

ENVIRONMENTAL WASTE PROCESSING FACILITY

2020 ANNUAL REPORT



Nunavut Water Board
c/o Manager of Licensing
PO Box 119
Gjoa Haven, Nunavut X0B 1J0

January 20, 2021

O/Ref.: QE20-400-2

Confidential document



Environmental Waste Processing Facility

2020 ANNUAL REPORT

Confidential document presented to

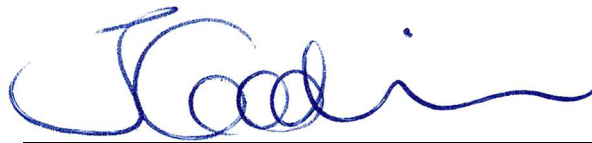
NUNAVUT WATER BOARD

Prepared and verified by:



Raquel Labranche, P.Eng.
NAPEG Licence No. L4172
Project Manager

Approved by:



Jennifer Godin
Director

LIST OF APPENDICES

APPENDIX A Certificates of Analysis

APPENDIX B NIRB Screening Decision Report

NWB Annual Report

Year being reported:

2020

License No: 1BR-THI12027

Issued Date: May 4, 2017

Expiry Date: May 3, 2022

Project Name:

Hydrocarbon-Impacted Water and Soil
Treatment Facility Project

Licensee:

Qikiqtaaluk Environmental Inc.

Mailing Address:

PO Box 2110
2027 Iqaluit Lane
Iqaluit, Nunavut X0A 0H0Name of Company filing Annual Report (if different from Name of Licensee please clarify
relationship between the two entities, if applicable):

Same

General Background Information on the Project (*optional):

Licence Requirements: the licensee must provide the following information in accordance with

A summary report of water use and waste disposal activities, including, but not limited to: methods of obtaining water; sewage and greywater management; drill waste management; solid and hazardous waste management.

Water Source(s):

No water used

Water Quantity:

0	Quantity Allowable Domestic (cu.m)
0	Actual Quantity Used Domestic (cu.m)
0	Quantity Allowable Drilling (cu.m)
0	Total Quantity Used Drilling (cu.m)

Waste Management and/or Disposal

In 2020, approximately 188,580 Kg of waste in Quatrex bags and drums were disposed of down South at various accredited facilities.

In 2020, 1,000 m³ of soils were treated and sent to the local landfill to be used as cover material for industrial use while respecting the commercial criteria. 490 m³ of soils were treated and sent to private clients for commercial use.

Hydrocarbon-Impacted Water

Additional Details:

A list of unauthorized discharges and a summary of follow-up actions taken.Spill No.: (as reported to the Spill Hot-line)Date of Spill: Date of Notification to an Inspector:

Additional Details: (impacts to water, mitigation measures, short/long term monitoring, etc)

Revisions to the Spill Contingency Plan

Additional Details:

Revisions to the Abandonment and Restoration Plan

Additional Details:

Progressive Reclamation Work Undertaken

Additional Details (i.e., work completed and future works proposed)

Results of the Monitoring Program including:**The GPS Co-ordinates (in degrees, minutes and seconds of latitude and longitude) of each location where sources of water are utilized;**

Additional Details:

The GPS Co-ordinates (in degrees, minutes and seconds of latitude and longitude) of each location where wastes associated with the licence are deposited;

Additional Details:

Results of any additional sampling and/or analysis that was requested by an Inspector

Additional Details: (date of request, analysis of results, data attached, etc)

N/A

Any other details on water use or waste disposal requested by the Board by November 1 of the year being reported.

Additional Details: (Attached or provided below)

N/A

Any responses or follow-up actions on inspection/compliance reports

Additional Details: (Dates of Report, Follow-up by the Licensee)

Licence No. 1BR-THI2027 issued to Qikiqtaaluk Environmental Inc. by the Nunavut Water Board (NWB or Board) on January 6, 2020 (see attached).

An application for an amendment will be done in 2021 for the addition of an Incinerator following the NIRB screening decision 125540/15XN051 (see attached).

Any additional comments or information for the Board to consider

Attached are the analytical results for water samples collected at monitoring station THI-1 prior to the discharge of treated water and at the raw water pond and soil treatment pond on June 28, 2020 ($\approx 189,360$ L), and October 2, 2020 ($\approx 23,650$ L).

Date Submitted:

January 19, 2021

Submitted/Prepared by:

Raquel Labranche

Contact Information:**Tel:** 514 208-5981**Fax:** N/A**email:** rlabranche@genv.ca



APPENDIX A

Certificates of Analysis

C.O.C.: ---

REPORT No. B20-16820

Report To:

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

Attention: Jennifer Godin

Caduceon Environmental Laboratories

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

DATE RECEIVED: 17-Jun-20

JOB/PROJECT NO.: Water Treatment EWPF

DATE REPORTED: 22-Jun-20

P.O. NUMBER: 430002982 Raw Water Soil

SAMPLE MATRIX: Surface Water

WATERWORKS NO.

