ANNUAL REPORT
FOR THE MUNICIPALITY OF PANGNIRTUNG, 2022

YEAR BEING REPORTED: 2022

The following information is compiled pursuant to the requirements of Part A, Item 1 of Water Licence # 3AM-PAN1828 issued to the Municipality of Pangnirtung.

i) - iii) tabular summaries of all data generated under the "Monitoring Program"; monthly and annual quantities in cubic metres of freshwater obtained from all sources; monthly and annual quantities in cubic metres of each and all wastes discharged;

Attached are quantities of water used as reported in our On Tap Water Delivery System and the estimated discharge of sewage waste based on quantities used.

Month Reported	Quantity of Water Obtained from all sources (L)	Quantity of Sewage Waste Discharged (Estimated)
January	**4,199,175.70**	Same
February	**4,068,095.80**	Same
March	**4,531,005.64**	Same
April	**4,264,897.11**	Same
May	**4,242,305.40**	Same
June	**4,433,358.50**	Same
July	**3,887,449.70**	Same
August	**4,152,015.70**	Same
September	**4,245,590.70**	Same
October	**4,005,332.90**	Same
November	**4,339,526.60**	Same
December	**4,345,583.40**	Same
ANNUAL TOTAL	**50,708,337.15**	**Same**

Note: The water consumption volume is considered equal to the discharge volume because there is no meter at the end of the discharge pipe.

iv. 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;

Mechanical wastewater treatment plant broken overhead piping replaced due to floor heaving.

v. A list of unauthorized discharges and summary of follow-up action taken;

Due to concrete floor heaving, overhead piping had to be repaired in mechanical wastewater treatment plant. For duration of piping repair, temporary sewage discharge area had been created.

vi. 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 completed in reporting year.

vii. 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;

Pangnirtung is one of the Municipalities included in the current solid waste facility project. This project will identify the best way to use available funding to support operational needs, improve water licence compliance, prolong the useful life of the existing solid waste site, and backhauling of existing waste.

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

CGS will work with municipality on all CIRNAC inspection report identified issues addressing solid waste, wastewater, and water.

ix. Updates or revisions to the approved Operation and Maintenance Plans.

All Infrastructure under approved Water License is operated under existing O & M manuals. There are no updates or revisions to the existing O&M's

x. ADDITIONAL INFORMATION THAT THE LICENSEE DEEMS USEFUL:

For items identified in CIRNAC's report to be in noncompliance CGS had not received information from Municipality at the time of reporting

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x. FOLLOW-UP REGARDING INSPECTION/COMPLIANCE CONCERNS:

CGS will work with Municipality and try to address all the noncompliance issues during construction season 2023.

Appendix A: PAN-3 Effluent Quality Limits

Appendix B: Certificate of Analysis

Appendix C: Hazardous Materials Spill Database, Pond Inlet 2022

Appendix D: Pond Inlet 2022 CIRNAC Inspection Report

Appendix A

PAN-3 Effluent from WWTP

Parameter	Maximum Average OR Individual Concentration	DATE: July 11.2022.
BOD	120 mg/L	**6 mg/L**
Total Suspended Solids	180 mg/L	**Less than 3 mg/L**
Fecal Coliform	$1x10^3$ CFU/100 mL	**Less than 2 CFU/100 mL**
Oil and Grease	No visible sheen	**No visible sheen (Less than 1 mg/L)**
pH	Between 6 and 9	**7.72**

Appendix B

CADUCEON™ ENVIRONMENTAL LABORATORIES
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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: G 110816 **REPORT No. B22-20026**

Report To:

Hamlet of Pangnirtung
P.O. Box 253,
Pangnirtung Nunavut X0A 0R0 Canada
Attention: SAO -

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

DATE RECEIVED: 28-Jun-22
DATE REPORTED: 11-Jul-22
SAMPLE MATRIX: Waste Water

JOB/PROJECT NO.:
P.O. NUMBER:
WATERWORKS NO.

			Client I.D.		Raw Pan-2	Effluent Pan-3		
			Sample I.D.		B22-20026-1	B22-20026-2		
			Date Collected		22-Jun-22	22-Jun-22		
Parameter	**Units**	**R.L.**	**Reference Method**	**Date/Site Analyzed**				
Conductivity @25°C	µmho/cm	1	SM 2510B	28-Jun-22/O	1110	726		
Nitrite (N)	mg/L	0.1	SM4110C	28-Jun-22/O	< 0.1	10.5		
Nitrate (N)	mg/L	0.1	SM4110C	28-Jun-22/O	< 0.1	1.3		
Chloride	mg/L	0.5	SM4110C	28-Jun-22/O	52.5	50.2		
Sulphate	mg/L	1	SM4110C	28-Jun-22/O	1	28		
Fecal Coliform	cfu/100mL	1	MOE E3371	28-Jun-22/O	800000	< 2		
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	28-Jun-22/O	400	183		
Aluminum	mg/L	0.01	SM 3120	29-Jun-22/O	0.81	0.03		
Calcium	mg/L	0.02	SM 3120	29-Jun-22/O	9.84	6.90		
Cadmium	mg/L	0.005	SM 3120	29-Jun-22/O	< 0.005	< 0.005		
Cobalt	mg/L	0.005	SM 3120	29-Jun-22/O	< 0.005	< 0.005		
Copper	mg/L	0.002	SM 3120	29-Jun-22/O	0.295	0.035		
Chromium	mg/L	0.002	SM 3120	29-Jun-22/O	0.005	< 0.002		
Iron	mg/L	0.005	SM 3120	29-Jun-22/O	1.64	0.346		
Magnesium	mg/L	0.02	SM 3120	29-Jun-22/O	3.47	1.71		
Manganese	mg/L	0.001	SM 3120	29-Jun-22/O	0.058	0.027		
Sodium	mg/L	0.2	SM 3120	29-Jun-22/O	49.2	78.5		
Nickel	mg/L	0.01	SM 3120	29-Jun-22/O	0.01	< 0.01		
Lead	mg/L	0.02	SM 3120	29-Jun-22/O	< 0.02	< 0.02		
Zinc	mg/L	0.005	SM 3120	29-Jun-22/O	0.362	0.056		
Hardness (as CaCO3)	mg/L	1	SM 3120	29-Jun-22/O	39	24		
Arsenic	mg/L	0.0005	EPA 200.8	08-Jul-22/O	0.0009	< 0.0005		
Total Organic Carbon	mg/L	0.2	EPA 415.2	29-Jun-22/O	106	29.8		
Mercury	mg/L	0.00002	SM 3112 B	04-Jul-22/O	0.00019	< 0.00002		
pH @25°C	pH Units		SM 4500H	28-Jun-22/O	7.44	7.72		
Oil & Grease-Total	mg/L	1.0	SM 5520	29-Jun-22/K	233	< 1.0		
BOD(5 day)	mg/L	3	SM 5210B	29-Jun-22/K	319	6		

