

Fact Sheet Amendment for Industrial NPDES Permit WA0000825

Inland Empire Paper Company

Date of Public Notice: November 7, 2024

Permit Effective Date: XX/XX/XXXX

Purpose of this fact sheet

This fact sheet amendment explains and documents the modifications to the permit issued to Inland Empire Paper Company (IEP) on June 30, 2022 with an effective date of August 1, 2022. The fact sheet that accompanied the 2022 permit has detailed information about the wastewater treatment plant and Ecology's permit decisions made in issuing the National Pollutant Elimination System (NPDES) permit.

This fact sheet amendment complies with Section 173-220-060 of the Washington Administrative Code (WAC), which requires Ecology to prepare a draft permit and accompanying fact sheet for public evaluation before issuing an NPDES permit.

Ecology proposes to modify this permit to Inland Empire Paper Company. Ecology makes the draft modified permit available for public review and comment at least 30-days before issuing the final permit. Copies of the draft modified permit and fact sheet amendment for Inland Empire Paper Company NPDES permit WA0008205 are available for public review and comment from November 7, 2024 to December 9, 2024. Ecology must also publish an announcement (public notice) telling people where they can read the draft permit, and where to send their comments, during the comment period of 30 days (WAC 173-220-050). When a permit is modified, only the conditions subject to modification are reopened for comment, see **Appendix A - Public Involvement Information** for more detail about the public notice and comment procedures.

After the public comment period closes, Ecology will summarize substantive comments and provide responses to them. Ecology will include the summary and responses to comments in this fact sheet amendment as **Appendix C - Response to Comments**, and publish it when issuing the final NPDES permit. Ecology will not revise the fact sheet, but the full document will become part of the legal history contained in the facility's permit file.

This fact sheet amendment explains the regulatory and technical basis for the amended conditions contained in the permit.

1. Introduction

The Federal Clean Water Act (FCWA, 1972, and later amendments in 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One mechanism for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System (NPDES), administered by the federal Environmental Protection Agency (EPA).

The EPA authorized the State of Washington to manage the NPDES permit program in our state. Our state legislature accepted the delegation and assigned the power and duty for conducting NPDES permitting and enforcement to Ecology. The Legislature defined Ecology's authority and obligations for the wastewater discharge permit program in 90.48 RCW (Revised Code of Washington).

The following regulations apply to industrial NPDES permits:

- Procedures Ecology follows for issuing NPDES permits (chapter 173-220 WAC)
- Water quality criteria for surface waters (chapter 173-201A WAC)
- Water quality criteria for ground waters (chapter 173-200 WAC)
- Whole effluent toxicity testing and limits (chapter 173-205 WAC)
- Sediment management standards (chapter 173-204 WAC)
- Submission of plans and reports for construction of wastewater facilities (chapter 173-240 WAC)

These rules require any industrial facility owner or operator to obtain an NPDES permit before discharging wastewater to state waters. They also help define the basis for limits on each discharge and for performance requirements imposed by the permit.

2. Background Information

Table 1: Facility Information

Applicant	Inland Empire Paper Company
Facility Address	3320 N. Argonne Road, Spokane, WA 99212
Contact at Facility	Doug Krapas, Environmental Manager
Responsible Official	Chris Robinson, President and General Manager
Type of Treatment	Primary Clarification, Biological Treatment, Secondary Clarification, Membrane Filtration
Discharge Waterbody Name	Spokane River
Industry Type	Pulp and Paper Mill

Ecology issued the current permit to Inland Empire Paper Company on June 30, 2022 with an effective date of August 1, 2022 (2022 permit). The permit extended the original compliance schedule to meet final water quality based effluent limits (WQBELs) for total phosphorus and five day carbeneous biochemical oxygen demand (CBOD₅) based on the Spokane River and Lake Spokane Dissolved Oxygen TMDL (DO TMDL). These seasonal average limitations are applicable from February - October for total phosphorus and March – October for CBOD₅.

On May 1, 2024, Inland Empire Paper Company (IEP) requested a further extension to the compliance schedule due to an unexpected decline in the overall treatment system performance. Results from a thorough evaluation indicated that the treatment system needed construction related improvements in order to lower CBOD₅ and total phosphorus levels and meet effluent limits. The use of additional delta management tools (see discussion in original Fact Sheet) will likely also be needed.

