Water and Waste Department
Environmental Standards Division

Biosolids Dewatering, Monitoring, and Disposal Programs

Environment Act Licence #1089E RR

2015

Winnipeg

Water and Waste Department • Service des eaux et des déchets

January 27, 2016 Our Files: 040-17-08-23-01

Don Labossiere, Regional Director
Manitoba Conservation and Water Stewardship
Environmental Compliance and Enforcement Branch
1007 Century Street
Winnipeg MB R3H 0W4

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 2015. Included in this report are:

a) details of the 2015 biosolids distribution and monitoring programs
b) details of the proposed 2016 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.

Yours sincerely,

Original signed by:

R. Grosselle
Manager of Environmental Standards

Enclosure

c: D. Sacher, P.Eng.
C. Carroll, P.Eng.
G. Patton, P.Eng.
D. Doubleday
D. DeCraene
C. Kozak

N:\Compliance Reporting\Biosolids Annual Report\Biosolids Annual Report Templates\2) Biosolids Annual Report Cover Letter DL.doc

2015 Biosolids Dewatering, Monitoring, and Disposal Programs

Heather Demchenko, B. Sc.
Compliance Reporting Technician

Nancy Crawford, B. Sc.
Compliance Reporting Branch Head

Renée Grosselle, B. Sc.
Manager of Environmental Standards Division

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 31st of January of each year.

This report summarizes the results of the City's 2015 Biosolids Application Program (WINGRO) and also outlines the proposed plan for the 2016 calendar year.

In 2015, the City produced 12,869 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 26.8%. The WINGRO program deposited 100% of the biosolids at the Brady Road Resource Management Facility. Of those 12,869 dry-tonnes of biosolids, approximately 789 dry-tonnes were sent to the on-site composting facility, which was commissioned in May 2015. No biosolids were applied to agricultural land in 2015. The interim storage pad was not used in 2015.

We plan to continue disposing of biosolids at the Brady Road Resource Management Facility in 2016, with 20% diverted to the composting facility.

CONTENTS

TABLES

APPENDICES

1.0 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 2015 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 2015 Biosolids Program. The report also provides information on its proposed Biosolids Program for the twelve months starting January 1, 2016.

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

2.0 2015 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, 2015 to December 31, 2015 the City produced 12,869 dry-tonnes of mechanically-dewatered biosolids at its NEWPCC facility. Appendix I contains the mechanical dewatering operating records for 2015. In 2015, the total solids in the biosolids averaged 26.8 ± 2.6% (n = 264). The dewatering equipment achieved total solids content in the biosolids of at least 20 percent by weight throughout 2015.

(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 2015, 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. The City of Winnipeg currently has no plans to resume use of the temporary storage 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 fulfillment of the monitoring requirements stipulated in Licence #1089E RR. Ditchwater samples were not collected in 2015 because biosolids were not applied to any fields in 2014. Appendix I contains the mechanical dewatering operating records for 2015.

We continue to monitor odours on a weekly basis and follow up with any odour complaints. We had very few reported odour complaints in 2015 and of those complaints; none were attributed specifically to Biosolids. The City continues to use strategies to help mitigate odours including:

- Covering biosolids quickly with soil or other wastes that do not cause odours
- Scheduling the arrival of biosolids at specific times of day when wind conditions are not likely to cause concern for odour
- Collecting and burning landfill gas to help mitigate buried biosolids odours
- Controlling storm water runoff to prevent generating leachate and ponding of water that causes odour
- Keeping a bio-filter on the biosolids compost facility, and
- Maintaining an Odour monitoring program

The odour mitigation strategies for biosolids have largely been successful as we have had no complaints specifically pertaining to biosolids. Along with current strategies we may look at using compost near odour point sources to help control odour.

