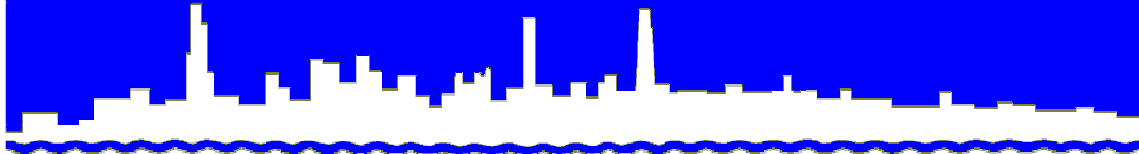


*Protecting Our Water Environment*



***Metropolitan Water Reclamation District of Greater Chicago***

***RESEARCH AND DEVELOPMENT  
DEPARTMENT***

***REPORT NO. 06-29***

***HANOVER PARK FISCHER FARM MONITORING REPORT***

***FIRST QUARTER 2006***

***MAY 2006***

## Protecting Our Water Environment

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Richard Lanyon  
*Director of Research & Development*

312-751-5190

May 30, 2006

Mr. S. Alan Keller, P.E.  
Manager, Permit Section  
Illinois Environmental  
Protection Agency  
1021 North Grand Avenue East  
P.O. Box 19276  
Springfield, IL 62794-9276

Dear Mr. Keller:

The attached report contains the monitoring results for the Hanover Park Water Reclamation Plant Fischer Farm site for the first quarter of 2006, as required by IEPA Operating Permit No. 2002-SC-0672.

Very truly yours,

Richard Lanyon  
Director  
Research and Development

RL:PL:spy  
Enclosure

cc w/enc: Jay Patel, Manager, IEPA Region II - Des Plaines  
Mr. Valdis Aistars, USEPA Region V  
Mr. Ash Sajjad, USEPA Region V

cc via MWRDGC web site:

Drs. Granato  
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**HANOVER PARK WATER RECLAMATION PLANT**

**FISCHER FARM REPORT**

**FIRST QUARTER 2006**

**Research and Development**

**P. Lindo**

**A. Cox**

**May 2006**

## TABLE OF CONTENTS

	<u>Page</u>
FOREWORD	ii
LIST OF TABLES	iii
LIST OF FIGURES	iv
ACKNOWLEDGMENT	v
DISCLAIMER	v
HANOVER PARK WATER RECLAMATION PLANT FISCHER FARM REPORT FOR FIRST QUARTER OF 2006	1

## FOREWORD

The data and information in this report fulfill the frequency of monitoring and the reporting requirements for the Hanover Park Fischer Farm Site as specified in the Illinois Environmental Protection Agency Permit No. 2002-SC-0672 for the first quarter of 2006.

## LIST OF TABLES

<u>Table No.</u>		<u>Page</u>
1	Analysis of Water from the Six Monitoring Wells at the Hanover Park Fischer Farm Site Sampled on January 10, 2006	3
2	Analysis of Water from the Six Monitoring Wells at the Hanover Park Fischer Farm Site Sampled on January 24, 2006	4
3	Analysis of Water from the Six Monitoring Wells at the Hanover Park Fischer Farm Site Sampled on February 7, 2006	5
4	Analysis of Water from the Six Monitoring Wells at the Hanover Park Fischer Farm Site Sampled on February 28, 2006	6
5	Analysis of Water from the Six Monitoring Wells at the Hanover Park Fischer Farm Site Sampled on March 7, 2006	7
6	Analysis of Water from the Six Monitoring Wells at the Hanover Park Fischer Farm Site Sampled on March 21, 2006	8
7	Analysis of Combined Surface and Subsurface Drainage from the Fischer Farm Site Returned to the Hanover Park Water Reclamation Plant in January, February, and March 2006	9
8	Analysis of Lagoon Supernatant Applied to Two Fields at the Hanover Park Fischer Farm Site During January, February, and March 2006	10
9	Volumes and Dry Weights of Lagoon Supernatant Applied to Two Fields at the Hanover Park Fischer Farm Site During January, February, and March 2006	11

## LIST OF FIGURES

<u>Figure No.</u>		<u>Page</u>
1	Fields and Wells at the Hanover Park Fischer Farm Site	2

## ACKNOWLEDGMENT

The assistance given by Ms. Minaxi Patel, Sanitary Chemist I, of the Environmental Monitoring and Research Division, and Mr. John Chavich, Sanitary Chemist IV, of the John E. Egan Analytical Laboratory Section, is greatly appreciated.

