DECOMMISSIONING PLAN

CHAR LAKE PUMP HOUSE AND
SIGNAL HILL WATER TREATMENT PLANT
RESOLUTE BAY, NUNAVUT

Document prepared for:

TOWER ARCTIC LTD

Tower Arctic Ltd.
PO Box 717
Iqaluit, Nunavut X0A 0H0

September 25, 2020
O/Ref.: QE18-182-2

Final Plan

Qikiqtaaluk environmental
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Decommissioning Plan

Char Lake Pump House and
Signal Hill Water Treatment Plant
Resolute Bay, Nunavut

Document prepared for:

Tower Arctic Ltd.
P.O. Box 717
Iqaluit, Nunavut X0A 0H0

Prepared by: ______________________
Catalin Cenan, B.Sc.
Project Manager

Approved by: ______________________
Jennifer Godin
Director

Qikiqtaaluk environmental
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September 25, 2020

O/Ref.: QE18-182-2

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LIST OF APPENDICES

1. OBJECTIVES

This decommissioning plan was developed to assist Tower Arctic Ltd. (Tower) with implementing specific work procedures and measures to protect human health and minimize environmental impacts during the decommissioning of the Char Lake Pump House ("Char Lake") and Signal Hill Water Treatment Plant ("Signal Hill") located in Resolute Bay, Nunavut.

In addition to the site-specific protective measures outlined in this decommissioning plan, Tower will comply with applicable laws, regulations, and requirements of authorities having jurisdiction. Tower will acquire and comply with required permits, approvals and authorizations.

Please note that this plan will continually evolve and be modified as the project progresses. Decommissioning will not commence until the new infrastructure is up and running.

2. INTRODUCTION

Char Lake is located northwest of Resolute Bay, and the Char Lake pumping station is situated south of the lake, approximately 10 m from the lakeshore. The surface slopes toward the lake, and the predominant soils on the site are sandy to sandy gravel. A photographic report of the pump house is presented in Appendix A. The pump house will be decommissioned in 2021.

The Signal Hill Water Treatment Plant is located north of the Community, and the predominant soils at the site are also sandy to sandy gravel. A photographic report of the water treatment plant is presented in Appendix A. The water treatment plant at Signal Hill will be decommissioned in 2020.

Due to the proximity of the pump house and water treatment plant to the lakes, control measures must be implemented to prevent movement of contaminants into the water caused by disturbing the soils and structure dismantling. Char Lake is the main source of freshwater for the community, and aquatic life inhabits the lake. Therefore, it is essential that the control measures listed in the *Environmental Management Plan* are respected in order to minimize the impacts of the work on the aquatic environment.

2.1 Summary of Hazardous Materials Findings

2.1.1 Char Lake Pump House:

Lead-Based Paints and Lead-Containing Materials:

- The green paint on the majority of the uninsulated water pipes at the pump house is not considered hazardous to human health based on the laboratory results for total lead. However, in the absence of confirmatory results for leachable lead, it is considered hazardous to the environment. Confirmatory leachate analysis results will be available by July 21, 2020.

Mercury-Containing Equipment:

- Approximately 14 T12 fluorescent light tubes were observed.

PCB-Containing Equipment:

- 7 light fixture ballasts possibly containing PCB were identified on-site.

2.1.2 **Signal Hill Water Treatment Plant**:

Asbestos-containing materials (ACM):

- The black non-friable firestop putty observed around a few wall penetrations by power lines was determined to contain 10% chrysotile asbestos.

Lead-Based Paints and Lead-Containing Materials:

- The green paint on the majority of the uninsulated water pipes at the treatment plant is not considered hazardous to human health based on the laboratory results for total lead. However, in the absence of confirmatory results for leachable lead, it is considered hazardous to the environment. Confirmatory leachate analysis results will be available by July 21, 2020.

Mercury-Containing Equipment:

- Approximately 28 T12 fluorescent light tubes were observed.

PCB-Containing Equipment:

- 13 light fixture ballasts possibly containing PCBs were identified on-site.

2.2 Summary of PHC-impacted Soil Findings

2.2.1 Char Lake

Based on the *Supplemental Environmental Site Evaluation* performed by Exp Services Inc. in 2015, approximately 600 to 750 m^3 of petroleum hydrocarbon impacted soil was found in the west side of the Char Lake Pump House peninsula.

The areal extent of the petroleum hydrocarbon contamination is approximately 500 m^2 with the depths generally situated between 1.2 m and 1.5 m thick.

The remediation of the PHC-impacted soil will be performed in 2021, and the *Remediation Plan* will be presented to the Client later this year.

2.2.2 Signal Hill

No soil characterization was conducted at Signal Hill.

3. DECOMMISSIONING PREDEMOLISHING STEPS

In order to protect human health and minimize environmental impacts, the decommissioning activities must take place in the following order:

3.1 Above ground fuel tank removal

The existing above storage tanks (AST) will be inspected, securely removed and disposed of following the procedure presented below:

- Perform a complete inspection of the AST;
- If it is not empty, safely transfer the contents to a temporary storage tank by gravity, if possible, or by using a pump;
- Measure gas with a 4 gas detector to assess explosive limits - ventilate as required to eliminate explosive vapours and then record the data;
- Enlarge the tank opening using a reciprocating saw or by contact with the tank while keep monitoring the explosive limits;
- Cleaning and washing the tank using a vacuum truck;
- Visual inspection of the AST;
- Removing the AST from the site;
- Disposal of the AST at the community metal land field.

3.2 Mercury-containing Equipment Collection and Disposal

The approximately 14 (Char Lake) and 28 (Signal Hill) T12 fluorescent light tubes will be securely collected and disposed to a recycling facility.

As per the Government of Nunavut Environmental Guideline for Mercury - Containing Products and Waste Mercury, November 2010, the disposal of fluorescent light tubes in the municipal landfills is at the discretion of that municipality.

The Resolute Bay Hamlet Office is required to be consulted prior to disposal of any mercury equipment in the local landfill.

An example of the mercury-containing fluorescent light tubes is presented in the photographic report of Appendix A.

3.3 PCB-Containing Equipment Collection and Disposal

The approximately 3 (Char Lake) and 7 (Signal Hill) light fixture ballasts possibly containing PCB-bearing oils will be securely collected, stored and disposed of as specified in the Federal Regulations SOR/2008-273.

When the fluorescent light ballasts are to be removed from service, they will be stockpiled and assessed for PCB content by comparing the coding on the surface of each ballast with the Environment Canada (publication EPS 2/CC/2 entitled “Identification of Lamp Ballasts Containing PCBs”, revised August 1991).