TABLE 1

2015 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	28-Dec-14	1.9	91	802	60.6	65.5	1,040	19,200	13,400	32,000	6.27	12.2	77.4
2	11-Jan-15	2.2	87	780	57.2	60.6	2,870	21,500	NR**	28,300	5.95	10.3	78.2
3	25-Jan-15	2.8	96	753	66.5	65.3	2,440	24,800	13,300	32,200	6.03	10.3	75.7
4	8-Feb-15	1.9	89	702	59.3	49.8	1,900	22,600	12,700	36,600	5.81	10.0	74.4
5	22-Feb-15	2.1	87	616	40.3	42.3	1,260	21,900	13,100	33,800	5.84	9.7	75.1
6	8-Mar-15	1.8	74	558	41.6	53.2	994	20,300	10,300	31,800	5.85	7.9	72.3
7	22-Mar-15	1.7	65	448	45.3	50.6	757	17,200	9,560	36,800	5.80	7.5	69.1
8	5-Apr-15	1.6	64	524	49.0	50.1	789	16,600	10,200	36,800	5.91	7.2	69.7
9	20-Apr-15	2.3	86	695	66.5	69.7	1,080	15,900	10,500	35,700	5.90	7.3	71.5
10	3-May-15	2.1	85	605	65.1	59.2	942	17,200	9,370	33,700	6.06	7.8	72.6
11	17-May-15	1.4	65	432	60.9	65.7	716	17,000	11,500	32,500	6.02	7.3	71.2
12	31-May-15	1.6	80	510	61.3	87.8	919	15,500	10,500	34,700	6.29	8.3	71.2
13	14-Jun-15	1.9	119	538	55.5	86.9	926	14,800	10,900	36,800	6.00	6.9	71.2
14	28-Jun-15	1.8	108	494	39.5	69.3	1,910	14,500	12,100	38,300	6.05	8.1	69.8
15	12-Jul-15	1.9	105	516	35.8	62.6	1,650	16,000	8,850	32,700	6.11	8.5	71.8
16	9-Aug-15	1.6	101	541	35.1	64.6	1,160	13,500	12,500	35,700	6.56	10.6	70.5
17	23-Aug-15	1.5	107	491	41.6	71.9	1,040	13,400	10,400	29,100	5.95	8.9	72.8
18	26-Jul-15	NR**	NR**	NR**	NR**	NR**	NR**	NR**	NR**	NR**	NR**	NR**	NR**
19	8-Sep-15	2.1	239	521	57.6	115.0	1,090	15,000	11,500	27,000	6.09	10.4	72.3
20	21-Sep-15	2.0	345	561	54.9	82.1	880	18,000	12,300	23,600	6.21	10.7	73.5
21	4-Oct-15	2.3	238	646	58.2	76.5	1,050	15,500	11,900	31,500	6.14	10.9	74.9
22	18-Oct-15	2.2	180	679	73.6	73.6	978	19,500	11,600	30,500	6.20	11.3	75.0
23	1-Nov-15	2.4	156	657	75.2	59.6	948	19,400	13,000	29,700	6.33	12.3	76.8
24	15-Nov-15	2.7	145	623	84.2	64.3	892	17,500	10,800	31,600	6.19	10.7	73.7
25	29-Nov-15	2.8	133	693	71.6	60.4	1,020	18,100	10,500	31,300	6.52	9.6	73.9
26	13-Dec-15	2.4	132	730	55.0	51.6	1,000	15,900	12,500	28,700	5.99	11.0	74.2
	Average:	2.0	123	605	56.5	66.3	1,210	17,632	11,387	32,456	6.08	9.4	73.2
	Maximum:	2.8	345	802	84.2	115.0	2,870	24,800	13,400	38,300	6.56	12.3	78.2
	Minimum:	1.4	64	432	35.1	42.3	716	13,400	8,850	23,600	5.80	6.9	69.1

*** Indicates starting date for year 2015 biweekly composite samples**

**** No result due to technician error**

Analysis performed by the Analytical Services Branch which is accredited by CALA in accordance with ISO 17025 standards for specific tests.

(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 12,869 dry-tonnes of mechanically-dewatered biosolids produced at the NEWPCC from January 1, 2015 to December 31, 2015, 100% were disposed at the Brady Road Resource Management Facility.

