



2014 Waste Management Facility Annual Report

City of North Battleford
Department of Operations and Maintenance
Box 460
North Battleford, SK
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3/25/2015

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 m³ 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 five designated bins 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 their 2014 report has been forwarded to the Ministry of Environment. The results indicate that the water type differs between the monitor wells and can be divided into three areas. Those areas are identified as up gradient of the main pit (two wells), down gradient of the main pit (three wells), and a buried channel that is further down gradient of the main pit (three wells). The historic groundwater chemistry of wells in the buried channel have not shown trending that would indicate any impact from landfill leachate. Golder Associates was unable to access two of the down gradient wells that are located on private property. Therefore it is unknown if there have been any changes to the ground water chemistry since previous testing was completed. As part of the 2014 program, Golder Associates was to decommission two wells that were reported damaged and install two new wells as their replacements. Monitoring wells BH504C and BH520 were replaced in May 2014 with monitoring wells BH504C-r and BH520-r, respectively. Monitoring well BH504C was decommissioned in May 2014, however monitoring well BH520 was not decommissioned due to Golder not being able to locate it.

The following is a record of the wastes 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 20,719 tonnes from 21,000 tonnes from the previous year. The amount of waste collected from the residential collection program decreased to 3,197 tonnes as compared to 5,064 tonnes in 2013. This represents a 36.9% decrease. Unsorted waste to the landfill increased 8.9% from 16,079 tonnes in 2013 to 17,522 tonnes in 2014.

HYDROCARBON CONTAMINATED SOIL

The WMF accepted 16 tonnes of Hydrocarbon Contaminated Soil in 2014. The Hydrocarbon Contaminated Soil is stored east of the main pit. The soil is turned once every two weeks.

ASBESTOS

18 tonnes of Asbestos was accepted at the WMF in 2014. It was immediately buried in the Asbestos area of the WMF.

USED OIL

8,000 L of used oil was collected by Crush Environmental Services for reprocessing in 2014. 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 25,687 m³.

SLAUGHTERHOUSE WASTES

Slaughterhouse wastes were not disposed of at the WMF in 2014.

BIOSOLIDS

2,700 tonnes of biosolids were disposed of in the WMF in 2014. There were typically two truckloads per day, with an average weight of 6,970 kg. The biosolids are tested once a year as part of the requirement to *Operate a Wastewater Treatment Plant*. In 2014, all parameters with a Maximum Acceptable Concentration were below the guidelines set out by the Water Security Agency. The results can be found in **Table 2B, Appendix B**.

In December 2014, the City began its operation of its new Lystek Biofertilizer system to provide an alternate solution for disposal of the biosolids. This system converts biosolids into a pathogen free, Canadian Food Inspection Agency Class A registered biofertilizer product. This system will eliminate the need to transfer biosolids to the WMF for disposal. This system was installed as part of the Water Security Agency's order to the City to find an alternate means of biosolid disposal.

In 2015, the City will continue to operate the Lystek system as an alternate solution for disposal of the biosolids. The permit to *Operate a Wastewater Treatment Plant* states 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.

- 563 appliances
 - Refrigerant was removed from 328 appliances

- 156 tires
 - over 600 tires were collected by Shercom Industries Inc. in early 2014 to be recycled
- 11,535 tonnes of sorted construction recyclables (wood, concrete, metal, masonry)
 - 676 tonnes of metal was removed from the WMF by a third party contractor
- 53 batteries
- 365 tonnes of compost collected at the WMF
- 12,279 tonnes of clean soil
- 32 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.

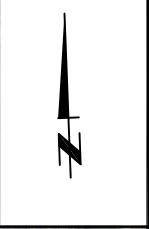
COMPACTION


At the time of this report, no current compaction survey has been completed due to scheduling conflicts. When staff and equipment become available, the City of North Battleford will collect this data and notify all necessary parties.

CONCLUSION

In conclusion, operations at the WMF went well in 2014. The City of North Battleford continues to work towards diverting more recyclable and reusable material from the main pit of the WMF.

*City of North Battleford
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Appendix A: Site Map*



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		JOB NO.:				

*City of North Battleford
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Appendix B: Tables*

Table 1B

TYPE OF WASTE	Total	Unit
HYDROCARBON CONTAMINATED SOIL	16	tonne
ASBESTOS	18	tonne
BIOSOLIDS	2,700	tonne
LEACHATE¹	25,687	m³
GENERAL WASTE	20,719	tonne
Household Garbage	3,197	
Unsorted Waste	17,522	
¹ Leachate is pumped to the Wastewater Treatment Plant		
DIVERTED MATERIALS		
SORTED CONSTRUCTION RECYCLABLES	11,535	tonne
Concrete, wood, metal, asphalt	11,535	
USED OIL	8,000	L
HOUSEHOLD RECYCLABLES	545.70	tonne
Curbside	513	
WMF Recycle Depot	32.7	
COVER MATERIAL	12,644	tonne
clean soil	12,279	
compost	365.1	
OTHER	537	units
tires	156	
appliances	328	
batteries	53	

Table 2B

Parameter	Units	Results		
		July	December	Mac
<u>Nutrients</u>				
Ammonia	µg/g	<5	<5	
Nitrate+Nitrite	µg/g	<5		
Nitrate	µg/g		1	
Nitrite	µg/g		<1	
TKN	µg/g	<5	68000	
Total Nitrogen	µg/g	<5		
<u>Inorganic</u>				
Cyanide	µg/g	0.3		
Mercury	µg/g	0.69		<5
<u>Metals</u>				
Aluminum	µg/g	6300	4120	
Antimony	µg/g		1.1	
Arsenic	µg/g	4.1	2.6	<75
Barium	µg/g	260	150	
Beryllium	µg/g	<0.50	0.1	
Bismuth	µg/g			
Boron	µg/g		19	
Calcium	µg/g	23000		
Cadmium	µg/g	0.5	0.7	<20
Cobalt	µg/g	2.7	2.1	<150
Chromium	µg/g	17	13	<1060
Copper	µg/g	960	900	<760
Iron	µg/g	9000	5300	
Phosphorus	µg/g	20800	20300	
Potassium	µg/g	5700	8300	
Magnesium	µg/g	7100		
Manganese	µg/g	460	380	
Molybdenum	µg/g	3.9	5	<20
Sodium	µg/g	1400		
Nickel	µg/g	13	10	<180
Lead	µg/g	17	12	<500
silver	µg/g	<0.5	2.1	
Selenium	µg/g	13	3.5	<14
Tin	µg/g		14	
Strontium	µg/g	160	110	
Titanium	µg/g	370	120	
Thallium	µg/g	<0.10	<0.2	
Uranium	µg/g		5	
Vanadium	µg/g	14	9	
Zinc	µg/g	270	240	<1850