

WATER LICENCE INSPECTION FORM

☒ Original

☐ Follow-Up Report

Licensee	Licensee Representative
Hamlet of Resolute Bay	Gord Marinic
Licence Number	Representative's Title
3BM-RUT2025	Municipal Engineer
Land / Other Authorizations	Land / Other Authorizations
Date of Inspection	Inspector
July 6, 2023	Joseph Monteith & James Bolt
Activities Inspected	
<input type="checkbox"/> Camp	<input type="checkbox"/> Drilling
<input type="checkbox"/> Mining	<input type="checkbox"/> Construction
<input checked="" type="checkbox"/> Reclamation	<input type="checkbox"/> Fuel Storage
<input type="checkbox"/> Roads/Hauling	<input type="checkbox"/> Other: Water Use and Storage
<input type="checkbox"/> Other: Waste Disposal	

Conditions:	A- Acceptable	U-Unacceptable	C-Concern	NI-Not Inspected	NA- Not applicable
PART:				Condition	Observation No.*
A: SCOPE, DEFINITIONS AND ENFORCEMENT				A	
B: GENERAL CONDITIONS				U	13-15
C: CONDITIONS APPLYING TO SECURITY				NI	
D: CONDITIONS APPLYING TO WATER USE				C	1-8
E: CONDITIONS APPLYING TO WASTE DISPOSAL AND MANAGEMENT				A	10-15
F: CONDITIONS APPLYING TO MODIFICATIONS				A	2,5
G: CONDITIONS APPLYING TO CONSTRUCTION				A	2,5
H: CONDITIONS APPLYING TO EMERGENCY RESPONSE AND CONTINGENCY PLANNING				C	6
I: CONDITIONS APPLYING TO ABANDONMENT, RECLAMATION AND CLOSURE PLANNING				A	1
J: CONDITIONS APPLYING TO MONITORING				A	
SCHEDULES				A	
*The observation number corresponds with specific comments provided below.					
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. __)
BACKGROUND <p>On December 20, 2020 the Nunavut Water Board issued 3AM-RUT2035 for the use of water and deposit of waste. The license authorizes the Hamlet of Resolute Bay to withdrawal 217,000 m³ annually to support community needs.</p> <p>There are three water licenses in this community: The Government of Nunavut (GN) holds the Licence for the airport, the Hamlet of Resolute Bay holds the Licence for solid waste management, and Community and Government Services (CGS) hold the Licence for the Utilidor Systems. Due to delays in plans to refurbish the airport (Licence No. 3BM-YRB1621) and solid waste management facility (Licence No. 3BM-RE2025), the Board decided to process the Renewal Application for the Utilidor System independently.</p> <p>Relevant infrastructure include in this license, a Utilidor system which is maintained and operated by the GN-CGS. The water supply system constitutes Char Lake, the old pump-house(decommissioned), the new water pump house, the water treatment plant and associated delivery mediums, whereas sewage effluent travels from buildings via pipes and is discharged untreated into ‘bleeders’ where it is diluted, and any solids are captured by a macerator before exiting into Resolute Bay. The outfall pipe is located on the shore of the Bay at the high tide water mark.</p> Inspector Statement <p>On July 6, 2023, A Water Licence Inspection was conducted by Water Resource Officer(WRO) Joseph Monteith on the Hamlet of Resolute Bay, Qikiqtani Region, Nunavut, for water licence 3BM-RUT2035.</p> General Condition <p>On April 3, 2023 Robert Hunter, Nunavut Water Board, Manager of Licencing emailed WRO Monteith a copy of The Hamlet of Resolute Bay’s 2022 Annual Report. The submission of the annual report was made in</p>			

regards to satisfying Part B: Subsection 1 of the Water Licence. Typically these annual reports are sent out between January and March. From here on in, they will be acknowledged a year behind due to the submission requirements of the community water license reports.

Water Supply Facilities

Water Pump House at Char Lake(See photo 1):

1. New Pump House(photo 1) contains 3 intake pipes(photo 3), indoor day tank, generator, heater, external double walled storage tank for fuel with a capacity of 9176 Litres(within 31 metres of the high water mark of Char Lake). Building could have been a form of secondary containment, one entry way has compromised the containment as a form of secondary containment. The indoor day tank is in secondary containment.
2. Natural Signs of sedimentation observed along the banks of Char Lake (photo 2).
3. ABB Water Meter observed in the water pump house(photo 4).
4. From the Pump house, freshwater is piped to the Water Treatment Plant to be piped to the Water Treatment Centre (photo 5).

