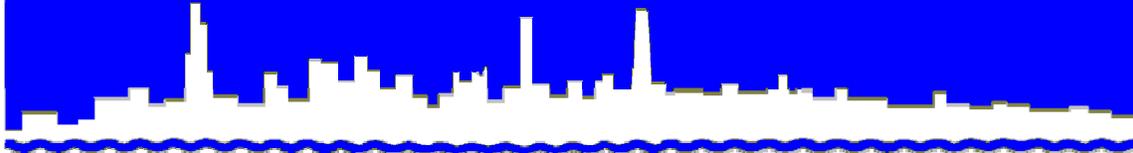


Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

***RESEARCH AND DEVELOPMENT
DEPARTMENT***

REPORT NO. 08-4

ANNUAL BIOSOLIDS MANAGEMENT REPORT FOR

2007

FEBRUARY 2008

February 15, 2008

Mr. Patrick Kuefler
Chief of Enforcement Section 2
USEPA – Region V
Water Enforcement and Compliance
Assurance Branch (WC-15J)
77 West Jackson Blvd.
Chicago, IL 60604-3590

Dear Mr. Kuefler:

Subject: 2007 Reporting Requirements Under the 40 CFR Part 503 Regulations

The Metropolitan Water Reclamation District of Greater Chicago (District) herein submits the 2007 records required under the 40 CFR Part 503 Regulations at Section 503.18, titled “Annual Biosolids Management Report for 2007.”

We believe this report satisfies the reporting requirements under the 40 CFR Part 503 Regulations.

Certification Statement Required for Record Keeping

“I certify under penalty of law, that the information that will be used to determine compliance with the Class A pathogen requirements, Class B pathogen requirements, vector attraction reduction requirements, management practices, site restrictions, and requirements to obtain information as described in Sections 503.32a5, 503.32a6, 503.32a8, 503.32b2, 503.32b3, 503.33b1, 503.33b9, 503.13, 503.14, and 503.16 for the District’s land application sites was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.”

Mr. Patrick Kuefler

2

February 15, 2008

Subject: 2007 Reporting Requirements Under the 40 CFR Part 503 Regulations

If you have any questions, please telephone me at (312) 751-5190.

Very truly yours,

Louis Kollias
Director
Research and Development

LK:AC:spy
Attachment
cc w/att.:

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Bramscher (USEPA)
Keller (IEPA)
Kluge (IEPA)
Garretson (IEPA)
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Metropolitan Water Reclamation District of Greater Chicago

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**ANNUAL BIOSOLIDS MANAGEMENT REPORT
FOR 2007**

By

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February 2008

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2007 REPORTING REQUIRMENTS
UNDER THE 40 CFR PART 503 REGULATIONS

Copies of this Report Number 08-
are available on the District Web Site

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ACKNOWLEDGEMENT

The assistance of the following individuals is greatly appreciated: Mr. Daniel Collins, Principal Civil Engineer, Lawndale Avenue Solids Management Area; Mr. Raphael Frost, Senior Civil Engineer, Calumet Solids Management Area; Ms. Katarzyna Lai, Assistant Engineer of Treatment Plant Operations I, John E. Egan Water Reclamation Plant (WRP); Robert Podgorny, Engineering Technician IV, Hanover Park WRP; Mr. George Kedl, Assistant Civil Engineer, Stickney WRP; Dr. Geeta Rijal, Microbiologist IV, Analytical Microbiology and Biomonitoring Section; Mr. John Chavich, Sanitary Chemist IV, John E. Egan Analytical Laboratory Section; Mr. Tom Liston, Sanitary Chemist IV, Calumet Analytical Laboratory Section; Ms. Ellice Durham, Sanitary Chemist IV, Stickney Analytical Laboratory Section; and Dr. Heng Zhang, Research Scientist II, Wastewater Treatment Technology Research Section.

Special thanks are given to Ms. Sabina Yarn for the typing of this report.

DISCLAIMER

Mention of proprietary equipment and chemicals in this report does not constitute endorsement by the Metropolitan Water Reclamation District of Greater Chicago.

FOREWORD

The data and information in this report fulfill the frequency of monitoring and the reporting requirements for Biosolids Management by the Metropolitan Water Reclamation District of Greater Chicago as specified in the United States Environmental Protection Agency's (USEPA) 40 CFR Part 503 Regulations for 2007.

INTRODUCTION

The Metropolitan Water Reclamation District of Greater Chicago (District) herein reports the 2007 records required under the 40 CFR Part 503 Regulations at Section 503.18.

The District has four Illinois Environmental Protection Agency (IEPA) permitted biosolids management programs that must comply with Part 503. These programs are as follows:

1. Fulton County Dedicated Biosolids Application to Land Site (IEPA Permit No. 2005-SC-5073).
2. Hanover Park Fischer Farm Biosolids Application to Land Site (IEPA Permit Nos. 2002-SC-0672 and 2007-SC-2951).
3. Controlled Solids Distribution Program (Biosolids Application to Land in the Chicago Area under IEPA Permit No. 2005-SC-3793).
4. Land Application to Farmland (Application of biosolids from Calumet, Stickney, and John E. Egan Water Reclamation Plants (WRPs) to farmland under IEPA Permit No. 2004-SC-0701).

The 40 CFR Part 503 Regulations require that the District report certain data. In the following sections, we have prepared a short description of the sludge processing and biosolids management operations at the District's seven WRPs. The Lemont, James C. Kirie, and North Side WRPs do not produce a final biosolids product, while the Calumet, Stickney, John E. Egan, and Hanover Park WRPs produced final biosolids products that were used beneficially or disposed of in 2007. In addition, we also discuss the uses for these biosolids, outline the data reporting requirements under the 40 CFR Part 503 Regulations, and present the required monitoring data in summary tables. The 2007 production and final disposition of sludges and biosolids generated by the District are summarized in Table 1. It should be noted that the total biosolids production in any given year may not equal the amount of the final biosolids product distributed, since biosolids may be distributed from production inventory from a previous year, or biosolids produced in a given year may be stored or aged for distribution at a later time.

TABLE 1: 2007 PRODUCTION AND USES OF SLUDGE AND BIOSOLIDS

Production and Use	Water Reclamation Plants						
	Stickney ¹	Calumet ¹	North Side	Egan ¹	Hanover Park ¹	Kirie	Lemont
	----- Dry Tons -----						
Production ²	119,821	29,923	35,710	8,421	818	7,870	310
Land Applied	57,643	21,675	0	8,164	1,106	0	0
Surface Disposal	0	0	0	0	0	0	0
Landfill (Total)	31,874	12,997	0	0	0	0	0
Co-disposal	7,509	1,908					
Daily cover	14,378	0					
Final Cover	9,987	11,089					
Incinerated	0	0	0	0	0	0	0
To Other WRPs ³	0	0	35,710	3,072	0	7,780	310
Other	553 ⁴	0	0	1 ⁵	0	0	0

¹Differences between biosolids production and total use or disposal in 2007 were due to a net withdrawal or storage in lagoons or drying areas, and processing of biosolids imported from other WRPs.

²Stickney, Calumet, Egan, and Hanover Park produce biosolids while North Side, Kirie, and Lemont produce undigested sludge. Figures represent total solids generated at the end of each plant's processing train including those imported from other plants for further processing.

³For further processing or storage.

⁴Sent to pelletizing facility owned and operated by Metropolitan Biosolids Management, LLC, Stickney, Illinois, under Contract No. 98-RFP-10.

⁵Trucked to Interstate Brands Corp., Schiller Park, Illinois, for seeding digesters.

LEMONT WRP

The Lemont WRP, located in Lemont, Illinois, has a design capacity of 3.4 mgd. Wastewater reclamation processes include both primary (primary settling) and secondary (activated sludge process) treatment. In 2007, the Lemont WRP produced 310 dry tons of solids (Table 1), which were gravity concentrated and transported to the Stickney WRP for further processing.

