NPDES Permit No. IL0023329

Notice No. CWB:24100801

Public Notice Beginning Date: November 26, 2025

Public Notice Ending Date: December 26, 2025

National Pollutant Discharge Elimination System (NPDES)
Permit Program

PUBLIC NOTICE/FACT SHEET
of
Draft Reissued NPDES Permit to Discharge into Waters of the State

Public Notice/Fact Sheet Issued By:

Illinois EPA
Division of Water Pollution Control
Permit Section
2520 West Iles Avenue
Post Office Box 19276
Springfield, Illinois 62794-9276
217/782-0610

Name and Address of Permittee:

Village of Algonquin
2200 Harnish Drive
Algonquin, Illinois 60102

Name and Address of Facility:

Village of Algonquin STP
125 Wilbrant Street
Algonquin, Illinois 60102
(McHenry County)

The Illinois Environmental Protection Agency (IEPA) has made a tentative determination to issue a NPDES Permit to discharge into the waters of the state and has prepared a draft Permit and associated fact sheet for the above named Permittee. The Public Notice period will begin and end on the dates indicated in the heading of this Public Notice/Fact Sheet. All comments on the draft Permit and requests for hearing must be received by the IEPA by U.S. Mail, carrier mail or hand delivered by the Public Notice Ending Date. Interested persons are invited to submit written comments on the draft Permit to the IEPA at the above address. Commentors shall provide his or her name and address and the nature of the issues proposed to be raised and the evidence proposed to be presented with regards to those issues. Commentors may include a request for public hearing. Persons submitting comments and/or requests for public hearing shall also send a copy of such comments or requests to the Permit applicant. The NPDES Permit and notice numbers must appear on each comment page.

The application, engineer's review notes including load limit calculations, Public Notice/Fact Sheet, draft Permit, comments received, and other documents are available for inspection and may be copied at the IEPA between 9:30 a.m. and 3:30 p.m. Monday through Friday when scheduled by the interested person.

If written comments or requests indicate a significant degree of public interest in the draft Permit, the permitting authority may, at its discretion, hold a public hearing. Public notice will be given 45 days before any public hearing. Response to comments will be provided when the final Permit is issued. For further information, please call Corey Branson at 217/782-0610.

The following water quality and effluent standards and limitations were applied to the discharge:

Title 35: Environmental Protection, Subtitle C: Water Pollution, Chapter I: Pollution Control Board and the Clean Water Act were applied in determining the applicable standards, limitations and conditions contained in the draft Permit.

The applicant is engaged in treating domestic wastewater for the Village of Algonquin, population served 30,848.

The length of the Permit is approximately 5 years.

The main discharge number is 001. The seven day once in ten year low flow (7Q10) of the receiving stream, Fox River is 124.0 cfs.

The design average flow (DAF) for the facility is 5.0 million gallons per day (MGD) and the design maximum flow (DMF) for the facility is 11.3 MGD. Wastewater treatment consists of: bar screen, primary clarifiers, biological nutrient removal using 5-stage Bardenpho process, final clarification, backup chemical phosphorus removal and ultraviolet disinfection. Primary clarifier sludge is treated in a primary anaerobic digester, a backup primary digester, a secondary anaerobic digester and then a sludge storage digester. Waste activated sludge from the BNR process is thickened in a rotary drum thickener, anaerobic digestion with 5 basins, two primary, two secondary, and one storage. Both the anaerobic and aerobic sludge is dewatered by a belt filter press and transferred to an onsite covered biosolids storage building prior to land application.

Special Condition 19 of the City of Algonquin previous permit required participation in the Fox River Study Group (FRSG) to determine the most cost-effective means to remove dissolved oxygen (DO) and offensive condition impairments in the Fox River to the extent feasible. The Permittee was required to follow the tasks set out in the 2015 Fox River Implementation Plan (either by the permittee or through the FRSG) in accordance with the following action items and schedule:

1. Work with the Army Corps of Engineers and Illinois Department of Natural Resources to restart the Fox River Habitat & Connectivity Study.
2. Collect continuous dissolved oxygen data and other water quality parameters at the Algonquin Bike Bridge from May through September 2018 to update the FRSG's water quality model.
3. Analyze Fox River and Major Tributary Water Quality Data and Trends, for the period 1998-2016 by December 31, 2018.
4. Update the Fox River DB database with newly collected data, by July 31, 2019.
5. Amend the modeling and use the modified model to reevaluate water quality improvement scenarios, by August 31, 2019.
6. Amend the Implementation Plan by December 31, 2022, based on the improved modelling and which will include proposed watershed improvement projects.