3.0 2016 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 2016 WINGRO application year, which runs from January 1, 2016 to December 31, 2016, 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 pilot biosolids compost facility was commissioned on May 4, 2015; Manitoba Conservation and Water Stewardship visited the compost site on June 25, 2015. The City will submit a report on the composting project at the end of the two year pilot study.

As of December 31, 2015, approximately 789 dry-tonnes of biosolids have been composted; this represents approximately 6% of the City's biosolids production for 2015. The facility is currently being optimized to reach the objective to compost 20% of the City's biosolids.*

The finished compost is being tested and compared to the metals and pathogen reduction standards of the Canadian Council of Ministers of the Environment (CCME) Guidelines for Compost Quality. Preliminary results are promising but we continue to adjust and optimize the process to produce a consistent product.

On July 24, 2015 the City pre-selected Ostara Nutrient Recovery Technologies Inc. to supply and deliver a struvite recovery system. Ostara's technology will be incorporated into the digestion system to recover phosphorous and nitrogen as part of the North End Water Pollution Control Centre (NEWPCC) Upgrades.

The thermal hydrolysis pre-selection and digestion project has been consolidated into the NEWPCC Upgrade. It is now being reported under the 'North End Water Pollution Control Centre, Environment Act Licence No. 2684RRR - Progress Report'.

The City developed a request for information (RFI) regarding land application, which was posted in 2015 (1112-2015). The RFI is similar to the RFI (518-2013) described in the Biosolids Master Plan but is specific to those who land apply biosolids to agricultural land. The intent is to evaluate the vendor's preferred terms and conditions for land application.

As per the 2014 Biosolids Master Plan schedule, the City will determine by mid-2017 if land application prior to the NEWPCC Upgrades is viable.

*The 2014 Biosolids Annual Report stated 294 dry-tonnes sent to the composting facility. It should be noted that the 294 value was actually the wet weight and the revised value of dry-tonnes was approximately 81.

APPENDIX 1
OPERATING RECORDS FOR
MECHANICAL DEWATERING OF BIOSOLIDS

2015 Biosolids Management Program

January			2015			
Date	Wet Cake	% Total Solids	Dry Cake	Loads to Landfill	Loads to Compost	Loads Total
1						
2	197.78	23.1	45.69	8	0	8
3	98.32	22.6	22.22	4	0	4
4						
5	219.10	22.1	48.42	9	0	9
6	146.30	22.1	32.33	6	0	6
7	148.44	20.7	30.73	6	0	6
8	100.02	21.1	21.10	4	0	4
9	173.66	21.2	36.82	7	0	7
10	147.90	21.2	31.35	6	0	6
11						
12	196.32	20.9	41.03	8	0	8
13	96.26	21.9	21.08	4	0	4
14	122.66	20.9	25.64	5	0	5
15	147.80	21.6	31.92	6	0	6
16	225.08	21.6	48.62	9	0	9
17						
18						
19	197.56	22.5	44.45	8	0	8
20	219.90	22.5	49.48	7	2	9
21	122.70	23.1	28.34	5	0	5
22	147.72	22.5	33.24	6	0	6
23	169.08	22.6	38.21	7	0	7
24	123.98	22.5	27.90	4	1	5
25						
26	148.18	22.3	33.04	6	0	6
27	220.50	23.7	52.26	8	1	9
28	145.34	23.4	34.01	6	0	6
29	174.28	23.1	40.26	7	0	7
30	146.84	24.6	36.12	6	0	6
31	100.74	24.6	24.78	4	0	4
TOTAL	3936.46	22.3	879.05	156	4	160
NOTES:						

