

**2025 ANNUAL REPORT  
FOR THE MUNICIPALITY OF RESOLUTE BAY**

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**YEAR BEING REPORTED: 2025**

The following information is compiled pursuant to the requirements of Part B, Item 1 of Water Licence No. **3BM-RES2025** issued to the **Municipality of Resolute Bay**.

Below are tabular summaries of data generated under the “Monitoring Program”.

**I. Estimated Monthly and annual quantities of hazardous and bulky waste disposed.**

**Table 1:** Summary of hazardous and bulky waste disposed of at the Solid Waste Facilities in m<sup>3</sup>.

<b>Month Reported</b>	<b>Quantity of Hazardous Waste Disposed (m<sup>3</sup>)</b>	<b>Quantity of Bulky Waste – Metals and Wood Disposed (m<sup>3</sup>)</b>	<b>Quantity of Soil Disposed (m<sup>3</sup>)</b>
<b>January</b>	0.27	244.98	0
<b>February</b>	0.27	244.98	0
<b>March</b>	0.27	244.98	0
<b>April</b>	0.27	244.98	0
<b>May</b>	0.27	244.98	0
<b>June</b>	0.27	244.98	0
<b>July</b>	0.27	244.98	0
<b>August</b>	0.27	244.98	0
<b>September</b>	0.27	244.98	0
<b>October</b>	0.27	244.98	0
<b>November</b>	0.27	244.98	0
<b>December</b>	0.27	244.98	0
<b>ANNUAL TOTAL</b>	3.25	2,939.81	0

**Note:** The purpose of this Licence is the deposit of waste; there is no authorized water use

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**II. A summary of modifications and/or major maintenance work carried out on the Water Supply and Waste Disposal Facilities, including all associated structures and facilities:**

No modifications or major maintenance work was carried out in 2025.

**III. A list of unauthorized discharges and summary of follow-up action taken:**

There were no authorized discharges associated with the licenced infrastructure in 2025.

**IV. A summary of any abandonment and restoration work completed during the year and an outline of any work anticipated for the next year:**

No abandonment and restoration work was completed in 2025. None anticipated in 2026.

**V. Updates or revisions to the approved Operation and Maintenance Plans:**

No updates or revisions were made to the Operation and Maintenance Plans in 2025; however, in 2026, an application for amendment and renewal of the water licence for the new solid waste facility will be made at which point all Operation and Maintenance Plans will be updated and submitted for approval.

**VI. A summary of any studies requested by the Board that relate to waste disposal, water use or reclamation, and a brief description of any future studies planned:**

As part of the recent planning study that was completed in 2025, a new solid waste facility along with dedicated equipment for operation was recommended in order to bring operations in line with regulatory compliance. Upon commissioning of the new solid waste facility, the existing sites will be closed. The design will be started in 2026 and will be provided to the Board for approval.

**VII. Any other details on water use or waste disposal requested by the Board by November 1<sup>st</sup> of the year being reported:**

None requested by the Board.

**FOLLOW-UP REGARDING INSPECTION/COMPLIANCE CONCERNS:**

A CIRNAC Inspection was completed on July 6, 2025. As per the Inspector's Report (**Appendix A**), in order to comply with the water licence:

- Paint and oil cans will be moved to the hazardous waste section of the Solid Waste Disposal Facility
- Notification of open-burning 10 days prior will be provided to the CIRNAC Water Resource Officer
- A new water licence will be applied for in 2026

**ADDITIONAL INFORMATION THAT THE LICENSEE DEEMS USEFUL:**

None.

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**Appendices:**

**Appendix A: CIRNAC Inspection Report**

**Appendix B: Monitoring Program Sample Results**

- Certificate of Analysis – 25-07-16 (Landfill 1571-5)
- Certificate of Analysis – 25-07-16 (RES-02)
- Certificate of Analysis – 25-07-17 (RES-02)
- Certificate of Analysis – 25-07-18 (RES-01)
- Certificate of Analysis – 25-07-18 (RES-03)

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**Appendix A: CIRNAC Inspection Report**



# WATER LICENCE INSPECTION FORM

Original  
 Follow-Up Report

<b>Licensee</b>	<b>Licensee Representative</b>
Hamlet of Resolute Bay	Ian Dudla
<b>Licence No. / Expiry</b>	<b>Representative's Title</b>
3BM-RES2025	Regional Engineer
<b>Land / Other Authorizations</b>	<b>Land / Other Authorizations</b>
<b>Date of Inspection</b>	<b>Inspector</b>
July 10, 2024	Joseph Monteith
<b>Activities Inspected</b>	
<input type="checkbox"/> Camp <input type="checkbox"/> Drilling <input type="checkbox"/> Mining <input type="checkbox"/> Construction <input type="checkbox"/> Reclamation <input type="checkbox"/> Fuel Storage <input checked="" type="checkbox"/> Roads/Hauling <input checked="" type="checkbox"/> Other: Solid Waste Facility, Hazardous Waste Facility <input type="checkbox"/> Other:	

Conditions:	A- Acceptable	U-Unacceptable	C-Concern	NI-Not Inspected	NA- Not applicable
<b>PART:</b>				<b>Condition</b>	<b>Observation No.*</b>
A: SCOPE, DEFINITIONS AND ENFORCEMENT				A	
B: GENERAL CONDITIONS				C	
C: CONDITIONS APPLYING TO SECURITY				NI	
D: CONDITIONS APPLYING TO WATER USE				NI	
E: CONDITIONS APPLYING TO WASTE DISPOSAL AND MANAGEMENT				A	1-11
F: CONDITIONS APPLYING TO MODIFICATIONS				NI	
G: CONDITIONS APPLYING TO CONSTRUCTION				NI	
H: CONDITIONS APPLYING TO EMERGENCY RESPONSE AND CONTINGENCY PLANNING				A	
I: CONDITIONS APPLYING TO ABANDONMENT, RECLAMATION AND CLOSURE PLANNING				NA	
J: CONDITIONS APPLYING TO MONITORING				A	
SCHEDULES				A	
<i>* The observation number corresponds with specific comments provided below.</i>					
Samples taken by Inspector:		Location(s): Latitude: 74°43'01"N Longitude: 94°58'10"W			
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					

SECTION 1	<input type="checkbox"/> Comments (s. __)	<input type="checkbox"/> Non-Compliance with Act or Licence (s. __)	<input type="checkbox"/> Action Required (s. __)
<b>BACKGROUND</b>			
<p>There are three water licences for this community. The Hamlet of Resolute Bay was initially issued Licence 3BM-RES9699 for water use, sewage and solid waste disposal. In 2010, the Government of Nunavut, Community and Government Services (GN-CGS) was issued Licence 3BM-RUT1012, subsequently renewed in 2015 as 3BM-RUT1520 for the use of water and disposal of sewage through the Utilidor Systems. Currently, the Hamlet holds the expired Licence 3BM-RES9699 for the Hamlet's solid waste management. In 2003, the GN-CGS applied for and was issued the now expired Licence NWB3YRB0308, for the use of water and deposit of waste at the Hamlet's airport facility. Due to the delayed plans to refurbish the airport facilities (Licence No. 3BM-YRB0308), the Board decided to proceed and process the renewals for the Solid Waste Management Facility (Licence No. 3BM-RES9699) and the Utilidor System (Licence No. 3BM-RUT1520) independently.</p> <p>The new water license 3BM-RES2025, does not authorize the use of water. The license allows the deposit of waste. Effective March 30, 2020, expires on March 29, 2025. As of today, there has been no submission of an application to renew. The client is operating with an expired licence.</p> <p>The relevant facilities for this license includes the community bulk metal and hazardous waste facility, the new bulk metal facility located beyond the airport facilities and the burn and cap facility located along the coast of the community.</p>			
<b>Inspector Statement</b>			
On July 6, 2025, A Water Licence Inspection on 3BM-RES2025 was conducted by Water Resource Officer (WRO) Joseph Monteith at the Hamlet of Resolute Bay, Qikiqtani Region, Nunavut.			
<b>General Condition</b>			
On March 28, 2025 Richard Dwyer, Manager of Licensing, Nunavut Water Board, emailed WRO Monteith a copy of the Hamlet of Resolute Bay's 2024 Annual Report.			
<a href="https://public.nwb-oen.ca/registry/3%20MUNICIPAL/3B/3BM%20-%20Municipality/3BM-RES2025/3%20TECH/B%20GENERAL/2%20ANNUAL%20RPT/2024/">https://public.nwb-oen.ca/registry/3%20MUNICIPAL/3B/3BM%20-%20Municipality/3BM-RES2025/3%20TECH/B%20GENERAL/2%20ANNUAL%20RPT/2024/</a>			