In response to the permit requirement, the FRSG submitted the Fox River Implementation Plan (FRIP) on December 30, 2022. The summary

of the plan is given below.

The Fox River, spanning Wisconsin through Northeastern Illinois to its confluence with the Illinois River, provides drinking water for public water supplies, supports diverse aquatic ecosystems, and recreation for surrounding communities. The river is impacted by the presence of dams, discharge of treated wastewater effluent, and urban and agricultural stormwater runoff.
The Fox River watershed covers approximately 2,658 square miles, with 1,720 square miles in Illinois alone. This watershed supports a mix of rural, urban, and natural landscapes. The Fox River currently receives an estimated 1.9 million pounds of total phosphorus annually, primarily from agricultural runoff, wastewater treatment plants, and urban stormwater sources. Excessive phosphorus contributes to algal blooms, dissolved oxygen (DO) deficiencies, and other water quality impairments that impact aquatic life and human use.
In response, the Fox River Study Group (FRSG), a group of municipalities, and interested stakeholders, developed the Fox River Implementation Plan (FRIP). Originally released in 2015 and updated in 2022, the FRIP's primary goal is to address the river's impairments, including excessive nutrient loading, dissolved oxygen (DO) deficiencies, and nuisance algae growth. The plan outlines action items to improve water quality and ensure the river uses are maintained.
The FRIP outlines stakeholder engagement, modeling and adaptive management to focuses on reducing total phosphorus, upgrading wastewater treatment plants (WWTPs), and implementing urban and agricultural best management practices (BMPs). It also prioritizes dam removal and riparian restoration to improve river flow and aquatic habitats.
The following summary highlights the elements of the FRIP, its proposed management actions, and its vision for a revitalized Fox River watershed.

Summary of Fox River Implementation Plan

The FRIP addresses water quality impairments in the Fox River, focusing on:

- Dissolved Oxygen (DO) impairments.
- Nuisance algae growth.
- Total Phosphorus.

Watershed Area

- Geographic Scope: A 98-mile stretch of the Fox River from Stratton Dam to the Illinois River.
- Land Use: 59% rural, 30% urban, and 11% forested, wetland, or surface water.
- Significance:
    - Provides drinking water for 300,000 residents.
    - Supports recreation and wildlife habitats.
    - Impacted by:
        - 13 dams along the mainstem.
        - Wastewater treatment plant (WWTP) discharges.
        - Agricultural and urban runoff.

Water Quality Status

1. **Nutrient loads**:
    - WWTPs contributed 53% of total phosphorus loads, reduced to 37% in recent years through upgrades.
    - Agricultural runoff contributes 42% of total phosphorus load.
    - Urban stormwater and upstream sources further increase nutrient loads.
2. **DO and Algae Impairments**:
    - Excess total phosphorus contributes to nuisance algae blooms, degrading water quality and aesthetic impairments.
    - DO deficiencies in impounded areas and algae issues threaten aquatic life and algae issues.
3. **Dam Impacts**:
    - Dams disrupt river flow, lowering DO levels and promoting algae blooms.

Action Items

1. Monitoring and Analysis

- **Water Quality Trends**:
  - Total phosphorus and chlorophyll-*a* levels are decreasing in the mainstem but remain problematic in tributaries (Poplar Creek and Blackberry Creek).
- **Modeling Improvements**:
  - Updated QUAL2kw models to simulate nutrient and DO changes.
  - HSPF watershed models to reflect current conditions.

2. Recommendations

The FRIP outlines several recommendations to address nutrient sources and flow impairments:

- **WWTP Upgrades**:
  - Reduce total phosphorus effluent limits to 1.0 mg/L (by 2022) and 0.5 mg/L (by 2030).
  - Significant reductions in point-source total phosphorus contributions are anticipated.
- **Agricultural Best Management Practices (BMPs)**:
  - Promote agricultural BMPs (cover crops, no-till farming, and nutrient management to reduce runoff).
- **Urban Stormwater Controls**:
  - Implement green infrastructure (e.g., bioswales, permeable pavements) and retrofitting in high-total phosphorus urban subwatersheds.
- **Dam Removal and Riparian Restoration**:
  - Prioritize removing dams, including Carpentersville and North Aurora, to improve flow, increase DO levels, and support aquatic migration.
  - Stabilize riverbanks and reduce sedimentation through riparian restoration.

