



# 2015 Waste Management Facility Annual Report

City of North Battleford  
Department of Operations  
Box 460  
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3/7/2016

## INTRODUCTION

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

## BACKGROUND

The Waste Management Facility (WMF) is located approximately 2.1 km east of Territorial Drive North off Wearing Road. The WMF design consists of four cells to be constructed over the lifetime of the facility. Cell No. 1 was constructed in 1996; Cell No. 2 was constructed in 2002. Currently, the WMF is using Cell No. 3. Construction on Cell No. 3 began in 2011 and was completed in 2012. Cell No. 3 had been projected to be required by 2014. It is expected to have a serviceable life of nine years and provide approximately 375,000 m<sup>3</sup> of landfill capacity. The WMF features a clay till liner, leachate collection system, and leachate pumping station and force main. A map showing the location of the WMF and current site diagram can be found in **Appendix A**.

The City of North Battleford (the City) is the main contributor of the waste that enters the facility. Through agreements with the City, some of the other contributors include the Town of Battleford, the RM of North Battleford No. 437, and the RM of Battle River No. 438.

The WMF accepts and disposes of municipal domestic waste as authorized by the Permit to Operate a Municipal Waste Disposal Ground. As part of this permit the City is taking steps to reduce, reuse, recycle, and recover wastes directed to the WMF. The City no longer utilizes drop-off depots for recyclables nor depots for compostable materials. The Waste Management Facility allows free disposal of compost material 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. Curbside garbage and recycling began in April 2014 which eliminated the use of back-alley communal bins for domestic disposal. The City has 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.

The WMF also stores recyclable metals/whites and other similar large metal objects, tires, empty propane canisters, batteries, and waste oil for recycling or disposal at another location. The WMF accepts asbestos, construction rubble, compost material, clean wood/lumber, trees/shrubs, shingles, hydrocarbon contaminated soil, and if required dewatered biosolids from the City's Wastewater Treatment Plant (WWTP). All materials accepted at the WMF are stored or buried in designated areas.

## GROUNDWATER MONITORING PROGRAM

Golder Associates has been contracted by the city to conduct the ground water monitoring program. A copy of the 2015 report will be forwarded to the Ministry of Environment. As part of the monitoring program, water samples are collected from 8 monitor wells and the leachate collection well. The monitor wells are grouped according to their location relative to the Main Pit. Two wells are up-gradient, three wells are immediately down-gradient and three wells are in a buried channel further down-gradient of the Main Pit.

The results indicate that the water type differs between the three groups and the leachate. The water type at each well has been relatively consistent over time and has not changed at individual monitoring wells. The leachate has shown an increasing trend for several parameters, although in 2015 these were lower than the 2014 monitoring event. Chloride is often used as a key indicator for leachate because of its mobility and persistence. Chloride concentrations in the up-gradient wells and the buried channel have remained relatively consistent. Immediately down-gradient, chloride has shown an increasing trend since December 2013. Prior to 2013, the trend had been decreasing. The low chloride concentrations in the monitor wells suggest that the leachate has not been detected in the monitoring wells.

## ACCEPTED MATERIALS VOLUMES

The following is a record of the wastes and other materials collected, and disposed of or diverted from the main pit at the WMF. These records can also be found in **Table 1B, Appendix B**.

## GENERAL WASTE

Overall, the amount of waste disposed of in the Main Pit decreased slightly to 20,023 tonnes from 21,000 tonnes from the previous year. The amount of waste collected from the residential collection program decreased to 2,661 tonnes as compared to 3,197 in 2014 and 5,064 in 2013. This represents a 52.5% decrease from 2013. Unsorted waste to the landfill remained relatively unchanged at 17,362 metric tonnes compared to 17,522 tonnes in 2014.

## HYDROCARBON CONTAMINATED SOIL

The WMF accepted 5,631 tonnes of Hydrocarbon Contaminated Soil in 2015. The Hydrocarbon Contaminated Soil is stored east of the main pit. The soil is turned once every two weeks. The WMF will no longer be accepting Hydrocarbon Contaminated Soil for treatment.

## HYDROCARBON SOIL TESTING

On May 21, 2015 four samples were collected from the hydrocarbon soil area and submitted for testing to an accredited lab. The samples were tested for BTEX and CCME F1 to F4 hydrocarbons. The parameters tested were below the detection limit or below the MAC for disposal at landfills. The results are shown in **Table 2B, Appendix B**.

## ASBESTOS

35.49 tonnes of Asbestos was accepted at the WMF in 2015. It was immediately buried in the Asbestos area of the WMF.

