

*Protecting Our Water Environment*



*Metropolitan Water Reclamation District of Greater Chicago*

***RESEARCH AND DEVELOPMENT  
DEPARTMENT***

*REPORT NO. 03-4*

*ANNUAL BIOSOLIDS MANAGEMENT REPORT*

*FOR 2002*

*February 2003*

# Protecting Our Water Environment

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## Metropolitan Water Reclamation District of Greater Chicago

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Richard Lanyon  
Director of Research & Development

312-751-5190

February 14, 2003

Mr. Thomas L. Bramscher  
Chief of Enforcement Section I  
Water Enforcement and Compliance  
Assurance Branch  
USEPA - Region V  
77 West Jackson Blvd.  
Chicago, IL 60604-3590

Dear Mr. Bramscher:

Subject: 2002 Reporting Requirements Under the 40  
CFR Part 503 Regulations

The Metropolitan Water Reclamation District of Greater Chicago (District) herein submits the 2002 records required under the 40 CFR Part 503 Regulations at Section 503.18, titled "Annual Biosolids Management Report for 2002."

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 503.32a6, 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

Mr. Thomas L. Bramscher

2

February 14, 2003

Subject: 2002 Reporting Requirements Under the 40  
CFR Part 503 Regulations

information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

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

Very truly yours,

Signature on file

Richard Lanyon  
Director  
Research and Development

RL:TG:nu

Attachment

cc w/att.: Aistars (USEPA)  
Keller (IEPA)  
Kluge (IEPA)  
Rogers (IEPA)  
Sulski (IEPA)  
Farnan  
O'Connor  
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Zurad  
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Pietz  
Granato  
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ANNUAL BIOSOLIDS MANAGEMENT REPORT  
FOR 2002

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February 2003



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Special thanks are given to Ms. Nancy Urlacher 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.

## FOREWARD

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 2002.

## INTRODUCTION

The Metropolitan Water Reclamation District of Greater Chicago (District) herein reports the 2002 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 Nos. 1999-SC-4219, 1999-SC-4219-1, 1999-SC-4219-2, 1999-SC-4219-3, and 1999-SC-4219-4).
2. Hanover Park Fischer Farm Biosolids Application to Land Site (IEPA Permit Nos. 1997-SC-3840 and 1997-SC-3840-1).
3. Controlled Solids Distribution Program (Biosolids Application to Land in the Chicago Area under IEPA Permit No. 2000-SC-0872).
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. 1999-SC-3932).

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 in 2002. 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 2002 production and uses 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 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 aged for distribution at a later time.



METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 1

2002 PRODUCTION AND USES OF SLUDGE AND BIOSOLIDS

Production And Use	Water Reclamation Plants						
	Stickney*	Calumet*	North Side	Egan	Hanover Park*	Kirie	Lemont
	----- Dry Tons -----						
Production**	132,179	26,580	44,540	7,830	829	6,918	291
Land Applied	17,809	35,862	0	3,334	1,331	0	0
Surface Disposal	0	0	0	0	0	0	0
Landfilled	102,171***	0	0	1,216***	0	0	0
Incinerated	0	0	0	0	0	0	0
To Other WRPs for Further Processing	0	0	44,540	3,274	0	6,918	291
Other Uses	0	0	0	6****	0	0	0

\*Differences between biosolids production and total use or disposal in 2002 were due to a net placement into (Stickney) or net withdrawal out of (Calumet and Hanover Park) storage lagoons.

\*\*Stickney, 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.

\*\*\*Co-disposed, used as daily cover with municipal solid waste, or as final vegetative cover.

\*\*\*\*Used to seed digesters at Interstate Brands.

## 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 2002, the Lemont WRP produced 291 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 primary (primary settling), secondary (activated sludge process), and tertiary (sand filtration) treatment. In 2002, the Kirie WRP produced 6,918 dry tons of solids (Table 1) which were sent via force main to the John E. Egan WRP for further treatment.

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 2002, the North Side WRP produced 44,540 dry tons of solids (Table 1) that 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

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 pipeline to the North Side WRP. Centrifuge centrate containing biosolids are also sent via pipeline to the North Side WRP.

In 2002, the total biosolids production at the John E. Egan WRP was 7,830 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 2002, 1,216 dry tons of biosolids were sent to landfills for co-disposal with municipal solid waste, a practice which is exempt from the Part 503 Regulations.

Biosolids Conveyed to Other WRPs for Further Processing

In 2002, 3,274 dry tons of biosolids were pumped to North Side WRP. Of this amount, 1,726 dry tons were conveyed to the North Side WRP in centrifuge centrate and 1,548 dry tons were conveyed as liquid digested biosolids.

Land Application of Centrifuge Cake Biosolids

In 2002, the John E. Egan WRP land applied 3,334 dry tons of centrifuge cake biosolids to farmland under IEPA Permit No. 1999-SC-3932 through a contract with Synagro Midwest, Inc. 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 2002 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 2002.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 2

NITROGEN AND METALS CONCENTRATIONS IN CENTRIFUGE CAKE BIOSOLIDS  
FROM THE JOHN E. EGAN WATER RECLAMATION PLANT APPLIED TO FARMLAND IN 2002

Month	TKN	NH <sub>3</sub> -N	As	Cd	Cr	Cu	Hg	Mo	Ni	Pb	Se	Zn
----- mg/dry Kg -----												
01/05/02	64,582	12,055	NA	6	144	868	0.41	17	69	53	NA	856
01/12/02	33,131	5,924	3	6	134	789	0.39	16	64	50	1	800
02/23/02	11,342	1,360	1	8	144	940	NA	19	67	48	4	859
03/02/02	53,244	6,251	1	9	145	898	NA	19	64	50	4	859
03/09/02	51,099	6,626	NA	10	151	853	0.47	19	69	64	NA	902
03/16/02	50,899	6,045	NA	10	149	880	NA	20	69	62	NA	904
03/23/02	32,989	6,512	NA	9	148	805	NA	18	64	53	NA	854
03/30/02	44,769	8,082	NA	9	147	776	NA	18	64	55	NA	851
04/06/02	43,172	7,863	3	8	138	810	0.60	18	62	67	1	804
04/13/02	52,058	4,561	NA	8	135	800	NA	17	59	55	NA	800
04/20/02	55,516	5,348	NA	8	141	824	NA	18	60	52	NA	842
04/27/02	50,501	3,532	NA	6	149	841	NA	19	61	56	NA	918
05/04/02	56,798	7,820	NA	5	145	855	NA	19	57	57	NA	917
05/11/02	58,932	7,406	2	5	145	861	NA	19	55	55	1	921
05/18/02	49,904	6,295	NA	5	148	816	0.43	19	58	59	NA	882
05/25/02	57,706	6,014	NA	5	151	827	NA	18	59	63	NA	864
06/01/02	53,572	5,537	NA	5	160	803	NA	18	58	107	NA	864
06/08/02	57,589	5,567	3	5	164	790	0.40	18	60	62	3	853
06/15/02	36,427	5,082	NA	4	161	797	NA	19	61	65	NA	860

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 2 (Continued)

NITROGEN AND METALS CONCENTRATIONS IN CENTRIFUGE CAKE BIOSOLIDS  
FROM THE JOHN E. EGAN WATER RECLAMATION PLANT APPLIED TO FARMLAND IN 2002

Month	TKN	NH <sub>3</sub> -N	As	Cd	Cr	Cu	Hg	Mo	Ni	Pb	Se	Zn
----- mg/dry Kg -----												
06/22/02	57,681	4,818	NA	5	157	843	NA	19	63	59	NA	877
06/29/02	51,656	5,223	NA	5	160	888	NA	20	63	67	NA	926
07/06/02	42,222	3,136	2	5	159	844	1.04	20	59	67	3	907
07/13/02	41,860	3,589	NA	5	159	899	NA	20	59	81	NA	943
07/20/02	51,367	5,348	NA	5	155	869	NA	22	55	65	NA	929
07/27/02	48,526	4,626	NA	5	157	887	NA	27	58	69	NA	996
08/03/02	22,974	5,365	NA	5	156	902	NA	29	56	67	NA	1,035
08/10/02	40,442	5,255	2	5	146	837	0.47	29	54	68	3	974
08/17/02	54,826	4,580	NA	5	149	851	NA	29	50	62	NA	1,012
08/24/02	46,279	4,146	NA	5	153	932	NA	30	53	63	NA	1,070
08/31/02	44,749	7,317	NA	6	157	918	NA	31	58	67	NA	1,075
09/07/02	49,931	3,292	3	6	154	906	0.26	31	57	66	2	1,057
09/14/02	44,862	3,104	NA	6	148	857	NA	28	52	63	NA	1,070
09/21/02	41,194	7,205	NA	7	163	898	NA	28	60	71	NA	1,154
09/28/02	41,072	5,815	NA	6	160	793	0.81	26	58	63	NA	1,094
10/05/02	43,829	4,913	NA	7	162	838	1.83	27	57	71	NA	1,111
10/12/02	41,913	3,447	4	7	157	841	0.45	24	60	62	2	1,098
10/19/02	50,084	6,885	NA	7	157	915	NA	23	59	58	NA	1,079
10/26/02	48,753	4,812	NA	7	160	874	NA	23	64	62	NA	1,071



METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 2 (Continued)

NITROGEN AND METALS CONCENTRATIONS IN CENTRIFUGE CAKE BIOSOLIDS  
FROM THE JOHN E. EGAN WATER RECLAMATION PLANT APPLIED TO FARMLAND IN 2002

Month	TKN	NH <sub>3</sub> -N	As	Cd	Cr	Cu	Hg	Mo	Ni	Pb	Se	Zn
----- mg/dry Kg -----												
11/02/02	48,354	5,568	NA	7	164	910	NA	24	64	59	NA	1,116
11/09/02	51,087	5,064	3	6	167	923	1.00	25	65	55	1	1,122
11/16/02	51,521	7,694	NA	6	158	900	NA	24	61	56	NA	1,158
11/23/02	48,493	4,570	NA	6	165	901	NA	25	65	54	NA	1,129
Minimum	11,342	1,360	1	4	134	776	0	16	50	48	1	800
Mean*	47,093	5,563	3	6	153	858	1	22	60	62	2	962
Maximum	64,582	12,055	4	10	167	940	2	31	69	107	4	1,158
503 Limit	NL	NL	41	39	41	1,500	17.0	75	420	300	100	2,800

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

NA = No analysis.

NL = No limit; not applicable.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 3

FECAL COLIFORM CONTENT OF BIOSOLIDS FROM DIGESTER D OF THE  
JOHN E. EGAN WATER RECLAMATION PLANT APPLIED TO FARMLAND  
IN 2002

Sampling Period	No. of Samples Collected	Fecal Coliform Content No./g dry biosolids	
		Geometric Mean	Maximum
04/01 - 05/15	11	26,815	181,300
05/16 - 06/30	13	39,316	129,100
07/01 - 08/15	14	44,890	149,500
08/16 - 09/30	11	86,874	722,800
10/01 - 11/15	13	57,261	158,900
11/16 - 12/31	12	58,008	147,700

## 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. Lagooned, digested biosolids 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.

### Land Application of Liquid Biosolids

In 2002, the total biosolids production at this WRP was 829 dry tons (Table 1). Land application of liquid biosolids at the Hanover Park Fischer Farm site in 2002 utilized 1,331 dry tons. The quantity of land applied biosolids surpassed the quantity of biosolids produced in 2002 due to land application of additional biosolids that were produced in previous years and stored in a lagoon. In accordance with Table 1 of Section 503.16, the frequency of monitoring for this biosolids product is four times per year.

All Hanover Park WRP lagooned biosolids that were land applied in 2002 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 503.32b3 (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).

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 4

NITROGEN AND METALS CONCENTRATIONS IN BIOSOLIDS APPLIED TO THE HANOVER PARK  
FISCHER FARM IN 2002

Composite Sample Date	TKN	NH <sub>3</sub> -N	As	Cd	Cu	Hg	Mo	Ni	Pb	Se	Zn
----- mg/dry kg -----											
02/02/02*	322,667	455,417	10	<0.5	111	0.23	2	27	10	<4	143
04/06/02	61,741	23,724	4	4	1,060	1.04	15	44	78	1	736
04/13/02	99,489	35,005	3	4	942	0.94	15	46	50	1	756
04/20/02	77,520	24,592	3	8	783	1.36	17	59	53	1	827
07/13/02*	171,545	121,082	5	<0.5	19	0.15	<2	16	4	<5	35
07/20/02*	285,583	164,083	5	<0.5	34	<0.03	4	16	4	<4	55
08/03/02*	846,154	148,977	3	<0.5	34	0.08	4	18	4	<4	46
08/10/02*	180,813	108,956	<3	<0.4	24	0.06	3	15	4	<3	34
08/17/02*	199,294	112,818	2	<0.4	5	<0.02	2	2	2	<3	22
08/24/02*	332,000	201,083	4	<0.5	40	0.09	4	19	3	<4	61
08/31/02*	278,083	242,933	3	<0.5	41	0.03	5	14	5	<4	62
09/07/02*	200,857	92,807	4	<0.4	30	0.07	5	15	3	<4	42
09/14/02*	198,615	101,915	<3	<0.5	21	0.28	3	18	5	<4	27
10/05/03	63,725	12,457	4	5	1,103	0.54	14	46	65	3	866

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 4 (Continued)

NITROGEN AND METALS CONCENTRATIONS IN BIOSOLIDS APPLIED TO THE HANOVER PARK  
FISCHER FARM IN 2002

Composite Sample Date	TKN	NH <sub>3</sub> -N	As	Cd	Cu	Hg	Mo	Ni	Pb	Se	Zn
----- mg/dry kg -----											
10/12/03	65,882	15,693	5	4	1,010	1.94	15	46	52	2	798
11/02/03	85,543	17,805	3	3	1,023	1.92	15	40	50	2	863
12/07/03	75,980	22,200	10	4	957	2.94	13	39	51	4	815
Minimum	61,741	12,457	2	3	5	0.03	2	2	2	1	22
Mean**	208,558	111,856	4	2	426	0.69	8	28	26	3	364
Maximum	846,154	455,417	10	8	1,103	2.94	17	59	78	4	866
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; not applicable.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 5

DIGESTER TEMPERATURES AND DETENTION TIMES FOR BIOSOLIDS  
FROM THE HANOVER PARK WATER RECLAMATION PLANT  
APPLIED AT THE FISCHER FARM IN 2002

Month	Average Temperature	Average Detention Time	Meets Part 503 Class B Requirements	Minimum Required Detention Time*
	°F	days		days
January	95	25.1	yes	15.0
February	95	46.9	yes	15.0
March	95	75.2	yes	15.0
April	95	40.5	yes	15.0
May	95	35.5	yes	15.0
June	95	29.2	yes	15.0
July	95	23.1	yes	15.0
August	96	30.3	yes	15.0
September	95	35.0	yes	15.0
October	95	25.2	yes	15.0
November	94	34.6	yes	16.0
December	95	26.8	yes	15.0

\*Minimum detention time required to meet Part 503 Class B operational requirements at average temperature achieved.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 6

VOLATILE SOLIDS REDUCTION FOR BIOSOLIDS  
 FROM THE HANOVER PARK WATER RECLAMATION PLANT  
 APPLIED AT THE FISCHER FARM IN 2002

Date	Digester Feed	Digester Draw	Lagoon Biosolids	Volatile Solids Reduction*
	---- % Total Volatile Solids ---			----- % -----
January	84.26	75.30	66.88	67.08
April	84.48	74.10	69.03	59.16
July	81.78	73.52	57.67	68.40
August	81.27	73.82	59.53	65.37
September	80.72	72.87	64.09	55.81
October	82.33	74.17	67.76	53.18
November	84.80	76.33	69.28	55.96
December	86.05	76.48	64.09	70.20

\*Volatile solids reduction computed using digester feed and lagoon biosolids.



## 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. Application to land as EQ biosolids at the Fulton County, Illinois dedicated land application site.
  4. Application to farmland as EQ biosolids by a private contractor.

5. 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.
    3. Application to land as EQ biosolids at the Fulton County, Illinois, dedicated land application site.
    4. Application to farmland as EQ biosolids by a private contractor.

5. Disposal in local municipal solid waste landfills.

In 2002, the total biosolids production at the Calumet WRP was 26,580 dry tons (Table 1). The quantity of biosolids that were used and disposed of in 2002 exceeded the total production for the Calumet WRP due to processing of biosolids produced in previous years that were stored in lagoons.

Summary of Use and Disposal at Landfills

The Calumet WRP did not send any biosolids to landfills in 2002.

Land Application of Centrifuge Cake Biosolids

In 2002, the Calumet WRP land applied 10,557 dry tons of centrifuge cake biosolids to farmland under IEPA Permit No. 1999-SC-3932 through a contract with Synagro Midwest, Inc. In accordance with Table 1 of Section 503.16, the frequency of monitoring for this biosolids product is six times per year.

