product.
3) Drywall joint cement or compound, or spackling or patching compound, that is used in construction, repair or renovation; if:
   a) Asbestos cannot become separated from the product during its post-manufacture preparation, application or removal.
4) A product that is applied by spraying; if:
   a) The asbestos is encapsulated with a binder during spraying; and
   b) The materials that result from the spraying are not friable after drying.

[3] Minister of Justice (December 12, 2018), *Asbestos Products Regulations (SOR/2016-164)*, Retrieved from https://laws-lois.justice.gc.ca/PDF/SOR-2016-164.pdf

METHODOLOGY

Asbestos Bulk Sampling

Asbestos bulk sampling and assessment was conducted following AAAM[1] guidelines by qualified and competent personnel with experience in sampling and laboratory analysis techniques. Asbestos samples were forwarded to EMSL Canada Inc. in Calgary, Alberta, for analysis. The samples were analyzed by polarized-light microscopy (PLM) using the EPA 600/R-93/116 analysis method. This method uses various techniques to determine the asbestos concentrations in building materials.

Material Condition Assessment

Assessment of the material was performed following the exposure assessment algorithm in Section 1.6 of the AAAM[1] as a guideline. This assessment method takes into account eight (8) factors that ultimately determine the corrective actions that must be taken to ensure the safety of an asbestos-containing installation. The factors which must be evaluated are:

(1) Condition of Material – An assessment of the quality of the installation, adhesion of the material to substrate, and instances of deterioration or damage. Condition rated as follows:

   i. Good Condition – no significant signs of damage, deterioration or delamination;

   ii. Fair Condition – mild to moderate damage, deterioration or delamination; and

   iii. Poor Condition – severely damaged, deteriorated or delaminated.

(2) Water Damage;

(3) Exposed Surface Area;

(4) Accessibility;

(5) Activity and Movement;

(6) Air Distribution System;

(7) Friability; and

(8) Asbestos Content.

Lead Sampling

Lead containing material and paint samples were collected and recommendations provided in accordance with the Alberta Government's Lead at the Work Site (2013)[4] document. This is a bulletin combining regulations and standards from various sources in the occupational health and safety industryLead samples were forwarded to EMSL Canada Inc. in Calgary, Alberta, for analysis. The samples were analyzed for lead content using EPA Method SW 846 3050B*/700B. EMSL's laboratory is also accredited by the AIHA Environmental Lead Laboratory Approval Program (ELLAP)

Criteria for evaluating the condition of LCPs is based on the United States Housing and Urban Development (HUD) 2012 *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*. The assessment evaluates the condition of the LCPs to determine if deterioration is due to moisture or another building deficiency.

(1) Condition of Material – An assessment of the quality of the installation, adhesion of the material to substrate, and instances of deterioration or damage. Condition rated as follows:
   i. Good Condition – surfaced should be monitored to ensure they remain non-hazardous;
   ii. Fair Condition –surfaced need to be repaired but are not yet hazardous; and
   iii. Poor Condition – surfaces are considered to be hazardous and need to be corrected.

(2) Building Component; and

(3) Surface Area.

Polychlorinated Biphenyls

Light ballasts were visually assessed for polychlorinated biphenyls (PCBs) containing ballasts during the inspection. Identification of PCBs was possible by the serial numbers and branding on the ballasts. Most PCBS produced in the 1980s or later have markings indicating the ballasts are "Non-PCB". Other ballasts can be identified as hazardous based on the product date and serial numbers indicating they were produced in the time period in which the manufacturer utilized PCB components.

Electrical conduits and heavy-duty sealants may contain PCBs and sampling may be required if large scale industrial processes may have required specialized PCB-containing products.

Mercury

Thermostats can utilize mercury switches and were visually inspected for the presence of these switches. All observable switches were counted and relayed in the results section.

Mercury is known to be a component of fluorescent light tubes. Visual estimation of the number of light tubes was provided in the results section.

Ozone Depleting Substances

Assessment for equipment or systems likely to contain ODSs was completed visually. Information on the type of equipment, manufacturer, type, and quantity of refrigerants was recorded, where available. The most common products include refrigeration equipment and air conditioning units.

