

Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

***MONITORING AND RESEARCH
DEPARTMENT***

REPORT NO. 11-70

***HANOVER PARK WATER RECLAMATION PLANT
FISCHER FARM MONITORING REPORT FOR
THIRD QUARTER 2011***

NOVEMBER 2011

Metropolitan Water Reclamation District of Greater Chicago

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November 30, 2011

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 Water Reclamation Plant - Illinois Environmental Protection Agency Permit No. 2007-SC-2951-1, Monitoring Report for July, August, and September 2011

The attached report includes five tables of the monitoring results for the Hanover Park Fischer Farm site for the third quarter of 2011.

Very truly yours,

Thomas C. Granato, Ph.D.
Director
Monitoring and Research

TCG:PL:cm

Attachments

cc: J. Patel, Manager,
IEPA Region 2 - Des Plaines
V. Aistars, USEPA Region 5
A. Sajjad, USEPA Region 5
T. Liston

TABLE OF CONTENTS

	<u>Page</u>
FOREWORD	ii
LIST OF TABLES	iii
LIST OF FIGURES	iv
ACKNOWLEDGEMENT	v
DISCLAIMER	v
HANOVER PARK WATER RECLAMATION PLANT FISCHER FARM REPORT FOR THIRD QUARTER OF 2011	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. 2007-SC-2951-1 for the third quarter of 2011.

LIST OF TABLES

<u>Table No.</u>		<u>Page</u>
1	Analysis of Water from Monitoring Well W-7 at the Hanover Park Fischer Farm Site Sampled During July, August, and September 2011	3
2	Analysis of Water from Monitoring Wells W-3 Through W-8 at the Hanover Park Fischer Farm Site Sampled on September 13, 2011	5
3	Analysis of Combined Surface and Subsurface Drainage from the Fischer Farm Site Returned to the Hanover Park Water Reclamation Plant During July, August, and September 2011	6
4	Analysis of Lagoon Supernatant Applied to Fields at the Hanover Park Fischer Farm Site During August 2011	7
5	Volumes and Dry Weights of Lagoon Supernatant Applied to Fields at the Hanover Park Fischer Farm Site During August 2011	8

LIST OF FIGURES

<u>Figure No.</u>		<u>Page</u>
1	Fields and Wells at the Hanover Park Fischer Farm Site of the Metropolitan Water Reclamation District of Greater Chicago	2

ACKNOWLEDGEMENT

The assistance given by Ms. Minaxi Patel, Assistant Environmental Chemist, of the Environmental Monitoring and Research Division, and Mr. John Chavich, Supervisory Environmental Chemist, 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 THIRD QUARTER OF 2011

During July, August, and September 2011, 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-2951-1. Fields and water monitoring locations are presented in Figure 1.

Analytical data for well water samples collected during the quarter are presented in Tables 1 and 2.

Drainage water (combined surface and subsurface) returned to the Hanover Park WRP from the farm fields was sampled twice per month in July, August, and September. Analytical data for these samples are presented in Table 3. The volumes of drainage water returned to the WRP during the third quarter were estimated as 4.24, 13.05, 7.59 million gallons in July, August, and September, respectively. The analytical data for the lagoon supernatant applied to Fischer Farm fields during the quarter are presented in Table 4. The volumes and dry weights applied are reported in Table 5.