Ballasts that are found to be PCB-containing will be separated from non-PCB-containing ballasts and then taken to a licensed PCB destruction facility. Ballasts should be considered to contain PCBs if they were manufactured prior to July 1, 1980, do not have any marking to indicate their date of manufacture, or do not have any wording to indicate they do not contain PCBs.

3.4 Asbestos-Containing Materials Collection and Disposal

The black non-friable firestop putty observed at Signal Hill, around a few wall penetrations by power lines and determined to contain 10% chrysotile asbestos, will be securely collected and disposed of following a Low-Risk procedure in accordance with the WSCC's *Code of Practice, Asbestos Abatement*, September 2018, Section 5.2 - Low Risk Abatement Activities.

Removal of asbestos-containing black non-friable firestop putty will be performed with manual tools, no power tools or abrasive methods will be used during the abatement. A decontamination facility will be constructed adjacent to the work area for workers to dress, and for asbestos debris to be removed from the work area.

Disposal of the firestop putty must conform with Government of Nunavut's *Environmental Guideline for Waste Asbestos*, January 2011. Bags containing ACMs will be stored in a locked intermodal container with proper asbestos warning labels and proper protection in Resolute Bay until marine transport to the Province of Quebec for disposal at an authorized facility.

The identified asbestos-containing material to be removed is presented in photograph 3 of the Photographic Report of Appendix A.

The complete asbestos-containing material removal procedure is presented in Appendix B.

3.5 Lead-Based Paints and Lead-Containing Materials Collection and Disposal

Dark grey wooden backing board, the exterior blue painted metal sheets and the green water pipes will be securely collected and stored.

Appropriate personal protective equipment (i.e., respirators, gloves, and eye protection) will be worn when undertaking any abrasion or sanding of painted surfaces to reduce the risk of lead-dust inhalation to any workers if the painted surfaces are being disturbed, as recommended by the WSCC's *Code of Practice, Working with Lead Guideline*, May 2017

Although they are not considered dangerous to human health, prior to the disposal of building materials with lead-based paint firmly bound to the substrate, a leachate test (TCLP analysis) of representative demolition debris is recommended to determine the material's leachable concentration of lead. Potential disposal locations for demolition waste should be advised of the TCLP analytical results.

The identified lead-containing materials to be removed are presented in the Photographic Report of Appendix A.

Confirmatory leachate analysis results will be available by July 21, 2020.

The complete lead-containing material removal work procedure is presented in Appendix C.

4. DEMOLITION AND TRANSPORTATION OF DEBRIS

Once the hazardous materials are removed from Char Lake and Signal Hill, Tower will proceed with the demolition and debris transportation to the community landfill.

APPENDIX A

Photographic Report

Photo 1

General view of Signal Hill Water Treatment Plant building to be decommissioned.

Photo 2

General view of Char Lake Pump House building to be decommissioned.

Photo 3

The non-friable firestop black putty observed in the Signal Hill building.

Photo 4

View of the possible lead-containing blue paint on the exterior of both buildings.

Photo 5

View of the possible lead-containing green paint on the interior piping of both buildings.

Photo 6

View of the possible lead-containing grey paint on the wood panels of both buildings.

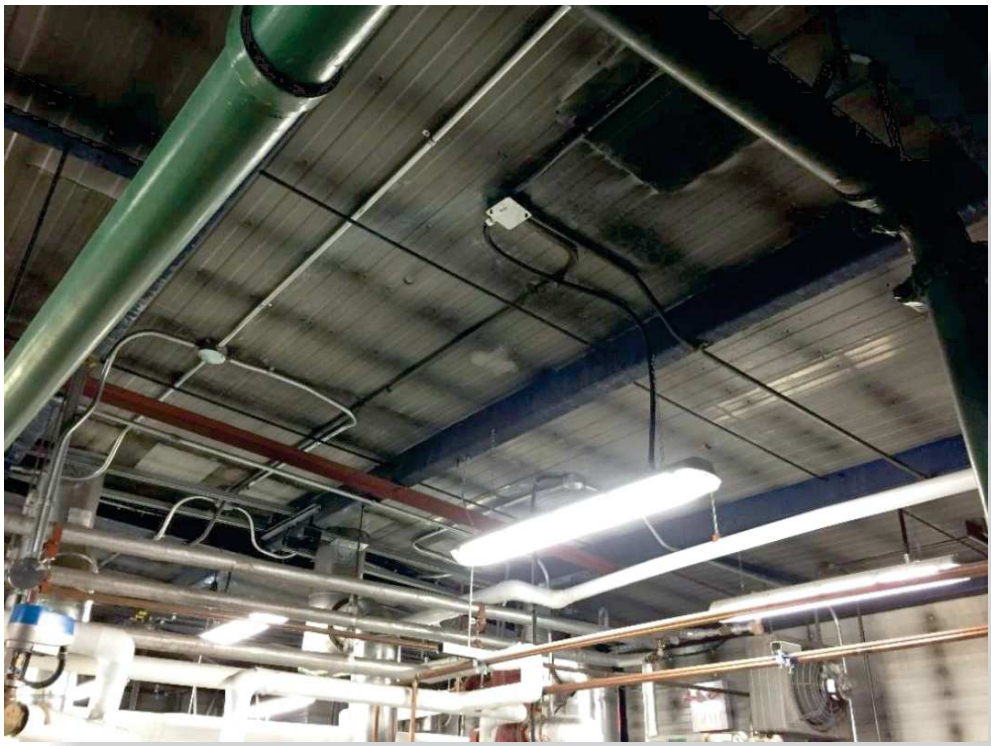

Photo 7

Typical fluorescent light fixtures.

Photo 8

View of the exterior fuel tank of Char Lake House Pump.

Photo 9

View of the exterior fuel tank of Signal Hill Water Treatment Plant.

APPENDIX B

ACM Abatement Work Procedure

ACM ABATEMENT
SIGNAL HILL WATER TREATMENT PLANT
RESOLUTE BAY, NUNAVUT

WORK PROCEDURE

WSCC Workers' Safety & Compensation Commission | ᐃᖃᓗᐃᔪᖏᑎᒍᓐ ᐊᑦᑕᕐᓯᒪᔪᑦ ᐊᒻᒪ ᓇᓕᓕᒃᓴᓕᓂᒃ ᖃᐅᔨᓴᖅᑎᑐᑦ

Workers' Safety and Compensation Commission
Qamutiq Building, 2nd Floor
630 Queen Elizabeth II Way, Box 669
Iqaluit, Nunavut X0A 0H0

June 29, 2020

O/Ref.: QE18-182-2

Qikiqtaaluk environmental
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ACM ABATEMENT
SIGNAL HILL WATER TREATMENT PLANT
RESOLUTE BAY, NUNAVUT

WORK PROCEDURE

Document prepared for:

Workers' Safety and Compensation Commission

Prepared and verified by:

Catalin Cenan, B.Sc.
Project Manager

Approved by:

Jennifer Godin
Director

Qikiqtaaluk environmental
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June 29, 2020

O/Ref.: QE18-182-2

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LIST OF APPENDICES

1. GENERAL INFORMATION

Qikiqtaaluk Environmental is pleased to present the enclosed procedure for the abatement of ACMs[1] contained in the Signal Hill Water Treatment Plant building, located in Resolute Bay, Nunavut.