[4] Alberta Queens Printer (2013). *Lead at the Work Site*, Retrieved from https://work.alberta.ca/documents/OHS-Bulletin-CH071.pdf

Radioactive Materials

Visual assessment of smoke detectors was performed to confirm the presence of radioactive materials where possible. Any smoke detectors which were inaccessible were assumed to contain radioactive materials and were included in the reported amounts in the results section.

Biological Hazards

Identification of hazardous organic waste or biological contaminants was conducted visually and included assessment of all site conditions at the time of the inspection. The identification of material which could result in illness or disease were documented, where possible.

Biological hazards include conditions such as animal droppings or carcasses, mould contamination, standing water, etc.

Miscellaneous Chemicals

Any household or commercial chemicals which would require special disposal were documented and quantified where possible. Visual identification of the chemicals is sufficient in most cases to determine appropriate handling and disposal procedures.

LIMITATIONS

The amount of material reported, if reported, is an estimate and materials may exist in locations inaccessible at the time the survey was performed.

Materials with a homogenous appearance cannot be differentiated based on appearance and accurate identification of renovated or replaced areas is not possible. As a result, all areas of materials such as drywall, ceiling texture, stucco, etc., must be treated as asbestos-containing if one (1) or more samples are identified as positive.

Asbestos materials may exist in areas of the property inaccessible for inspection including wall cavities and ceiling cavities.

No attic hatch or access to the attic space was present during the inspection and potential asbestos containing materials within the attic space could not be confirmed.

OBSERVATIONS

The following observations were made at the time of the assessment:

1. Wood paneling covered parts of the kitchen, main hallway and primary bedroom.
2. No attic hatch was present to enter the attic space.
3. No basement was observed during the survey, the furnace and water heater was on the main floor.
4. Parging with black paint was used on the exterior of the home.
5. An old thermometer was identified near the newer thermostat and is likely to contain mercury.
6. Multiple refrigerators were observed within the property during investigation.
7. Miscellaneous chemicals were identified in the garage.

RESULTS

Asbestos Materials

Table 1 below summarizes the positive results of the asbestos bulk sampling. For details, please refer to the attached laboratory reports (*See Appendix II*).

Table #1: Summary of Positive Asbestos Sampling Results

#	DESCRIPTION / LOCATION	ASB TYPE	ASB%	CONDITION	PHOTO
No Asbestos Detected					

Notes:

a. N/A = Not applicable due to asbestos not being detected in the provided sample.
b. None Detected = no asbestos was detected within the material sampled.
c. Reporting limit is <1% for the method used.

Sampling was performed by Eco Abate Inc. following sampling procedures outlined in the Alberta Asbestos Abatement Manual (2019). Analysis was conducted in Calgary, Alberta, following the EPA 600/R-93/116 Method, which is the approved polarized light microscopy (PLM) analysis method used in Canada for identification of asbestos within bulk materials.

Lead Materials

Results of lead paint sampling indicate lead-based paint was used on the property. *Table 2* below summarizes the results of the lead paint sampling. Please refer to the attached *Laboratory Report* for further details (*See Appendix II*).

Table #2: Lead Paint Sampling Results

ID#	LOCATION	COLOR	CONC. (ppm)	INTERPRETATION
A	Back Door Wall	Blue	<80	Non-Lead
B	Mud Room	Light Blue	<80	Non-Lead
C	Exterior Window	Turquoise	<80	Non-Lead
D	**Exterior Parging**	**Black**	**510**	**Lead Based**

Notes:

a. Non-Lead = Lead levels reported are below the limit of lead required to classify a paint as lead-based.
b. Reporting limit is <80 ppm for the method used.

Sampling was performed by Eco Abate Inc. following sampling procedures outlined in the Flame AAS SW 846 3050B/7000B Method. Analysis was conducted in Calgary, Alberta, by EMSL Canada Inc. following the Flame AAS SW 846 3050B/7000B Method, which is a flame atomic absorption spectrometry (AAS) analysis method used for identification of lead within surface coating samples.