2015 Biosolids Management Program

February			2015			
Date	Wet Cake	% Total Solids	Dry Cake	Loads to Landfill	Loads to Compost	Loads Total
1						
2	247.98	24.6	61.00	10	0	10
3	148.22	24.3	36.02	6	0	6
4	124.68	25.3	31.54	5	0	5
5	146.92	24.5	36.00	6	0	6
6	99.08	24.4	24.18	4	0	4
7	150.26	24.4	36.66	6	0	6
8						
9	193.20	24.2	46.75	8	0	8
10	123.54	25.9	32.00	5	0	5
11	146.22	26.6	38.89	6	0	6
12	148.18	26.2	38.82	6	0	6
13	195.66	25.5	49.89	8	0	8
14	72.58	25.5	18.51	3	0	3
15						
16						
17	221.78	25.5	56.55	9	0	9
18	146.76	25.6	37.57	6	0	6
19	220.70	25.9	57.16	9	0	9
20	196.94	26.3	51.80	8	0	8
21	74.12	26.0	19.27	3	0	3
22						
23	146.32	25.7	37.60	6	0	6
24	220.44	26.0	57.31	9	0	9
25	121.88	25.9	31.57	5	0	5
26	194.22	24.3	47.20	8	0	8
27	170.88	24.4	41.69	7	0	7
28	147.60	24.8	36.60	6	0	6
TOTAL	3658.16	25.3	924.60	149	0	149
NOTES:						

2015 Biosolids Management Program

March			2015			
Date	Wet Cake	% Total Solids	Dry Cake	Loads to Landfill	Loads to Compost	Loads Total
1						
2	175.17	24.9	43.62	7	0	7
3	148.56	24.7	36.69	6	0	6
4	144.33	25.2	36.37	6	0	6
5	196.46	24.8	48.72	8	0	8
6	169.28	24.8	41.98	7	0	7
7	122.04	24.7	30.14	5	0	5
8						
9	145.70	24.5	35.70	6	0	6
10	198.34	24.2	48.00	6	2	8
11	218.74	24.3	53.15	8	1	9
12	123.06	27.8	34.21	5	0	5
13	221.16	25.9	57.28	8	1	9
14	146.98	27.6	40.57	6	0	6
15						
16	222.72	29.2	65.03	9	0	9
17	195.08	31.2	60.86	6	2	8
18	194.50	30.1	58.54	5	3	8
19	147.24	30.1	44.32	6	0	6
20	196.12	30.9	60.60	8	0	8
21	73.58	30.3	22.29	3	0	3
22						
23	218.24	29.7	64.82	9	0	9
24	223.80	29.5	66.02	9	0	9
25	73.76	31.3	23.09	3	0	3
26	219.04	29.2	63.96	9	0	9
27	169.44	30.3	51.34	7	0	7
28	146.90	30.5	44.80	6	0	6
29						
30	220.72	30.7	67.76	9	0	9
31	147.04	32.3	47.49	6	0	6
TOTAL	4458.00	28.0	1247.38	173	9	182
NOTES:						

2015 Biosolids Management Program

April			2015			
Date	Wet Cake	% Total Solids	Dry Cake	Loads to Landfill	Loads to Compost	Loads Total
1	216.64	31.3	67.81	9	0	9
2	162.74	31.5	51.26	5	2	7
3						
4						
5						
6	218.98	30.9	67.66	9	0	9
7	222.30	30.2	67.13	7	2	9
8	145.86	30.5	44.49	5	1	6
9	119.24	31.7	37.80	5	0	5
10	120.58	31.0	37.38	5	0	5
11	73.34	30.2	22.15	3	0	3
12						
13	145.40	29.4	42.75	6	0	6
14	122.30	29.2	35.71	4	1	5
15	147.10	29.7	43.69	6	0	6
16	120.14	29.4	35.32	1	4	5
17	71.72	29.4	21.09	0	3	3
18	96.98	29.6	28.71	2	2	4
19						
20	219.58	29.7	65.22	9	0	9
21	147.40	30.8	45.40	4	2	6
22	194.64	29.9	58.20	8	0	8
23	219.02	26.8	58.70	9	0	9
24	294.54	28.4	83.65	12	0	12
25	148.60	28.1	41.76	6	0	6
26						
27	219.88	27.8	61.13	9	0	9
28	318.02	25.5	81.10	13	0	13
29	220.74	28.3	62.47	9	0	9
30	217.96	27.0	58.85	9	0	9
TOTAL	4183.70	29.4	1219.40	155	17	172
NOTES:						