**Solid Waste Facility 1 (by the beach)**

1. The Hamlet manages their domestic waste by burning and capping along the beach on the south side of the community approximately 206 metres from the high water mark of the ocean. The site doesn't appear to be lined, no signs of water flowing in and out of the facility. This site was active at the time of inspection (photo 2).
2. No minimum 10 day notice has been given to the inspector since April 2018 for open pit burning. On March 27, 2025 Ian Duda, int. CAO emailed WRO Monteith with a comment in regards to open burning. "please be advised that open pit burning of solid waste, such as organic waste and food packaging collected during each week, takes place at Solid Waste Facility 1 (by the beach) almost on a daily basis."
3. A caution sign was observed cautioning the public from dumping Hazardous Material, Metals, and Rubber Tires, and Tracks. Both signs in English and in Inuktitut m(photo 1).
4. No signs of water entering the facility, the site is on a sloped rocky beach (photo 2).
5. No signs of leachate leaving the facility. Slope downgrade of burn and cap steepens. Signs of past deposits capped.

**Metal Dump (Within Community)**

6. This site has mostly cleaned up except for contractor waste, and the hazardous waste storage facility(photo).
7. Water enters the site coming out from underground and migrating through the facility (photo 2).

**Hazardous Waste (within Community)**

8. The hazardous waste within the community is exposed to the elements. With most waste oil drums in a berm, with some hazardous waste outside of a berm.
9. Signs of leaks were observed on site at the time of the inspection (photo 3).

**Domestic Waste (4 km west of the community)**

10. Inside the new bulk metal Solid Waste Facility west of Resolute Bay (photo 3 & 4).
11. Battery, waste oil can observed exposed to the outside elements within the fenced area of the domestic waste facility (photos 5- 8).

<b>SECTION 2</b>	<input type="checkbox"/> <b>Comments</b>	<input type="checkbox"/> <b>Non-Compliance with Act or Licence</b>	<input checked="" type="checkbox"/> <b>Action Required</b>
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The items listed below are the action's required as summarized from above to ensure compliance:

- Consolidate all hazardous waste such as paint cans and oil cans in the Bulk Metal Solid Waste Facility and Domestic Solid Waste Facility, and store in the hazardous waste section of the Solid Waste Facility to be compliant with Part D: Item 4
- Notify the inspector 10 days ahead of a planned open pit burn by emailing Water Resource Officer Joseph Monteith at: [joseph.monteith@rcaanc-cirnac.gc.ca](mailto:joseph.monteith@rcaanc-cirnac.gc.ca). To be compliant with Part D:Item 3.
- Consult with neighbouring land owners on an agreement to mitigate the interaction of water on access to the new bulk metal solid waste facility, to be compliant with Part C: Item 2
- Apply for a water licence for deposit of waste as per 12(1) of the Nunavut Waters and Nunavut Surface Rights Tribunal Act.
- The Licensee is reminded to remain diligent to prevent wastes from entering water, and the environment.

<b>SECTION 3</b>	<input type="checkbox"/> <b>Comments</b>	<input checked="" type="checkbox"/> <b>Non-Compliance with Act or Licence</b>	<input type="checkbox"/> <b>Action Required</b>
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**Nunavut Water and Nunavut Surface Rights Tribunal Act**

**Deposit of waste**

**12 (1)** Subject to subsection (2) and except in accordance with the conditions of a licence, no person shall deposit or permit the deposit of waste

**(a)** in waters in Nunavut; or

**(b)** in any other place in Nunavut under conditions in which the waste, or any other waste that results from the deposit of that waste, may enter waters in Nunavut.

**Exceptions**

**(2)** Subsection (1) does not apply in respect of

**(a)** any unlicensed deposit of waste that is authorized by the regulations; or

**(b)** the deposit of waste in a national park

**Water Licence 3BM-RES2-25**

**Part D: Item 3**

The Licensee shall provide a minimum of ten (10) days' notice to an Inspector, of the intent to open burn municipal Waste

*in accordance with the Government of Nunavut's Environmental Guideline for the Burning and Incineration of Solid Waste (2012), at the designated location at the Solid Waste Facilities, including the details of the types and quantity of Waste to be burned, proposed dates, protocols to be followed, ultimate disposal of residual ash and the person responsible for the activity.*

**Part D: Item 4**

*The Licensee shall segregate and store all hazardous waste within the Solid Waste Facilities in such a manner as to prevent the deposit of deleterious substances into any Water, until such a time that the materials have been removed for proper disposal at an approved facility.*

**Part C: Item 2**

*The Licensee shall implement sediment and erosion control measures prior to and maintain as required during Hamlet Operations, to prevent entry of sediment into Water.*

<b>Licensee or Representative</b> Ian Dudla	<b>Inspector's Name</b> Joseph Monteith
<b>Signature</b>	<b>Signature</b>
<b>Date</b>	<b>Date</b> November 12, 2025

CC: Licensing Department, NWB  
Jeremy Fraser, Manager of Field Operations, CIRNAC

**PHOTO LOG**

Date	Camera	Inspector
July 6, 2025	Nikon Cool Pix	Joseph Monteith
Photo Log	Location	
Photo 1	Burn and Cap, Resolute Bay, NU	



**Description:** Burn and Cap site active at the time of inspection.



Photo Log

Location

Photo 2

Bulk Metal Solid Waste Facility, Resolute Bay, NU



Description: Burn and Cap smoldering with domestic waste, and bulk wood. Gravel used for capping is stored next to the open pit for use.

Photo Log

Location

Photo 3

Bulk Metal Solid Waste Facility, Resolute Bay, NU



Description: Open drum of waste oil outside of secondary containment, signs of spill from drum. Drum isn't supported to ensure I doesn't roll away and spill its contents.





Photo Log

Location

Photo 6

Bulk Metal Solid Waste Facility, Resolute Bay, NU



Description: Bulk Metals Facility outside the community. Orange paint cans deposited and spilt into the facility.

Photo Log

Location

Photo 7

Bulk Metal Solid Waste Facility, Resolute Bay, NU



Description: Bulk Metal Facility outside the community. 6 drums deposited



Photo Log

Location

Photo 8

New Bulk Metal Solid Waste Facility, Resolute Bay, NU



Description: possible hazardous electronic components ignited when exposed to the elements.

Photo Log

Location

Photo 9

New Bulk Metal Solid Waste Facility, Resolute Bay, NU



Description: Surface pools of water continues to settle at the entrance of the bulk metal facility.