Tahir Yapici Ph.D
Lab Supervisor

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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Attention: SAO -

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P.O. NUMBER:
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			Sample I.D.		B22-20026-1	B22-20026-2		
			Date Collected		22-Jun-22	22-Jun-22		
Parameter	**Units**	**R.L.**	**Reference Method**	**Date/Site Analyzed**				
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	29-Jun-22/K	94.9	35.8		
Phenolics	mg/L	0.001	MOEE 3179	07-Jul-22/K	0.368	< 0.001		
Total Suspended Solids	mg/L	3	SM2540D	04-Jul-22/K	360	< 3		

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C.O.C.: G110818 **REPORT No. B22-22480**

Report To:

Hamlet of Pangnirtung
P.O. Box 253,
Pangnirtung Nunavut X0A 0R0 Canada
Attention: Peter Mamiqk

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

DATE RECEIVED: 18-Jul-22
DATE REPORTED: 26-Jul-22
SAMPLE MATRIX: Leachate

JOB/PROJECT NO.:
P.O. NUMBER:
WATERWORKS NO.

			Client I.D.		PAN-4	PAN-5	PAN-6	
			Sample I.D.		B22-22480-1	B22-22480-2	B22-22480-3	
			Date Collected		14-Jul-22	14-Jul-22	14-Jul-22	
Parameter	**Units**	**R.L.**	**Reference Method**	**Date/Site Analyzed**				
Hardness (as CaCO3)	mg/L	1	SM 3120	21-Jul-22/O	2720	13	9	
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	18-Jul-22/O	8	< 5	6	
pH @25°C	pH Units		SM 4500H	18-Jul-22/O	6.68	6.12	6.50	
Conductivity @25°C	µmho/cm	1	SM 2510B	18-Jul-22/O	25900	18	29	
Total Suspended Solids	mg/L	3	SM2540D	20-Jul-22/K	68	435	3	
Chloride	mg/L	0.5	SM4110C	19-Jul-22/O	7390	2.3	2.4	
Nitrite (N)	mg/L	0.1	SM4110C	19-Jul-22/O	< 10	< 0.1	< 0.1	
Nitrate (N)	mg/L	0.1	SM4110C	19-Jul-22/O	< 10	< 0.1	< 0.1	
Sulphate	mg/L	1	SM4110C	19-Jul-22/O	1110	2	3	
Calcium	mg/L	0.02	SM 3120	21-Jul-22/O	200	2.40	2.92	
Potassium	mg/L	0.1	SM 3120	21-Jul-22/O	184	1.2	0.2	
Aluminum	mg/L	0.01	SM 3120	21-Jul-22/O	0.17	4.55	0.11	
Arsenic	mg/L	0.0005	EPA 200.8	19-Jul-22/O	0.0152	0.0007	< 0.0005	
Cadmium	mg/L	).000070	EPA 200.8	19-Jul-22/O	< 0.00070	< 0.000070	< 0.000070	
Chromium	mg/L	0.002	SM 3120	21-Jul-22/O	< 0.002	0.008	< 0.002	
Cobalt	mg/L	0.005	SM 3120	21-Jul-22/O	0.009	< 0.005	< 0.005	
Copper	mg/L	0.002	SM 3120	21-Jul-22/O	0.004	0.011	0.005	
Iron	mg/L	0.005	SM 3120	21-Jul-22/O	0.765	7.92	0.356	
Lead	mg/L	0.0001	EPA 200.8	19-Jul-22/O	< 0.001	0.0023	0.0009	
Manganese	mg/L	0.001	SM 3120	21-Jul-22/O	0.152	0.058	0.017	
Mercury	mg/L	0.00002	SM 3112 B	20-Jul-22/O	< 0.00002	< 0.00002	< 0.00002	
Nickel	mg/L	0.01	SM 3120	21-Jul-22/O	< 0.01	< 0.01	< 0.01	
Zinc	mg/L	0.005	SM 3120	21-Jul-22/O	0.053	0.024	0.079	
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	19-Jul-22/K	0.81	0.07	0.02	
Phosphorus-Total	mg/L	0.01	E3516.2	25-Jul-22/K	0.45	0.66	0.04	
Phenolics	mg/L	0.001	MOEE 3179	20-Jul-22/K	< 0.001	< 0.001	< 0.001	
BOD(5 day)	mg/L	3	SM 5210B	20-Jul-22/K	18	3	< 3	

