



2017 Waste Management Facility Annual Report

City of North Battleford
Department of Utility Services
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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 completed in 2012. It is expected to have a serviceable life of nine years and provide approximately 375,000 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. Through agreements with the City, some of the other major contributors include 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.

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 a 30-yard bin 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 in designated areas.

The City also hosts a semi-annual Household Hazardous Waste Days where residents within the City and in surrounding communities 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 and recycle bins containing waste are not accepted and/or tagged.

GROUNDWATER MONITORING PROGRAM

Golder Associates is contracted by the city to conduct the annual groundwater monitoring program at the WMF. A copy of the 2017 report will be forwarded to the Ministry of Environment. As part of the monitoring program, water samples are collected from 8 monitoring wells and the leachate collection well. Wells are also inspected at this time for potential damage. The monitor 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.

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. Chloride concentrations in the buried channel wells have also been relatively consistent with some fluctuation over time. Immediately down-gradient, chloride has shown an increasing trend since December 2013. Prior to 2013, the trend had been decreasing. 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 18,906 tonnes in 2016 to 18,572 tonnes in 2017. Waste entering the main pit consists mostly of household waste and unsorted waste. The amount of waste collected from the residential collection program remained relatively consistent in 2017 at 2,694 tonnes from 2,696 tonnes in 2016. The 2017 amount of waste collected is still an overall decrease as compared to 3,197 tonnes in 2014 and 5,064 tonnes in 2013. Unsorted waste to the landfill decreased from 16,210 tonnes in 2016 to 15,878 tonnes in 2017.

ASBESTOS

In 2017, 18.20 tonnes of asbestos was accepted at the WMF. It was immediately buried in the designated asbestos area of the WMF.

USED OIL

A total of 8800 litres of used oil was disposed of at the WMF and collected by Crush Environmental Services for reprocessing in 2017. Crush Environmental Services also removed 8 drums of oil filters and several hundred empty oil containers. 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.

LEACHATE

The total volume of leachate pumped to the Wastewater Treatment Plant in 2017 was 2,516.79 m³.

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 Wastewater Treatment Plant* 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 2017.

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 2017:

- 390 white good products (refrigerators, freezers, air conditioners and stoves). Refrigerants were removed when necessary
- Approximately 337 tires. These were collected by TW Trucking in January of 2017 for recycling
- 21,091.97 tonnes of sorted construction recyclables (wood, concrete, metal, masonry)
 - 182.5 tonnes of metal was removed from the WMF for recycling. This includes propane tanks
- Approximately 71 batteries
- 978.40 tonnes of compost collected at the WMF
- 25,409.70 tonnes of clean soil
- 51.94 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 January 23, 2018. The change in volume from the previous survey completed on February 15, 2017, was 32,421 m³. The amount of waste accepted for disposal between the two surveys was approximately 18,271 metric tonnes. This number does not include soil or other materials used as cover material. The compaction of the waste was 0.56 metric tonnes per cubic metre. The city engineering department used different mechanical equipment for the most recent survey on January 23, 2018. The change in mechanical equipment allowed the city engineering department to obtain a more accurate value for the volume of the main pit which directly resulted in a lower calculated compaction of waste.

CONCLUSION

In 2017, 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. In August, approximately 8,500 tonnes of concrete and 1,200 tonnes of asphalt stored onsite were crushed for resale or in-house use purposes. In September, a large portion of the clean wood was mulched as opposed to burnt for re-use as fill in the main pit. The WMF also installed new overhead cameras at the scale house to view truck-loads entering the landfill. These cameras have helped the scale house attendants determine if incoming loads need further inspection.

The City of North Battleford continues to work towards diverting more recyclable and reusable material from the main pit of the WMF in 2018.