			Client I.D.	RWST-200615			
			Sample I.D.	B20-16820-1			
			Date Collected	15-Jun-20			
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Hardness (as CaCO ₃)	mg/L	1	SM 3120	18-Jun-20/O	169		
Alkalinity(CaCO ₃) to pH4.5	mg/L	5	SM 2320B	17-Jun-20/O	157		
pH @25°C	pH Units		SM 4500H	17-Jun-20/O	7.60		
Conductivity @25°C	µmho/cm	1	SM 2510B	17-Jun-20/O	360		
Total Suspended Solids	mg/L	3	SM2540D	18-Jun-20/K	140		
Chloride	mg/L	0.5	SM4110C	18-Jun-20/O	10.4		
Nitrite (N)	mg/L	0.1	SM4110C	18-Jun-20/O	< 0.1		
Nitrate (N)	mg/L	0.1	SM4110C	18-Jun-20/O	0.1		
Sulphate	mg/L	1	SM4110C	18-Jun-20/O	7		
Aluminum	mg/L	0.01	SM 3120	18-Jun-20/O	0.04		
Antimony	mg/L	0.0001	EPA 200.8	19-Jun-20/O	0.0006		
Arsenic	mg/L	0.0001	EPA 200.8	19-Jun-20/O	0.0010		
Barium	mg/L	0.001	SM 3120	18-Jun-20/O	0.023		
Beryllium	mg/L	0.002	SM 3120	18-Jun-20/O	< 0.002		
Boron	mg/L	0.005	SM 3120	18-Jun-20/O	0.007		
Cadmium	mg/L	0.000015	EPA 200.8	19-Jun-20/O	0.000093		
Calcium	mg/L	0.02	SM 3120	18-Jun-20/O	52.0		
Chromium	mg/L	0.001	EPA 200.8	19-Jun-20/O	0.001		
Chromium (VI)	mg/L	0.001	MOE E3056	18-Jun-20/O	< 0.001		
Cobalt	mg/L	0.0001	EPA 200.8	19-Jun-20/O	0.0052		
Copper	mg/L	0.0001	EPA 200.8	19-Jun-20/O	0.0053		
Iron	mg/L	0.005	SM 3120	18-Jun-20/O	3.44		
Lead	mg/L	0.00002	EPA 200.8	19-Jun-20/O	0.00039		
Magnesium	mg/L	0.02	SM 3120	18-Jun-20/O	9.58		
Manganese	mg/L	0.001	SM 3120	18-Jun-20/O	1.60		
Mercury	mg/L	0.00002	SM 3112 B	18-Jun-20/O	< 0.00002		
Molybdenum	mg/L	0.0001	EPA 200.8	19-Jun-20/O	0.0022		



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

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

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SAMPLE MATRIX: Surface Water

WATERWORKS NO.

			Client I.D.	RWST-200615			
			Sample I.D.	B20-16820-1			
			Date Collected	15-Jun-20			
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Nickel	mg/L	0.0002	EPA 200.8	19-Jun-20/O	0.0062		
Potassium	mg/L	0.1	SM 3120	18-Jun-20/O	8.1		
Selenium	mg/L	0.001	EPA 200.8	19-Jun-20/O	< 0.001		
Silver	mg/L	0.0001	EPA 200.8	19-Jun-20/O	< 0.0001		
Sodium	mg/L	0.2	SM 3120	18-Jun-20/O	6.9		
Strontium	mg/L	0.001	SM 3120	18-Jun-20/O	0.144		
Tin	mg/L	0.05	SM 3120	18-Jun-20/O	< 0.05		
Titanium	mg/L	0.005	SM 3120	18-Jun-20/O	< 0.005		
Uranium	mg/L	0.00005	EPA 200.8	19-Jun-20/O	0.00019		
Vanadium	mg/L	0.0001	EPA 200.8	19-Jun-20/O	0.0011		
Yttrium	mg/L	0.005	SM 3120	18-Jun-20/O	< 0.005		
Zinc	mg/L	0.005	SM 3120	18-Jun-20/O	0.038		
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	19-Jun-20/K	0.22		
Phenolics	mg/L	0.002	MOEE 3179	18-Jun-20/K	0.002		
Benzene	µg/L	0.5	EPA 8260	18-Jun-20/R	< 0.5		
Toluene	µg/L	0.5	EPA 8260	18-Jun-20/R	< 0.5		
Ethylbenzene	µg/L	0.5	EPA 8260	18-Jun-20/R	< 0.5		
Xylene, m,p-	µg/L	1.0	EPA 8260	18-Jun-20/R	< 1.0		
Xylene, o-	µg/L	0.5	EPA 8260	18-Jun-20/R	< 0.5		
Xylene, m,p,o-	µg/L	1.1	EPA 8260	18-Jun-20/R	< 1.1		
Toluene-d8 (SS)	% rec.		EPA 8260	18-Jun-20/R	104		
PHC F1 (C6-C10)	µg/L	50	MOE E3421	18-Jun-20/R	< 50		
PHC F2 (>C10-C16)	µg/L	50	MOE E3421	19-Jun-20/K	< 50		
PHC F3 (>C16-C34)	µg/L	400	MOE E3421	19-Jun-20/K	< 400		
PHC F4 (>C34-C50)	µg/L	400	MOE E3421	19-Jun-20/K	< 400		
Oil & Grease-Total	mg/L	1.0	SM 5520	19-Jun-20/K	1.4		



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JOB/PROJECT NO.: Water Treatment EWPF

DATE REPORTED: 22-Jun-20

P.O. NUMBER: 430002982 Raw Water Soil

SAMPLE MATRIX: Surface Water

WATERWORKS NO.