Thanks are due to Ms. Sabina Yarn for typing 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.



HANOVER PARK WATER RECLAMATION PLANT FISCHER FARM REPORT FOR  
FIRST QUARTER OF 2006

During January, February, and March 2006, activities at the Hanover Park Water Reclamation Plant (WRP) Fischer Farm included well and field drainage water sampling, and flow measurements. These monitoring activities are required by the Illinois Environmental Protection Agency (IEPA) Operating Permit No. 2002-SC-0672. Fields and water monitoring locations are presented in Figure 1.

Water from each of the six monitoring wells was sampled twice monthly in January, February, and March 2006. Analytical data for samples collected during the quarter are presented in Tables 1 through 6.

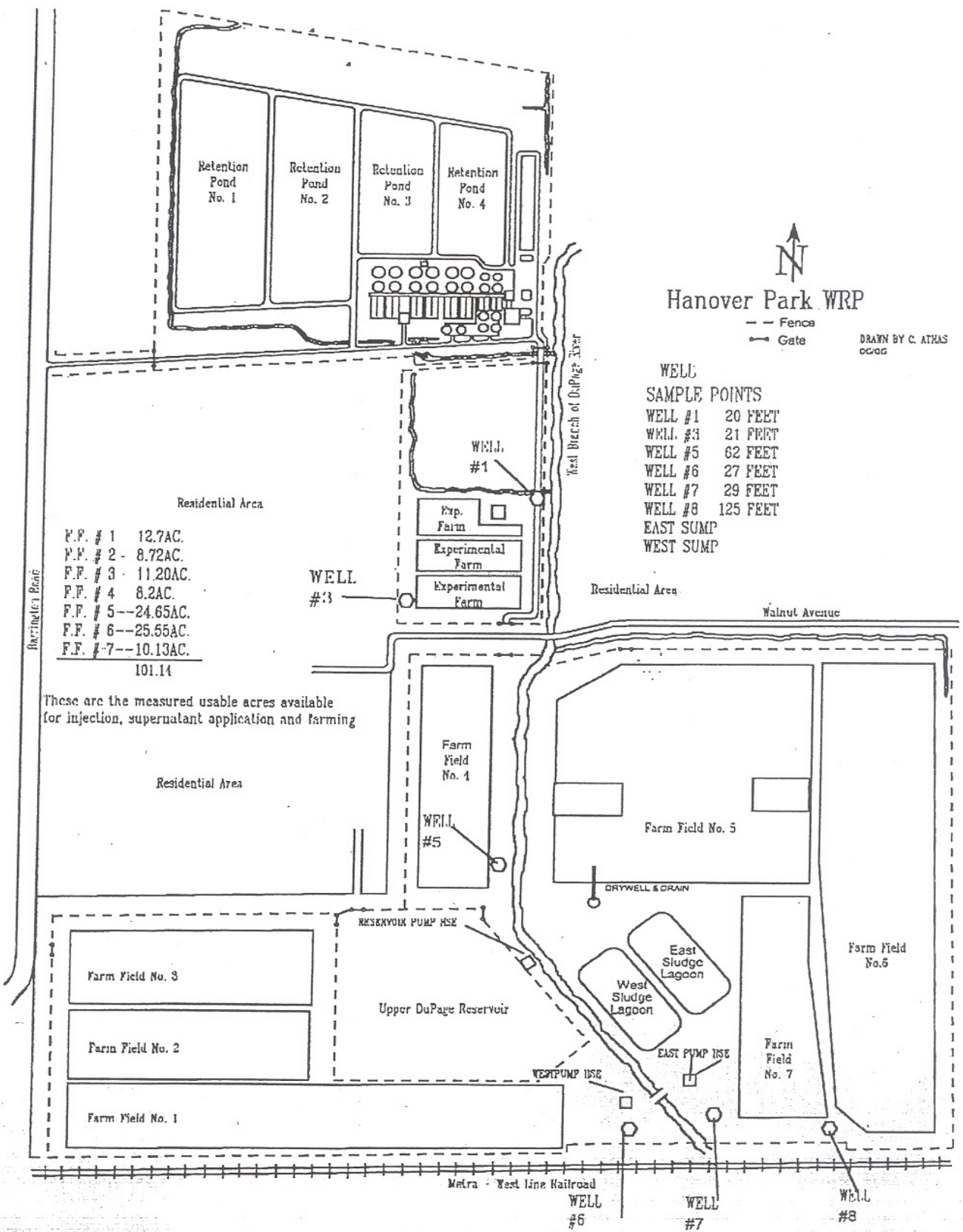
Drainage water (combined surface and subsurface) returned to the Hanover Park WRP from the farm fields was sampled twice per month in January, February, and March. Analytical data for these samples are presented in Table 7. The volumes of drainage water returned to the WRP during the first quarter were estimated as 4.84 (January), 3.36 (February), and 8.00 (March) million gallons (MG).

