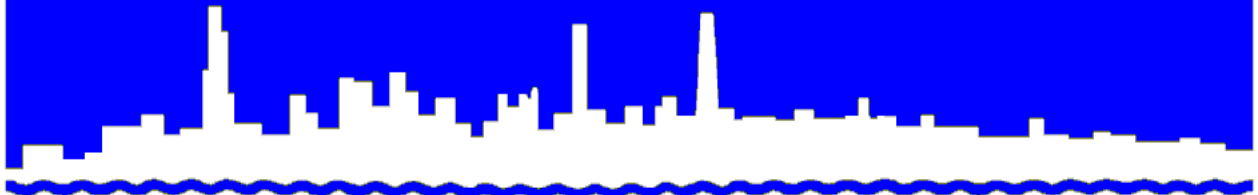


Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

***MONITORING AND RESEARCH
DEPARTMENT***

REPORT NO. 17-47

HANOVER PARK WATER RECLAMATION PLANT

FISCHER FARM MONITORING REPORT FOR

THIRD QUARTER 2017

November 2017

Metropolitan Water Reclamation District of Greater Chicago

CECIL LUE-HING RESEARCH AND DEVELOPMENT COMPLEX
6001 WEST PERSHING ROAD CICERO, ILLINOIS 60804-4112

Edward W. Podczerwinski, P.E.

Director of Monitoring and Research

November 16, 2017

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. 2016-SC-61315, Monitoring Report for July, August, and September 2017

The attached tables contain the monitoring data for the Hanover Park Water Reclamation Plant (WRP) Fischer Farm site for July, August, and September 2017 as required by Illinois Environmental Protection Agency (IEPA) Operating Permit No. 2016-SC-61315. Analytical data for well water samples collected during the quarter are presented in Table 1.

Drainage water (combined surface and subsurface) returned to the Hanover Park WRP from the farm fields was sampled in July, August, and September 2017, and data for these samples are presented in Table 2. The volumes of drainage water returned to the WRP during the second quarter were estimated as 22, 5.6, and 0.40 million gallons in July, August, and September, respectively. The analytical data for lagoon supernatant applied to Fischer Farm fields in July, August, and September are presented in Tables 3, 4 and 5. The volumes of supernatant and associated dry weight of biosolids applied are shown in Table 6. Field and water monitoring locations are presented in Figure 1.

An investigation of Well 7 is ongoing to help determine the reason for high NH₃ levels observed in the well. Three supplemental monitoring wells were installed in July 2017 to monitor groundwater and determine the source of NH₃. Groundwater samples from the supplemental monitoring wells were taken in August and September 2017. Sampling will continue through October, November, and December as biosolids are land applied to the farm fields.

The data reported are as follows:

Table 1 Analysis of Water From Monitoring Wells W-3, W-5, W-6, W-7, and W-8 at the Hanover Park Fischer Farm Site Sampled on July 11, 2017.

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Table 2 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 2017.

Table 3 Analysis of Lagoon Supernatant Applied to Fields at the Hanover Park Fischer Farm Site During July 2017.

Table 4 Analysis of Lagoon Supernatant Applied to Fields at the Hanover Park Fischer Farm Site During August 2017.

Table 5 Analysis of Lagoon Supernatant Applied to Fields at the Hanover Park Fischer Farm Site During September 2017.

Table 6 Volumes and Dry Weights of Lagoon Supernatant Applied to Fields During July, August, and September 2017 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,

Albert E. Cox
Environmental Monitoring and Research Manager
Monitoring and Research Department

AC:DB:cm

Attachments

cc/att: Mr. J. Patel, Manager, IEPA – Des Plaines
Mr. J. Colletti, USEPA, Region 5
Mr. P. Kuefler, USEPA, Region 5
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**HANOVER PARK WATER RECLAMATION PLANT
FISCHER FARM MONITORING REPORT FOR
THIRD QUARTER 2017**

**Monitoring and Research Department
Edward W. Podczewinski, Director**

November 2017

TABLE 1: ANALYSIS OF WATER FROM MONITORING WELLS W-3, W-5, W-6, W-7,
AND W-8 AT THE HANOVER PARK FISCHER FARM SITE SAMPLED
ON JULY 11, 2017