Location:	Signal Hill Water Treatment Plant building
Start Date:	July 1, 2020
Client Contact:	Mr. Gordon Paterson – Civil Eng Telephone: 844 636-3550 E-mail: gpaterson@towergroup.ca
Project Manager:	Mr. Catalin Cenan, B.Sc. Telephone: 867 222-8194 Email: ccenan@qenv.ca
Field Crew:	Mr. Daniel Blais, Asbestos Remediation Specialist Mr. Raphael Gagnon, Asbestos Remediation Specialist Mr. Catalin Cenan, Asbestos Remediation Specialist
Asbestos Risk Level:	**LOW**

Asbestos remediation certification is presented in Appendix A.

1 Asbestos-containing materials

2. PERSONAL PROTECTIVE EQUIPMENT

The following specialized PPE[1] shall be worn by the asbestos remediation specialists and labourers:

General:

- Steel-toe boots;
- Work gloves;
- Long sleeve shirt; and
- Pants.

Specialized:

- Disposable coveralls (Tyvek®);
- Full-face mask equipped with P100 cartridges;
- Surgical-type nitrile gloves.

1 Personal protective equipment

3. EMERGENCY RESPONSE INSTRUCTIONS

3.1 Medical Emergency

In the event of a medical emergency, the primary medical emergency contact is the Resolute Bay Health Centre 867 979-3844.

The following steps shall be followed in the event of a medical emergency:

1. Secure area;
2. If time and the situation permit, quickly vacuum the injured person to remove any loose fibres;
3. Remove Tyvek® coverall (cut with scissors, if necessary) and gloves and discard in a bag for asbestos waste;
4. Wash face with water or wet wipes and remove respirator; discard in a bag and seal the bag;
5. If possible, exit the work area;
6. Proceed with first aid procedures and/or transport to Health Centre and/or call Emergency Services Dispatch for assistance;
7. If necessary, medical assessment will be coordinated through the Health Centre or hospital.

3.2 Fire Emergency

In the event of a fire emergency, the fire emergency contact is RCMP 867-252-1111.

The following steps should be followed in the event of a fire emergency:

1. If safe to do so, decontaminate before leaving the work area;
2. Evacuate to the muster area.

4. WORK PROCEDURE

4.1 General Description of the Project

4.1.1 Low-Risk Asbestos Abatement

The project will involve the removal of asbestos-containing black non-friable firestop putty present around a few wall penetrations caused by the running of by power lines. No power tools or abrasive methods will be used during the abatement. A decontamination facility will be constructed adjacent to the work area for workers to dress, and for asbestos debris to be removed from the work area.

The analytical results are presented in Appendix B.

4.2 Equipment and Supplies

The following equipment and supplies will be used during the asbestos abatement work:

- Vacuum cleaner equipped with a HEPA[1] filter;
- Rolls of 6 mil polyethylene sheeting;
- Manual cutting tools, duct tape and/or Tuck tape;
- Manual scraper and/or abrasive pad and/or wire brush;
- 6 mil labelled asbestos disposal bags;
- Hand pump garden sprayer;
- Water (for fibre abatement and wash-up);
- Rags and wet wipes;
- Stepladder;
- First-aid kit, fire extinguisher;
- Barricades, cones and/or "danger tape" and warning signs to secure work zone;
- PPE as per Section 2.

4.3 Site Preparation

Before beginning the work, the area will be cordoned off as an Asbestos Work Area to separate it from the surrounding areas using barricades or fencing or other means:

- Signs will be posted in prominent areas around the work zone:
  - CAUTION ASBESTOS HAZARD AREA;
  - NO UNAUTHORIZED ENTRY;

1 High-efficiency particulate air

- WEAR ASSIGNED PROTECTIVE EQUIPMENT;
- BREATHING ASBESTOS DUST MAY CAUSE SERIOUS BODILY HARM;

- Ventilation systems to and from the work area will be shut down;
- The room being already empty, loose debris and dust on the work area floor will be cleaned using the vacuum cleaner equipped with a HEPA filter;
- The containment area will be installed using the polyethylene sheeting rolls and duct and/or Tuck tape. All ventilation openings, diffusers, grills, etc., in the proximity of the work area will be sealed using polyethylene sheeting and Tuck tape;
- A polyethylene drop sheet will be placed on the work area floor in a way that the drop sheet overlaps up the walls 1 foot from the floor. The drop sheet will be affixed to the wall using duct tape and/or Tuck tape.

4.4 Abatement Methodology

1. Cut the electrical wires surrounded by the black firestop putty;
2. Clean any loose asbestos debris on or around the area using the vacuum cleaner equipped with a HEPA filter;
3. Place a soaked rug over the ACM to be removed and tape it to reduce fibre dispersion;
4. Using metal scissors, gently cut the metal sheet around the plugged ACM hole keeping a minimum 0.2 m distance from the ACM;
5. Place the recently cut metal piece at the bottom of a bag then seal it with duct/Tuck Tape;
6. Visually inspect newly-exposed sections of wall to ensure they are free of asbestos;
7. Repeat these steps for each place where the black putty is found.

4.5 Decontamination Procedures

Immediately upon completing the work:

1. Clean dust and waste using the vacuum cleaner, by wet sweeping or by damp mopping;
2. The stepladder and all tools used must be washed and/or wet-wiped before being removed from the containment area;
3. Drop sheets and polyethylene sheeting rolls used for containment must be wetted, folded in on themselves and place in a labelled asbestos disposal bag.

Before leaving the work area:

1. Clean protective equipment and clothing before removal from the work area using the vacuum cleaner, a damp cloth or wet wipes;
2. Place disposed protective clothing (Tyvek® coverall) in a labelled asbestos disposal bag and seal the bag;

3. Clean the external surfaces of the sealed asbestos disposal bag using the vacuum cleaner equipped with a HEPA filter and/or wet-wiping;
4. Wash all exposed skin surfaces prior to removing the respirator. Wipe the respirator clean;
5. Remove the asbestos waste disposal bag from the work area.