No final biosolids product is produced at this WRP.

JAMES C. KIRIE WRP

The James C. Kirie WRP, located in Des Plaines, Illinois, has a design capacity of 72 mgd. Wastewater reclamation processes include grit tanks, secondary (activated sludge process), and tertiary (sand filtration) treatment. In 2007, the James C. Kirie WRP produced 7,870 dry tons of solids (Table 1), which were sent via force main to the John E. Egan WRP for further processing.

No final biosolids product is produced at this WRP.

NORTH SIDE WRP

The North Side WRP, located in Skokie, Illinois, has a design capacity of 333 mgd. Wastewater reclamation processes at the North Side WRP include primary (primary settling) and secondary (activated sludge process) treatment. In 2007, the North Side WRP produced 35,710 dry tons of solids (Table 1), which were sent via pipeline to the Stickney WRP for further treatment. This total includes solids generated from water reclamation at the North Side WRP and biosolids conveyed from the John E. Egan WRP.

No final biosolids product is produced at this WRP.

JOHN E. EGAN WRP

Treatment Plant and Biosolids Process Train Description

The John E. Egan WRP, located in Schaumburg, Illinois, has a design flow of 30 mgd. Wastewater reclamation processes include primary (primary settling), secondary (activated sludge process), and tertiary (sand filtration) treatment. All solids managed at the John E. Egan WRP are anaerobically digested. During winter or when the centrifuges are not operating, liquid digested biosolids are sent via sewers to the North Side WRP. Centrifuge centrate containing biosolids are also sent via sewers to the North Side WRP.

In 2007, the total biosolids production at the John E. Egan WRP was 8,421 dry tons (Table 1). This total includes biosolids generated from processing of sludge originating at the John E. Egan WRP as well as the sludge that was imported from the James C. Kirie WRP for further processing.

Summary of Use and Disposal at Landfills

In 2007, none of the biosolids generated at the John E. Egan WRP were sent to landfills.

Biosolids Conveyed to Other WRPs for Further Processing

In 2007, 532 dry tons of biosolids were pumped as centrifuge centrate to North Side WRP. In addition, 2,040 dry tons of centrifuge cake biosolids were trucked to the Calumet Solids Management Area before being land applied in 2007, and 500 dry tons to the Lawndale Avenue Solids Management Area to be stored until the 2008 land application season.

Land Application of Centrifuge Cake Biosolids

In 2007, the John E. Egan WRP land applied a total of 8,164 dry tons of centrifuge cake biosolids to farmland under IEPA Permit No. 2004-SC-0701 through a contract with Synagro Midwest, Inc. This total consists of 5,527 dry tons trucked directly from the John E. Egan WRP and 2,637 dry tons that was stored (597 dry tons in 2006 and 2,040 dry tons in 2007). at the Calumet WRP Solids Management Area before being land applied. In accordance with Table 1 of Section 503.16, the frequency of monitoring for this biosolids product is six times per year.

All John E. Egan WRP centrifuge cake biosolids that were land applied in 2007 met the pollutant concentration limits in Table 3 of Section 503.13 (Table 2), the Class B pathogen requirements of Section 503.32b2 (Table 3), and the vector attraction reduction requirements of Section 503.33b10. Table 2 also shows the biosolids nitrogen concentration data that were used by the land applier to compute the agronomic loading rates at the farmland sites.

The John E. Egan WRP did not have any additional requirement for reporting under Part 503 in 2007.

TABLE 2: NITROGEN AND METALS CONCENTRATIONS IN CENTRIFUGE CAKE BIOSOLIDS FROM THE JOHN E. EGAN WATER RECLAMATION PLANT APPLIED TO FARMLAND IN 2007

Sample Date	TKN	NH ₃ -N	As	Cd	Cu	Hg	Mo	Ni	Pb	Se	Zn
----- mg/dry kg -----											
03/31/2007	48,745	7,153	<1.0	4.4	614	NA	13	60	46	<0.8	776
04/07/2007	30,994	6,358	<1.0	4.7	569	1.2	12	60	43	<0.8	747
04/14/2007	29,555	4,271	3.0	3.6	586	NA	11	59	41	<0.8	771
04/21/2007	34,863	5,659	<1.0	4.5	595	NA	14	62	48	<0.8	741
04/28/2007	22,262	5,826	<1.0	4.9	620	NA	13	65	45	<0.8	732
05/05/2007	33,330	5,362	<1.0	3.3	596	NA	12	61	45	<0.8	722
05/12/2007	21,280	5,381	<1.0	3.6	677	1.2	12	69	42	<0.8	761
05/19/2007	27,895	5,000	<1.0	3.4	668	NA	13	65	44	<0.8	738
05/26/2007	25,518	6,737	<1.0	3.3	672	NA	13	63	40	<0.8	745
06/02/2007	41,325	5,105	<1.0	4.3	723	NA	16	107	60	<0.8	799
06/09/2007	41,505	5,655	<1.0	4.0	735	2.5	17	69	41	<0.8	806
06/16/2007	22,756	5,165	<1.0	3.4	707	NA	18	62	40	<0.8	808
06/23/2007	15,045	4,749	<1.0	3.2	669	NA	19	56	103	<0.8	781
07/14/2007	13,816	4,985	5.0	3.3	704	0.94	22	54	44	<0.8	891
07/21/2007	15,649	4,812	1.7	3.4	730	NA	23	55	46	<0.8	897
07/28/2007	13,840	3,826	<1.0	3.2	644	NA	20	51	42	<0.8	817
08/04/2007	16,230	4,917	<1.0	3.2	716	NA	21	59	46	<0.8	912
08/11/2007	22,034	4,165	<1.0	2.8	658	0.73	19	55	43	<0.8	862

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TABLE 2 (Continued): NITROGEN AND METALS CONCENTRATIONS IN CENTRIFUGE CAKE BIOSOLIDS FROM THE JOHN E. EGAN WATER RECLAMATION PLANT APPLIED TO FARMLAND IN 2007

Sample Date	TKN	NH ₃ -N	As	Cd	Cu	Hg	Mo	Ni	Pb	Se	Zn
	----- mg/dry kg -----										
08/25/2007	25,934	4,829	<1.0	3.0	725	NA	21	66	45	<0.8	996
09/01/2007	21,940	4,746	<1.0	3.1	694	NA	20	68	48	<0.8	987
09/08/2007	21,419	3,078	<1.0	3.4	685	0.78	19	68	47	<0.8	973
09/29/2007	27,537	4,014	<1.0	3.4	599	NA	14	70	53	<0.8	870
10/06/2007	21,543	4,675	<1.0	3.5	633	NA	17	67	46	<0.8	912
10/13/2007	48,269	5,262	<1.0	3.1	647	1.1	17	65	42	<0.8	916
10/20/2007	20,873	2,284	<1.0	3.6	711	NA	19	69	50	<0.8	989
10/27/2007	33,638	3,876	<1.0	4.0	680	NA	17	69	65	<0.8	924
11/03/2007	28,344	2,727	<1.0	4.5	645	NA	16	71	44	<0.8	917
11/10/2007	31,788	3,369	<1.0	4.8	595	1.2	15	70	42	<0.8	840
11/17/2007	22,132	4,986	<1.0	4.7	680	NA	20	77	39	<0.8	891
11/24/2007	32,371	3,737	1.3	5.2	747	1.2	20	85	44	<0.8	965
12/01/2007	39,908	2,964	<1.0	5.2	789	NA	22	83	41	<0.8	1,046
12/08/2007	35,999	3,406	1.6	4.7	749	1.4	21	78	38	<0.8	991
12/15/2007	44,807	5,970	<1.0	4.4	705	NA	21	74	37	<0.8	921
12/22/2007	37,042	5,927	<1.0	4.4	709	NA	20	77	37	<0.8	955
12/29/2007	41,135	6,655	1.6	3.9	748	NA	20	76	45	<0.8	940

TABLE 2 (Continued): NITROGEN AND METALS CONCENTRATIONS IN CENTRIFUGE CAKE BIOSOLIDS FROM THE JOHN E. EGAN WATER RECLAMATION PLANT APPLIED TO FARMLAND IN 2007

Sample Date	TKN	NH ₃ -N	As	Cd	Cu	Hg	Mo	Ni	Pb	Se	Zn
----- mg/dry kg -----											
Mean*	28,895	4,789	1	4	675	1	17	68	46	<0.8	867
Minimum	13,816	2,284	1	3	569	1	11	51	37	<0.8	722
Maximum	48,745	7,153	5	5	789	3	23	107	103	<0.8	1,046
503 Limit	NL	NL	41	39	1,500	17	75	420	300	100	2,800

*In calculating the means, values less than the detection limit were considered as the detection limit.