3. Discussion

Ecology completed the Spokane River and Lake Spokane Dissolved Oxygen Total Maximum Daily Load (Ecology, 2010) which assigned individual Waste Load Allocations (WLAs) to Inland Empire Paper Company (IEP). Ecology issued a permit to IEP on September 29, 2011 with an effective date of November 1, 2011 that contained a 10-year schedule of compliance to meet final WQBELs for total phosphorus, CBOD₅, and ammonia.

Prior to re-issuance of the 2022 permit, IEP requested the an extension to the compliance schedule to meet the final WQBELs for total phosphorus and CBOD₅. IEP expected that further optimization of its mill processes and effluent treatment system was necessary to meet these limits. In consideration of this request, Ecology extended the compliance schedule an additional two full compliance seasons (2023 and 2024).

However, IEP encountered continued performance issues with the treatment system. Levels of total phosphorus and CBOD₅ in the effluent had increased coinciding with the operation of the ultrafiltration membrane system. After a detailed evaluation, IEP determined that dispersed Zooglea bacteria and associated extracellular polymeric substances (EPS) had built up in the treatment system causing excessive turbidity and poor membrane filter performance. IEP began sending the membrane filter rejects to the dissolved air filtration system where the fine solids and EPS material were removed from the system. This resulted in a marked decrease in total phosphorus and total suspended solids in the effluent.

IEP's evaluation also determined the following conditions that adversely affected treatment system performance:

- Low oxygen levels in the Orbal system
- Elevated wastewater temperatures that reduced biological activity
- Low food-to-microorganism (F/M) ratios, low dissolved oxygen, and low nutrient filamentous bacteria

IEP plans to address these issues by installing a fine bubble aeration system in the Orbal carousel; and reducing wastewater temperatures through mill water system revisions with the possibility of additional heat exchanger capacity.

Appendix D - Figures contains plots showing IEP's ammonia, CBOD₅, and total phosphorus levels (Figures 1-3), seasonal average values compared with the WLAs (Figure 4), and the season average values for total phosphorus and CBOD₅ compared with the WLAs considering the credits of delta management tools for total intake phosphorus and the bubble allocation capacity from Kaiser Aluminum Washington, Inc (Figure 5).

4. Permit Modification

The water quality standards in WAC 173-201A-510(4) contain provisions for extending compliance schedules past ten years. When an approved TMDL has established wasteload allocations for a permitted discharge, Ecology may authorize a compliance schedule longer than ten years if:

- i. The Permittee is not able to meet its waste load allocation in the TMDL solely by controlling and treating its own effluent.
- ii. The Permittee has made significant progress to reduce pollutant loading during the permit term.
- iii. The Permittee is meeting all of its requirements under the TMDL as soon as possible.
- iv. Actions specified in the compliance schedule are sufficient to achieve water quality standards as soon as possible.

The plots in **Appendix D** demonstrate that IEP is still unable to meet its waste load allocations by controlling and treating its own effluent. The Permittee has made significant progress to reduce pollutant loadings during the previous and current permit term that includes mill-wide process improvements, installation of advanced treatment technology for reducing pollutant loadings, and resolving issues with existing treatment system performance. The Permittee has also met all other remaining requirements of the TMDL.

Ecology must specify actions in the compliance schedule to achieve water quality standards as soon as possible. Considering the scope of the construction activities proposed, Ecology believes that an extension of the compliance schedule through the end of the permit term will allow sufficient time to install and troubleshoot the treatment system and also meet the 'as soon as possible' requirement.

In addition to the compliance schedule extension, the proposed modification will add engineering report submittal requirements and construction deadlines for the treatment system improvements.

The following changes will be made to the permit:

1. Page 6, Summary of Permit Submittals, S4. Item 2 was added to the submittal table, "Approval Engineering Report, Plans, and Specifications for Fine Bubble Aeration System", with a due date of December 31, 2024.