4.6 Disposal

Bags containing ACMs will be stored in a locked intermodal container with proper asbestos warning labels and proper protection in Resolute Bay until marine transport to the Province of Quebec for disposal at an authorized facility.

APPENDIX A

Asbestos Remediation Certification

RETAIN THIS CARD PORTION AND STORE IN A SAFE PLACE
DÉTACHEZ CETTE SECTION ET METTEZ-LA EN LIEU SÛR

Ontario Ministry of Training, Colleges and Universities / Ministère de la Formation et des Collèges et Universités

COMPLETION CERTIFICATE / CERTIFICAT D'ACHÈVEMENT

SURNAME AND INITIALS NOM ET INITIALES
Catalin Cenan

IDENTIFICATION NO. N° D'IDENTITÉ: 2832197
COMPLETION CERTIFICATE NO. N° DU CERTIFICAT: C25982

RETAIN THIS CARD PORTION AND STORE IN A SAFE PLACE
DÉTACHEZ CETTE SECTION ET METTEZ-LA EN LIEU SÛR

Ontario Ministry of Training, Colleges and Universities / Ministère de la Formation et des Collèges et Universités

IDENTIFICATION NO. N° D'IDENTITÉ: 2832197
COMPLETION CERTIFICATE NO. N° DU CERTIFICAT: C25982

Catalin Cenan
2962 DE LA RENAISSANCE AV
BOISBRIAND QC J7H 1T9

Asbestos Abatement Supervisor

ISSUE DATE / DATE D'EFFET: 12-12-2015

2832197 — IDENTIFICATION NO. N° D'IDENTITÉ
COMPLETION CERTIFICATE NO. N° DU CERTIFICAT D'ACHÈVEMENT: C25982

Ontario Ministry of Training, Colleges and Universities / Ministère de la Formation et des Collèges et Universités

COMPLETION CERTIFICATE / CERTIFICAT D'ACHÈVEMENT

Name / Nom	Catalin Cenan
Completion Certificate No. / N° du certificat d'achèvement	C25982 Asbestos Abatement Supervisor
Issue Date / Date d'effet	12-12-2015

2832197 — IDENTIFICATION NO. N° D'IDENTITÉ
COMPLETION CERTIFICATE NO. N° DU CERTIFICAT D'ACHÈVEMENT: C25982

RETAIN THIS CARD PORTION AND STORE IN A SAFE PLACE
DÉTACHEZ CETTE SECTION ET METTEZ-LA EN LIEU SÛR

Ontario Ministry of Training, Colleges and Universities / Ministère de la Formation et des Collèges et Universités

COMPLETION CERTIFICATE / CERTIFICAT D'ACHÈVEMENT

SURNAME AND INITIALS NOM ET INITIALES
Catalin Cenan

IDENTIFICATION NO. N° D'IDENTITÉ: 2832197
COMPLETION CERTIFICATE NO. N° DU CERTIFICAT: C25902

RETAIN THIS CARD PORTION AND STORE IN A SAFE PLACE
DÉTACHEZ CETTE SECTION ET METTEZ-LA EN LIEU SÛR

Ontario Ministry of Training, Colleges and Universities / Ministère de la Formation et des Collèges et Universités

IDENTIFICATION NO. N° D'IDENTITÉ: 2832197
COMPLETION CERTIFICATE NO. N° DU CERTIFICAT: C25902

Catalin Cenan
2962 DE LA RENAISSANCE AV
BOISBRIAND QC J7H 1T9

Asbestos Abatement Worker

ISSUE DATE / DATE D'EFFET: 14-11-2015

2832197 — IDENTIFICATION NO. N° D'IDENTITÉ
COMPLETION CERTIFICATE NO. N° DU CERTIFICAT D'ACHÈVEMENT: C25902

Ontario Ministry of Training, Colleges and Universities / Ministère de la Formation et des Collèges et Universités

COMPLETION CERTIFICATE / CERTIFICAT D'ACHÈVEMENT

Name / Nom	Catalin Cenan
Completion Certificate No. / N° du certificat d'achèvement	C25902 Asbestos Abatement Worker
Issue Date / Date d'effet	14-11-2015

2832197 — IDENTIFICATION NO. N° D'IDENTITÉ
COMPLETION CERTIFICATE NO. N° DU CERTIFICAT D'ACHÈVEMENT: C25902

Ontario

Ministry of Training, Colleges and Universities
Ministère de la Formation et des Collèges et Universités

COMPLETION CERTIFICATE
CERTIFICAT D'ACHÈVEMENT

Name / Nom: Daniel Blais

Completion Certificate No. / N° du certificat d'achèvement: C19123

Contremaître des travaux de désamiantage

Issue Date / Date d'effet: 16-07-2011

2591365 — IDENTIFICATION NO. N° D'IDENTITE

COMPLETION CERTIFICATE NO. / N° DU CERTIFICAT D'ACHÈVEMENT C19123

Ontario

Ministry of Training, Colleges and Universities
Ministère de la Formation et des Collèges et Universités

COMPLETION CERTIFICATE
CERTIFICAT D'ACHÈVEMENT

Name / Nom: Daniel Blais

Completion Certificate No. / N° du certificat d'achèvement: C18904

Désamianteur(euse)

Issue Date / Date d'effet: 25-06-2011

2591365 — IDENTIFICATION NO. N° D'IDENTITE

COMPLETION CERTIFICATE NO. / N° DU CERTIFICAT D'ACHÈVEMENT C18904

RETAIN THIS CARD PORTION AND STORE IN A SAFE PLACE
DÉTACHEZ CETTE SECTION ET METTEZ-LA EN LIEU SÛR

Ontario
Ministry of Training, Colleges and Universities
Ministère de la Formation et des Collèges et Universités

IDENTIFICATION NO. / N° D'IDENTITÉ	COMPLETION CERTIFICATE NO. / N° DU CERTIFICAT
2915093	C28369

Ontario
Ministry of Training, Colleges and Universities
Ministère de la Formation et des Collèges et Universités

COMPLETION CERTIFICATE
CERTIFICAT D'ACHÈVEMENT

Name / Nom: Raphael Gagnon

Completion Certificate No. / N° du certificat d'achèvement: C28369

Issue Date / Date d'effet: Contremaître des travaux de désamiantage
30-12-2017

2915093 IDENTIFICATION NO. / N° D'IDENTITÉ	COMPLETION CERTIFICATE NO. / N° DU CERTIFICAT D'ACHÈVEMENT: C28369

RETAIN THIS CARD PORTION AND STORE IN A SAFE PLACE
DÉTACHEZ CETTE SECTION ET METTEZ-LA EN LIEU SÛR

Ontario
Ministry of Training, Colleges and Universities
Ministère de la Formation et des Collèges et Universités

IDENTIFICATION NO. / N° D'IDENTITÉ	COMPLETION CERTIFICATE NO. / N° DU CERTIFICAT
2915093	C28335

Ontario
Ministry of Training, Colleges and Universities
Ministère de la Formation et des Collèges et Universités

COMPLETION CERTIFICATE
CERTIFICAT D'ACHÈVEMENT

Name / Nom: Raphael Gagnon

Completion Certificate No. / N° du certificat d'achèvement: C28335

Issue Date / Date d'effet: Désamianteur(euse)
16-12-2017

2915093 IDENTIFICATION NO. / N° D'IDENTITÉ	COMPLETION CERTIFICATE NO. / N° DU CERTIFICAT D'ACHÈVEMENT: C28335

APPENDIX B

Analytical Results

PARACEL LABORATORIES LTD.