NA = No analysis.

NL = No limit.

TABLE 3: DIGESTER* TEMPERATURES AND DETENTION TIMES FOR BIOSOLIDS FROM THE JOHN E. EGAN WATER RECLAMATION PLANT APPLIED TO FARMLAND IN 2007

Month	Average Temperature	Average Detention Time	Meets Part 503 Class B Requirements	Minimum Detention Time Required by 503.32b3**
	----°F----	----days----		----days----
January	96	26.7	yes	15.0
February	97	29.8	yes	15.0
March	97	22.6	yes	15.0
April	97	25.9	yes	15.0
May	97	24.2	yes	15.0
June	97	24.8	yes	15.0
July	96	26.4	yes	15.0
August	97	27.6	yes	15.0
September	96	26.7	yes	15.0
October	96	27.6	yes	15.0
November	96	26.2	yes	15.0
December	96	24.2	yes	15.0

* Data are for primary Digesters A and C and do not include additional digestion achieved in secondary Digesters B and D.

** For anaerobic digestion at average temperature achieved.

HANOVER PARK WRP

Treatment Plant and Biosolids Process Train Description

The Hanover Park WRP, located in Hanover Park, Illinois, has a design capacity of 12 mgd. Wastewater reclamation processes at this WRP include primary (primary settling), secondary (activated sludge process), and tertiary (sand filtration) treatment. All solids produced at the Hanover Park WRP are anaerobically digested and stored in lagoons. The digested biosolids stored in the lagoons are then applied by injection at an on-site farm, formerly the Fischer Farm. All of the biosolids produced by the Hanover Park WRP are land applied at the Fischer Farm, which is contained on the plant grounds.

In 2007, the total biosolids production at this WRP was 818 dry tons ([Table 1](#)).

Land Application of Liquid Biosolids

In 2007, the Hanover Park WRP land applied a total of 1,106 dry tons of biosolids at the Hanover Park Fischer Farm site under the IEPA Permit Nos. 2002-SC-0672 and 2007-SC-2951. This included liquid biosolids and supernatant stored in a lagoon. The quantity of land applied biosolids was higher than the quantity of biosolids produced in 2007 due to net removal of biosolids that were stored in a lagoon. In accordance with Table 1 of Section 503.16, the frequency of monitoring for this biosolids product is six times per year.

All Hanover Park WRP lagooned biosolids that were land applied in 2007 met the pollutant concentration limits in Table 3 of Section 503.13 ([Table 4](#)), the Class B pathogen anaerobic digester time and temperature requirements of Section 03.32b3 ([Table 5](#)), and the vector attraction reduction requirements of Section 503.33b1 ([Table 6](#)). Management practices at this land application site complied with Section 503.14 as previously described in a letter to Mr. Michael J. Mikulka dated January 28, 1994 ([Appendix I](#)).

TABLE 4: NITROGEN AND METALS CONCENTRATIONS IN BIOSOLIDS FROM THE HANOVER PARK WATER RECLAMATION PLANT APPLIED TO THE FISCHER FARM SITE IN 2007

Composite Sample Date	TKN	NH ₃ -N	As	Cd	Cu	Hg	Mo	Ni	Pb	Se	Zn
----- mg/dry kg -----											
04/07/07*	446,636	367,727	24	12	286	0.37	<2	30	16	<3	298
04/28/07*	568,600	505,600	21	1	82	0.11	<2	24	5	<3	123
06/09/07*	395,214	365,857	8	<0.4	124	0.19	<1	9	2	4	61
09/15/07*	290,833	269,417	17	<0.5	23	<0.04	<2	21	4	3	36
09/22/07*	210,462	265,538	14	<0.5	18	<0.04	<2	18	4	5	29
10/06/07*	218,000	225,833	20	<0.5	29	0.10	<2	21	3	3	48
10/13/07*	219,250	224,667	15	<0.5	26	0.07	<2	20	3	<3	43
10/20/07*	218,182	212,273	17	<0.5	25	0.05	3	22	<2	5	42
10/27/07*	303,455	300,273	17	<0.5	44	0.06	<2	24	<2	<3	83
11/03/07*	240,167	228,917	12	<0.5	31	0.05	4	26	3	<3	50
11/10/07*	357,455	334,455	20	<0.5	53	<0.05	<2	25	5	5	83
11/17/07	64,158	25,380	11	2	1,126	2.25	13	46	34	6	915
11/24/07	70,245	14,570	11	2	1,243	2.12	14	52	38	6	930
11/24/07*	282,786	242,286	11	<0.4	119	0.16	3	21	2	3	169
12/01/07	171,821	38,879	7	2	1,259	2.75	14	56	60	6	985

TABLE 4 (Continued): TABLE 4: NITROGEN AND METALS CONCENTRATIONS IN BIOSOLIDS FROM THE HANOVER PARK WATER RECLAMATION PLANT APPLIED TO THE FISCHER FARM SITE IN 2007

Composite Sample Date	TKN	NH ₃ -N	As	Cd	Cu	Hg	Mo	Ni	Pb	Se	Zn
----- mg/dry kg -----											
Minimum	64,158	14,570	7	<04	18	0.05	<1	9	<2	<3	29
Mean **	270,484	241,445	15	2	299	0.56	5	28	12	4	260
Maximum	568,600	505,600	24	12	1,259	3	14	56	60	6	985
503 Limit	NL	NL	41	39	1,500	17.0	75	420	300	100	2,800

* Biosolids applied as supernatant.

** In calculating the mean, values less than the detection limit were considered as the detection limit.

NL = No limit.

TABLE 5: DIGESTER TEMPERATURES AND DETENTION TIMES FOR BIOSOLIDS FROM THE HANOVER PARK WATER RECLAMATION PLANT APPLIED TO THE FISCHER FARM SITE IN 2007

Month	Average Temperature ----°F----	Average Detention Time ----days----	Meets Part 503 Class B Requirements	Minimum Detention Time Required by 503.32b3*
January	96	25.3	yes	15.0
February	96	25.4	yes	15.0
March	96	33.4	yes	15.0
April	96	25.9	yes	15.0
May	96	21.2	yes	15.0
June	95	19.7	yes	15.0
July	97	18.1	yes	15.0
August	96	21.7	yes	15.0
September	96	29.3	yes	15.0
October	96	32.1	yes	15.0
November	95	30.3	yes	15.0
December	96	28.7	yes	15.0

*For anaerobic digestion at average temperature achieved.

TABLE 6: VOLATILE SOLIDS REDUCTION FOR BIOSOLIDS GENERATED AT THE HANOVER PARK WATER RECLAMATION PLANT AND APPLIED TO THE FISCHER FARM SITE IN 2007

Month	Digester Feed	Digester Draw	Lagoon Biosolids	Volatile Solids Reduction*
	----- % Total Volatile Solids -----			---- % ----
April**	83.9	73.3	46.6	83.3
June**	85.6	77.0	59.7	75.0
September**	81.1	73.4	56.8	69.3
October**	84.1	74.3	61.3	70.0
November	85.1	75.2	58.4	75.4
December	84.8	75.0	69.1	60.1

* Volatile solids reduction computed using digester feed and lagoon biosolids data, and only for the months that biosolids were applied to the fields.

