Metropolitan Water Reclamation District of Greater Chicago

MONITORING AND RESEARCH DEPARTMENT

REPORT NO. 21-39

HANOVER PARK WATER RECLAMATION PLANT

FISCHER FARM MONITORING REPORT FOR

THIRD QUARTER 2021

November 2021

Protecting Our Water Environment

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Edward W. Podczerwinski, P.E.
Director of Monitoring and Research

November 22, 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 July, August, and September 2021

The attached tables contain the monitoring data for the Hanover Park Water Reclamation Plant (WRP) Fischer Farm site for July, August, and September 2021, 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 2021, 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 6.8, 6.2, and 5.8 million gallons in July, August, and September, respectively. The analytical data for lagoon supernatant applied to Fischer Farm fields in August and September are presented in Table 3. The volume of lagoon supernatant, and the associated dry weight of biosolids applied, are shown in Table 4. Field and water monitoring locations are presented in Figure 1.

Based on the investigation of the high levels of NH_3-N in Well 7 for the past monitoring, 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 NH_3-N levels. Since implementing management practices to reduce the loading in adjacent lagoons and application of supernatant to the closest farm field, NH_3-N in Well 7 has shown a decreasing trend, but with some significant fluctuation. We will continue implementing these practices.

Subject: Hanover Park Water Reclamation Plant - Illinois Environmental Protection Agency Permit No. 2016-SC-61315, Monitoring Report for July, August, and September 2021

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 September 1, 2021.

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 2021.

Table 3 Analysis of Lagoon Supernatant applied to Fields at the Hanover Park Fischer Farm Site During August and September 2021.

Table 4 Volumes and Dry Weights of Lagoon Supernatant Applied to Fields During August and September 2021 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 Cox

Albert E. Cox, Ph.D.
Environmental Monitoring and Research Manager
Monitoring and Research Department

AC:lf
Attachment
cc: Mr. J. Patel, Manager, IEPA – Des Plaines
Mr. T. Bennett, IEPA
Mr. B. Fleming, IEPA
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 2021

Monitoring and Research Department
Edward W. Podczerwinski, Director

November 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 SEPTEMBER 1, 2021

	Unit	Monitoring Well No.				
		W-3	W-5	W-6	W-7	W-8
pH[1]		NC[2]	7.6	7.6	7.8	7.9
Conductivity	mS m^{-1}	NC	76	77	56	66
Cl^-	mg L^{-1}	NC	17	20	36	10
SO_4^{2-}	"	NC	98	111	102	79
Alkalinity	"	NC	310	297	140	285
TKN	"	NC	<1.0	<1.0	3.0	<1.0
NH_3-N	"	NC	0.33	0.31	0.75	0.36
NO_2^-+NO_3^--N	"	NC	<0.25	<0.25	<0.25	<0.25
Total Phosphorus	"	NC	<0.15	<0.15	0.57	<0.15
Cd	"	NC	<0.002	<0.002	<0.002	<0.002
Cr	"	NC	<0.004	<0.004	<0.004	<0.004
Cu	"	NC	0.015	0.002	0.012	0.002
Fe	"	NC	2.9	1.6	4.8	1.4
Mn	"	NC	0.029	0.032	0.18	0.025
Ni	"	NC	<0.002	<0.002	0.011	<0.002
Zn	"	NC	<0.010	<0.010	0.094	<0.010

[1]pH was measured beyond 15-minute holding time.
[2]No water collected either due to a pump problem or the well being 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 2021

Date	Sump	NH_3-N	TSS[1]	BOD_5
		mg L^{-1}		
07/06/2021	East	30.4	5	12
07/06/2021	West	<0.30	2	<2
07/21/2021	East	522	255	304
07/21/2021	West	17	10	11
08/03/2021	East	374	90	149
08/03/2021	West	76	23	28
09/01/2021	East	516	390	245
09/01/2021	West	174	133	109
09/28/2021	East	125	16	NRR[2]
09/28/2021	West	182	71	NRR

[1]Total suspended solids.

[2]No reportable result. Analysis canceled due to laboratory control sample failure and could not be rerun due to holding time.

TABLE 3: ANALYSIS OF LAGOON SUPERNATANT APPLIED TO FIELDS AT THE HANOVER PARK FISCHER FARM SITE DURING AUGUST AND SEPTEMBER 2021

Constituent	Unit	August	September
pH		7.9	7.9
Total Solids	%	0.18	0.18
Total Volatile Solids	"	60.4	61.1
TKN	mg L^{-1}	744	823
NH_3-N	"	730	866
Total Phosphorus	"	81	81
Volatile Acids	"	<5	<5
Cd	"	<0.002	<0.002
Cr	"	<0.004	<0.004
Cu	"	0.161	0.129
Mn	"	0.353	0.306
Ni	"	0.026	0.026
Pb	"	0.003	0.003
Zn	"	0.299	0.222

TABLE 4: VOLUMES AND DRY WEIGHTS OF LAGOON SUPERNATANT APPLIED TO FIELDS DURING AUGUST AND SEPTEMBER 2021 AT THE HANOVER PARK FISCHER FARM SITE

Field	Date	Biosolids Type	Volume (Gallons)	Dry Weight (Tons)
4	08/13/2021	Supernatant	430,000	3.23
4	08/14/2021	Supernatant	330,000	2.48
5	09/16/2021	Supernatant	460,000	3.64
6	09/17/2021	Supernatant	400,000	3.34
Total			1,620,000	12.69

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