March 6, 2001

Environment Canada
Prairie and Northern Region
123 Main Street, Suite 150
Winnipeg, Manitoba
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Attention: Brock Goalen

Subject: Eureka Lagoon Annual Discharge Event Report – March 2001

Introduction

The wastewater lagoon at the Eureka Weather Station is a single cell, long retention lagoon. It is discharged once per year near the end of the open water period. Grey water is released to the ocean in Slidre Fjord near Eureka Sound.

The collection of wastewater throughout the Station is by gravity. All piping is within warm portions of the facility. The wastewater is collected in a storage tank located below the floor on the south side of the station. The collected wastewater is intermittently pumped to the lagoon when the liquid in the holding tank reaches a preset level.

Discharge Event

The total volume of the wastewater lagoon is estimated at 2090 m^3. The amount of wastewater within the lagoon was below average in 2000 due to a decrease in activity at the Weather Station and the installation of low flow showerheads and toilets.

In 2000, discharge of the lagoon occurred on August 21-22. The volume of water discharged from the lagoon was estimated at 1325 m^3. A late summer discharge was selected to provide maximum treatment opportunity for the wastewater within the lagoon. Also, sufficient time before freeze-up was required in order to complete the discharge and replace the containment berm. Discharge from the lagoon on August 21st began at 1930 and was shut-down at 2400. Pumping resumed the following morning at 900 and was completed by 1200.

Sample Analyses

The wastewater was sampled during the discharge event twice. Selected results and sampling times can be seen on Table 1.

Table 1: Selected Results from the Lagoon Wastewater Discharge August 21-22, 2000

Sample Number	Location	Time of Sampling	BOD_5 mg/L	Total Suspended Solids, mg/L	Ammonia (N) mg/L	Fecal Coliforms cfu/100 mL
EWW-1, 2000	Outlet, initial	Aug 21	52	108	4.48	460
EWW-2, 2000	Outlet, final	Aug 22	56	**1120**	4.48	520
Nunavut Water Board Water Discharge Criteria			100	120	NDC	NDC

NDC – No Discharge Criteria

The wastewater samples analyzed met most requirements set by the Nunavut Water Board. The Total Suspended Solids for EWW-2 exceeded the maximum allowable discharge concentration of 120 mg/L.

Recommendations

Some improvement in discharge quality may be achieved through the addition of a primary settling cell before the large treatment/storage cell. Even higher quality effluent could be maintained by the use of a mechanical wastewater treatment plant, such as a rotating biological contactor. If the population at the Weather Station increases to numbers greater than an average of 15 persons per day, additions to the current system should be considered. It is recommended that the sampling program continue in 2001/2002 during the lagoon discharge event.

This report is meant to provide a summary of the activities conducted during the 2000 lagoon discharge event. We trust the information presented herein is suitable for your current needs. If you require additional information in relation to this project, please do not hesitate to contact us.

Respectfully Submitted,
PWGSC – Environmental Services

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