All Calumet WRP centrifuge cake biosolids that were land applied in 2002 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

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 7

NITROGEN AND METALS CONCENTRATIONS IN CENTRIFUGE CAKE BIOSOLIDS  
FROM THE CALUMET WATER RECLAMATION PLANT APPLIED TO FARMLAND IN 2002

Sample Date	TKN	NH <sub>3</sub> -N	As	Cd	Cu	Hg	Mo	Ni	Pb	Se	Zn
----- mg/dry kg -----											
01/01/02	47,030	4,980	11	20	427	0.55	18	47	145	2	1,370
01/08/02	43,763	6,011	11	17	413	NA	16	44	138	3	1,239
01/15/02	52,077	5,789	10	18	432	NA	17	42	137	5	1,286
01/22/02	NA	NA	10	17	440	NA	17	41	135	2	1,245
01/29/02	NA	NA	9	12	394	NA	14	38	122	<2	1,022
02/05/02	49,062	7,297	10	13	408	0.43	16	50	111	<2	1,136
02/12/02	52,189	4,882	9	12	414	NA	15	41	100	<2	1,099
02/19/02	49,334	5,831	9	11	404	NA	16	42	98	<2	1,063
02/26/02	48,857	6,974	8	10	398	NA	14	36	87	<2	998
03/05/02	46,048	5,641	9	10	393	0.27	14	35	86	<2	962
03/12/02	42,120	5,586	8	10	406	NA	15	35	89	<2	988
03/19/02	38,233	6,209	9	11	386	NA	15	50	95	<2	955
03/26/02	50,472	6,338	9	12	390	NA	15	42	99	<2	978
04/02/02	42,726	5,409	9	13	381	0.24	13	39	100	<2	990
04/09/02	46,451	6,544	10	15	389	NA	14	37	104	<2	1,002
04/16/02	47,929	6,584	10	15	381	NA	14	42	110	<2	1,026
04/23/02	45,764	7,353	10	15	396	NA	14	52	114	<2	1,076
04/30/02	46,797	6,289	10	14	386	NA	14	41	120	<2	1,111

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 7 (Continued)

NITROGEN AND METALS CONCENTRATIONS IN CENTRIFUGE CAKE BIOSOLIDS  
FROM THE CALUMET WATER RECLAMATION PLANT APPLIED TO FARMLAND IN 2002

Sample Date	TKN	NH <sub>3</sub> -N	As	Cd	Cu	Hg	Mo	Ni	Pb	Se	Zn
	----- mg/dry kg -----										
05/07/02	49,727	6,931	10	13	364	0.10	13	39	119	<2	1,069
05/14/02	45,522	5,709	11	13	413	NA	14	40	127	<2	1,118
05/21/02	42,144	5,779	10	10	344	NA	12	39	114	<2	972
05/28/02	37,169	4,169	10	11	358	NA	15	49	127	<2	978
06/04/02	41,374	5,946	11	11	399	0.23	14	48	129	<2	1,131
06/11/02	39,661	5,829	12	11	406	NA	15	49	126	<2	1,098
06/18/02	38,045	5,695	10	10	376	NA	14	49	131	<2	1,087
06/27/02	29,448	3,532	9	8	326	NA	12	57	126	<2	974
07/02/02	41,656	4,786	10	9	351	0.21	14	53	119	<2	1,048
07/09/02	31,253	4,918	11	10	412	NA	15	45	123	<2	1,248
07/16/02	39,195	5,344	10	10	417	NA	17	42	125	<2	1,241
07/15-20/02	37,941	6,094	5	14	413	0.24	16	45	130	16	1,482
07/23/02	44,991	5,308	10	10	405	NA	17	38	119	<2	1,219
07/30/02	39,075	4,333	9	10	389	NA	16	34	113	<2	1,165
08/06/02	38,383	3,732	10	10	438	0.20	19	37	117	<2	1,271
08/13/02	48,251	4,492	10	11	478	NA	21	37	125	<2	1,365
08/14-16/02	35,323	5,849	7	11	458	0.38	19	41	127	5	1,308
08/20/02	38,547	4,439	5	10	408	NA	20	39	120	<2	1,137

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 7 (Continued)

NITROGEN AND METALS CONCENTRATIONS IN CENTRIFUGE CAKE BIOSOLIDS  
FROM THE CALUMET WATER RECLAMATION PLANT APPLIED TO FARMLAND IN 2002

Sample Date	TKN	NH <sub>3</sub> -N	As	Cd	Cu	Hg	Mo	Ni	Pb	Se	Zn
----- mg/dry kg -----											
08/26/02	27,288	5,341	6	12	472	0.11	22	38	133	5	1,300
08/27/02	29,513	2,892	3	10	392	NA	19	38	112	<2	1,033
09/03/02	44,818	3,028	7	12	446	0.40	21	35	113	<2	1,302
09/10/02	46,501	2,669	10	11	449	NA	22	33	114	<2	1,255
09/17/02	40,838	3,545	10	12	432	NA	21	34	117	<2	1,310
09/24/02	48,262	2,895	10	10	456	NA	21	38	127	<2	1,338
09/24/02	48,262	2,895	10	10	456	NA	21	38	127	<2	1,338
10/01/02	43,815	3,477	10	10	461	0.95	21	36	124	<2	1,325
10/08/02	46,475	3,319	10	10	451	NA	21	39	123	<2	1,327
10/15/02	51,043	3,264	11	9	461	NA	22	36	128	<2	1,352
10/17-18/02	39,052	4,044	5	9	468	0.78	20	35	135	8	1,346
10/21-23/02	36,771	2,718	<1	10	477	0.21	22	38	132	<2	1,394
10/22/02	43,700	4,234	10	8	436	NA	20	38	129	<2	1,277
10/29/02	41,585	2,995	11	8	464	NA	22	37	134	<2	1,293
11/05/02	56,270	3,306	11	8	464	0.66	22	38	130	<2	1,277
11/12/02	49,050	3,939	10	7	445	NA	20	34	116	<2	1,214
11/19/02	48,660	4,974	10	7	470	NA	22	36	121	<2	1,300
11/13-14/02	55,958	7,996	<1	7	478	0.67	22	35	132	<2	1,301

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 7 (Continued)

NITROGEN AND METALS CONCENTRATIONS IN CENTRIFUGE CAKE BIOSOLIDS  
FROM THE CALUMET WATER RECLAMATION PLANT APPLIED TO FARMLAND IN 2002

Sample Date	TKN	NH <sub>3</sub> -N	As	Cd	Cu	Hg	Mo	Ni	Pb	Se	Zn
	----- mg/dry kg -----										
11/21/02	41,221	4,672	7	6	484	1.30	22	36	120	6	1,308
11/26/02	47,078	3,793	6	7	472	1.35	22	36	134	6	1,297
11/26/02	49,210	4,077	8	6	483	NA	22	36	122	<2	1,305
12/03/02	52,449	3,613	7	6	480	0.28	22	35	117	<2	1,264
12/10/02	58,639	4,704	7	6	457	NA	22	33	109	<2	1,227
12/10-11/02	40,318	3,093	6	7	470	0.62	22	38	120	5	1,267
12/17/02	46,316	3,544	6	6	454	NA	22	34	104	<2	1,180
12/24/02	34,471	3,176	6	5	443	NA	22	31	100	<2	1,168
Minimum	27,288	2,669	3	5	326	0.10	12	31	86	2	955
Mean*	43,828	4,846	9	11	424	0.48	18	40	119	3	1,187
Maximum	58,639	7,996	12	20	484	1.35	22	57	145	16	1,482
503 Limit	NL	NL	41	39	1,500	17.0	75	420	300	100	2,800

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

NA = No analysis.

NL = No limit; not applicable.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 8

DIGESTER\* TEMPERATURES AND DETENTION TIMES FOR CENTRIFUGE CAKE BIOSOLIDS  
FROM THE CALUMET WATER RECLAMATION PLANT APPLIED TO FARMLAND IN 2002

Month	Average Temperature °F	Average Detention time days	Meets Part 503 Class B Requirements	Minimum Required Detention Time** days
January	96	26.2	yes	15.0
February	97	24.7	yes	15.0
March	96	25.1	yes	15.0
April	96	22.8	yes	15.0
May	96	31.3	yes	15.0
June	96	21.8	yes	15.0
July	97	23.9	yes	15.0
August	97	24.5	yes	15.0
September	97	23.5	yes	15.0
October	97	23.6	yes	15.0
November	97	23.0	yes	15.0
December	97	22.3	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.