			Client I.D.	RWST-200615			
			Sample I.D.	B20-16820-1			
			Date Collected	15-Jun-20			
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Acenaphthene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.1		
Acenaphthylene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.1	¹	
Anthracene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.1		
Benzo(a)anthracene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.1		
Benzo(a)pyrene	µg/L	0.01	EPA 8270	22-Jun-20/K	0.028		
Benzo(b)fluoranthene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.1		
Benzo(b+k)fluoranthene	µg/L	0.1	EPA 8270	22-Jun-20/K	< 0.3		
Benzo(g,h,i)perylene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.1		
Benzo(k)fluoranthene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.1		
Chrysene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.1		
Dibenzo(a,h)anthracene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.1		
Fluoranthene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.1		
Fluorene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.1		
Indeno(1,2,3,-cd)pyrene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.1		
Methylnaphthalene,1-	µg/L	0.05	EPA 8270	22-Jun-20/K	0.14		
Methylnaphthalene,2-	µg/L	0.08	EPA 8270	22-Jun-20/K	< 0.2		
Methylnaphthalene 2-(1-)	µg/L	1	EPA 8270	22-Jun-20/K	< 1		
Naphthalene	µg/L	0.05	EPA 8270	22-Jun-20/K	0.25		
Phenanthrene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.1		
Pyrene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.1		
Terphenyl-d14 (SS)	% rec.	10	EPA 8270	22-Jun-20/K	94.0		

¹ NOTE: Elevated RLs due to sample matrix interferences.



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Report To:

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

Attention: Jennifer Godin

Caduceon Environmental Laboratories

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

DATE RECEIVED: 17-Jun-20

JOB/PROJECT NO.: Water Treatment EWPF

DATE REPORTED: 22-Jun-20

P.O. NUMBER: 430002982 Raw Water - Pond

SAMPLE MATRIX: Surface Water

WATERWORKS NO.

			Client I.D.	RWP_20061 6			
			Sample I.D.	B20-16822-1			
			Date Collected	16-Jun-20			
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Hardness (as CaCO ₃)	mg/L	1	SM 3120	18-Jun-20/O	44		
Alkalinity(CaCO ₃) to pH4.5	mg/L	5	SM 2320B	17-Jun-20/O	38		
pH @25°C	pH Units		SM 4500H	17-Jun-20/O	7.61		
Conductivity @25°C	µmho/cm	1	SM 2510B	17-Jun-20/O	126		
Total Suspended Solids	mg/L	3	SM2540D	18-Jun-20/K	6		
Chloride	mg/L	0.5	SM4110C	18-Jun-20/O	8.6		
Nitrite (N)	mg/L	0.1	SM4110C	18-Jun-20/O	< 0.1		
Nitrate (N)	mg/L	0.1	SM4110C	18-Jun-20/O	< 0.1		
Sulphate	mg/L	1	SM4110C	18-Jun-20/O	7		
Aluminum	mg/L	0.01	SM 3120	18-Jun-20/O	0.10		
Antimony	mg/L	0.0001	EPA 200.8	19-Jun-20/O	0.0003		
Arsenic	mg/L	0.0001	EPA 200.8	19-Jun-20/O	0.0004		
Barium	mg/L	0.001	SM 3120	18-Jun-20/O	0.004		
Beryllium	mg/L	0.002	SM 3120	18-Jun-20/O	< 0.002		
Boron	mg/L	0.005	SM 3120	18-Jun-20/O	0.008		
Cadmium	mg/L	0.000015	EPA 200.8	19-Jun-20/O	0.000017		
Calcium	mg/L	0.02	SM 3120	18-Jun-20/O	14.2		
Chromium	mg/L	0.001	EPA 200.8	19-Jun-20/O	< 0.001		
Chromium (VI)	mg/L	0.001	MOE E3056	18-Jun-20/O	< 0.001		
Cobalt	mg/L	0.0001	EPA 200.8	19-Jun-20/O	0.0004		
Copper	mg/L	0.0001	EPA 200.8	19-Jun-20/O	0.0024		
Iron	mg/L	0.005	SM 3120	18-Jun-20/O	0.407		
Lead	mg/L	0.00002	EPA 200.8	19-Jun-20/O	0.00105		
Magnesium	mg/L	0.02	SM 3120	18-Jun-20/O	2.14		
Manganese	mg/L	0.001	SM 3120	18-Jun-20/O	0.216		
Mercury	mg/L	0.00002	SM 3112 B	18-Jun-20/O	< 0.00002		
Molybdenum	mg/L	0.0001	EPA 200.8	19-Jun-20/O	0.0010		



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SAMPLE MATRIX: Surface Water

WATERWORKS NO.

