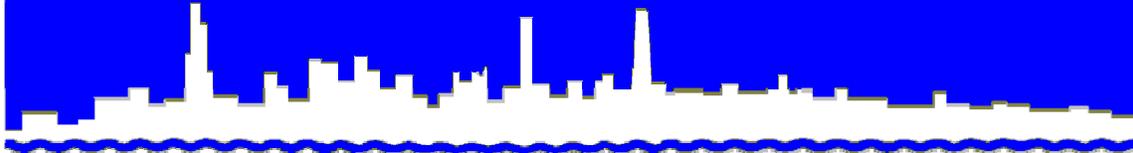


Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

***RESEARCH AND DEVELOPMENT
DEPARTMENT***

REPORT NO. 07-27

***HANOVER PARK WATER RECLAMATION PLANT
FISCHER FARM MONITORING REPORT***

FIRST QUARTER 2007

MAY 2007

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Louis Kollias, P.E., BCEE

Director of Research and Development

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May 10, 2007

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 2007, as required by IEPA Operating Permit No. 2002-SC-0672.

Very truly yours,

Louis Kollias
Director
Research and Development

LK:PL:spy

Enclosure

cc w/enc: Jay Patel, Manager, IEPA Region II - Des Plaines

Mr. Valdis Aistars, USEPA Region V

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**HANOVER PARK WATER RECLAMATION PLANT
FISCHER FARM MONITORING REPORT**

FIRST QUARTER 2007

Research and Development
P. Lindo
A. Cox

May 2007

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FOREWORD

The data and information in this report fulfill the frequency of monitoring and the reporting requirements for the Hanover Park Water Reclamation Plant Fischer Farm site as specified in the Illinois Environmental Protection Agency Permit No. 2002-SC-0672 for the first quarter of 2007.

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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 MONITORING REPORT FIRST QUARTER OF 2007

During January, February, and March 2007, 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 2007. Analytical data for samples collected during the quarter are presented in Tables 1 through 6.

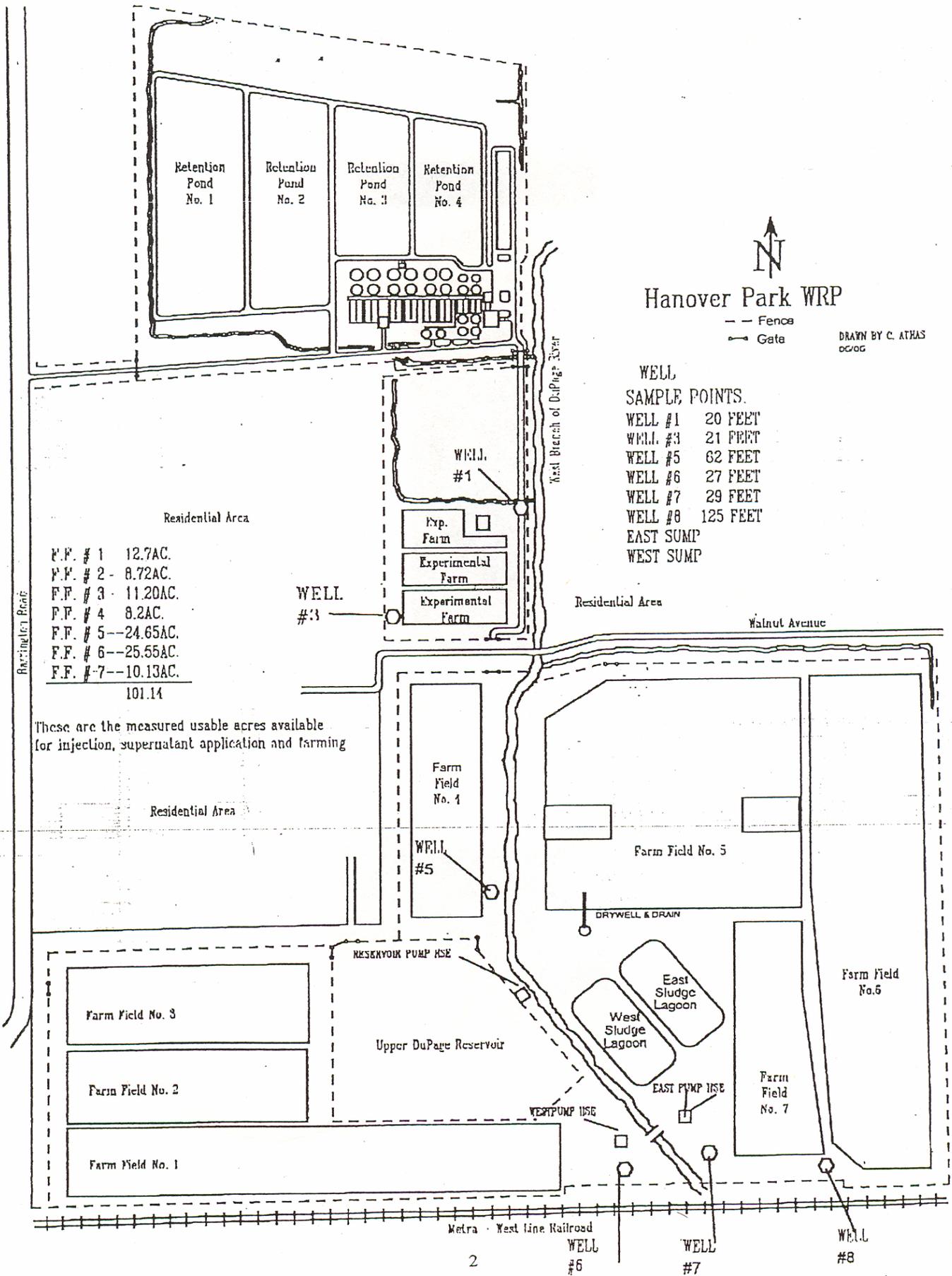
Drainage water (combined surface and subsurface) returned to the Hanover Park WRP from the farm fields was sampled twice per month in January, February, and March. Analytical data for these samples are presented in Table 7. The volumes of drainage water returned to the WRP during the first quarter were estimated as 6.24, 8.89, and 13.35 million gallons (MG) for January, February, and March, respectively.