\*\*Minimum detention time required to meet Part 503 Class B operational requirements at average temperature achieved.



biosolids nitrogen concentration data that were utilized by the land applier to compute the agronomic loading rates at the farmland sites.

#### Land Application of Aged, Air-Dried Biosolids

In 2002, the Calumet WRP land applied a total of 25,305 dry tons of air-dried EQ biosolids. Of this amount, 20,495 dry tons were trucked to the District's Fulton County, Illinois, site for land application under IEPA Permit Nos. 1999-SC-4219, 1999-SC-4219-1, 1999-SC-4219-2, 1999-SC-4219-3 and, 1999-SC-4219-4, and 4,810 dry tons were land applied under the Controlled Solids Distribution Program under IEPA Permit No. 2000-SC-0872 for maintenance of golf courses, landscaping, and construction of recreation fields. In accordance with Table 1 of Section 503.16, the frequency of monitoring for this biosolids product is 12 times per year. An exception to this frequency of monitoring was granted, effective March 1, 2000 by USEPA Region V, for compliance with Class A pathogen standards. The Calumet WRP biosolids that are land applied are required to be monitored only six times per year for compliance with Class A pathogen standards in Part 503 (Appendix II). Subsequent to this, 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). This 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 from August 1 through December 31, 2002.

All Calumet WRP EQ biosolids that were land applied in 2002 met the pollutant concentration limits in Table 3 of Section 503.13 (Table 9), the Class A pathogen limits of Section 503.32a6 and 503.32a8 (Table 10), and the vector attraction reduction requirements of Section 503.33b1 (Table 9). Management practices complied with Section 503.14 as previously described in a letter to Mr. Michael J. Mikulka dated January 28, 1994 (Appendix I).

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 9

NITROGEN CONCENTRATIONS, VOLATILE SOLIDS REDUCTION, AND METALS CONCENTRATIONS  
FOR AIR-DRIED BIOSOLIDS FROM THE CALUMET WATER RECLAMATION PLANT  
APPLIED TO LAND IN 2002

Sample Date	TKN	NH <sub>3</sub> -N	TVS*		As	Cd	Cu	Hg	Mo	Ni	Pb	Se	Zn
			TVS*	Reduction									
	-- mg/dry	kg	-- %	%					mg/dry	kg			
6/27-29	16,803	33	30.6	79.8	6	7	369	0.25	16	43	119	8	1,068
7/22-27	13,977	1,380	30.8	76.3	5	7	373	0.27	16	49	128	8	1,133
7/29-8/3	14,774	1,078	28.7	78.7	6	8	342	0.30	15	45	122	7	1,061
8/02	18,875	607	35.2	71.1	6	8	451	0.52	16	46	144	8	1,233
7/01-06	11,251	1,100	33.2	73.6	4	7	376	0.29	17	49	123	8	1,100
8/02	18,875	607	35.2	71.1	6	8	451	0.52	16	46	144	8	1,233
8/10	22,015	6,151	45.3	61.9	6	8	421	0.24	26	43	206	15	1,926
8/05	17,940	2,117	31.5	78.9	7	8	425	0.72	16	48	143	9	1,208
8/12	18,015	6,232	48.1	57.5	8	8	437	0.25	24	43	201	11	1,943
8/16	16,097	5,779	47.4	58.7	8	8	422	0.22	23	43	195	12	1,898
8/13-15	4,383	48	36.4	72.0	7	7	423	0.29	15	44	137	7	1,262
8/19-22	6,703	3,922	47.7	55.3	8	8	416	0.60	24	39	181	13	1,799
8/22-24	9,177	4,752	47.6	55.6	11	8	375	0.83	22	41	176	11	1,671
8/25-27	9,974	3,677	46.5	57.5	7	8	440	0.31	23	43	188	16	1,892
8/27-30	12,668	3,182	46.8	57.0	8	9	424	0.81	25	44	196	12	1,967

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 9 (Continued)

NITROGEN CONCENTRATIONS, VOLATILE SOLIDS REDUCTION, AND METALS CONCENTRATIONS  
FOR AIR-DRIED BIOSOLIDS FROM THE CALUMET WATER RECLAMATION PLANT  
APPLIED TO LAND IN 2002

Sample Date	TKN	NH <sub>3</sub> -N	TVS*		As	Cd	Cu	Hg	Mo	Ni	Pb	Se	Zn
			TVS*	Reduction									
	-- mg/dry	kg --	%	%	----- mg/dry kg -----								
8/27-30	9,399	3,587	44.9	60.0	6	8	424	0.11	22	43	183	12	1,844
9/05	8,358	2,774	43.8	61.8	7	10	440	0.20	25	47	198	13	1,972
9/10-12	19,154	6,081	41.8	64.9	6	9	453	0.22	22	44	194	17	1,909
9/19-20	27,548	3,034	41.6	65.2	6	8	418	0.19	23	44	181	11	1,778
9/19-20	16,154	2,784	42.2	66.4	5	8	427	0.21	24	46	192	12	1,886
9/25-26	15,464	3,339	42.0	60.2	4	8	430	0.85	23	40	190	13	1,829
9/24-26	15,837	2,931	40.7	62.4	5	8	448	1.01	23	42	190	12	1,840
9/30	22,001	4,283	41.1	61.7	7	8	421	1.79	22	43	190	14	1,765
10/01-03	21,785	2,331	45.6	54.1	8	8	433	0.39	22	44	181	18	1,843
10/01-02	19,588	2,923	41.7	60.8	8	8	436	0.56	23	45	190	14	1,827
5/22	8,010	15	43.8	64.2	6	7	555	0.24	24	68	178	12	1,697
6/03-08	16,095	20	40.7	62.4	5	8	501	0.58	20	55	158	10	1,441
6/22	17,896	2,184	46.0	53.4	4	7	594	NR	22	54	167	10	1,635
6/22	25,571	2,957	45.4	55.8	4	8	555	NR	20	54	150	10	1,478
6/13	16,057	122	42.2	61.2	4	8	536	0.41	20	57	142	11	1,390

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 9 (Continued)

NITROGEN CONCENTRATIONS, VOLATILE SOLIDS REDUCTION, AND METALS CONCENTRATIONS  
FOR AIR-DRIED BIOSOLIDS FROM THE CALUMET WATER RECLAMATION PLANT  
APPLIED TO LAND IN 2002

Sample Date	TKN	NH <sub>3</sub> -N	TVS*		As	Cd	Cu	Hg	Mo	Ni	Pb	Se	Zn
			TVS*	Reduction									
	-- mg/dry	kg	-- %	%	-----		mg/dry		kg		-----		
6/10-12	15,653	65	43.0	60.0	3	8	530	0.37	21	57	150	11	1,456
6/03-08	12,357	855	34.4	72.1	4	8	505	0.44	21	59	199	7	1,940
6/03-08	8,870	497	39.2	65.7	4	7	546	0.43	22	57	165	7	1,642
6/03-08	7,874	19	38.7	70.9	5	7	553	0.27	25	60	178	8	1,692
6/25-26	24,564	2,890	44.3	63.4	5	7	589	0.55	22	55	162	11	1,647
6/26	20,377	1,384	43.9	64.0	5	7	572	0.48	20	50	160	9	1,571
7/08-09	22,703	2,490	44.8	62.8	3	7	607	0.75	21	52	158	11	1,613
7/10-13	18,919	2,417	45.1	62.3	4	7	606	0.69	21	53	154	12	1,582
7/15-20	18,922	2,617	43.3	64.9	3	7	548	0.23	18	51	145	11	1,472
7/22	17,584	2,216	45.3	61.9	4	8	694	0.42	21	58	171	11	1,750
8/06-07	15,800	4,281	45.5	61.6	5	8	432	0.54	27	44	188	13	1,929
8/07-09	14,543	2,500	44.8	62.7	5	8	431	0.46	24	42	186	19	1,914
8/06-09	17,238	2,745	44.8	62.7	5	8	432	0.11	24	42	199	16	1,922
8/08	13,299	4,179	45.8	53.7	5	8	412	0.48	24	40	196	18	1,897
8/14	6,533	2,149	47.7	50.0	8	8	435	0.23	24	42	189	12	1,860

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 9 (Continued)

NITROGEN CONCENTRATIONS, VOLATILE SOLIDS REDUCTION, AND METALS CONCENTRATIONS  
FOR AIR-DRIED BIOSOLIDS FROM THE CALUMET WATER RECLAMATION PLANT  
APPLIED TO LAND IN 2002