			Client I.D.	RWP_20061 6			
			Sample I.D.	B20-16822-1			
			Date Collected	16-Jun-20			
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Nickel	mg/L	0.0002	EPA 200.8	19-Jun-20/O	0.0011		
Potassium	mg/L	0.1	SM 3120	18-Jun-20/O	1.7		
Selenium	mg/L	0.001	EPA 200.8	19-Jun-20/O	< 0.001		
Silver	mg/L	0.0001	EPA 200.8	19-Jun-20/O	< 0.0001		
Sodium	mg/L	0.2	SM 3120	18-Jun-20/O	5.1		
Strontium	mg/L	0.001	SM 3120	18-Jun-20/O	0.040		
Tin	mg/L	0.05	SM 3120	18-Jun-20/O	< 0.05		
Titanium	mg/L	0.005	SM 3120	18-Jun-20/O	< 0.005		
Uranium	mg/L	0.00005	EPA 200.8	19-Jun-20/O	0.00020		
Vanadium	mg/L	0.0001	EPA 200.8	19-Jun-20/O	0.0006		
Yttrium	mg/L	0.005	SM 3120	18-Jun-20/O	< 0.005		
Zinc	mg/L	0.005	SM 3120	18-Jun-20/O	0.005		
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	19-Jun-20/K	0.39		
Phenolics	mg/L	0.002	MOEE 3179	18-Jun-20/K	< 0.002		
Benzene	µg/L	0.5	EPA 8260	18-Jun-20/R	< 0.5		
Toluene	µg/L	0.5	EPA 8260	18-Jun-20/R	< 0.5		
Ethylbenzene	µg/L	0.5	EPA 8260	18-Jun-20/R	< 0.5		
Xylene, m,p-	µg/L	1.0	EPA 8260	18-Jun-20/R	< 1.0		
Xylene, o-	µg/L	0.5	EPA 8260	18-Jun-20/R	0.6		
Xylene, m,p,o-	µg/L	1.1	EPA 8260	18-Jun-20/R	< 1.1		
Toluene-d8 (SS)	% rec.		EPA 8260	18-Jun-20/R	103		
PHC F1 (C6-C10)	µg/L	50	MOE E3421	18-Jun-20/R	< 50		
PHC F2 (>C10-C16)	µg/L	50	MOE E3421	19-Jun-20/K	200		
PHC F3 (>C16-C34)	µg/L	400	MOE E3421	19-Jun-20/K	< 400		
PHC F4 (>C34-C50)	µg/L	400	MOE E3421	19-Jun-20/K	< 400		
Oil & Grease-Total	mg/L	1.0	SM 5520	19-Jun-20/K	2.1		



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WATERWORKS NO.

			Client I.D.	RWP_20061 6			
			Sample I.D.	B20-16822-1			
			Date Collected	16-Jun-20			
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Acenaphthene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.09		
Acenaphthylene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.09 ¹		
Anthracene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.09		
Benzo(a)anthracene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.09		
Benzo(a)pyrene	µg/L	0.01	EPA 8270	22-Jun-20/K	< 0.02		
Benzo(b)fluoranthene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.09		
Benzo(b+k)fluoranthene	µg/L	0.1	EPA 8270	22-Jun-20/K	< 0.2		
Benzo(g,h,i)perylene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.09		
Benzo(k)fluoranthene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.09		
Chrysene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.09		
Dibenzo(a,h)anthracene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.09		
Fluoranthene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.09		
Fluorene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.09		
Indeno(1,2,3,-cd)pyrene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.09		
Methylnaphthalene,1-	µg/L	0.05	EPA 8270	22-Jun-20/K	0.14		
Methylnaphthalene,2-	µg/L	0.08	EPA 8270	22-Jun-20/K	< 0.1		
Methylnaphthalene 2-(1-)	µg/L	1	EPA 8270	22-Jun-20/K	< 1		
Naphthalene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.09		
Phenanthrene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.09		
Pyrene	µg/L	0.05	EPA 8270	22-Jun-20/K	< 0.09		
Terphenyl-d14 (SS)	% rec.	10	EPA 8270	22-Jun-20/K	111		

¹ NOTE: Elevated RLs due to sample matrix interferences.



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

R.L. = Reporting Limit

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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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

C.O.C.: ---

REPORT No. B20-18449

Report To:

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

Attention: Jennifer Godin

Caduceon Environmental Laboratories

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

DATE RECEIVED: 02-Jul-20

JOB/PROJECT NO.: Water Treatment EWPF

DATE REPORTED: 10-Jul-20

P.O. NUMBER: 430002982 RW Pond Batch 2

SAMPLE MATRIX: Surface Water

WATERWORKS NO.

			Client I.D.	RWP_20063 0			
			Sample I.D.	B20-18449-1			
			Date Collected	30-Jun-20			
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Hardness (as CaCO ₃)	mg/L	1	SM 3120	02-Jul-20/O	318		
Alkalinity(CaCO ₃) to pH4.5	mg/L	5	SM 2320B	03-Jul-20/O	284		
pH @25°C	pH Units		SM 4500H	03-Jul-20/O	7.78		
Conductivity @25°C	µmho/cm	1	SM 2510B	03-Jul-20/O	867		
Total Suspended Solids	mg/L	3	SM2540D	06-Jul-20/K	70		
Chloride	mg/L	0.5	SM4110C	06-Jul-20/O	64.0		
Nitrite (N)	mg/L	0.1	SM4110C	06-Jul-20/O	< 0.1		
Nitrate (N)	mg/L	0.1	SM4110C	06-Jul-20/O	< 0.1		
Sulphate	mg/L	1	SM4110C	06-Jul-20/O	36		
Aluminum	mg/L	0.01	SM 3120	02-Jul-20/O	0.28		
Antimony	mg/L	0.0001	EPA 200.8	03-Jul-20/O	0.0005		
Arsenic	mg/L	0.0001	EPA 200.8	03-Jul-20/O	0.0022		
Barium	mg/L	0.001	SM 3120	02-Jul-20/O	0.041		
Beryllium	mg/L	0.002	SM 3120	02-Jul-20/O	< 0.002		
Boron	mg/L	0.005	SM 3120	02-Jul-20/O	0.151		
Cadmium	mg/L	0.00015	EPA 200.8	03-Jul-20/O	0.000110		
Calcium	mg/L	0.02	SM 3120	02-Jul-20/O	99.1		
Chromium	mg/L	0.001	EPA 200.8	03-Jul-20/O	0.001		
Chromium (VI)	mg/L	0.001	MOE E3056	06-Jul-20/O	< 0.003		
Cobalt	mg/L	0.0001	EPA 200.8	03-Jul-20/O	0.0034		
Copper	mg/L	0.0001	EPA 200.8	03-Jul-20/O	0.0067		
Iron	mg/L	0.005	SM 3120	02-Jul-20/O	4.63		
Lead	mg/L	0.00002	EPA 200.8	03-Jul-20/O	0.00228		
Magnesium	mg/L	0.02	SM 3120	02-Jul-20/O	17.1		
Manganese	mg/L	0.001	SM 3120	02-Jul-20/O	1.87		
Mercury	mg/L	0.00002	SM 3112 B	08-Jul-20/O	< 0.00002		
Molybdenum	mg/L	0.0001	EPA 200.8	03-Jul-20/O	0.0018		