Tahir Yapici Ph.D
Lab Supervisor

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			Client I.D.		PAN-4	PAN-5	PAN-6	
			Sample I.D.		B22-22480-1	B22-22480-2	B22-22480-3	
			Date Collected		14-Jul-22	14-Jul-22	14-Jul-22	
Parameter	**Units**	**R.L.**	**Reference Method**	**Date/Site Analyzed**				
Total Organic Carbon	mg/L	0.2	EPA 415.2	19-Jul-22/O	7.2	9.5	6.8	
Oil & Grease-Total	mg/L	1.0	SM 5520	20-Jul-22/K	< 1.0	< 1.0	< 1.0	
Fecal Coliform	cfu/100mL	1	MOE E3371	18-Jul-22/O	1300	20	< 10	
PHC F1 (C6-C10)	µg/L	25	MOE E3421	19-Jul-22/R	< 25	< 25	< 25	
PHC F2 (>C10-C16)	µg/L	50	MOE E3421	19-Jul-22/K	< 50	< 50	< 50	
PHC F3 (>C16-C34)	µg/L	400	MOE E3421	19-Jul-22/K	< 400	< 400	< 400	
PHC F4 (>C34-C50)	µg/L	400	MOE E3421	19-Jul-22/K	< 400	< 400	< 400	
Acenaphthene	µg/L	0.05	EPA 8270	20-Jul-22/K	< 0.05	< 0.05	< 0.05	
Acenaphthylene	µg/L	0.05	EPA 8270	20-Jul-22/K	< 0.05	< 0.05	< 0.05	
Anthracene	µg/L	0.05	EPA 8270	20-Jul-22/K	< 0.05	< 0.05	< 0.05	
Benzo(a)anthracene	µg/L	0.05	EPA 8270	20-Jul-22/K	< 0.05	< 0.05	< 0.05	
Benzo(a)pyrene	µg/L	0.01	EPA 8270	20-Jul-22/K	< 0.01	< 0.01	< 0.01	
Benzo(b)fluoranthene	µg/L	0.05	EPA 8270	20-Jul-22/K	< 0.05	< 0.05	< 0.05	
Benzo(b+k)fluoranthene	µg/L	0.1	EPA 8270	20-Jul-22/K	< 0.1	< 0.1	< 0.1	
Benzo(g,h,i)perylene	µg/L	0.05	EPA 8270	20-Jul-22/K	< 0.05	< 0.05	< 0.05	
Benzo(k)fluoranthene	µg/L	0.05	EPA 8270	20-Jul-22/K	< 0.05	< 0.05	< 0.05	
Chrysene	µg/L	0.05	EPA 8270	20-Jul-22/K	< 0.05	< 0.05	< 0.05	
Dibenzo(a,h)anthracene	µg/L	0.05	EPA 8270	20-Jul-22/K	< 0.05	< 0.05	< 0.05	
Fluoranthene	µg/L	0.05	EPA 8270	20-Jul-22/K	< 0.05	< 0.05	< 0.05	
Fluorene	µg/L	0.05	EPA 8270	20-Jul-22/K	< 0.05	< 0.05	< 0.05	
Indeno(1,2,3,-cd)pyrene	µg/L	0.05	EPA 8270	20-Jul-22/K	< 0.05	< 0.05	< 0.05	
Methylnaphthalene,1-	µg/L	0.05	EPA 8270	20-Jul-22/K	< 0.05	< 0.05	< 0.05	
Methylnaphthalene,2-	µg/L	0.05	EPA 8270	20-Jul-22/K	< 0.05	< 0.05	< 0.05	
Naphthalene	µg/L	0.05	EPA 8270	20-Jul-22/K	< 0.05	< 0.05	< 0.05	
Phenanthrene	µg/L	0.05	EPA 8270	20-Jul-22/K	< 0.05	< 0.05	< 0.05	
Pyrene	µg/L	0.05	EPA 8270	20-Jul-22/K	< 0.05	< 0.05	< 0.05	
Benzene	µg/L	0.5	EPA 8260	19-Jul-22/R	< 0.5	< 0.5	< 0.5	

Tahir Yapici Ph.D
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JOB/PROJECT NO.:
P.O. NUMBER:
WATERWORKS NO.

			Client I.D.		PAN-4	PAN-5	PAN-6	
			Sample I.D.		B22-22480-1	B22-22480-2	B22-22480-3	
			Date Collected		14-Jul-22	14-Jul-22	14-Jul-22	
Parameter	**Units**	**R.L.**	**Reference Method**	**Date/Site Analyzed**				
Toluene	µg/L	0.5	EPA 8260	19-Jul-22/R	< 0.5	< 0.5	< 0.5	
Ethylbenzene	µg/L	0.5	EPA 8260	19-Jul-22/R	< 0.5	< 0.5	< 0.5	
Xylene, m,p-	µg/L	1.0	EPA 8260	19-Jul-22/R	< 1.0	< 1.0	< 1.0	
Xylene, o-	µg/L	0.5	EPA 8260	19-Jul-22/R	< 0.5	< 0.5	< 0.5	
Xylene, m,p,o-	µg/L	1.1	EPA 8260	19-Jul-22/R	< 1.1	< 1.1	< 1.1	

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Appendix C

SPILL	OCCURANCE DATE	LOCATION	PRODUCT SPILLED	QUANTINTY	ACTION
2022119	**April 05.2022.**	**Pangnirtung- next to the SW disposal facility**	**Raw sewage**	**9434 m3**	

Appendix D

WATER LICENCE INSPECTION FORM

☒ **Original**
☐ **Follow-Up Report**

Licensee	**Licensee Representative**
Hamlet of Pangnirtung	Gord Marinic
Licence No. / Expiry	**Representative's Title**
3AM-PAN1828	Municipal Engineer
Land / Other Authorizations	**Land / Other Authorizations**
1BW-DUV2025	
Date of Inspection	**Inspector**
June 22, 2022	Joseph Monteith

Activities Inspected

☐ Camp ☐ Drilling ☐ Mining ☐ Construction ☐ Reclamation ☐ Fuel Storage

☐ Fuel Storage ☐ Other: ☐ Other: Water Use & Waste Disposal

Conditions: **A- Acceptable** **U-Unacceptable** **C-Concern** **NI-Not Inspected** **NA- Not applicable**