Hazardous Components

Results of visual inspection for hazardous materials in building components identified multiple items which will require disposal prior to demolition. *Table 3* below summarizes the results of the assessment including confirmed counts of various items.

Table #3: Hazmat Item Count

ITEM	TOTAL
Smoke Detectors (Radioactive)	2
Thermostat (Mercury)	1
Fluorescent Light Tubes (Mercury)	-
PCB Light Ballasts	-
Ozone Depleting Substances (Refrigerators)	2
Fire Extinguishers	2

Notes:

- ~ = Estimated amount of material based on visual observation and extrapolation through unexplored areas.
- All fluorescent light tubes were assumed to contain mercury.
- Only smoke detectors confirmed to contain radioactive materials were included.
- Refrigeration equipment included air conditioning units, refrigerators, freezers, and water coolers.
- Item counts are based on visual observation while on site and does not include items which were inaccessible.

Biological Hazards

No biological hazards were identified within the property during the survey.

Miscellaneous Chemicals

Various chemicals were identified in the garage.

CONCLUSIONS

Based on observations and results, Eco Abate makes the following conclusions:

1. Lead-containing paints (*See Appendix II*) were identified on the property. Disturbance of lead-containing surface coatings should be performed following using exposure prevention controls found in WorkSafeBC's Lead Containing Paints and Coatings: Preventing Exposure in the Construction Industry (2011) document and described in the Alberta Governments Lead at the Work Site (2013) bulletin.

   PLEASE NOTE: All waste which includes the paint must be disposed of as hazardous waste unless toxicity characteristic leachate procedure (TCLP) testing can confirm the levels below the hazardous waste definition in the Government of Alberta's document Alberta User Guide for Waste Managers (1996)[1].

2. Hazardous components were identified on site and will require appropriate disposal prior to demolition, including: mercury thermostat, ozone deleting substances, fire extinguishers, and miscellaneous chemicals.

3. Should any new materials be identified throughout the process, work should stop until the materials can be assessed by a qualified health and safety professional.

PLEASE NOTE: Renovation and demolition activities involving asbestos materials identified must be performed in accordance with all laws found in the Occupational Health and Safety Act Regulation and Code (2019) and follow procedures outlined in the Alberta Asbestos Abatement Manual (2019). Asbestos abatement must be performed by a competent contractor experienced in the procedures described above and include air quality monitoring by a third-party occupational hygiene consultant. All contractors who perform work on the building must be given relevant information pertaining to asbestos-containing materials and must be given access to all records of asbestos testing, including this report.

WARRANTY:

Eco Abate Inc. warrants to the company, organization, or individual to whom this report is addressed that the assessment described has been conducted with a reasonable level of care and skill, in accordance with standards currently prevailing in the health, safety, and environmental consulting profession.

The warranty stated above is subject to the following: (i) the assessment conducted by Eco Abate has been limited to the scope of work described, (ii) this report has been prepared taking into account current government regulations, and does not reflect regulations which may be enacted in the future, (iii) where indicated or implied in this report, conclusions are based on visual observation of the site at the time of this assessment, and (iv) the conclusions of this report do not apply to any areas of the site not available for testing or inspection.

This report is intended for the exclusive use of the company, organization, or individual to whom it is addressed.

If you have any questions, concerns or require any additional information please contact the undersigned at (403) 998-5079 or info@ecoabate.com.