Sample Date	TKN	NH <sub>3</sub> -N	TVS*		As	Cd	Cu	Hg	Mo	Ni	Pb	Se	Zn
			TVS*	Reduction									
	-- mg/dry	kg --	%	%	-----		mg/dry		kg -----				
8/20-21	8,960	2,812	46.3	52.8	7	8	429	0.17	24	41	182	11	1,840
8/22-24	9,177	4,752	47.6	50.3	11	8	375	0.83	22	41	176	11	1,671
8/19-22	6,703	3,922	47.7	55.1	8	8	416	0.60	24	39	181	13	1,799
8/19-21	7,904	4,799	46.6	69.4	8	8	447	0.68	24	40	186	13	1,905
8/27	8,891	4,397	46.3	71.8	7	8	430	0.11	23	41	191	14	1,868
8/25-27	9,974	3,677	46.5	71.6	7	8	440	0.31	23	43	188	16	1,892
9/12-13	10,403	3,479	43.3	75.0	7	8	431	0.14	24	47	205	13	1,894
9/16-18	11,041	3,090	44.2	74.1	6	8	435	0.45	23	44	195	14	1,920
10/15-17	15,645	2,236	45.6	72.5	6	8	436	0.87	22	41	187	14	1,814
10/28-30	29,294	1,806	46.6	71.5	4	8	454	0.51	24	44	191	13	1,934
Minimum	4,383	15	28.7	50.0	3	7	342	0.11	15	39	119	7	1,061
Mean	14,976	2,660	42.6	64.0	6	8	462	0.46	22	47	174	12	1,690
Maximum	29,294	6,232	48.1	79.8	11	10	694	1.79	27	68	206	19	1,972
503 Limit	NL	NL	NL	38.0	41	39	1,500	17.0	75	420	300	100	2,800

\*TVS = Total Volatile Solids.

NR = No result.

NL = No limit; not applicable.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 10

CLASS A PATHOGEN STANDARDS ANALYTICAL DATA FOR BIOSOLIDS FROM THE CALUMET  
WATER RECLAMATION PLANT LAND APPLIED IN 2002

Sample Date	Lagoon Source	% Total Solids	Fecal Coliform No. /g.	Viable Helminth Ova No./4g.	Virus PFU/4g.
07/17/01	1	21.29	NA	<0.0626	<0.8334
05/09/02	1	70.21	83	NA	NA
07/17/01	1	27.53	NA	<0.2906	<0.8333
05/22/02	1	70.03	72	NA	NA
10/23/01	1	52.23	NA	<0.0255	<0.4285
05/30/02	1	72.67	39	NA	NA
10/23/01	1	38.67	NA	<0.2069	<0.4286
05/30/02	1	65.92	43	NA	NA
10/23/01	1	53.22	NA	<0.1503	<0.4359
05/09/02	1	73.85	51	NA	NA
10/23/01	1	30.04	NA	<0.2663	<0.4166
05/09/02	1	61.22	47	NA	NA

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 10 (Continued)

CLASS A PATHOGEN STANDARDS ANALYTICAL DATA FOR BIOSOLIDS FROM THE CALUMET  
WATER RECLAMATION PLANT LAND APPLIED IN 2002

Sample Date	Lagoon Source	% Total Solids	Fecal Coliform No. /g.	Viable Helminth Ova No./4g.	Virus PFU/4g.
10/23/01	1	42.00	NA	<0.1905	<0.4222
05/22/02	1	75.48	50	NA	NA
10/23/01	1	33.51	NA	<0.2387	<0.4222
05/22/02	1	72.74	80	NA	NA
06/11/02	8	21.16	NA	<0.0800	<0.3986
08/06/02	8	86.83	6	NA	NA
06/11/02	8	15.85	NA	<0.0800	<0.3936
08/06/02	8	88.90	11	NA	NA
06/11/02	8	16.95	NA	<0.0800	<0.7903
08/01/02	8	83.47	1	NA	NA
06/11/02	8	21.05	NA	<0.0800	<0.7971
08/01/02	8	85.84	11	NA	NA



METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 10 (Continued)

CLASS A PATHOGEN STANDARDS ANALYTICAL DATA FOR BIOSOLIDS FROM THE CALUMET  
WATER RECLAMATION PLANT LAND APPLIED IN 2002

Sample Date	Lagoon Source	% Total Solids	Fecal Coliform No. /g.	Viable Helminth Ova No./4g.	Virus PFU/4g.
06/11/02	8	18.33	NA	<0.0800	<0.8225
08/01/02	8	82.93	35	NA	NA
06/11/02	8	14.38	NA	<0.0800	<0.8046
08/01/02	8	84.56	940	NA	NA
08/12/02	* 1	76.38	89	NA	NA
09/26/02	* 8	74.16	70	NA	NA
09/03/02	* 8	64.68	780	NA	NA
09/03/02	* 8	66.74	750	NA	NA
08/12/02	* 8	87.35	4	NA	NA
08/01/02	* 8	87.72	11	NA	NA
08/01/02	* 8	90.44	32	NA	NA
08/06/02	* 8	84.61	45	NA	NA
08/12/02	* 8	82.02	35	NA	NA
10/16/02	* 9	69.37	980	NA	NA

NA = No analysis.

\*Beginning August 1, 2002 the Calumet WRP EQ Processing Trains met Class A standards at section 503.32a8 and required only Fecal Coliform analysis at the time of user disposal.

## 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. Application to land as EQ biosolids at the Fulton County, Illinois, dedicated land application site.
  4. Application to farmland as EQ biosolids by a private contractor.

5. 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. Application to land as EQ biosolids at the Fulton County, Illinois, dedicated land application site.
  4. Application to farmland as EQ biosolids by a private contractor.

5. Disposal in local municipal solid waste landfills.

In 2002, the total biosolids production at the Stickney WRP was 132,179 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 in 2002 was less than the total production for the Stickney WRP due to biosolids being sent to lagoons for dewatering, processing, and storage for later use.

Summary of Use and Disposal at Landfills

The Stickney WRP sent 102,171 dry tons of biosolids to landfills in 2002. Of this amount, 59,507 dry tons were used as daily cover, 31,499 dry tons were used as final cover, and 11,165 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 2002, the Stickney WRP land applied 17,809 dry tons of centrifuge cake biosolids to farmland under IEPA Permit No. 1999-SC-3932 through a contract 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 2002 met the pollutant concentration limits in Table 3 of Section 503.13 (Table 11), the Class B pathogen anaerobic digester time and temperature requirements of Section 503.32b3 (Table 12), and the vector attraction reduction requirements of Section 503.33b10. Table 9 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 2002, the Stickney WRP did not land apply any air-dried EQ biosolids.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 11

NITROGEN AND METALS CONCENTRATIONS IN CENTRIFUGE CAKE BIOSOLIDS  
FROM THE STICKNEY WATER RECLAMATION PLANT APPLIED TO FARMLAND IN 2002

Date	TKN	NH <sub>3</sub> -N	As	Cd	Cu	Hg	Mo	Ni	Pb	Se	Zn
----- mg/dry kg -----											
01/03/02	59,440	3,994	6	5	447	0.38	18	66	117	4	932
01/17/02	71,560	3,118	NA	4	425	NA	20	64	114	NA	919
02/07/02	62,036	7,936	3	4	454	0.40	19	63	102	4	881
02/21/02	62,882	5,336	NA	6	445	NA	20	53	92	NA	810
03/07/02	63,098	6,186	4	6	410	0.35	17	70	94	5	803
03/21/02	66,954	3,410	NA	6	375	NA	15	48	123	NA	755
04/04/02	54,189	4,419	10	6	363	0.28	16	53	119	7	790
04/18/02	45,521	3,665	NA	5	398	NA	23	57	126	NA	804
05/09/02	49,772	2,569	9	9	480	0.31	24	69	179	3	1,106
05/23/02	51,855	2,565	NA	5	381	NA	14	49	173	NA	787
06/06/02	44,483	2,520	2	4	371	0.11	6	48	137	1	807
06/20/02	39,788	2,766	NA	5	377	NA	15	50	151	NA	821
07/04/02	59,132	2,047	10	5	398	0.36	15	52	127	2	765
07/18/02	56,550	2,280	NA	5	421	NA	19	57	150	NA	832
08/08/02	59,506	2,327	4	5	487	0.19	27	57	170	3	920
08/22/02	45,897	3,125	NA	5	485	NA	29	51	155	NA	933
09/12/02	46,144	2,538	8	6	441	0.84	26	58	158	2	1,020
09/26/02	42,716	2,339	NA	6	460	NA	24	63	147	NA	1,030
10/10/02	44,579	2,258	8	4	395	0.80	23	55	146	3	818
10/24/02	51,889	3,092	NA	4	377	NA	24	59	146	NA	756
11/07/02	40,944	3,304	10	4	381	0.23	22	56	152	2	792

