



Water and Waste Department • Service des eaux et des déchets

## **ENVIRONMENT ACT LICENCE #1089E RR**

### **BIOSOLIDS DEWATERING, MONITORING, AND DISPOSAL PROGRAMS**



2014



Water and Waste Department • Service des eaux et des déchets

January 30, 2015

Our Files: 040-17-08-23-01

Don Labossiere  
Director, Environmental Compliance and Enforcement  
Manitoba Conservation and Water Stewardship  
123 Main Street  
Winnipeg, Manitoba  
R3C 1A5

Dear Mr. Labossiere:

**RE: ANNUAL COMPLIANCE REPORT FOR ENVIRONMENT ACT LICENCE 1089E RR**

Enclosed you will find our annual compliance report which details the City of Winnipeg's Biosolids Dewatering and Disposal Program for 2014. Included in this report are:

- a) details of the 2014 biosolids distribution and monitoring programs
- b) details of the proposed 2015 biosolids distribution program.

If you have any questions concerning the annual report, I may be reached by telephone at 204-986-8359 or by e-mail at [rgrosselle@winnipeg.ca](mailto:rgrosselle@winnipeg.ca).

Yours sincerely,

*Original signed by:*

R. Grosselle  
Manager of Environmental Standards

Enclosure

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## **ENVIRONMENT ACT LICENCE #1089E RR**

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2014

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## **TABLE OF CONTENTS**

<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>COMPLIANCE REPORT .....</b>	<b>2</b>
<b>2014 BIOSOLIDS APPLICATION PROGRAMS.....</b>	<b>3</b>
(A) Dewatering.....	3
(B) Storage .....	3
(C) Monitoring Results.....	4
(D) Distribution Program .....	6
<b>2015 PROPOSED BIOSOLIDS APPLICATION PROGRAMS .....</b>	<b>6</b>

## **LIST OF TABLES**

TABLE 1	2014 Biosolids Quality.....	5
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## **LIST OF APPENDICES**

APPENDIX 1	Operating Records For Mechanical Dewatering Of Biosolids.....	8
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## **EXECUTIVE SUMMARY**

Amended Environment Act Licence #1089E RR, issued on June 14, 2000, requires that the City of Winnipeg monitor its biosolids dewatering and disposal operations and submit an annual report to the regulating authority and various municipalities on or before the 31<sup>st</sup> of January of each year.

This report summarizes the results of the City's 2014 Biosolids Application Program (WINGRO) and also outlines the proposed plan for the 2015 calendar year.

In 2014, the City produced 13,687 dry-tonnes of anaerobically digested, mechanically dewatered biosolids at its North End Water Pollution Control Centre (NEWPCC). The total solids concentration in the dewatered biosolids averaged 27.7%. The WINGRO program deposited 100% of the biosolids at the Brady Road Resource Management Facility. Of those 13,687 dry-tonnes of biosolids, approximately 294 dry-tonnes were sent to the on-site composting facility. No biosolids were applied to agricultural land in 2014. The interim storage pad was not used in 2014.

We plan to continue disposing of biosolids at the Brady Road Resource Management Facility in 2015. A pilot biosolids composting facility at the landfill has been constructed and will commence operation after the composting facility has been commissioned. Commissioning should be completed by the first quarter of 2015.

## **COMPLIANCE REPORT**

Environment Act Licence #1089E was issued to the City of Winnipeg on February 21, 1989 and amended on April 28, 2000 (#1089E R) and on June 14, 2000 (#1089E RR). Licence #1089E RR sets limits, terms and conditions with which the City of Winnipeg must comply in the operation of its mechanical dewatering equipment, the temporary storage of biosolids, and with its disposal onto agricultural land. One of these conditions is that **"The applicant shall, on or before the 31st day of January of each year, submit to the Director, with a copy to the Rural Municipality of West St. Paul and to each Municipality in which biosolids have been disposed of, a report..."** In keeping with this requirement, the City of Winnipeg hereby submits this compliance report which contains information on its 2014 Biosolids Program.

Licence #1089E RR contains several clauses. This report presents results and/or comments for each of the clauses under which the City has generated pertinent information during the course of conducting its 2014 Biosolids Program. The report also provides information on its proposed Biosolids Program for the twelve months starting January 1, 2015.