Authored By:

Reid Andersen, *B.Sc.,*
Project Coordinator

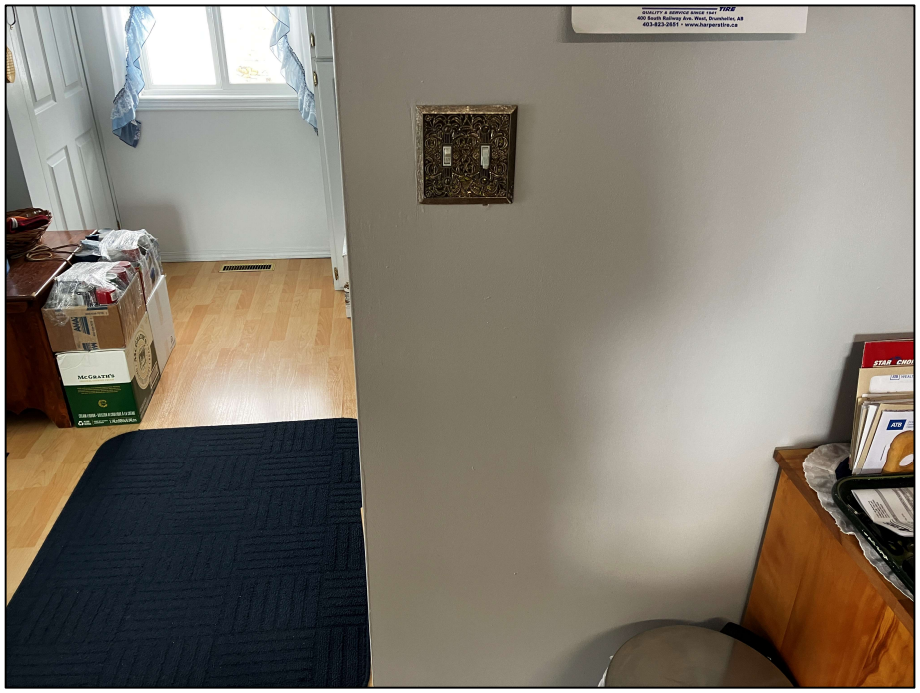
Reviewed By:

Scott Blake, *B.Sc., NCSO, EP®*
Principal

APPENDIX I

PHOTOGRAPHS

PHOTOGRAPH #1: Drywall Joint Compound - Level 1 Mud Room Interior (None Detected)



PHOTOGRAPH #2: Drywall Joint Compound - Level 1 Kitchen Interior (None Detected)

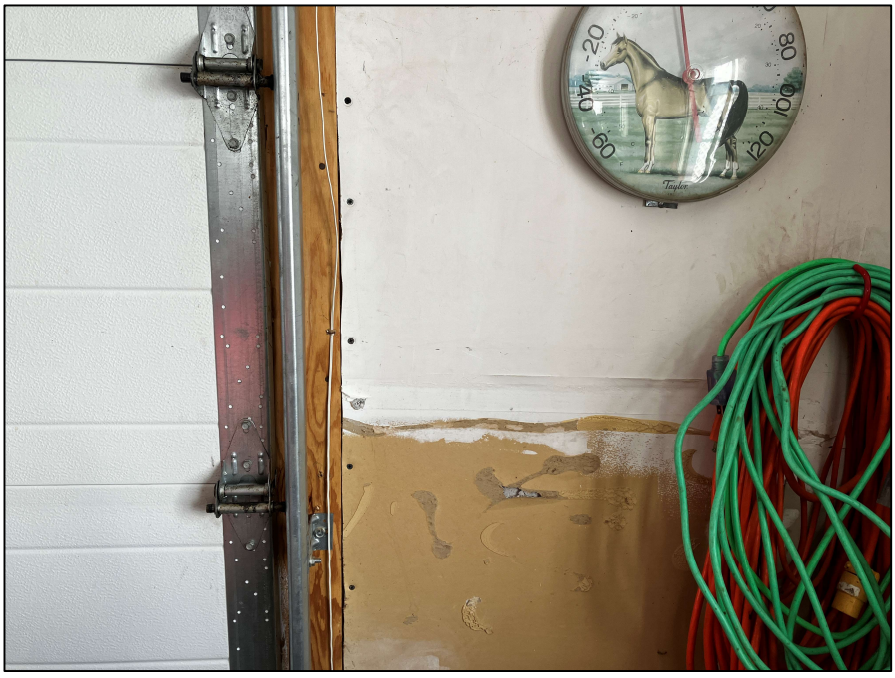
PHOTOGRAPH #3: Drywall Joint Compound - Level 1 Kitchen Pillar Interior (None Detected)