NOTE: Elevated RL's for select parameters due to sample matrix interferences. Non-Homogenous Sample.



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

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9935, rue de Chateauneuf, Entrée 1
Brossard Quebec J4Z 3V4 Canada

Attention: Jennifer Godin

Caduceon Environmental Laboratories

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

DATE RECEIVED: 02-Jul-20

JOB/PROJECT NO.: Water Treatment EWPF

DATE REPORTED: 10-Jul-20

P.O. NUMBER: 430002982 RW Pond Batch 2

SAMPLE MATRIX: Surface Water

WATERWORKS NO.

			Client I.D.	RWP_20063 0			
			Sample I.D.	B20-18449-1			
			Date Collected	30-Jun-20			
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Nickel	mg/L	0.0002	EPA 200.8	03-Jul-20/O	0.0056		
Potassium	mg/L	0.1	SM 3120	02-Jul-20/O	16.4		
Selenium	mg/L	0.001	EPA 200.8	03-Jul-20/O	< 0.001		
Silver	mg/L	0.0001	EPA 200.8	03-Jul-20/O	< 0.0001		
Sodium	mg/L	0.2	SM 3120	02-Jul-20/O	34.6		
Strontium	mg/L	0.001	SM 3120	02-Jul-20/O	0.332		
Tin	mg/L	0.05	SM 3120	02-Jul-20/O	< 0.05		
Titanium	mg/L	0.005	SM 3120	02-Jul-20/O	0.007		
Uranium	mg/L	0.00005	EPA 200.8	03-Jul-20/O	0.00078		
Vanadium	mg/L	0.0001	EPA 200.8	03-Jul-20/O	0.0035		
Yttrium	mg/L	0.005	SM 3120	02-Jul-20/O	< 0.005		
Zinc	mg/L	0.005	SM 3120	02-Jul-20/O	0.040		
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	03-Jul-20/K	2.81		
Phenolics	mg/L	0.002	MOEE 3179	06-Jul-20/K	0.150		
Benzene	µg/L	0.5	EPA 8260	03-Jul-20/R	< 30		
Toluene	µg/L	0.5	EPA 8260	03-Jul-20/R	37.5		
Ethylbenzene	µg/L	0.5	EPA 8260	03-Jul-20/R	< 30		
Xylene, m,p-	µg/L	1.0	EPA 8260	03-Jul-20/R	62.5		
Xylene, o-	µg/L	0.5	EPA 8260	03-Jul-20/R	69.5		
Xylene, m,p,o-	µg/L	1.1	EPA 8260	03-Jul-20/R	132		
Toluene-d8 (SS)	% rec.		EPA 8260	03-Jul-20/R	96.0		
PHC F1 (C6-C10)	µg/L	50	MOE E3421	03-Jul-20/R	2600		
PHC F2 (>C10-C16)	µg/L	50	MOE E3421	03-Jul-20/K	8810		
PHC F3 (>C16-C34)	µg/L	400	MOE E3421	03-Jul-20/K	1200		
PHC F4 (>C34-C50)	µg/L	400	MOE E3421	03-Jul-20/K	< 400		
Oil & Grease-Total	mg/L	1.0	SM 5520	03-Jul-20/K	5.6		

NOTE: Elevated RL's for select parameters due to sample matrix interferences. Non-Homogenous Sample.



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Lab Manager - Ottawa District

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9935, rue de Chateauneuf, Entrée 1
Brossard Quebec J4Z 3V4 Canada

Attention: Jennifer Godin

Caduceon Environmental Laboratories

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

DATE RECEIVED: 02-Jul-20

JOB/PROJECT NO.: Water Treatment EWPF

DATE REPORTED: 10-Jul-20

P.O. NUMBER: 430002982 RW Pond Batch 2

SAMPLE MATRIX: Surface Water

WATERWORKS NO.