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**Appendix B: Monitoring Program Sample Results**

**C.O.C.: G 136717**

**REPORT No: 25-021231 - Rev. 0**

**Report To:**

ATCO Frontec Ltd.  
 PO Box 88  
 Hamlet of Resolute Bay  
 , NU X0A 0V0

**CADUCEON Environmental Laboratories**

2378 Holly Lane  
 Ottawa, ON K1V 7P1

**Attention: Richard Gaulton**

DATE RECEIVED: 2025-Jul-18  
 DATE REPORTED: 2025-Jul-28  
 SAMPLE MATRIX: Waste Water

CUSTOMER PROJECT:  
 P.O. NUMBER:

Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	1	OTTAWA	PCURIEL	2025-Jul-18	A-IC-01	SM 4110B
BOD5 (Liquid)	1	KINGSTON	DCASSIDY	2025-Jul-23	BOD-001	SM 5210B
Cond/pH/Alk Auto (Liquid)	1	OTTAWA	AGRAF	2025-Jul-21	COND-02/PH-02/A LK-02	SM 2510B/4500H/ 2320B
Fecal Coliforms (Liquid)	1	OTTAWA	AHIRSI	2025-Jul-18	FC-001	SM 9222D
ICP/MS Total (Liquid)	1	OTTAWA	AOZKAYMAK	2025-Jul-21	D-ICPMS-01	EPA 6020
ICP/OES Total (Liquid)	1	OTTAWA	SGORMAN	2025-Jul-22	D-ICP-01	SM 3120B
Mercury (Liquid)	1	OTTAWA	TBENNETT	2025-Jul-21	D-HG-02	SM 3112B
Ammonia & o-Phosphate (Liquid)	1	KINGSTON	VHAMMOND	2025-Jul-28	NH3-001	SM 4500NH3
Oil & Grease (Liquid)	1	KINGSTON	TMCBRYDE	2025-Jul-22	O&G-001	SM 5520
PHC F1 (Liquid)	1	RICHMOND_HILL	FLENA	2025-Jul-22	C-VPHW-01	MECP E3421
PHC F2-4 (Liquid)	1	KINGSTON	STHOMPSON	2025-Jul-24	PHC-W-001	MECP E3421
Phenols (Liquid)	1	KINGSTON	MCLOSS	2025-Jul-22	PHEN-01	MECP E3179
SVOC - Semi-Volatiles (Liquid)	1	KINGSTON	KPARKER	2025-Jul-22	NAB-W-001	EPA 8270D
Total Organic Carbon (TOC)	1	OTTAWA	LMACGREGOR	2025-Jul-18	C-OC-01	EPA 415.2
TP & TKN (Liquid)	1	KINGSTON	YLIEN	2025-Jul-24	TPTKN-001	MECP E3516.2
TSS (Liquid)	1	KINGSTON	KYUILL	2025-Jul-23	TSS-001	SM 2540D
VOC-Volatiles Full (Water)	1	RICHMOND_HILL	FLENA	2025-Jul-22	C-VOC-02	EPA 8260

µg/g = micrograms per gram (parts per million) and is equal to mg/Kg

F1 C6-C10 hydrocarbons in µg/g, (F1-btex if requested)  
 F2 C10-C16 hydrocarbons in µg/g, (F2-naph if requested)  
 F3 C16-C34 hydrocarbons in µg/g, (F3-pah if requested)  
 F4 C34-C50 hydrocarbons in µg/g

This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.

Any deviations from the method are noted and reported for any particular sample.

nC6 and nC10 response factor is within 30% of response factor for toluene:

nC10, nC16 and nC34 response factors within 10% of each other:

C50 response factors within 70% of nC10+nC16+nC34 average:

Linearity is within 15%:

All results expressed on a dry weight basis.

Unless otherwise noted all chromatograms returned to baseline by the retention time of nC50.

R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an \*

Unless otherwise noted all extraction, analysis, QC requirements and limits for holding time were met. If analyzed for F4 and F4G they are not to be summed but the greater of the two numbers are to be used in application to the CWS PHC QC will be made available upon request.



**Michelle Dubien**  
**Data Specialist**

**CADUCEON Environmental Laboratories Certificate of Analysis**

Final Report  
REPORT No: 25-021231 - Rev. 0

Parameter	Units	R.L.	Client I.D.
			Landfill 1571-5
			Sample I.D.
			25-021231-1
			Date Collected
			2025-07-16
			-
Fecal Coliform	CFU/100mL	1	0
Alkalinity(CaCO3) to pH4.5	mg/L	5	147
Conductivity @25°C	uS/cm	1	5800
pH @25°C	pH units	-	8.92
Chloride	mg/L	0.5	1840
Nitrate (N)	mg/L	0.05	<0.40
Nitrite (N)	mg/L	0.05	<0.40
Sulphate	mg/L	1	261
BOD5	mg/L	3	<3
Total Suspended Solids	mg/L	3	16
Phosphorus (Total)	mg/L	0.01	0.04
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	<0.05
Total Organic Carbon	mg/L	0.8	1.1
Phenolics	mg/L	0.001	<0.001
Hardness (as CaCO3)	mg/L	0.02	355
Aluminum (Total)	mg/L	0.01	0.04
Cadmium (Total)	mg/L	0.005	<0.005
Calcium (Total)	mg/L	0.02	29.4
Chromium (Total)	mg/L	0.002	<0.002
Cobalt (Total)	mg/L	0.005	<0.005
Copper (Total)	mg/L	0.002	0.003



**Michelle Dubien**  
**Data Specialist**

The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

Parameter	Units	R.L.	Client I.D.
			Landfill 1571-5
			Sample I.D.
			25-021231-1
			Date Collected
			2025-07-16
Iron (Total)	mg/L	0.005	0.103
Lead (Total)	mg/L	0.02	<0.02
Manganese (Total)	mg/L	0.001	0.007
Nickel (Total)	mg/L	0.01	<0.01
Potassium (Total)	mg/L	0.1	48.6
Zinc (Total)	mg/L	0.005	0.010
Arsenic (Total)	mg/L	0.0005	0.0007
Mercury	mg/L	0.00002	<0.00002



**Michelle Dubien**  
**Data Specialist**

Parameter	Units	R.L.	Client I.D.
			Landfill 1571-5
			Sample I.D.
			25-021231-1
			Date Collected
			2025-07-16
			-
Benzene	µg/L	0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5
Toluene	µg/L	0.5	<0.5
Xylene, m,p-	µg/L	1	<1
Xylene, m,p,o-	µg/L	1.1	<1.1
Xylene, o-	µg/L	0.5	<0.5
PHC F1 (C6-C10)	µg/L	25	<25
PHC F2 (>C10-C16)	µg/L	50	<50
PHC F3 (>C16-C34)	µg/L	400	<400
PHC F4 (>C34-C50)	µg/L	400	<400
Oil & Grease (Total)	mg/L	1.0	55.7



**Michelle Dubien**  
**Data Specialist**

Parameter	Units	R.L.	Client I.D.
			Landfill 1571-5
			Sample I.D.
			25-021231-1
			Date Collected
			2025-07-16
			-
Acenaphthene	µg/L	0.05	<0.05
Acenaphthylene	µg/L	0.05	<0.05
Anthracene	µg/L	0.05	<0.05
Benzo[a]anthracene	µg/L	0.05	<0.05
Benzo(a)pyrene	µg/L	0.01	<0.01
Benzo(b)fluoranthene	µg/L	0.05	<0.05
Benzo(b+k)fluoranthene	µg/L	0.1	<0.1
Benzo(g,h,i)perylene	µg/L	0.05	<0.05
Benzo(k)fluoranthene	µg/L	0.05	<0.05
Chrysene	µg/L	0.05	<0.05
Dibenzo(a,h)anthracene	µg/L	0.05	<0.05
Fluoranthene	µg/L	0.05	<0.05
Fluorene	µg/L	0.05	<0.05
Indeno(1,2,3,-cd)Pyrene	µg/L	0.05	<0.05
Methylnaphthalene,1-	µg/L	0.05	<0.05
Methylnaphthalene,2-(1-)	µg/L	1	<1
Methylnaphthalene,2-	µg/L	0.05	<0.05
Naphthalene	µg/L	0.05	<0.05
Phenanthrene	µg/L	0.05	<0.05
Pyrene	µg/L	0.05	<0.05
Total PAH	µg/L	0.1	<0.1



**Michelle Dubien**  
**Data Specialist**

Bacteria passed holding time.  
VOC vials contain head space.  
Elevated RLs due to sample matrix interferences.