Water Treatment Plant(See photo 6)

5. The upgraded Water Treatment Plant contains sump pits, pumps, a chlorine mix pot, 12,300 cubic metre water storage tank, UV Filtration, 3x charcoal filtrations tanks, and 2 x filter tanks and pipes the treated water to the residents by gravity using underground pipes, also trucked water service.
6. Sign of spill next to back door. Typically sump water pumped out of sump (photo 6).
7. New water meter reads 448052535 litres, (448052.535m³)withdrawn from Char Lake (photo 7).
8. water usage logs Water Usage Logs June 3, 2023 to June 6, 2023. Total Flow Chart from Char Lake reads for June 6, 2023 is 447883362 Litres (447883m³) (photo 8).

Macerator Building

9. An old Trailer Building contains a macerator, which takes any solids such as toilet paper, and captures it from being discharged with the waste water (See photo 8).
10. Macerator Flume Meter reading is 911367855 Litres (911367m³) deposited into the marine environment.
11. Macerator Meter in the Macerator building. Meter reads 12.34 Litres per second, and 911668056 Litres (911,668 m³).

Water Consumption Reports

12. The licence authorizes the use of 217,000 cubic metres per year.
13. On July 28, 2023 RES, Frontdesk (Belinda) Frontdesk.RES@atco.com emailed WRO Monteith the water usage records for the Hamlet of Resolute Bay. The report shows a total of 80,286,755 total litres (80,286m3)was withdrawn (photo 12).
14. On November 18, 2022 Gord Maricic, Government of Nunavut(GN), Community Government and Services(CGS) emailed WRO Monteith a PDF of 2022 Utilidor Water withdraw amount listed as 1,094,546,981 Litres(1,094,546 m³) withdrawn (photo 11).

Arctic Waters Pollution Prevention Act

Although there is ongoing work to construct a new facility:

15. It was observed that the waste water that discharges from the Utilidor system goes directly into the ocean (photo 9).
16. The direct discharge into the marine environment constitutes a breach of Subsection 4(1) of the *Arctic Waters Pollution Prevention Act* (AWPPA).
17. The direct discharge into the marine environment constitutes a breach of Subsection 5 of the *Arctic Waters Pollution Prevention Regulations* (ASSPPR).

SECTION 2

☐ Comments

☐ Non-Compliance with Act or Licence

☒ Action Required

The following information is a summary of the Actions Required by the licensee to promote and ensure compliance:

• Develop a plan to address the breach of subsection 4(1) of the *Arctic Waters Pollution Prevention Act*.

• Develop a plan to address the breach of subsection 5 of the *Arctic Waters Pollution Prevention Regulation*.

• Provide a rationale for the exceedance in water withdrawal. Do not exceed the authorized withdrawal amount without prior approval by the Nunavut Water Board.

• The Licensee is reminded to remain diligent to prevent wastes from entering water, the environment, and to adhere to the discharge requirements listed in this licence.

SECTION 3

☐ Comments

☒ Non-Compliance with Act or Licence

☐ Action Required

Part D: Item 2

The annual quantity of Water used for all purposes from Char Lake shall not exceed two hundred and seventeen thousand (217,000) cubic metres per annum or as otherwise approved by the Board in writing.

Arctic Waters Pollution Prevention Act

Deposit of Waste -Prohibition

4 (1) Except as authorized by regulations made under this section, no person or ship shall deposit or permit the deposit of waste of any type in the arctic waters or in any place on the mainland or islands of the Canadian arctic under any conditions where the waste or any other waste that results from the deposit of the waste may enter the arctic waters.

Arctic Waters Pollution Prevention Regulations

Deposit of Industrial Waste

6 Any person may deposit or permit the deposit of industrial waste if the industrial waste is of a type and in a quantity and is deposited under conditions authorized by or under the *Oil and Gas Production and Conservation Act*, the [Territorial Lands Act](#) or the *Public Lands Grants Act*, whichever is applicable.

Licensee or Representative	Inspector's Name
Gord Maricic	Joseph Monteith
Signature	Signature
Date	Date
	November 28, 2023

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

PHOTO LOG

Date	Camera	Inspector	
July 19, 2021	Nikon Cool Pix	Joseph Monteith	
Photo Log #	Location		
Photo 1	Old Pump House, Char Lake, Resolute Bay, NU		
			
Description: Char Lake Water Source, Signage observed as Water Source.			

Photo Log #	Location
Photo 2	Resolute Bay, NU



Description: Natural Sedimentation observed along the coast of Char Lake. No signs of the silt fencing and hose observed in 2022.

Photo Log #	Location
Photo 3	Resolute Bay, NU




Description: 3 water withdrawal pipes coming out of Char Lake into the water pump

Photo Log #1	Location
Photo 4	Resolute Bay, NU



Description: ABB meter observed in the water pump house. 438686627 Litres, 438686.627m³

Photo Log #1	Location
Photo 5	Resolute Bay, NU



Description: Water Pump House Sump Pit. Water pipe from pump house to Water Treatment Plant.



