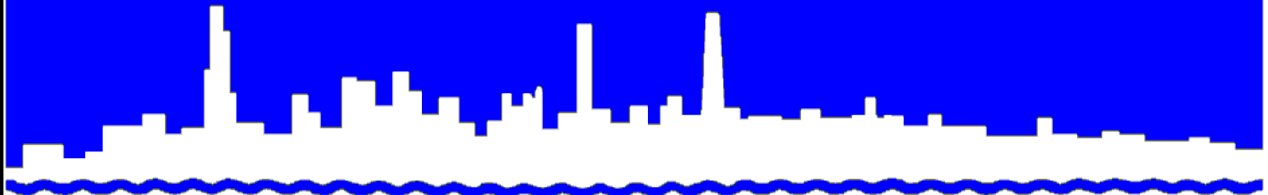


Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

***MONITORING AND RESEARCH
DEPARTMENT***

REPORT NO. 19-28

HANOVER PARK WATER RECLAMATION PLANT

FISCHER FARM MONITORING REPORT FOR

THIRD QUARTER 2019

November 2019

Kari K. Steele
President
Barbara J. McGowan
Vice President
Frank Avila
Chairman of Finance
Cameron Davis
Kimberly Du Buclet
Marcelino Garcia
Josina Morita
Debra Shore
Mariyana T. Spyropoulos

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 8, 2019

Mr. Roger Callaway
Illinois Environmental Protection Agency
Bureau of Water
DWPC Compliance Section #19
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9274

Dear Mr. Callaway:

Subject: Hanover Park Water Reclamation Plant - Illinois Environmental Protection Agency Permit No. 2016-SC-61315, Monitoring Report for July, August, and September 2019

The attached tables contain the monitoring data for the Hanover Park Water Reclamation Plant (WRP) Fischer Farm site for July, August, and September 2019 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 2019, and data for these samples are presented in Table 2. The volumes of drainage water returned to the WRP during the third quarter were estimated as 5.6, 0.8, and 9.0 million gallons in July, August, and September, respectively. The analytical data for lagoon supernatant applied to Fischer Farm fields in July and August are presented in Table 3. The analytical data for liquid biosolids applied to Fischer Farm fields in July and August are presented in Table 4. The volumes of lagoon supernatant and liquid biosolids, and the associated dry weight of biosolids applied, are shown in Table 5. Field and water monitoring locations are presented in Figure 1.

Based on the investigation of the high levels of NH₃-N in Well 7, it appears that the source of these high levels is seepage from adjacent lagoons and subsurface drainage associated with supernatant application, both of which have high NH₃-N levels. Management practices are being implemented to reduce the loading in adjacent lagoons and application of supernatant in fields to confirm that these are the sources of high NH₃-N in Well 7.

The data reported are as follows:

Subject: Hanover Park Water Reclamation Plant - Illinois Environmental Protection Agency Permit No. 2016-SC-61315, Monitoring Report for July, August, and September 2019

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 September 10, 2019.

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 2019.


Table 3 Analysis of Lagoon Supernatant Applied to Fields at the Hanover Park Fischer Farm Site During July and August 2019.

Table 4 Analysis of Liquid Biosolids Applied to Fields at the Hanover Park Fischer Farm Site During July and August 2019.

Table 5 Volumes and Dry Weights of Lagoon Supernatant and Liquid Biosolids Applied to Fields During July and August 2019 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:BM:cm
Attachments

cc/att: Mr. J. Patel, Manager, IEPA – Des Plaines
Mr. J. Colletti, USEPA, Region 5
Mr. P. Kuefler, USEPA, Region 5
Mr. J. Chavich
Dr. H. Zhang

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 FOR
THIRD QUARTER 2019**

Monitoring and Research Department
Edward W. Podczerwinski, Director

November 2019

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
SEPTEMBER 10, 2019

Parameter	Unit	Monitoring Well No.				
		W-3 ¹	W-5	W-6	W-7	W-8
pH		NC	8.1	8.0	7.7	8.3
EC	mS m ⁻¹	NC	806	818	1,453	641
Cl ⁻	mg L ⁻¹	NC	18	19	43	9
SO ₄ ²⁻	"	NC	103	121	251	67
Alkalinity as CaCO ₃	"	NC	315	304	507	276
TKN	"	NC	<1.0	<1.0	35.8	<1.0
NH ₃ -N	"	NC	0.33	<0.30	33.4	0.51
NO ₂ ⁻ +NO ₃ ⁻ -N	"	NC	<0.25	<0.25	<0.25	<0.25
Total P	"	NC	<0.15	<0.15	1.05	<0.15
Cd	"	NC	<0.001	<0.001	<0.001	<0.001
Cr	"	NC	<0.002	<0.002	<0.002	<0.002
Cu	"	NC	0.001	0.002	0.004	0.002
Fe	"	NC	2.26	1.62	7.58	0.65
Mn	"	NC	0.020	0.030	0.122	0.020
Ni	"	NC	<0.001	0.002	0.003	<0.001
Zn	"	NC	0.006	0.006	0.244	0.006