Between January and March, 2.01 MG lagoon supernatant containing 12.6 dry tons solids were pumped and applied to Fields 1 and 2 at the Fischer Farm site. The analytical data for the lagoon supernatant applied to these fields are presented in Table 8. The volumes and dry weights are reported in Table 9.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

FIGURE 1

FIELDS AND WELLS AT THE HANOVER PARK FISCHER FARM SITE



METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 1

ANALYSIS OF WATER FROM THE SIX MONITORING WELLS AT  
THE HANOVER PARK FISCHER FARM SITE SAMPLED ON  
JANUARY 10, 2006

Parameter	Units	Well					
		1	3	5	6	7	8
pH*		7.6		7.7	7.5	7.3	7.9
EC	mS/m	207		74	93	117	62
Cl <sup>-</sup>	mg/L	348		13	32	32	7
SO <sub>4</sub> <sup>=</sup>	"	52		95	180	236	66
Alkalinity as CaCO <sub>3</sub>	"	563		317	312	426	297
			W				
TKN	"	4	E	0.3	0.4	12	0.4
NH <sub>3</sub> -N	"	2.8	L	0.34	0.34	13	0.37
NO <sub>2</sub> +NO <sub>3</sub> -N	"	1.14	L	0.070	0.051	0.043	0.045
Total P	"	0.32		0.05	0.04	0.05	0.04
			D				
Cd	"	0.0015	R	<0.0003	<0.0003	<0.0003	<0.0003
Cr	"	<0.002	Y	<0.002	<0.002	<0.002	<0.002
Cu	"	0.0088		0.0138	0.0065	<0.0005	0.0048
Fe	"	36.3		2.29	4.70	4.90	1.47
Mn	"	2.111		0.0211	0.0533	0.0574	0.0475
Ni	"	0.0058		0.0019	0.0060	0.0028	0.0015
Zn	"	0.1548		0.0052	0.0042	0.0464	0.0074
Fecal coliform per 100 mL		<1		<1	<1	<1	<1

\*Samples analyzed beyond recommended holding time of 15 minutes.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 2

ANALYSIS OF WATER FROM THE SIX MONITORING WELLS AT  
THE HANOVER PARK FISCHER FARM SITE SAMPLED ON  
JANUARY 24, 2006

Parameter	Units	Well					
		1	3	5	6	7	8
pH*		7.8		7.7	7.5	7.3	8.1
EC	mS/m	210		70	86	116	60
Cl <sup>-</sup>	mg/L	359		14	41	33	8
SO <sub>4</sub> <sup>=</sup>	"	56		89	162	204	53
Alkalinity as CaCO <sub>3</sub>	"	572		322	312	428	288
			W				
TKN	"	4	E	0.4	0.5	11	0.4
NH <sub>3</sub> -N	"	3.2	L	0.30	0.37	12	0.37
NO <sub>2</sub> +NO <sub>3</sub> -N	"	0.192	L	0.043	0.051	0.035	0.098
Total P	"	0.43		0.02	0.03	0.03	0.03
			D				
Cd	"	0.0010	R	<0.0003	<0.0003	<0.0003	<0.0003
Cr	"	<0.002	Y	<0.002	<0.002	<0.002	<0.002
Cu	"	0.0019		0.0242	0.0057	0.0005	0.0024
Fe	"	12.6		2.69	4.80	4.21	1.29
Mn	"	1.225		0.0251	0.0551	0.0535	0.0425
Ni	"	0.0041		0.0024	0.0044	0.0027	0.0016
Zn	"	0.0469		0.0145	0.0059	0.0213	0.0045
Fecal coliform per 100 mL		<1		<1	<1	<1	<1

\*Samples analyzed beyond recommended holding time of 15 minutes.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 3