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**Michelle Dubien**  
**Data Specialist**



**C.O.C.: G 136716**

**REPORT No: 25-021232 - Rev. 0**

**Report To:**

ATCO Frontec Ltd.  
PO Box 88  
Hamlet of Resolute Bay  
, NU X0A 0V0

**CADUCEON Environmental Laboratories**

2378 Holly Lane  
Ottawa, ON K1V 7P1

**Attention: Ian Dudla**

DATE RECEIVED: 2025-Jul-18  
DATE REPORTED: 2025-Jul-28  
SAMPLE MATRIX: Waste Water

CUSTOMER PROJECT:  
P.O. NUMBER: 60

Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	1	OTTAWA	PCURIEL	2025-Jul-18	A-IC-01	SM 4110B
BOD5 (Liquid)	1	KINGSTON	DCASSIDY	2025-Jul-23	BOD-001	SM 5210B
Cond/pH/Alk Auto (Liquid)	1	OTTAWA	SBOUDREAU	2025-Jul-18	COND-02/PH-02/A LK-02	SM 2510B/4500H/ 2320B
Fecal Coliforms (Liquid)	1	OTTAWA	AHIRSI	2025-Jul-18	FC-001	SM 9222D
ICP/MS Total (Liquid)	1	OTTAWA	AOZKAYMAK	2025-Jul-21	D-ICPMS-01	EPA 6020
ICP/OES Total (Liquid)	1	OTTAWA	SGORMAN	2025-Jul-22	D-ICP-01	SM 3120B
Mercury (Liquid)	1	OTTAWA	TBENNETT	2025-Jul-21	D-HG-02	SM 3112B
Ammonia & o-Phosphate (Liquid)	1	KINGSTON	VHAMMOND	2025-Jul-28	NH3-001	SM 4500NH3
Oil & Grease (Liquid)	1	KINGSTON	TMCBRYDE	2025-Jul-22	O&G-001	SM 5520
PHC F1 (Liquid)	1	RICHMOND_HILL	FLENA	2025-Jul-22	C-VPHW-01	MECP E3421
PHC F2-4 (Liquid)	1	KINGSTON	STHOMPSON	2025-Jul-24	PHC-W-001	MECP E3421
Phenols (Liquid)	1	KINGSTON	MCLOSS	2025-Jul-22	PHEN-01	MECP E3179
SVOC - Semi-Volatiles (Liquid)	1	KINGSTON	KPARKER	2025-Jul-22	NAB-W-001	EPA 8270D
Total Organic Carbon (TOC)	1	OTTAWA	LMACGREGOR	2025-Jul-18	C-OC-01	EPA 415.2
TP & TKN (Liquid)	1	KINGSTON	YLIEN	2025-Jul-24	TPTKN-001	MECP E3516.2
TSS (Liquid)	1	KINGSTON	KYUILL	2025-Jul-23	TSS-001	SM 2540D
VOC-Volatiles Full (Water)	1	RICHMOND_HILL	FLENA	2025-Jul-23	C-VOC-02	EPA 8260

µg/g = micrograms per gram (parts per million) and is equal to mg/Kg

F1 C6-C10 hydrocarbons in µg/g, (F1-btex if requested)  
F2 C10-C16 hydrocarbons in µg/g, (F2-naph if requested)  
F3 C16-C34 hydrocarbons in µg/g, (F3-pah if requested)  
F4 C34-C50 hydrocarbons in µg/g

This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.

Any deviations from the method are noted and reported for any particular sample.

nC6 and nC10 response factor is within 30% of response factor for toluene:

nC10, nC16 and nC34 response factors within 10% of each other:

C50 response factors within 70% of nC10+nC16+nC34 average:

Linearity is within 15%:

All results expressed on a dry weight basis.

Unless otherwise noted all chromatograms returned to baseline by the retention time of nC50.

R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an \*

Unless otherwise noted all extraction, analysis, QC requirements and limits for holding time were met. If analyzed for F4 and F4G they are not to be summed but the greater of the two numbers are to be used in application to the CWS PHC QC will be made available upon request.



**Michelle Dubien**  
**Data Specialist**

**CADUCEON Environmental Laboratories Certificate of Analysis**

Final Report  
REPORT No: 25-021232 - Rev. 0

Parameter	Units	R.L.	Client I.D.
			RES-02
			Sample I.D.
			25-021232-1
			Date Collected
			2025-07-16
			-
Fecal Coliform	CFU/100mL	1	0
Alkalinity(CaCO3) to pH4.5	mg/L	5	82
Conductivity @25°C	uS/cm	1	187
pH @25°C	pH units	-	8.27
Chloride	mg/L	0.5	7.7
Nitrate (N)	mg/L	0.05	<0.05
Nitrite (N)	mg/L	0.05	<0.05
Sulphate	mg/L	1	3
BOD5	mg/L	3	<3
Total Suspended Solids	mg/L	3	5
Phosphorus (Total)	mg/L	0.01	<0.01
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	<0.05
Total Organic Carbon	mg/L	0.8	2.3
Phenolics	mg/L	0.001	<0.001
Hardness (as CaCO3)	mg/L	0.02	87.8
Aluminum (Total)	mg/L	0.01	0.02
Cadmium (Total)	mg/L	0.005	<0.005
Calcium (Total)	mg/L	0.02	24.6
Chromium (Total)	mg/L	0.002	<0.002
Cobalt (Total)	mg/L	0.005	<0.005
Copper (Total)	mg/L	0.002	0.002



**Michelle Dubien**  
**Data Specialist**

The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

Parameter	Units	R.L.	Client I.D.
			RES-02
			Sample I.D.
			25-021232-1
			Date Collected
			2025-07-16
			-
Acenaphthene	µg/L	0.05	<0.05
Acenaphthylene	µg/L	0.05	<0.05
Anthracene	µg/L	0.05	<0.05
Benzo[a]anthracene	µg/L	0.05	<0.05
Benzo(a)pyrene	µg/L	0.01	<0.01
Benzo(b)fluoranthene	µg/L	0.05	<0.05
Benzo(b+k)fluoranthene	µg/L	0.1	<0.1
Benzo(g,h,i)perylene	µg/L	0.05	<0.05
Benzo(k)fluoranthene	µg/L	0.05	<0.05
Chrysene	µg/L	0.05	<0.05
Dibenzo(a,h)anthracene	µg/L	0.05	<0.05
Fluoranthene	µg/L	0.05	<0.05
Fluorene	µg/L	0.05	<0.05
Indeno(1,2,3,-cd)Pyrene	µg/L	0.05	<0.05
Methylnaphthalene,1-	µg/L	0.05	<0.05
Methylnaphthalene,2-(1-)	µg/L	1	<1
Methylnaphthalene,2-	µg/L	0.05	<0.05
Naphthalene	µg/L	0.05	<0.05
Phenanthrene	µg/L	0.05	<0.05
Pyrene	µg/L	0.05	<0.05
Total PAH	µg/L	0.1	<0.1



