



# WASTE MANAGEMENT PLAN

Report Prepared for:  
**GREAT BEAR LAKE LODGE LTD**

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## VERSION CONTROL & REVISIONS

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V2.0	04-Mar-2019	Final	Bear_WasteManagementPlan 2019-03-04 final V2.0.docx	Description of Waste Management (Revised- Page 2), Summary Table (Added-Page 3), Landfill Site (Added-Page 6), Formatting

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## 1 INTRODUCTION

This document describes the practices undertaken by Plummer's Great Bear Lake Lodge Ltd. At its fishing lodge on Great Bear Lake, Northwest Territories (the "Lodge") in managing waste from the existing site activities and camp operations.

The Lodge has been in operation at its current location since 1968 with no negative effect on the surrounding environment or neighboring community. The Lodge operates only during July and August each summer, where a maximum of 46 guests are accommodated on a weekly basis. At peak capacity the lodge is managed and operated by a staff of up to 30 personnel.

All grey water and sewage wastes generated by the Lodge flow into three baffled septic tanks where the liquid wastes are pumped into a gravel filtration field located approximately one kilometer from camp. The tanks are pumped out twice per season and the remaining solid waste is buried.

All non-hazardous waste generated by the Lodge is either incinerated as per the existing water license or transported to Yellowknife for appropriate disposal.

All hazardous wastes are removed from the property for appropriate disposal.

## 2 PROPERTY LOCATION AND DESCRIPTION

The Lodge is a fishing lodge located on the south shore of the Dease Arm on Caribou Point (66°42'30" N Latitude & 119°41'00" W Longitude). The operating season is a brief two-month period through July and August each summer, where a maximum of 46 guests are accommodated on a weekly basis. Guest attendance has been lower than historical highs in recent years, but is gradually increasing. At peak capacity the lodge is managed and operated by a staff of up to 30 personnel.

The Lodge camp is on a heart shaped island in a sheltered bay. The island is connected to the mainland by a bridge. There is a road that runs 3 kilometers around the bay from the lodge to a 5500' gravel airstrip. On the island sits a main lodge building, which consists of a kitchen, staff dining area, guest dining room and lounge area, and a bar. There are 9 buildings that lodge guests and there are two manager cabins. There are three storage buildings as well as a machine shop, which has staff quarters on top of it. There is also a small store that has staff quarters on the upper floor as well. There is a laundry room in the same building as the machine shop, as well as a staff laundry room as well that has a washer and dryer.

The mainland portion of the Lodge camp consists of four building to house guides. There is also a small building with two toilets, a shower house, and a small laundry room. There are three generator shacks, a machine shop, and various storage buildings.

### 3 PURPOSE OF WASTE MANAGEMENT PLAN

The purpose, goal and objectives of this waste management plan (the “**Plan**”) is to mitigate the effect of the fishing camp and its daily operations on the surrounding land, water, air, wildlife, fish and vegetation.

The public interest is served by the operation of the Lodge through the creation of jobs (for people in the Northwest Territories and other parts of Canada), and attracting tourism spending to the Northwest Territories.

The Plan is also designed to achieve compliance with all applicable acts, regulations, authorizations and permit/license conditions.

### 4 DESCRIPTION OF WASTE MANAGEMENT

All waste streams generated by the Lodge are segregated at the source. Grey water and human waste is collected in septic tanks for subsequent disposal. Items suitable for burning (e.g. paper) are separated from all recycling (e.g. plastics and cans). Kitchen waste is stored separately and fed to the employee’s dogs, thus mitigating wildlife attractants and potentially harmful emissions from incineration. All waste oils, used batteries and other materials unsuitable for incineration or landfilling are stored separately and flown to Yellowknife for proper disposal. To this end, Great Bear Lake Lodge Ltd. is registered with the GNWT for the shipment of hazardous waste.

All grey water and sewage wastes flow to three septic tanks; two have 1000-gallon capacities, the other holds 500 gallons. Four cabins drain to the small tank and the larger tanks services the remaining buildings. Liquid wastes are pumped almost a kilometer east of the Lodge to a gravel filtration field where they disperse into the soil. The camp manager frequently adds Septo Bac to the tanks, which help to further decompose the solids. The septic tanks are completely pumped out at the end of each operating year and the solids are buried in a pit east of the filtration field.

All paper, cardboard and untreated wood is burned in the incinerator. By eliminating food waste and plastics from the incinerator, concerns about mercury, dioxins and furans are avoided. Once per year, the ash is deposited in the landfill site. To ensure that proper waste segregation is occurring prior to incineration, a composite ash sample is collected and tested in an approved laboratory prior to annual disposal in the landfill site. Composite ash samples will consist of collecting equal quantities of ash following each use of the incinerator.

All kitchen waste (i.e. food waste) from the operation of the lodge is collected as a separate waste stream. At normal lodge occupancy, this equates to approximately one 20L bucket per day. All lodge food waste is fed the same day to the lodge employee's dogs. In a typical summer there are four to six dogs onsite and easily consume the volume of waste produced. By feeding this waste to the dogs as it is being produced, attraction of wildlife is mitigated. All fish offal produced during guest shore lunches is left for the seagulls to dispose of immediately. Any excess waste, if produced, is stored in airtight containers and transported to Yellowknife for disposal in an approved facility.