** Biosolids applied as supernatant.

CALUMET WRP

Treatment Plant and Biosolids Process Train Description

The Calumet WRP, located in Chicago, Illinois, has a design capacity of 354 mgd. Wastewater reclamation processes at this WRP include primary (primary settling) and secondary (activated sludge process) treatment. All solids produced at the Calumet WRP are anaerobically digested. Calumet WRP biosolids are then:

- a. Placed into lagoons for dewatering, aging and stabilization, and then transported to paved cells and air-dried prior to:
 1. Application to land as Exceptional Quality (EQ) biosolids under the District's Controlled Solids Distribution Permit.
 2. Use at local municipal solid waste landfills as final landfill cover.
 3. Disposal in local municipal solid waste landfills.
- b. Dewatered by centrifuging to approximately 25 percent solids content, and then applied to farmland by a private contractor as a Class B cake.
- c. Dewatered by centrifuging to approximately 25 percent solids content, and then transported to paved cells and air-dried prior to use as daily landfill cover.
- d. Dewatered by centrifuging to approximately 25 percent solids content, placed into lagoons for aging and stabilization, and transported to paved cells and air-dried prior to:
 1. Application to land as EQ biosolids under the District's Controlled Solids Distribution Permit.
 2. Use at local municipal solid waste landfills as final landfill cover.

In 2007, the total biosolids production at the Calumet WRP was 29,923 dry tons (Table 1). The quantity of biosolids that were used and disposed of in 2007 (34,672 dry tons) was higher than the total production for the Calumet WRP due to net withdrawal of biosolids stored in lagoons or on drying cells.

Summary of Use and Disposal at Landfills

In 2007, the Calumet WRP sent 12,997 dry tons of biosolids to landfills. Of this amount, 11,089 dry tons were used as final cover and 1,908 dry tons were co-disposed with municipal solid wastes. This practice is exempt from the Part 503 Regulations and requires no further reporting.

Land Application of Centrifuge Cake Biosolids

In 2007, the Calumet WRP land applied 16,914 dry tons of centrifuge cake biosolids to farmland under IEPA Permit No. 2004-SC-0701 through a contract with Synagro Midwest, Inc. This does not include the 2,597 dry tons of centrifuge cake biosolids that was transported from the John E. Egan WRP to the Calumet Solids Management Area, prior to being applied to farmland by Synagro Midwest, Inc. In accordance with Table 1 of Section 503.16, the frequency of monitoring for this biosolids product is twelve times per year.

All Calumet WRP centrifuge cake biosolids that were land applied in 2007, met the pollutant concentration limits in Table 3 of Section 503.13 (Table 7), the Class B pathogen anaerobic digester time and temperature requirements of Section 503.32b3 (Table 8), and the vector attraction reduction requirements of Section 503.33b10. Table 7 also contains the biosolids nitrogen concentration data that were utilized by the land applicator to compute the agronomic loading rates at the farmland sites.

Land Application of Aged, Air-Dried Biosolids

In 2007, the Calumet WRP land applied a total of 4,761 dry tons of air-dried EQ biosolids through the District's Controlled Solids Distribution Program under IEPA Permit No. 2005-SC-3743 for maintenance of golf courses, landscaping, nurseries, and construction of recreation fields. The quantities of biosolids utilized by each site under the Controlled Solids Distribution Program and how they were used are shown in Table 9. In accordance with Table 1 of Section 503.16, the frequency of monitoring for this biosolids product is six times per year.

The USEPA Region V designated, on a site-specific basis for the Calumet and Stickney WRPs, two of the District's biosolids processing trains as equivalent to a Process to Further Reduce Pathogens (PFRP). The PFRP equivalency took effect on August 1, 2002 (Appendix III), and on this basis, all EQ biosolids produced by the Calumet WRP met the Part 503 Class A pathogen requirements of 503.32a8 in 2007.

All Calumet WRP EQ biosolids that were land applied in 2007 met the pollutant concentration limits in Table 3 of Section 503.13 (Table 10), the Class A pathogen limits of Section 503.32a8 (Table 11), and the vector attraction reduction requirements of Section 503.33b1 (Table 10) or Section 503.33b2 (Table 12). Management practices complied with Section 503.14 as previously described in a letter to Mr. Michael J. Mikulka dated January 28, 1994 (Appendix I).

TABLE 7: NITROGEN AND METALS CONCENTRATIONS IN CENTRIFUGE CAKE BIOSOLIDS GENERATED AT THE CALUMET WATER RECLAMATION PLANT APPLIED TO FARMLAND IN 2007

Sample Date	TKN	NH ₃ -N	As	Cd	Cu	Hg	Mo	Ni	Pb	Se	Zn
----- mg/dry kg -----											
05/14-18/07	80,152	12,367	2	5	807	1.52	19	72	46	9	943
07/31/07	25,343	4,749	12	4	394	0.69	13	37	89	3	992
07/31/07	36,729	6,122	3	4	762	0.86	18	66	56	7	948
08/08/07	27,861	6,400	11	4	376	0.61	13	38	99	4	946
08/14/07	32,041	9,431	11	3	375	0.64	11	34	96	2	900
08/22/07	26,902	8,149	9	4	394	0.54	12	36	96	2	963
09/26/07	42,892	10,541	12	5	441	1.15	14	55	124	3	898
10/30/07	22,406	3,840	11	3	380	1.02	12	35	106	5	1,016
10/30/07	24,422	3,328	11	3	393	0.95	14	34	111	5	1,061
11/06/07	29,282	4,996	8	3	357	1.12	14	32	103	5	992
11/14/07	25,379	4,139	9	3	354	0.93	12	32	101	4	973
11/14/07	19,598	2,103	10	4	430	1.00	17	34	109	5	977
11/14/07	16,468	2,228	10	4	424	1.20	17	34	110	4	979
Minimum	16,468	2,103	2	3	354	0.54	11	32	46	2	898
Mean*	31,498	6,030	9	4	453	0.94	14	42	96	4	968
Maximum	80,152	12,367	12	5	807	1.52	19	72	124	9	1,061
503 Limit	NL	NL	41	39	1,500	17	75	420	300	100	2,800

*In calculating the mean, values less than the detection limit were considered as the detection limit.
NL = No limit.

TABLE 8: DIGESTER* TEMPERATURES AND DETENTION TIMES FOR CENTRIFUGE CAKE BIOSOLIDS FROM THE CALUMET WATER RECLAMATION PLANT APPLIED TO FARMLAND IN 2007

Month	Average Temperature ----°F----	Average Detention Time ---days---	Meets Part 503 Class B Requirements	Minimum Detention Time Required by 503.32b3** ---days---
January	96	21.9	yes	15.0
February	97	23.6	yes	15.0
March	97	20.4	yes	15.0
April	97	19.5	yes	15.0
May	97	18.3	yes	15.0
June	97	17.3	yes	15.0
July	96	18.7	yes	15.0
August	96	19.0	yes	15.0
September	97	24.4	yes	15.0
October	96	21.3	yes	15.0
November	97	22.5	yes	15.0
December	96	27.9	yes	15.0

*Temperatures and detention times are for primary digesters 1 through 8 at the Calumet WRP. All biosolids exiting these primary digesters also received additional processing in secondary digesters 9 through 12.