PART:	**Condition**	**Observation No.***
A: SCOPE, DEFINITIONS AND ENFORCEMENT	NA	
B: GENERAL CONDITIONS	A	
C: CONDITIONS APPLYING TO SECURITY	NI	
D: CONDITIONS APPLYING TO WATER USE	A	1-8
E: CONDITIONS APPLYING TO WASTE DISPOSAL AND MANAGEMENT	C	9-17
F: CONDITIONS APPLYING TO MODIFICATIONS	NI	
G: CONDITIONS APPLYING TO CONSTRUCTION	NI	
H: CONDITIONS APPLYING TO EMERGENCY RESPONSE AND CONTINGENCY PLANNING	U	18,19
I: CONDITIONS APPLYING TO ABANDONMENT, RECLAMATION AND CLOSURE PLANNING	A	
J: CONDITIONS APPLYING TO MONITORING	NI	17
SCHEDULES	A	

** The observation number corresponds with specific comments provided below.*

Samples taken by Inspector:	Location(s): Latitude : N66° 09' 00" , Longitude: W65° 40' 34"
☐ Yes ☒ No	

SECTION 1 ☒ **Comments** (s) ☐ **Non-Compliance with Act or Licence** (s.__) ☐ **Action Required** (s.__)

Background

On June 23, 2018 Richard Dwyer, Nunavut Water Board, Manager of Licencing emailed Water Resource Officer(WRO) Joseph Monteith a copy of the replacement and amended Licence 3AM-PAN1828. In the renewal and amended licence it indicates that as of May 4, 2018 the Hamlet can now use 120,000m³ annually as per the new water licence.
The community infrastructure licenced in the water licences contains a Water Treatment Facility, Waste Water Treatment Plant(WWTP), Solid Waste Facility, and a Hazardous Waste Storage Facility.

On October 16, 2020 Richard Dwyer, Nunavut Water Board, Manager of Licencing emailed Water Resource Officer(WRO) Joseph Monteith the issuance of 1BW-DUV2025 renewed Water License, from previously issued water license 1BW-DUV2025 for a River Crossing and Drainage Redirection project.

Inspector Statement

On June 22, 2022, Water License inspection was conducted by WR0 Joseph Monteith on water License 3BM-PAN1828 issued to the Hamlet of Pangnirtung, Qikiqtani Region, Nunavut, to verify compliance with the terms and conditions of the Water Licence 3AM-PAN1828, and 1BW-DUV2025.

General Condition

On April 7, 2021 the Nunavut Water Board uploaded to their FTP site a copy of the Hamlet of Pangnirtung Annual report for 1BW-DUV2025. ftp://ftp.nwb-oen.ca/registry/1%20INDUSTRIAL/1B/1BW%20-%20Watercourse/1BW-DUV2025/3%20TECH/B%20GENERAL/2%20ANNUAL%20RPT/

Water Use and Related Structures

Duval River – Water Source (See photo 1 & 2)

1. Water is extracted from the Duval River using a water pump and mobile generator. At the time of the inspection, the work authorized by 1BW-DUV2025 to dredge the water source, and dam up with boulder to raise the area where water extraction takes place was complete. The license remains to complete work on the culvert bridge.
2. Water is transferred by pipes from Duval River to the Water Storage Reservoir (photo 2 &3).

Water Treatment Facility & Water Storage Reservoir

3. The Water from Duval River is deposited into a reservoir next to the Water Treatment Facility (photo 3).
4. Water is delivered from the Water Treatment Plant by truck to the public.
5. Water Meter after reads 275587.9m³ (photo 4).
6. Water Technician log sheet were up to date and provided at the Waste Water Treatment Facility. First reading is 235260m^3 and the second reading is 235532m^3 (photo 5).
7. The Water Storage Reservoir capacity is 12,000m³ in the summer, and taking in considerations for the 1.8 metres of ice 71,000m³ in winter. It was reported that there was a leak in the west wall facing the community coming from a monitoring station, and culvert.

Water Usage Reports

8. The Hamlet is authorized to withdrawal 120,000m³.
   Water usage records were emailed to WRO Monteith on October 7, 2022. In the report it showed that the community had withdrawn and delivered from January 1, 2022 to September 30, 2022. Report shows 38,019,155.55 Litres delivered (photo 6).

Waste Water Treatment Plant (WWTP)

9. The WWTP utilizes the GE MBR system to treat domestic sewage, as well as fish processing wastewater generated at the Pangnirtung Fisheries site. The quality of the WWTP effluent is well suited for discharge to the Pangnirtung Fiord. The various treatment processes used at the plant include coarse screening, fine screening(photo 7), equalization, bioreactor tanks, membranes, U.V. disinfection, pumping at various points in the process, waste sludge dewatering, final effluent re-use; and various chemical feed systems to aid in the treatment. The Waste Water Treatment Facility located 146 metres from the high water mark of the ocean(photo 8).
10. Liquid waste is discharged from the WWTP towards the ocean from a pipe that extends out 19 metres out (See photo 8).
11. Due to decommissioning all waste water was deposited GPS Coordinate N66.15617°, W65.67116° (decimal degrees). On October 26, 2022, Gord Marinic emailed WRO Monteith a copy of the "Pangnirtung Wastewater Treatment Plant Repair Report", and the "Pangnirtung Emergency Sewage Discharge Volume Estimate April 5-May 27 2022". A total of 9434 m^3 was discharged to the receiving environment(photo 19). All details of the occurrence that lead to the deposits are in observation # 19.