The specific requirements of each clause are presented in **bold-faced type** followed by the City's comments.

## **2014 BIOSOLIDS APPLICATION PROGRAMS**

### **(a) Dewatering**

**"The Licensee shall operate and maintain the mechanical dewatering equipment to achieve a level of at least 20 percent solids, by weight after the dewatering process." (Clause 5)**

From January 1, 2014 to December 31, 2014 the City produced 13,687 dry-tonnes of mechanically-dewatered biosolids at its NEWPCC facility. Appendix I contains the mechanical dewatering operating records for 2014. In 2014, the total solids in the biosolids averaged  $27.7 \pm 3.7\%$  ( $n = 237$ ). The dewatering equipment achieved total solids content in the biosolids of at least 20 percent by weight throughout 2014.

### **(b) Storage**

**"The Licensee shall only store biosolids at the temporary storage facility in circumstances when agricultural land is not accessible for direct biosolids disposal (Clause 6)" and "the Licensee shall ensure that the biosolids are removed from the temporary storage facility for application to agricultural land as soon as the agricultural land is available (Clause 7)."**

In 2014, the storage pad was not used to provide interim storage for any mechanically-dewatered biosolids. The WINGRO program deposited 100% of the annual biosolids production at the Brady Road Resource Management Facility.

**(c) Monitoring Results**

**“The Licensee shall conduct a monitoring program in accordance with Appendix “B” to this licence” (Clause 21) and present “the results of analysis of biosolids, soil, and surface water runoff, where the biosolids are applied as well as odour complaint investigations concerning biosolids storage and application” (Clause 22 (c)).**

Table 1 contains the results of analyses conducted on samples of biosolids in fulfilment of the monitoring requirements stipulated in Licence #1089E RR. Ditchwater samples were not collected in 2014 because biosolids were not applied to any fields in 2013. Appendix I contains the mechanical dewatering operating records for 2014.

We continue to monitor odours on a weekly basis and follow up with any odour complaints. We had very few reported odour complaints in 2014 and continue to implement best practices to help with odour mitigation. We have ended using straw late in the year to cover the waste but have gone to covering with soil as daily cover. The City continues to use strategies to help mitigate odours including measures such as covering odour causing wastes as quickly as possible and trenching.