Photo Log #1	Location
Photo 6	Resolute Bay, NU

Description: Water Treatment Plant – sign of a discharge, possibly from their sump pit.

Photo Log #1	Location
Photo 7	Resolute Bay, NU

Description: Water Treatment Plant – ABB Water Meter from Char Lake reads 448052535 litres, (448052.535m³).

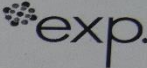
Photo Log #1

Photo 8

Location

Macerator Building, Resolute Bay, NU

Resolute Bay
Signal Hill WTP And
Macerator Bldn Daily Log



	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
UVT Post Treatment (%)	100.4 72 MN	100.5 72 MN	100.7 72 MN	100.7 72 MN			
Cl. Post Treatment 10-AIT-03 (PPM)	1.41 127	1.34 118	1.47 127	1.36 120			
Cl. Char Lake (PPM)	1.69	1.50	1.46	1.27			
Cl. Hamlet Supply 12-AIT-02 (PPM)	1.29 1.33	1.20 1.29	1.26 1.39	1.19 1.26			
Cl. Hamlet Return 12-AIT-01 (PPM)	1.26 1.30	1.14 1.22	1.24 1.20	1.18 1.23			
Turbidity Char Lake 10-AIT-01 (NTU)	8.76 1.18	7.88 .990	0.89 1.09	8.15 .99			
Turbidity Post Treatment 10-AIT-04 (NTU)	4.72 1.39	4.39 1.37	4.47 1.39	4.18 1.37			
Turbidity Hamlet Supply (NTU)	3.03	3.62	3.06	4.18			
Temp. Hamlet Supply 12-TT-02 (°C)	4 4.7 MN	4 4.9 MN	4 4.8 MN	4 4.9 MN			
Temp. Hamlet Return 12-TT-01 (°C)	4 5.2	4 5.3	4 5.3	4 5.3			
Temp. Tank 10-TT-05 (°C)	3 5.3	3 5.4	3 5.3	3 5.4			
Tank Level 10-AIT-01 (M)	4.13	4.15	4.35	4.07			
Pump Suction Pressure (PSI)	5.1	5.1	5.5	5.1			
Pump Discharge Pressure 12-PIT-02 (PSI)	2.2 19.4	2.2 19.6	2.1 19.7	2.2 19.5			
Inst. Flow Hamlet Return 12-FIT-03 (L/s)	11.63	11.89	12.17	11.97			
Ttl. Flow Hamlet Return (L)	720956648	721987093	722988140	724032865			
Inst. Flow Hamlet Supply 12-FIT-04 (L/s)	20.64	20.44	20.71	20.62			
Ttl. Flow Hamlet Supply (L)	1172074804	1173844359	117538177	1175376865			
Inst. Flow Char Lake 10-FIT-01 (L/s)	6.32	8.44	8.43	8.20			
Ttl. Flow Char Lake (L)	443271239	446503773	447215321	447883362			
Inst. Flow Truckfill/Backwash 12-FIT-05 (L/s)	0	0	0	0			
Ttl. Flow Truckfill/Backwash (L)	4918639	4918647	4918651	4919352			
Chlorine Day Tank Level (%)	35	25	63	47			
Boiler 1 Pressure (PSI) & Temp. (°C)	09 76	09 73	08 72	09 76			
Boiler 2 Pressure (PSI) & Temp. (°C)	13 72	12 73	12 72	13 72			
Boiler 3 Pressure (PSI) & Temp. (°C)	12 80	12 73	12 72	12 72			
HX1 Inlet Glycol Temp. (°C)	66	64	64	66			
HX1 Outlet Water Temp. (°C)	22	22	21	21			
HX2 Inlet Glycol Temp. (°C)	68	60	66	67			
HX2 Outlet Water Temp. (°C)	27	26	26	26			
Filter Pressure Differential (PSI)	1	2	2	2			
Total Time On Filters (Hrs)	258	282	306	330	354	378	402
L/s At Time Of Check 10-FIT-01 (L/s)	8.4	8.6	8.5	8.5			
Boiler Rm Temp. (°C)	23.1	23.0	22.4	22.6			
Chemical Rm Temp. (°C)	22.7	22.7	22.6	23.6			
Macerator Flume Meter Reading	908610345	909740546	910581589	911367855			

cleaned & filled
top chlorine tank
quills cleaned

2023 07 06


Description: Water Usage Logs June 3, 2023 to June 6, 2023. Total Flow Chart from Char Lake reads for June 6, 2023 is 447883362 Litres (447883m³). Macerator Flume Meter reading is 911367855 Litres deposited into the marine environment.