Solid Waste Facility

12. The burn and cap is fenced, and also has two drainage culverts at the base of the landfill. A drainage basing on East side of the burn and cap has large amounts of wind blown debris and bulk wood deposits (photo 9).
13. The bulk metals area contains such waste as vehicles, white waste, snowmobiles, and all-terrain vehicles, various sized storage tanks. It was observed that the containment walls meant to divert water and waste from entering and exiting this facility has retained surface water. (photo 10 & 11).
14. Hazardous Waste was found throughout the Bulk woods section such as paint cans, and batteries. A dump fire was reported on December 2, 2022 in Nunatsiaq News, it was reported that the dump fire was extinguished on December 5, 2022. A spill report has not yet been submitted to the NT/NU Spills Data base (photo 17).
15. The Bulk Metals section is merged with the Hazardous Waste section (photo 9).
16. Hazardous Waste section contains a full sea can mostly of electronics, paint cans and batteries. Accessing the sea can proved unsafe due to the amount of abandoned snowmobiles, and other bulk metal in front of the sea can entrance. Walls of sea can are compromised, and cannot hold any leaks. The bulk metal and the hazardous waste does not have any fencing as required by Part E: Item 6 (Photo 12).
17. A monitoring station on the South East Side of the Bulk Metal Solid Waste Facility (photo 18).

Spill Reports

18. A separate and standalone Hazardous Waste non-engineered berm was constructed to address Spill Report 2019-244 (photos 14, 15, & 16). A submission of a Spill Report was requested due to the abundance of leaks, and spills that have damaged the surrounding vegetation and the amount of hazardous waste blowing away from the site (photo 13 &14). The Spill Report was submitted on June 17, 2019. And issued Spill Report number 2019-244. This spill report won't be closed off till the spills has been cleaned up, and a report to confirm that the spill has been cleaned up. It was observed that large spills did occur in the newly built non engineered berm for hazardous waste and still has gone un reported (photo 15). The spill observed appeared to be migrating towards the entrance to the non engineered hazardous waste berm (photo 16).
19. Spill Report 2022-119 A heave in the foundation of the WWTP has caused damage to the headworks piping, which rendered the bypass function of the WWTP inoperable. The hamlet deposited its sewage directly to the receiving environment and logged the discharge volumes. On October 26, 2022, Gord Marinic emailed WRO Monteith a copy of the "Pangnirtung Wastewater Treatment Plant Repair Report", and the "Pangnirtung Emergency Sewage Discharge Volume Estimate April 5-May 27 2022". A total of 9434 m^3 was discharged to the receiving environment. The discharge location was greater than 31 metres from the high

water mark. All conditions for spill reporting, and submitting a detailed report are compliant, and the spill report has been closed.

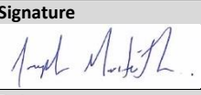
Action Required

The following information is a summary of the Actions Required by the licensee to promote and ensure compliance. Please provide a response to the following Actions Required within 30 days of receiving this report proposing timelines to address the concerns noted:

- Provide an action plan to clean up the site of Spill Report 2019-244;
- Find the reason why there is water leaks coming from the water reservoir and repair;
- Repair the walls to the Bulk Metals, and Bulk Woods on the Eastern Wall, so that surface water may not enter the facility;
- Submit spill report for the spills in the newly built non engineered berm for hazardous waste;
- Erect a fence surrounding the Metal and Hazardous Waste Storage Area as per Part E: Item 8;
- Submit a spill report for the dump fire at the Bulk Wood and Hazardous Waste sections of the Solid Waste Facility.

Non-Compliance with the Act, or the Licence

- Part E: Item 7: The Licensee shall implement measures to prevent hazardous materials and/or leachate from the Solid Waste Management Facility and Metal and Hazardous Waste Storage Area from entering water, and shall control surface runoff from the Solid Waste Management Facility and Metal Storage Area.
- Part E: Item 8: The Licensee shall erect a fence surrounding the Metal and Hazardous Waste Storage Area within six months of the approval of this Licence by the Minister.
- Part B: Item 7. The Licensee shall immediately report to the 24-Hour Spill Report Line at (867) 920-8130, any spills of Waste, which are reported to, or observed by the Licensee, within the municipal boundaries or in the areas of the Water Supply or Waste Disposal Facilities.

Licensee or Representative	Inspector's Name
Gord Marinic	Joseph Monteith
Signature	**Signature**
	
Date	**Date**
	December 12, 2022

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

PHOTO LOG

Date	Camera	Inspector	
June 22, 2022	Galaxy S-9/Panasonic CF-33	Joseph Monteith	
Photo Log #		**Location**	
Photo 1		Pangnirtung, Qikiqtani Region, Nunavut	

Description: Pangnirtung Water Source. The Duval River. Withdrawal point does not appear to be drawn down. This activity is authorized under water license 1BW-DUV2025

Photo Log #1	Location
Photo 2	Pangnirtung

Description: The Duval River, and its recharging pipes which go from the river to the water reservoir, and treatment plant. The River Redirection activity on the Duval River is at the end of the road at the river.