2. Page 6, Summary of Permit Submittals, S4. Item 3 was added to the submittal table, "Letter Confirming Installation and Operation of Fine Bubble Aeration System", with a due date of May 31, 2025.
3. Page 10, footnote e, the year was changed from 2024 to 2027.
4. Page 23, Section S4. Schedule of Compliance for CBOD₅ and Total Phosphorus (as P), Bullet 3, "including reducing wastewater temperatures" was added.
5. Page 23, Table 13, Compliance Schedule, Task 2, was added, "Prepare and submit an approvable engineering report, plans, and specifications for Ecology review and approval for the installation of a fine bubble aeration system in the Orbal carousel in accordance with Chapter 173-240 WAC" with a due date of December 31, 2024.
6. Page 24, Table 13, Compliance Schedule, Task 3 was added, "Letter confirming the installation and operation of the fine bubble aeration system" with a due date of May 31, 2025.
7. Page 24, Table 13, Compliance Schedule, Task 4 was renumbered and the due date was changed from November 1, 2024 to November 1, 2027.

Because text was changed as a result of the modifications, page numbers in the corrected copy may not match the page numbers listed in this letter. The corrections above reference page numbers in the original unedited version.

5. Conclusion

Ecology proposes to modify Inland Empire Paper Company's permit as discussed in sections three and four above. According to federal rules in 40 CFR Part 122.62, when an NPDES permit is modified, only the conditions subject to modification are reopened for comment

No other condition or requirement of the Inland Empire Paper Company permit is hereby affected by this amendment.

Appendix A - Public Involvement Information

Appendix B - Permit Appeal Process

Appendix C - Response to Comments

Appendix D - Figures

Appendix E - Request for Compliance Schedule Extension

Appendix A – Public Involvement Information

Ecology proposes to modify Inland Empire Paper Company's NPDES permit. The permit modifications are described in this fact sheet amendment.

Ecology will place a Public Notice of Draft in the Spokesman Review on November 7, 2024 to inform the public and to invite comments on the proposed draft modified permit. Interested persons are invited to submit written comments regarding the modifications. Ecology is only accepting comments on the modified portions of the permit.

The modified permit and related documents can be viewed and copied between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Pat Hallinan
Water Quality Program
Eastern Regional Office
Department of Ecology
4601 N. Monroe Street
Spokane, Washington 99205-1265

Send email comments: Patrick.Hallinan@ecy.wa.gov
eComment Online Form: <https://wq.ecology.commentinput.com?id=V9FkhPfeB>

The Notice:

- Tells where copies of the draft Permit and Fact Sheet are available for public evaluation (a local public library, the closest Regional or Field Office, posted on our website).
- Offers to provide the documents in an alternate format to accommodate special needs.
- Urges people to submit their comments, in writing, before the end of the Comment Period
- Tells how to request a public hearing of comments about the proposed NPDES permit.
- Explains the next step(s) in the permitting process.

[Frequently Asked Questions about Effective Public Commenting¹](#) is available online to answer questions about public comments.

For more information, call the Department of Ecology Eastern Regional Office at (509) 329-3400 or visit [Ecology's website²](#).

¹ <https://apps.ecology.wa.gov/publications/SummaryPages/0307023.html>

² <https://ecology.wa.gov/>

Appendix B – Filing an Appeal

Your right to appeal

You have a right to appeal this permit to the Pollution Control Hearings Board (PCHB) within 30 days of the date of receipt. The appeal process is governed by RCW 43.21B and WAC 371-08. “Date of receipt” is defined in RCW 43.21B.001(2).

To appeal, you must do all of the following within 30 days of the date of receipt of this permit:

- File your notice of appeal and a copy of this permit with the PCHB (see filing information below). “Filing” means actual receipt by the PCHB during regular business hours as defined in WAC 371-08-305 and -335. “Notice of appeal” is defined in WAC 371-08-340.
- Serve a copy of your notice of appeal and this permit on the Department of Ecology by mail, in person, or by email (see addresses below).

You must also comply with other applicable requirements in RCW 43.21B and WAC 371-08.

Filing with the PCHB

For the most current information regarding filing with the PCHB, visit the [Pollution Control Hearings Board website](#)³ or call (360) 664-9160.

Service on Ecology

Street Addresses:

Department of Ecology
Attn: Appeals Processing Desk
300 Desmond Drive SE
Lacey, Washington 98503

Mailing Addresses:

Department of Ecology
Attn: Appeals Processing Desk
PO Box 47608
Olympia, Washington 98504-7608

E-Mail Address:

ecologyappeals@ecy.wa.gov

³ <https://elaho.wa.gov/>
November 7, 2024

Appendix C - Response to Comments

[Ecology will complete this section after the public notice of draft period.]