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 11 (Continued)

NITROGEN AND METALS CONCENTRATIONS IN CENTRIFUGE CAKE BIOSOLIDS  
FROM THE STICKNEY WATER RECLAMATION PLANT APPLIED TO FARMLAND IN 2002

Date	TKN	NH <sub>3</sub> -N	As	Cd	Cu	Hg	Mo	Ni	Pb	Se	Zn
----- mg/dry kg -----											
11/21/02	15,340	2,251	NA	3	361	NA	22	53	123	NA	703
12/05/02	43,096	4,018	9	3	416	0.75	24	59	111	2	721
12/19/02	46,572	3,740	NA	3	394	NA	19	53	103	NA	679
05/04/02	52,644	7,842	2	5	458	0.22	19	70	129	1	883
05/06/02	57,498	8,217	3	4	460	0.17	19	69	127	1	921
5/22-23/02	51,990	7,815	3	5	417	0.24	16	66	141	1	820
5/28-31/02	55,681	8,811	2	4	425	0.70	16	59	129	1	797
6/01/02	62,612	9,634	11	5	415	0.43	16	68	139	2	820
6/03-08/02	72,254	9,613	9	4	458	0.38	20	60	119	2	845
6/10/02	62,394	9,159	9	5	485	0.49	22	69	125	2	889
10/28/02	47,165	13,800	NA	4	364	0.69	15	47	169	NA	794
11/01/02	57,452	10,833	NA	4	460	0.96	21	59	130	NA	882
11/09/02	46,883	13,129	NA	5	377	0.58	15	54	192	NA	830
11/16/02	40,862	7,641	NA	3	271	0.76	18	38	111	NA	587
11/26/02	54,042	11,371	NA	4	382	0.46	19	47	120	NA	724
11/08-09/02	28,178	10,790	10	4	403	0.50	16	47	158	3	824
11/13-14/02	27,143	9,350	12	4	430	0.52	24	56	172	<1	897
03/12/02	51,079	5,515	6	5	398	0.19	17	62	141	4	830
03/12/02	47,586	6,141	5	6	382	0.42	16	60	148	4	861

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 11 (Continued)

NITROGEN AND METALS CONCENTRATIONS IN CENTRIFUGE CAKE BIOSOLIDS  
FROM THE STICKNEY WATER RECLAMATION PLANT APPLIED TO FARMLAND IN 2002

Date	TKN	NH <sub>3</sub> -N	As	Cd	Cu	Hg	Mo	Ni	Pb	Se	Zn
----- mg/dry kg -----											
04/19/02	58,517	7,117	7	6	446	0.46	18	65	107	2	901
10/15/02	40,289	9,538	12	5	402	0.81	15	48	209	3	961
Minimum	15,340	2,047	2	3	271	0.11	6	38	92	1	587
Mean*	50,910	5,908	7	5	414	0.47	19	57	138	3	839
Maximum	72,254	13,800	12	9	487	0.96	29	70	209	7	1,106
503 Limit	NL	NL	41	39	1,500	17.0	75	420	300	100	2,800

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

NA = No analysis.

NL = No limit; not applicable.



METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 12

DIGESTER TEMPERATURES AND DETENTION TIMES FOR CENTRIFUGE CAKE BIOSOLIDS  
FROM THE STICKNEY WATER RECLAMATION PLANT APPLIED TO FARMLAND IN 2002

Month	Average Temperature	Average Detention time	Meets Part 503 Class B Requirements	Minimum Required Detention Time*
	°F	days		days
January	97	26.8	yes	15.0
February	97	24.5	yes	15.0
March	96	23.7	yes	15.0
April	97	21.5	yes	15.0
May	97	22.1	yes	15.0
June	97	24.1	yes	15.0
July	97	28.6	yes	15.0
August	97	23.2	yes	15.0
September	97	20.3	yes	15.0
October	97	20.4	yes	15.0
November	97	23.2	yes	15.0
December	97	20.4	yes	15.0

\*Minimum detention time required to meet Part 503 Class B operational requirements at average temperature achieved.

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

Biosolids from two of the District's WRPs (Stickney and John E. Egan) were sent to landfills in 2002 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 and AS 98-5 (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

A total of 102,171 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.

A total of 500 dry tons were co-disposed at Land and Lakes River Bend Prairie Landfill at 801 E. 138<sup>th</sup> St., Dolton, Illinois, and 10,665 dry tons were co-disposed at the Allied Waste Industries' Environtech Landfill at Morris, Illinois.

A total of 39,813 dry tons were used as daily cover at the Waste Management of North America, Inc., CID Recycling and Disposal Facility in Calumet City, Illinois, and 19,694 dry tons were used as daily cover at Land and Lakes River Bend Prairie Landfill.

A total of 7,390 dry tons of biosolids were used as a final vegetative cover at the Waste Management of North America, Inc., CID Recycling and Disposal Facility; and 24,109 dry tons were used as a final vegetative cover at Land and Lakes River Bend Prairie Landfill.

#### Calumet WRP

The Calumet WRP did not send any biosolids to landfills in 2002.


#### John E. Egan WRP

A total of 1,216 dry tons of biosolids from the John E. Egan WRP were co-disposed with municipal solid waste at Land

and Lakes River Bend Prairie Landfill at 801 E. 138<sup>th</sup> St.,  
Dolton, Illinois.

APPENDIX I

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



Thomas S. Fuller  
President  
Frank E. Gardner  
Vice President  
Nancy Drew Sheehan  
Chairman, Committee on Fin.  
Joseph E. Gardner  
Gloria Alito Majewski  
Kathleen Therese Meany  
Terrence J. O'Brien  
Patricia Young  
Harry "Bus" Yourell

**Metropolitan Water Reclamation District of Greater Chicago**

100 EAST ERIE STREET CHICAGO, ILLINOIS 60611 312/751-5600

Cecil Lue-Hing  
Director of R & D  
312/751-5190

January 28, 1994

Mr. Michael J. Mikulka  
Chief of Compliance Section  
United States Environmental  
Protection Agency  
Region V  
77 West Jackson Boulevard  
Chicago, Illinois 60604-3590

Dear Mr. Mikulka:

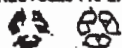
Subject: Sludge Management Programs of the Metro-  
politan Water Reclamation District of  
Greater Chicago Under 40 CFR Part 503

The Metropolitan Water Reclamation District of Greater Chicago (District) has three sludge management programs that employ sewage sludge applications to land under the 40 CFR Part 503 Regulations. These programs are the Fulton County, Illinois land application site, the Hanover Park Fischer Farm at the Hanover Park Water Reclamation Plant, and the Controlled Solids Distribution Program. The District feels that it is important to define its interpretation of the 40 CFR Part 503 Regulations with respect to each of these programs.

On July 22, 1993, we sent Mr. John Colletti, then Acting Sludge Coordinator, a letter (copy attached) expressing our concerns regarding compliance monitoring, record keeping and reporting under 40 CFR Part 503 for each of these programs.

The District believes that its existing sludge management programs are conservative, and that monitoring and environmental protection measures far exceed the requirements of the Part 503 Regulations. This letter is designed to inform you of the conservative nature of these sludge management programs, and the fact that they are in complete compliance with the spirit and specific language of the Part 503 Regulations.

RECYCLED PAPER



100% RECYCLABLE



January 28, 1994

Subject: Sludge Management Programs of the Metropolitan Water Reclamation District of Greater Chicago Under 40 CFR Part 503

Fulton County Illinois Site

The District considers the application of sewage sludge at its Fulton County, Illinois site to be under "Land Application" section (subpart B) of the Part 503 Regulations. Sewage sludge is applied at rates approved by the Illinois Environmental Protection Agency (IEPA) for reclamation of disturbed strip-mine spoils. Under the current permit with the IEPA (Permit No. 1993-SC-4294 issued December 3, 1993), sewage sludge is being applied at an agronomic rate to supply nutrients for productive crop yields.

Sewage sludge applied at the site will contain metal concentrations below the pollutant limits established in Table 3 of Part 503.13, subsection b(3) of the regulations. As a result, the Part 503 cumulative pollutant limits in Table 4 of Part 503.13 subsection b(4) will not apply to future applications of sewage sludge at the Fulton County site.

Sewage sludge applied at the Fulton County site will far exceed the Class B pathogen requirements by conservatively achieving operating temperature and detention times in excess of the Part 503 anaerobic digester operating requirements (§503.32b3).