**Michelle Dubien**  
**Data Specialist**



**C.O.C.: G 136719**

**REPORT No: 25-021293 - Rev. 0**

**Report To:**

ATCO Frontec Ltd.  
 PO Box 88  
 Hamlet of Resolute Bay  
 , NU X0A 0V0

**CADUCEON Environmental Laboratories**

2378 Holly Lane  
 Ottawa, ON K1V 7P1

**Attention: Ian Dudla**

DATE RECEIVED: 2025-Jul-21  
 DATE REPORTED: 2025-Jul-29  
 SAMPLE MATRIX: Waste Water

CUSTOMER PROJECT:  
 P.O. NUMBER:

Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	1	OTTAWA	PCURIEL	2025-Jul-21	A-IC-01	SM 4110B
BOD5 (Liquid)	1	KINGSTON	DCASSIDY	2025-Jul-23	BOD-001	SM 5210B
Cond/pH/Alk Auto (Liquid)	1	OTTAWA	AGRAF	2025-Jul-21	COND-02/PH-02/A LK-02	SM 2510B/4500H/ 2320B
Fecal Coliforms (Liquid)	1	OTTAWA	HALIPDA	2025-Jul-21	FC-001	SM 9222D
ICP/MS Total (Liquid)	1	OTTAWA	AOZKAYMAK	2025-Jul-24	D-ICPMS-01	EPA 6020
ICP/OES Total (Liquid)	1	OTTAWA	SGORMAN	2025-Jul-22	D-ICP-01	SM 3120B
Mercury (Liquid)	1	OTTAWA	TBENNETT	2025-Jul-22	D-HG-02	SM 3112B
Ammonia & o-Phosphate (Liquid)	1	KINGSTON	VHAMMOND	2025-Jul-28	NH3-001	SM 4500NH3
Oil & Grease (Liquid)	1	KINGSTON	TMCBRYDE	2025-Jul-22	O&G-001	SM 5520
PHC F1 (Liquid)	1	RICHMOND_HILL	FLENA	2025-Jul-22	C-VPHW-01	MECP E3421
PHC F2-4 (Liquid)	1	KINGSTON	STHOMPSON	2025-Jul-24	PHC-W-001	MECP E3421
Phenols (Liquid)	1	KINGSTON	MCLOSS	2025-Jul-22	PHEN-01	MECP E3179
SVOC - Semi-Volatiles (Liquid)	1	KINGSTON	KPARKER	2025-Jul-22	NAB-W-001	EPA 8270D
Total Organic Carbon (TOC)	1	OTTAWA	LMACGREGOR	2025-Jul-21	C-OC-01	EPA 415.2
TP & TKN (Liquid)	1	KINGSTON	YLIEN	2025-Jul-25	TPTKN-001	MECP E3516.2
TSS (Liquid)	1	KINGSTON	KYUILL	2025-Jul-23	TSS-001	SM 2540D
VOC-Volatiles Full (Water)	1	RICHMOND_HILL	FLENA	2025-Jul-23	C-VOC-02	EPA 8260

µg/g = micrograms per gram (parts per million) and is equal to mg/Kg

F1 C6-C10 hydrocarbons in µg/g, (F1-btex if requested)  
 F2 C10-C16 hydrocarbons in µg/g, (F2-naph if requested)  
 F3 C16-C34 hydrocarbons in µg/g, (F3-pah if requested)  
 F4 C34-C50 hydrocarbons in µg/g

This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.

Any deviations from the method are noted and reported for any particular sample.

nC6 and nC10 response factor is within 30% of response factor for toluene:

nC10, nC16 and nC34 response factors within 10% of each other:

C50 response factors within 70% of nC10+nC16+nC34 average:

Linearity is within 15%:

All results expressed on a dry weight basis.

Unless otherwise noted all chromatograms returned to baseline by the retention time of nC50.

R.L. = Reporting Limit

NC = Not Calculated


Test methods may be modified from specified reference method unless indicated by an \*

Unless otherwise noted all extraction, analysis, QC requirements and limits for holding time were met. If analyzed for F4 and F4G they are not to be summed but the greater of the two numbers are to be used in application to the CWS PHC QC will be made available upon request.



**Michelle Dubien**  
**Data Specialist**

Parameter	Units	R.L.	Client I.D.
			RES-2
			Sample I.D.
			25-021293-1
			Date Collected
			2025-07-17
Fecal Coliform	CFU/100mL	1	0
Alkalinity(CaCO3) to pH4.5	mg/L	5	92
Conductivity @25°C	uS/cm	1	274
pH @25°C	pH units	-	8.03
Chloride	mg/L	0.5	29.0
Nitrate (N)	mg/L	0.05	<0.05
Nitrite (N)	mg/L	0.05	<0.05
Sulphate	mg/L	1	2
BOD5	mg/L	3	<3
Total Suspended Solids	mg/L	3	<3
Phosphorus (Total)	mg/L	0.01	<0.01
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	<0.05
Total Organic Carbon	mg/L	0.8	2.4
Phenolics	mg/L	0.001	<0.001
Hardness (as CaCO3)	mg/L	0.02	123
Aluminum (Total)	mg/L	0.01	0.03
Cadmium (Total)	mg/L	0.005	<0.005
Calcium (Total)	mg/L	0.02	38.0
Chromium (Total)	mg/L	0.002	<0.002
Cobalt (Total)	mg/L	0.005	<0.005
Copper (Total)	mg/L	0.002	<0.002



**Michelle Dubien**  
**Data Specialist**

Parameter	Units	R.L.	Client I.D.
			RES-2
			Sample I.D.
			25-021293-1
			Date Collected
			2025-07-17
Iron (Total)	mg/L	0.005	0.037
Lead (Total)	mg/L	0.02	<0.02
Manganese (Total)	mg/L	0.001	0.002
Nickel (Total)	mg/L	0.01	<0.01
Potassium (Total)	mg/L	0.1	0.7
Zinc (Total)	mg/L	0.005	0.005
Arsenic (Total)	mg/L	0.0005	<0.0005
Mercury	mg/L	0.00002	<0.00002



**Michelle Dubien**  
**Data Specialist**

Parameter	Units	R.L.	Client I.D.
			RES-2
			Sample I.D.
			25-021293-1
			Date Collected
			2025-07-17
			-
Benzene	µg/L	0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5
Toluene	µg/L	0.5	<0.5
Xylene, m,p-	µg/L	1	<1
Xylene, m,p,o-	µg/L	1.1	<1.1
Xylene, o-	µg/L	0.5	<0.5
PHC F1 (C6-C10)	µg/L	25	<25
PHC F2 (>C10-C16)	µg/L	50	<50
PHC F3 (>C16-C34)	µg/L	400	<400
PHC F4 (>C34-C50)	µg/L	400	<400
Oil & Grease (Total)	mg/L	1.0	3.5