**For anaerobic digestion at average temperature achieved.

TABLE 9: QUANTITIES OF CALUMET WATER RECLAMATION PLANT AIR-DRIED BIOSOLIDS UTILIZED BY EACH SITE UNDER THE CONTROLLED SOLIDS DISTRIBUTION PROGRAM IN 2007

User	Location	Quantity
		--- Dry Tons ---
Andrew High School, Tinley Park	School athletic fields	34.0
Arlington Heights Park District, Arlington Heights	Arlington Heights Golf Course	32.3
Bensenville Park District, Bensenville	White Pines Golf Club	87.0
Blue Island Park District, Blue Island Park	Centennial Park	32.1
	Memorial Park	29.4
Bremen High School, Midlothian	School athletic fields	21.2
Burbank Elementary School, Chicago	School athletic fields	101.7
Burbank Park District, Burbank	McCarthy Park	26.3
Burbank Park District, Burbank	Fitzgerald Park	88.9
Champion Lawn Maintenance Inc., Schaumburg	Commercial landscaping, Chicago*	30.2
Chicago Heights Park District, Chicago Heights	East Golf Course	29.3
Coyote Run Golf Course, Flossmoor	Golf course	231.9
Dominican University, River Forest	Athletic fields on campus grounds*	173.9
Driscoll Catholic High School, Addison	School athletic fields	32.2
Elmhurst Park District, Elmhurst	Plunkett Park	27.6
	Berens Park	102.1
Frankfort Park District, Frankfort	Founders Park	29.7
Frankfort Square Park District, Frankfort	Hilder Walker Park	69.8
Glenwoodie Golf Course, Glenwood	Golf course	13.6
Hickory Hills Baseball League, Hickory Hills	Little league field	20.7
Hickory Hills Golf Course, Hickory Hills	Golf course	31.5
Homer Athletic Club, Homer-Glen	Baseball field*	221.3
Joliet Country Club, Joliet	Golf course	59.2
Lakepoint Club Corp./DBA Cinder Ridge, Wil- mington	Golf course	212.2
Lombard Park District, Lombard	Soccer field at 227 Parkside Ave	32.3
Midlothian Park District	Memorial Park	279.2
Moody Bible Institute, Chicago	Soccer field on campus grounds	14.5
Metropolitan Water Reclamation District of Greater Chicago	Calumet WRP grounds*	99.5
	Stickney WRP Research plots*	17.4
Park District of Franklin Park, Franklin Park	Birch Park*	133.7

TABLE 9 (Continued): QUANTITIES OF CALUMET WATER RECLAMATION PLANT AIR-DRIED BIOSOLIDS UTILIZED BY EACH SITE UNDER THE CONTROLLED SOLIDS DISTRIBUTION PROGRAM IN 2007

User	Location	Quantity
		--- Dry Tons ----
Plainfield School District, Plainfield	Plainfield South High School athletic fields	86.7
	Plainfield North High School athletic fields	101.3
	Plainfield Central High School athletic fields	86.3
	Plainfield East High School athletic fields	74.9
Reavis High School, Burbank	School athletic fields	143.0
Ross Design Inc., Lincolnshire	Landscaping on office site*	32.2
South Suburban Chicago Christian School, Palos Heights	School athletic fields	31.6
St. Charles Park District, St. Charles	Campton Hills Park	147.1
	Potawatomie Golf Course	283.3
St. Xavier University, Chicago	Athletic fields on campus grounds	70.3
Summit Park District, Summit	Main Park	465.3
Tinley Park High School, Tinley Park	School athletic fields	83.9
U.S. Army Corps Eng./Chicago Park District, Chicago	40 th – 41 st Street Shoreline Park*	426.4
Village of South Holland	Veterans Memorial Park*	298.0
Westmont Park District, Westmont	Bellerive Park	31.8
	Ty Warner Park	42.7
	Veterans Memorial Park	41.6
Total		4,761.1

*Biosolids were used as soil amendment; all others used as nutrient source for turf growth.

TABLE 10: NITROGEN CONCENTRATIONS, VOLATILE SOLIDS REDUCTION, AND METALS CONCENTRATIONS IN AIR-DRIED BIOSOLIDS FROM THE CALUMET WATER RECLAMATION PLANT APPLIED TO LAND IN 2007

Sample Date	TKN	NH ₃ -N	TVS*		As	Cd	Cu	Hg	Mo	Ni	Pb	Se	Zn
			TVS*	Reduction									
----- mg/dry kg -----		----- % -----		----- mg/dry kg -----									
05/02/07	8,874	13	19.6	85.1	9	7	214	1.09	5	34	85	2	651
05/15/07	6,751	75	18.9	85.8	5	7	212	0.82	4	35	91	12	626
05/15/07	9,978	596	31.3	72.2	8	9	329	1.20	8	34	108	12	988
05/15/07	15,007	670	32.1	71.1	8	9	338	1.47	9	36	116	11	1,027
05/15/07	11,027	696	29.9	74.0	8	9	331	1.01	8	35	118	12	987
05/29/07	17,668	2,052	38.7	61.4	10	8	432	1.48	12	38	120	12	1,217
05/29/07	20,671	1,805	38.7	61.5	7	8	378	NA	11	38	115	14	1,205
05/29/07	13,348	1,316	35.1	67.0	4	9	411	1.61	16	38	122	10	1,219
06/06/07	11,275	274	29.1	74.5	8	9	291	0.62	8	34	104	4	875
06/06/07	11,795	430	25.7	78.5	6	10	276	0.34	8	36	111	5	882
06/13/07	15,400	139	34.6	67.1	6	9	292	1.74	10	36	108	7	948
06/13/07	16,039	154	28.6	75.0	7	4	462	0.77	16	37	99	8	933
06/27/07	13,945	682	34.1	67.8	11	9	363	1.00	11	40	116	17	1,046
06/27/07	13,059	582	34.2	67.7	11	9	386	0.88	12	39	117	10	948
07/04/07	13,766	544	32.6	67.9	13	9	354	0.91	12	40	122	16	1,035
07/12/07	15,160	121	33.4	66.8	9	9	383	0.95	12	37	130	7	1,158
07/24/07	13,252	122	33.4	66.8	10	9	354	0.68	12	37	119	5	1,044
07/24/07	14,293	104	33.3	67.0	9	9	390	0.37	13	36	126	9	1,105
07/31/07	12,143	109	31.5	69.6	10	9	369	0.80	12	36	124	7	1,120
08/08/07	13,539	39	33.2	57.9	11	9	341	0.76	12	36	115	7	1,048
09/05/07	16,699	124	37.8	56.0	10	9	447	0.72	13	36	133	9	1,198
09/05/07	15,472	148	37.1	57.3	10	9	465	0.78	13	38	138	9	1,192

TABLE 10 (Continued): NITROGEN CONCENTRATIONS, VOLATILE SOLIDS REDUCTION, AND METALS CONCENTRATIONS IN AIR-DRIED BIOSOLIDS FROM THE CALUMET WATER RECLAMATION PLANT APPLIED TO LAND IN 2007

