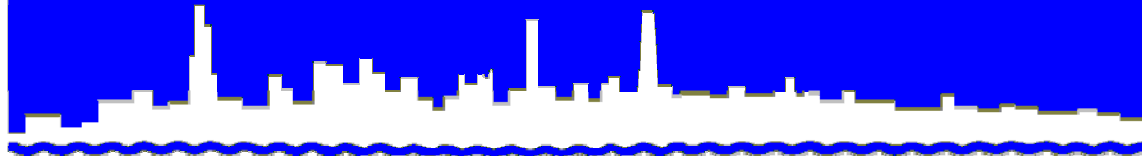


Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

***RESEARCH AND DEVELOPMENT
DEPARTMENT***

REPORT NO. 08-45

HANOVER PARK WATER RECLAMATION PLANT

FISCHER FARM MONITORING REPORT FOR

SECOND QUARTER 2008

AUGUST 2008

Metropolitan Water Reclamation District of Greater Chicago

100 East Erie Street Chicago, Illinois 60611-2803 312-751-5600

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

SECOND QUARTER 2008

**Research and Development
P. Lindo
A. Cox**

AUGUST 2008

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August 29, 2008

Director of Research and Development

312-751-5190

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:

Subject: Hanover Park WRP - IEPA Permit No. 2007-SC-2951, Monitoring Report for April, May, and June 2008

The attached report includes nine tables of the monitoring results for the Hanover Park Water Reclamation Plant Fischer Farm site for the second quarter of 2008.

Very truly yours,

Louis Kollias

Director

Research and Development

LK:PL:kq

Enclosure

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

Mr. Valdis Aistars, USEPA Region V

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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 Fischer Farm Site as specified in the Illinois Environmental Protection Agency Permit No. 2007-SC-2951 for the second quarter of 2008.

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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.

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 SECOND QUARTER OF 2008

During April, May, and June 2008, 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 Operating Permit No. 2007-SC-2951. Fields and water monitoring locations are presented in Figure 1.

Water from each of the six monitoring wells was sampled twice monthly in April, May, and June. 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 April, May, and June. Analytical data for these samples are presented in Table 7. The volumes of drainage water returned to the WRP during the second quarter were estimated as 12.14, 5.04, 3.80 million gallons in April, May, and June, respectively. The analytical data for the lagoon supernatant are presented in Table 8. The volumes and dry weights applied are reported in Table 9.

FIGURE 1: FIELDS AND WELLS AT THE HANOVER PARK FISCHER FARM SITE OF THE METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