Order #: 1911021

Certificate of Analysis

Report Date: 12-Mar-2019

Client: exp Services Inc. (Ottawa)

Order Date: 11-Mar-2019

Client PO:

Project Description: OTT00206333-B

Asbestos, PLM Visual Estimation **MDL - 1.0%**

Paracel ID	Sample Date	Colour	Description	Asbestos Detected	Material Identification	% Content
1911021-01	06-Mar-19	Black	Putty	No	**Client ID: CL-AS-1a**	
					Cellulose	5
					Non-Fibers	95
1911021-02	06-Mar-19	Black	Putty	No	**Client ID: CL-AS-1b**	
					Cellulose	5
					Non-Fibers	95
1911021-03	06-Mar-19	Black	Putty	No	**Client ID: CL-AS-1c**	
					Cellulose	5
					Non-Fibers	95
1911021-04	06-Mar-19	Black	Putty	**Yes**	**Client ID: SH-AS-1a**	
					Chrysotile	10
					Non-Fibers	90
1911021-05	06-Mar-19				**Client ID: SH-AS-1b**	
					not analyzed	
1911021-06	06-Mar-19				**Client ID: SH-AS-1c**	
					not analyzed	

** Analytes in bold indicate asbestos mineral content.

Analysis Summary Table

Analysis	Method Reference/Description	Lab Location	NVLAP Lab Code *	Analysis Date
Asbestos, PLM Visual Estimation	by EPA 600/R-93/116	- Ottawa West Lal	200812-0	11-Mar-19

* Reference to the NVLAP term does not permit the user of this report to claim product certification , approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Work Order Revisions | Comments

None

APPENDIX C

Lead Abatement Work Procedure

LEAD-CONTAINING MATERIALS ABATEMENT CHAR LAKE PUMP HOUSE AND SIGNAL HILL WATER TREATMENT PLANT RESOLUTE BAY, NUNAVUT

WORK PROCEDURE

Tower Arctic Ltd.
P.O. Box 717
Iqaluit, Nunavut X0A 0H0

July 2, 2020

O/Ref.: QE18-182-2

Qikiqtaaluk environmental
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LEAD-CONTAINING MATERIALS ABATEMENT CHAR LAKE PUMP HOUSE AND SIGNAL HILL WATER TREATMENT PLANT RESOLUTE BAY, NUNAVUT

WORK PROCEDURE

Document prepared for:

TOWER ARCTIC LTD.

Prepared and verified by

Catalin Cenan, B.Sc.
Project Manager

Approved by:

Jennifer Godin
Director

Qikiqtaaluk environmental
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July 2, 2020

O/Ref.: QE18-182-2

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1. GENERAL INFORMATION

Qikiqtaaluk Environmental (QE) is pleased to present the following procedure for the abatement of lead-containing painted materials found in the Char Lake Pump House and Signal Hill Water Treatment Plant building, located in Resolute Bay, Nunavut.

Location:	Signal Hill Water Treatment Plant building
Start Date:	June 25, 2020
Client Contact:	Mr. Gordon Paterson – Civil Eng Telephone: 844-636-3550 E-mail: gpaterson@towergroup.ca
Project Manager:	Mr. Catalin Cenan, B.Sc. Telephone: 867 222-8194 Email: ccenan@qenv.ca
Field Crew:	Mr. Daniel Blais, Asbestos Remediation Specialist Mr. Raphael Gagnon, Asbestos Remediation Specialist Mr. Catalin Cenan, Asbestos Remediation Specialist
Lead Risk Level:	**LOW**

Worker certifications are presented in Appendix A, whereas the Certificates of Analysis are presented in Appendix B.

2. PERSONAL PROTECTIVE EQUIPMENT

The following specialized PPE[1] shall be worn by the asbestos remediation specialists and labourers:

General:

- Steel-toe boots;
- Work gloves;
- Long sleeve shirt; and
- Pants.

Specialized:

- Disposable coveralls (Tyvek®);
- Full-face mask equipped with P100 cartridges;
- Surgical-type nitrile gloves.

1 Personal protective equipment

3. EMERGENCY RESPONSE INSTRUCTIONS

3.1 Medical Emergency

In the event of a medical emergency, the primary medical emergency contact is Resolute Bay Health Centre at 867 979-3844.

The following steps should be followed in the event of a medical emergency:

1. Secure the area;
2. If time and the situation permit, quickly vacuum the injured person to remove any loose fibres;
3. Remove Tyvek® coverall (cut with scissors, if necessary) and gloves and discard in a bag for lead waste;
4. Wash face with water or wet wipes and remove respirator; discard in a bag and seal the bag;
5. If possible, exit the work area;
6. Proceed with first aid procedures and/or transport to Health Centre and/or call Emergency Services Dispatch for assistance;
7. If necessary, a medical assessment will be coordinated through the Health Centre or hospital.

3.2 Fire Emergency

In the event of a fire, the fire contact is the RCMP[1] at 867-252-1111.

The following steps will be followed in the event of a fire:

1. If it is safe to do so, decontaminate before leaving the work area;
2. Evacuate to the muster area.

1 Royal Canadian Mounted Police

4. WORK PROCEDURE

4.1 General Description of the Project

The present Work Procedure outlines the methodology used for the abatement of lead-containing materials as a part of the decommissioning work performed by Tower Arctic Ltd. (Tower) and QE at the Char Lake Pump House ("Char Lake") and Signal Hill Water Treatment Plant ("Signal Hill") in Resolute Bay, Nunavut.