3. Implementation Schedule

- **Pre-2032**:
  - Focus on WWTP upgrades, dam removals, agricultural BMP adoption, and stakeholder engagement.
- **Post-2032**:
  - Continue monitoring and refine action items based on observed results.
  - Analyze further dam removals and management actions.

4. Adaptive Management

- Regularly update actions based on monitoring results and evolving conditions.
  - Updated phosphorus source evaluations.
  - Continuous modeling and monitoring of flow, sediment, and nutrients.

5. Stakeholder Engagement

The plan is coordinated by the Fox River Study Group (FRSG), involving:

- Municipalities, WWTPs, and planning agencies.
- Environmental organizations and state/federal agencies.
- Local communities and researchers.

Expected Outcomes

1. **Nutrient Reduction**:
   - Significant total phosphorus reductions through WWTP upgrades, BMPs, and stormwater controls.
2. **Improved Water Quality**:
   - Enhanced DO levels, reduced algae blooms, and improve aquatic ecosystems.

3. **Sustainable Management**:
    - Adaptive strategies as based on future information and modeling to continue to ensure long-term success of the FRIP goals.

Agency Conclusion

The Fox River Implementation Plan (FRIP) outlines an approach to address water quality and aquatic life in the Fox River watershed by addressing both point and nonpoint sources of total phosphorus and other environmental stressors. The FRIP recommends wastewater treatment plant upgrades, urban and agricultural best management practices (BMPs), dam removal, and adaptive management. Along with continuing stakeholder engagement, monitoring, and adaptive management to meet long-term objectives of the plan.

The FRIP recommends a total phosphorus effluent concentration of 0.5 mg/L by 2030. No instream total phosphorus target is identified; however, an instream target was not a requirement of the Fox River watershed NPDES permits. The Fox River Study Group and their FRIP met all components required by their previous NPDES permit. The IEPA recognizes the Illinois Nutrient Science Advisory Committee (NSAC) numeric criteria of 0.113 mg/L which ranges between 0.033 mg/L (lower 95% confidence limit) and 0.193 mg/L (upper 95% confidence limit). The IEPA also recognizes that instream monitoring, future modeling and model calibration will continue as more data becomes available and as watershed projects are completed. This analysis will validate scenarios modeled in the FRIP and validate the effectiveness of watershed activities implemented. Should sampling and modeling results and/or final implementation of the FRIP determine the proposed plan and corresponding action items does not remove dissolved oxygen and offensive condition impairments in the Fox River, a revised FRIP along with further analysis and/or identifying an instream target may be necessary. The Permittee may consider a Time Limited Water Quality Standard to implement the FRIP now or in the future, if current FRIP implementation measures are not sufficient to address the DO and offensive conditions