¹Samples could not be collected at Well 3 during September sampling because the well was dry.

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 2019

Date	Sump	NH ₃ -N	TSS ¹	BOD ₅
		----- mg L ⁻¹ -----		
07/09/2019	East	122	22	31
07/09/2019	West	80	14	26
07/23/2019	East	69	21	27
07/23/2019	West	8.7	7	9
08/06/2019	East	277	18	23
08/06/2019	West	93	9	16
08/20/2019	East	13	4	4
08/20/2019	West	<0.3	4	<2
09/10/2019	East	57	68	21
09/10/2019	West	5.7	18	6
09/24/2019	East	4.2	5	3
09/24/2019	West	<0.30	5	3

¹Total suspended solids.

TABLE 3: ANALYSIS OF LAGOON SUPERNATANT APPLIED TO FIELDS AT THE HANOVER PARK FISCHER FARM SITE DURING JULY AND AUGUST 2019

Constituent	Unit	July	August
pH		7.9	7.7
Total Solids	%	0.15	0.14
Total Volatile Solids	"	57.2	20.5
Volatile Acids	mg L ⁻¹	8	<5
TKN	"	571	235
NH ₃ -N	"	52	228
Total P	"	69	19
Cd	"	<0.001	0.001
Cr	"	<0.002	0.006
Cu	"	0.092	0.117
Mn	"	0.505	0.579
Ni	"	0.025	0.022
Pb	"	0.002	0.009
Zn	"	0.164	0.246

TABLE 4: ANALYSIS OF LIQUID BIOSOLIDS APPLIED TO FIELDS AT THE HANOVER PARK FISCHER FARM SITE DURING JULY AND AUGUST 2019

Constituent	Unit	July	August
pH		7.6	7.5
Total Solids	%	1.55	2.43
Total Volatile Solids	"	67.3	68.0
Volatile Acids	mg kg ⁻¹	1,097	708
TKN	"	99,419	50,431
NH ₃ -N	"	44,684	31,833
Total P	"	24,490	16,376
Cd	"	1	2
Cr	"	38	39
Cu	"	949	846
Mn	"	824	814
Ni	"	35	37
Pb	"	27	23
Zn	"	963	949

TABLE 5: VOLUMES AND DRY WEIGHTS OF LAGOON SUPERNATANT AND LIQUID BIOSOLIDS APPLIED TO FIELDS DURING JULY AND AUGUST 2019 AT THE HANOVER PARK FISCHER FARM SITE

Field	Date	Biosolids Type	Volume (Gallons)	Dry Weight (Tons)
5	07/16/19	Supernatant	115,000	0.77
6	07/16/19	Supernatant	115,000	0.77
5	07/17/19	Supernatant	115,000	0.77
6	07/17/19	Supernatant	115,000	0.77
5	07/18/19	Supernatant	135,000	0.79
6	07/18/19	Supernatant	135,000	0.79
6	07/27/19	Biosolids	177,470	11.69
6	07/28/19	Biosolids	689,893	41.71
6	07/29/19	Biosolids	828,142	48.69
5	07/30/19	Biosolids	207,176	13.48
6	07/30/19	Biosolids	552,474	35.94
5	07/31/19	Biosolids	846,312	69.17
5	08/01/19	Biosolids	670,628	93.96
3	08/02/19	Biosolids	211,813	25.35
5	08/02/19	Biosolids	442,495	52.96
3	08/03/19	Biosolids	748,496	84.27
2	08/04/19	Biosolids	729,533	81.53
3	08/04/19	Biosolids	73,088	8.17
1	08/05/19	Biosolids	824,943	105.26
2	08/05/19	Biosolids	75,040	9.58
1	08/06/19	Biosolids	83,143	8.04
4	08/06/19	Biosolids	633,479	61.29
Total			8,524,125	755.75

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

