



2018 Waste Management Facility Annual Report

City of North Battleford
Department of City Operations
Box 460
North Battleford, SK
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5/16/2019

INTRODUCTION

The City of North Battleford (the City) Annual Waste Management Report is designed to provide information to internal management and government agencies.

BACKGROUND

The Waste Management Facility (WMF) is located near Wearing Road, approximately 2.1 km east of Territorial Drive North. The legal land description is NW-13-37-1-W3M. A map showing the location of the WMF and current site diagram can be found in

Appendix A.

The WMF design consists of four cells to be constructed over the lifetime of the facility; one of which has not yet been constructed. Cell No. 1 was constructed in 1996 and Cell No. 2 was constructed in 2002. Cell No. 3 is currently being used and was constructed in 2012. It is expected to have a serviceable life of sixteen years and provide approximately 382,000 m³ of landfill capacity. The design features a clay till liner, leachate collection system, leachate pumping station and force main.

The City is the main contributor to the waste that enters the facility. Other major contributors in the past included the Town of Battleford, the RM of North Battleford No. 437, and the RM of Battle River No. 438. In April 2018, the Town of Battleford informed the City that they will no longer be bringing over household waste to the City's WMF. This was due to the transfer station that was constructed in the Town of Battleford by Loraas Environmental in May 2018. This transfer station takes waste from the Town of Battleford and surrounding communities to the RM of Wilton's landfill.

The WMF accepts and disposes of domestic municipal waste as authorized by the Permit to Operate a Municipal Waste Disposal Ground. All the procedures outlined in this permit are being followed to ensure the City is within regulatory guidelines. The City is continuously taking steps to reduce, reuse, recycle and recover wastes directed to the WMF.

The WMF offers free disposal of compostable materials, fluorescent light bulbs and ballasts to City residents. Recyclable materials can also be disposed of into two 30-yard bins at the Waste Management Facility at no cost to City residents. The WMF stores some recyclables which are processed at other locations including white goods, metal objects, tires, empty propane canisters, batteries and waste oil. Other materials that are diverted from the main pit and stored onsite include clean wood/lumber, trees/shrubs, construction rubble, compostable material and clean soil. The WMF currently accepts asbestos which is buried on site in designated areas.

The City also hosts a semi-annual Household Hazardous Waste Day, where residents within the City can dispose of any hazardous or unknown wastes at no cost. This event helps prevent hazardous waste from entering the WMF.

Curbside garbage and recycling began in April 2014 which eliminated the use of back-alley communal bins for domestic disposal. The City residents have been provided with a curbside garbage and recycling pickup schedule which alternates weeks between each cart. The curbside garbage and recycling pick-up is completed by third-party contractors who monitor the contents and volumes of the bins they collect. Garbage bins that exceed capacity are not collected, while recycle bins containing non recyclable materials are not accepted and/or tagged (physically and electronically) by the contractor.;

GROUNDWATER MONITORING PROGRAM

Golder Associates was contracted by the City to conduct the annual groundwater monitoring program at the WMF. A copy of the 2018 Groundwater Monitoring report was forwarded to the Ministry of Environment. As part of the monitoring program, water samples are collected from eight monitoring wells and the leachate collection well. Wells are also inspected at this time for any potential damage. The monitoring wells are grouped according to their location relative to the main pit. Two wells are up-gradient (upstream of the groundwater flow), three wells are immediately down-gradient (downstream of the groundwater flow), and three wells are in a buried channel further down-gradient of the main pit.

The results indicate that the water type differs between each of the three groups of wells and the leachate. The water types at each well have been relatively consistent over time. The low chloride concentrations suggest leachate is not detectable in the monitoring wells. The leachate has shown an increasing trend for several parameters. These include alkalinity, bicarbonate, chloride, TDS, potassium and sodium. The leachate had a historically high chloride concentration of 1720 mg/L in 2018.

Chloride is often used as a key indicator for leachate because of its mobility and persistence. Chloride concentrations in the up-gradient wells have remained relatively consistent since 1998; however, one of the up-gradient wells reached a record high of 102 mg/L in 2016. Immediately down-gradient, chloride has shown an increasing trend since December 2013. Prior to 2013, the trend had been decreasing. Chloride concentrations in the buried channel wells have also been relatively consistent with some fluctuation over time. The concentrations of chloride in two of three buried channel down-gradient wells have been the highest in 2017.

ACCEPTED MATERIALS VOLUMES

A record of the types and volumes of waste and other materials collected are listed in **Table 1B, Appendix B**. These records also show which materials were disposed and which were diverted from the main pit at the WMF.

GENERAL WASTE

The amount of waste disposed of in the main pit decreased from 18,572 tonnes in 2017 to 14,607 tonnes in 2018. Waste entering the main pit consists mostly of household waste and unsorted waste. The amount of waste collected from the residential collection program increased slightly in 2018 to 2,737 tonnes, from 2,694 tonnes in 2017. The 2018 amount of residential waste collected is still an overall decrease as compared to 3,197 tonnes in 2014 and 5,064 tonnes in 2013. Due to Loraas Environmental moving residential waste to the RM of Wilton's landfill facility, unsorted waste to the landfill decreased from 15,878 tonnes in 2017 to 11,870 tonnes in 2018. This decrease in unsorted material to the WMF will increase the life of the landfill pit, but also decrease revenue for the WMF.

