Winnipeg

Water and Waste Department • Service des eaux et des déchets

ENVIRONMENT ACT LICENCE #1089E RR

SOLIDS DEWATERING, TEMPORARY BIOSOLIDS STORAGE and APPLICATION TO AGRICULTURAL LAND

2009

Winnipeg

Water and Waste Department • Service des eaux et des déchets

January 29, 2010

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

Mr. Cliff Lee, P. Eng.
Assistant Director, Red River Region
Manitoba Conservation
Suite 160 – 123 Main Street
Winnipeg, Manitoba
R3C 1A5

Dear Mr. Lee:

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 2009. Included in this report are:

a) details of the 2009 biosolids distribution and monitoring programs
b) details of the proposed 2010 biosolids distribution programs.

You will note that we did not fully meet the requirements of Clause 5, " *The Licencee shall operate and maintain the mechanical dewatering equipment to achieve a level of at least 20 percent solids, by weight after the dewatering process."* In November and December the dewatering equipment failed to achieve a total solids content in the biosolids of 20 percent by weight on 12 occasions. This was caused by a foaming issue experienced in the digesters which affected the quality of the biosolids. Several strategies are in place to remedy this issue and we hope to have it resolved in the near future.

As required under Clause 22 of the Licence, copies of this report are being sent to the Rural Municipalities of West St. Paul, Macdonald and Rosser.

If you have any questions concerning the annual report, I may be reached by telephone at 986-4807 or by e-mail at kkjartanson@winnipeg.ca.

Yours sincerely,

Original signed by:

K.J.T. Kjartanson, P.Eng.
Manager of Environmental Standards

KJTK:rg
Enclosure

c: B.D. MacBride, P.Eng.
W.J. Borlase, P.Eng.
P.E.A. Lagassé, P.Eng.
D. DeCraene

N:\Compliance Reporting\Biosolids\2009\Biosolids Cliff Lee 2009.doc

Winnipeg

Water and Waste Department • Service des eaux et des déchets

January 29, 2010

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

Reeve and Council
Rural Municipality of West St. Paul
Box 27, Grp 31, RR1B
3350 Main Street
Winnipeg, Manitoba
R3C 4A3

Dear Reeve and Council:

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 2009. Included in this report are:

a) details of the 2009 biosolids distribution and monitoring programs
b) details of the proposed 2010 biosolids distribution programs.

If you have any questions concerning the annual report, I may be reached by telephone at 986-4807 or by e-mail at kkjartanson@winnipeg.ca.

Yours sincerely,

Original signed by:

K.J.T. Kjartanson, P.Eng.
Manager of Environmental Standards

KJTK:rg
Enclosure

c: B.D. MacBride, P.Eng.
W.J. Borlase, P.Eng.
P.E.A. Lagassé, P.Eng.
D. DeCraene

N:\Compliance Reporting\Biosolids\2009\Biosolids West St Paul 2009.doc

Environmental Standards Division • Division des normes environnementales
2230 Main Street • 2230, Rue Main • Winnipeg • Manitoba R2V 4T8
tel/tél. (204) 986-4684 • fax/télec. (204) 339-2147 • www.winnipeg.ca

Winnipeg

Water and Waste Department • Service des eaux et des déchets

January 29, 2010

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

Reeve and Council
Rural Municipality of Macdonald
161 Mandan Drive
P.O. Box 100
Sanford, Manitoba
R0G 2J0

Dear Reeve and Council:

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 2009. Included in this report are:

a) details of the 2009 biosolids distribution and monitoring programs
b) details of the proposed 2010 biosolids distribution programs.

If you have any questions concerning the annual report, I may be reached by telephone at 986-4807 or by e-mail at kkjartanson@winnipeg.ca.

Yours sincerely,

Original signed by:

K.J.T. Kjartanson, P.Eng.
Manager of Environmental Standards

KJTK:rg
Enclosure

c: B.D. MacBride, P.Eng.
W.J. Borlase, P.Eng.
P.E.A. Lagassé, P.Eng.
D. DeCraene

N:\Compliance Reporting\Biosolids\2009\Biosolids Macdonald 2009.doc

Environmental Standards Division • Division des normes environnementales
2230 Main Street • 2230, Rue Main • Winnipeg • Manitoba R2V 4T8
tel/tél. (204) 986-4684 • fax/télec. (204) 339-2147 • www.winnipeg.ca

Winnipeg

Water and Waste Department • Service des eaux et des déchets

January 29, 2010

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

Reeve and Council
Rural Municipality of Rosser
Box 131
Rosser, Manitoba
R0H 1E0

Dear Reeve and Council:

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 2009. Included in this report are:

a) details of the 2009 biosolids distribution and monitoring programs
b) details of the proposed 2010 biosolids distribution programs.

If you have any questions concerning the annual report, I may be reached by telephone at 986-4807 or by e-mail at kkjartanson@winnipeg.ca.

Yours sincerely,

Original signed by:

K.J.T. Kjartanson, P.Eng.
Manager of Environmental Standards

KJTK:rg
Enclosure

c: B.D. MacBride, P.Eng.
W.J. Borlase, P.Eng.
P.E.A. Lagassé, P.Eng.
D. DeCraene

N:\Compliance Reporting\Biosolids\2009\Biosolids Rosser 2009.doc

Water and Waste Department • Service des eaux et des déchets

ENVIRONMENT ACT LICENCE #1089E RR

SOLIDS DEWATERING, TEMPORARY BIOSOLIDS STORAGE and APPLICATION TO AGRICULTURAL LAND

2009

Jenni Jones, B. Sc.
Laboratory Technician

Renée Grosselle, B. Sc.
Supervisor of Compliance Reporting Branch

Kelly Kjartanson, M. Sc., P. Eng.
Manager of Environmental Standards Division

TABLE OF CONTENTS

CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

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 31ST of January of each year.

This report summarizes the results of the City's 2009 Biosolids Application Program (WINGRO) and also outlines the proposed program for the 2010 calendar year.

In 2009, the City produced 12,465 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 26.0%. The WINGRO program applied 57.3% of the annual biosolids production to farmland and deposited 42.7% at the Brady Road Landfill. The interim storage pad was not used in 2009.

The WINGRO biosolids application rate for the three fields completed in 2009 was 54.6 dry-tonnes per hectare on the 132.8 hectares to which biosolids were applied. For the 2010 application year, the City proposes to complete biosolids application to fields previously started and to utilize several new parcels of land. Approvals have been granted by the applicable rural municipalities. The proposed lands will be sampled to ensure licence criteria are met and the application rate will not exceed 56 dry-tonnes per hectare.

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 2009 Biosolids Land Application 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 2009 Biosolids Land Application Program. The report also provides information on its proposed Biosolids Program for the twelve months starting January 1, 2010.

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

2009 BIOSOLIDS APPLICATION PROGRAMS

(a) Dewatering

"The Licencee 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, 2009 to December 31, 2009 the City produced 12,465 dry-tonnes of mechanically-dewatered biosolids at its NEWPCC facility. Appendix I contains the mechanical dewatering operating records for 2009. In 2009, the total solids in the biosolids averaged 26.0 ± 3.8% (*n* = 250). However, the dewatering equipment failed to achieve a total solids content in the biosolids of 20 percent by weight on 12 occasions – once in November and 11 times in December. This was caused by a foaming issue experienced in the digesters, which lead to erratic changes in density in the feed sludge going into the centrifuges, which in turn caused erratic variations in the quality of the biosolids. This is a challenge that is faced every year, but the problem was more persistent this year than in the past. Several strategies are currently being attempted to remedy this issue, including varying polymer dosage rates and mix concentrations, as well as experimenting with several different polymer types. We hope to have these issues resolved in the near future.

(b) Storage

"The Licencee 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 Licencee 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 2009, the storage pad was not used to provide interim storage for any mechanically-dewatered biosolids. When agricultural land was not accessible the biosolids were disposed at the Brady Landfill site. The WINGRO program deposited 42.7% of the annual biosolids production at the Brady Landfill.

(c) Monitoring Results

"The Licencee 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)).