ANALYSIS OF WATER FROM THE SIX MONITORING WELLS AT  
THE HANOVER PARK FISCHER FARM SITE SAMPLED ON  
FEBRUARY 7, 2006

Parameter	Units	Well					
		1	3	5	6	7	8
pH*		7.6	7.1	7.6	7.5		
EC	mS/m	212	153	74	93		
Cl <sup>-</sup>	mg/L	378	18	15	43		
SO <sub>4</sub> <sup>=</sup>	"	72	623	95	167		
Alkalinity as CaCO <sub>3</sub>	"	540	281	317	307		
						W	W
TKN	"	4	1	0.4	0.6	E	E
NH <sub>3</sub> -N	"	3.4	0.06	0.31	0.33	L	L
NO <sub>2</sub> +NO <sub>3</sub> -N	"	0.234	1.28	<0.020	0.037	L	L
Total P	"	0.17	0.16	0.03	0.03		
						D	D
Cd	"	0.0017	0.0030	<0.0003	<0.0003	R	R
Cr	"	<0.002	0.003	<0.002	<0.002	Y	Y
Cu	"	0.0075	0.0233	0.0308	0.0061		
Fe	"	39.5	81.0	5.75	4.14		
Mn	"	2.105	0.5903	0.0438	0.0474		
Ni	"	0.0053	0.0122	0.0024	0.0034		
Zn	"	0.1249	0.4560	0.0050	0.0039		
Fecal coliform per 100 mL		<1	<1	<1	<1		

\*Samples analyzed beyond recommended holding time of 15 minutes.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 4

ANALYSIS OF WATER FROM THE SIX MONITORING WELLS AT THE HANOVER  
PARK FISCHER FARM SITE SAMPLED ON  
FEBRUARY 28, 2006

Parameter	Units	Well					
		1	3	5	6	7	8
pH*		7.8	7.6	7.6	8.1		7.7
EC	mS/m	214	144	94	63		75
Cl <sup>-</sup>	mg/L	402	17	40	7		14
SO <sub>4</sub> <sup>=</sup>	"	73	586	178	60		99
Alkalinity as CaCO <sub>3</sub>	"	517	246	312	289		317
						W	
TKN	"	6	1	0.6	0.5	E	0.4
NH <sub>3</sub> -N	"	3.5	0.14	0.32	0.44	L	0.34
NO <sub>2</sub> +NO <sub>3</sub> -N	"	0.453	1.24	<0.020	0.027	L	0.033
Total P	"	0.90	0.11	0.05	0.05		0.04
						D	
Cd	"	0.0010	<0.0003	<0.0003	<0.0003	R	<0.0003
Cr	"	<0.002	<0.002	<0.002	<0.002	Y	<0.002
Cu	"	0.0028	0.0085	0.0070	0.0050		0.0540
Fe	"	27.7	14.9	4.69	1.79		7.16
Mn	"	1.389	0.2311	0.0490	0.0512		0.0507
Ni	"	0.0068	0.0038	0.0029	<0.0007		0.0249
Zn	"	0.0884	0.1245	0.0057	0.0061		0.0101
Fecal coliform per 100 mL		<1	<1	<1	<1		<1

\*Samples analyzed beyond recommended holding time of 15 minutes.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 5

ANALYSIS OF WATER FROM THE SIX MONITORING WELLS AT  
THE HANOVER PARK FISCHER FARM SITE SAMPLED ON  
MARCH 7, 2006

Parameter	Units	Well					
		1	3	5	6	7	8
pH*		7.7	7.1	7.5	8.1		7.6
EC	mS/m	218	153	98	63		79
Cl <sup>-</sup>	mg/L	411	20	34	7		14
SO <sub>4</sub> <sup>=</sup>	"	71	603	178	58		96
Alkalinity as CaCO <sub>3</sub>	"	513	244	314	286		318
						W	
TKN	"	7	1	0.5	0.5	E	0.4
NH <sub>3</sub> -N	"	3.3	0.18	0.33	0.41	L	0.32
NO <sub>2</sub> +NO <sub>3</sub> -N	"	0.834	0.250	<0.020	<0.020	L	<0.020
Total P	"	1.3	0.25	0.04	0.06		0.04
						D	
Cd	"	0.0048	0.0057	<0.0003	<0.0003	R	<0.0003
Cr	"	<0.002	0.004	<0.002	<0.002	Y	<0.002
Cu	"	0.0173	0.0265	0.0073	0.0045		0.0094
Fe	"	89.6	123	5.01	1.57		2.05
Mn	"	1.760	0.7763	0.0407	0.0537		0.0182
Ni	"	0.0083	0.0185	0.0025	0.0016		0.0018
Zn	"	0.3969	0.6050	0.0042	0.0039		0.0044
Fecal coliform per 100 mL		<1	<1	<1	<1		<1