The Part 503 vector attraction reduction requirements will be easily met since the District consistently reduces the volatile solids content of the Fulton County sludge far greater than the required 38 percent (§503.33b1).

The Part 503 Regulations do not specify what kind of crop can be grown under land application. Crops typically grown at the site are corn, winter wheat, and hay. Corn and winter wheat grown on sludge application fields are sold for ethanol production, and animal feed. Hay grown on application fields receiving supernatant from on-site lagoons containing sewage sludge is currently harvested three times per year, as specified under the existing IEPA permit. This hay is used as animal feed or mulch for project reclamation activities.

Subject: Sludge Management Programs of the Metropolitan Water Reclamation District of Greater Chicago Under 40 CFR Part 503

The Class B pathogen requirements for the supernatant application field where hay is grown will be met by ensuring that supernatant application ceases 30 days before hay crop harvesting.

The Part 503 Regulations do not specify what kind of surface water protection system is required for land application. The permitting authority, on a case-by-case basis, may impose more stringent requirements when necessary to protect the public health and the environment. Sewage sludge application fields at the Fulton County site are bermed, and have runoff retention basins designed to capture all runoff.

Waters released from the 65 retention basins at the site must, and do meet standards specified in the existing IEPA discharge permit for pH, total suspended solids, fecal coliforms, and biochemical oxygen demand. Although not required in the Part 503 Regulations, these restrictions show that District operations at the Fulton County site are designed to minimize contamination of surface waters.

Supernatant application fields at the site are not bermed. However, supernatant application in the fields is controlled so that it does not contaminate indigenous ponds and strip-mined reservoirs. Although such restrictions are not required in the Part 503 Regulations, they prevent contamination of waters used by wildlife and water fowl.

The Class B pathogen requirements in the Part 503 Regulations dictate that public access to application fields be limited. The District will comply with the Class B pathogen requirement for restricted public access by a combination of fencing, posted signs, locked gates, and security guards. These measures are conservative and far exceed the public access requirements in the Part 503 Regulations.

The Part 503 Regulations prohibit the adverse modification or destruction of endangered species or their critical habitat. The District has no evidence to indicate that sludge applications have affected the habitat of wildlife species at the site.



Subject: Sludge Management Programs of the Metropolitan Water Reclamation District of Greater Chicago Under 40 CFR Part 503

The Part 503 Regulations do not specifically prohibit bulk sewage sludge application to flooded, frozen, or snow covered lands. The regulations state, however, that any sludge applied to these lands may not enter surface waters or wet lands. The District does not apply sewage sludge to floodplains, frozen, or snow covered ground at the Fulton County site. The site permit with the IEPA prohibits applying sewage sludge under these conditions.

The Part 503 Regulations state that bulk sewage sludge may not be applied within 10 meters of a surface water body unless authorized by a permit. The District does not apply sewage sludge within 10 meters of the waters of the state. The District's IEPA permit specifies that sludge shall not be applied to land which lies within 200 feet (61 meters) of surface waters.

The Part 503 Regulations require that the land application of bulk sewage sludge may not exceed the agronomic rate for the particular agricultural, forest, or public contact site. In some cases the permitting authority may specifically authorize the application of sludge to a reclamation site at an annual rate that exceeds the agronomic rate. The District is currently applying sewage sludge at an application rate of 57 dry tons per acre per year on bermed sludge application fields, and 25 dry tons per acre per year on nonbermed fields. Technical justification for the sludge application rate of 57 dry tons per acre per year is given in the attachment entitled "Fulton County." This application rate is approved under the IEPA permit.

#### Hanover Park Fischer Farm

The District considers the application of sewage sludge at its Hanover Park Fischer Farm site to fall under the "Land Application" section (subpart B) of the Part 503 Regulations. Sewage sludge is applied at a rate of 20 dry tons per acre per year as specified in the IEPA permit (Permit No. 1992-SC-0942 issued August 18, 1992) for the site.

Sewage sludge applied at the site is far below the pollutant concentration limits established in Table 3 of Part 503.13, subsection b(3) of the regulations for metals.

January 28, 1994

Subject: Sludge Management Programs of the Metropolitan Water Reclamation District of Greater Chicago Under 40 CFR Part 503

Sewage sludge applied at the Hanover Park Fischer Farm site conservatively meets the Class B pathogen requirements by either fecal coliform analysis (§503.32b2), or by meeting the Part 503 anaerobic digester operating temperature and detention time requirements (§503.32b3).

The District will ensure that the Part 503 vector attraction reduction requirements are met by electing to sub-surface inject all sludge applied to the site.

The Part 503 Regulations do not specify what kind of crop can be grown under land application. A straw crop is currently being grown at the site, with the straw removed and the grain left in the field.

The Part 503 Regulations do not state what type of surface and groundwater protection system is required. All fields at the site are bermed and all surface water is collected. The entire site is endowed with an extensive system of drainage tile which collects all the soil percolate. The runoff and percolate are returned to the water reclamation plant for tertiary treatment.

The District's sludge application to land program at the Hanover Park Water Reclamation Plant far exceed any surface water and groundwater protection requirement specified in the Part 503 Regulations.

The Part 503 Class B pathogen requirements limit public access to the sludge application fields. The District operations at Hanover Park far exceed the Part 503 requirements since the entire site is fenced with locked gates and security guards.

The Part 503 Regulations prohibit the adverse modification or destruction of endangered species or their critical habitat. The District has no evidence that sludge applications have affected the habitat of wildlife species at the site.

The Part 503 Regulations do not prohibit bulk sewage sludge application to flooded, frozen, or snow covered lands.



Subject: Sludge Management Programs of the Metropolitan Water Reclamation District of Greater Chicago Under 40 CFR Part 503

The regulations state, however, that any sludge applied to these lands may not enter surface waters or wetlands. The District does not apply sewage sludge to floodplains, frozen, or snow covered ground at the Hanover Park Fischer Farm. The site IEPA permit prohibits the application of sewage sludge under these conditions.

The Part 503 Regulations state that bulk sewage sludge may not be applied within 10 meters of a surface water body unless authorized by a permit. The District does not apply sewage sludge within 10 meters of the waters of the state. The site application fields are bermed and surface runoff is collected and returned to the plant for tertiary treatment. This management practice far exceeds the Part 503 requirements.

The Part 503 Regulations require that the land application of bulk sewage sludge may not exceed the agronomic rate for the particular agricultural, forest, or public contact site. The District is applying sewage sludge at an annual application rate of 20 dry tons per acre. Technical justification for this application rate is given in the attachment entitled "Hanover Park," and is approved under the IEPA permit.

#### Controlled Solids Distribution

The District has a sludge management program called the Controlled Solids Distribution Program. Sewage sludge under this program is given away for beneficial use at selected sites for landscaping and soil enrichment. The application of sewage sludge under this program is covered by IEPA Permit No. 1990-SC-1100.

Through the District's efforts to reduce the metals in the sludge with a vigorous industrial waste control program, the District's sewage sludge will be well below the metal limits specified in Part 503.13, subsection b(3), (Table 3). The anaerobic digesters producing sewage sludge for the District's Controlled Solids Distribution Program have detention times and operating temperatures which easily satisfy the Part 503 Class B pathogen requirements. The sewage sludge

Subject: Sludge Management Programs of the Metropolitan Water Reclamation District of Greater Chicago Under 40 CFR Part 503

destined for the Controlled Solids Distribution Program receives extensive treatment to reduce its volatile solids content, which far exceed the 38 percent volatile solids reduction requirement of the Part 503 vector attraction reduction requirements.

The Part 503 Regulations for land application of sewage sludge do not specify what kind of vegetation can be grown at sites receiving sludge. The District requires that only nonfood chain vegetation be grown at all sites receiving sludge under the Controlled Solids Distribution Program. This far exceeds the Part 503 requirements.

The Part 503 Regulations under 503.32(b) for Class B pathogen reduction requires that public access be restricted for one year if the site has a high potential for public exposure, and public access be restricted for 30 days at a site with a low potential for public exposure. The District will post signs and/or other means to restrict public access to these sites.

The Part 503 Regulations prohibit the adverse modification or destruction of endangered species or their critical habitat. The District has no evidence that endangered species are present in areas receiving sewage sludge under the Controlled Solids Distribution Program.

The Part 503 Regulations do not prohibit bulk sewage sludge application to flooded, frozen, or snow covered lands. The regulations state, however, that any sludge application to these lands may not enter surface waters or wetlands. The District does not apply sewage sludge to floodplains, frozen, or snow covered ground at sites receiving sludge under its Controlled Solids Distribution Program. The District's IEPA permit prohibits these activities.