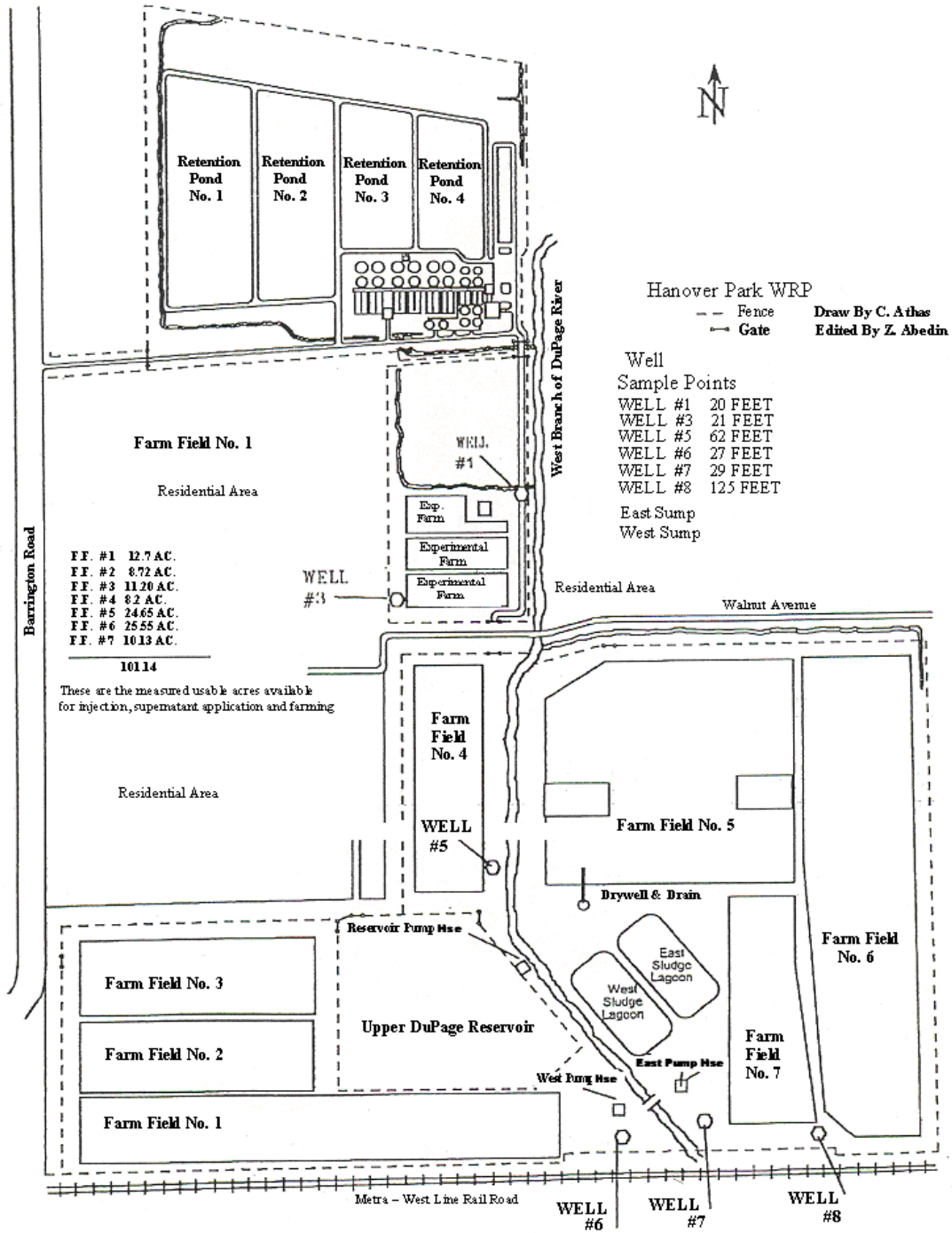


TABLE 1: ANALYSIS OF WATER FROM THE SIX MONITORING WELLS AT
THE HANOVER PARK FISCHER FARM SITE
SAMPLED ON APRIL 8, 2008

Parameter	Unit	Well					
		1	3	5	6	7	8
pH ¹		7.1	7.6	7.5	7.5	7.1	7.9
EC	mS/m	241	104	76	98	127	62
Cl ⁻	mg/L	680	20	13	47	44	6.0
SO ₄ ⁼	''	9.0	250	96	148	242	62
Alkalinity ²	''	223	310	316	324	446	283
TKN	''	5.0	0.53	0.49	0.41	6.4	0.47
NH ₃ -N	''	4.1	<0.03	0.35	0.32	6.6	0.41
NO ₂ + NO ₃ -N	''	0.11	0.05	0.03	0.05	0.04	0.04
Total P	''	0.07	<0.02	0.02	0.02	0.02	0.02
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	''	<0.0005	0.0025	0.0116	0.0236	0.0031	0.0033
Fe	''	28.1	1.57	1.44	6.75	4.59	0.718
Mn	''	2.453	0.0224	0.0149	0.0629	0.0651	0.0322
Ni	''	0.0048	0.0014	0.0013	0.0038	0.0031	0.0013
Zn	''	0.0613	0.0152	0.0031	0.0049	0.0441	0.0084
Fecal Coliform MPN		<1	<1	<1	<1	<1	<1

¹Samples analyzed beyond recommended holding time of 15 minutes.

²As CaCO₃.

MPN = Most probable number/100 mL.

TABLE 2: ANALYSIS OF WATER FROM THE SIX MONITORING WELLS AT
THE HANOVER PARK FISCHER FARM SITE
SAMPLED ON APRIL 22, 2008

Parameter	Unit	Well					
		1	3	5	6	7	8
pH ¹		7.5	7.8	7.7	7.6	7.3	8.2
EC	mS/m	235	102	77	96	134	63
Cl ⁻	mg/L	645	19	13	40	42	6.0
SO ₄ ⁼	"	9.0	243	97	151	253	64
Alkalinity ²	"	227	312	318	323	465	288
TKN	"	4.5	0.44	0.31	0.39	6.7	0.42
NH ₃ -N	"	3.8	<0.03	0.31	0.19	6.6	0.36
NO ₂ + NO ₃ -N	"	0.26	0.03	<0.02	<0.02	<0.02	<0.02
Total P	"	0.09	0.02	0.02	0.05	0.03	0.02
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	"	<0.0005	0.0023	0.0098	0.0057	<0.0005	0.0037
Fe	"	19.8	2.79	1.57	3.01	5.01	1.31
Mn	"	1.499	0.0240	0.0150	0.0352	0.0670	0.0364
Ni	"	0.0027	0.0028	0.0017	0.0026	0.0028	0.0007
Zn	"	0.0382	0.0215	0.0045	0.0031	0.0286	0.0021
Fecal Coliform MPN		<1	<1	<1	<1	<1	<1

¹Samples analyzed beyond recommended holding time of 15 minutes.