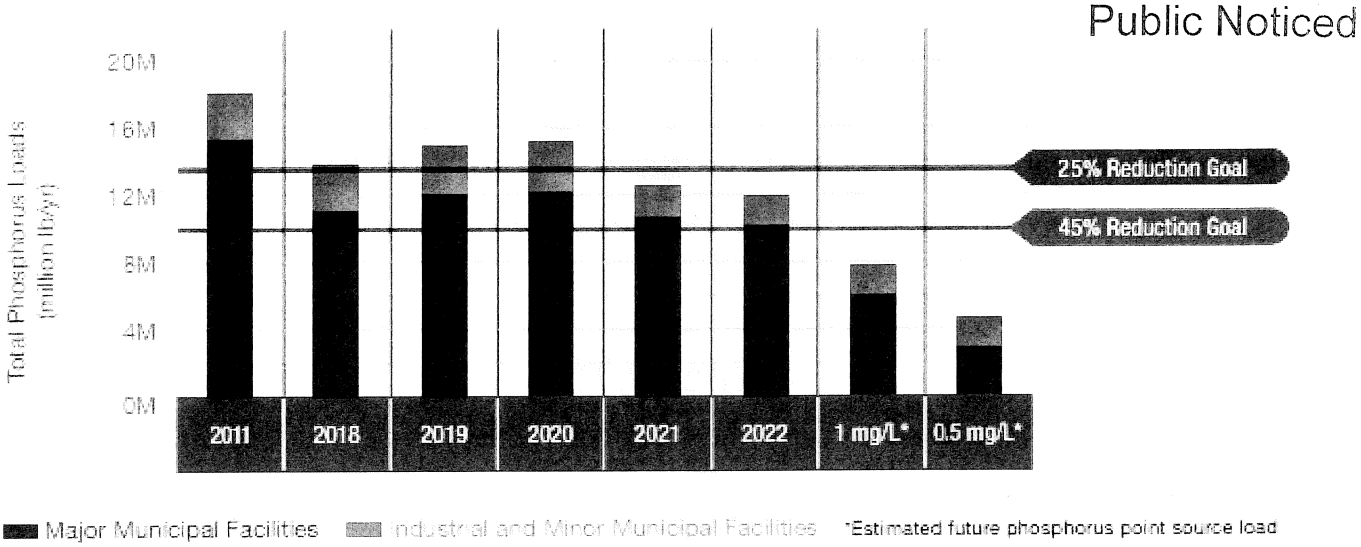
The fox River Study Group has demonstrated that reducing TP effluent concentrations to 0.5 mg/L and implementing non-point source BMPs is adequate to address DO and offensive conditions. Implementation of the FRIP objectives outlined in the implementation schedule are intended to be protective of water quality standards upon final completion (2032).

The permittee should also consider total nitrogen reductions by continuing optimization efforts with their existing facility. As well as participate in the Illinois River Study Group as an individual Permittee or represented by the DRSCW.

Special Condition ** of the draft permit requires the City of ** to continue to participate in the Fox River Study Group to determine the most cost-effective means to remove dissolved oxygen and offensive condition impairments in the Fox River to the extent feasible. The permit special condition requires the Permittee, along with the FRSG, to implement the 2022 Fox River Implementation Plan (paragraph A) and submit annual progress reports (paragraph (B).

The Permittee shall also continue to maintain and implement any recommendations from its Phosphorus Discharge Optimization Plan in accordance with the schedule set forth in the Plan.

Reducing total phosphorus loads from the point source sector is especially important to the Illinois Nutrient Loss Reduction Strategy, NLRS. According to the original strategy published in 2015, nutrient loading from the point source sector represented almost half of the statewide total for phosphorus compared with just 16% for nitrate-nitrogen. The last decade has seen substantial phosphorus reduction achievements in the point source sector. The strategy set a goal of a 25% reduction of phosphorus from the 2011 baseline for the point source sector by 2025. In 2022, the point source sector reduced its phosphorus discharge by 34%, or a total of 6.2 million pounds. The 2022 estimated annual statewide total phosphorus load from point sources was 11.9 million pounds.
Estimates of future point source loads if all major municipal facilities were meeting 1 mg/L and 0.5 mg/l total phosphorus concentrations in their discharge. These estimated loads are based on each facility's 2022 discharge flow data calculated using total phosphorus concentrations of 1.0 mg/L and 0.5 mg/L. As of 2023, 46 facilities had total phosphorus annual average concentration at or below 0.5 mg/L in 2022.



This Reissued Permit does not increase the facility's DAF, DMF, concentration limits, and/or load limits.

Application is made for the existing discharge(s) which is located in McHenry County, Illinois. The following information identifies the discharge point, receiving stream and stream classifications:

Discharge Number	Receiving Stream	Latitude	Longitude	Stream Classification	Integrity Rating
001	Fox River	42° 09' 17" North	88° 17' 39" West	General Use	Not rated

To assist you further in identifying the location of the discharge(s) please see the map on page 7 of the Public Notice Fact Sheet.

The subject facility discharges to the Fox River at a point where 124.0 cfs of flow exists upstream of the outfall during critical 7Q10 low-flow conditions. The facility has a DAF of 5.0 MGD and a 3-month low flow of 3.96 cfs. The Fox River is classified as a General Use Water. According to the 2008 IDNR document "Integrity Multiple Taxa in a Biological Stream Rating System", the Fox River is not a biologically significant stream at this location; however, it is given an integrity rating of "C" using IDNR's integrity rating system at this location. The segment of the Fox River is not subject to enhanced dissolved oxygen standards.