**Michelle Dubien**  
**Data Specialist**

Parameter	Units	R.L.	Client I.D.
			RES-2
			Sample I.D.
			25-021293-1
			Date Collected
			2025-07-17
			-
Acenaphthene	µg/L	0.05	<0.05
Acenaphthylene	µg/L	0.05	<0.05
Anthracene	µg/L	0.05	<0.05
Benzo[a]anthracene	µg/L	0.05	<0.05
Benzo(a)pyrene	µg/L	0.01	<0.01
Benzo(b)fluoranthene	µg/L	0.05	<0.05
Benzo(b+k)fluoranthene	µg/L	0.1	<0.1
Benzo(g,h,i)perylene	µg/L	0.05	<0.05
Benzo(k)fluoranthene	µg/L	0.05	<0.05
Chrysene	µg/L	0.05	<0.05
Dibenzo(a,h)anthracene	µg/L	0.05	<0.05
Fluoranthene	µg/L	0.05	<0.05
Fluorene	µg/L	0.05	<0.05
Indeno(1,2,3,-cd)Pyrene	µg/L	0.05	<0.05
Methylnaphthalene,1-	µg/L	0.05	<0.05
Methylnaphthalene,2-(1-)	µg/L	1	<1
Methylnaphthalene,2-	µg/L	0.05	<0.05
Naphthalene	µg/L	0.05	<0.05
Phenanthrene	µg/L	0.05	<0.05
Pyrene	µg/L	0.05	<0.05
Total PAH	µg/L	0.1	<0.1

Bacteria samples passed holding time



**Michelle Dubien**  
**Data Specialist**



**C.O.C.:** -

**REPORT No:** 25-021380 - Rev. 0

**Report To:**

ATCO Frontec Ltd.  
 PO Box 88  
 Hamlet of Resolute Bay  
 , NU X0A 0V0

**CADUCEON Environmental Laboratories**

2378 Holly Lane  
 Ottawa, ON K1V 7P1

**Attention: Ian Dudla**

DATE RECEIVED: 2025-Jul-21  
 DATE REPORTED: 2025-Jul-29  
 SAMPLE MATRIX: Waste Water

CUSTOMER PROJECT: Resolute Bay Landfill Leach  
 P.O. NUMBER:

Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	1	OTTAWA	PCURIEL	2025-Jul-21	A-IC-01	SM 4110B
BOD5 (Liquid)	1	KINGSTON	DCASSIDY	2025-Jul-23	BOD-001	SM 5210B
Cond/pH/Alk Auto (Liquid)	1	OTTAWA	SBOUDREAU	2025-Jul-22	COND-02/PH-02/A LK-02	SM 2510B/4500H/ 2320B
Fecal Coliforms (Liquid)	1	OTTAWA	HALIPDA	2025-Jul-21	FC-001	SM 9222D
ICP/MS Total (Liquid)	1	OTTAWA	AOZKAYMAK	2025-Jul-24	D-ICPMS-01	EPA 6020
ICP/OES Total (Liquid)	1	OTTAWA	SGORMAN	2025-Jul-23	D-ICP-01	SM 3120B
Mercury (Liquid)	1	OTTAWA	TBENNETT	2025-Jul-22	D-HG-02	SM 3112B
Ammonia & o-Phosphate (Liquid)	1	KINGSTON	VHAMMOND	2025-Jul-28	NH3-001	SM 4500NH3
Oil & Grease (Liquid)	1	KINGSTON	TMCBRYDE	2025-Jul-23	O&G-001	SM 5520
PHC F1 (Liquid)	1	RICHMOND_HILL	FLENA	2025-Jul-26	C-VPHW-01	MECP E3421
PHC F2-4 (Liquid)	1	KINGSTON	STHOMPSON	2025-Jul-24	PHC-W-001	MECP E3421
Phenols (Liquid)	1	KINGSTON	MCLOSS	2025-Jul-28	PHEN-01	MECP E3179
SVOC - Semi-Volatiles (Liquid)	1	KINGSTON	KPARKER	2025-Jul-23	NAB-W-001	EPA 8270D
Total Organic Carbon (TOC)	1	OTTAWA	LMACGREGOR	2025-Jul-21	C-OC-01	EPA 415.2
TP & TKN (Liquid)	1	KINGSTON	YLIEN	2025-Jul-25	TPTKN-001	MECP E3516.2
TSS (Liquid)	1	KINGSTON	KYUILL	2025-Jul-23	TSS-001	SM 2540D
VOC-Volatiles Full (Water)	1	RICHMOND_HILL	FLENA	2025-Jul-26	C-VOC-02	EPA 8260

µg/g = micrograms per gram (parts per million) and is equal to mg/Kg

F1 C6-C10 hydrocarbons in µg/g, (F1-btex if requested)  
 F2 C10-C16 hydrocarbons in µg/g, (F2-naph if requested)  
 F3 C16-C34 hydrocarbons in µg/g, (F3-pah if requested)  
 F4 C34-C50 hydrocarbons in µg/g

This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.

Any deviations from the method are noted and reported for any particular sample.

nC6 and nC10 response factor is within 30% of response factor for toluene:

nC10, nC16 and nC34 response factors within 10% of each other:

C50 response factors within 70% of nC10+nC16+nC34 average:

Linearity is within 15%:

All results expressed on a dry weight basis.

Unless otherwise noted all chromatograms returned to baseline by the retention time of nC50.

R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an \*

Unless otherwise noted all extraction, analysis, QC requirements and limits for holding time were met. If analyzed for F4 and F4G they are not to be summed but the greater of the two numbers are to be used in application to the CWS PHC QC will be made available upon request.



**Michelle Dubien**  
**Data Specialist**

Parameter	Units	R.L.	Client I.D.
			Metal Dump RES-1
			Sample I.D.
			25-021380-1
			Date Collected
			2025-07-18
			-
Fecal Coliform	CFU/100mL	1	0
Alkalinity(CaCO3) to pH4.5	mg/L	5	88
Conductivity @25°C	uS/cm	1	204
pH @25°C	pH units	-	8.21
Chloride	mg/L	0.5	6.8
Nitrate (N)	mg/L	0.05	0.06
Nitrite (N)	mg/L	0.05	<0.05
Sulphate	mg/L	1	3
BOD5	mg/L	3	<3
Total Suspended Solids	mg/L	3	5
Phosphorus (Total)	mg/L	0.01	0.01
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	<0.05
Total Organic Carbon	mg/L	0.8	1.8
Phenolics	mg/L	0.001	<0.001
Hardness (as CaCO3)	mg/L	0.02	92.7
Aluminum (Total)	mg/L	0.01	0.03
Cadmium (Total)	mg/L	0.005	<0.005
Calcium (Total)	mg/L	0.02	25.6
Chromium (Total)	mg/L	0.002	<0.002
Cobalt (Total)	mg/L	0.005	<0.005
Copper (Total)	mg/L	0.002	<0.002



**Michelle Dubien**  
 Data Specialist

Parameter	Units	R.L.	Client I.D.
			Metal Dump RES-1
			Sample I.D.
			25-021380-1
			Date Collected
			2025-07-18
			-
Iron (Total)	mg/L	0.005	0.026
Lead (Total)	mg/L	0.02	<0.02
Magnesium (Total)	mg/L	0.02	6.98
Manganese (Total)	mg/L	0.001	0.001
Nickel (Total)	mg/L	0.01	<0.01
Potassium (Total)	mg/L	0.1	0.3
Sodium (Total)	mg/L	0.2	5.0
Zinc (Total)	mg/L	0.005	0.013
Arsenic (Total)	mg/L	0.0005	<0.0005
Mercury	mg/L	0.00002	<0.00002



**Michelle Dubien**  
**Data Specialist**

Parameter	Units	R.L.	Client I.D.
			Metal Dump RES-1
			Sample I.D.
			25-021380-1
			Date Collected
			2025-07-18
			-
Benzene	µg/L	0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5
Toluene	µg/L	0.5	<0.5
Xylene, m,p-	µg/L	1	<1
Xylene, m,p,o-	µg/L	1.1	<1.1
Xylene, o-	µg/L	0.5	<0.5
PHC F1 (C6-C10)	µg/L	25	<25
PHC F2 (>C10-C16)	µg/L	50	<50
PHC F3 (>C16-C34)	µg/L	400	<400
PHC F4 (>C34-C50)	µg/L	400	<400
Oil & Grease (Total)	mg/L	1.0	1.5