The following pages and Appendix I contain the results of analyses conducted on samples of biosolids, ditchwater and soils collected in fulfilment of the monitoring requirements stipulated in Licence #1089E RR.

These results include the following:

- Biosolids Quality	Table 1
- Ditchwater	Table 2, Figure 1
- Background Soils Results for Applied Fields	Table 3
- % Solids in Mechanically Dewatered Biosolids	Appendix I

No formal odour complaints associated with the WINGRO Program were received in 2009.

TABLE 1

2009 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)	Total Solids (%)
1	05-Jan-09	3.9	294	989	75.0	72.6	1600	18,500	13,300	28,100	8.02	10.0	23.25
2	19-Jan-09	4.3	213	1050	64.9	63.2	1280	19,800	13,600	26,700	8.56	10.2	22.00
3	01-Feb-09	4.0	179	1050	68.1	60.9	1120	20,700	14,200	38,200	7.92	10.1	22.42
4	15-Feb-09	3.7	176	996	68.6	71.1	1080	17,400	12,000	29,800	7.98	8.76	23.54
5	01-Mar-09	3.1	141	895	60.1	61.9	1220	19,200	12,800	29,900	7.96	9.25	25.89
6	15-Mar-09	3.2	165	926	70.7	71.1	1700	18,700	12,200	28,800	7.86	8.03	26.81
7	29-Mar-09	2.6	174	790	68.5	87.8	1490	17,400	10,600	26,800	7.85	6.77	28.69
8	12-Apr-09	2.0	119	630	65.2	75.3	951	15,700	9,650	27,300	7.97	6.38	29.76
9	26-Apr-09	1.9	105	658	61.3	64.7	794	14,900	10,500	28,100	7.85	8.23	31.51
10	11-May-09	2.0	98.6	635	56.2	67.7	735	15,800	10,300	25,400	7.96	7.26	29.72
11	25-May-09	2.0	95.1	586	54.2	70.5	715	12,600	7,710	21,000	7.79	6.28	36.64
12	08-Jun-09	2.3	99.4	573	54.4	66.9	714	13,800	8,820	24,500	7.64	8.61	29.67
13	21-Jun-09	2.7	97.4	632	45.4	64.1	780	13,500	9,820	27,600	7.94	9.32	27.62
14	05-Jul-09	2.7	112	756	51.7	79.9	865	14,800	8,120	24,200	7.81	8.71	29.03
15	19-Jul-09	2.0	102	647	48.8	76.4	762	13,800	8,560	26,100	7.94	7.74	29.19
16	02-Aug-09	2.1	119	662	60.9	79.4	858	13,300	7,830	23,900	7.71	7.41	31.85
17	16-Aug-09	2.3	113	716	57.9	77.9	1010	13,700	8,180	24,500	8.19	7.31	28.64
18	30-Aug-09	2.3	127	769	55.0	79.8	926	15,900	8,100	28,900	8.02	8.87	26.37
19	13-Sep-09	2.3	152	858	53.5	74.4	901	14,400	7,780	31,600	7.91	10.0	24.88
20	27-Sep-09	2.7	137	931	57.1	75.3	906	16,700	NR**	32,000	8.11	10.8	23.35
21	11-Oct-09	3.1	127	960	64.1	68.3	842	17,500	7,390	33,400	8.00	10.7	22.84
22	25-Oct-09	2.9	115	972	55.1	68.9	881	14,300	8,580	37,400	8.04	11.7	29.15
23	08-Nov-09	2.7	110	895	55.7	52.4	714	15,600	11,700	33,400	8.00	10.4	23.48
24	22-Nov-09	2.3	94.0	877	54.4	50.0	673	15,300	11,300	35,800	8.67	10.5	21.38
25	06-Dec-09	2.3	91.3	866	53.7	45.8	708	19,100	10,500	46,800	7.75	11.8	20.61
26	20-Dec-09	3.1	97.0	933	61.0	48.2	783	21,400	12,200	48,300	7.80	12.2	19.50
Average:		2.7	133	817	59.3	68	962	16,300	10,230	30,327	7.97	9.13	26.5
Maximum:		4.3	294	1,050	75.0	88	1,700	21,400	14,200	48,300	8.67	12.2	36.6
Minimum:		1.9	91	573	45.4	46	673	12,600	7,390	21,000	7.64	6.28	19.5