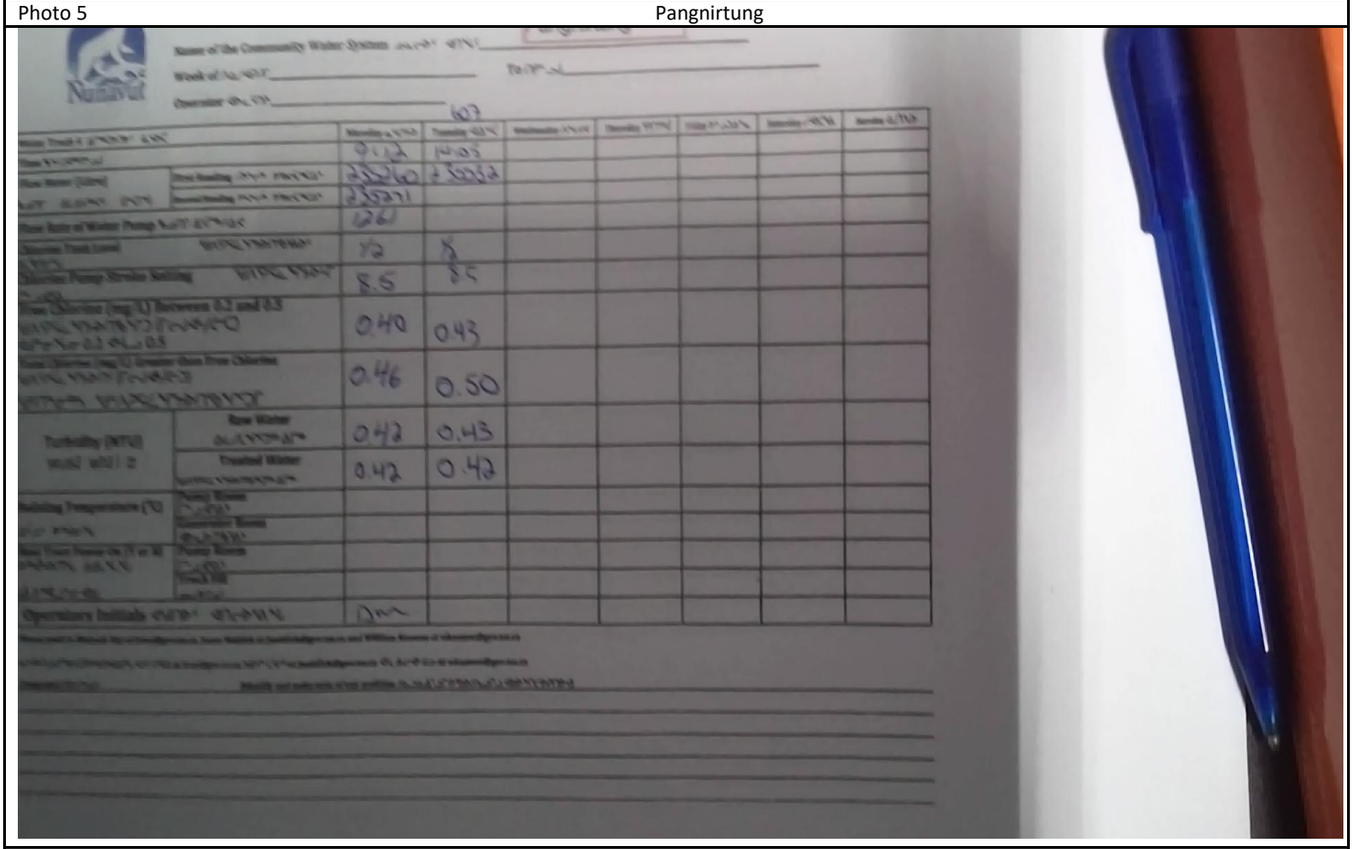
Photo Log #1	Location
Photo 3	Pangnirtung

Description: Water Reservoir capacity is 12,000m³ in the summer, and taking in considerations for the 1.8 metres of ice 71,000m³ in winter.

Photo Log #1	Location
Photo 4	Pangnirtung

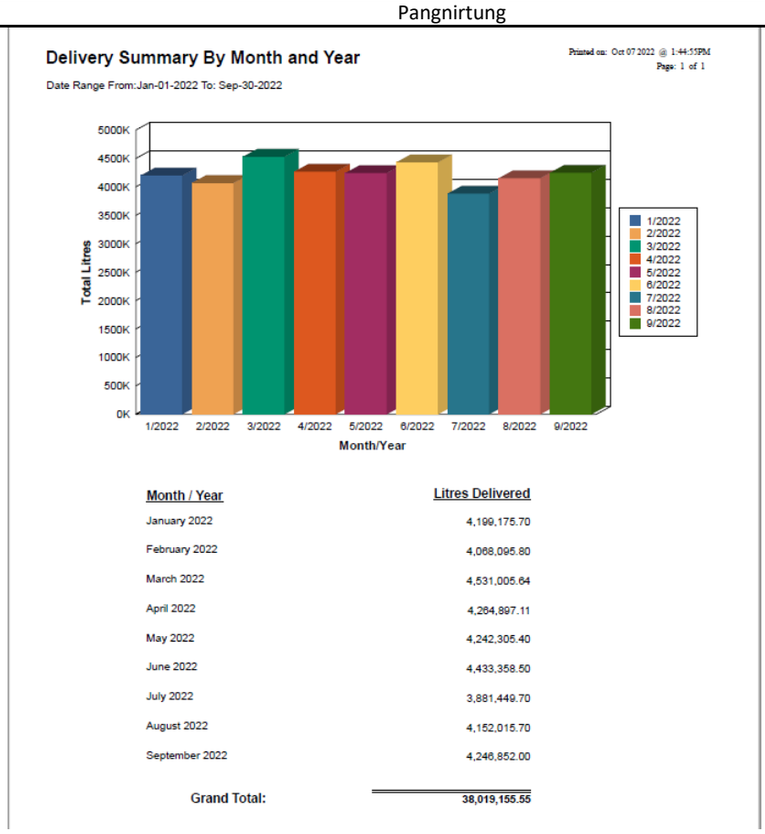
Description: Water Meter after reads 275587.9m³

Photo Log #1	Location
Photo 5	Pangnirtung



Description: Log Book in Water Treatment Facility. Readings appear to be in chronological order, but the dates haven't been filled in, so no date to ascertain the uniformity in recording. First reading is 235260m³ and the second reading is 235532m³