Sample Date	TKN	NH ₃ -N	TVS*		As	Cd	Cu	Hg	Mo	Ni	Pb	Se	Zn
			TVS*	Reduction									
----- mg/dry kg -----		----- % -----		----- mg/dry kg -----									
09/11/07	12,711	36	32.7	64.8	11	10	411	0.81	13	39	133	8	1,203
09/11/07	12,852	32	31.4	66.9	10	9	392	0.67	12	37	133	7	1,137
09/11/07	9,679	304	24.9	75.9	11	9	302	0.79	11	36	120	3	842
09/18/07	13,138	32	33.0	64.3	10	9	365	1.15	12	37	130	7	1,124
10/17/07	11,312	49	29.9	72.2	11	10	395	1.07	13	38	133	8	1,163
10/17/07	13,023	37	31.8	69.6	10	9	354	1.23	11	34	122	7	1,068
10/25/07	12,970	54	29.1	73.3	11	9	362	1.02	11	36	125	5	1,042
11/06/07	10,237	28	23.8	86.0	8	9	317	0.98	10	35	123	6	978
11/06/07	9,702	46	26.6	83.8	9	9	309	0.82	10	34	119	6	947
11/06/07	10,744	30	26.7	83.7	9	9	306	1.19	10	34	113	6	928
11/06/07	9,161	28	21.5	87.7	10	5	291	0.81	11	35	110	3	694
11/06/07	11,454	23	27.3	83.2	10	6	326	1.02	12	36	122	3	774
11/06/07	11,498	33	25.4	84.7	11	5	305	1.34	12	37	115	1.4	715
11/14/07	15,479	54	29.9	80.9	9	5	339	1.35	13	36	102	3	787
11/14/07	13,176	22	31.8	79.1	10	5	373	0.97	14	38	110	4	843
11/21/07	10,784	16	31.2	79.7	12	4	312	0.85	14	38	91	3	728
11/21/07	11,317	28	35.9	74.9	12	5	425	1.07	14	39	115	2	886
11/27/07	9,288	23	28.0	82.5	11	4	313	1.11	12	42	93	<1.4	679
Minimum	6,751	13	18.9	56.0	4	4	212	0.34	4	34	85	<1.4	626
Mean**	12,692	292	30.6	72.8	9	8	350	0.98	11	37	116	7	975
Maximum	20,671	2,052	38.7	87.7	13	10	465	1.74	16	42	138	17	1,219
503 Limit	NL	NL	NL	38	41	39	1,500	17	75	420	300	100	2,800

TABLE 10 (Continued): NITROGEN CONCENTRATIONS, VOLATILE SOLIDS REDUCTION, AND METALS CONCENTRATIONS IN AIR-DRIED BIOSOLIDS FROM THE CALUMET WATER RECLAMATION PLANT APPLIED TO LAND IN 2007

Sample Date	TKN	NH ₃ -N	TVS* TVS* Reduction	As	Cd	Cu	Hg	Mo	Ni	Pb	Se	Zn
	----- mg/dry kg -----	----- mg/dry kg -----	----- % -----									

*TVS = Total Volatile Solids.

**In calculating the mean, values less than the detection limit were considered as the detection limit.

NA = No analysis.

NL = No limit: not applicable.

TABLE 11: DATA FOR MONITORING PART 503 CLASS A PATHOGEN COMPLIANCE
AT THE CALUMET WATER RECLAMATION PLANT IN 2007

Sample Date	Lagoon Source	Total Solids	Fecal Coliform
		----%----	----No./g----
04/19/2007	6	77.7	37
04/19/2007	6	72.2	53
04/23/2007	7	73.8	51
05/08/2007	7	79.8	5
05/22/2007	7	79.0	64
06/12/2007	7	72.0	14
08/14/2007	3	68.4	100
09/11/2007	3	69.7	72
10/09/2007	3	75.9	38

TABLE 12: SUMMARY OF RESULTS OF ADDITIONAL ANAEROBIC DIGESTION TESTS FOR VOLATILE SOLIDS REDUCTION AT THE CALUMET WATER RECLAMATION PLANT FOLLOWING OPTION 2 OF SECTION 503.33(b)

Test Start Date	Before Test		After Test		Volatile Solids Reduction	
	TS*	TVS*	TS	TVS	By Equation**	By Mass
	----- % -----					
01/04/07***	2.06	52.74	1.87	47.36	19.4	18.5
02/08/07	2.09	53.14	1.95	48.58	16.7	14.5
03/01/07	1.76	52.86	1.70	50.67	8.4	7.7
04/19/07	2.73	50.32	2.55	47.56	10.5	11.9
05/18/07	2.39	51.27	2.24	47.04	15.6	13.9
05/31/07	2.33	50.35	2.18	47.46	10.9	11.8
06/07/07	2.29	50.54	2.17	46.70	14.3	12.4
07/12/07	2.30	50.16	2.18	46.87	12.3	11.4
08/09/07	2.34	50.11	2.22	45.69	16.2	13.4
08/23/07	2.88	46.78	2.72	43.20	13.5	13.0
09/07/07	2.91	45.88	2.78	42.88	11.4	10.7
10/04/07	2.12	47.09	2.01	44.15	11.2	11.1
11/08/07	2.09	49.67	1.95	46.50	11.9	12.4
12/14/07	1.96	54.03	1.83	52.77	4.9	8.6

* TS = Total Solids content, TVS = Total Volatile Solids content.

** The Van Kleeck Equation was used in calculations.

***According to Table 10, volatile solids reduction greater than 38 percent achieved in January.

STICKNEY WRP

Treatment Plant and Biosolids Process Train Description

The Stickney WRP, located in Stickney, Illinois, has a design capacity of 1,200 mgd. Wastewater reclamation processes include primary (Imhoff and primary settling) and secondary (activated sludge process) treatment. All solids produced at this WRP are anaerobically digested. Stickney WRP biosolids are then:

- a. Placed into lagoons for dewatering, aging, and stabilization, and then transported to paved cells and air-dried prior to:
 1. Application to land as EQ biosolids under the District's Controlled Solids Distribution Permit.
 2. Use at local municipal solid waste landfills as final landfill cover.
 3. Disposal in local municipal solid waste landfills.
- b. Dewatered by centrifuging to approximately 25 percent solids content, and then applied to land by a private contractor as a Class B cake.
- c. Dewatered by centrifuging to approximately 25 percent solids content, transported to paved cells, and air-dried prior to use as daily landfill cover.
- d. Dewatered by centrifuging to approximately 25 percent solids content, placed into lagoons for aging and stabilization, and transported to paved cells and air-dried prior to:
 1. Application to land as EQ biosolids under the District's Controlled Solids Distribution Permit.
 2. Use at local municipal solid waste landfills as final landfill cover.
 3. Disposal in local municipal solid waste landfills.

In 2007, the total biosolids production at the Stickney WRP was 119,821 dry tons (Table 1). This total includes biosolids generated from processing of sludge originating at the Stickney WRP as well as the sludge that was imported from the North Side and Lemont WRPs for further processing. The quantity of biosolids that were used and disposed of (90,070 dry tons) was less than the total 2007 production for the Stickney WRP due to a net storage of biosolids in lagoons and on drying cells.

Summary of Use and Disposal at Landfills

In 2007, the Stickney WRP sent 31,874 dry tons of biosolids to landfills. Of this amount, 14,378 dry tons were used as daily cover, 9,987 dry tons were used as final cover, and 7,509 dry tons were co-disposed with municipal solid waste. These practices are exempt from the Part 503 Regulations and require no further reporting.

Land Application of Centrifuge Cake Biosolids

In 2007, the Stickney WRP land applied 56,603 dry tons of centrifuge cake biosolids to farmland under IEPA Permit No. 2004-SC-0701 through contracts with Synagro Midwest, Inc. In accordance with Table 1 of Section 503.16, the frequency of monitoring for this biosolids product is 12 times per year.

All Stickney WRP centrifuge cake biosolids that were land applied in 2007 met the pollutant concentration limits in Table 3 of Section 503.13 (Table 13), the Class B pathogen anaerobic digester time and temperature requirements of Section 503.32b3 (Table 14), and the vector attraction reduction requirements of Section 503.33b10. Table 13 also contains the biosolids nitrogen concentration data that were used by the land applier to compute the agronomic loading rates at the farmland sites.

Land Application of Aged, Air-Dried Biosolids

In 2007, 275 dry tons of air-dried EQ biosolids from the Stickney WRP were land applied at Land of Lincoln Tree Nursery Inc., Oregon, Illinois, through the District's Controlled Solids Distribution Program under IEPA Permit No. 2005-SC-3793. In accordance with Table 1 of Section 503.16, the frequency of monitoring for this biosolids product is once per year.

These air-dried biosolids at the Stickney WRP were not generated by the PFRP equivalent processing train. Therefore, the biosolids were tested for Class A compliance in accordance with Section 503.32a5.