*** Indicates starting date for year 2009 biweekly composite samples**

**** No result due to sample preparation error**

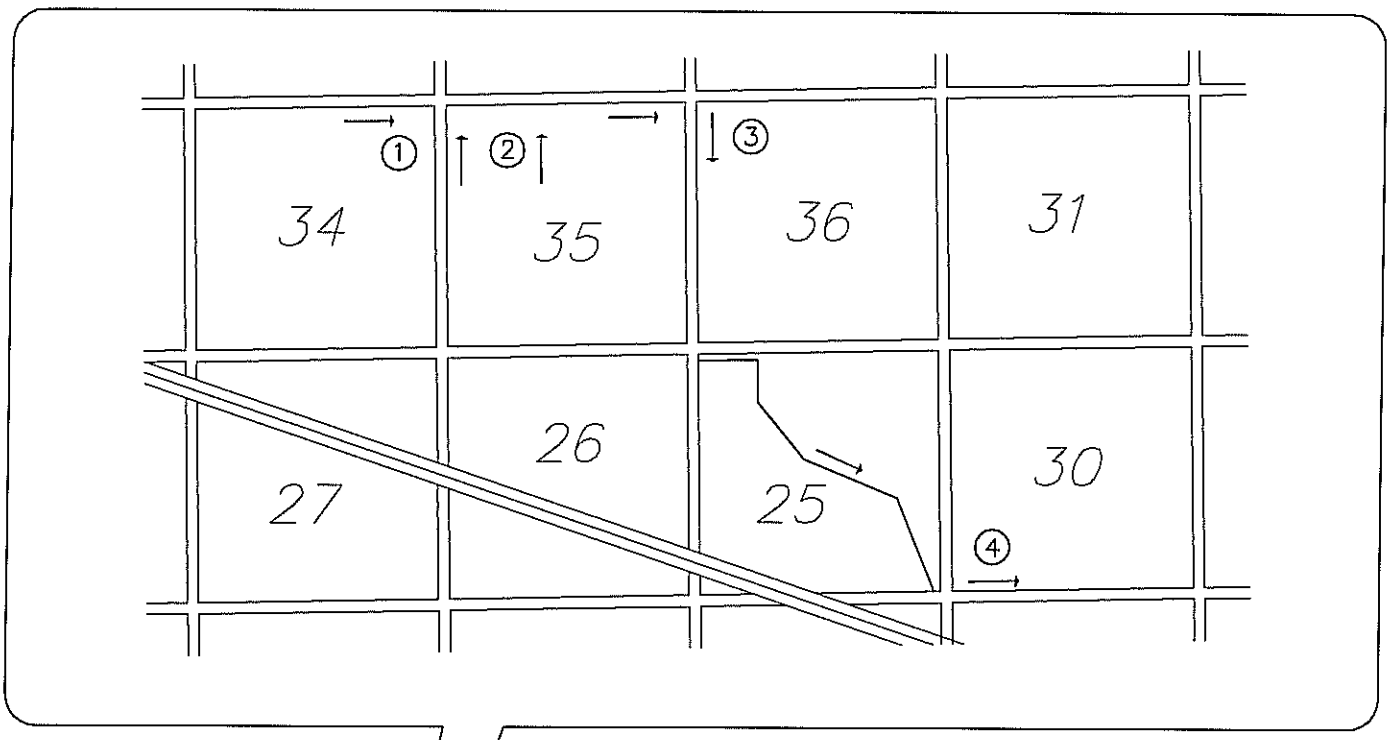
TABLE 2

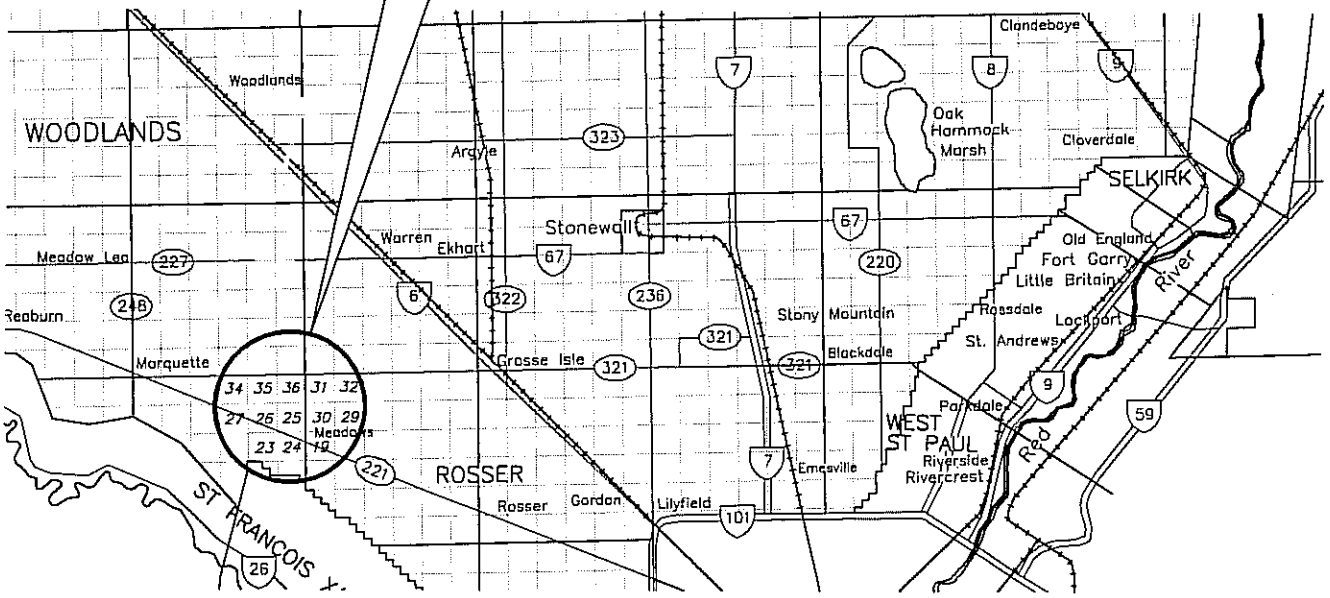
2009 Ditchwater Sampling Results

Fields # 57 and 58 – North ½ 35-12-2W

Sample Location	Sample Number	Date	NH_3^+ mg/L N	NO_3-NO_2 mg/L N	TKN mg/L N	Total Phosphorus mg/L P	Conductivity umhos/cm	Total Coliform MPNU/100 mL	Fecal Coliform MPNU/100 mL
1 - Upstream	224736	April 14/09	0.380	0.392	2	0.9	250	7900	<2
	224791	April 15/09	0.391	0.197	<2	0.8	288	790	<2
	224795	April 16/09	0.186	0.064	2	0.8	388	700	<2
	224832	April 17/09	0.065	0.027	2	0.8	489	790	<2
	224966	April 19/09	0.374	0.031	2	0.9	458	46	2
	224980	April 20/09	0.085	0.034	2	0.8	521	330	2
	225337	April 21/09	0.108	0.023	3	0.8	660	330	2
	ns	April 22/09	ns	ns	ns	ns	ns	ns	ns
	ns	April 23/09	ns	ns	ns	ns	ns	ns	ns
	ns	April 24/09	ns	ns	ns	ns	ns	ns	ns
2 - Off field	224735	April 14/09	6.66	0.115	16	1.3	298	79000	4900
	224790	April 15/09	7.81	0.043	15	1.3	276	>5200	>5200
	224794	April 16/09	13.6	0.052	25	1.8	345	92000	35000
	224831	April 17/09	6.87	0.040	15	1.1	319	1700	14
	224965	April 19/09	16.2	0.054	32	2.1	466	>160000	35000
	224979	April 20/09	16.9	0.094	36	2.6	941	>160000	160000
	225336	April 21/09	18.6	0.057	37	2.5	555	160000	35000
	225366	April 22/09	15.3	0.051	32	2.4	567	>160000	>160000
	225372	April 23/09	13.4	0.057	32	2.2	515	>160000	160000
	225520	April 24/09	11.6	0.036	27	1.9	557	11000	490
3 - Downstream	224733	April 14/09	0.424	0.618	<2	0.8	185	23000	<2
	224788	April 15/09	0.400	0.684	<2	0.7	142	11000	<2
	224792	April 16/09	0.343	0.254	<2	0.8	162	7900	2
	224829	April 17/09	5.55	0.090	12	1.0	283	2300	13
	224963	April 19/09	13.5	0.079	28	1.9	453	>160000	13000
	224977	April 20/09	15.3	0.133	31	2.2	501	160000	54000
	225334	April 21/09	17.1	0.068	36	2.3	556	160000	35000
	225364	April 22/09	17.0	0.067	37	2.6	588	>160000	54000
	225370	April 23/09	15.4	0.056	36	2.4	540	92000	1700
	225518	April 24/09	14.2	0.028	30	1.9	551	1100	170
4 - Far Downstream	224734	April 14/09	8.48	0.902	17	1.5	254	350000	4900
	224789	April 15/09	5.73	0.365	11	1.2	229	54000	21
	224793	April 16/09	4.49	0.752	9	1.3	265	1700	4
	224830	April 17/09	1.85	0.639	5	1.0	270	11000	70
	224964	April 19/09	1.22	0.517	6	1.0	310	24000	330
	224978	April 20/09	1.27	0.510	5	0.9	373	13000	1300
	225335	April 21/09	1.13	0.401	4	0.8	376	22000	330
	225365	April 22/09	1.07	0.266	4	0.8	372	7900	1700
	225371	April 23/09	0.742	0.091	4	0.7	316	1200	49
	225519	April 24/09	0.615	0.048	3	0.6	485	790	<2

Comments:
ns: no sample





LEGEND:

- → FLOW DIRECTION
- (1) FAR UPSTREAM
- (2) UPSTREAM
- (3) OFF FIELD
- (4) DOWNSTREAM

Winnipeg

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT

MUNICIPALITY OF ROSSER

DITCHWATER SAMPLING LOCATIONS

Figure 1.

TABLE 3
2009 BIOSOLIDS LAND APPLICATION PROGRAM
BACKGROUND SOILS RESULTS FOR APPLIED FIELDS

	Nutrients		Metals									
Field Number	NO3-N* (kg/ha)	SOD** PHOS (mg/kg)	CADMIUM (mg/kg)	COPPER (mg/kg)	LEAD (mg/kg)	ZINC (mg/kg)	NICKEL (mg/kg)	CHROMIUM (mg/kg)	pH	% SOLIDS	CONDUCTIVITY (ds/m)	CATION EXCHANGE CAPACITY (meqNH4/100g)
#57	18.0	33.0	0.03	29.0	13.2	90.0	42.3	54.9	7.7	69.6	2.2	44.0
#58	14.0	24.0	0.37	27.0	1.0	84.0	37.2	50.0	7.7	67.7	1.7	47.0
#59	13.4	20.0	0.38	30.0	13.2	95.0	42.8	52.8	7.6	69.9	1.1	45.0
#60	22.4	39.0	0.40	24.0	11.2	74.0	31.0	32.0	8.1	75.8	1.0	56.7
#61	18.0	14.9	0.40	25.0	12.9	76.0	31.0	33.0	8.1	76.0	1.3	59.8

Regulated Parameter:

Licence requirements:

NO3-N = <67 kg/ha

SOD PHOS = <60 mg/kg

pH = >6.0 units

NOTES: (1) Soil sample depth is 0 to 15 cm for all parameters except NO_3N where sample depth is 0 to 60 cm.

(2) Fields #57, #58 and #59 were completed in 2009.

(3) Fields #60 and #61 are ongoing.