4.1.1 Lead-Based Paint General Information

Lead-based paints were commonly used in buildings built before 1960. Between 1960 and 1990, these paints continued to be used on the exterior walls of buildings, since they were very durable. According to the Government of Canada website, it is acceptable to leave lead-based paint alone, provided it is not chipping, flaking, or within reach of children who may ingest it. When not removed, an option would be to cover the lead-painted area with wallpaper, wallboard or panelling to provide extra security.

If lead-based paint is to be removed, it must be done by qualified individuals and following specific guidelines. In Nunavut, 2 different reference documents are used to regulate and provide guidance for best practices with regards to waste lead and lead-based paints. The GN DOE's[1] *Environmental Guideline for Waste Lead and Lead Paint*[2] provides information on the characteristics and possible effects of waste lead and lead paint on the environment and human health, and the WSCC's[3] *Working with Lead Guideline*[4] outlines the regulatory requirements concerning work involving lead.

According to the GN DoE *Environmental Guideline for Waste Lead and Lead Paint*, a threshold leachate value of 5.0 mg/L (5 ppm[5]) is used to determine whether lead-containing paint is considered to be hazardous waste. The leachate value for lead is obtained using the TCLP[6] analytical method. This type of testing can be avoided if the total lead concentration in the paint is so low that the regulatory limit of 5.0 mg/L is unlikely to be exceeded. Applying the "Rule of 20", waste paint can thus be considered non-hazardous when the total lead content is less than or equal to 100 µg/g (100 ppm). Paints with a total lead content above 100 µg/g are considered hazardous, unless a TCLP test confirms that the lead leachate value is below 5.0 mg/L.

In terms of work associated with lead removal, the Guideline concentration used to define paint as lead-containing is 5,000 ppm or 0.5%[7]. The analytical results revealed that the paint sample collected at the Site and analyzed for total lead content presented concentrations well below the 5,000 ppm threshold, thus below the limit value established for the protection of human health.

1 Government of Nunavut Department of Environment

2 The ICP guideline concentration used to define paint as lead-containing and hazardous to human health is 5,000 ppm or 0.5%. A threshold leachate value of 5.0 mg/L (5 ppm), using the TCLP method, is used to determine whether the lead-containing paint is considered to be hazardous waste. (Refer to Section 4.2 for more information). Environmental Guideline for Waste Lead and Lead Paint

3 Workers' Safety and Compensation Commission

4 Working with Lead Guideline

5 Parts per million

6 Toxicity characteristic leaching procedure

7 *Working with Lead Guideline Code of Practice*, WSCC, May 2017

4.1.2 Low Risk Lead-Containing Materials Abatement

The project will involve the removal of materials previously identified as containing lead.

Based on the ICP[1] analytical results, the following painted surfaces at the Site are to be considered as lead-based paints:

- CL-PS-05 (943 ppm): dark grey wooden backer board paint in both of the Char Lake and Signal Hill buildings;
- SH-ICP-01 (215 ppm): exterior blue paint, present on the exterior doors and the metal sheets of both buildings;
- SH-ICP-02 (838 ppm): green paint on the majority of uninsulated water pipes present in both buildings.

All 3 if these samples presented a total lead concentration above 100 ppm, and as such, in the absence of TCLP confirmatory results, will be considered hazardous to the environment, but not hazardous to human health.

Please note that the TCLP analytical results for CL-PS-05 and SH-ICP-01 are expected on July 3, 2020.

The grey floor paint presents very low lead concentrations, but is not considered hazardous to the environment or human health.

The analytical results are presented in the Appendix B.

4.2 Equipment and Supplies

The following equipment and supplies will be used during the asbestos abatement work:

- Vacuum cleaner equipped with a HEPA[2] filter;
- Rolls of 6 mil polyethylene sheeting;
- Manual cutting tools, duct tape and/or Tuck tape;
- Manual scraper and/or abrasive pad and/or wire brush;
- Hand pump garden sprayer;
- Rags and wet wipes;
- Stepladder;
- First-aid kit, fire extinguisher;
- Barricades, cones and/or “danger tape” and warning signs to secure the work area;
- PPE as per Section 2.

1 Inductively coupled plasma
2 High-efficiency particulate air

4.3 Site Preparation

4.3.1 Work Area

Before beginning the work, the area will be cordoned off as a Lead Work Area, to separate it from the surrounding areas, using barricades, fencing, or other means. Tower will clearly identify the Muster Area. The following warning signs will be posted:

- CAUTION LEAD DUST HAZARD;
- AVOID BREATHING DUST;
- WEAR ASSIGNED PERSONAL PROTECTIVE EQUIPMENT;
- ENTRY IS PROHIBITED EXCEPT TO AUTHORIZED PERSONS;
- EATING, DRINKING AND SMOKING ARE PROHIBITED IN THIS AREA.

4.3.2 Prior to Abatement

The following Site preparation activities will be completed prior to beginning any abatement work:

- Shut down all air ventilation systems within the work area;
- Lock-out and isolate all electrical and mechanical equipment within the work area;
- Electrical power for abatement is to be supplied through an electrical source equipped with a GFCI[1].

4.4 Abatement Methodology

4.4.1 Lead-Containing Dust/Materials

1. Secure the work area – position barricades/cones/tape/warning signs at points where access is restricted until the work is complete, and clearly mark the boundaries of the work area;
2. Clean up all visible dust on work surfaces using the vacuum cleaner equipped with a HEPA filter;
3. Place polyethylene drop sheets to prevent the spread of lead dust to other areas of the building;
4. Wet surfaces to reduce the release of lead during removal;
5. Remove materials by using hand tools, wetting the removed pieces, and placing them in labelled lead disposal bags; lead waste will not be allowed to accumulate or dry out before bagging;
6. Visually inspect the work area to ensure it is free of any lead-containing dust.

1 Ground-fault current interruptor

4.5 Decontamination Procedure

4.5.1 Work Area

Immediately upon completing the work, in the work area:

1. Clean dust and waste using the vacuum cleaner, by wet sweeping or by damp mopping;
2. All tools used must be washed and/or wet-wiped before being removed from the work area;
3. Any drop sheets used will be wetted, folded in on themselves to contain dust, and properly bagged as lead-containing waste;
4. Workers will visually inspect each other for presence of dust or lead dust on coveralls;
5. Clean PPE and coverall using a vacuum equipped with a HEPA filter, a damp cloth or wet wipes. Workers will spray each other with water prior to exiting the work area;
6. Proceed to the Decontamination Room.

4.5.2 Clean Area

1. Remove respirator and rewash face and respirator using wet wipes;
2. Store and secure bags in the lead waste container.

4.6 Disposal

Bags containing lead waste will be stored in a locked marine container with proper warning labels and protection on-site, and then transported to the province of Quebec for disposal at an authorized facility.