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

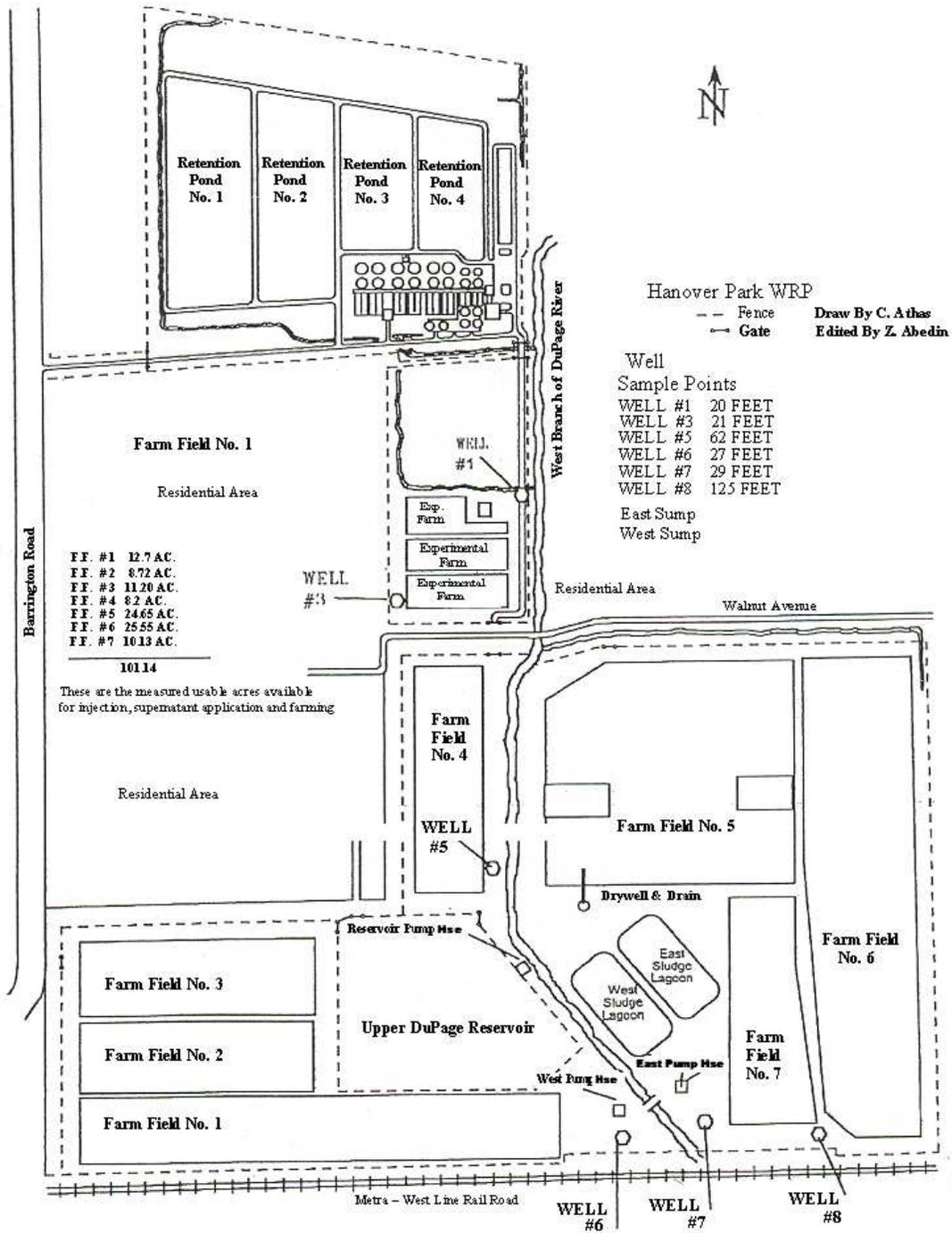


TABLE 1: ANALYSIS OF WATER FROM MONITORING WELL W-7
 AT THE HANOVER PARK FISCHER FARM SITE
 SAMPLED DURING JULY, AUGUST, AND SEPTEMBER 2011

Parameter	Unit	Date Sampled			
		07/12/11	07/26/11	08/09/11	08/23/11
pH ¹		6.9	6.7	7.0	6.9
EC	mS/m	138	161	139	152
Cl ⁻	mg/L	56	53	53	52
SO ₄ ⁼	"	234	219	231	240
Alkalinity as CaCO ₃	"	607	630	597	576
TKN	"	30	31	31	29
NH ₃ -N	"	28	31	29	29
NO ₂ + NO ₃ -N	"	< 0.135	< 0.135	< 0.135	< 0.135
Total P	"	< 0.1	< 0.1	0.2	0.2
Cd	"	< 0.001	< 0.001	< 0.001	< 0.001
Cr	"	< 0.01	< 0.01	< 0.01	< 0.01
Cu	"	< 0.004	< 0.004	< 0.004	< 0.004
Fe	"	4.7	5.1	4.7	4.7
Mn	"	0.05	0.06	0.05	0.05
Ni	"	< 0.004	< 0.004	< 0.004	< 0.004
Zn	"	0.07	0.09	0.08	0.08
Fecal coliform	MPN ²	< 1	30	2	70

TABLE 1 (Continued): ANALYSIS OF WATER FROM MONITORING WELL W-7
 AT THE HANOVER PARK FISCHER FARM SITE
 SAMPLED DURING JULY, AUGUST, AND SEPTEMBER 2011