* Based on Soil Density = 1200 Dry kg/m3

** Sodium Bicarbonate Extractable Phosphorus

(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 12,465 dry-tonnes of mechanically-dewatered biosolids produced at the NEWPCC from January 1, 2009 to December 31, 200, 57.3% were re-cycled onto farmland through the WINGRO program, while 42.7% were disposed at the Brady Road Landfill. The City of Winnipeg's 2009 Biosolids Land Application Program (WINGRO) spread and incorporated digested, dewatered biosolids onto 5 parcels of land. A total of 7,271 dry-tonnes of dewatered biosolids were distributed on the three fields completed in 2009 at an average application rate of 54.6 dry-tonnes per hectare on the 132.8 hectares of land utilized.

Biosolids application to two parcels was incomplete on December 31, 2009 and will be reported in the year that the application is completed. Table 4 provides a detailed summary of the results, Figures 2 and 3 show the locations where biosolids applications were completed in 2009, and Figure 4 shows the locations of the fields where biosolids application is ongoing.

TABLE 4
2009 BIOSOLIDS PROGRAM
Land Application Summary

Field Number	Rural Municipality	Location Sec-Twnshp-Rge	Year Applied	Applied Area (ha)	Dry Solids Applied (tonnes)	Solids Loading Rate for Completed Field (dry tonnes/ha)
57	Rosser	35-12-2W North East	2008/09	62.6	3,474	55.5
58	Rosser	35-12-2W North West	2009	62.6	3,385	54.1
59	Rosser	34-12-2W North	2009	7.6	412	54.2
60*	Rosser	34-12-2W North East and North West	(2009)	(47.3)	(2,569)	(54.3)
61*	Rosser	35-12-2W South East and South West	(2009)	(8.0)	(390)	(48.7)
Totals For Completed Fields				132.8	7,271	
Weighted Average For Completed Fields						54.6

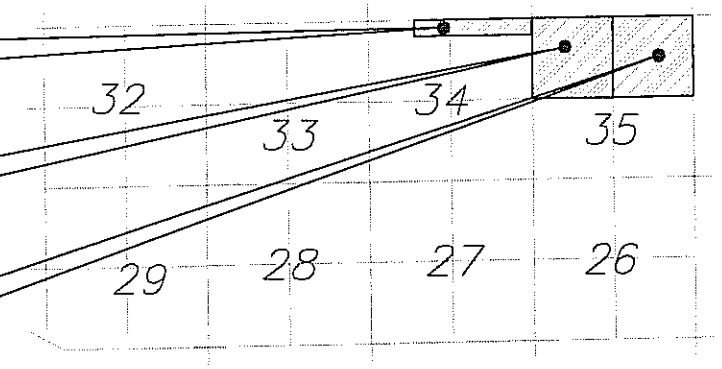
* When completed, this field will be included in future reports.