Parameter	Unit	Monitoring Well No.				
		W-3	W-5	W-6	W-7	W-8
pH ¹		7.8	7.6	7.7	7.5	8.3
EC	mS m ⁻¹	87	75	76	177	59
Cl ⁻	mg L ⁻¹	14	16	20	43	8.0
SO ₄ ²⁻	"	117	97	114	258	57
Alkalinity as CaCO ₃	"	371	309	299	663	263
TKN	"	3.0	<1.0	<1.0	69	<1.0
NH ₃ -N	"	0.67	0.34	0.27	35	0.49
NO ₂ +NO ₃ -N	"	<0.15	<0.15	<0.15	<0.15	<0.15
Total P	"	0.18	<0.10	<0.10	0.86	<0.10
Cd	"	<0.001	<0.001	<0.001	<0.001	<0.001
Cr	"	0.003	<0.003	<0.003	0.003	<0.003
Cu	"	<0.004	0.005	<0.004	<0.004	<0.004
Fe	"	5.8	2.5	1.6	4.5	0.60
Mn	"	0.326	0.025	0.031	0.065	0.022
Ni	"	<0.005	<0.005	<0.005	<0.005	<0.005
Zn	"	0.018	0.005	<0.005	0.402	<0.005

¹pH analyzed beyond recommended holding time of 15 minutes.

TABLE 2: 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 2017

Date	Sump	NH ₃ -N	TSS ¹	BOD ₅
		----- mg L ⁻¹ -----		
7/11/2017	East	7.0	10	13.0
7/11/2017	West	<0.10	4.0	<2.0
8/15/2017	East	3.8	35	38
8/15/2017	West	0.12	7.0	3.0
8/29/2017	East	25	29	12
8/29/2017	West	9.4	26	13
9/17/2017	East	18	23	9.0
9/17/2017	West	21	38	55
9/26/2017	East	7.9	12	4.0
9/26/2017	West	21	15	33

¹Total suspended solids.

TABLE 3: ANALYSIS OF LAGOON SUPERNATANT APPLIED TO FIELDS AT THE HANOVER PARK FISCHER FARM SITE DURING JULY 2017

Constituent	Unit	Concentration ¹
pH		8.0
Total Solids	%	0.13
Total Volatile Solids ²	"	63
Volatile Acids ³	mg L ⁻¹	<5.0
TKN	"	232
NH ₃ -N	"	193
Total P	"	29
Cd	"	<0.001
Cr	"	0.003
Cu	"	0.043
Mn	"	0.187
Ni	"	0.018
Pb	"	<0.010
Zn	"	0.065

¹Mean of two samples.

²Total volatile solids as a percentage of total solids.

³As acetic acid.

TABLE 4: ANALYSIS OF LAGOON SUPERNATANT APPLIED TO FIELDS AT THE HANOVER PARK FISCHER FARM SITE DURING AUGUST 2017

Constituent	Unit	Concentration ¹
pH		7.8
Total Solids	%	0.08
Total Volatile Solids ²	"	67
Volatile Acids ³	mg L ⁻¹	<5.0
TKN	"	207
NH ₃ -N	"	163
Total P	"	54
Cd	"	<0.001
Cr	"	0.004
Cu	"	0.037
Mn	"	0.104
Ni	"	0.020
Pb	"	<0.010
Zn	"	0.033

¹Mean of two samples.

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 SEPTEMBER 2017

Constituent	Unit	Concentration ¹
pH		7.8
Total Solids	%	0.10
Total Volatile Solids ²	"	60
Volatile Acids ³	mg L ⁻¹	<5.0
TKN	"	222
NH ₃ -N	"	169
Total P	"	61
Cd	"	<0.001
Cr	"	0.003
Cu	"	0.025
Mn	"	0.102
Ni	"	0.020
Pb	"	<0.010
Zn	"	0.018

¹One sample.

²Total volatile solids as a percentage of total solids.

³As acetic acid.

TABLE 6: VOLUMES AND DRY WEIGHTS OF LAGOON SUPERNATANT APPLIED TO FIELDS DURING JULY, AUGUST, AND SEPTEMBER 2017 AT THE HANOVER PARK FISCHER FARM SITE

Field	Date	Biosolids Type	Volume (Gallons)	Dry Weight (Tons)
5	7/05/17	Supernatant	350,000	2.3
1	7/19/17	Supernatant	340,000	2.0
2	7/25/17	Supernatant	500,000	2.5
6	8/02/17	Supernatant	200,000	0.75
5	8/04/17	Supernatant	100,000	0.29
1	8/21/17	Supernatant	280,000	1.1
2	9/07/17	Supernatant	360,000	1.5
Total			2,130,000	10

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

