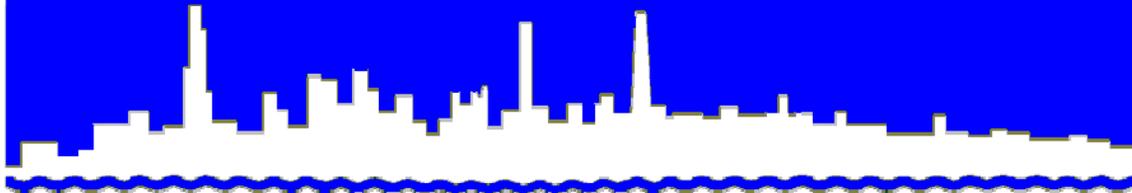


Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

*MONITORING AND RESEARCH
DEPARTMENT*

REPORT NO. 15-42

HANOVER PARK WATER RECLAMATION PLANT

FISCHER FARM MONITORING REPORT FOR

THIRD QUARTER 2015

December 2015

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THOMAS C. GRANATO, Ph.D., BCES

Director of Monitoring and Research

November 23, 2015

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. 2012-SC-2255, Monitoring Report for July, August, and September 2015

The attached tables contain the monitoring data for the Hanover Park Water Reclamation Plant (WRP) Fischer Farm site for July, August, and September 2015 as required by Illinois Environmental Protection Agency (IEPA) Operating Permit No. 2012-SC-2255. 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 in July, August, and September, and 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 3.0, 0.72, and 2.2 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 Tables 4, 5, and 6. The volumes and dry weights applied are reported in Table 7. Field and water monitoring locations are presented in Figure 1. The data reported are as follows:

Table 1, Analysis of Water From Monitoring Well W-7 at the Hanover Park Fischer Farm Site Sampled during July, August, and September 2015.

Table 2, Analysis of Water From Monitoring Wells W-3, W-5, W-6, and W-8 at the Hanover Park Fischer Farm Site Sampled on August 4, 2015.

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 2015.

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Table 4, Analysis of Lagoon Supernatant Applied to Fields at the Hanover Park Fischer Farm Site During July 2015.

Table 5, Analysis of Lagoon Supernatant Applied to Fields at the Hanover Park Fischer Farm Site During August 2015.

Table 6, Analysis of Lagoon Supernatant Applied to Fields at the Hanover Park Fischer Farm Site During September 2015.

Table 7, Volumes and Dry Weights of Lagoon Supernatant Applied to Fields During July, August, and September 2015 at the Hanover Park Fischer Farm Site.

Figure 1, Map of Fields and Wells at the Hanover Park Fischer Farm Site of the Metropolitan Water Reclamation District of Greater Chicago.

Very truly yours,

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

TCG:HZ:DB:cm

Attachments

cc/att: Mr. J. Patel, Manager, IEPA – Des Plaines

Mr. V. Aistars, USEPA, Region 5

Mr. P. Kuefler, USEPA, Region 5

Ms. D. Coolidge

Dr. H. Zhang

Dr. A. Cox

Dr. L. Hundal

Dr. D. Brose

TABLE 1: ANALYSIS OF WATER FROM MONITORING WELL W-7 AT THE HANOVER PARK FISCHER FARM SITE SAMPLED DURING JULY, AUGUST, AND SEPTEMBER 2015

Parameter	Unit	Date Sampled					
		7/7/15	7/21/15	8/4/15	8/18/15	9/15/15	9/22/15
pH ¹		7.3	7.3	7.3	7.3	7.2	7.2
EC	mS m ⁻¹	139	149	151	156	159	162
Cl ⁻	mg L ⁻¹	54	54	53	52	51	50
SO ₄ ²⁻	"	236	249	250	244	282	256
Alkalinity as CaCO ₃	"	614	604	623	627	652	658
TKN	"	33	31	31	34	37	39
NH ₃ -N	"	30	28	30	32	36	37
NO ₂ +NO ₃ -N	"	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total P	"	0.31	0.23	0.31	0.36	0.34	0.30
Cd	"	<0.001	<0.001	0.001	<0.001	<0.001	<0.001
Cr	"	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cu	"	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fe	"	4.6	4.5	4.3	5.4	4.3	4.5
Mn	"	0.06	0.06	0.06	0.07	0.05	0.05
Ni	"	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zn	"	0.09	0.17	0.07	0.12	0.06	0.07

¹pH analyzed beyond recommended holding time of 15 minutes.