Parameter	Unit	Date Sampled	
		09/13/11	09/27/11
pH ¹		7.3	7.1
EC	mS/m	151	161
Cl ⁻	mg/L	52	54
SO ₄ ⁼	"	203	221
Alkalinity as CaCO ₃	"	604	623
TKN	"	34	32
NH ₃ -N	"	28	31
NO ₂ + NO ₃ -N	"	< 0.135	< 0.135
Total P	"	< 0.1	0.2
Cd	"	< 0.001	< 0.001
Cr	"	< 0.01	< 0.01
Cu	"	< 0.004	0.006
Fe	"	7.9	4.7
Mn	"	0.09	0.05
Ni	"	< 0.004	< 0.004
Zn	"	0.27	0.10
Fecal coliform	MPN ²	2	14

¹pH analyzed beyond recommended holding time of 15 minutes.

²Most probable number per 100 mL.

TABLE 2: ANALYSIS OF WATER FROM MONITORING WELLS W-3
THROUGH W-8 AT THE HANOVER PARK FISCHER FARM SITE
SAMPLED ON SEPTEMBER 13, 2011

Parameter	Unit	Monitoring Well No.			
		W-3	W-5	W-6	W-8
pH ¹		7.4	7.5	7.5	8.3
EC	mS/m	87	75	83	55
Cl ⁻	mg/L	23	14	22	7
SO ₄ ⁼	"	139	96	121	44
Alkalinity as CaCO ₃	"	343	316	315	255
TKN	"	0.8	0.4	0.4	0.6
NH ₃ -N	"	0.32	0.31	0.24	0.44
NO ₂ + NO ₃ -N	"	0.143	< 0.135	< 0.135	< 0.135
Total P	"	0.2	< 0.1	0.2	< 0.1
Cd	"	< 0.001	< 0.001	< 0.001	< 0.001
Cr	"	< 0.01	< 0.01	< 0.01	< 0.01
Cu	"	< 0.004	0.111	0.008	0.005
Fe	"	4.6	5.3	2.5	0.59
Mn	"	0.21	0.04	< 0.03	< 0.03
Ni	"	< 0.004	0.005	< 0.004	< 0.004
Zn	"	0.02	< 0.01	< 0.01	< 0.01
Fecal coliform	MPN ²	3	< 1	< 1	< 1

¹pH analyzed beyond recommended holding time of 15 minutes.

²Most probable number per 100 mL.

TABLE 3: ANALYSIS OF COMBINED SURFACE AND SUBSURFACE DRAINAGE FROM THE FISCHER FARM SITE RETURNED TO THE HANOVER PARK WATER RECLAMATION PLANT DURING JULY, AUGUST, AND SEPTEMBER 2011

Date	Sump	NH ₃ -N	TSS ¹	BOD ₅
..... mg/L				
07/12/11	East	102	113	109
07/12/11	West	13	15	9
07/26/11	East	7.7	18	9
07/26/11	West	0.15	6	6
08/09/11	East	36	58	31
08/09/11	West	2.9	9	7
08/23/11	East	11	28	7
08/23/11	West	<0.10	6	<2
09/13/11	East	237	214	148
09/13/11	West	2.9	21	<2
09/27/11	East	2.8	14	5
09/27/11	West	0.12	6	2

¹Total suspended solids.

TABLE 4: ANALYSIS OF LAGOON SUPERNATANT APPLIED TO FIELDS
AT THE HANOVER PARK FISCHER FARM SITE
DURING AUGUST 2011

Parameter	Unit	Concentration ¹
pH		7.9
Total Solids	%	0.1
Total Volatile Solids ²	"	54.8
Volatile Acids ³	mg/kg	7,953
TKN	"	238,576
NH ₃ -N	"	214,711
Total P	"	44,570
As	"	20
Cd	"	0.737
Cr	"	7.4
Cu	"	38
Hg	"	< 0.25
Mn	"	183
Mo	"	4.52
Ni	"	19
Pb	"	16
Se	"	6
Zn	"	59

¹Values are the means of four samples.

²Total volatile solids as a percentage of total solids.

³As acetic acid.

TABLE 5: VOLUMES AND DRY WEIGHTS OF LAGOON SUPERNATANT
 APPLIED TO FIELDS AT THE HANOVER PARK FISCHER FARM SITE
 DURING AUGUST 2011

Field	Date	Biosolids Type	Volume (Gallons)	Dry Weight (Tons)
1	08/04/11	Supernatant	330,000	2.34
2	08/15/11	”	430,000	1.97
5	08/25/11	”	370,000	1.54
Total			1,130,000	5.85