Photo Log #1	Location
Photo 6	Pangnirtung



Delivery Summary By Month and Year

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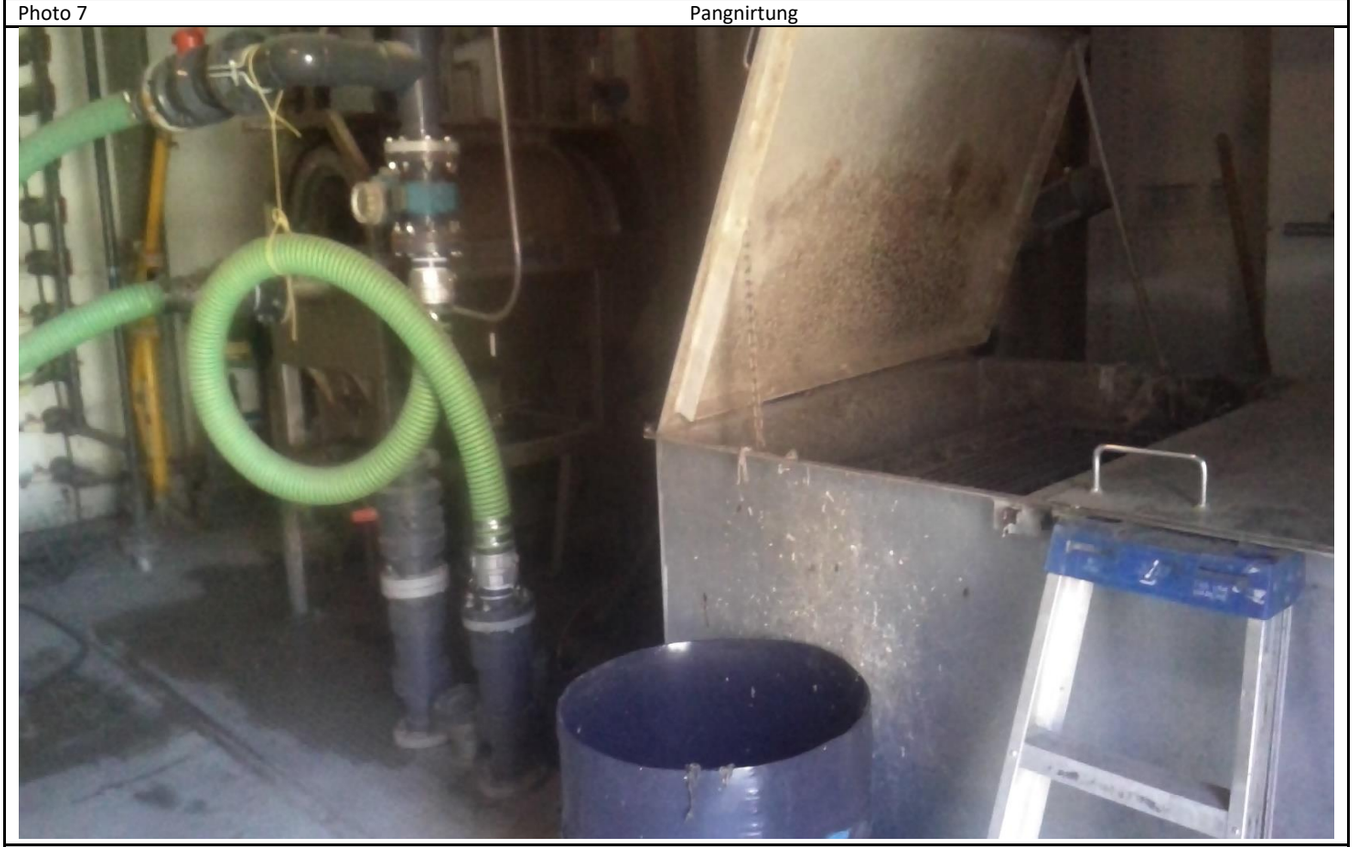
Date Range From:Jan-01-2022 To: Sep-30-2022

Month / Year	Litres Delivered
January 2022	4,199,175.70
February 2022	4,068,095.80
March 2022	4,531,005.64
April 2022	4,264,897.11
May 2022	4,242,305.40
June 2022	4,433,358.50
July 2022	3,881,449.70
August 2022	4,152,015.70
September 2022	4,246,852.00
Grand Total:	38,019,155.55

Description: Water Usage Report from January 1, 2022 to September 30, 2022. Report shows 38,019,155.55 Litres delivered.

Photo Log #1	Location
Photo 7	Pangnirtung



Description: Inside the receiving station of the Waste Water Treatment Facility on the right side of the road.

Photo Log #1	Location
Photo 8	Pangnirtung

Description: Discharge Location. Greater than 31 metres from the high water mark. Monitoring station observed.

Photo Log #1	Location
Photo 9	Pangnirtung

Description: The drainage ditch next to the fenced in burn and cap facility. Littered with domestic wind blown debris.

Photo Log #1	Location
Photo 10	Pangnirtung

Description: Bulk Metals section. East Corner of the Bulk Metals Facility. The wall to divert water from entering the facility has washed away. The washed away wall, allows surface water to move through one of three hazardous waste facilities.

Photo Log #1	Location
Photo 11	Pangnirtung

Description: Hazardous Waste in the Bulk Metals section. A couple of parts of the walls on the East side of the Bulk Metal appear to have washed out. These washed out walls need to be repaired to ensure that no water is entering the facility, and taking waste with it as it exits the facility.

Photo Log #1	Location
Photo 12	Pangnirtung

Description: The Bulk Metal Debris in front of Hazardous Waste Sea Can. New deposits of bulk metal along the entrance of the bulk metals and hazardous waste facilities.

Photo Log #1	Location
Photo 13	Site of Spill Report 2019-244

Description: Site of Spill Report 2019-244. All the sources of the spills were removed and placed into a non-engineered berm on the opposite side of the road, and at the entrance to the Bulk Metals facility. The spills that leaked out of the drums hasn't been cleaned up, and the spill report will remain open till it has been cleaned up. A report should be generated as per the license to provide a status update, and plans to clean up the spill.