²As CaCO₃.

MPN = Most probable number/100 mL.

TABLE 3: ANALYSIS OF WATER FROM THE SIX MONITORING WELLS AT
THE HANOVER PARK FISCHER FARM SITE
SAMPLED ON MAY 6, 2008

Parameter	Unit	Well					
		1	3	5	6	7	8
pH ¹		7.0	7.5	7.5	7.4	7.1	8.0
EC	mS/m	237	100	74	93	131	62
Cl ⁻	mg/L	656	18	13	40	42	6.0
SO ₄ ⁼	''	6.0	252	99	150	271	59
Alkalinity ²	''	220	300	319	307	433	282
TKN	''	5.4	0.49	0.30	0.41	6.7	0.41
NH ₃ -N	''	4.3	0.23	0.33	0.26	6.6	0.38
NO ₂ + NO ₃ -N	''	0.18	0.04	0.03	0.05	0.04	0.02
Total P	''	0.12	0.02	0.03	0.07	0.03	<0.02
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	''	<0.0005	0.0014	0.0237	0.0067	<0.0005	0.0094
Fe	''	25.9	1.73	2.87	3.05	5.44	1.23
Mn	''	1.560	0.0171	0.0243	0.0347	0.0718	0.0375
Ni	''	0.0039	0.0021	0.0035	0.0026	0.0023	0.0007
Zn	''	0.0317	0.0200	0.0045	0.0048	0.0423	0.0023
Fecal Coliform MPN		530	1	<1	<1	<1	<1

¹Samples analyzed beyond recommended holding time of 15 minutes.

²As CaCO₃.

MPN = Most probable number/100 mL.

TABLE 4: ANALYSIS OF WATER FROM THE SIX MONITORING WELLS AT
THE HANOVER PARK FISCHER FARM SITE
SAMPLED ON MAY 20, 2008

Parameter	Unit	Well					
		1	3	5	6	7	8
pH ¹		6.9	7.5	7.4	7.3	7.0	7.8
EC	mS/m	235	101	78	97	134	66
Cl ⁻	mg/L	609	21	13	30	40	6.0
SO ₄ ⁼	"	8.0	241	95	149	258	65
Alkalinity ²	"	224	305	317	336	454	294
TKN	"	5.2	0.71	0.42	0.49	6.1	0.61
NH ₃ -N	"	4.3	<0.03	0.29	0.25	5.9	0.32
NO ₂ + NO ₃ -N	"	0.24	0.07	0.05	0.04	0.05	<0.02
Total P	"	0.06	<0.02	<0.02	<0.02	<0.02	<0.02
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	"	0.0007	0.0054	0.0343	0.0072	0.0054	0.0132
Fe	"	7.93	1.74	2.54	4.11	5.42	1.43
Mn	"	0.9400	0.0683	0.0237	0.0332	0.0695	0.0406
Ni	"	0.0018	0.0018	0.0010	0.0019	0.0021	0.0007
Zn	"	0.0113	0.0111	0.0040	0.0038	0.0291	0.0058
Fecal Coliform MPN		25	20	<1	<1	<1	<1

¹Samples analyzed beyond recommended holding time of 15 minutes.

²As CaCO₃.

MPN = Most probable number/100 mL.

TABLE 5: ANALYSIS OF WATER FROM THE SIX MONITORING WELLS AT
THE HANOVER PARK FISCHER FARM SITE
SAMPLED ON JUNE 3, 2008

Parameter	Unit	Well					
		1	3	5	6	7	8
pH ¹		6.6	7.3	7.2	7.1	7.0	7.7
EC	mS/m	230	99	76	90	134	65
Cl ⁻	mg/L	647	19	13	27	42	7.0
SO ₄ ⁼	"	6.0	246	97	143	277	66
Alkalinity ²	"	208	301	318	327	474	298
TKN	"	6.5	0.88	0.25	0.32	6.7	0.39
NH ₃ -N	"	4.8	<0.03	0.30	0.17	6.6	0.36
NO ₂ + NO ₃ -N	"	0.22	0.04	<0.02	<0.02	0.03	<0.02
Total P	"	0.16	0.06	0.04	0.06	0.05	0.05
Cd	"	0.0010	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Cr	"	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cu	"	<0.0005	0.0030	0.0271	0.0055	<0.0005	0.0014
Fe	"	55.4	1.98	2.42	2.71	5.33	1.42
Mn	"	1.985	0.0489	0.0226	0.0306	0.0692	0.0396
Ni	"	0.0031	0.0007	0.0010	0.0016	0.0013	<0.0007
Zn	"	0.0989	0.0142	0.0038	0.0032	0.0285	0.0038
Fecal Coliform MPN		31	<1	<1	<1	<1	<1

¹Samples analyzed beyond recommended holding time of 15 minutes.

