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SENT VIA EMAIL

December 15, 2023

Moira Homann
DEAR / Water Quality Restoration Program
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399

RE: Lakeland Wastewater Treatment Plan Pursuant to Subparagraph 403.067(7)(a)9, F.S.

Dear Ms. Homann:

The City of Lakeland requested an exemption from the Wastewater Treatment Plan requirement for the Glendale Water Reclamation Facility (FL0039772) and its service area in a letter dated July 12, 2023 (Attachment 1). The Department responded by email on July 25, 2023 denying the exemption request, therefore the City submits this Wastewater Plan for compliance with the Clean Waterways Act, 403.067(7)(a)9, F.S. Submittal to meet the OSTDS remediation portion of the rule will be submitted separately.

Background

The Florida Department of Environmental Protection (Department) developed a Total Maximum Daily Load (TMDL) for the Alafia River Above Hillsborough Bay Tidal Segment (WBID 1621G) in 2011 for dissolved oxygen (DO) and nutrients with a required 54% reduction in total nitrogen (TN) from nonpoint sources. An associated Basin Management Action Plan (BMAP) was developed in 2014.

The City of Lakeland's permitted surface water discharge (D-001 under FL0039772) is located nearly 30 miles upstream from the upper boundary of WBID 1621G. The discharge is in WBID 1610, Carter Road Lakes. From there it flows through Ellis Branch (WBID 1610B), the Upper Segment of the North Prong of the Alafia River (WBID 1621E), the Lower Segment of the North Prong of the Alafia River (WBID 1621D) and then merges with the South Prong of the Alafia River. The combined river flow continues to the Alafia River above Turkey Creek (WBID 1621C), the Alafia River above Fishhawk Creek (WBID 1621B), the Alafia River above Hillsborough Bay (WBID 1621A) and finally reaches the Tidal Segment (WBID 1621G), which is the portion of the Alafia River subject to a nitrogen BMAP. Although the permitted discharge is in Carter Road Lakes WBID 1610, the flow is contained in a ditch along the south side of the WBID along City-owned property, never passing through any of the Carter Road Lakes. None of these upstream WBIDs that receive Lakeland's discharge have been found to be impaired for nitrogen. Although the Alafia River above Turkey Creek (WBID 1621C) and Alafia River above Hillsborough Bay (WBID 1621A) are on the study list for nutrients, the nutrient of concern is phosphorus with insufficient biological data supporting impairment.



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Wastewater Plan for the Glendale Water Reclamation Facility (FL0039772)

1. The facility's permitted capacity is 20 MGD for the constructed treatment wetland and 13.7 MGD for the Glendale WRF.
2. The facility's permitted TN effluent limit is 3 mg/L on an annual average basis. Total phosphorus is a report only parameter with no effluent limit.
3. The annual TN and TP loads (showing both flow and concentrations) discharged from the facility over the past five years are in the table below.

Year	Total Flow (MG)	Avg TN (mg/L)	Avg TP (mg/L)	TN Load (tons)	TP Load (tons)
2019	1722.801	0.94	2.71	6.75	19.47
2020	2009.136	1.17	3.06	9.8	25.64
2021	1748.71	1.34	3.16	9.77	23.04
2022	2468.628	1.25	3.37	12.87	34.69
2023	2359.368	1.16	2.13	11.41	20.96

4. A capacity analysis for the facility is completed every 5 years for permit renewal. The most recent study was completed in 2020 and includes projected flows through 2030 (Attachment 2). Exhibits 7, 8 and 9 from the report have been updated with the most recent population projections, wastewater flows, and future development information from the City Planning Department and extended through 2045 using the same methods listed in the 2020 report.

Year	AADF Wastewater Flow (gpd)	Estimated Service Population	Per Capita Rate (gpdc)
2017	7,751,667	71,415	109
2018	8,170,000	72,348	113
2019	7,945,833	72,997	109
2020	7,719,412	73,724	105
2021	7,335,886	74,452	99
Average			107

Exhibit 7 – Updated. 2022 flows were not used due to equipment malfunction causing data errors during much of the year. 2023 data not available at time of submittal.



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Year	Projected Population	Per Capita Flow Rate (gpcd)	Population-Based Wastewater Flows (mgd)
2024	76,005	107	8.13
2025	76,523	107	8.19
2026	76,926	107	8.23
2027	77,329	107	8.27
2028	77,732	107	8.32
2029	78,135	107	8.36
2030	78,536	107	8.40
2031	78,791	107	8.43
2032	79,046	107	8.46
2033	79,301	107	8.49
2034	79,556	107	8.51
2035	79,810	107	8.54
2036	79,993	107	8.56
2037	80,176	107	8.58
2038	80,359	107	8.60
2039	80,542	107	8.62
2040	80,724	107	8.64
2041	80,820	107	8.65
2042	80,916	107	8.66
2043	81,012	107	8.67
2044	81,108	107	8.68
2045	81,205	107	8.69

Exhibit 8 – Updated. Projected population was obtained from SWFWMD’s current projection data for the areas currently served.