**TABLE 1**  
**2014 Biosolids Quality**

Sample Number	Date Sampled *	Total Cd (mg/Kg-Cd)	Total Cr (mg/Kg-Cr)	Total Cu (mg/Kg-Cu)	Total Ni (mg/Kg-Ni)	Total Pb (mg/Kg-Pb)	Total Zn (mg/Kg-Zn)	Total P (mg/Kg-P)	NH3-N (mg/Kg-N)	TKN (mg/Kg-N)	pH (units)	Specific Conductance (dS/m)	Moisture (%)
1	30-Dec-13	1.1	91	753	69.5	59.5	1,440	20,100	12,600	28,200	6.59	6.6	77.9
2	12-Jan-14	1.1	92	612	49.8	53.5	1,120	16,400	13,300	28,700	6.46	7.1	77.9
3	26-Jan-14	1.0	125	654	65.4	55.8	1,040	21,400	11,800	29,200	6.11	7.2	76.3
4	9-Feb-14	1.7	123	572	74.8	42.0	836	23,600	12,000	31,900	6.02	5.6	73.6
5	23-Feb-14	2.0	112	591	70.8	46.7	870	24,500	12,100	34,700	6.26	5.9	73.1
6	9-Mar-14	2.5	112	547	57.7	38.2	717	17,800	12,100	36,300	6.06	6.1	71.5
7	23-Mar-14	2.2	93	496	55.7	39.7	1,280	23,400	10,600	36,400	6.06	5.7	70.2
8	6-Apr-14	1.8	89	456	47.8	49.5	1,180	16,200	10,200	38,100	5.91	4.7	68.8
9	20-Apr-14	2.3	86	420	46.4	63.3	923	16,100	10,200	39,900	6.01	4.4	67.2
10	4-May-14	1.9	106	391	51.6	62.9	715	14,100	9,580	36,700	5.97	4.6	67.4
11	18-May-14	2.0	108	418	71.7	68.2	626	12,800	10,600	38,200	5.89	5.1	68.6
12	1-Jun-14	1.8	133	470	71.0	69.8	697	18,300	10,700	35,500	6.22	3.2	68.5
13	15-Jun-14	1.7	132	521	69.6	118.0	926	16,100	9,610	31,900	6.37	4.6	70.4
14	29-Jun-14	1.5	96	363	54.4	121.0	680	12,000	8,810	37,000	6.18	4.2	67.0
15	13-Jul-14	2.2	111	501	82.1	114.0	1,350	15,600	8,620	33,100	6.15	4.4	66.8
16	27-Jul-14	2.0	109	495	67.2	104.0	1,650	16,500	9,020	32,200	6.26	4.1	67.6
17	10-Aug-14	2.2	100	504	54.4	72.5	1,110	16,500	10,100	33,600	6.13	4.6	71.0
18	24-Aug-14	2.5	101	615	52.5	85.5	1,240	15,900	7,500	32,500	6.19	3.8	58.3
19	7-Sep-14	2.3	100	595	49.5	81.5	1,200	15,600	9,220	34,900	6.27	4.6	70.2
20	21-Sep-14	2.0	90	589	83.0	68.1	1,250	14,000	9,650	33,600	6.61	5.7	69.1
21	5-Oct-14	2.3	94	539	72.5	54.6	943	14,400	11,600	32,800	6.46	5.6	74.6
22	19-Oct-14	2.4	122	654	68.2	56.3	1,040	17,100	12,500	32,500	6.43	5.7	75.0
23	2-Nov-14	2.4	136	717	48.2	54.7	1,350	18,200	12,400	30,200	6.76	5.3	76.0
24	18-Nov-14	2.0	124	684	42.5	47.6	1,180	18,300	13,400	36,800	6.29	12.4	76.0
25	30-Nov-14	1.8	131	738	53.3	83.0	1,270	15,400	14,000	36,200	6.66	10.5	76.0
26	14-Dec-14	2.0	121	818	68.5	91.2	1,270	17,200	12,300	33,500	7.24	11.0	76.9
Average:		1.9	109	566	61.5	69.3	1,073	17,212	10,943	34,023	6.29	5.9	71.4
Maximum:		2.5	136	818	83.0	121.0	1,650	24,500	14,000	39,900	7.24	12.4	77.9
Minimum:		1.0	86	363	42.5	38.2	626	12,000	7,500	28,200	5.89	3.2	58.3

\* Indicates starting date for year 2014 biweekly composite samples

**(d) Distribution Program**

**“details of the biosolids distribution program carried out during the previous calendar year, including the description of the location of the land on which the biosolids were applied and the dry weight of biosolids distributed per hectare.”**

**(Clause 22 (a))**

Of the 13,687 dry-tonnes of mechanically-dewatered biosolids produced at the NEWPCC from January 1, 2014 to December 31, 2014, 100% were disposed at the Brady Road Resource Management Facility.

**2015 PROPOSED BIOSOLIDS APPLICATION PROGRAMS**

**“details of the biosolids application program proposed to be carried out during the one-year period following the issuance of the report, including a description of the locations of the land on which application will be carried out, the proposed dates of application, and the proposed dry weight of biosolids per hectare of agricultural land”. (Clause 22 (b))**

In the 2015 WINGRO application year, which runs from January 1, 2015 to December 31, 2015, the City plans no land application at the present time and plans to dispose of all biosolids at the Brady Road Resource Management Facility.

The City received approval by Manitoba Conservation on April 20, 2012 to divert 20% of biosolids from the landfill to a pilot composting facility located within Brady Road Resource Management Facility. Although the commissioning of the pilot biosolids facility is on-going, the successful start-up of the facility will be weather dependent. At the end of the two year pilot study, we will be submitting a report on the composting project.

In September 2014, the City submitted a Biosolids Master Plan and plans to pre-select a thermal hydrolysis sludge treatment vendor and procure a nutrient recovery system to maximize nutrient utilization. These systems will be pre-selected in 2015. The City will also start a request-for-qualifications (RFQ) process to determine the feasibility of land application prior to implementing thermal hydrolysis.

**APPENDIX I**  
**OPERATING RECORDS**  
**for**  
**MECHANICAL DEWATERING OF BIOSOLIDS**



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