

ANNUAL REPORT FOR THE HAMLET OF CHESTERFIELD INLET

YEAR BEING REPORTED: 2008

The following information is compiled pursuant to the requirements of Part B, Item 1 of Water License (NWB3CHE0308) issued to the Hamlet of Chesterfield Inlet.

- 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;

Water quantity results for monitoring stations CHE-1 and CHE-3 are provided in Table 1 below. Averages for 2008 chemical, physical and biological analysis required for the sewage treatment wetland (for the months of May to September, inclusive) have been obtained from the Centre for Alternative Wastewater Treatment at Fleming College as a result of their International Polar Year project at the Chesterfield Inlet sewage treatment wetland (see attached Table 2). Water quality sampling was not completed at CHE-2.

Table 1 – Water quantity data for the water and sewage systems at Chesterfield Inlet, NU

Month Reported	Quantity of Water Obtained from all sources (m³)^a	Quantity of Sewage Waste Discharged (m³)^{b,c}
January	1,000.7	1,000.7
February	1,099.3	1,099.3
March	1,131.8	1,131.8
April	1,140.0	1,140.0
May	1,104.2	1,104.2
June	1,046.4	1,046.4
July	1,073.4	1,073.4
August	1,140.2	1,140.2
September	1,147.0	1,147.0
October	1,124.2	1,124.2
November	1,083.8	1,083.8
December	961.1 ^d	961.1
ANNUAL TOTAL	12,820.3 ^{e,f}	12,820.3 ^{e,f}

NOTES ON WATER QUANTITY TABLE:

^a Quantity of water obtained is equivalent to water quantity monitoring station CHE-1

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- ^b Quantity of sewage waste discharge is equivalent to water quantity monitoring station CHE-3
- ^c Quantities of sewage discharged not provided; assumed to be equal to quantity of water consumed
- ^d Meter was reportedly not working properly; volume is potentially underestimated
- ^e Total annual volumes potentially underestimated due to December meter malfunction
- ^f Total annual volume of water consumed in 2008 is below the licensed maximum permitted quantity of 20,000 m³

- 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;

NONE

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

No unauthorized discharges (of the Hamlet's responsibility) occurred in 2008

- vi. a summary of any abandonment and restoration work completed during the year and an outline of any work anticipated for the next year;

NONE

- 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:

In 2008, Nunami Jacques Whitford was retained by the GN-CGS to prepare a schematic design report for the tundra wetland sewage treatment system. A design for improvements to the tundra wetland was developed. This schematic design report was submitted to the NWB in February 2009. Construction of improvements was initially expected in mid 2009.

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

NONE

- ix. updates or revisions to the approved Operation and Maintenance Plans.

Operation & Maintenance Manual currently being developed (April 2010)

ADDITIONAL INFORMATION THAT THE LICENSEE DEEMS USEFUL:

FOLLOW-UP REGARDING INSPECTION/COMPLIANCE CONCERNS:

Table 2

12 Week Average for Weekly Water Sampling in 2008 (June 25 to September 10, 2008)
 Centre for Alternative Wastewater Treatment, Fleming College
 International Polar Year Project - Sewage Treatment Wetland at Chesterfield Inlet, NU

Parameter	Unit	NWB License Effluent Quality Standards	Sewage Offload Point	IPY station (120 m southeast of Finger Bay)	% Removal
Total Coliforms	CFU/100 mL	10,000	57,150,909	770.8	99.998
E.coli	CFU/100 mL	-	1,395,455	87.1	99.994
Nitrite (as NO ₂ -N)	mg/L	-	0.06	0.02	73.1
Nitrate (as NO ₃ -N)	mg/L	-	0.40	0.50	-25.0
Ammonia (as NH ₃ -N)	mg/L	-	39.59	0.09	99.8
Total Kjeldahl Nitrogen (as N)	mg/L	-	25.04	1.94	92.3
Phosphate (as PO ₄)	mg/L	-	14.32	0.60	95.8
Total Phosphorus (as PO ₄)	mg/L	-	16.83	1.24	92.6
Total Phosphorus (as P)	mg/L	-	5.49	0.40	92.6
COD	mg/L	-	304.31	100.76	66.9
CBOD ₅	mg/L	80	221.30	13.88	93.7
Dissolved Oxygen (D.O.)	mg/L	-	1.74	10.96	-
Total Suspended Solids	mg/100 mL	10	7.54	3.49	53.7
Total Suspended Solids	mg/L	100	75.38	34.89	53.7
pH	-	6.00 - 9.00	7.33	7.84	-
Conductivity	μS	-	825.9	289.6	64.9
Total Dissolved Solids (calculated)	mg/L	-	545.10	191.14	64.9
Mean Seasonal Water Temperature	°C	-	8.51	7.62	-