Community Background

The Hamlet of Chesterfield Inlet is located within the Kivalliq Region, Nunavut, at general latitude 63°20’27”N and general longitude 90°42’19”W. The Hamlet is located approximately 101 km northeast of Rankin Inlet. The community has a population of approximately 412 (2015). See below for population projects until 2036.

Table 1: Chesterfield Inlet Population Projection, 2014 – 2036 (Nunavut Bureau of Statistics, August 16, 2010)

Year	Population
2014	405
2015	412
2016	479
2017	426
2018	433
2019	440
2020	447
2021	455
2022	463
2023	471
2024	476
2025	483
2026	490
2027	497
2028	503
2029	510
2030	515
2031	522
2032	531
2033	539
2034	548
2035	558
2036	568

The Hamlet of Chesterfield Inlet is situated on the south shore of Chesterfield Inlet, on the western shore of the Hudson Bay. Chesterfield Inlet is located in the zone of continuous permafrost on the Canadian Shield. There are numerous rock ridges and lakes in the area. Tundra vegetation overlies bedrock, which is mainly Precambrian granite and gneiss. Sand-gravel beach deposits, scatter boulders, muskeg, and exposed rocks are visible on the surface.

The average annual precipitation in Chesterfield Inlet consist of 146 mm of rainfall and 1,125 mm of snowfall, resulting in an annual total of approximately 259 mm of equivalent precipitation presented as rain. The July mean high and low temperatures are 13.1°C and 4.6°C, respectively. The July and August average daily temperature is about 10°C. The January mean high and low temperatures are -27.8°C and -35.2°C, respectively. The January average daily temperature is about -32°C. Winds are commonly from the northwest at an average speed of 22 km per hour.

Water System

The Hamlet of Chesterfield Inlet utilizes First Lake (also known as Puiqsuk Lake) for potable water with the authorized quantity of water not to exceed 20,000 cubic metres annually. A pump shelter is located near the shore of First Lake and houses the water pump, a 100 L diesel fuel tank, and intake and discharge hoses. Water is pumped annually from First Lake and transferred via a 3.2 km overland pipeline to the rock-blasted reservoir located approximately 150 metres west of the community. The reservoir was constructed in the early 1990s and is fenced though unlined. The water intake pipe from the reservoir delivers water to the pumphouse where chlorine is injected as water fills trucks for delivery. The pumphouse and truckfill was upgraded in 2010. The Hamlet uses trucked services for scheduled water delivery to all houses and other buildings. Water trucks obtain water from the reservoir via a submersible intake pump, which pumps water through the pumphouse. The pumphouse accommodates the water intake system, truck fill system, chlorination system, standby generator, and associated heating, electrical, and alarm systems.

The following table display the Chesterfield Inlet water consumption from 2009 and projected until 2036.

Table 2: Chesterfield Inlet Water Consumption, 2009 – 2036

Year	Population	RWU (lpcd)	Projected Daily Consumption (m^3)	Projected Annual Consumption* (m^3)
2009	366	87	35	12,631
2010	375	93	38	13,760
2011	383	86	36	13,134
2012	390	95	41	14,812
2013	397	93	40	14,749
2014	405	95	42	15,352
2015	412	95	43	15,640
2016	419	95	44	15,929
2017	426	95	44	16,219
2018	433	95	45	16,510
2019	440	95	46	16,801
2020	447	95	47	17,093
2021	455	95	48	17,428
2022	463	95	49	17,764
2023	470	95	49	18,059
2024	476	95	50	18,312
2025	486	95	51	18,736
2026	492	95	52	18,991
2027	497	95	53	19,203
2028	503	95	53	19,459
2029	510	95	54	19,759
2030	515	95	55	19,973
2031	522	95	56	20,273
2032	531	95	57	20,661
2033	539	95	58	21,007
2034	548	95	59	21,397
2035	558	95	60	21,832
2036	568	95	61	22,268

* Annual Consumption is projected beyond 2013

The RWU (Residential Water Use) used in the projected annual consumption is 95 lpcd, based on the greatest RWU in the past 5-year period. This value was used in the water consumption projection to fit the demand of the community, even though it is greater than the 90 lpcd RWU assumed in the MACA guidelines.

The Amendment/Renewal Application is requesting that the amount of water licenced be increased to 23,000 cubic metres annually to meet the 21-year water demand of the community. The reservoir capacity is estimated at approximately 23,000 m^3.

Sewage System

The sewage treatment facility is located approximately 2.2 km west of the community. The facility was upgraded in 2010 and is comprised of two truck discharge areas, two sewage detention cells, and a wetlands area with a series of four small ponds and two flow diversion berms. The wetlands encompass an area that is approximately 10.4 hectares. Effluent flows 800 to 1000 metres through the wetlands from the sewage detention cells to the marine environment of Finger Bay on Hudson Bay. The truck discharge adjacent to pond 1 is primarily used due to the orientation of the second discharge area with respect to prevailing winds.

The Hamlet of Chesterfield Inlet provides trucked sewage collection service from houses and other buildings by vacuum truck.

Solid Waste

The Hamlet of Chesterfield Inlet solid waste disposal facilities consists of a fenced disposal area for municipal solid waste located 2.2 km west of the community, and a separate bulk metal disposal area approximately 200 metres south of the fenced area. The fenced area is approximately 24,000 cubic metres and contains a seacan used to segregate household hazardous waste such as old batteries. A flow diversion berm was constructed in 2010 to prevent runoff from flowing into the sewage wetlands area. The Hamlet collects solid waste from community buildings Monday to Friday.

The landfarm located within the Solid Waste Site is authorized under a separate licence held by GN-CGS. Refer to Water Licence No. 1BR-CIL1217 for more information.