All Stickney EQ biosolids that were land applied in 2006 met the pollutant concentration limits in Table 3 of Section 503.13 (Table 15), the Class A pathogen limits of Section 503.32a5 (Table 16), and the vector attraction reduction requirements of Section 503.33b1 (Table 15) or Section 503.33b2 (Table 12). Management practices complied with Section 503.14 as previously described in a letter to Mr. Michael J. Mikulka dated January 28, 1994 (Appendix I).

In 2007, 765 dry tons of air-dried Class B biosolids from the Stickney WRP were land applied at Land of Lincoln Tree Nursery Inc., Oregon, Illinois, through the District's Controlled Solids Distribution Program under IEPA Permit No. 2005-SC-3793. In accordance with Table 1 of Section 503.16, the frequency of monitoring for this biosolids product is four times per year.

TABLE 13: NITROGEN AND METALS CONCENTRATIONS IN CENTRIFUGE CAKE BIOSOLIDS FROM THE STICKNEY WATER RECLAMATION PLANT APPLIED TO FARMLAND IN 2007

Sample Date	TKN	NH ₃ -N	As	Cd	Cu	Hg	Mo	Ni	Pb	Se	Zn
----- mg/dry kg -----											
01/08/07	41,952	6,194	<5	3	337	1.22	12	44	121	<4	785
01/31/07	30,188	6,313	<5	5	449	1.70	21	69	161	<4	965
02/06/07	39,281	8,712	<5	3	387	0.75	13	46	122	<4	821
02/07/07	37,900	6,971	<5	4	382	0.75	13	46	113	<4	815
03/05/07	58,169	6,609	<5	4	345	0.37	13	44	99	<4	735
03/13/07	50,877	8,459	<5	4	370	0.94	14	48	127	<4	791
04/09/07	44,687	6,252	<5	4	364	1.01	12	43	124	<4	787
04/19/07	53,621	10,434	<5	4	364	0.49	13	54	107	7	737
04/23/07	47,859	8,298	<5	4	374	0.87	12	50	111	<4	756
04/24/07	26,445	6,255	<5	4	449	1.61	18	57	142	<4	887
05/3-5/07	38,980	8,309	<5	4	388	0.30	15	53	141	5	835
05/07/07	41,779	5,273	<5	3	346	1.22	11	40	114	<4	764
05/07-12/07	38,227	8,866	<5	4	355	0.74	14	50	120	5	789
05/21/07	30,177	4,726	<5	4	425	0.98	19	55	138	<4	861
06/04/07	42,397	9,657	<5	4	410	1.03	16	47	139	4	858
06/04/07	35,139	5,718	<5	4	491	1.03	25	55	136	8	958
06/04/07	45,372	4,699	<5	3	379	0.79	15	38	118	<4	800
07/02-03/07	39,154	8,582	<5	4	384	0.62	14	47	134	<4	824
07/07/07	27,192	4,829	<5	4	436	0.82	19	54	135	<4	831
07/09/07	36,229	4,099	<5	3	396	0.73	14	39	130	<4	888
07/09-11/07	24,796	4,708	<5	4	447	0.81	19	55	148	<4	864

TABLE 13 (Continued): NITROGEN AND METALS CONCENTRATIONS IN CENTRIFUGE CAKE BIOSOLIDS FROM THE STICKNEY WATER RECLAMATION PLANT APPLIED TO FARMLAND IN 2007

Sample Date	TKN	NH ₃ -N	As	Cd	Cu	Hg	Mo	Ni	Pb	Se	Zn
----- mg/dry kg -----											
7/12/07	30,280	3,433	<5	4	413	0.99	11	46	126	<4	920
07/12-14/07	20,372	3,856	<5	4	487	0.97	21	59	162	<4	924
07/16/07	36,175	7,157	<5	3	660	1.10	21	70	119	<4	879
07/21/07	38,435	8,054	<5	4	471	0.76	22	52	141	<4	911
07/23-26/07	30,907	7,424	<5	4	457	0.97	21	51	133	6	942
07/30/07	32,390	8,074	<5	4	452	0.78	19	51	134	5	865
07/31/07	44,453	13,033	<5	5	524	0.30	17	59	168	8	1,133
08/01-03/07	51,756	13,040	<5	4	382	0.70	14	48	127	<4	892
08/02/07	37,603	6,907	<5	3	384	0.63	12	46	115	4	823
08/09/07	36,847	4,460	<5	3	403	0.67	15	40	148	<4	935
08/11/07	49,815	15,001	<5	4	378	0.71	13	46	106	<4	819
08/13-17/07	43,543	10,560	<5	5	381	0.82	15	49	130	<4	908
08/17-18/07	32,131	6,827	10	4	449	0.63	13	53	137	<4	945
08/30-31/07	27,303	5,938	12	4	485	0.72	13	54	138	5	920
08/30-31/07	35,930	7,069	<5	3	412	0.90	16	44	152	<4	962
09/01/07	40,692	9,108	<5	3	393	1.18	15	43	148	<4	917
09/04/07	33,993	3,064	<5	4	416	0.55	13	44	158	4	929
09/04-06/07	36,553	8,309	<5	3	391	1.41	15	42	147	<4	900
09/04-06/07	21,093	6,074	13	5	482	0.78	15	58	150	<4	1,007
09/06/07	46,863	13,122	<5	4	391	1.09	16	47	127	<4	850
09/10/07	46,767	8,461	9	5	456	0.67	14	53	117	<4	890

TABLE 13 (Continued): NITROGEN AND METALS CONCENTRATIONS IN CENTRIFUGE CAKE BIOSOLIDS FROM THE STICKNEY WATER RECLAMATION PLANT APPLIED TO FARMLAND IN 2007

Sample Date	TKN	NH ₃ -N	As	Cd	Cu	Hg	Mo	Ni	Pb	Se	Zn
----- mg/dry kg -----											
09/12/07	34,121	6,037	<5	4	391	0.59	15	43	153	<4	946
09/12/07	45,802	7,829	9	7	446	0.70	14	52	120	4	876
09/12-15/07	47,239	11,798	<5	4	405	1.27	15	48	126	<4	890
09/13-14/07	42,879	7,727	8	5	468	1.06	14	53	119	<4	920
09/15/07	39,601	7,989	9	6	458	0.85	14	54	115	<4	877
09/17/07	41,099	12,030	12	6	470	0.78	14	54	117	5	901
09/17-22/07	51,272	14,550	<5	4	431	0.96	14	60	120	<4	881
09/18-20/07	58,197	11,173	13	5	459	1.02	14	56	131	<4	918
09/21-22/07	42,892	10,541	12	5	441	1.15	14	55	124	<4	898
09/24-25/07	46,582	7,756	11	4	274	0.97	12	34	93	5	721
09/24-25/07	52,880	15,504	<5	4	390	1.10	14	50	120	4	837
10/01/07	41,685	3,524	<5	3	393	1.14	15	41	145	<4	888
10/05/07	42,348	9,758	<5	4	393	0.91	14	48	107	<4	815
10/06-08/07	50,073	10,124	<5	4	384	1.41	14	51	126	<4	863
10/09-13/07	50,466	15,124	<5	4	371	0.98	14	51	120	<4	827
10/15/07	50,651	16,317	<5	4	384	0.84	14	52	124	<4	868
10/22-25/07	45,955	13,631	<5	4	376	4.15	14	48	126	5	857
10/25/07	31,439	6,671	<5	4	398	0.89	12	42	149	<4	931
10/26/07	49,069	14,954	<5	4	412	0.78	14	52	120	<4	893
10/30-31/07	50,031	15,160	<5	5	411	0.74	16	49	118	4	890

TABLE 13 (Continued): NITROGEN AND METALS CONCENTRATIONS IN CENTRIFUGE CAKE BIOSOLIDS FROM THE STICKNEY WATER RECLAMATION PLANT APPLIED TO FARMLAND IN 2007

Sample Date	TKN	NH ₃ -N	As	Cd	Cu	Hg	Mo	Ni	Pb	Se	Zn
----- mg/dry kg -----											
11/01-03/07	50,572	11,660	<5	4	418	0.97	15	51	148	4	949
11/02-07/07	35,212	7,667	10	4	460	0.89	13	52	122	4	885
11/05-09/07	47,891	9,156	<5	4	403	0.87	14	49	124	4	897
11/06/07	48,298	5,282	7	3	383	1.05	15	40	121	<4	803
11/09-10/07	35,027	6,717	<5	4	392	1.20	14	43	150	<4	930
11/15/07	38,126	7,522	<5	4	389	1.11	14	42	151	<4	921
12/04/07	49,353	5,975	<5	3	379	0.78	15	37	102	4	759
Minimum	20,372	3,064	<5	3	274	0.30	11	34	93	<4	721
Mean*	40,914	8,480	6	4	413	0.95	15	49	130	4	873
Maximum	58,197	16,317	13	7	660	4.15	25	70	168	8	1,133
503 Limit	NL	NL	41	39	1,500	17	75	420	300	100	2,800

*In calculating the mean, values less than the detection limit were considered as the detection limit.