The Algonquin WWTP discharges to the Fox River (IL_DT-20). The Fox River, Waterbody Segment, IL_DT-20, is listed on the 2020/2022 Illinois Integrated Water Quality Report and Section 303(d) List as impaired for aquatic life use with potential causes given as alteration in stream-side or littoral vegetative cover, other flow regime alterations, and dissolved oxygen and fish consumption use with potential cause given by polychlorinated biphenyls. From the treatment plant to the end of segment IL_DT-20 is a distance of 6.24 stream miles.

Segment IL_DT-58 is the next segment of the Fox River. The Fox River, Waterbody Segment, IL-DT-58, is listed on the 2020/2022 Illinois Integrated Water Quality Report and Section 303(d) List as impaired for aquatic life use with potential causes given as alteration in stream-side or littoral vegetative cover, other flow regime alterations, and dissolved oxygen (non-pollutant), fish consumption use with potential cause given as polychlorinated biphenyls and mercury and primary contact use with potential cause given as fecal coliform. Segment IL_DT-58 is 3.76 stream miles in length.

Segment IL_DT-69 is the next segment of the Fox River. The Fox River, Waterbody Segment, IL-DT-69, is listed on the 2020/2022 Illinois Integrated Water Quality Report and Section 303(d) List as impaired for fish consumption use with potential cause given as aldrin, dieldrin, endrin, heptachlor, mercury, mirex, polychlorinated biphenyls and toxaphene, and primary contact use with potential cause given as fecal coliform. Aquatic life and aesthetic quality uses are fully supported. Segment IL_DT-69 is 4.51 stream miles in length.

Segment IL_DT-38 is the next segment of the Fox River. The Fox River, Waterbody Segment, IL-DT-38, is listed on the 2020/2022 Illinois Integrated Water Quality Report and Section 303(d) List as impaired for aquatic life use with potential causes given as algae, alteration in stream-side or littoral vegetative cover, flow regime modification, total phosphorus, and total suspended solids, fish consumption use with potential cause given aldrin, dieldrin, endrin, heptachlor, mercury, mirex, polychlorinated biphenyls and toxaphene, and primary contact use with potential cause given as fecal coliform. Public and food processing water supply use is fully supported. Segment IL_DT-38 is 10.83 stream miles in length.

This discharge is approximately 25.34 miles upstream of Waterbody Segment, IL_DT-38, which is listed as impaired with a potential cause of Aquatic Algae.

The discharge(s) from the facility is proposed to be monitored and limited at all times as follows:
Discharge Number(s) and Name(s): 001 STP Outfall
Load limits computed based on a design average flow (DAF) of 5.0 MGD (design maximum flow (DMF) of 11.3 MGD).
The effluent of the above discharge(s) shall be monitored and limited at all times as follows:

	LOAD LIMITS lbs/day DAF (DMF)*			CONCENTRATION LIMITS mg/L			
Parameter	Annual Average	Monthly Average	Weekly Average	Annual Average	Monthly Average	Weekly Average	Regulation
$CBOD_5$**	417 (942)	834 (1885)	1668 (3770)	10	20	40	35 IAC 304.120 40 CFR 133.102
Suspended Solids**	500 (1131)	1043 (2356)	1887 (4241)	12	25	45	35 IAC 304.120 40 CFR 133.102
pH	Shall be in the range of 6 to 9 Standard Units						35 IAC 304.125
Fecal Coliform	The monthly geometric mean shall not exceed 200 per 100 mL, nor shall more than 10% of the samples during the month exceed 400 per 100 mL						35 IAC 302.209

Parameter	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Regulation
Chlorine Residual				0.038	35 IAC 302.208
Ammonia Nitrogen: (as N)					35 IAC 355 and 35 IAC 302
April-May/Sept.-Oct.	50 (113)	67 (151)	1.2	1.6	
June-August	29 (66)	67 (151)	0.7	1.6	
November-February	142 (320)	146 (330)	3.4	3.5	
March	50 (113)	75 (170)	1.2	1.8	
Copper***		Monitor Only		Monitor Only	35 IAC 309.146
Dissolved Phosphorus		Monitor Only		Monitor Only	35 IAC 309.146
Total Phosphorus (as P)	42 (94)		1.0		35 IAC 304.124
Total Nitrogen (as N)		Monitor Only		Monitor Only	35 IAC 309.146
Nitrate/Nitrite		Monitor Only		Monitor Only	35 IAC 309.146
Total Kjeldahl Nitrogen (TKN)		Monitor Only		Monitor Only	35 IAC 309.146
Alkalinity		Monitor Only		Monitor Only	35 IAC 309.146
Temperature				Monitor Only	35 IAC 309.146
PFAS****				Monitor Only	35 IAC 309.146
PFAS Sum****				Monitor Only	35 IAC 309.146