TABLE 2: ANALYSIS OF WATER FROM MONITORING WELLS W-3, W-5, W-6, AND W-8 AT THE HANOVER PARK FISCHER FARM SITE SAMPLED ON AUGUST 4, 2015

Parameter	Unit	Monitoring Well No.			
		W-3	W-5	W-6	W-8
pH ¹		7.5	7.7	7.6	8.2
EC	mS m ⁻¹	82	70	77	55
Cl ⁻	mg L ⁻¹	16	16	30	<10
SO ₄ ²⁻	"	156	101	121	58
Alkalinity as CaCO ₃	"	370	315	311	263
TKN	"	1.2	<1.0	<1.0	<1.0
NH ₃ -N	"	0.16	0.29	0.25	0.43
NO ₂ +NO ₃ -N	"	<0.15	<0.15	<0.15	<0.15
Total P	"	0.14	<0.10	<0.10	<0.10
Cd	"	0.004	<0.001	<0.001	<0.001
Cr	"	<0.005	<0.005	<0.005	<0.005
Cu	"	0.014	0.006	<0.005	<0.005
Fe	"	28	2.5	2.2	0.51
Mn	"	0.22	0.02	0.04	0.02
Ni	"	<0.005	<0.005	<0.005	<0.005
Zn	"	0.08	<0.01	0.01	<0.01

¹pH analyzed beyond recommended holding time of 15 minutes.

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 2015

Date	Sump	NH ₃ -N	TSS ¹	BOD ₅
		-----mg L ⁻¹ -----		
07/07/2015	East	0.26	51	8.0
07/07/2015	West	<0.10	43	6.0
07/21/2015	East	0.54	<4.0	<2.0
07/21/2015	West	<0.10	<4.0	<2.0
08/04/2015	East	2.5	7.0	4.0
08/04/2015	West	8.3	48.0	28
08/18/2015	East	26	34	24
08/18/2015	West	16	156	127
09/15/2015	East	35	42	33
09/15/2015	West	1.7	4.0	<2.0
09/22/2015	East	12	16	6.0
09/22/2015	West	0.41	7.0	3.0

¹Total suspended solids.

TABLE 4: ANALYSIS OF LAGOON SUPERNATANT APPLIED TO FIELDS AT THE HANOVER PARK FISCHER FARM SITE DURING JULY 2015

Constituent	Unit	Concentration ¹
pH		8.0
Total Solids	%	0.10
Total Volatile Solids ²	"	57
Volatile Acids ³	mg L ⁻¹	9.0
TKN	"	480
NH ₃ -N	"	363
Total P	"	51
Cd	"	<0.001
Cr	"	<0.005
Cu	"	0.06
Mn	"	0.19
Ni	"	0.03
Pb	"	<0.02
Zn	"	0.09

¹One sample.

²Total volatile solids as a percentage of total solids.

³As acetic acid.

TABLE 5: ANALYSIS OF LAGOON SUPERNATANT APPLIED TO FIELDS AT THE HANOVER PARK FISCHER FARM SITE DURING AUGUST 2015

Constituent	Unit	Concentration ¹
pH		7.9
Total Solids	%	0.20
Total Volatile Solids ²	"	59
Volatile Acids ³	mg L ⁻¹	<5.0
TKN	"	456
NH ₃ -N	"	377
Total P	"	59
Cd	"	<0.001
Cr	"	<0.005
Cu	"	0.07
Mn	"	0.28
Ni	"	0.04
Pb	"	<0.02
Zn	"	0.10

¹Mean of two samples.

²Total volatile solids as a percentage of total solids.

³As acetic acid.

TABLE 6: ANALYSIS OF LAGOON SUPERNATANT APPLIED TO FIELDS AT THE HANOVER PARK FISCHER FARM SITE DURING SEPTEMBER 2015

Constituent	Unit	Concentration ¹
pH		7.9
Total Solids	%	0.16
Total Volatile Solids ²	"	58
Volatile Acids ³	mg L ⁻¹	7.5
TKN	"	582
NH ₃ -N	"	510
Total P	"	58
Cd	"	<0.001
Cr	"	0.006
Cu	"	0.06
Mn	"	0.19
Ni	"	0.04
Pb	"	<0.02
Zn	"	0.09

¹Mean of three samples.

²Total volatile solids as a percentage of total solids.

³As acetic acid.

TABLE 7: VOLUMES AND DRY WEIGHTS OF LAGOON SUPERNATANT APPLIED TO FIELDS DURING JULY, AUGUST, AND SEPTEMBER 2015 AT THE HANOVER PARK FISCHER FARM SITE

Field	Date	Biosolids Type	Volume (Gallons)	Dry Weight (Tons)
4	07/08/15	Supernatant	320,000	1.9
6	07/27/15	Supernatant	510,000	3.2
4	08/12/15	Supernatant	150,000	1.1
5	08/31/15	Supernatant	170,000	1.2
1	09/17/15	Supernatant	340,000	2.3
2	09/24/15	Supernatant	440,000	2.9
Total			1,930,000	13

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