			Client I.D.	RWP_20063 0			
			Sample I.D.	B20-18449-1			
			Date Collected	30-Jun-20			
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Acenaphthene	µg/L	0.05	EPA 8270	07-Jul-20/K	< 0.8		
Acenaphthylene	µg/L	0.05	EPA 8270	07-Jul-20/K	< 0.8		
Anthracene	µg/L	0.05	EPA 8270	07-Jul-20/K	< 0.8		
Benzo(a)anthracene	µg/L	0.05	EPA 8270	07-Jul-20/K	< 0.8		
Benzo(a)pyrene	µg/L	0.01	EPA 8270	07-Jul-20/K	< 0.2		
Benzo(b)fluoranthene	µg/L	0.05	EPA 8270	07-Jul-20/K	< 0.8		
Benzo(b+k)fluoranthene	µg/L	0.1	EPA 8270	07-Jul-20/K	< 2		
Benzo(g,h,i)perylene	µg/L	0.05	EPA 8270	07-Jul-20/K	< 0.8		
Benzo(k)fluoranthene	µg/L	0.05	EPA 8270	07-Jul-20/K	< 0.8		
Chrysene	µg/L	0.05	EPA 8270	07-Jul-20/K	< 0.8		
Dibenzo(a,h)anthracene	µg/L	0.05	EPA 8270	07-Jul-20/K	< 0.8		
Fluoranthene	µg/L	0.05	EPA 8270	07-Jul-20/K	< 0.8		
Fluorene	µg/L	0.05	EPA 8270	07-Jul-20/K	< 0.8		
Indeno(1,2,3,-cd)pyrene	µg/L	0.05	EPA 8270	07-Jul-20/K	< 0.8		
Methylnaphthalene,1-	µg/L	0.05	EPA 8270	07-Jul-20/K	7.81		
Methylnaphthalene,2-	µg/L	0.08	EPA 8270	07-Jul-20/K	9.06		
Methylnaphthalene 2-(1-)	µg/L	1	EPA 8270	07-Jul-20/K	16.9		
Naphthalene	µg/L	0.05	EPA 8270	07-Jul-20/K	11.7		
Phenanthrene	µg/L	0.05	EPA 8270	07-Jul-20/K	< 0.8		
Pyrene	µg/L	0.05	EPA 8270	07-Jul-20/K	< 0.8		
Terphenyl-d14 (SS)	% rec.	10	EPA 8270	07-Jul-20/K	100		

NOTE: Elevated RL's for select parameters due to sample matrix interferences. Non-Homogenous Sample.

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

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C.O.C.: ---

REPORT No. B20-20579

Report To:

Qikiqtaaluk Env Inc
9935, rue de Chateaufort, Entrée 1
Brossard Quebec J4Z 3V4 Canada

Attention: Jennifer Godin

Caduceon Environmental Laboratories

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

DATE RECEIVED: 17-Jul-20

JOB/PROJECT NO.: Water Treatment EWPF

DATE REPORTED: 23-Jul-20

P.O. NUMBER: 430002982 - TW Batch 2

SAMPLE MATRIX: Surface Water

WATERWORKS NO.

			Client I.D.	TW-B2_200711			
			Sample I.D.	B20-20579-1			
			Date Collected	11-Jul-20			
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Hardness (as CaCO ₃)	mg/L	1	SM 3120	20-Jul-20/O	324		
pH @25°C	pH Units		SM 4500H	17-Jul-20/O	7.71		
Total Suspended Solids	mg/L	3	SM2540D	21-Jul-20/K	34		
Aluminum	mg/L	0.01	SM 3120	20-Jul-20/O	2.29		
Antimony	mg/L	0.0001	EPA 200.8	20-Jul-20/O	0.0004		
Arsenic	mg/L	0.0001	EPA 200.8	20-Jul-20/O	0.0053		
Barium	mg/L	0.001	SM 3120	20-Jul-20/O	0.042		
Beryllium	mg/L	0.002	SM 3120	20-Jul-20/O	< 0.002		
Boron	mg/L	0.005	SM 3120	20-Jul-20/O	< 0.005		
Cadmium	mg/L	0.000015	EPA 200.8	20-Jul-20/O	0.000021		
Calcium	mg/L	0.02	SM 3120	20-Jul-20/O	102		
Chromium	mg/L	0.001	EPA 200.8	20-Jul-20/O	< 0.001		
Chromium (VI)	mg/L	0.001	MOE E3056	20-Jul-20/O	< 0.001		
Cobalt	mg/L	0.0001	EPA 200.8	20-Jul-20/O	0.0023		
Copper	mg/L	0.0001	EPA 200.8	20-Jul-20/O	0.0071		
Iron	mg/L	0.005	SM 3120	20-Jul-20/O	1.88		
Lead	mg/L	0.00002	EPA 200.8	20-Jul-20/O	0.00099		
Magnesium	mg/L	0.02	SM 3120	20-Jul-20/O	16.8		
Manganese	mg/L	0.001	SM 3120	20-Jul-20/O	1.87		
Mercury	mg/L	0.00002	SM 3112 B	22-Jul-20/O	< 0.00002		
Molybdenum	mg/L	0.0001	EPA 200.8	20-Jul-20/O	0.0003		
Nickel	mg/L	0.0002	EPA 200.8	20-Jul-20/O	0.0221		
Potassium	mg/L	0.1	SM 3120	20-Jul-20/O	17.3		
Selenium	mg/L	0.001	EPA 200.8	20-Jul-20/O	< 0.001		
Silver	mg/L	0.0001	EPA 200.8	20-Jul-20/O	< 0.0001		
Sodium	mg/L	0.2	SM 3120	20-Jul-20/O	37.0		
Strontium	mg/L	0.001	SM 3120	20-Jul-20/O	0.312		



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Brossard Quebec J4Z 3V4 Canada

Attention: Jennifer Godin

Caduceon Environmental Laboratories

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

DATE RECEIVED: 17-Jul-20

JOB/PROJECT NO.: Water Treatment EWPF

DATE REPORTED: 23-Jul-20

P.O. NUMBER: 430002982 - TW Batch 2

SAMPLE MATRIX: Surface Water

WATERWORKS NO.