NL = No limit.

TABLE 14: DIGESTER TEMPERATURES AND DETENTION TIMES FOR CENTRIFUGE CAKE BIOSOLIDS GENERATED AT THE STICKNEY WATER RECLAMATION PLANT APPLIED TO FARMLAND IN 2007

Month	Average Temperature	Average Detention Time	Meets Part 503 Class B Requirements	Minimum Detention Time Required by 503.32b3*
	---- °F ----	--- days ---		--- days ---
January	97	23.3	yes	15.0
February	97	24.4	yes	15.0
March	96	18.7	yes	15.0
April	97	22.8	yes	15.0
May	98	21.5	yes	15.0
June	98	20.2	yes	15.0
July	98	25.4	yes	15.0
August	97	29.2	yes	15.0
September	98	27.7	yes	15.0
October	97	27.3	yes	15.0
November	97	26.4	yes	15.0
December	97	24.5	yes	15.0

*For anaerobic digestion at average temperature achieved.

TABLE 15: NITROGEN CONCENTRATIONS, VOLATILE SOLIDS REDUCTION, AND METALS CONCENTRATIONS IN AIR-DRIED BIOSOLIDS FROM THE STICKNEY WATER RECLAMATION PLANT APPLIED TO LAND IN 2007

Sample Date	TKN	NH ₃ -N	TVS*	TVS* Reduction	As	Cd	Cu	Hg	Mo	Ni	Pb	Se	Zn
	---- mg/dry kg ----		----- % -----		----- mg/dry kg -----								
10/10-11/07	10,566	140	31.7	66.9	<5	5	391	0.89	13	48	131	<4	868
10/24/07	17,039	603	36.1	59.7	<5	5	395	0.99	15	50	139	4	905
10/25/07	17,140	2,772	36.8	58.4	<5	5	433	1.02	15	54	133	<4	951
11/07-08/07	22,055	3,957	35.9	69.5	<5	6	432	0.85	15	53	139	<4	965
Minimum	10,566	140	31.7	58.4	<5	5	391	0.89	13	48	131	<4	868
Mean**	16,700	1,868	35.1	63.6	5	5	413	0.85	14	51	136	4	922
Maximum	22,055	3,957	36.8	69.5	<5	6	433	0.94	15	54	139	4	965
503 Limit	NL	NL	NL	38	41	39	1,500	17	75	420	300	100	2,800

*TVS = Total Volatile Solids.

**In calculating the mean, values less than the detection limit were considered as the detection limit.

NL = No limit.

TABLE 16: DATA FOR MONITORING PART 503 CLASS A PATHOGEN COMPLIANCE
AT THE STICKNEY WATER RECLAMATION PLANT IN 2007

Sample Date	Lagoon Source	Total Solids	Helminth Ova	Enteric Virus	Fecal Coliform
		----%----	---MPN ¹ /g---	---PFU ² /4g---	---No./g---
06/05/2007	27	22.2	0.2400	<0.800	--
07/10/2007	27	75.4	--	--	130
07/10/2007	27	28.8	<0.0800	<0.800	
08/07/2007	27	69.1	--	--	5

¹MPN = Most Probable Number.

²PFU = Plaque-forming Unit.

These air-dried biosolids that were land applied met the pollutant concentration limits in Table 3 of Section 503.13 (Table 15), the Class B pathogen anaerobic digester time and temperature requirements of limits of Section 503.32b3 (Table 14), and the vector attraction reduction requirements of Section 503.33b1. (Table 15). Management practices complied with Section 503.14 as previously described in a letter to Mr. Michael J. Mikulka dated January 28, 1994 (Appendix I)

Centrifuge Cake Biosolids to Pelletizing Facility

In 2007, the Stickney WRP sent 553 dry tons of centrifuge cake biosolids to the pelletizing facility owned and operated by Metropolitan Biosolids Management, LLC, Stickney, Illinois under Contract No. 98-RFP-10. Metropolitan Biosolids Management is responsible for final utilization of these biosolids.

DISTRICT BIOSOLIDS DISTRIBUTED TO LANDFILLS UNDER 40 CFR PARTS 258 AND 261

Biosolids from two of the District's WRPs (Stickney and Calumet) were sent to landfills in 2007 for co-disposal with municipal solid waste, use as daily cover, and use as final cover. Biosolids going to these landfills are either processed to meet the requirements of AS 95-4, AS 98-5, and AS 03-02 (Adjusted Standards) approved by the Illinois Pollution Control Board for biosolids used as a final vegetative cover, or they are centrifuged and air-dried to various end points, and analyzed as specified in 40 CFR Part 261 to establish the nonhazardous nature of this material for biosolids used as daily cover and co-disposed. Analytical results, including TCLP constituents, PCB, cyanide, sulfide, and paint filter test, are submitted to the landfill company to satisfy the requirements of their IEPA permit. District biosolids have always met the requirements of 40 CFR Parts 258 and 261, and the Illinois nonhazardous waste landfill regulations (Title 35, Subtitle G, Chapter I, Subchapter h, Part 810).

Stickney WRP

In 2007, a total of 31,874 dry tons of biosolids from the Stickney WRP were co-disposed, used as daily cover with municipal solid waste, or used as a final vegetative cover at nonhazardous waste landfills in 2007.

A total of 7,509 dry tons were co-disposed at Land and Lakes River Bend Prairie Landfill, Dolton, Illinois.

Biosolids used as landfill daily cover were 3,512 dry tons at Onyx Landfill, Rockford, Illinois, and 10,866 dry tons at Veola ES Orchard Hills Landfill, Davis Junction, Illinois.

Biosolids used as landfill final cover were 9,405 dry tons at Heartland Landfill, Forest View, Illinois, and 582 dry tons at Paxton 1 Landfill, Chicago, Illinois.

Calumet WRP

In 2007, a total of 12,997 dry tons of biosolids from the Calumet WRP were co-disposed, or used as final cover. A total of 1,908 dry tons of biosolids from the Calumet WRP were co-disposed with municipal solid waste at Land and Lakes River Bend Prairie Landfill, Dolton, Illinois.

A total of 11,089 dry tons were used as final cover at CDT Landfill, Rockdale, Illinois.

APPENDIX I

BIOSOLIDS MANAGEMENT PROGRAMS OF THE METROPOLITAN WATER
RECLAMATION DISTRICT OF GREATER CHICAGO UNDER
40 CFR PART 503

APPENDIX II

REDUCTION IN FREQUENCY OF MONITORING FOR PATHOGENS
IN BIOSOLIDS

APPENDIX III

DESIGNATION OF SITE-SPECIFIC EQUIVALENCY TO PFRP FOR DISTRICT
BIOSOLIDS PROCESSING TRAINS