During the quarter, no lagoon supernatant and biosolids were applied to the Fischer Farm field.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

FIGURE 1

FIELDS AND WELLS AT THE HANOVER PARK FISCHER FARM SITE



- F.F. # 1 12.7AC.
- F.F. # 2 - 8.72AC.
- F.F. # 3 11.20AC.
- F.F. # 4 8.2AC.
- F.F. # 5--24.65AC.
- F.F. # 6--25.55AC.
- F.F. # 7--10.13AC.

101.14

These are the measured usable acres available for injection, supernatant application and farming

TABLE 1: ANALYSIS OF WATER FROM THE SIX MONITORING WELLS AT THE HANOVER PARK FISCHER FARM SITE SAMPLED ON JANUARY 9, 2007

Parameter	Units	Well					
		1	3	5	6	7	8
pH*		7.8	7.7	7.6	7.5	7.2	8.2
EC	mS/m	227	99	73	96	117	60
Cl ⁻	mg/L	556	18	14	22	40	7
SO ₄ ⁼	"	13	275	95	203	236	58
Alkalinity as CaCO ₃	"	371	301	324	364	444	292
TKN	"	3.8	0.32	0.51	0.46	8.8	0.44
NH ₃ -N	"	3.0	<0.03	0.33	0.20	8.8	0.39
NO ₂ +NO ₃ -N	"	0.11	0.31	0.11	0.04	0.03	0.02
Total P	"	0.12	0.07	0.04	0.04	0.05	0.05
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	"	0.0017	0.0051	0.0392	0.0062	<0.0005	0.0015
Fe	"	8.9	1.28	3.41	4.36	4.63	1.20
Mn	"	0.8986	0.0232	0.0302	0.0340	0.0625	0.0604
Ni	"	0.0034	0.0039	0.0043	0.0018	0.0025	0.0014
Zn	"	0.0199	0.0269	0.0131	0.0062	0.0430	0.0173
Fecal coliform	MPN/100 mL	<1	<1	<1	<1	<1	<1

*Samples analyzed beyond recommended holding time of 15 minutes.
MPN = Most probable number.