2015 Biosolids Management Program

May	2015					
Date	Wet Cake	% Total Solids	Dry Cake	Loads to Landfill	Loads to Compost	Loads Total
1	147.30	28.1	41.39	6	0	6
2	73.10	27.4	20.03	3	0	3
3						
4	148.06	26.7	39.53	6	0	6
5	121.86	27.2	33.15	2	3	5
6	49.34	27.8	13.72	2	0	2
7	96.94	27.2	26.37	3	1	4
8	194.22	27.7	53.80	8	0	8
9						
10						
11	294.38	29.2	85.96	12	0	12
12	295.22	28.4	83.84	12	0	12
13	148.18	26.4	39.12	6	0	6
14	297.44	27.1	80.61	12	0	12
15	217.22	28.1	61.04	9	0	9
16	145.86	27.8	40.55	6	0	6
17						
18						
19	195.98	27.5	53.89	8	0	8
20	245.44	27.5	67.50	7	3	10
21	244.44	27.6	67.47	8	2	10
22	222.02	32.0	71.05	9	0	9
23	150.70	30.4	45.81	6	0	6
24						
25	218.10	28.7	62.59	8	1	9
26	170.36	29.7	50.60	7	0	7
27	147.74	29.0	42.84	6	0	6
28	198.70	30.5	60.60	5	3	8
29	145.44	28.6	41.60	5	1	6
30	142.94	28.9	41.31	6	0	6
31						
TOTAL	4310.98	28.3	1224.36	162	14	176
NOTES:						

2015 Biosolids Management Program

June			2015			
Date	Wet Cake	% Total Solids	Dry Cake	Loads to Landfill	Loads to Compost	Loads Total
1	217.42	29.1	63.27	9	0	9
2	171.72	28.8	49.46	7	0	7
3	145.88	26.8	39.10	6	0	6
4	96.58	28.9	27.91	4	0	4
5	146.16	29.9	43.70	6	0	6
6	97.12	29.4	28.55	4	0	4
7						
8	221.20	28.8	63.71	9	0	9
9	248.14	28.3	70.22	10	0	10
10	294.86	28.4	83.74	11	1	12
11	292.66	28.7	83.99	11	1	12
12	289.04	29.0	83.82	12	0	12
13	146.50	29.8	43.66	6	0	6
14						
15	218.93	30.5	66.77	9	0	9
16	193.56	30.7	59.42	8	0	8
17	100.64	27.9	28.08	3	1	4
18						
19	96.72	29.7	28.73	1	3	4
20	48.86	30.6	14.95	0	2	2
21						
22	219.96	31.5	69.29	9	0	9
23	219.04	30.5	66.81	9	0	9
24	145.00	33.7	48.87	6	0	6
25	220.10	28.8	63.39	9	0	9
26	196.30	29.4	57.71	8	0	8
27	73.10	29.4	21.49	3	0	3
28						
29	221.06	29.4	64.99	9	0	9
30	220.94	29.4	64.96	9	0	9
TOTAL	4541.49	29.5	1336.58	178	8	186
NOTES:						

2015 Biosolids Management Program

July	2015					
Date	Wet Cake	% Total Solids	Dry Cake	Loads to Landfill	Loads to Compost	Loads Total
1						
2	296.24	29.4	87.09	12	0	12
3	147.06	29.4	43.24	6	0	6
4	147.06	29.4	43.24	6	0	6
5						
6	145.22	30.8	44.73	6	0	6
7	219.42	30.8	67.58	9	0	9
8	97.06	30.2	29.31	4	0	4
9	148.56	30.4	45.16	0	6	6
10	147.40	31.3	46.14	4	2	6
11	97.88	31.4	30.73	4	0	4
12						
13	145.24	31.4	45.61	6	0	6
14	217.46	31.3	68.06	7	2	9
15	146.44	30.4	44.52	6	0	6
16	147.22	30.0	44.17	6	0	6
17	168.12	29.8	50.10	3	4	7
18	149.62	28.5	42.64	6	0	6
19						
20	221.44	27.2	60.23	9	0	9
21	122.02	27.3	33.31	5	0	5
22	146.08	27.0	39.44	6	0	6
23	221.02	26.5	58.57	9	0	9
24	72.88	24.8	18.07	3	0	3
25	98.50	25.6	25.22	4	0	4
26						
27	171.80	25.6	43.98	4	3	7
28	121.82	25.6	31.19	4	1	5
29	175.76	25.6	44.99	7	0	7
30	148.62	25.6	38.05	4	2	6
31	216.86	25.6	55.52	9	0	9
TOTAL	4136.80	28.5	1180.88	149	20	169
NOTES:						