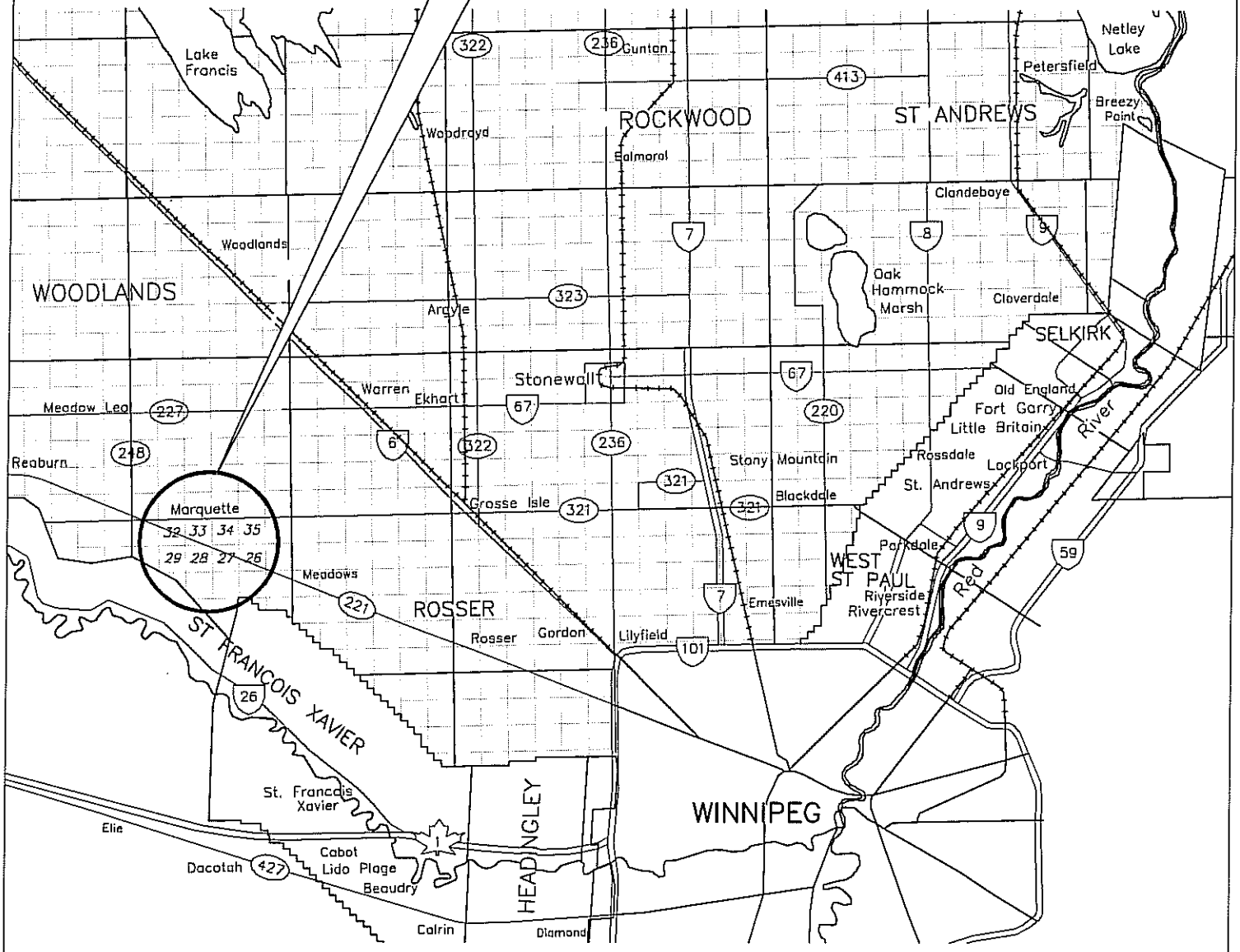
( ) Not Included in Totals

FIELD: #59–APPLIED
SECTION: 34 (19 ACRES OF N 1/2)
TOWNSHIP: 12
RANGE: 2E

FIELD: #58–APPLIED
SECTION: 35 (160 ACRES OF NW 1/4)
TOWNSHIP: 12
RANGE: 2W

FIELD: #57–APPLIED
SECTION: 35 (160 ACRES OF NE 1/4)
TOWNSHIP: 12
RANGE: 2W





Winnipeg

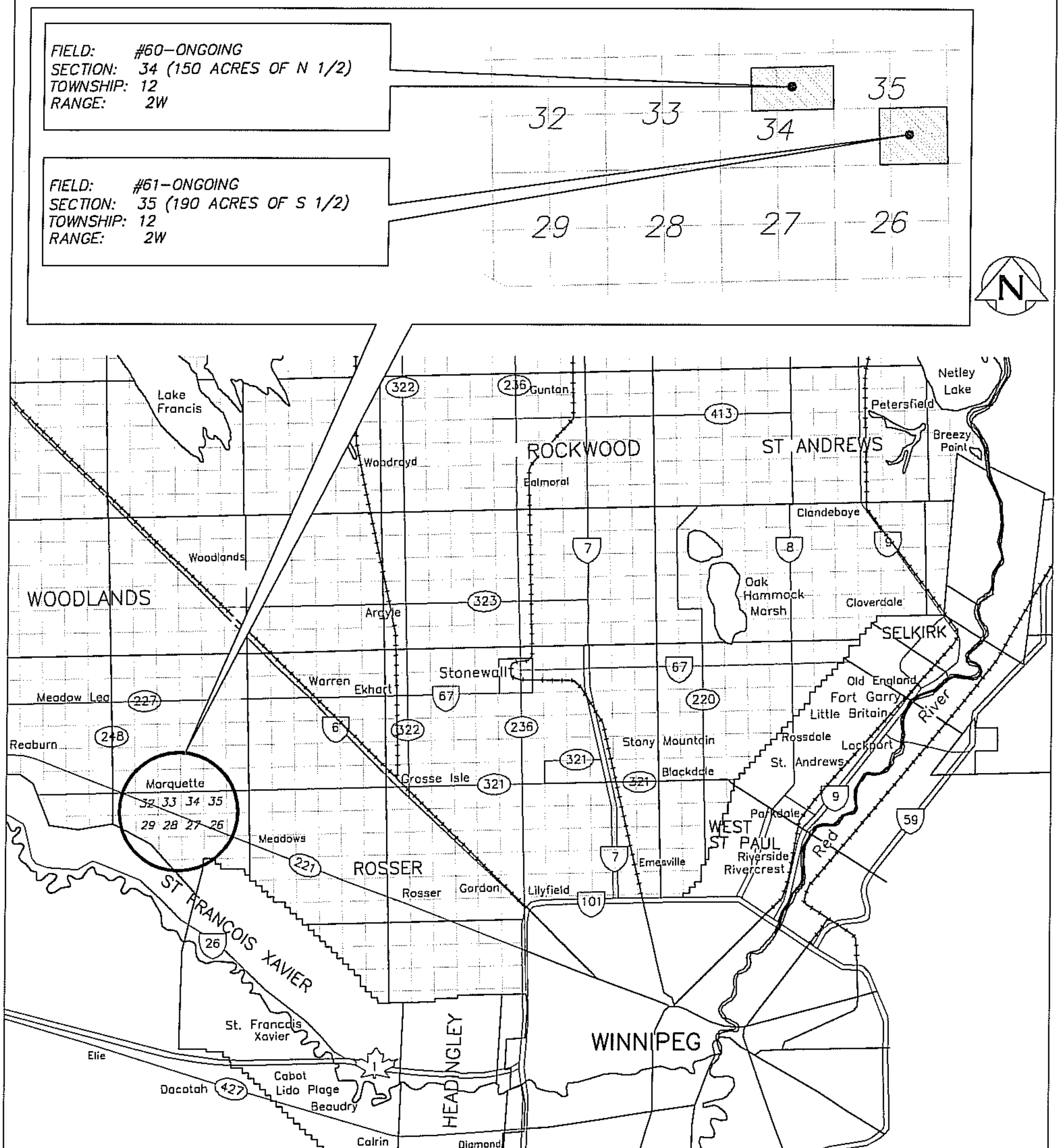
CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT

MUNICIPALITY OF ROSSER

APPLIED FIELDS

Figure 2.

R:\DRAWINGS\SEWER\MISC\BIOSOLIDS_APPLICATION_FIGURES\WINGRO_for2009_REPORT\FIELD58_APPLIED_ROSSER.dwg PLOTTED: 2010 01 27



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT

MUNICIPALITY OF ROSSER

ONGOING FIELDS

Figure 3.

R:\DRAWINGS\SEWER\MISC\BIOSOLIDS_APPLICATION_FIGURES\WINGRO_for2009_REPORT\FIELD60_ONGOING_ROSSER.dwg PLOTTED: 2010 01 27

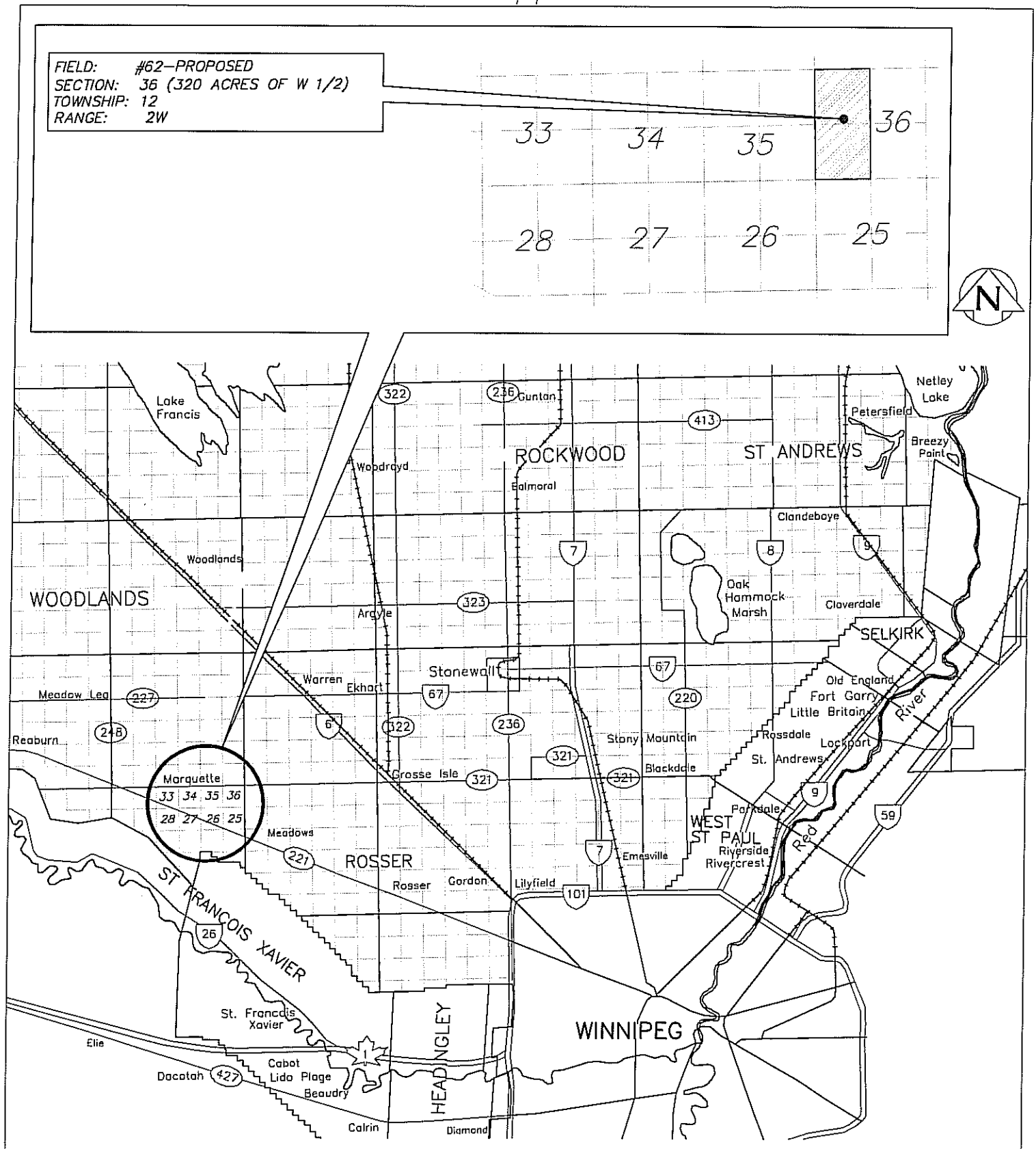
2010 PROPOSED BIOSOLIDS APPLICATION PROGRAMS

"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 2010 WINGRO application year, which runs from January 1, 2010 to December 31, 2010, the City proposes to apply biosolids to one new parcel of land located in the R.M. of Rosser. Table 5 provides a description of this land parcel, and Figure 5 shows its location. The new field will be sampled in 2010 to ensure background soils meet licence criteria. Biosolids from the mechanical dewatering facility will be applied and incorporated into the on-going and proposed land parcels at a rate that will not exceed 56 dry- tonnes per hectare. The City also proposes to dispose biosolids at the Brady Road Landfill site on a limited, as required, basis.