**Michelle Dubien**  
**Data Specialist**

Parameter	Units	R.L.	Client I.D.
			Metal Dump RES-1
			Sample I.D.
			25-021380-1
			Date Collected
			2025-07-18
			-
Acenaphthene	µg/L	0.05	<0.05
Acenaphthylene	µg/L	0.05	<0.05
Anthracene	µg/L	0.05	<0.05
Benzo[a]anthracene	µg/L	0.05	<0.05
Benzo(a)pyrene	µg/L	0.01	<0.01
Benzo(b)fluoranthene	µg/L	0.05	<0.05
Benzo(b+k)fluoranthene	µg/L	0.1	<0.1
Benzo(g,h,i)perylene	µg/L	0.05	<0.05
Benzo(k)fluoranthene	µg/L	0.05	<0.05
Chrysene	µg/L	0.05	<0.05
Dibenzo(a,h)anthracene	µg/L	0.05	<0.05
Fluoranthene	µg/L	0.05	<0.05
Fluorene	µg/L	0.05	<0.05
Indeno(1,2,3,-cd)Pyrene	µg/L	0.05	<0.05
Methylnaphthalene,1-	µg/L	0.05	<0.05
Methylnaphthalene,2-(1-)	µg/L	1	<1
Methylnaphthalene,2-	µg/L	0.05	<0.05
Naphthalene	µg/L	0.05	<0.05
Phenanthrene	µg/L	0.05	<0.05
Pyrene	µg/L	0.05	<0.05
Total PAH	µg/L	0.1	<0.1

Bacteria passed holding time.



**Michelle Dubien**  
**Data Specialist**



**C.O.C.:** -

**REPORT No:** 25-021635 - Rev. 0

**Report To:**

ATCO Frontec Ltd.  
 PO Box 88  
 Hamlet of Resolute Bay  
 , NU X0A 0V0

**CADUCEON Environmental Laboratories**

2378 Holly Lane  
 Ottawa, ON K1V 7P1

**Attention: Ian Dudla**

DATE RECEIVED: 2025-Jul-22  
 DATE REPORTED: 2025-Jul-29  
 SAMPLE MATRIX: Waste Water

CUSTOMER PROJECT: Resolute Bay Landfill Leach  
 P.O. NUMBER:

Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	1	OTTAWA	PCURIEL	2025-Jul-22	A-IC-01	SM 4110B
BOD5 (Liquid)	1	KINGSTON	JWOLFE2	2025-Jul-24	BOD-001	SM 5210B
Cond/pH/Alk Auto (Liquid)	1	OTTAWA	SBOUDREAU	2025-Jul-22	COND-02/PH-02/A LK-02	SM 2510B/4500H/ 2320B
Fecal Coliforms (Liquid)	1	OTTAWA	HALIPDA	2025-Jul-22	FC-001	SM 9222D
ICP/MS Total (Liquid)	1	OTTAWA	AOZKAYMAK	2025-Jul-24	D-ICPMS-01	EPA 6020
ICP/OES Total (Liquid)	1	OTTAWA	SGORMAN	2025-Jul-23	D-ICP-01	SM 3120B
Mercury (Liquid)	1	OTTAWA	TBENNETT	2025-Jul-23	D-HG-02	SM 3112B
Ammonia & o-Phosphate (Liquid)	1	KINGSTON	VHAMMOND	2025-Jul-29	NH3-001	SM 4500NH3
Oil & Grease (Liquid)	1	KINGSTON	MLANE	2025-Apr-24	O&G-001	SM 5520
PHC F1 (Liquid)	1	RICHMOND_HILL	FLENA	2025-Jul-26	C-VPHW-01	MECP E3421
PHC F2-4 (Liquid)	1	KINGSTON	STHOMPSON	2025-Jul-24	PHC-W-001	MECP E3421
Phenols (Liquid)	1	KINGSTON	MCLOSS	2025-Jul-28	PHEN-01	MECP E3179
SVOC - Semi-Volatiles (Liquid)	1	KINGSTON	KPARKER	2025-Jul-24	NAB-W-001	EPA 8270D
Total Organic Carbon (TOC)	1	OTTAWA	SLOZO	2025-Jul-23	C-OC-01	EPA 415.2
TP & TKN (Liquid)	1	KINGSTON	YLIEN	2025-Jul-28	TPTKN-001	MECP E3516.2
TSS (Liquid)	1	KINGSTON	KYUILL	2025-Jul-25	TSS-001	SM 2540D
VOC-Volatiles Full (Water)	1	RICHMOND_HILL	FLENA	2025-Jul-26	C-VOC-02	EPA 8260

µg/g = micrograms per gram (parts per million) and is equal to mg/Kg

F1 C6-C10 hydrocarbons in µg/g, (F1-btex if requested)  
 F2 C10-C16 hydrocarbons in µg/g, (F2-naph if requested)  
 F3 C16-C34 hydrocarbons in µg/g, (F3-pah if requested)  
 F4 C34-C50 hydrocarbons in µg/g

This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.

Any deviations from the method are noted and reported for any particular sample.

nC6 and nC10 response factor is within 30% of response factor for toluene:

nC10, nC16 and nC34 response factors within 10% of each other:

C50 response factors within 70% of nC10+nC16+nC34 average:

Linearity is within 15%:

All results expressed on a dry weight basis.

Unless otherwise noted all chromatograms returned to baseline by the retention time of nC50.

R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an \*

Unless otherwise noted all extraction, analysis, QC requirements and limits for holding time were met. If analyzed for F4 and F4G they are not to be summed but the greater of the two numbers are to be used in application to the CWS PHC QC will be made available upon request.



**Michelle Dubien**  
**Data Specialist**

**CADUCEON Environmental Laboratories Certificate of Analysis**

Final Report  
REPORT No: 25-021635 - Rev. 0

Parameter	Units	R.L.	Client I.D.
			Metal Dump RES-3
			Sample I.D.
			25-021635-1
			Date Collected
			2025-07-18
			-
Fecal Coliform	CFU/100mL	1	0
Alkalinity(CaCO3) to pH4.5	mg/L	5	103
Conductivity @25°C	uS/cm	1	243
pH @25°C	pH units	-	8.20
Chloride	mg/L	0.5	10.3
Nitrate (N)	mg/L	0.05	<0.05
Nitrite (N)	mg/L	0.05	<0.05
Sulphate	mg/L	1	5
BOD5	mg/L	3	<3
Total Suspended Solids	mg/L	3	49
Phosphorus (Total)	mg/L	0.01	0.05
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	<0.05
Total Organic Carbon	mg/L	0.8	2.6
Phenolics	mg/L	0.001	<0.001
Hardness (as CaCO3)	mg/L	0.02	113
Aluminum (Total)	mg/L	0.01	0.03
Cadmium (Total)	mg/L	0.005	<0.005
Calcium (Total)	mg/L	0.02	32.8
Chromium (Total)	mg/L	0.002	<0.002
Cobalt (Total)	mg/L	0.005	<0.005
Copper (Total)	mg/L	0.002	<0.002



**Michelle Dubien**  
**Data Specialist**

The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

Parameter	Units	R.L.	Client I.D.
			Metal Dump RES-3
			Sample I.D.
			25-021635-1
			Date Collected
			2025-07-18
			-
Iron (Total)	mg/L	0.005	0.046
Lead (Total)	mg/L	0.02	<0.02
Magnesium (Total)	mg/L	0.02	7.58
Manganese (Total)	mg/L	0.001	0.006
Nickel (Total)	mg/L	0.01	<0.01
Potassium (Total)	mg/L	0.1	0.5
Sodium (Total)	mg/L	0.2	6.5
Zinc (Total)	mg/L	0.005	0.011
Arsenic (Total)	mg/L	0.0005	<0.0005
Mercury	mg/L	0.00002	<0.00002