TABLE 2: ANALYSIS OF WATER FROM THE SIX MONITORING WELLS AT THE HANOVER PARK FISCHER FARM SITE SAMPLED ON JANUARY 23, 2007

Parameter	Unit	Well					
		1	3	5	6	7	8
pH*		7.9	8.0	7.7	7.7		
EC	mS/m	228	104	76	102		
Cl ⁻	mg/L	546	20	14	22		
SO ₄ ⁼	"	11	276	97	212		
Alkalinity as CaCO ₃	"	346	294	320	360	W E L	W E L
TKN	"	2.1	0.23	0.39	0.27	L	L
NH ₃ -N	"	1.6	0.05	0.30	0.17		
NO ₂ +NO ₃ -N	"	0.27	0.17	0.03	0.03	F	F
Total P	"	0.12	0.09	0.05	0.09	R O	R O
Cd	"	0.0019	<0.0003	<0.0003	<0.0003	Z	Z
Cr	"	<0.002	<0.002	<0.002	<0.002	E	E
Cu	"	0.0014	0.0048	0.0394	0.0043	N	N
Fe	"	53.5	2.36	3.31	3.13		
Mn	"	0.9004	0.0288	0.0247	0.0211		
Ni	"	0.0036	0.0028	0.0031	0.0023		
Zn	"	0.1868	0.0340	0.0146	0.0057		
Fecal coliform	MPN/100 mL	<1	<1	<1	<1		

*Samples analyzed beyond recommended holding time of 15 minutes.
MPN = Most probable number.

TABLE 3: ANALYSIS OF WATER FROM THE SIX MONITORING WELLS AT THE HANOVER PARK FISCHER FARM SITE SAMPLED ON FEBRUARY 6, 2007

Parameter	Unit	Well					
		1	3	5	6	7	8
pH*		8.0	7.9	7.7	7.6		
EC	mS/m	219	103	73	100		
Cl ⁻	mg/L	539	19	15	22		
SO ₄ ⁼	"	13	465	96	220		
Alkalinity as CaCO ₃	"	331	288	318	365		
						W	W
						E	E
TKN	"	1.8	0.37	0.47	0.38	L	L
NH ₃ -N	"	0.11	0.05	0.31	0.14	L	L
NO ₂ +NO ₃ -N	"	0.09	0.07	0.11	0.02		
Total P	"	0.56	0.13	0.04	0.03	F	F
						R	R
Cd	"	0.0169	<0.0003	<0.0003	<0.0003	O	O
Cr	"	0.004	<0.002	<0.002	<0.002	Z	Z
Cu	"	0.0052	0.0033	0.0151	0.0053	E	E
Fe	"	361**	4.30	1.71	3.98	N	N
Mn	"	2.797	0.0405	0.0157	0.0268		
Ni	"	0.0186	0.0024	0.0025	0.0023		
Zn	"	0.8285	0.0315	0.0051	0.0061		
Fecal coliform	MPN/100 mL	<1	<1	<1	<1		

*Samples analyzed beyond recommended holding time of 15 minutes.

**Orange-brown sediment in sample.

MPN = Most probable number.

TABLE 4: ANALYSIS OF WATER FROM THE SIX MONITORING WELLS AT THE HANOVER PARK FISCHER FARM SITE SAMPLED ON FEBRUARY 27, 2007

Parameter	Unit	Well					
		1	3	5	6	7	8
pH*		8.1	8.1	8.0	7.9		
EC	mS/m	222	104	105	76		
Cl ⁻	mg/L	527	20	21	14		
SO ₄ ⁼	"	25	245	232	100		
Alkalinity as CaCO ₃	"	307	261	314	357	W E L	W E L
TKN	"	3.2	0.32	0.30	0.42	L	L
NH ₃ -N	"	0.15	<0.03	0.15	0.41		
NO ₂ +NO ₃ -N	"	0.32	0.15	0.03	0.03		
Total P	"	1.3	0.08	0.05	0.06	F R	F R
Cd	"	0.0264	<0.0003	<0.0003	<0.0003	O	O
Cr	"	0.018	<0.002	<0.002	<0.002	Z	Z
Cu	"	0.0529	0.0062	0.0203	0.0046	E	E
Fe	"	524**	2.19	3.13	4.46	N	N
Mn	"	4.565	0.0440	0.0244	0.0265		
Ni	"	0.0416	0.0035	0.0035	0.0029		
Zn	"	1.567	0.0536	0.0073	0.0051		
Fecal coliform	MPN/100 mL	<1	<1	<1	<1		

*Samples analyzed beyond recommended holding time of 15 minutes.