APPENDIX A

Worker Certifications

RETAIN THIS CARD PORTION AND STORE IN A SAFE PLACE
DÉTACHEZ CETTE SECTION ET METTEZ-LA EN LIEU SÛR

Ontario Ministry of Training, Colleges and Universities / Ministère de la Formation et des Collèges et Universités

COMPLETION CERTIFICATE / CERTIFICAT D'ACHÈVEMENT

SURNAME AND INITIALS NOM ET INITIALES
Catalin Cenan

IDENTIFICATION NO. N° D'IDENTITÉ: 2832197
COMPLETION CERTIFICATE NO. N° DU CERTIFICAT: C25982

RETAIN THIS CARD PORTION AND STORE IN A SAFE PLACE
DÉTACHEZ CETTE SECTION ET METTEZ-LA EN LIEU SÛR

Ontario Ministry of Training, Colleges and Universities / Ministère de la Formation et des Collèges et Universités

IDENTIFICATION NO. N° D'IDENTITÉ: 2832197
COMPLETION CERTIFICATE NO. N° DU CERTIFICAT: C25982

Catalin Cenan
2962 DE LA RENAISSANCE AV
BOISBRIAND QC J7H 1T9

Asbestos Abatement Supervisor

ISSUE DATE / DATE D'EFFET: 12-12-2015

2832197 — IDENTIFICATION NO. N° D'IDENTITÉ
COMPLETION CERTIFICATE NO. N° DU CERTIFICAT D'ACHÈVEMENT: C25982

Ontario Ministry of Training, Colleges and Universities / Ministère de la Formation et des Collèges et Universités

COMPLETION CERTIFICATE / CERTIFICAT D'ACHÈVEMENT

Name / Nom	Catalin Cenan
Completion Certificate No. / N° du certificat d'achèvement	C25982 Asbestos Abatement Supervisor
Issue Date / Date d'effet	12-12-2015

2832197 — IDENTIFICATION NO. N° D'IDENTITÉ
COMPLETION CERTIFICATE NO. N° DU CERTIFICAT D'ACHÈVEMENT: C25982

RETAIN THIS CARD PORTION AND STORE IN A SAFE PLACE
DÉTACHEZ CETTE SECTION ET METTEZ-LA EN LIEU SÛR

Ontario Ministry of Training, Colleges and Universities / Ministère de la Formation et des Collèges et Universités

COMPLETION CERTIFICATE / CERTIFICAT D'ACHÈVEMENT

SURNAME AND INITIALS NOM ET INITIALES
Catalin Cenan

IDENTIFICATION NO. N° D'IDENTITÉ: 2832197
COMPLETION CERTIFICATE NO. N° DU CERTIFICAT: C25902

RETAIN THIS CARD PORTION AND STORE IN A SAFE PLACE
DÉTACHEZ CETTE SECTION ET METTEZ-LA EN LIEU SÛR

Ontario Ministry of Training, Colleges and Universities / Ministère de la Formation et des Collèges et Universités

IDENTIFICATION NO. N° D'IDENTITÉ: 2832197
COMPLETION CERTIFICATE NO. N° DU CERTIFICAT: C25902

Catalin Cenan
2962 DE LA RENAISSANCE AV
BOISBRIAND QC J7H 1T9

Asbestos Abatement Worker

ISSUE DATE / DATE D'EFFET: 14-11-2015

2832197 — IDENTIFICATION NO. N° D'IDENTITÉ
COMPLETION CERTIFICATE NO. N° DU CERTIFICAT D'ACHÈVEMENT: C25902

Ontario Ministry of Training, Colleges and Universities / Ministère de la Formation et des Collèges et Universités

COMPLETION CERTIFICATE / CERTIFICAT D'ACHÈVEMENT

Name / Nom	Catalin Cenan
Completion Certificate No. / N° du certificat d'achèvement	C25902 Asbestos Abatement Worker
Issue Date / Date d'effet	14-11-2015

2832197 — IDENTIFICATION NO. N° D'IDENTITÉ
COMPLETION CERTIFICATE NO. N° DU CERTIFICAT D'ACHÈVEMENT: C25902

Ontario

Ministry of Training, Colleges and Universities
Ministère de la Formation et des Collèges et Universités

COMPLETION CERTIFICATE
CERTIFICAT D'ACHÈVEMENT

Name / Nom: Daniel Blais

Completion Certificate No. / N° du certificat d'achèvement: C19123

Contremaître des travaux de désamiantage

Issue Date / Date d'effet: 16-07-2011

2591365 — IDENTIFICATION NO. N° D'IDENTITE

COMPLETION CERTIFICATE NO. / N° DU CERTIFICAT D'ACHÈVEMENT C19123

Ontario

Ministry of Training, Colleges and Universities
Ministère de la Formation et des Collèges et Universités

COMPLETION CERTIFICATE
CERTIFICAT D'ACHÈVEMENT

Name / Nom: Daniel Blais

Completion Certificate No. / N° du certificat d'achèvement: C18904

Désamianteur(euse)

Issue Date / Date d'effet: 25-06-2011

2591365 — IDENTIFICATION NO. N° D'IDENTITE

COMPLETION CERTIFICATE NO. / N° DU CERTIFICAT D'ACHÈVEMENT C18904

RETAIN THIS CARD PORTION AND STORE IN A SAFE PLACE
DÉTACHEZ CETTE SECTION ET METTEZ-LA EN LIEU SÛR

Ontario
Ministry of Training, Colleges and Universities
Ministère de la Formation et des Collèges et Universités

IDENTIFICATION NO. / N° D'IDENTITÉ	COMPLETION CERTIFICATE NO. / N° DU CERTIFICAT
2915093	C28369

Ontario
Ministry of Training, Colleges and Universities
Ministère de la Formation et des Collèges et Universités

COMPLETION CERTIFICATE
CERTIFICAT D'ACHÈVEMENT

Name / Nom: Raphael Gagnon

Completion Certificate No. / N° du certificat d'achèvement: C28369

Issue Date / Date d'effet: Contremaître des travaux de désamiantage
30-12-2017

2915093 IDENTIFICATION NO. / N° D'IDENTITÉ	COMPLETION CERTIFICATE NO. / N° DU CERTIFICAT D'ACHÈVEMENT: C28369

RETAIN THIS CARD PORTION AND STORE IN A SAFE PLACE
DÉTACHEZ CETTE SECTION ET METTEZ-LA EN LIEU SÛR

Ontario
Ministry of Training, Colleges and Universities
Ministère de la Formation et des Collèges et Universités