			Client I.D.	TW-B2_200711			
			Sample I.D.	B20-20579-1			
			Date Collected	11-Jul-20			
Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Tin	mg/L	0.05	SM 3120	20-Jul-20/O	< 0.05		
Titanium	mg/L	0.005	SM 3120	20-Jul-20/O	< 0.005		
Uranium	mg/L	0.00005	EPA 200.8	20-Jul-20/O	0.00016		
Vanadium	mg/L	0.0001	EPA 200.8	20-Jul-20/O	0.0010		
Yttrium	mg/L	0.005	SM 3120	20-Jul-20/O	< 0.005		
Zinc	mg/L	0.005	SM 3120	20-Jul-20/O	0.066		
Benzene	µg/L	0.5	EPA 8260	21-Jul-20/R	< 0.5		
Toluene	µg/L	0.5	EPA 8260	21-Jul-20/R	< 0.5		
Ethylbenzene	µg/L	0.5	EPA 8260	21-Jul-20/R	< 0.5		
Xylene, m,p-	µg/L	1.0	EPA 8260	21-Jul-20/R	< 1.0		
Xylene, o-	µg/L	0.5	EPA 8260	21-Jul-20/R	< 0.5		
Xylene, m,p,o-	µg/L	1.1	EPA 8260	21-Jul-20/R	< 1.1		
Toluene-d8 (SS)	% rec.		EPA 8260	21-Jul-20/R	100		
PHC F1 (C6-C10)	µg/L	50	MOE E3421	21-Jul-20/R	< 50		
PHC F2 (>C10-C16)	µg/L	50	MOE E3421	21-Jul-20/K	< 50		
PHC F3 (>C16-C34)	µg/L	400	MOE E3421	21-Jul-20/K	< 400		
PHC F4 (>C34-C50)	µg/L	400	MOE E3421	21-Jul-20/K	< 400		
Oil & Grease-Total	mg/L	1.0	SM 5520	22-Jul-20/K	1.9		

1 Chromium (VI) result is based on total Chromium

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

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APPENDIX B

NIRB Screening Decision Report



NIRB File No.: 15XN051

NPC File No.: 149361

Related to NPC File No.: 148158 and 149195

NWB File No.: 1BR-THI2027

September 1, 2020

To: The Honourable Lorne Kusugak
Minister of Community & Government Services
Government of Nunavut
P.O Box 2410
Iqaluit, NU X0A 0H0

Sent via email: lkusugak@gov.nu.ca and rkennedy@gov.nu.ca

Re: Screening Decision for Qikiqtaaluk Environmental Inc.'s "Installation of an Incinerator" Project Proposal, Qikiqtani (South Baffin) Region

Dear Honourable Minister:

On May 25, 2020 the Nunavut Impact Review Board (NIRB or Board) received a referral to screen Qikiqtaaluk Environmental Inc.'s "Installation of an Incinerator" project proposal from the Nunavut Planning Commission (Commission), which noted that the project proposal is outside the area of an applicable regional land use plan. The Commission noted that the previous conformity determination issued on November 24, 2015 for the activities associated with the current proposal continues to apply and has determined that the project proposal is a significant modification to the project because of the installation and operation of a biomedical waste incinerator that was not part of the previously screened project proposal.

Pursuant to Article 12, Sections 12.4.1 and 12.4.4 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada (Nunavut Agreement)* and s. 87 of the *Nunavut Planning and Project Assessment Act*, S.C. 2013, c. 14, s. 2 (*NuPPAA*), the NIRB commenced screening this project proposal. Due to the proposal containing activities that were sufficiently related to previously assessed activities under NIRB file number **15XN051**, the NIRB viewed this project proposal as an amendment to the previously screened project and assigned this proposal with this previous file number.

Following the assessment of all material information provided, the NIRB is recommending that a review of Qikiqtaaluk Environmental Inc.'s "Installation of an Incinerator" project is not required pursuant to paragraph 92(1)(a) of the *NuPPAA*.

Pursuant to its discretion under paragraph 92(2)(a) of the *NuPPAA*, the NIRB has determined that specific terms and conditions are appropriate for this project.

Accordingly, the NIRB is issuing the attached Screening Decision Report dated September 1, 2020 to the responsible Minister. The Screening Decision Report provides, among other things, the regulatory framework, project overview and the NIRB's assessment process, factors relevant for the determining significance of impacts and recommended project-specific terms and conditions.

Please note that the project proposal will not be enclosed due to the size of the electronic document and the limited bandwidth. However, an electronic copy of the project proposal is accessible online from the NIRB's online public registry at <https://www.nirb.ca/project/125540>.

Please note that, the Board only directly addresses these notice letters to those individuals considered to be a "responsible Minister with decision-making authority" for the project as set out under the *NuPPAA*. However, regulatory authorities and other authorizing agencies associated with a proposed project (e.g. Regional Inuit Associations, Nunavut Water Board) will continue to be copied on the Notice of Release of the Screening Decision Report. The NIRB is providing these parties with notice and access to the Board's Screening Decision Report as required under s. 200(2) and in support of these parties in the fulfillment of their responsibilities under the *NuPPAA* and the *Nunavut Agreement* to address, and as appropriate, implement, to the fullest extent possible, any relevant NIRB recommendations contained in the Screening Decision Report.