²As CaCO₃.

MPN = Most probable number/100 mL.

TABLE 6: ANALYSIS OF WATER FROM THE SIX MONITORING WELLS AT
THE HANOVER PARK FISCHER FARM SITE
SAMPLED ON JUNE 17, 2008

Parameter	Unit	Well					
		1	3	5	6	7	8
pH ¹		6.5	7.3	7.4	7.3	7.1	7.6
EC	mS/m	234	100	78	93	140	67
Cl ⁻	mg/L	633	22	14	22	42	7.0
SO ₄ ⁼	"	4.0	262	94	153	266	66
Alkalinity ²	"	238	303	320	341	493	300
TKN	"	6.3	0.96	0.32	0.38	7.5	0.41
NH ₃ -N	"	5.3	0.15	0.31	0.23	7.3	0.35
NO ₂ + NO ₃ -N	"	0.21	0.06	<0.02	0.04	0.02	<0.02
Total P	"	0.07	0.06	0.03	0.04	0.07	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	"	<0.0005	0.0029	0.0111	0.0040	<0.0005	0.0018
Fe	"	27.9	1.87	1.75	4.36	5.22	1.49
Mn	"	1.635	0.1402	0.0166	0.0361	0.0678	0.0385
Ni	"	0.0038	0.0029	0.0034	0.0022	0.0029	0.0013
Zn	"	0.0410	0.0131	0.0800	0.0043	0.0355	0.0018
Fecal Coliform MPN		3	6	<1	<1	<1	<1

¹Samples analyzed beyond recommended holding time of 15 minutes.

²As CaCO₃.

MPN = Most probable number/100 mL.

TABLE 7: ANALYSIS OF COMBINED SURFACE AND SUBSURFACE DRAINAGE FROM THE FISCHER FARM SITE RETURNED TO HANOVER PARK WATER RECLAMATION PLANT DURING APRIL, MAY, AND JUNE 2008

Date	Sump	NH ₃ -N	TSS ¹	BOD ₅
	 mg/L		
04/08/08	East	29	13	4
04/08/08	West	0.42	13	<2
04/22/08	East	29	65	13
04/22/08	West	0.89	24	3
05/06/08	East	33	14	7
05/06/08	West	0.89	8	<2
05/20/08	East	27	80	8
05/20/08	West	0.12	13	<2
06/03/08	East	17	18	6
06/03/08	West	0.87	4	<2
06/17/08	East	1.4	11	4
06/17/08	West	0.13	3	<2

¹Total Suspended Solids.

TABLE 8: ANALYSIS OF LAGOON SUPERNATANT APPLIED TO FIELDS
 AT THE HANOVER PARK FISCHER FARM SITE
 DURING APRIL, MAY, AND JUNE 2008

Parameter	Unit	Concentration ¹
pH		7.9
TS	%	0.12
TVS ²	"	54.5
TKN	mg/kg	354,753
NH ₃ -N	"	333,192
Volatile Acids ³	"	7,212
Total P	"	35,604
As	"	27
Cd	"	<0.52
Cr	"	<2.6
Cu	"	70
Hg	"	0.22
Mn	"	198
Mo	"	2.6
Ni	"	20
Pb	"	4.2
Se	"	7.9
Zn	"	83

¹Values are the means of six samples of lagoon supernatant.

²Total volatile solids as a percentage of total solids.

³As acetic acid.

TABLE 9: VOLUMES AND DRY WEIGHTS OF LAGOON SUPERNATANT
 APPLIED TO FIELDS AT THE HANOVER PARK FISCHER FARM SITE
 DURING APRIL, MAY, AND JUNE 2008

Field	Date	Biosolids Source	Volume (Gallons)	Dry Weight (Tons)
1	04/30/08	Lagoon	160,000	0.87
1	05/01/08	”	170,000	0.92
1	05/09/08	”	120,000	0.60
1	06/17/08	”	160,000	0.60
5	05/08/08	Lagoon	610,000	3.31
5	05/15/08	”	450,000	1.88
5	06/24/08	”	260,000	1.30
Total			1,930,000	9.48