IDENTIFICATION NO. / N° D'IDENTITÉ	COMPLETION CERTIFICATE NO. / N° DU CERTIFICAT
2915093	C28335

Ontario
Ministry of Training, Colleges and Universities
Ministère de la Formation et des Collèges et Universités

COMPLETION CERTIFICATE
CERTIFICAT D'ACHÈVEMENT

Name / Nom: Raphael Gagnon

Completion Certificate No. / N° du certificat d'achèvement: C28335

Issue Date / Date d'effet: Désamianteur(euse)
16-12-2017

2915093 IDENTIFICATION NO. / N° D'IDENTITÉ	COMPLETION CERTIFICATE NO. / N° DU CERTIFICAT D'ACHÈVEMENT: C28335

APPENDIX B

Certificates of Analysis

CADUCEON ENVIRONMENTAL LABORATORIES
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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: ---

REPORT No. B20-15610

Report To:

Qikiqtaaluk Env Inc
9935, rue de Chateauneuf, Entrée 1
Brossard Quebec J4Z 3V4 Canada
Attention: Catalin Cenan

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa Ontario K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 08-Jun-20
DATE REPORTED: 10-Jun-20
SAMPLE MATRIX: Paint Chips

JOB/PROJECT NO.: Tower-Resolute-QE182-2
P.O. NUMBER: 30003155 - Silent Hill, NU
WATERWORKS NO.

	Parameter		Lead				
	Units		µg/g				
	R.L.		5				
	Reference Method		EPA 6010				
	Date Analyzed/Site		10-Jun-20/O				
Client I.D.	**Sample I.D.**	**Date Collected**					
SH-ICP-01 Blue Paint Chips	B20-15610-1	10-Nov-19	215				
SH-ICP-02 Green Paint Chips	B20-15610-2	10-Nov-19	838				

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

CADUCEON ENVIRONMENTAL LABORATORIES
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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: ---

REPORT No. B20-15611

Report To:

Qikiqtaaluk Env Inc
9935, rue de Chateauneuf, Entrée 1
Brossard Quebec J4Z 3V4 Canada
Attention: Catalin Cenan

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa Ontario K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 08-Jun-20
DATE REPORTED: 10-Jun-20
SAMPLE MATRIX: Surface Water

JOB/PROJECT NO.: Tower-Resolute-QE182-2
P.O. NUMBER: 30003155 - Silent Hill, NU
WATERWORKS NO.

Parameter	Qty	Site Analyzed	Analyst Initials	Date Analyzed	Lab Method	Reference Method
Metals - ICP-OES	1	Holly Lane	TPR	10-Jun-20	D-ICP-01 (o)	SM 3120

O. Reg. 558 - O. Reg. 558
Schedule 4 - Schedule 4 - Leachate Toxic Criteria

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: ---

REPORT No. B20-15611

Report To:

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Brossard Quebec J4Z 3V4 Canada
Attention: Catalin Cenan

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa Ontario K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 08-Jun-20
DATE REPORTED: 10-Jun-20
SAMPLE MATRIX: Surface Water

JOB/PROJECT NO.: Tower-Resolute-QE182-2
P.O. NUMBER: 30003155 - Silent Hill, NU
WATERWORKS NO.

	Client I.D.		SH-TCLP-02 Light Grey on Concrete				O. Reg. 558 Schedule 4	
	Sample I.D.		B20-15611-1					
	Date Collected		10-Nov-19					
Parameter	**Units**	**R.L.**						
Lead	mg/L	0.02	< 0.02				5.0	

O. Reg. 558 - O. Reg. 558
Schedule 4 - Schedule 4 - Leachate Toxic Criteria

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: ---

REPORT No. B20-15611

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Brossard Quebec J4Z 3V4 Canada
Attention: Catalin Cenan

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa Ontario K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 08-Jun-20
DATE REPORTED: 10-Jun-20
SAMPLE MATRIX: Surface Water

JOB/PROJECT NO.: Tower-Resolute-QE182-2
P.O. NUMBER: 30003155 - Silent Hill, NU
WATERWORKS NO.

Summary of Exceedances

O. Reg. 558 - O. Reg. 558
Schedule 4 - Schedule 4 - Leachate Toxic Criteria

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

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www.paracellabs.com

Certificate of Analysis

exp Services Inc. (Ottawa)

100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Carl Hentschel

Client PO:
Project: OTT000206333B
Custody: 47000

Report Date: 12-Mar-2019
Order Date: 11-Mar-2019

Order #: 1911042

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

Paracel ID	Client ID
1911042-01	CL-PS-1
1911042-02	CL-PS-2
1911042-03	CL-PS-3
1911042-04	CL-PS-4
1911042-05	CL-PS-5
1911042-06	SH-PS-1
1911042-07	SH-PS-2
1911042-08	SH-PS-3
1911042-09	SH-PS-4

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis
Client: exp Services Inc. (Ottawa)
Client PO:

Report Date: 12-Mar-2019
Order Date: 11-Mar-2019
Project Description: OTT000206333B

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Metals, ICP-OES	based on MOE E3470, ICP-OES	12-Mar-19	12-Mar-19

Sample and QC Qualifiers Notes

2- GEN01 :Elevated Reporting Limits due to limited sample volume.
1- Gen-19 :Complete separation of paint from substrate not possible for this sample and a small amount of substrate has been included in the paint digestion.

Sample Data Revisions

None

Work Order Revisions/Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.

Certificate of Analysis
Client: exp Services Inc. (Ottawa)
Client PO:

Report Date: 12-Mar-2019
Order Date: 11-Mar-2019
Project Description: OTT000206333B

Sample Results

Lead

Matrix: Paint
Sample Date: 06-Mar-19

Paracel ID	Client ID	Units	MDL	Result
1911042-01	CL-PS-1	ug/g	20	<400 [2]
1911042-02	CL-PS-2	ug/g	20	1390
1911042-03	CL-PS-3	ug/g	20	88 [1]
1911042-04	CL-PS-4	ug/g	20	<20 [1]
1911042-05	CL-PS-5	ug/g	20	943 [1]
1911042-06	SH-PS-1	ug/g	20	906
1911042-07	SH-PS-2	ug/g	20	<20 [1]
1911042-08	SH-PS-3	ug/g	20	1140
1911042-09	SH-PS-4	ug/g	20	<667 [2]

Laboratory Internal QA/QC

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Matrix Blank									
Lead	**ND**	**20**	**ug/g**						
Matrix Duplicate									
Lead	**728**	**20**	**ug/g**	**711**			**2.4**	**30**	
Matrix Spike									
Lead	632		ug/L	355	111	70-130			

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2027 Iqaluit Lane
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Iqaluit, Nunavut X0A 0H0

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Brossard, Quebec J4Z 3V4

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