## USED OIL

7,500 L of used oil was collected by Crush Environmental Services for reprocessing in 2015. Crush Environmental Services also removed 5 drums of oil filters and several hundred empty oil containers. The collection site for used oil, oil containers, filters, etc. was moved to an existing fenced and lined area with the facility.

## LEACHATE

The volume of leachate pumped to the WWTP was 4,233.6 m<sup>3</sup>.

## BIOSOLIDS

Since the operation of the Lystek Bio-Fertilizer system began in December of 2014, no biosolids have been disposed of in 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.

## RECYCLABLE MATERIAL

The WMF also maintains stockpiles of recyclable materials that are used at the WMF or held for disposal elsewhere. The following is a list of the materials diverted from the Main Pit.

- 682 appliances
  - Refrigerant was removed from 383 appliances
- 348 tires
  - over 453 tires were collected by Shercom Industries Inc. in early June 2015 to be recycled

- 10,931.45 tonnes of sorted construction recyclables (wood, concrete, metal, masonry)
  - 286.8 tonnes of metal was removed from the WMF by a third party contractor
- 59 batteries
- 495.21 tonnes of compost collected at the WMF
- 17,277 tonnes of clean soil
- 47.47 tonnes of household recyclables at the WMF depot

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

## COMPACTION

The main pit was surveyed on December 22, 2015. The change in volume from the previous survey completed on April 17, 2015 was 26,100 m<sup>3</sup>. The amount of waste accepted for disposal between the two surveys was 15,135 metric tonnes. This number does not include soil or other materials used as cover material. The compaction for the waste is 0.58 metric tonnes per cubic metre.

## CONCLUSION


2015 was a busy year at the WMF. The City took over operations at the WMF from a contractor in July of 2015. Three full-time employees and one part-time employee were hired, bringing the total number of employees at the WMF to seven. Overall, operations at the WMF went well in 2015. The City of North Battleford continues to work towards diverting more recyclable and reusable material from the main pit of the WMF.

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Appendix A: Site Map*





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Appendix B: Tables*



**Table 1B**

<b>TYPE OF WASTE</b>	<b>Total</b>	<b>Unit</b>
<b>HYDROCARBON CONTAMINATED SOIL</b>	<b>5,631</b>	<b>tonne</b>
	5,631	
<b>ASBESTOS</b>	<b>35</b>	<b>tonne</b>
	35.49	
<b>BIOSOLIDS</b>	<b>0</b>	<b>tonne</b>
<b>LEACHATE<sup>1</sup></b>	<b>4,234</b>	<b>m<sup>3</sup></b>
<b>GENERAL WASTE</b>	<b>20,023</b>	<b>tonne</b>
Household Garbage	2,661	
Unsorted Waste	17,362	
<sup>1</sup> Leachate is pumped to the Wastewater Treatment Plant		
<b>DIVERTED MATERIALS</b>		
<b>SORTED CONSTRUCTION RECYCLABLES</b>	<b>10,931</b>	<b>tonne</b>
Concrete, wood, metal, asphalt	10,931	
<b>USED OIL</b>	<b>7,500</b>	<b>L</b>
	7500	
<b>HOUSEHOLD RECYCLABLES</b>	<b>789.65</b>	<b>tonne</b>
curbside program	742.18	
WMF	47.47	
<b>COVER MATERIAL</b>	<b>17,773</b>	<b>tonne</b>
clean soil	17,277	
compost	495.24	
<b>OTHER</b>	<b>1,086</b>	<b>units</b>
tires	345	
appliances	682	
batteries	59	

**Table 2B**

<b>Parameter</b>	<b>Units</b>	<b>HC SOIL NE</b>	<b>HC SOIL NW</b>	<b>HC SOIL SE</b>	<b>HC SOIL SW</b>	<b>MAC</b>
Moisture	%	7.3	11.7	11.8	17.8	
Benzene	mg/kg	0.03	0.01	0.01	0.015	1
Ethylbenzene	mg/kg	0.03	0.01	0.02	0.015	50
Total Xylene	mg/kg	0.08	<0.04	0.12	0.04	37
Toluene	mg/kg	0.03	<0.02	0.1	0.03	0.1
CCME F1 (C6-C10 - BTEX)	mg/kg	<1	<1	<1	<1	970
CCME F2 (C10-C16)	mg/kg	<3.5	<3.5	<3.5	4	380
CCME FE (C16-C34)	mg/kg	25	30	175	60	4300
CCME F4 (C34-C50)	mg/kg	15	25	60	9	

MAC is for use as daily or intermediate cover at landfills