All conventional household recycling items, such as plastics and cans, are bagged and flown to Yellowknife for appropriate disposal. In addition, any treated or painted wood is transported to Yellowknife for disposal at an approved facility.

The hazardous waste stream is comprised largely of batteries, either consumer type solid batteries (AA, D cells etc.) or lead acid batteries. These are suitably packed for transportation by air to Yellowknife and disposed of through an authorized disposal agency as part of the national battery recycling program. The batteries are not stockpiled at site but removed annually as space allows on aircraft. Backhauling of other wastes such as used rubber and scrap metal is also done as space allows on aircraft.

Limited quantities of waste oil will be found on the site from a) waste cooking oil from the camp; and b) waste oil generated from equipment maintenance. Waste oils will be collected in resealable buckets and transported to Yellowknife for disposal. There may be minor amounts of emptied cans from paint or solvents, as well as used oil filters and aerosol cans and these are disposed of appropriately by sending them to Yellowknife.

Antifreeze is also put in waste barrels for removal when barrel is sufficiently full. Where possible used antifreeze is filtered to be re-used and reduce waste.

Plummer's Great Bear Lake Lodge is a Registered Generator of Hazardous Wastes with the GNWT ENR.

**TABLE 1 Waste Management Plan Summary**

Type of Waste	Estimated Volume/Mass Generated	Storage/Treatment	Disposal Location
Sewage and Grey Water	4000 L/day	All grey water and sewage wastes flow into three septic tanks.	The liquid wastes are pumped into a cobble leach field and the solids are buried once pumped out of the tanks at the end of each operating year.
Waste Oils, Oil Filters, Emptied Cans (Paint, Solvents, Aerosols)	80 L and 30 filters are used seasonally.	Waste oils will be collected in buckets and pails.	Transported to Yellowknife for appropriate disposal at a registered facility.
Hazardous wastes (mainly comprised of batteries, consumer type or lead acid)	Approximately 30 12V batteries are on site.	Batteries are stored in the outboard room.	Batteries are shipped to the Yellowknife and disposed of through an authorized disposal agency.
Antifreeze	Maximum 40 L seasonally.	Put into waste buckets.	Transported to Yellowknife when bucket is sufficiently full.
Burnable waste (paper, cardboard and untreated/painted wood)	20 kg/day.	Stored in containers outside the main lodge prior to disposal.	Incineration. The frequency of incineration is dictated by camp occupancy.
Kitchen waste (All food waste)	Max 20L/day.	Collected at least twice a day.	Fed to 4-6 dogs of the employees.
Recyclables	Approximately 350 cans, 100 bottles and 50 kg of plastic/week.	Rinsed, bagged and stored in a closed building at the airstrip.	Flown to Yellowknife for refund.
Fish Offal	10 kg/day.	Left at Shore Lunch locations.	Immediately consumed by seagulls.
Non-Combustible, non-recyclable, non-hazardous, non-dog waste.	50 kg/week.	Collected daily.	Transported to Yellowknife for disposal at the Yellowknife Solid Waste Facility.
Contaminated snow/soils	0 kg/year	Temporary storage location at airstrip.	Transported to Yellowknife for disposal at approved location (KBL).

These calculations are based on an average occupancy of 40 people, although the number of people onsite will vary during the year from zero to 60.

Grey water calculation is based on a rate of 100L/day which is approximately one-third of the Canadian daily domestic water consumption rate, and similar to the water consumption rate for other stationary camps.

On average, the Lodge produces approximately 10,800 lb. of solid waste annually, before incinerating (based on 4.5 lb. per day, per person).

## **5 LANDFILL SITE**

The Lodge's landfill site is located east of the gravel filtration field. This is where all solid waste is disposed of in mid-September. The site is approximately 20 feet wide by 30 feet long by 12 feet deep. The site is built on top of a ridge comprised of a gravel and clay mix. The location is approximately 600 feet from the shoreline of Great Bear Lake and set at an elevation of 150 feet above water level.

On average, the Lodge annually produces approximately 10,800 lb of solid waste annually (based on 4.5 lb per day, per person). However, through incineration, food waste segregation and recycling the only waste that will enter the landfill site is approved incinerator ash.

Cover for the landfill site will be obtained from the adjacent quarry composed of gravel, sand, and soil material.

## **6 GRAVEL FILTRATION FIELD**

The gravel filtration field is located 200 feet from the shoreline and approximately 75 feet elevated from the water level. The dimension of the field is 15 feet wide by 30 feet long by 8 feet deep. All greywater produced by the lodge and its occupants are pumped into it after being separated by the holding tanks.

## **7 WASTE MANAGEMENT PLAN REVIEW AND UPDATE**

The Plan will be reviewed annually, prior to the beginning of each operating season. It will also be reviewed as and when required in between those periods either due to issues recognized by those operating the lodge, by the Land Use Inspector, or by change in regulations, permit conditions, etc.

## 8 APPENDIX A – WASTE MANAGEMENT FACILITIES LOCATIONS