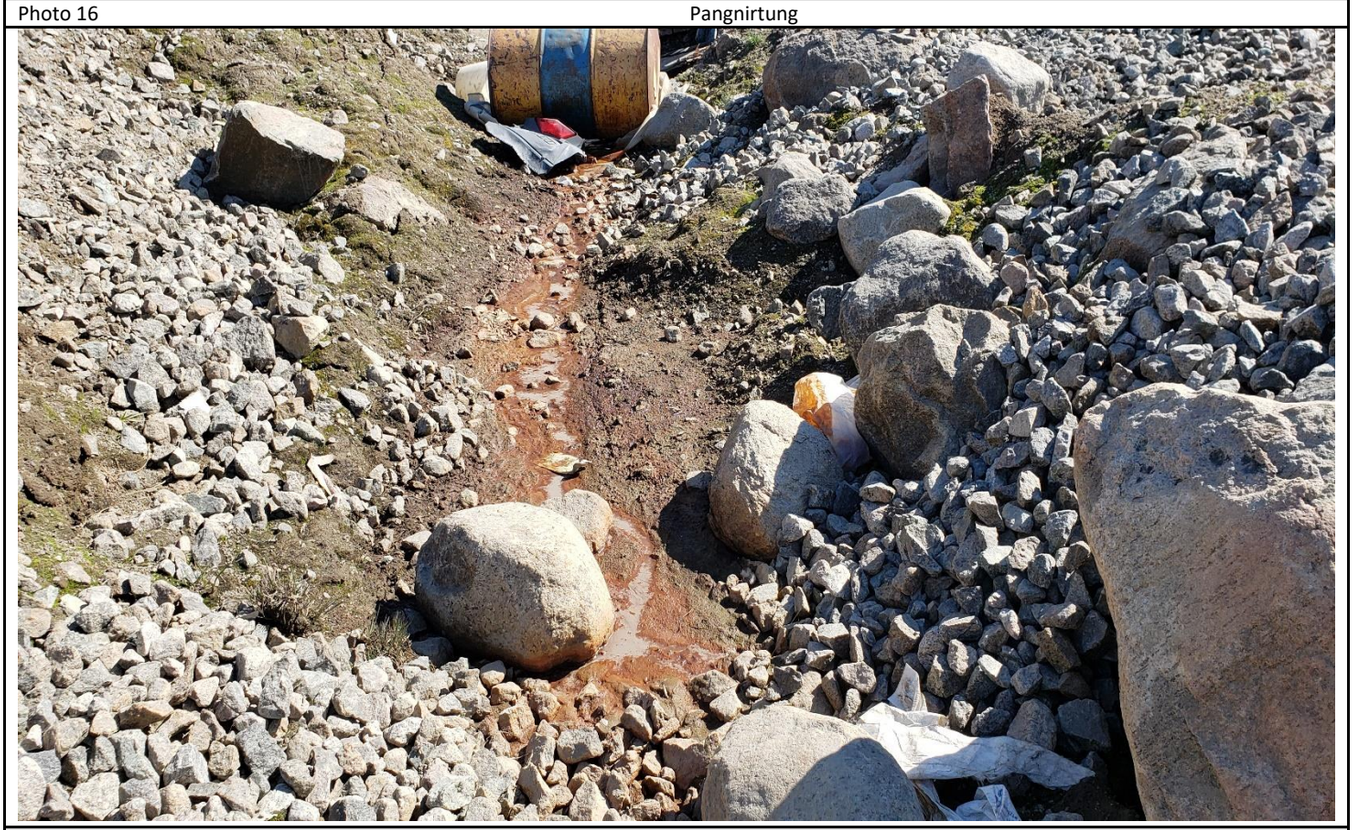
Photo Log #1	Location
Photo 14	Site of Spill Report 2019-244

Description: Although the source of contamination has stopped, there is still clean up required of the historic spills.

Photo Log #1	Location	
Photo 15	Latitude: 66°9.370	Longitude 65° 40.274'W

Description: The drums from Spill Report 2019-244, placed into a non-engineered secondary containment. New spill migrating towards the opening of the non-engineered berm for hazardous waste. A spill report should be generated for this spill, and mitigate the migration of it. To date no spill reports have been submitted for the spills in the hazardous waste facility.

Photo Log #1	Location
Photo 16	Pangnirtung



Description: subsurface water drainage exposed and migrating out of non-engineered berm used to house the hazardous waste. A drum is situated in the drainage ditch, and new spill can be observed migrating towards the drainage ditch.

Photo Log #1	Location
Photo 17	Pangnirtung

Description: Bulk Woods section, hazardous waste mixed with bulk woods.

Photo Log #1	Location
Photo 18	Pangnirtung

Description: Water exiting the south east corner of the Bulk Metals section of the solid waste facility.

Photo Log #1	Location
Photo 19	Pangnirtung

Pangnirtung Emergency Sewage Discharge Estimates

Date	Sewage Discharge (m3)
05-Apr-22	178
06-Apr-22	178
07-Apr-22	178
08-Apr-22	178
09-Apr-22	178
10-Apr-22	178
11-Apr-22	178
12-Apr-22	178
13-Apr-22	178
14-Apr-22	178
15-Apr-22	178
16-Apr-22	178
17-Apr-22	178
18-Apr-22	178
19-Apr-22	178
20-Apr-22	178
21-Apr-22	178
22-Apr-22	178
23-Apr-22	178
24-Apr-22	178
25-Apr-22	178
26-Apr-22	178
27-Apr-22	178
28-Apr-22	178
29-Apr-22	178
30-Apr-22	178
01-May-22	178
02-May-22	178
03-May-22	178
04-May-22	178
05-May-22	178
06-May-22	178
07-May-22	178
08-May-22	178
09-May-22	178
10-May-22	178
11-May-22	178
12-May-22	178
13-May-22	178
14-May-22	178
15-May-22	178
16-May-22	178
17-May-22	178
18-May-22	178
19-May-22	178
20-May-22	178
21-May-22	178
22-May-22	178
23-May-22	178
24-May-22	178
25-May-22	178
26-May-22	178
27-May-22	178
Total	9434

Description: A total of 9434m³ of sewage was deposited to the receiving environment between April 5, 2022, and May 27, 2022. Deposits are a result of spill report 2022-119.