Appendix D – Figures

Figure 1: Effluent Ammonia Levels

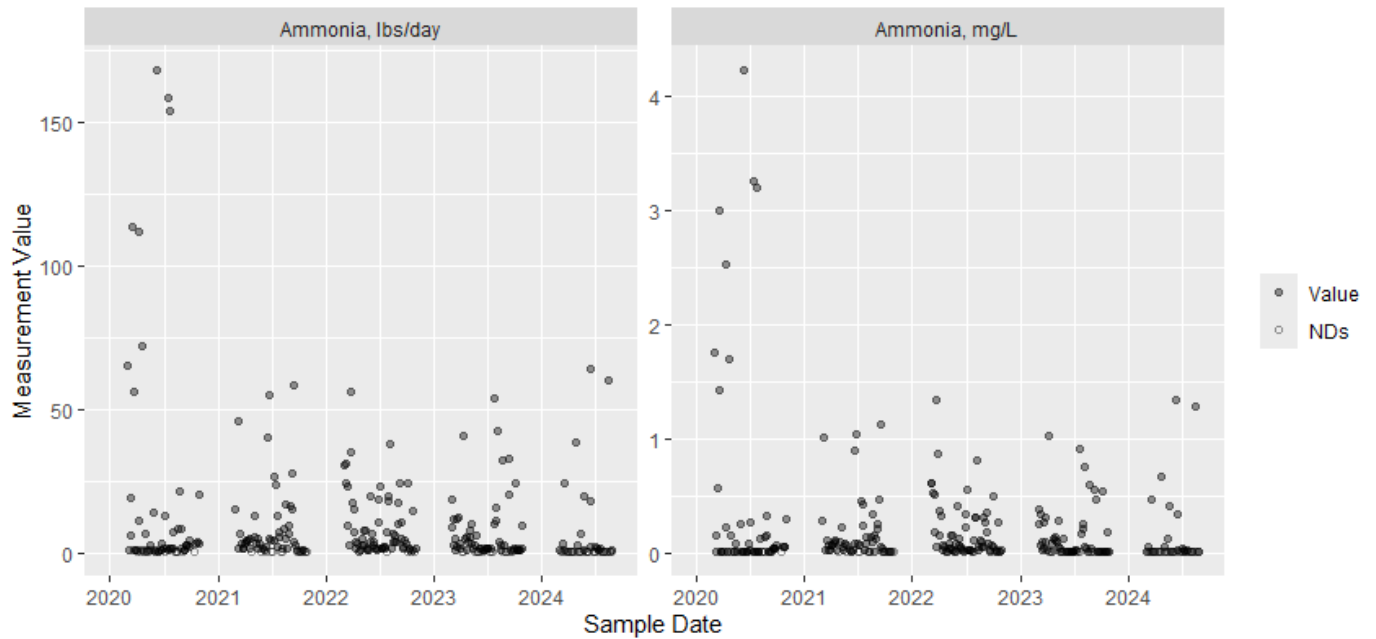


Figure 2: Effluent CBOD₅ Levels