2015 Biosolids Management Program

August			2015			
Date	Wet Cake	% Total Solids	Dry Cake	Loads to Landfill	Loads to Compost	Loads Total
1	72.78	26.9	19.58	3	0	3
2						
3						
4	220.40	26.9	59.29	9	0	9
5	145.28	26.9	39.08	6	0	6
6	170.92	26.9	45.98	7	0	7
7	123.18	26.9	33.14	5	0	5
8	75.92	26.9	20.42	3	0	3
9						
10	124.28	28.1	34.92	5	0	5
11	219.44	27.5	60.35	6	3	9
12	146.80	29.3	43.01	3	3	6
13	119.74	28.4	34.01	4	1	5
14	96.78	28.1	27.20	4	0	4
15	48.76	28.0	13.65	2	0	2
16						
17	218.64	27.9	61.00	9	0	9
18	123.20	29.3	36.10	1	4	5
19	118.22	28.3	33.46	2	3	5
20	69.64	27.8	19.36	3	0	3
21	99.80	30.0	29.94	4	0	4
22	50.20	29.1	14.61	2	0	2
23						
24	147.20	28.1	41.36	6	0	6
25	221.08	27.1	59.91	9	0	9
26	146.08	27.2	39.73	6	0	6
27	146.48	27.4	40.14	6	0	6
28	122.20	28.0	34.22	5	0	5
29	147.58	26.5	39.11	6	0	6
30						
31	146.60	24.9	36.50	6	0	6
TOTAL	3321.20	27.7	916.05	122	14	136
NOTES:						

2015 Biosolids Management Program

September			2015			
Date	Wet Cake	% Total Solids	Dry Cake	Loads to Landfill	Loads to Compost	Loads Total
1	122.72	25.1	30.80	5	0	5
2	146.58	28.8	42.22	4	2	6
3	148.50	28.2	41.88	6	0	6
4	221.92	27.1	60.14	9	0	9
5	194.04	27.4	53.17	6	2	8
6						
7						
8	293.52	27.7	81.31	12	0	12
9	222.08	28.3	62.85	9	0	9
10	146.84	28.2	41.41	6	0	6
11	293.38	28.2	82.73	8	4	12
12	73.38	27.7	20.33	1	2	3
13						
14	147.30	27.1	39.92	5	1	6
15	146.46	25.1	36.76	4	2	6
16	147.10	25.8	37.95	1	5	6
17	171.48	28.4	48.70	7	0	7
18	148.10	28.0	41.47	6	0	6
19	122.10	27.9	34.07	5	0	5
20						
21	194.16	27.7	53.78	8	0	8
22	195.72	27.4	53.63	8	0	8
23	169.00	25.4	42.93	7	0	7
24	146.42	26.9	39.39	6	0	6
25	147.18	27.3	40.18	6	0	6
26	147.04	26.7	39.26	6	0	6
27						
28	147.78	25.7	37.98	6	0	6
29	218.96	24.7	54.08	9	0	9
30	146.62	24.6	36.07	4	2	6
TOTAL	4258.38	27.0	1152.98	154	20	174
NOTES:						

