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*Providing a Better Environment for South Central DuPage County*

March 21, 2023

Illinois Environmental Protection Agency  
Division of Water Pollution Control  
Sent Electronically to: [EPA.PrmtSpecCondtns@Illinois.gov](mailto:EPA.PrmtSpecCondtns@Illinois.gov)

***Subject: IL0028380 Special Condition 17.E  
Wastewater Treatment Center Phosphorus Discharge Optimization Plan  
2023 Progress Report***

To Whom It Concerns:

Special Condition 17 of permit IL0028380 requires the Downers Grove Sanitary District to submit an annual progress report on its Phosphorus Discharge Optimization Plan (PDOP). The PDOP, submitted in July 2017, evaluates source reduction measures, operational improvements, and minor low-cost facility modifications to optimize reductions in phosphorus discharges from the wastewater treatment center (WWTC). This letter serves as the District's 2023 PDOP annual progress report, in compliance with Special Condition 17, Paragraph E. This report is due by March 31, 2023.

### **WWTC Phosphorus Removal Performance**

The WWTC phosphorus monitoring data for calendar year 2022 is summarized in Table 1 on the next page.

This is the sixth annual PDOP progress report. Each annual PDOP progress report has presented the monthly and annual average WWTC phosphorus monitoring data for the previous calendar year. A summary of the last six years of data is provided in Table 2 for comparison. The baseline data which was collected prior to any phosphorus removal optimization efforts is also presented.

Table 1. 2022 WWTC Phosphorus Monitoring Data

	INFLUENT		EFFLUENT		FRACTION REMOVED
	CONCN mg/l	LOAD lbs/day	CONCN mg/l	LOAD lbs/day	
Jan-22	6.41	463	3.12	207	0.55
Feb-22	5.60	472	2.20	182	0.61
Mar-22	3.30	334	1.51	157	0.53
Apr-22	3.32	385	1.61	196	0.49
May-22	4.07	370	1.91	189	0.49
Jun-22	7.10	551	3.75	311	0.44
Jul-22	5.71	406	3.24	227	0.44
Aug-22	5.85	366	4.57	291	0.20
Sep-22	4.68	256	2.64	155	0.39
Oct-22	5.38	294	3.66	99	0.66
Nov-22	5.00	280	3.92	212	0.24
Dec-22	4.97	303	2.77	168	0.45
Average	5.12	373	2.91	200	0.46
Maximum	7.10	551	4.57	311	0.66
Minimum	3.30	256	1.51	99	0.20

Table 2. Historic WWTC Phosphorus Annual Average Monitoring Data

	INFLUENT		EFFLUENT		FRACTION REMOVED
	CONCN mg/l	LOAD lbs/day	CONCN mg/l	LOAD lbs/day	
Total Baseline*	4.81	365	3.07	229	0.37
2012 Portion of Baseline	5.85	382	3.80	247	0.35
2017	5.62	414	2.99	217	0.48
2018	5.43	448	2.48	208	0.52
2019	4.68	434	2.16	201	0.53
2020	5.33	418	2.90	228	0.45
2021	5.72	405	3.33	238	0.40
2022	5.12	373	2.91	200	0.44

\*Baseline data was collected from July 2012 to July 2013

### WWTC Influent Reduction Measures

The influent phosphorus load to the District’s Wastewater Treatment Center (WWTC) in 2022 was consistent with the previous few years, giving the District no reason to suspect any user has significantly increased their phosphorus discharge. Therefore, no special sampling was done in 2022.

Phosphorus is a sampling parameter in the regular surcharge sampling program for the few users

that were previously tested.

### **WWTC Effluent Reduction Measures**

#### *Sidestream Enhanced Biological Phosphorus Removal*

The 2022 Progress Report on the WWTC PDOP indicated that the sidestream enhanced biological phosphorus removal (EBPR) process which the District started up in 2016 has impacted our ability to always meet our total suspended solids (TSS) permit limits and has made meeting our ammonia permit limits challenging. Based on the data presented in last year's report, it was not clear whether the sidestream EBPR was providing additional phosphorus removal above what the plant would have had without the process. Based on the conclusions of that report, the District decided to remove the sidestream EBPR from service in July 2022. As can be seen in Table 2 above, the average effluent TP concentration and the percent removal of phosphorus were comparable to the previous five years regardless of the sidestream EBPR only being in service for half the year. The impact, if any, of removing the sidestream EBPR may become more apparent in the future once the District has collected more data.

The District's commitment to the goals set forth in in the PDOP remain. The District is working on a sampling plan to collect data to recalibrate a BioWin model of the WWTC. The model will then be used to reevaluate the WWTC treatment process to optimize biological phosphorus removal.

We trust that this letter report satisfies the requirements in Special Condition 17 for a PDOP progress report. As required by Special Condition 17, this report has been posted to the District's website.

If you have any questions or comments, please contact me at the above address and phone.

Very Truly Yours,



Amy R. Underwood, P.E.  
General Manager

cc: Board of Trustees  
Marc Majewski, DGSD Operations Supervisor  
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