\*Samples analyzed beyond recommended holding time of 15 minutes.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 6

ANALYSIS OF WATER FROM THE SIX MONITORING WELLS AT  
THE HANOVER PARK FISCHER FARM SITE SAMPLED ON  
MARCH 21, 2006

Parameter	Units	Well					
		1	3	5	6	7	8
pH*		7.6	7.8	7.5	7.5	7.2	8.0
EC	mS/m	218	90	75	74	109	65
Cl <sup>-</sup>	mg/L	378	17	14	28	34	7
SO <sub>4</sub> <sup>=</sup>	"	62	234	96	174	210	63
Alkalinity as CaCO <sub>3</sub>	"	538	236	313	318	402	294
TKN	"	5	0.7	0.5	0.4	16	0.6
NH <sub>3</sub> -N	"	3.9	0.06	0.35	0.29	12	0.43
NO <sub>2</sub> +NO <sub>3</sub> -N	"	0.665	4.02	0.022	0.074	0.095	0.056
Total P	"	0.10	0.09	0.03	0.04	0.04	0.04
Cd	"	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Cr	"	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cu	"	0.0071	0.0073	0.0245	0.0216	0.0009	0.0037
Fe	"	6.61	4.46	3.62	8.78	4.23	1.94
Mn	"	1.193	0.0506	0.0262	0.0623	0.0552	0.0554
Ni	"	0.0023	0.0028	0.0017	0.0026	0.0021	<0.0007
Zn	"	0.0499	0.0541	0.0067	0.0180	0.0328	0.0060
Fecal coliform per 100 mL		<1	<1	<1	<1	<1	<1

\*Samples analyzed beyond recommended holding time of 15 minutes.



METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 7

ANALYSIS OF COMBINED SURFACE AND SUBSURFACE DRAINAGE FROM THE FISCHER FARM SITE RETURNED TO THE HANOVER PARK WATER RECLAMATION PLANT IN JANUARY, FEBRUARY, AND MARCH 2006

Date	Sump	NH <sub>3</sub> -N	Total Suspended Solids	BOD <sub>5</sub>
			----- mg/L -----	
1/10	East	11	4	11
	West	0.13	4	3
1/24	East	2.0	8	8
	West	0.26	8	4
2/07	East	19	6	4
	West	30	16	16
2/28	East	94	131	42
	West	18	51	16
3/07	East	103	102	42
	West	17	17	14
3/21	East	0.47	19	<2
	West	2.7	21	16
MDL		0.03	2	2

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 8

ANALYSIS OF LAGOON SUPERNATANT APPLIED TO TWO FIELDS AT THE  
 HANOVER PARK FISCHER FARM SITE DURING  
 JANUARY, FEBRUARY, AND MARCH 2006

Constituent	Units	Concentration <sup>1</sup>
pH		8.0
Total Solids	%	0.15
Total Volatile Solids	"	51.8
TKN	mg/dry kg	509,050
NH <sub>3</sub> -N	"	490,678
Volatile Acids <sup>2</sup>	"	6,971
Total P	"	47,714
As	"	18
Cd	"	3
Cr	"	4
Cu	"	178
Hg	"	0.32
Mn	"	73
Mo	"	3
Ni	"	36
Pb	"	5
Se	"	<0.8
Zn	"	229

<sup>1</sup>Means of two samples.

<sup>2</sup>As acetic acid.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 9

VOLUMES AND DRY WEIGHTS OF LAGOON SUPERNATANT APPLIED  
TO TWO FIELDS AT THE HANOVER PARK FISCHER FARM SITE  
DURING JANUARY, FEBRUARY, AND MARCH 2006

Field	Date	Biosolids Source	Volume (Gallons)	Dry Weight (Tons)
1	1/30	Lagoon	180,000	0.98
2	1/31	Lagoon	300,000	2.13
1	2/01	Lagoon	240,000	1.70
2	2/02	Lagoon	150,000	0.81
1	3/27	Lagoon	120,000	0.75
2	3/28	Lagoon	380,000	2.54
1	3/29	Lagoon	260,000	1.63
2	3/30	Lagoon	380,000	2.06
Total			2,010,000	12.60