Year	Projected Per Capita Based Flow (mgd)	Future Development Flows (mgd)*	Total Projected Annual ADF (mgd)
2024	8.13	1.19	9.32
2025	8.19	2.38	10.57
2026	8.23	2.58	10.81
2027	8.27	2.79	11.06
2028	8.32	2.99	11.31
2029	8.36	3.19	11.56
2030	8.40	3.40	11.80
2031	8.43	3.52	11.95
2032	8.46	3.64	12.10



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2033	8.49	3.77	12.25
2034	8.51	3.89	12.40
2035	8.54	4.01	12.55
2036	8.56	4.02	12.58
2037	8.58	4.04	12.62
2038	8.60	4.05	12.65
2039	8.62	4.07	12.69
2040	8.64	4.08	12.72
2041	8.65	4.14	12.78
2042	8.66	4.19	12.85
2043	8.67	4.24	12.91
2044	8.68	4.29	12.97
2045	8.69	4.35	13.04

*Exhibit 9 – Updated. Projected per capita based flows are from Exhibit 8 using data obtained from SWFWMD’s current population projections for the areas currently served. *Future Development flows were estimated using the City’s SewerCAD model to predict flows in both proposed (approved) and future growth areas identified by the City Planning Department. This was adapted from Chastain-Skillman’s Sanitary Sewer System Modeling Evaluation and Strategic Planning Study Draft Report #1, November 29, 2023.*

A draft Sanitary Sewer System Modeling Evaluation and Strategic Planning Study Report was completed by Chastain-Skillman, Inc. in November 2023, which included population projections and wastewater flow projections for the Glendale WRF through 2045. The projections were developed following a different methodology and used the Polk Transportation Planning Organization’s 2045 TAZ population forecast. The resulting 2045 dry weather flow projection was 13.98 MGD, which is close to the 13.04 MGD shown in the updated Exhibit 9. Wet weather flows are estimated to be higher, but annual average daily flows are predicted to be more in line with dry weather flows. Using either method, results indicate that towards the end of the projection period, Glendale WRF may require either expansion or the redirecting of some flows to another treatment facility.

5. No facility construction, expansion, or upgrades are necessary to meet applicable nutrient water quality requirements (to meet nutrient effluent limits in BMAPs and TMDLs, section 403.064(17), Florida Statutes requirements, or other statutory or regulatory requirements). This is based on:
 - a. The 1.17 mg/L average effluent TN concentration is well below the receiving waterbody total nitrogen nutrient threshold of 1.65 mg/L for streams in West Central Florida (62-302.531).
 - b. Nitrogen loading from the facility has already been significantly reduced by a 2009 partnership with Tampa Electric Company (TECO) who has been taking nearly half of the city’s treated water for cooling use at the Polk Power Station since 2015. The city would like to see TECO use all the available water eliminating this discharge altogether, and while the city has no control over how much water is diverted to TECO, the city is committed to the partnership and working to extend the current reuse agreement to



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2049. Expanded reuse is the best option for the city to reduce nitrogen loading. Since 2015, approximately 132 tons of nitrogen have been sent to TECO rather than the Alafia River, which equates to nearly 84 pounds of total nitrogen removed from the discharge every day.
- c. The City of Lakeland discharge is consistently well under the city's Hillsborough Bay Load Allocation of 20 tons per year for Tampa Bay Reasonable Assurance, which is incorporated into the NPDES permit. During the most recent reasonable assurance period (2017-2021), Lakeland only contributed eight tons of nitrogen per year. If Lakeland's current status is more than sufficient for Tampa Bay Reasonable Assurance, then the city's current status also meets the needs of the Alafia River BMAP. The city sees no appreciable increases to future nitrogen loading from the wastewater system, but rather reductions over time as reuse continues to increase and collection system repairs and upgrades continue during our typical capital planning and implementation processes.
6. A projected timeline of the dates by which the construction of any facility improvements including new/extended sewer lines is not applicable.

Please contact me if you have any questions or require any additional information to meet the requirements to submit a Wastewater Treatment Plan pursuant to subparagraph 403.067(7)(a)9, F.S.

Respectfully,

Sarah Malone

Water Utilities Compliance Manager

Attachments:

- 1) July 12, 2023 Exemption Request Letter
- 2) 2020 Capacity Analysis

cc: David Bayhan, Director of Water Utilities