TABLE 5
New Biosolids Application Area Proposed For 2009

Land Parcel Identification Number	Rural Municipalities	Description (Section-Township-Range)	Approximate Area (hectares)
62 P	Rosser	36-12-2W 320 Acres of W ½	129



Winnipeg

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT

MUNICIPALITY OF ROSSER

PROPOSED FIELDS

Figure 4.

R:\DRAWINGS\SEWER\MISC\BIOSOLIDS_APPLICATION_FIGURES\WINGRO_for2009_REPORT\FIELD62_PROPOSED_ROSSER.dwg PLOTTED: 2010 01 27

APPENDIX I

OPERATING RECORDS

for

MECHANICAL DEWATERING OF BIOSOLIDS

Monthly Hauling Report
For the Month 01/2009

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
02	NEWPCC	#57 35-12-2W NE	339.68	25.4	86.28
05	NEWPCC	#57 35-12-2W NE	199.42	23.3	46.47
06	NEWPCC	#57 35-12-2W NE	332.84	21.5	71.56
07	NEWPCC	#57 35-12-2W NE	242.78	22.7	55.11
08	NEWPCC	#57 35-12-2W NE	175.08	23.3	40.79
09	NEWPCC	#57 35-12-2W NE	110.48	23.1	25.52
12	NEWPCC	#57 35-12-2W NE	218.18	23.1	50.40
13	NEWPCC	#57 35-12-2W NE	240.46	23.0	55.31
14	NEWPCC	#57 35-12-2W NE	66.84	22.3	14.91
15	NEWPCC	#57 35-12-2W NE	89.10	22.8	20.32
16	NEWPCC	#57 35-12-2W NE	132.26	23.2	30.69
19	NEWPCC	#58 35-12-2W NW	245.58	22.5	55.26
20	NEWPCC	#58 35-12-2W NW	155.28	21.8	33.85
21	NEWPCC	#58 35-12-2W NW	110.62	20.7	22.90
22	NEWPCC	#58 35-12-2W NW	88.08	20.6	18.15
23	NEWPCC	#58 35-12-2W NW	90.52	20.6	18.65
26	NEWPCC	#58 35-12-2W NW	225.22	21.6	48.65
27	NEWPCC	#58 35-12-2W NW	200.36	22.2	44.48
28	NEWPCC	#58 35-12-2W NW	179.32	22.6	40.53
29	NEWPCC	#58 35-12-2W NW	179.30	22.2	39.80
30	NEWPCC	#58 35-12-2W NW	88.14	24.4	21.51

Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#57 35-12-2W NE	2147.12	497.34	57.0	122385.840		497.34	
NEWPCC	#58 35-12-2W NW	1562.42	343.76	57.0	89057.940		343.76	
							---	---
							841.10	

Monthly Hauling Report
For the Month 02/2009

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
02	NEWPCC	#58 35-12-2W NW	134.58	23.0	30.95
03	NEWPCC	#58 35-12-2W NW	223.26	21.7	48.45
04	NEWPCC	#58 35-12-2W NW	181.38	22.8	41.36
05	NEWPCC	#58 35-12-2W NW	131.60	22.8	30.01
06	NEWPCC	#58 35-12-2W NW	103.34	22.8	23.56
09	NEWPCC	#58 35-12-2W NW	45.60	20.0	9.12
11	NEWPCC	#58 35-12-2W NW	193.16	22.8	44.04
12	NEWPCC	#58 35-12-2W NW	178.46	22.0	39.26
13	NEWPCC	#58 35-12-2W NW	178.84	22.9	40.96
17	NEWPCC	#58 35-12-2W NW	251.24	23.1	58.04
18	NEWPCC	#58 35-12-2W NW	252.26	23.4	59.03
19	NEWPCC	#58 35-12-2W NW	270.30	22.5	60.82
20	NEWPCC	#58 35-12-2W NW	224.86	24.2	54.42
23	NEWPCC	#58 35-12-2W NW	269.42	22.6	60.89
24	NEWPCC	#58 35-12-2W NW	133.82	23.4	31.32
25	NEWPCC	#58 35-12-2W NW	114.56	23.4	26.81
26	NEWPCC	#58 35-12-2W NW	111.48	23.2	25.86
27	NEWPCC	#58 35-12-2W NW	134.20	23.9	32.07

Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#58 35-12-2W NW	3132.36	716.95	57.0	178544.520		716.95	
							716.95	

Monthly Hauling Report
For the Month 03/2009

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
02	NEWPCC	#58 35-12-2W NW	244.56	24.5	59.92
03	NEWPCC	#58 35-12-2W NW	180.36	27.3	49.24
04	NEWPCC	#58 35-12-2W NW	41.44	25.5	10.57
05	NEWPCC	#58 35-12-2W NW	129.10	26.3	33.95
06	NEWPCC	#58 35-12-2W NW	125.88	26.0	32.73
09	NEWPCC	#58 35-12-2W NW	170.98	25.7	43.94
10	NEWPCC	#58 35-12-2W NW	104.80	25.2	26.41
11	NEWPCC	#58 35-12-2W NW	167.00	25.2	42.08
12	NEWPCC	#58 35-12-2W NW	130.42	24.0	31.30
13	NEWPCC	#57 35-12-2W NE	43.70	26.3	11.49
13	NEWPCC	#58 35-12-2W NW	83.98	26.3	22.09
16	NEWPCC	#57 35-12-2W NE	167.54	24.6	41.21
17	NEWPCC	#57 35-12-2W NE	171.14	25.5	43.64
18	NEWPCC	#57 35-12-2W NE	254.38	25.2	64.10
19	NEWPCC	#57 35-12-2W NE	258.60	25.6	66.20
20	NEWPCC	#57 35-12-2W NE	190.88	25.8	49.25
20	NEWPCC	#58 35-12-2W NW	22.62	25.8	5.84
23	NEWPCC	#58 35-12-2W NW	298.26	26.1	77.85
25	NEWPCC	#58 35-12-2W NW	173.04	27.0	46.72
26	NEWPCC	#58 35-12-2W NW	95.32	28.0	26.69
27	NEWPCC	#58 35-12-2W NW	174.58	29.0	50.63
30	NEWPCC	#58 35-12-2W NW	250.70	27.6	69.20
31	NEWPCC	#58 35-12-2W NW	233.14	28.4	66.21

Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#57 35-12-2W NE	1086.24	275.90	57.0	61915.680		275.90	
NEWPCC	#58 35-12-2W NW	2626.18	695.35	57.0	149692.260		695.35	
							---------	---------
							971.26	

Monthly Hauling Report
For the Month 04/2009

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
01	NEWPCC	#58 35-12-2W NW	190.82	28.2	53.81
02	NEWPCC	#58 35-12-2W NW	171.50	28.1	48.19
03	NEWPCC	#58 35-12-2W NW	251.74	27.4	68.98
06	NEWPCC	#58 35-12-2W NW	320.50	28.8	92.31
07	NEWPCC	#58 35-12-2W NW	192.90	29.2	56.33
08	NEWPCC	#58 35-12-2W NW	216.74	28.4	61.55
09	NEWPCC	#58 35-12-2W NW	170.64	29.1	49.66
13	NEWPCC	#2 0-0-	294.76	30.2	89.02
14	NEWPCC	#2 0-0-	222.00	31.4	69.71
15	NEWPCC	#2 0-0-	200.74	30.2	60.62
16	NEWPCC	#2 0-0-	73.54	30.5	22.43
17	NEWPCC	#2 0-0-	99.16	30.8	30.54
20	NEWPCC	#2 0-0-	211.38	34.4	72.71
21	NEWPCC	#2 0-0-	117.80	27.8	32.75
22	NEWPCC	#2 0-0-	143.20	28.8	41.24
23	NEWPCC	#2 0-0-	162.48	30.7	49.88
24	NEWPCC	#2 0-0-	189.46	31.7	60.06
27	NEWPCC	#2 0-0-	165.92	32.7	54.26
28	NEWPCC	#2 0-0-	192.42	31.2	60.03
29	NEWPCC	#2 0-0-	141.96	29.8	42.30
30	NEWPCC	#2 0-0-	144.52	29.4	42.49

Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#2 0-0-	2359.34						
NEWPCC	#58 35-12-2W NW	1514.84	430.82	57.0	86345.880		430.82	
							430.82	

Monthly Hauling Report
For the Month 05/2009

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
01	NEWPCC	#2 0-0-	218.28	30.5	66.58
04	NEWPCC	#2 0-0-	143.01	31.0	44.33
05	NEWPCC	#2 0-0-	307.98	31.9	98.25
06	NEWPCC	#2 0-0-	185.34	30.8	57.09
07	NEWPCC	#2 0-0-	142.98	31.9	45.61
08	NEWPCC	#2 0-0-	236.98	30.1	71.33
11	NEWPCC	#2 0-0-	164.56	30.0	49.37
12	NEWPCC	#2 0-0-	260.48	30.4	79.19
13	NEWPCC	#2 0-0-	141.70	29.6	41.94
14	NEWPCC	#2 0-0-	215.00	28.8	61.92
15	NEWPCC	#2 0-0-	265.06	28.0	74.22
19	NEWPCC	#2 0-0-	240.94	30.2	72.77
20	NEWPCC	#2 0-0-	191.46	30.5	58.40
21	NEWPCC	#2 0-0-	165.98	30.8	51.12
22	NEWPCC	#2 0-0-	212.16	30.2	64.07
25	NEWPCC	#2 0-0-	288.22	30.5	87.91
26	NEWPCC	#2 0-0-	239.74	30.5	73.12
27	NEWPCC	#2 0-0-	102.64	31.1	31.92
28	NEWPCC	#57 35-12-2W NE	186.56	30.6	57.09
28	NEWPCC	#58 35-12-2W NW	58.96	30.6	18.04
29	NEWPCC	#58 35-12-2W NW	204.88	31.7	64.95

Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#2 0-0-	3722.51						
NEWPCC	#57 35-12-2W NE	186.56	57.09	57.0	10633.920		57.09	
NEWPCC	#58 35-12-2W NW	263.84	82.99	57.0	15038.880		82.99	
							140.08	

Monthly Hauling Report
For the Month 06/2009

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
01	NEWPCC	#58 35-12-2W NW	308.40	33.6	103.62
02	NEWPCC	#58 35-12-2W NW	143.42	31.0	44.46
03	NEWPCC	#58 35-12-2W NW	123.58	32.3	39.92
04	NEWPCC	#58 35-12-2W NW	165.38	30.8	50.94
05	NEWPCC	#58 35-12-2W NW	164.66	30.2	49.73
08	NEWPCC	#57 35-12-2W NE	308.72	32.7	100.95
09	NEWPCC	#58 35-12-2W NW	224.74	30.1	67.65
10	NEWPCC	#58 35-12-2W NW	161.52	29.7	47.97
11	NEWPCC	#58 35-12-2W NW	145.96	28.9	42.18
12	NEWPCC	#58 35-12-2W NW	185.50	31.0	57.51
15	NEWPCC	#57 35-12-2W NE	294.38	28.1	82.72
16	NEWPCC	#57 35-12-2W NE	248.48	30.9	76.78
17	NEWPCC	#57 35-12-2W NE	150.34	28.0	42.10
18	NEWPCC	#57 35-12-2W NE	168.06	29.2	49.07
19	NEWPCC	#58 35-12-2W NW	189.84	28.9	54.86
22	NEWPCC	#57 35-12-2W NE	242.88	28.5	69.22
23	NEWPCC	#57 35-12-2W NE	242.42	27.5	66.67
24	NEWPCC	#57 35-12-2W NE	172.10	27.1	46.64
25	NEWPCC	#57 35-12-2W NE	186.60	27.8	51.87
26	NEWPCC	#57 35-12-2W NE	166.00	27.2	45.15
29	NEWPCC	#2 0-0-	225.00	26.9	60.53
30	NEWPCC	#2 0-0-	295.52	28.3	83.63

Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#2 0-0-	520.52						
NEWPCC	#57 35-12-2W NE	2179.98	631.18	57.0	124258.860		631.18	
NEWPCC	#58 35-12-2W NW	1813.00	558.83	57.0	103341.000		558.83	
							---------	---------
							1190.01	

Monthly Hauling Report
For the Month 07/2009

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
01	NEWPCC	#2 0-0-	97.84	29.0	28.37
02	NEWPCC	#2 0-0-	242.86	29.8	72.37
06	NEWPCC	#57 35-12-2W NE	313.64	28.2	88.45
07	NEWPCC	#57 35-12-2W NE	249.62	29.3	73.14
08	NEWPCC	#57 35-12-2W NE	144.42	29.2	42.17
09	NEWPCC	#57 35-12-2W NE	163.32	29.2	47.69
10	NEWPCC	#57 35-12-2W NE	124.78	28.8	35.94
13	NEWPCC	#57 35-12-2W NE	317.68	29.0	92.13
14	NEWPCC	#57 35-12-2W NE	249.34	29.1	72.56
16	NEWPCC	#57 35-12-2W NE	229.66	30.3	69.59
17	NEWPCC	#57 35-12-2W NE	145.40	29.6	43.04
20	NEWPCC	#57 35-12-2W NE	248.34	31.1	77.23
21	NEWPCC	#57 35-12-2W NE	179.78	33.8	60.76
24	NEWPCC	#57 35-12-2W NE	250.78	29.3	73.48
27	NEWPCC	#57 35-12-2W NE	210.64	30.2	63.61
28	NEWPCC	#57 35-12-2W NE	208.46	29.8	62.12
29	NEWPCC	#57 35-12-2W NE	209.98	28.2	59.22
30	NEWPCC	#57 35-12-2W NE	308.32	30.0	92.50
31	NEWPCC	#57 35-12-2W NE	124.54	30.4	37.86
31	NEWPCC	#58 35-12-2W NW	42.30	30.4	12.86

Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#2 0-0-	340.70						
NEWPCC	#57 35-12-2W NE	3678.70	1091.48	57.0	209685.900		1091.48	
NEWPCC	#58 35-12-2W NW	42.30	12.86	57.0	2411.100		12.86	
							---------	---------
							1104.34	

Monthly Hauling Report
For the Month 08/2009

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
04	NEWPCC	#58 35-12-2W NW	379.86	28.4	107.88
05	NEWPCC	#58 35-12-2W NW	243.66	31.7	77.24
06	NEWPCC	#57 35-12-2W NE	84.22	32.4	27.29
06	NEWPCC	#58 35-12-2W NW	82.92	32.4	26.87
07	NEWPCC	#58 35-12-2W NW	124.52	31.3	38.98
10	NEWPCC	#58 35-12-2W NW	208.36	32.4	67.51
11	NEWPCC	#58 35-12-2W NW	207.18	32.1	66.50
12	NEWPCC	#58 35-12-2W NW	105.82	31.0	32.81
13	NEWPCC	#58 35-12-2W NW	67.08	29.7	19.92
14	NEWPCC	#58 35-12-2W NW	44.82	28.8	12.91
19	NEWPCC	#2 0-0-	252.94	29.6	74.87
20	NEWPCC	#2 0-0-	101.24	28.2	28.55
21	NEWPCC	#2 0-0-	102.56	26.7	27.38
24	NEWPCC	#2 0-0-	153.44	27.8	42.66
25	NEWPCC	#2 0-0-	151.80	30.1	45.69
26	NEWPCC	#2 0-0-	101.84	29.2	29.74
27	NEWPCC	#2 0-0-	250.46	28.2	70.63
28	NEWPCC	#2 0-0-	344.48	27.2	93.70
31	NEWPCC	#2 0-0-	197.76	27.7	54.78

Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#2 0-0-	1656.52						
NEWPCC	#57 35-12-2W NE	84.22	27.29	57.0	4800.540		27.29	
NEWPCC	#58 35-12-2W NW	1464.22	450.61	57.0	83460.540		450.61	
							477.90	