The Part 503 Regulations has a specific management practice that bulk sewage sludge may not be applied within 10 meters of a surface water body unless authorized by a permit. The District does not apply sewage sludge within 10 meters of the waters of the state. The District's IEPA permit is more restrictive in that it specifies that sludge cannot be applied to land which lies within 200 feet (61 meters) of surface waters.



January 28, 1994

Subject: Sludge Management Programs of the Metropolitan Water Reclamation District of Greater Chicago Under 40 CFR Part 503

The Part 503 Regulations require that the land application of bulk sewage sludge may not exceed the agronomic rate for a particular agricultural, forest, or public contact site. In some instances, the permitting authority for a reclamation site may specifically authorize the application of sludge at an annual rate that exceeds the agronomic rate. At these sites, sewage sludge will either be applied at an agronomic application rate, or a reclamation rate depending upon the needs of the site. The District's current permit with the IEPA allows for a higher application rate related to site needs. Under the Part 503 Regulations, as noted in the attachment entitled "Fulton County," the permitting authority may authorize a variance from the agronomic rate by permit. The District has received this variance from the IEPA in its current permit for the Controlled Solids Distribution Program.

The above mentioned sludge management programs are an important part of the District's operations and planning requirements for future sludge management activities. As described, the District feels that these programs comply with the requirements described in the Part 503 Regulations.

If you require additional information or have questions, don't hesitate to telephone me at (312) 751-5190.

Very truly yours,

Signature on file

Cécil Lue-Hing, D.Sc., P.E.  
Director  
Research and Development

CLH:RIP:ns  
Attachments  
cc: Dalton  
O'Connor  
DiVita  
Murray  
Alan Keller, IEPA  
Tim Kluge, IEPA  
Ken Rogers, IEPA  
Ash Sajjad, USEPA  
Bill Tong, USEPA

APPENDIX II

REDUCTION IN FREQUENCY OF MONITORING FOR PATHOGENS  
IN BIOSOLIDS



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5

RECEIVED WEST JACKSON BOULEVARD  
EM & R DIV - CHICAGO, ILL 604-3590

*File*  
*- South*  
*- Clark*  
*1/18*

00 JAN 18 PM 2:20

REPLY TO THE ATTENTION OF:

WN-16J

JAN 12 2000

Dr. Dick Lanyon  
Director, Research and Development  
Metropolitan Water Reclamation District  
of Greater Chicago  
100 East Erie Street  
Chicago, Illinois 60611-2803

Re: Reduction in Frequency of Monitoring for Pathogens in Biosolids

Dear Dr. Lanyon:

This is in response to verbal and written requests, regarding the referenced matter, that were made by your predecessor Dr. Cecil Lue-Hing, and Dr. Tata Prakasam, the District's Research Manager, to John Colletti and Ash Sajjad of the Regional Biosolids Team. Specifically, the District requested reduction in the frequency of monitoring for pathogens in biosolids generated at the District's Calumet and Stickney waste water treatment plants from 12 times per year to 4 times per year for reporting these data to the U.S. Environmental Protection Agency (U.S. EPA) as required by 40 Code of Federal Regulations (CFR) part 503.

Further, Dr. Lue-Hing in his June 15, 1999, letter to John Colletti referenced the biosolids pathogen data that the District collected from over 1,000 discrete samples. This was done during a period of 4 years from 1994 until 1998, as a part of the District's application to the National Pathogen Equivalency Recommendation Committee (PERC) for certification of the District's biosolids processing trains as equivalent to a Process for further Reduction of Pathogens (PFRP). As you may know, because the District's biosolids process to reduce pathogens is not listed under 40 CFR part 503, the District sought equivalency determination from the PERC. The PERC's recommendation along with the Region's approval is necessary for the District to obtain PFRP equivalency.

After a review of the District's biosolids data, and in consideration of the District's commendable effort to characterize pathogen quality of more than 1,000 samples, the following is our response to your request.

*To provide relief from the analytical burden of analyzing biosolids for pathogens 12 times per year, the U.S. EPA, Region 5, approves reducing the frequency of monitoring to 6 times per year. The reduced frequency of monitoring is effective March 1, 2000, and is renewable on a yearly basis.*

*With file Drs (May) Grants (with file of this letter) 1/19*



If you have any questions about this matter, please contact Ash Sajjad, Regional Biosolids expert at (312) 886-6112.

Sincerely yours,

Signature on file

Jo Lynn Traub  
Director, Water Division

cc: Dr. Fata Prakasam, MWRDGC



APPENDIX III

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



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGIONS  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

JUN 20 2002

REPLY TO THE ATTENTION OF:

WN-16J

Mr. Jack Farnan  
General Superintendent  
Metropolitan Water Reclamation  
District of Greater Chicago  
100 East Erie Street  
Chicago, Illinois 60611

REF: Mr. Richard Lanyon's November 30, 2001, Letter Request for Site-specific Equivalency Certification for the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) Biosolids Processing Trains at the Stickney and Calumet Waste Water Treatment Plants.

Dear Mr. Farnan:

We acknowledge receipt of the referenced letter request along with attachments A through I. This request conforms with the requirements of the Federal rules for the use and disposal of biosolids codified at 40 CFR part 503. These rules designate the Regional permitting authority to be responsible for determining equivalency, and require generators of biosolids to formally seek an equivalency certification of their process to further reduce pathogens (PFRP) from the permitting authority. To be equivalent, a treatment process must be able to consistently reduce pathogens to levels comparable to the other PFRP processes listed in part 503, Appendix B.

The granting of a site-specific equivalency designation by the Regional permitting authority--based on a thorough review of the adequacy of the process trains to consistently reduce pathogens in biosolids as indicated by the pathogen data, and in consultation with the Pathogen equivalency Committee (PEC)--certifies the biosolids generated by using a PFRP equivalent process is Class A with respect to pathogens. The pathogen standards are specified in section 503.32(a)(7)(i). However, the granting of a site-specific equivalency is limited to the set of process and operating conditions in use at the Stickney and Calumet waste water treatment plants at the time of the application for equivalency designation (Appendix B of the November 30, 2001, Letter Request), and as described by MWRDGC in its application for equivalency submitted to the PEC. The PEC is an US Environmental Protection Agency resource to provide technical assistance and recommendations to Regional permitting authorities regarding pathogen reduction equivalency in implementing the part 503 standards for use and disposal of biosolids.

We are familiar with the MWRDGC's request for equivalency because our biosolids team members participated in numerous phone conversations and meetings with the PEC and Dr. Prakasam Tata of your staff, and both were extremely helpful in explaining and clarifying various issues related to the subject.

Our review of the MWRDGC's biosolids data submitted for 1994 to 2001 indicates Class A biosolids were produced at the Stickney and Calumet plants as they operated their respective low-and high-solids sludge processing trains (SPTs) according to codified protocols delineated in Attachment B of Mr. Lanyon's letter request, dated November 30, 2001. The part 503 rules for PFRP equivalency require that enteric viruses and viable helminth ova are reduced to below detection level. The pathogen data obtained from actual measurements and the statistical treatment of that data by MWRDGC indicated reductions of greater than two logs. We appreciate the MWRDGC's effort in analyzing 1,400 discreet samples of biosolids for pathogens, and the professionalism and patience displayed by Dr. Prakasam Tata of your staff in responding to our queries pertaining to this matter.

In consideration of the quality of data provided for our review, the consistent achievement of a Class A product, we are pleased to grant a conditional site-specific certification of equivalency to the MWRDGC's SPTs at Stickney and Calumet waste water treatment plants for a period of two years effective August 1, 2002 to July 30, 2004, provided the following conditions are met.

- 1) The Stickney and Calumet plants must operate at all times according to the codified process and operating protocols referred to in the letter request dated November 30, 2001.
- 2) Monitor biosolids (treated sludge) at Stickney and Calumet plants once per month for the first year and subsequently, once every other month for enteric viruses and helminth ova, and certify the MWRDGC is in compliance with Class A standards and report the results semi-annually to the attention of Mr. Valdis Aistars, Mail Drop WC-15J, 77 West Jackson, Chicago, Illinois 60604.

We appreciate MWRDGC's ongoing efforts to improve the quality of its biosolids. If you have any further questions about this matter, please contact Ash Sajjad of my staff at 312-886-6112.

Sincerely yours,

Signature on file

Jo Lynn Traub  
Director, Water Division

cc: Dick Lanyon, MWRDGC  
Dr. Prakasam Tata, MWRDGC ✓  
Dr. James Smith Jr., ORD, Cincinnati