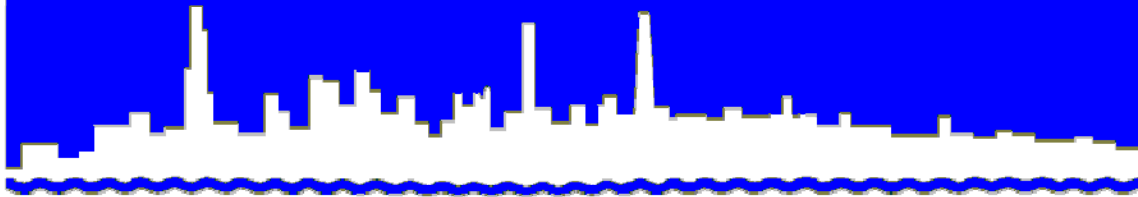


Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

*MONITORING AND RESEARCH
DEPARTMENT*

REPORT NO. 16-06

HANOVER PARK WATER RECLAMATION PLANT

FISCHER FARM MONITORING REPORT FOR

FOURTH QUARTER 2015

February 2016

Metropolitan Water Reclamation District of Greater Chicago

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February 23, 2016

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 October, November, and December 2015

The attached tables contain the monitoring data for the Hanover Park Water Reclamation Plant (WRP) Fischer Farm site for October, November, and December 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 October, November, and December, and data for these samples are presented in Table 3. The volumes of drainage water returned to the WRP during the fourth quarter were estimated as 0.67, 6.3, and 21 million gallons in October, November, and December, respectively. The analytical data for the lagoon supernatant and biosolids applied to Fischer Farm fields during the quarter are presented in Tables 4, and 5. The volumes of supernatant and dry weights of biosolids applied are reported in Table 6. 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 October, November, and December 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 November 3, 2015.

Table 3 Analysis of Combined Surface and Subsurface Drainage From the Fischer Farm Site Returned to the Hanover Park Water Reclamation Plant During October, November, and December 2015.

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

Table 5 Analysis of Biosolids Applied to Fields at the Hanover Park Fischer Farm Site During December 2015.

Table 6 Volumes and Dry Weights of Lagoon Supernatant and Biosolids Applied to Fields During November and December 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 OCTOBER, NOVEMBER, AND DECEMBER 2015

Parameter	Unit	Date Sampled					
		10/6/15	10/20/15	11/3/15	11/17/15	12/1/15	12/8/15
pH ¹		7.2	7.2	7.2	7.2	7.3	7.4
EC	mS m ⁻¹	163	178	191	181	147	151
Cl ⁻	mg L ⁻¹	49	48	46	45	46	46
SO ₄ ²⁻	"	242	248	259	251	266	247
Alkalinity as CaCO ₃	"	674	690	671	683	667	688
TKN	"	40	40	36	40	39	41
NH ₃ -N	"	39	38	38	38	38	37
NO ₂ +NO ₃ -N	"	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total P	"	0.37	0.36	0.41	0.46	0.46	0.30
Cd	"	<0.001	<0.001	<0.001	<0.001	<0.001	0.002
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	"	5.0	5.7	4.2	4.5	4.6	13
Mn	"	0.06	0.07	0.05	0.05	0.05	0.16
Ni	"	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zn	"	0.04	0.14	0.07	0.08	0.07	0.76

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
NOVEMBER 3, 2015

Parameter	Unit	Monitoring Well No.			
		W-3 ¹	W-5	W-6	W-8
pH ²		-	7.6	7.5	8.0
EC	mS m ⁻¹	-	89	102	65
Cl ⁻	mg L ⁻¹	-	15	33	<10
SO ₄ ²⁻	"	-	107	136	69
Alkalinity as CaCO ₃	"	-	316	313	256
TKN	"	-	<1.0	<1.0	<1.0
NH ₃ -N	"	-	0.36	0.36	0.55
NO ₂ +NO ₃ -N	"	-	<0.15	<0.15	<0.15
Total P	"	-	<0.10	0.10	<0.10
Cd	"	-	<0.001	<0.001	<0.001
Cr	"	-	<0.005	<0.005	<0.005
Cu	"	-	0.01	0.01	<0.005
Fe	"	-	3.3	2.6	0.75
Mn	"	-	0.03	0.04	0.02
Ni	"	-	<0.005	<0.005	<0.005
Zn	"	-	<0.01	<0.01	<0.01

¹No data reported. Well 3 was dry at time of sampling.

²pH 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 OCTOBER, NOVEMBER, AND DECEMBER 2015

Date	Sump	NH ₃ -N	TSS ¹	BOD ₅
		----- mg L ⁻¹ -----		
10/06/2015	East	2.5	5.0	6.0
10/06/2015	West	0.27	9.0	3.0
10/20/2015	East	10	8.0	6.0
10/20/2015	West	10	6.0	5.0
11/03/2015	East	6.4	9.0	8.0
11/03/2015	West	4.1	14	20
11/17/2015	East	83	153	137
11/17/2015	West	48	41	42
12/01/2015	East	1.9	8.0	7.0
12/01/2015	West	1.7	10	6.0
12/08/2015	East	2.4	6.0	3.0
12/08/2015	West	2.9	5.0	3.0

¹Total suspended solids.

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

Constituent	Unit	Concentration ¹
pH		8.0
Total Solids	%	0.13
Total Volatile Solids ²	"	58
Volatile Acids ³	mg L ⁻¹	47
TKN	"	586
NH ₃ -N	"	525
Total P	"	57
As	"	<0.05
Cd	"	<0.001
Cr	"	0.01
Cu	"	0.08
Hg	µg L ⁻¹	<0.20
Mn	mg L ⁻¹	0.20
Mo	"	<0.01
Ni	"	0.03
Pb	"	<0.02
Se	"	<0.005
Zn	"	0.11

¹One sample.

²Total volatile solids as a percentage of total solids.

³As acetic acid.

TABLE 5: ANALYSIS OF BIOSOLIDS APPLIED TO FIELDS AT THE HANOVER PARK FISCHER FARM SITE DURING DECEMBER 2015

Constituent	Unit	Concentration ¹
pH		7.6
Total Solids	%	3.1
Total Volatile Solids ²	"	70
Volatile Acids ³	mg kg ⁻¹	382
TKN	"	2,547
NH ₃ -N	"	912
Total P	"	746
As	"	<5.0
Cd	"	1.0
Cr	"	42
Cu	"	845
Hg	"	1.4
Mn	"	740
Mo	"	13
Ni	"	34
Pb	"	25
Se	"	5.0
Zn	"	1,068

¹Mean of two samples.

²Total volatile solids as a percentage of total solids.

³As acetic acid.

TABLE 6: VOLUMES AND DRY WEIGHTS OF LAGOON SUPERNATANT AND BIOSOLIDS APPLIED TO FIELDS DURING NOVEMBER AND DECEMBER 2015 AT THE HANOVER PARK FISCHER FARM SITE

Field	Date	Biosolids Type	Volume (Gallons)	Dry Weight (Tons)
4	11/16/15	Supernatant	400,000	2.3
6	12/18/15	Biosolids	2,590,000	302
5	12/19/15	Biosolids	1,060,000	153
5	12/20/15	Biosolids	600,000	87
3	12/28/15	Biosolids	1,000,000	143
2	12/29/15	Biosolids	850,000	122
1	12/30/15	Biosolids	1,120,000	166
Total			7,620,000	975

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