PHOTOGRAPH #4: Drywall Joint Compound - Level 1 Hallway Interior (None Detected)

PHOTOGRAPH #5: Drywall Joint Compound - Level 1 Bathroom Hallway Interior (None Detected)

PHOTOGRAPH #6: Drywall Joint Compound - Level 1 Living Room Ceiling (None Detected)

PHOTOGRAPH #7: Drywall Joint Compound - Level 1 Back Door Interior (None Detected)



PHOTOGRAPH #8: Drywall Joint Compound - Level 1 Garage Exterior (None Detected)

PHOTOGRAPH #9: Drywall Joint Compound - Level 1 Garage Interior (None Detected)

PHOTOGRAPH #10: Ceiling Texture - Level 1 Living Room (None Detected)

PHOTOGRAPH #11: Ceiling Tile - Level 1 Primary Bedroom Closet (None Detected)

PHOTOGRAPH #12: Ceiling Tile - Level 1 Back Door (None Detected)

PHOTOGRAPH #13: Wallpaper - Level 1 Bathroom (None Detected)

PHOTOGRAPH #14: Sheet Flooring - Level 1 Primary Bedroom (None Detected)

PHOTOGRAPH #15: Sheet Flooring - Level 1 Storage Room (None Detected)

PHOTOGRAPH #16: Sheet Flooring - Level 1 Living Room (None Detected)

PHOTOGRAPH #17: Flooring - Level 1 Mud Room (None Detected)

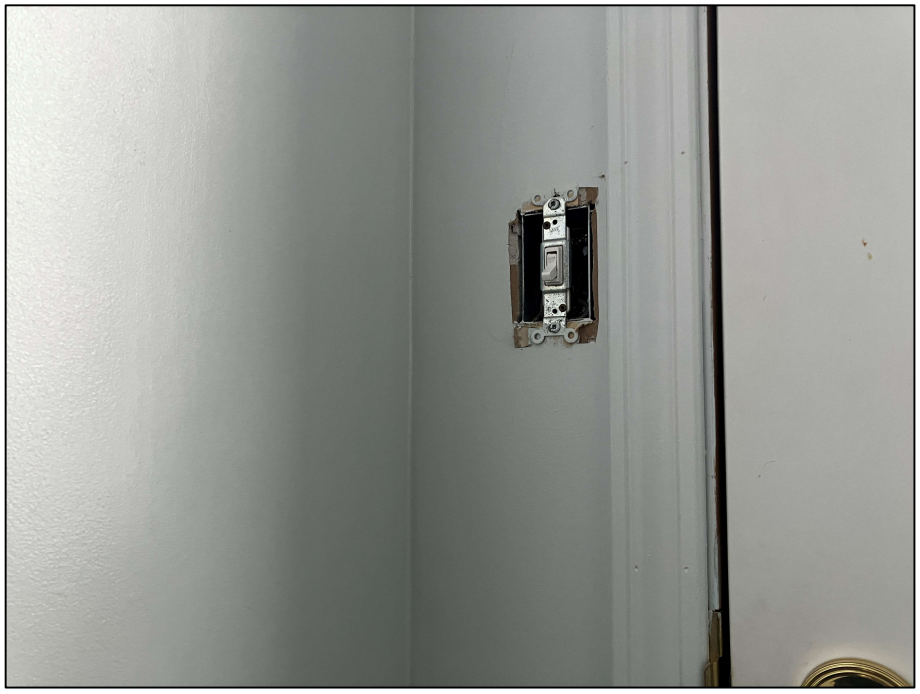
PHOTOGRAPH #18: Flooring - Level 1 Bathroom Layer 1 (None Detected)

PHOTOGRAPH #19: Flooring - Level 1 Bathroom Layer 2 (None Detected)

PHOTOGRAPH #20: Mastic - Level 1 Garage (None Detected)

PHOTOGRAPH #21: Caulking - Exterior of Home (None Detected)

PHOTOGRAPH #22: Parging - Exterior of Home (None Detected)