Monthly Hauling Report
For the Month 09/2009

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
01	NEWPCC	#2 0-0-	203.90	26.8	54.64
02	NEWPCC	#2 0-0-	175.62	26.9	47.24
03	NEWPCC	#2 0-0-	222.92	27.0	60.19
04	NEWPCC	#2 0-0-	180.50	26.6	48.01
08	NEWPCC	#59 34-12-2W N	381.60	26.5	101.13
09	NEWPCC	#59 34-12-2W N	242.30	25.9	62.76
10	NEWPCC	#59 34-12-2W N	260.06	25.3	65.80
11	NEWPCC	#59 34-12-2W N	270.74	26.0	70.39
14	NEWPCC	#2 0-0-	150.80	25.0	37.70
15	NEWPCC	#2 0-0-	151.80	26.3	39.92
16	NEWPCC	#2 0-0-	302.30	24.4	73.76
17	NEWPCC	#2 0-0-	227.58	24.1	54.85
18	NEWPCC	#2 0-0-	324.10	24.8	80.38
21	NEWPCC	#2 0-0-	251.60	24.1	60.64
22	NEWPCC	#2 0-0-	302.90	24.1	73.00
23	NEWPCC	#2 0-0-	100.78	24.4	24.59
24	NEWPCC	#59 34-12-2W N	171.24	26.7	45.72
25	NEWPCC	#59 34-12-2W N	216.92	25.7	55.75
28	NEWPCC	#59 34-12-2W N	44.24	24.2	10.71
28	NEWPCC	#60 34-12-2W N	174.54	24.2	42.24
29	NEWPCC	#60 34-12-2W N	214.90	24.7	53.08
30	NEWPCC	#60 34-12-2W N	126.32	24.3	30.70

Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#2 0-0-	2594.80						
NEWPCC	#59 34-12-2W N	1587.10	412.24	57.0	90464.700		412.24	
NEWPCC	#60 34-12-2W N	515.76	126.02	52.5	27077.400		126.02	
							538.26	

Monthly Hauling Report
For the Month 10/2009

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
01	NEWPCC	#60 34-12-2W N	165.16	23.6	38.98
02	NEWPCC	#60 34-12-2W N	216.84	25.4	55.08
03	NEWPCC	#60 34-12-2W N	219.38	24.0	52.65
05	NEWPCC	#60 34-12-2W N	315.18	22.6	71.23
06	NEWPCC	#60 34-12-2W N	216.64	22.3	48.31
07	NEWPCC	#60 34-12-2W N	214.46	23.8	51.04
08	NEWPCC	#60 34-12-2W N	191.60	23.4	44.84
09	NEWPCC	#60 34-12-2W N	293.24	23.4	68.62
13	NEWPCC	#60 34-12-2W N	272.72	23.0	62.72
14	NEWPCC	#60 34-12-2W N	212.22	23.1	49.02
15	NEWPCC	#60 34-12-2W N	169.82	22.8	38.72
16	NEWPCC	#60 34-12-2W N	197.22	23.6	46.55
19	NEWPCC	#60 34-12-2W N	319.14	22.4	71.49
20	NEWPCC	#60 34-12-2W N	314.14	22.3	70.05
21	NEWPCC	#60 34-12-2W N	172.52	22.5	38.82
22	NEWPCC	#60 34-12-2W N	108.26	20.3	21.98
23	NEWPCC	#60 34-12-2W N	43.16	23.2	10.01
26	NEWPCC	#58 35-12-2W NW	293.48	22.2	65.16
27	NEWPCC	#58 35-12-2W NW	126.76	22.4	28.40
27	NEWPCC	#60 34-12-2W N	85.52	22.4	19.16
28	NEWPCC	#60 34-12-2W N	172.34	22.7	39.12
29	NEWPCC	#60 34-12-2W N	216.46	22.9	49.57
30	NEWPCC	#60 34-12-2W N	252.04	21.5	54.19

Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#58 35-12-2W NW	420.24	93.55	57.0	23953.680		93.55	
NEWPCC	#60 34-12-2W N	4368.06	1002.14	52.5	229323.150		1002.14	
							1095.69	

Monthly Hauling Report
For the Month 11/2009

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
02	NEWPCC	#60 34-12-2W N	313.54	21.6	67.72
03	NEWPCC	#60 34-12-2W N	289.82	22.7	65.79
04	NEWPCC	#60 34-12-2W N	103.88	22.3	23.17
05	NEWPCC	#60 34-12-2W N	86.40	23.3	20.13
06	NEWPCC	#60 34-12-2W N	130.42	25.1	32.74
09	NEWPCC	#60 34-12-2W N	288.62	24.5	70.71
10	NEWPCC	#60 34-12-2W N	209.02	25.1	52.47
12	NEWPCC	#60 34-12-2W N	169.94	22.6	38.41
13	NEWPCC	#60 34-12-2W N	129.12	24.0	30.99
16	NEWPCC	#60 34-12-2W N	265.52	22.5	59.74
17	NEWPCC	#60 34-12-2W N	150.80	24.4	36.80
18	NEWPCC	#60 34-12-2W N	88.48	23.0	20.35
19	NEWPCC	#60 34-12-2W N	153.02	22.9	35.04
20	NEWPCC	#60 34-12-2W N	173.10	23.9	41.37
23	NEWPCC	#60 34-12-2W N	311.82	22.7	70.78
24	NEWPCC	#60 34-12-2W N	150.68	22.2	33.45
25	NEWPCC	#60 34-12-2W N	215.10	21.5	46.25
26	NEWPCC	#60 34-12-2W N	216.86	20.2	43.81
27	NEWPCC	#60 34-12-2W N	219.52	19.7	43.25
30	NEWPCC	#60 34-12-2W N	155.28	20.4	31.68

Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#60 34-12-2W N	3820.94	864.64	52.5	200599.350		864.64	
							864.64	

Monthly Hauling Report
For the Month 12/2009

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
01	NEWPCC	#60 34-12-2W N	173.18	21.2	36.71
02	NEWPCC	#60 34-12-2W N	78.56	21.2	16.65
03	NEWPCC	#60 34-12-2W N	68.72	22.5	15.46
04	NEWPCC	#60 34-12-2W N	89.98	20.4	18.36
07	NEWPCC	#60 34-12-2W N	160.70	21.2	34.07
08	NEWPCC	#60 34-12-2W N	169.72	21.4	36.32
09	NEWPCC	#60 34-12-2W N	130.68	21.5	28.10
10	NEWPCC	#60 34-12-2W N	101.54	20.8	21.12
11	NEWPCC	#60 34-12-2W N	87.42	20.8	18.18
14	NEWPCC	#60 34-12-2W N	213.44	20.6	43.97
15	NEWPCC	#60 34-12-2W N	230.52	19.9	45.87
16	NEWPCC	#60 34-12-2W N	274.32	19.3	52.94
17	NEWPCC	#60 34-12-2W N	246.96	19.8	48.90
18	NEWPCC	#60 34-12-2W N	245.70	19.0	46.68
21	NEWPCC	#60 34-12-2W N	309.26	20.5	63.40
22	NEWPCC	#60 34-12-2W N	246.18	19.9	48.99
23	NEWPCC	#61 35-12-2W SE	169.20	19.9	33.67
24	NEWPCC	#61 35-12-2W SE	147.84	19.0	28.09
28	NEWPCC	#61 35-12-2W SE	216.52	19.0	41.14
29	NEWPCC	#61 35-12-2W SE	335.06	18.0	60.31
30	NEWPCC	#61 35-12-2W SE	229.38	18.8	43.12
31	NEWPCC	#61 35-12-2W SE	192.70	19.0	36.61

Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#60 34-12-2W N	2826.88	575.73	52.5	148411.200		575.73	
NEWPCC	#61 35-12-2W SE	1290.70	242.94	52.5	67761.750		242.94	
							818.68	

APPENDIX II

CORRESPONDENCE AND OTHER INFORMATION

Appendix II Footnote:
Appendix II includes correspondence and other information. Because of the personal information contained in these documents, they have been excluded from publication pursuant to the Manitoba Freedom of Information and Protection of Privacy Act (FIPPA).