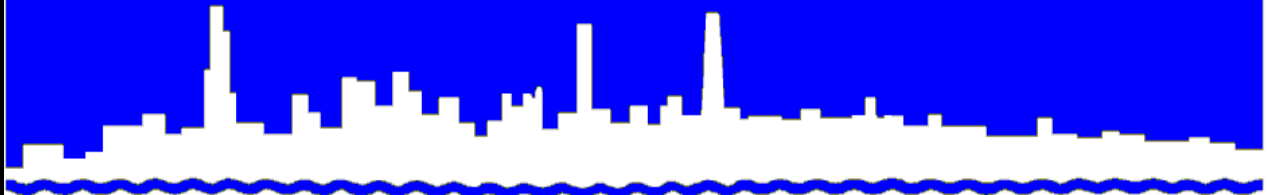


Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

***MONITORING AND RESEARCH
DEPARTMENT***

REPORT NO. 21-04

HANOVER PARK WATER RECLAMATION PLANT

FISCHER FARM MONITORING REPORT FOR

FOURTH QUARTER 2020

February 2021

Metropolitan Water Reclamation District of Greater Chicago

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

Edward W. Podczewski, P.E.

Director of Monitoring and Research

February 10, 2021

Ms. Catherine Siders
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 Ms. Siders:

Subject: Hanover Park Water Reclamation Plant - Illinois Environmental Protection Agency Permit No. 2016-SC-61315, Monitoring Report for October, November, and December 2020

The attached tables contain the monitoring data for the Hanover Park Water Reclamation Plant (WRP) Fischer Farm site for October, November, and December 2020 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 October, November, and December 2020, and data for these samples are presented in [Table 2](#). The volumes of drainage water returned to the WRP during the fourth quarter were estimated as 3.2, 4.2, and 17 million gallons in October, November, and December, respectively. The analytical data for lagoon supernatant applied to Fischer Farm fields in November are presented in [Table 3](#). The analytical data for liquid biosolids applied to Fischer Farm fields in December 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](#). For the next growing season (2021), corn (*Zea mays*) is expected to be grown in all application areas except Farm Field Number 7 because no biosolids will be applied to that field. 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 have been implemented to reduce biosolids loading in lagoons and cease application of supernatant in the adjacent Farm Field Number 7 in order to reduce the potential for the migration of NH₃-N to Well 7.

Subject: Hanover Park Water Reclamation Plant - Illinois Environmental Protection Agency Permit No. 2016-SC-61315, Monitoring Report for October, November, and December 2020

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 November 3, 2020.

Table 2 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 2020.

Table 3 Analysis of Lagoon Supernatant Applied to Fields at the Hanover Park Fischer Farm Site During November 2020.

Table 4 Analysis of Liquid Biosolids Applied to Fields at the Hanover Park Fischer Farm Site During December 2020.

Table 5 Volumes and Dry Weights of Lagoon Supernatant and Liquid Biosolids Applied to Fields During November and December 2020 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

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**HANOVER PARK WATER RECLAMATION PLANT
FISCHER FARM MONITORING REPORT FOR
FOURTH QUARTER 2020**

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

February 2021

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 NOVEMBER 3, 2020

Parameter	Unit	Monitoring Well No.				
		W-3	W-5	W-6	W-7	W-8
pH ¹		NC ²	7.9	7.8	7.6	8.1
EC	mS m ⁻¹	NC	65	67	116	56
Cl ⁻	mg L ⁻¹	NC	18	41	41	10
SO ₄ ²⁻	"	NC	101	217	356	76
Alkalinity as CaCO ₃	"	NC	308	298	461	285
TKN	"	NC	<1.0	<1.0	35	<1.0
NH ₃ -N	"	NC	0.30	0.33	34.2	0.41
NO ₂ ⁻ +NO ₃ ⁻ -N	"	NC	<0.25	<0.25	0.57	<0.25
Total P	"	NC	<0.15	<0.15	1.01	<0.15
Cd	"	NC	<0.002	<0.002	<0.002	<0.002
Cr	"	NC	<0.004	<0.004	0.007	<0.004
Cu	"	NC	0.003	0.003	0.015	<0.002
Fe	"	NC	2.4	1.7	13	0.95
Mn	"	NC	0.026	0.033	0.26	0.023
Ni	"	NC	<0.002	<0.002	0.015	<0.002
Zn	"	NC	<0.010	<0.010	0.18	<0.010

¹pH was measured beyond 15 minutes holding time.