PHOTOGRAPH #23: Paint - Back Door Blue (<80 ppm Lead)

PHOTOGRAPH #24: Paint - Mud Room Light Blue (<80 ppm Lead)

PHOTOGRAPH #25: Paint - Exterior Window Turquoise (<80 ppm Lead)

PHOTOGRAPH #26: Paint - Exterior of Home Black (510 ppm Lead)

PHOTOGRAPH #28: Refrigerator in Kitchen

PHOTOGRAPH #29: Refrigerator in Mudroom

PHOTOGRAPH #30: Smoke Detector in Hallway Near Kitchen

PHOTOGRAPH #31: Smoke Detector in Hallway Near Bedroom

PHOTOGRAPH #32: Suspected Mercury Thermostat

PHOTOGRAPH #33: Fire Extinguisher in Back Room

PHOTOGRAPH #34: Fire Extinguisher in Garage

PHOTOGRAPH #35: Miscellaneous Chemical in Garage

Eco Abate Inc.
425 Forge Road SE
Calgary, Alberta T2H 0S9

PLM Analysis Report

March 7, 2023

Project Number: E3030-E

Date of Analysis Tuesday, March 7, 2023

Author Reid Andersen

Results

ID	Sample Description / Location	Results
1	Drywall Joint Compound - Level 1 Mud Room (INT)	None Detected
2	Drywall Joint Compound - Level 1 Kitchen (INT)	None Detected
3	Drywall Joint Compound - Level 1 Kitchen Pillar (INT)	None Detected
4	Drywall Joint Compound - Level 1 Hallway (INT)	None Detected
5	Drywall Joint Compound - Level 1 Bathroom Hallway (INT)	None Detected
6	Drywall Joint Compound - Level 1 Living Room (Ceiling)	None Detected
7	Drywall Joint Compound - Level 1 Back Door (INT)	None Detected
8	Drywall Joint Compound - Level 1 Garage (EXT)	None Detected
9	Drywall Joint Compound - Level 1 Garage (INT)	None Detected
10	Ceiling Texture - Level 1 Living Room	None Detected
11	Ceiling Tile - Level 1 Primary Bedroom Closet	None Detected
12	Ceiling Tile - Level 1 Back Door	None Detected
13	Wall Paper - Level 1 Bathroom	None Detected
14	Sheet Flooring - Level 1 Primary Bedroom	None Detected
15	Sheet Flooring - Level 1 Storage Room	None Detected
16	Sheet Flooring - Level 1 Living Room	None Detected
17	Flooring - Level 1 Mud Room	None Detected
18	Flooring - Level 1 Bathroom Layer 1	None Detected
19	Flooring - Level 1 Bathroom Layer 2	None Detected
20	Mastic - Garage Wall	None Detected
21	Caulking - Exterior of Home	None Detected
22	Parging - Exterior of Home	None Detected

- Samples analysis of bulk materials via EPA 600/R-93/116 Method using Polarized Light Microscopy
- This report relates only to the samples reported above, and may not be reproduced
- Analysis and results subject to limitations of sample collection and methodology used
- Eco Abate maintains liability limited to cost of analysis

Eco Abate Inc.
425 Forge Road SE
Calgary, Alberta T2H 0S9

Lead Analysis Report

March 7, 2023

Project Number: E3030 - E

Date of Analysis: Tuesday, March 7, 2023

Author: Reid Andersen

Results:

ID	Sample Description / Location	Results
A	Paint - Back Door Wall (Blue)	<80 ppm
B	Paint - Mud Room (Light Blue)	<80 ppm
C	Paint - Exterior Window (Turquoise)	<80 ppm
D	Paint - Exterior Parging (Black)	510 ppm

- Samples analysis of paint chips via Flame AAS (SW 846 3050B/7000B)*
- Reporting limit is 0.008% wt based on the minimum sample weight.
- This report relates only to the samples reported above, and may not be reproduced
- Analysis and results subject to limitations of sample collection and methodology used
- Eco Abate maintains liability limited to cost of analysis