**Michelle Dubien**  
**Data Specialist**

Parameter	Units	R.L.	Client I.D.
			Metal Dump RES-3
			Sample I.D.
			25-021635-1
			Date Collected
			2025-07-18
			-
Benzene	µg/L	0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5
Toluene	µg/L	0.5	<0.5
Xylene, m,p-	µg/L	1	<1
Xylene, m,p,o-	µg/L	1.1	<1.1
Xylene, o-	µg/L	0.5	<0.5
PHC F1 (C6-C10)	µg/L	25	<25
PHC F2 (>C10-C16)	µg/L	50	<50
PHC F3 (>C16-C34)	µg/L	400	<400
PHC F4 (>C34-C50)	µg/L	400	<400
Oil & Grease (Total)	mg/L	1.0	5.3



**Michelle Dubien**  
**Data Specialist**

Parameter	Units	R.L.	Client I.D.
			Metal Dump RES-3
			Sample I.D.
			25-021635-1
			Date Collected
			2025-07-18
			-
Acenaphthene	µg/L	0.05	<0.05
Acenaphthylene	µg/L	0.05	<0.05
Anthracene	µg/L	0.05	<0.05
Benzo[a]anthracene	µg/L	0.05	<0.05
Benzo(a)pyrene	µg/L	0.01	<0.01
Benzo(b)fluoranthene	µg/L	0.05	<0.05
Benzo(b+k)fluoranthene	µg/L	0.1	<0.1
Benzo(g,h,i)perylene	µg/L	0.05	<0.05
Benzo(k)fluoranthene	µg/L	0.05	<0.05
Chrysene	µg/L	0.05	<0.05
Dibenzo(a,h)anthracene	µg/L	0.05	<0.05
Fluoranthene	µg/L	0.05	<0.05
Fluorene	µg/L	0.05	<0.05
Indeno(1,2,3,-cd)Pyrene	µg/L	0.05	<0.05
Methylnaphthalene,1-	µg/L	0.05	<0.05
Methylnaphthalene,2-(1-)	µg/L	1	<1
Methylnaphthalene,2-	µg/L	0.05	<0.05
Naphthalene	µg/L	0.05	<0.05
Phenanthrene	µg/L	0.05	<0.05
Pyrene	µg/L	0.05	<0.05
Total PAH	µg/L	0.1	<0.1

Bacteria samples passed holding time



**Michelle Dubien**  
**Data Specialist**

**TESTING REQUIREMENTS**

O.Reg 153 Table \_\_\_\_\_  MISA Guidelines  
 Surface Soil  Sub Surface Soil (O.Reg 153)  O.Reg 558 Leachate Analysis  
 Yes  No Record of Site Condition (O.Reg 153) Disposal Site: \_\_\_\_\_  
 Provincial Water Quality Objectives  Landfill Monitoring  
 Sewer Use By-Law: \_\_\_\_\_  Other: \_\_\_\_\_

**REPORT NUMBER (Lab Use)**

25/0722  
25-021635

Indicate Laboratory Samples are submitted to:  Kingston  Ottawa  Richmond Hill  Windsor

**Organization:**  
Municipality of Resolute Bay  
**Contact:**  
Ian Dudla  
**Tel:**  
867-252-3616  
**Fax:**  
867-252-3749  
**Email:**  
[sao@resolute.ca](mailto:sao@resolute.ca)

**Address and Invoicing Address (if different)**  
PO Box 60  
Resolute Bay, NU  
X0A 0V0  
**Quote No.:**  
  
**Project Name:**  
Resolute Bay Landfill Leach  
**P.O. No.:**  
  
**Additional Info:**

**ANALYSES REQUESTED (Print Test in Boxes)**

BETX PHC F1-4	PAH, O & G	pH Alkalinity Cond Hardness	Ammonia TP Total Phenols	NO2 NO3 Chloride S04	TOC	Mg, As, Na, Cu, Fe, Hg, Ca, K	Cd, Cr, Pb, Ni, Co, Al, Zn	Mn	BOD, TSS	Fecal, Coliforms	Suspected Highly Contaminated
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**TURNAROUND SERVICE REQUESTED (see back page)**

Platinum 200% Surcharge\*\*  
 Gold 100% Surcharge  
 Silver 50% Surcharge  
 Bronze 25% Surcharge  
 Standard 5-7 days  
 Specific Date: \_\_\_\_\_

Are any samples to be submitted intended for Human Consumption under any Drinking Water Regulations?  Yes  No (If yes, submit all drinking water samples on a drinking water Chain of Custody)

\* Sample Matrix Legend: WW=Waste Water SW=Surface Water GW=Groundwater LS=Liquid Sludge SS=Solid Sludge S=Soil Sed=Sediment PC=Paint Chips F=Filter Oil = Oil

Lab No	Sample Identification	S.P.L.	Sample Matrix *	Date Collected (yy-mm-dd)	Time Collected	Indicate Test For Each Sample By Using A Check Mark In The Box Provided												pH	Temp.	# Bottles/ Sample	Field Filtered(Y/N)
1																					
2	<del>Metal Dump RES-1</del>	N/A	LEACH		11:00AM	x	x	x	x	x	x	x	x	x	x	x	x		← came on July 21st. 27	11	
4	Metal Dump RES-3	N/A	LEACH	270718	11:30AM	x	x	x	x	x	x	x	x	x	x	x			14		
* Bacteria passed holding time - go																					

SAMPLE SUBMISSION INFORMATION		SHIPPING INFORMATION		REPORTING / INVOICING		SAMPLE RECEIVING INFORMATION (LABORATORY USE ONLY)			
Print:	Submitted by:	Client's Courier <input checked="" type="checkbox"/>	Invoice <input type="checkbox"/>	Report by Fax <input type="checkbox"/>	Report by Email <input checked="" type="checkbox"/>	Received By (print): Alexis P.	Signature: Alex P.	Date Received (yy-mm-dd): 25-07-22	Time Received: 12:49pm
Sign:	Date (yy-mm-dd)/Time:	Drop Off <input type="checkbox"/>	# of Pieces	Invoice by Email <input checked="" type="checkbox"/>	Invoice by Mail <input type="checkbox"/>	Laboratory Prepared Bottles: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Temperature °C: 8.3°	Labeled by: [Signature]	Comments: 2VOCs, 1Phenols, 1HG, 1M, 2NP, 1R, 1Bact, 1PeF, 1PHC, 2ILBlank, 1LOG
Laboratory Locations/Shipping Addresses Kingston Lab - 285 Dalton Ave., Kingston, ON K7K 6Z1, Tel: (613) 544-2001 Fax: (613) 544-2770 Email: contactkingston@caduceonlabs.com Ottawa Lab - 2378 Holly Lane, Ottawa, ON K1V 7P1, Tel: (613) 526-0123 Fax: (613) 526-1244 Email: contactottawa@caduceonlabs.com Richmond Hill Lab - #14-110 West Beaver Creek Rd., ON L4B 1J9, Tel: (289) 475-5442 Fax: (866) 562-1963 Email: contactrichmondhill@caduceonlabs.com Windsor Lab - #5-3201 Marentette Ave., Windsor, ON N8X 4G3, Tel: (519) 966-9541 Fax: (519) 966-9567 Email: contactwindsor@caduceonlabs.com						Page 1 of 1 G			