ASBESTOS

In 2018, 57.26 tonnes of asbestos was accepted at the WMF. It was immediately buried in the designated asbestos area at the WMF.

USED OIL & ANTIFREEZE

A total of 9500 litres of used oil as well as 1300 litres of waste antifreeze was disposed of at the WMF and collected by Crush Environmental Services for reprocessing in 2018. Crush Environmental Services also removed 7 drums of oil filters and several hundred empty oil containers and bags. The collection site for used oil, oil containers and filters is located in a fenced and lined area within the WMF and is continuously monitored by WMF staff. In October 2018, the WMF gained approval and purchased a new EcoCentre building with direction from Saskatchewan Association for Resource Recovery Corp. (SARRC). This EcoCentre (12'x30') is located inside the fenced area, and will contain all used oil, antifreeze, and empty containers, starting Spring 2019. WMF staff were also given special training provided by SARRC in the proper use and maintenance of the EcoCentre.

LEACHATE

The total volume of leachate pumped to the Wastewater Treatment Plant in 2018 was 2,223.34 m³. This is slightly below the 2,516.79 m³ pumped in 2017. Overall, the volume of leachate pumped per year has been decreasing.

BIOSOLIDS

Since the operation of the Lystek Bio-Fertilizer system began in December of 2014, biosolids are no longer disposed of at the WMF. The permit to *Operate a Sewage Works* and the permit to *Operate a Waste Disposal Ground* state that dewatered biosolids may still be disposed of at the WMF should the Lystek system malfunction. There were no biosolids disposed of at the WMF in 2018.

RECYCLABLE MATERIAL

The WMF also maintains stockpiles of recyclable materials that are used at the WMF or held for processing elsewhere. The following materials were diverted from the Main Pit in 2018:

- 371 white good products (refrigerators, freezers, air conditioners and stoves). No refrigerants were removed in 2018
- Approximately 321 tires. These were collected by TW Trucking in October of 2018 for recycling
- 13,677.57 tonnes of sorted construction recyclables (wood, concrete, metal, masonry)
 - 145.41 tonnes of metal was removed from the WMF for recycling. This includes propane tanks
- Approximately 75 automotive batteries
- 904.30 tonnes of compost collected at the WMF
- 10,194.59 tonnes of clean soil
- 39.92 tonnes of household recyclables at the WMF depot

Some of this material is sold to recycling facilities to help offset the WMF costs of operation.

COMPACTION

The main pit was surveyed on May 7, 2019. The change in volume from the previous survey completed on January 23, 2018, was 23,938 m³. The amount of waste accepted for disposal between the two surveys was approximately 18,877.65 metric tonnes. This number does not include soil or other materials used as cover material. The compaction

of the waste was 0.79 metric tonnes per cubic metre. The engineering technique used in the most recent survey was conducted using a similar method to the survey performed in February 2017.

CONCLUSION

In 2018, the City of North Battleford continued to decrease volumes of waste entering the main pit through increased recycling. These total volumes have shown to be steadily decreasing over the years. Beginning in August, approximately 9,866.13 tonnes of concrete stored onsite was crushed for resale or in-house use purposes. No asphalt was crushed in 2018. In November, a large portion of the clean wood was mulched as opposed to burnt for re-use as fill in the main pit. New items of 2018 included the EcoCentre installed in October to house oil, antifreeze, and containers, as well as a used bulldozer being purchased in December 2017, which was not included in the 2017 report.

The opening of the Loraas Environmental transfer station within the Town of Battleford in May of 2018 did have an impact on the total amount of waste received at the WMF.

The City of North Battleford continues to work towards diverting more recyclable and reusable material from the main pit of the WMF in 2019.

*City of North Battleford
Waste Management Facility
2018 Report
Appendix A: Site Map*



	DATE REVISED BY MAY 23, 2014 - AJF • UPDATED MARCH, 2015 - AJF • ADDED MUSTER POINT MARCH, 2017 - AJF • UPDATED TO MATCH EXISTING CONDITIONS AUGUST, 2018 - KJM • UPDATED TO ADD ECO CENTRE	DESIGNED BY: CNB-ENG	DATE: JUNE 26/13	SCALE: NTS	PAGE: 1 / 1
		CHECKED BY:	PROJECT: CITY OF NORTH BATTLEFORD WASTE MANAGEMENT FACILITY		
		JOB NO.:			

*City of North Battleford
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Appendix B: Tables*

Table 1B - Accepted Material Volumes		
TYPE OF WASTE	Total	Unit
ASBESTOS	56.26	tonne
	56.26	
BIOSOLIDS	0.00	tonne
	0.00	
LEACHATE ¹	2,223.34	m ³
	2,223.34	
GENERAL WASTE	14,607.48	tonne
Household Garbage	2,737.15	
Unsorted Waste	11,870.33	
¹ Leachate is pumped to the Wastewater Treatment Plant		
DIVERTED MATERIALS		
SORTED CONSTRUCTION RECYCLABLES	13,677.57	tonne
Concrete, wood, metal, asphalt	13,677.57	
USED OIL	9,500.00	L
	9,500.00	
HOUSEHOLD RECYCLABLES	711.99	tonne
curbside program	672.07	
WMF	39.92	
COVER MATERIAL	11,098.89	tonne
clean soil	10,194.59	
compost	904.30	
OTHER	396	units
tires	321	
*appliances	0	
batteries	75	

* No appliances (refrigerants) were removed in 2018, but 371 were collected.