²Sample could not be collected 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 OCTOBER, NOVEMBER, AND DECEMBER 2020

Date ¹	Sump	NH ₃ -N	TSS ¹	BOD ₅
----- mg L ⁻¹ -----				
10/13/2020	East	159	124	105
10/13/2020	West	28	5	55
11/03/2020	East	63	4	5
11/03/2020	West	2.2	2	3
11/17/2020	East	19	5	6
11/17/2020	West	0.49	2	3
12/08/2020	East	432	240	215
12/08/2020	West	0.92	3	3
12/22/2020	East	74	62	74
12/22/2020	West	25	78	25

¹Total suspended solids.

TABLE 3: ANALYSIS OF LAGOON SUPERNATANT APPLIED TO FIELDS AT THE HANOVER PARK FISCHER FARM SITE DURING NOVEMBER 2020

Constituent	Unit	Result
pH ¹		8.0
Total Solids	%	0.15
Total Volatile Solids	"	56.8
Volatile Acids	mg L ⁻¹	<5
TKN	"	611
NH ₃ -N	"	547
Total P	"	57
Cd	"	<0.002
Cr	"	<0.004
Cu	"	0.169
Mn	"	0.334
Ni	"	0.036
Pb	"	0.004
Zn	"	0.251

¹pH was measured beyond 15 minutes holding time.

TABLE 4: ANALYSIS OF LIQUID BIOSOLIDS APPLIED TO FIELDS AT THE HANOVER PARK FISCHER FARM SITE DURING DECEMBER 2020

Constituent	Unit	Result
pH ¹		7.6
Total Solids	%	3.6
Total Volatile Solids	"	66
Volatile Acids	mg kg ⁻¹	1,231
TKN	"	60,488
NH ₃ -N	"	21,528
Total P	"	20,003
Cd	"	1.40
Cr	"	29.7
Cu	"	724
Mn	"	623
Ni	"	32.1
Pb	"	20.7
Zn	"	810

¹pH was measured beyond 15 minutes holding time.

TABLE 5: VOLUMES AND DRY WEIGHTS OF LAGOON SUPERNATANT AND LIQUID BIOSOLIDS APPLIED TO FIELDS DURING NOVEMBER AND DECEMBER 2020 AT THE HANOVER PARK FISCHER FARM SITE

Field	Date	Biosolids Type	Volume (Gallons)	Dry Weight (Tons)
4	11/05/2020	Supernatant	215,000	1.52
5	11/05/2020	Supernatant	215,000	1.52
3	12/08/2020	Liquid biosolids	632,313	2.90
2	12/09/2020	Liquid biosolids	447,784	9.27
3	12/09/2020	Liquid biosolids	360,448	7.58
1	12/10/2020	Liquid biosolids	538,179	3.80
2	12/10/2020	Liquid biosolids	321,938	2.30
1	12/11/2020	Liquid biosolids	470,538	3.69
5	12/11/2020	Liquid biosolids	479,541	3.84
5	12/15/2020	Liquid biosolids	741,378	42.66
5	12/16/2020	Liquid biosolids	934,102	74.01
5	12/17/2020	Liquid biosolids	16,555	2.26
6	12/17/2020	Liquid biosolids	854,647	110.72
6	12/18/2020	Liquid biosolids	770,267	118.20
6	12/19/2020	Liquid biosolids	494,570	91.16
4	12/20/2020	Liquid biosolids	400,438	67.55
6	12/20/2020	Liquid biosolids	130,245	22.52
4	12/21/2020	Liquid biosolids	351,642	59.24
Total			8,374,585	624.74

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