	Monthly Avg. not less than	Weekly Avg. not less than	Daily Minimum	
Dissolved Oxygen				35 IAC 302.206
March-July	N/A	6.0	5.0	
August-February	5.5	4.0	3.5	

*Load Limits are calculated by using the formula: 8.34 x (Design Average and/or Maximum Flow in MGD) x (Applicable Concentration in mg/L).
**BOD_5 and Suspended Solids (85% removal required): In accordance with 40 CFR 133, the 30-day average percent removal shall not be less than 85 percent.
***Monitor Only for 6 months.
****To address Per-and polyfluoroalkyl substance (PFAS) under the NPDES permit program the Illinois Environmental Protection Agency (IEPA), Bureau of Water, Permit Section has implemented a PFAS Reduction Initiative. Under this initiative, it has been determined that those Publicly Owned Treatment Works who are classified as a major discharger by USEPA, and because of the type and variety of industries that discharge to the sewer system, there is the potential for the publicly owned treatment works to receive wastewater contaminated by PFAS. To help eliminate and/or control the amount of PFAS being discharged to the sewer system, the permittee will be required to monitoring for PFAS compounds and to require Best Management Practices (BMP's) be developed by specific industrial facilities. Monitoring will be done at the wastewater treatment plants influent, effluent and biosolids. The permit will also require BMP's be developed for those industrial facilities who have been identified by USEPA as having the potential to use and/or discharge PFAS compounds. Monitoring for PFAS has been added to the effluent limitations, monitoring, and reporting page(s) for outfall 001 and Special Conditions 13 and 14 have been added to the permit as well.

This draft Permit also contains the following requirements as special conditions:

1. Reopening of this Permit to include different final effluent limitations.
2. Operation of the facility by or under the supervision of a certified operator.
3. Submission of the operational data in a specified form and at a required frequency at any time during the effective term of this Permit.
4. More frequent monitoring requirement without Public Notice.
5. Prohibition against causing or contributing to violations of water quality standards.
6. Recording the monitoring results on Discharge Monitoring Report Forms using one such form for each outfall each month and submitting

the forms to IEPA each month.

7. The provisions of 40 CFR Section 122.41(m) & (n) are incorporated herein by reference.
8. Effluent sampling point location.
9. Submission of annual fiscal data.
10. The Permittee is required to perform biomonitoring tests in the 18th, 15th, 12th, and 9th months prior to the expiration date of the permit, and to submit the results of such tests to the IEPA within one week of receiving the results from the laboratory.
11. Submission of semi annual reports indicating the quantities of sludge generated and disposed.
12. Reopening of this Permit to include revised effluent limitations based on a Total Maximum Daily Load (TMDL) or other water quality study.
13. PFAS Testing and Reporting.
14. PFAS Minimization Program.
15. Capacity, Management, Operations and Maintenance (CMOM) requirements.
16. Monitoring for arsenic, barium, cadmium, hexavalent chromium, total chromium, copper, available cyanide, total cyanide, fluoride, dissolved iron, total iron, lead, manganese, mercury, nickel, oil, phenols, selenium, silver and zinc is required to be conducted twice monthly for five months beginning 3 months from the effective date.
17. Monitoring for total phosphorus, dissolved phosphorus, nitrate/nitrite, total kjeldahl nitrogen (TKN), ammonia, total nitrogen (calculated), alkalinity and temperature once a month.
18. A requirement to monitor and a limit of 0.038 mg/L for residual chlorine when it is used.
19. Burden Reduction.
20. Reopening of this Permit to include revised effluent limitations based on a Total Maximum Daily Load (TMDL) or other water quality study.
21. Controlling the sources of infiltration and inflow into the sewer system.
22. Compliance Schedule for 0.5 mg/L phosphorus limit by January 1, 2030.
23. FRSG Condition.
24. Optimize Biological Nutrient Removal.
25. Six months of additional copper monitoring.