**Orange-brown sediment in sample.

MPN = Most probable number.

TABLE 5: ANALYSIS OF WATER FROM THE SIX MONITORING WELLS AT THE HANOVER PARK FISCHER FARM SITE SAMPLED ON MARCH 13, 2007

Parameter	Unit	Well					
		1	3	5	6	7	8
pH*		7.5	8.0	7.7	7.5	7.3	8.1
EC	mS/m	227	100	74	108	121	61
Cl ⁻	mg/L	539	19	13	23	37	7
SO ₄ ⁼	"	15	264	99	249	246	59
Alkalinity as CaCO ₃	"	337	286	316	368	421	292
TKN	"	10	0.40	0.49	0.48	7.8	0.55
NH ₃ -N	"	2.6	0.05	0.33	0.28	7.6	0.58
NO ₂ +NO ₃ -N	"	0.30	0.07	0.03	0.03	0.08	0.03
Total P	"	2.8	0.07	0.04	0.04	0.05	0.06
Cd	"	0.0030	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Cr	"	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cu	"	0.0097	0.0042	0.0623	0.0064	0.0008	0.0028
Fe	"	64.5	2.32	4.20	4.14	4.79	0.993
Mn	"	1.313	0.0354	0.0376	0.0234	0.0611	0.0329
Ni	"	0.0082	0.0030	0.0048	0.0031	0.0040	<0.0007
Zn	"	0.2797	0.0370	0.0160	0.0050	0.0591	0.0025
Fecal coliform	MPN/100 mL	<1	<1	<1	<1	<1	<1

*Samples analyzed beyond recommended holding time of 15 minutes.

MPN = Most probable number.

TABLE 6: ANALYSIS OF WATER FROM THE SIX MONITORING WELLS AT THE HANOVER PARK FISCHER FARM SITE SAMPLED ON MARCH 27, 2007

Parameter	Unit	Well					
		1	3	5	6	7	8
pH*		7.3	7.6	7.5	7.4	7.1	8.1
EC	mS/m	226	99	76	108	130	59
Cl ⁻	mg/L	519	19	13	21	35	6
SO ₄ ⁼	"	12	266	97	227	246	55
Alkalinity as CaCO ₃	"	372	288	315	368	461	274
TKN	"	4.2	0.24	0.33	0.33	8.0	0.42
NH ₃ -N	"	3.5	0.17	0.58	NRR	7.5	0.53
NO ₂ +NO ₃ -N	"	0.30	0.10	0.06	0.17	0.04	0.04
Total P	"	0.09	0.05	0.02	0.05	0.04	0.05
Cd	"	0.0020	0.0005	0.0005	<0.0003	<0.0003	<0.0003
Cr	"	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cu	"	0.0060	0.0054	0.0523	0.0042	0.0022	0.0056
Fe	"	13.1	2.15	3.64	3.73	4.86	1.08
Mn	"	1.640	0.0304	0.0287	0.0261	0.0625	0.0373
Ni	"	0.0041	0.0026	0.0039	0.0018	0.0031	0.0012
Zn	"	0.0444	0.0355	0.0130	0.0124	0.0424	0.0040
Fecal coliform	MPN/100 mL	<1	<1	<1	<1	<1	<1

*Samples analyzed beyond recommended holding time of 15 minutes.
 NRR = No reportable result.
 MPN = Most probable number.

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 2007

Sample Date	Sump	NH ₃ -N	Total Suspended Solids	BOD ₅
		----- mg/L -----		
1/09	East	59	313	25
	West	1.7	34	6
1/23	East	NRR	100	81
	West	3.4	41	8
2/06	East	255	102	99
	West	9.3	36	16
2/27	East	2.9	11	7
	West	0.90	11	7
3/13	East	1.8	35	17
	West	1.7	39	8
3/27	East	2.2	90	15
	West	1.7	22	7
MDL		0.03	2	2

NRR = No reportable result.