WATER LICENCE INSPECTION FORM

☒ Original
☐ Follow-Up Report

Licensee	Licensee Representative
Hamlet of Resolute Bay	Bhabesh Roy, Angela Idlout
Licence No. / Expiry	**Representative's Title**
3BM-RUT1520	Municipal Engineer, Senior Administrative Officer
Land / Other Authorizations	**Land / Other Authorizations**
Date of Inspection	**Inspector**
July 13, 2019	Joseph Monteith, & Jeremy Fraser

Activities Inspected

☐ Camp ☐ Drilling ☐ Mining ☐ Construction ☐ Reclamation ☐ Fuel Storage
☐ Roads/Hauling ☒ Other: Water Treatment Facility, Waste Water Utilidor Hazardous Waste Facility ☐ Other:

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	A	
C: CONDITIONS APPLYING TO SECURITY	NI	
D: CONDITIONS APPLYING TO WATER USE	A	1-9
E: CONDITIONS APPLYING TO WASTE DISPOSAL AND MANAGEMENT	A	10-15
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	

**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
☐ Yes ☒ No	

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

BACKGROUND

The Hamlet of Resolute Bay is located on the south coast of Cornwallis Island on the Perry Channel. The community is approximately 1550 km northwest of Iqaluit. 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-YRB0308) and solid waste management facility (Licence No. 3BM-RES9699), the Board decided to process the Renewal Application for the Utilidor System independently.

The community is serviced by a Utilidor which is maintained and operated by the GN-CGS. The water supply system constitutes Char Lake, the 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 before exiting into Resolute Bay. The outfall pipe is located on the shore of the Bay at the high tide water mark.

The Utilidor System was built in the 1970's without a water Licence. At the time of the initial Water Licence application, a rehabilitation and expansion of the system was scheduled for completion in 2007. This did not occur, and under the current Application the rehabilitation and expansion of the system was scheduled for completion in 2016. Current status is unknown. On June 20, 2018, Bhabesh Roy, GN-CGS, Municipal Engineer emailed Water Resource Officer (WRO) Monteith with photographs and an attached letter from Dr. Kim Baker, MD, CFP, MPH, FRCP(C), addressed to Atul Deshmukh, GN-CGS, Baffin Facility Manager, dated June 19, 2018, acknowledging receipt and approving of an application to install an emergency by pass at another location at the char lake pump house to exclude odors that occur annually.

Inspector Statement

On July 13, 2019, A Water Licence Inspection was conducted on the Hamlet of Resolute Bay, Qikiqtani Region, Nunavut, for water licence 3BM-RUT1520.

General Condition

On December 5, 2019 Richard Dwyer, Nunavut Water Board, Manager of Licencing emailed WRO Monteith a copy of the Technical Review of The Hamlet of Resolute Bay's 2018 Annual Report. Suggesting a submission was made in regards to satisfying Part B: Subsection 1 of the Water Licence. But, upon review it was noted that additional information is necessary to meet the following requirements of the licence, such as requirements as per Part H, Item 4, Part H, Item 5, Part H, Item 6, Part D, Item 4, and Part F, Item 1.

On August 13, 2018 Richard Dwyer, Nunavut Water Board, Manager of Licencing emailed WRO Monteith a copy of Outstanding Licence Submissions and detailed an outstanding licence submissions for Operation and Maintenance Manual for the Water Supply Facilities, Utilidor, and Sewage Disposal Facility.

Water Supply Facilities

Intake Structure at Char Lake(See photo 1):

1. Intake structure contains 4 water pumps, a reservoir/sump like structure, a generator, a boiler, indoor day tank, and has an external double walled storage tank for fuel with a capacity of 9176 Litres(within 31 metres of the high water mark of Char Lake). This is the site of a spill report that has caused the odours to be announced by the public.
2. New pipes for new pump house is already installed, no building constructed at the time of the inspection.
3. Banks of Char River appear to be eroding into Char Lake (See photo 2)
4. Water withdrawal has returned to withdrawing from the water well (photo 5).
5. From the Pump house, freshwater is piped to the Water Treatment Plant to be piped to the Water Treatment Centre.

Water Treatment Plant(See photo 5)

6. The Water Treatment Plant contains sump pits, pumps, a chlorine mix pot, 12,300 cubic metre water storage tank, and pipes the treated water to the residents by gravity using underground pipes.
7. Appeared to be not operating as intended. Some signs of spill from chlorine Mixing station. A unreported spill occurred within the water treatment facility due to the a flange damage to a filter box(photo 6, 7, and 8).
8. Water storage tank gauge reads 12 feet.
9. Water Usage Logs (photo 3). Gauge # 3 reads 7492505 Gallons.