Photo Log #1

Photo 9

Location

Macerator Building, Resolute Bay, NU



Description: Macerator in Old Trailer Building – Solids such as toilet paper is extracted from the macerator, and deposited into a waste bucket.



Photo Log #1	Location
Photo 10	Resolute Bay, NU

Description: Utilidor Sewage Discharge Pipe. Direct Discharge to the ocean.

Photo Log #1	Location
Photo 11	Resolute Bay, NU

**ANNUAL REPORT
FOR THE HAMLET OF RESOLUTE BAY, 2022**

YEAR BEING REPORTED: 2022 Utilitor

The following information is compiled pursuant to the requirements of Part B, Item 1 of Water license #3BM issued to the Hamlet of Resolute Bay, NU.

i) - iii) tabular summaries of all data generated under the "Monitoring Program"; monthly and annual quantities in cubic meters of each and all waste 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 (litres)	Quantity of Sewage Waste Discharged (Estimated)
January	91,728,064	SAME
February	83,206,514	SAME
March	95,659,673	SAME
April	95,144,827	SAME
May	123,397,843	SAME
June	95,089,023	SAME
July	123,389,337	SAME
August	114,822,243	SAME
September	94,095,805	SAME
October	95,360,862	SAME
November	82,652,790	SAME
December	0	SAME
ANNUAL TOTAL	1,094,546,981	SAME

Note: The average consumption volume is considered equal to the discharge volume in each month because there is no meter in the intake or discharge pipe.

Description: 2022 Water Consumption Report Total for Truck service 1,094,546,981 Litres withdrawn.

Photo Log #1

Photo 12

Location

Resolute Bay, NU

2023 WATER CONSUMPTION

	January	February	March	April	May	June	July	August	September	October	November	December
1	705,597	760,832	731,196	689,943	749,335	763,737	776,258					
2	777,528	754,389	916,784	734,554	863,329	771,348	847,224					
3	549,313	772,323	575,840	599,054	746,238	881,950	798,190					
4	667,295	756,857	754493	763,444	791,765	855,201	763,222					
5	703,527	677,143	761823	687,423	718,563	795,221	837,132					
6	669,294	797,029	716,047	734,995	781,815	784,116	765,909					
7	104,877	632,783	890,484	801,243	754,866	697,558	721,443					
8	1,311,424	732,698	550,118	789,889	751,856	741,223	687,998					
9	745,456	701,269	885,808	695,336	814,980	765,221	597,886					
10	629,479	743,510	753,675	584,765	765,722	785,135	723,221					
11	690,076	775,794	755,012	769,500	711,405	766,387	757,387					
12	671,044	691,926	726,863	783,544	731,897	740,431	852,332					
13	747,951	717,557	685,998	797,588	798,493	735,122	874,333					
14	703,465	693,689	748,766	811,632	728,665	770,644	738,473					
15	716,319	747,331	856,013	825,676	758,426	758,989	729,904					
16	655,061	820,118	719,334	739,720	Blizzard	758,701	823,887					
17	734,529	667,602	889,332	753,764	Blizzard	742,584	778,349					
18	660,009	821,775	876,343	867,808	756,868	792,303	746,233					
19	757,579	634,741	802,324	758,433	739,730	750,308	837,422					
20	655,731	721,158	801,443	688,998	793,204	742,902	736,432					
21	810,619	746,707	723,826	619,563	759,090	629,716	687,554					
22	629,431	757,695	846,100	650,128	746,394	0	813,225					
23	746,352	758,117	731,982	780,693	753,078	392,504	766,564					
24	708,059	781,163	737,982	811,258	Blizzard	680,549						
25	746,810	758,576	732,351	741,823	Blizzard	722,464						
26	774,758	Blizzard	747,155	672,388	749,749	697,558						
27	749,867	Blizzard	834,576	602,953	783,206	672,584						
28	743,514	892,102	789,921	653,518	815,607	704,558						
29	887,327		732,110	764,083	721,654	720,224						
30	610,691		817,453	594,648	748,446	737,115						
31	717,347		744,574		733,807							
Total Imp G	21,980,329	19,314,884	23,104,530	21,768,364	20,568,188	21,356,353	17,660,578	0	0	0	0	0
Total Liters	99,924,774	87,807,394	105,035,504	98,961,160	93,505,039	97,088,116	80,286,755	0	0	Yearly Total Imp. G		145,753,226
										0		0
										Yearly Total Liters		662,608,742
ATCO Truck Liters	0	0	0	0	0	0	0	0	0	0	0	0

Description: 2023 Utilidor Water withdraw amount listed as 80,286,755 total litres (80,286m³) withdrawn between January 1, 2023 to July 23, 2023.