2015 Biosolids Management Program

October			2015			
Date	Wet Cake	% Total Solids	Dry Cake	Loads to Landfill	Loads to Compost	Loads Total
1	145.92	26.7	38.96	3	3	6
2	197.02	28.2	55.56	5	3	8
3	147.18	26.0	38.27	6	0	6
4						
5	197.44	23.7	46.79	8	0	8
6	172.32	24.9	42.91	7	0	7
7	196.46	24.8	48.72	6	2	8
8	244.36	26.1	63.78	7	3	10
9	216.24	25.9	56.01	9	0	9
10	143.66	26.1	37.50	6	0	6
11						
12						
13	171.46	26.3	45.09	7	0	7
14	146.22	24.6	35.97	6	0	6
15	145.68	25.4	37.00	6	0	6
16	71.98	24.4	17.56	3	0	3
17	49.54	24.9	12.34	2	0	2
18						
19	49.40	25.4	12.55	2	0	2
20	48.62	24.6	11.96	2	0	2
21	48.34	25.3	12.23	2	0	2
22	122.02	26.5	32.34	5	0	5
23	172.96	24.5	42.38	7	0	7
24	145.20	23.7	34.41	6	0	6
25						
26	200.06	22.8	45.61	8	0	8
27	222.00	24.8	55.06	9	0	9
28	219.94	24.0	52.79	9	0	9
29	194.32	23.5	45.67	8	0	8
30	147.02	24.4	35.87	6	0	6
31	121.28	24.0	29.11	5	0	5
TOTAL	3936.64	25.1	986.42	150	11	161
NOTES:						

2015 Biosolids Management Program

November			2015			
Date	Wet Cake	% Total Solids	Dry Cake	Loads to Landfill	Loads to Compost	Loads Total
1						
2	196.36	23.8	46.73	8	0	8
3	173.38	21.4	37.10	7	0	7
4	147.00	23.4	34.40	6	0	6
5	147.58	23.4	34.53	6	0	6
6	147.16	23.9	35.17	6	0	6
7	72.86	23.4	17.05	3	0	3
8						
9	217.24	22.3	48.44	9	0	9
10	219.90	23.6	51.90	9	0	9
11						
12	221.82	23.8	52.79	9	0	9
13	148.02	24.6	36.41	6	0	6
14	72.74	24.9	18.11	3	0	3
15						
16	146.18	25.2	36.84	6	0	6
17	147.22	23.6	34.74	6	0	6
18	147.46	22.9	33.77	6	0	6
19	120.92	25.1	30.35	5	0	5
20	147.52	23.2	34.22	6	0	6
21	145.92	25.4	37.06	6	0	6
22						
23	169.70	27.7	47.01	7	0	7
24	147.34	26.8	39.49	6	0	6
25	171.80	25.9	44.50	7	0	7
26	172.62	26.3	45.40	7	0	7
27	96.00	29.2	28.03	4	0	4
28	48.78	27.9	13.61	2	0	2
29						
30	147.78	26.5	39.16	6	0	6
TOTAL	3573.30	24.8	876.83	146	0	146
NOTES:						

2015 Biosolids Management Program

December			2015			
Date	Wet Cake	% Total Solids	Dry Cake	Loads to Landfill	Loads to Compost	Loads Total
1	222.06	25.9	57.51	9	0	9
2	218.36	26.0	56.77	9	0	9
3	147.58	25.5	37.63	3	3	6
4	145.98	27.4	40.00	6	0	6
5	73.02	26.7	19.50	3	0	3
6						
7	146.40	26.0	38.06	6	0	6
8	146.20	27.5	40.21	6	0	6
9	146.32	28.3	41.41	6	0	6
10	163.28	27.5	44.90	7	0	7
11	146.32	28.1	41.12	6	0	6
12	73.90	27.2	20.10	3	0	3
13						
14	147.54	26.2	38.66	6	0	6
15	122.68	25.5	31.28	5	0	5
16	145.16	25.8	37.45	4	2	6
17	74.12	26.8	19.86	3	0	3
18	147.20	26.2	38.57	6	0	6
19	98.10	25.7	25.21	4	0	4
20						
21	195.10	25.2	49.17	8	0	8
22	146.38	25.0	36.60	6	0	6
23	149.30	26.1	38.97	6	0	6
24	97.94	24.2	23.70	4	0	4
25						
26	148.44	24.3	36.07	6	0	6
27						
28	170.58	23.4	39.92	7	0	7
29	100.04	22.5	22.51	4	0	4
30	142.02	22.0	31.24	6	0	6
31	73.52	24.3	17.87	3	0	3
TOTAL	3587.54	25.7	924.28	142	5	147
NOTES:						