Old Trailer Building

10. An old Trailer Building contains a macerator, which takes any solids such toilet paper, and traps it from being discharged with the waste water. (See photo 6)

Water Consumption Reports

11. The licence authorizes the use of 1,260,230 cubic metres per year, or a maximum of 345 cubic metres per day.
12. No Flow metre on water intake or waste discharge. On October 26, 2019 Jayson Mablick, Government of Nunavut(GN), Community Government and Services(CGS) emailed WRO Monteith a excel Spreadsheet copy of the Water Consumption Report for the months of January 2018, to October 2018, listing Utilidor and ATCO Truck consumption numbers total of 116,970,362 Litres consumed(See photo 10).

Arctic Waters Pollution Prevention Act

Although there is plans to construct a new facility to

13. It was observed that the waste water that discharges from the Utilidor system goes directly into the ocean.
14. The direct discharge into the environment constitutes a breach of Subsection 4(1) of the Arctic Waters Pollution Prevention Act (AWPPA).
15. The direct discharge into the 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*.
- Submit the Operation and Maintenance Manual for the Water Supply Facilities, Utilidor, and Sewage Disposal Facility.
- 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

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**
Bhabesh Roy	Joseph Monteith
Signature	**Signature**
Date	**Date**
	November 23, 2019

CC: Licensing Department, NWB
Justin Hack, Manager of Field Operations, CIRNAC

PHOTO LOG

Date	**Camera**	**Inspector**	
July 13, 2019	Nikon Cool Pix	Joseph Monteith	
Photo Log #		**Location**	
Photo 1		Resolute Bay	

Description: Char Lake Water Source, Pump House. Signage observed as Water Source

Photo Log #	Location
Photo 2	Resolute Bay

Description: erosion on the banks of Char Lake, Pump House parking pad

Photo Log #1	Location
Photo 3	Resolute Bay

Description: ATCO –Resolute – Water System Inspection Report week of July 8-July 14, 2019. July 13, 2019 Gauge # 3 Current Totalizer Reading (b) reads 7480464. Does not indicate measurement. Gauge # 3 reads in Gallons.

Photo Log #1	Location
Photo 4	Resolute Bay

Description: Gauge # 3 reads 7492505 Gallons.

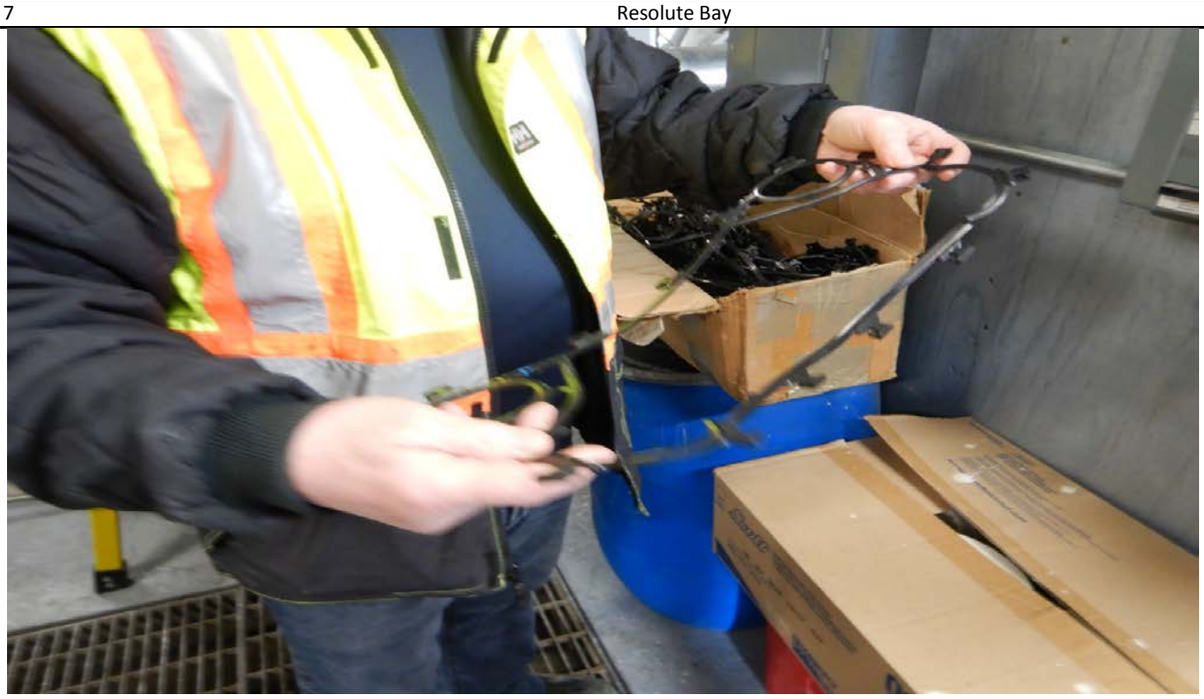
Photo Log #1	Location
Photo 5	Resolute Bay

Description: Pump house. Water well. PVC hosed used to withdrawal water.