We look forward to receiving a response from the responsible Minister and the NIRB remains available for consultation with the Minister regarding this report as necessary. If you have any questions or require clarification, please do not hesitate to contact the NIRB's Director, Technical Services, Tara Arko at (867) 983-4611 or tarko@nirb.ca.

Sincerely,



Kaviq Kaluraq
Chairperson
Nunavut Impact Review Board

Enclosure (2): Screening Decision Report (English and Inuktitut), NIRB File No.: 15XN051 (September 1, 2020)

cc: Lootie Toomasie, Chairperson, Nunavut Water Board
The Honourable Dan Vandal, P.C., M.P Minister of Northern Affairs, Government of Canada

[illegible][illegible]

the quality of the report produced. Facilities to conduct fieldwork, analysis, and report preparation should be available to this individual through institutional, agency, or company affiliations. Responsibility for the curation of objects recovered during field work while under study and for documents generated in the course of the study as well as remittance of artifacts, specimens and documents to the repository specified on the permit accrue to the contract archaeologist or palaeontologist. This individual is also bound by the legal requirements of the *Nunavut Archaeological and Palaeontological Sites Regulations*.

Types of Development

In general, those developments that cause concern for the safety of heritage resources will include one or more of the following kinds of surface disturbances. These categories, in combination, are comprehensive of the major kinds of developments commonly proposed in Nunavut. For any single development proposal, several kinds of these disturbances may be involved

- *Linear disturbances: including the construction of highways, roads, winter roads, transmission lines, and pipelines;*
- *Extractive disturbances: including mining, gravel removal, quarrying, and land filling;*
- *Impoundment disturbances: including dams, reservoirs, and tailings ponds;*
- *Intensive land use disturbances: including industrial, residential, commercial, recreational, and land reclamation work, and use of heritage resources as tourist developments.*
- *Mineral, oil and gas exploration: establishment of camps, temporary airstrips, access routes, well sites, or quarries all have potential for impacting heritage resources.*

Types of Studies Undertaken to Preserve Heritage Resources

Overview: An overview study of heritage resources should be conducted at the same time as the development project is being designed or its feasibility addressed. They usually lack specificity with regard to the exact location(s) and form(s) of impact and involve limited, if any, field surveys. Their main aim is to accumulate, evaluate, and synthesize the existing knowledge of the heritage of the known area of impact. The overview study provides managers with baseline data from which recommendations for future research and forecasts of potential impacts can be made. A Class I Permit is required for this type of study if field surveys are undertaken.

Reconnaissance: This is done to provide a judgmental appraisal of a region sufficient to provide the developer, the consultant, and government managers with recommendations for further development planning. This study may be implemented as a preliminary step to inventory and assessment investigations except in cases where a reconnaissance may

indicate a very low or negligible heritage resource potential. Alternately, in the case of small-scale or linear developments, an inventory study may be recommended and obviate the need for a reconnaissance.

The main goal of a reconnaissance study is to provide baseline data for the verification of the presence of potential heritage resources, the determination of impacts to these resources, the generation of terms of reference for further studies and, if required, the advancement of preliminary mitigative and compensatory plans. The results of reconnaissance studies are primarily useful for the selection of alternatives and secondarily as a means of identifying impacts that must be mitigated after the final siting and design of the development project. Depending on the scope of the study, a Class 1 or Class 2 Permit is required for this type of investigation.

Inventory: A resource inventory is generally conducted at that stage in a project's development at which the geographical area(s) likely to sustain direct, indirect, and perceived impacts can be well defined. This requires systematic and intensive fieldwork to ascertain the effects of all possible and alternate construction components on heritage resources. All heritage sites must be recorded on Government of Nunavut Site Survey forms. Sufficient information must be amassed from field, library and archival components of the study to generate a predictive model of the heritage resource base that will:

- allow the identification of research and conservation opportunities;
- enable the developer to make planning decisions and recognize their likely effects on the known or predicted resources; and
- make the developer aware of the expenditures, which may be required for subsequent studies and mitigation. A Class 1 or 2 permit is required.

Assessment: At this stage, sufficient information concerning the numbers and locations of heritage resources will be available, as well as data to predict the forms and magnitude of impacts. Assessments provide information on the size, volume, complexity and content of a heritage resource, which is used to rank the values of different sites or site types given current archaeological knowledge. As this information will shape subsequent mitigation program(s), great care is necessary during this phase.

Mitigation: This refers to the amelioration of adverse impacts to heritage resources and involves the avoidance of impact through the redesign or relocation of a development or its components; the protection of the resource by constructing physical facilities; or, the scientific investigation and recovery of information from the resource by excavation or other method. The type(s) of appropriate mitigative measures are dictated by their viability in the context of the development project. Mitigation strategies must be developed in consultation with, and approved by, the Department of Culture and Heritage. It is important to note that mitigation activities should be initiated as far in advance of the construction of the development as possible.

Surveillance and monitoring: These may be required as part of the mitigation program.

Surveillance may be conducted during the construction phase of a project to ensure that the developer has complied with the recommendations.

Monitoring involves identification and inspection of residual and long-term impacts of a development (i.e. shoreline stability of a reservoir); or the use of impacts to disclose the presence of heritage resources, for example, the uncovering of buried sites during the construction of a pipeline.



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