Photo Log #1	Location
Photo 6	Resolute Bay

Description: Water Treatment Plant – Water Storage Reservoir – Capacity 12,500 Cubic Metres . Discharging water from Water Treatment Plant.

Photo Log #1	Location
Photo 7	Resolute Bay



Description: Damaged Flange

Photo Log #1	Location
Photo 8	Resolute Bay

Description: flange broke in this filter press. Spilling treated water within the facility. Product settled in a sump pit.

Photo Log #1	Location
Photo 9	Resolute Bay

Description: Macerator in Old Trailer Building – Solids extracted from Macerator, and deposited into waste bin.

Photo Log #1	Location
Photo 10	Resolute Bay

2019 WATER CONSUMPTION

	January	February	March	April	May	June	July	August	September	October	November	December
1	108,441	109,477	119,723	120,585	124,751	58,483	104,170	98,266	79,889	105,471		
2	105,121	116,919	117,412	118,738	125,095	356,837	95,176	96,338	77,339	101,370		
3	102,939	103,865	77,706	120,800	130,039	141,913	112,189	98,026	80,428	204,074		
4	104,128	104,084	162,314	114,910	128,644	159,420	104,346	94,023	82,799	70,605		
5	98,639	109,788	124,475	112,501	133,267	136,048	111,057	91,813	82,956	35,285		
6	110,157	112,542	123,900	118,100	128,278	153,209	90,919	126,175	79,334	111,521		
7	109,066	145,891	122,960	119,636	132,439	157,505	104,739	58,498	78,444	98,656		
8	97,012	96,807	121,681	112,373	131,520	129,950	110,076	95,268	85,503	104,011		
9	105,601	118,719	12,183	115,526	126,704	152,531	98,595	97,548	80,598	105,393		
10	101,458	124,532	118,349	120,798	134,618	149,347	111,637	88,223	87,808	99,768		
11	110,825	116,533	115,317	121,958	134,228	141,910	89,022	114,017	82,932	116,797		
12	103,345	110,076	129,163	127,667	144,207	137,509	86,375	70,763	93,676	114,010		
13	104,241	120,197	109,772	124,562	126,705	158,940	99,048	89,852	93,436	92,778		
14	92,990	122,275	152,107	125,678	170,857	96,422	103,334	80,914	89,706			
15	138,680	92,334	112,982	120,346	116,691	134,740	89,331	94,379	88,370			
16	65,027	111,047	90,680	133,664	121,121	128,649	95,226	78,765	76,454			
17	94,348	136,577	160,649	118,615	148,771	115,803	92,005	77,699	90,917			
18	105,759	169,020	88,060	127,056	179,082	127,863	100,967	82,898	92,408			
19	120,182	116,541	132,060	125,505	157,527	119,140	103,279	80,478	93,645			
20	85,710	111,644	106,170	125,505	100,080	96,302	97,660	79,156	95,006			
21	108,742	124,216	122,361	127,805	150,813	108,465	101,691	87,517	100,547			
22	93,420	113,329	124,877	134,460	150,436	108,560	86,125	72,529	101,078			
23	143,572	134,055	136,361	121,586	140,867	113,904	100,509	81,378	96,544			
24	74,511	120,743	0	115,059	149,524	104,638	93,311	69,893	124,225			
25	94,760	105,093	248,130	120,643	145,910	97,521	95,425	85,367	81,318			
26	92,460	120,297	106,568	125,258	157,039	103,823	94,855	60,198	100,976			
27	110,579	11,576	136,679	129,260	162,504	96,451	85,976	102,205	100,319			
28	101,156	114,792	102,170	125,145	122,968	103,780	96,846	61,915	98,353			
29	104,624		120,775	136,273	65,051	102,658	89,848	98,394	94,580			
30	106,805		120,657	118,632	235,154	111,854	99,666	62,294	91,376			
31	104,693		124,768		139,439		91,188	77,057				
Total Imp G	3,198,991	3,192,969	3,641,009	3,678,644	4,314,329	3,904,175	3,034,591	2,651,846	2,700,964	1,359,739	0	0
										Yearly Total Imp. G		31,677,257
Total Liters	14,542,933	14,515,556	16,552,391	16,723,483	19,613,371	17,748,770	13,795,554	12,055,557	12,278,852	6,181,509	0	0
										Yearly Total Liters		144,007,978

Description: 2019 Water Consumption Report Total for Truck and Utilidor Consumption from January to October 2019 is 144,007,978 Litres