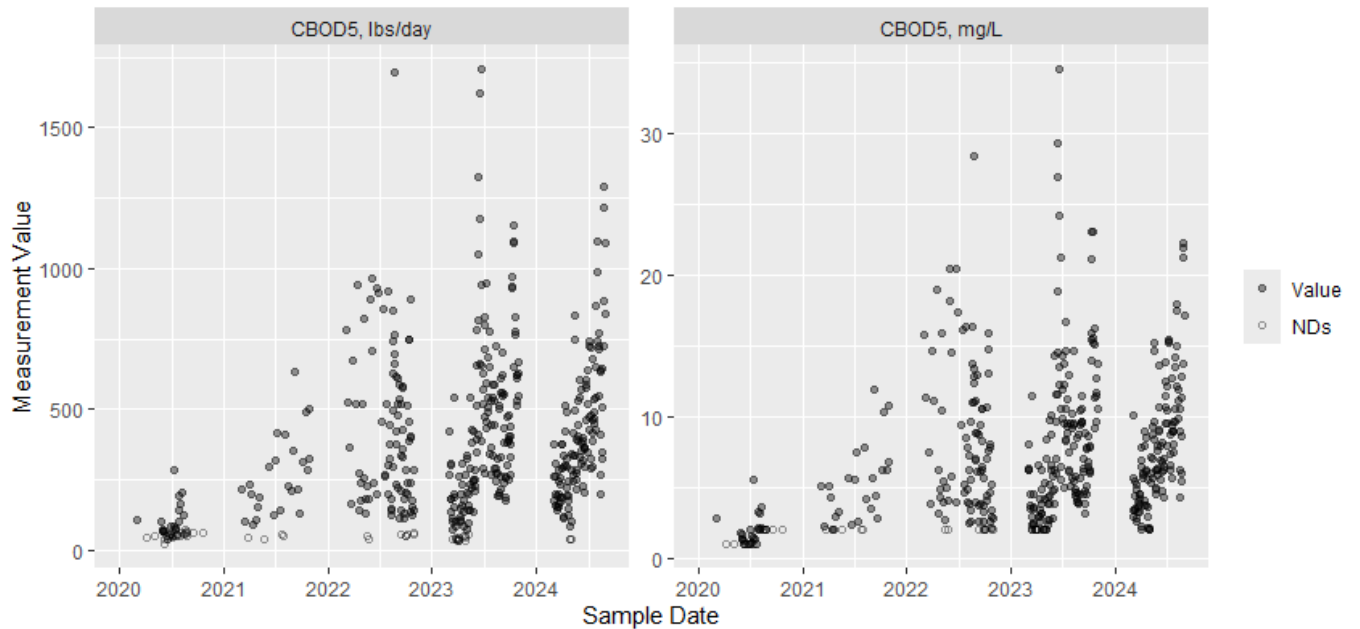


Figure 3: Effluent Total Phosphorus Levels

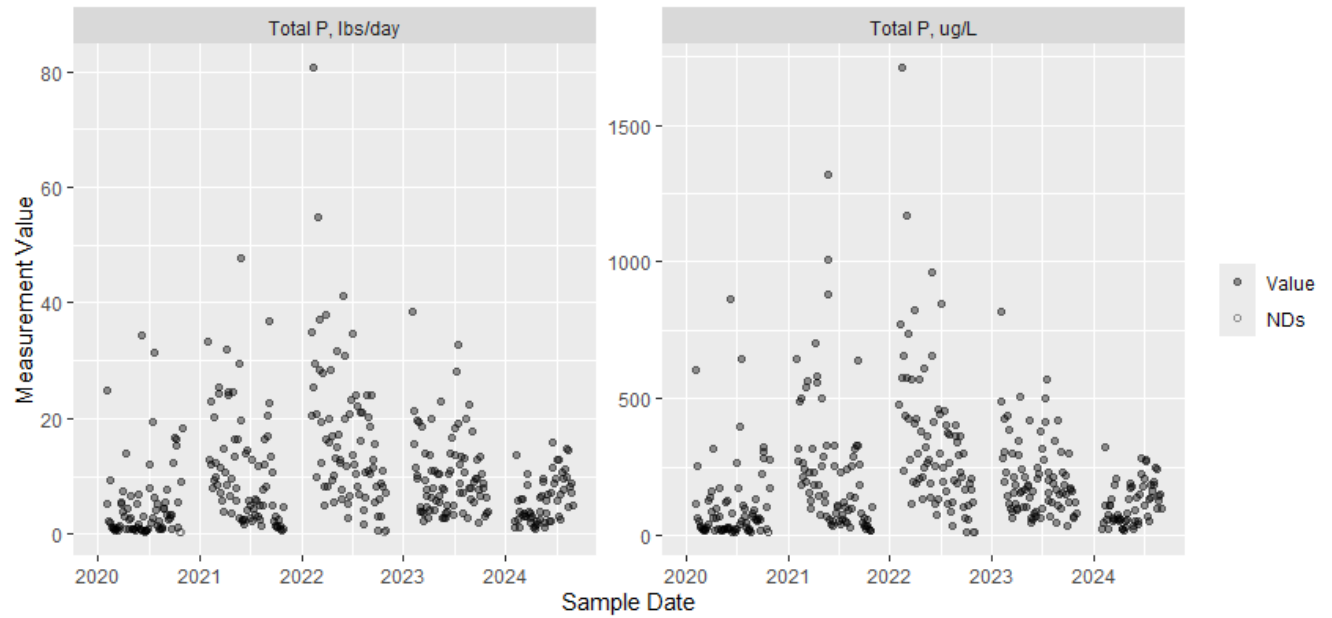


Figure 4: Seasonal Loadings

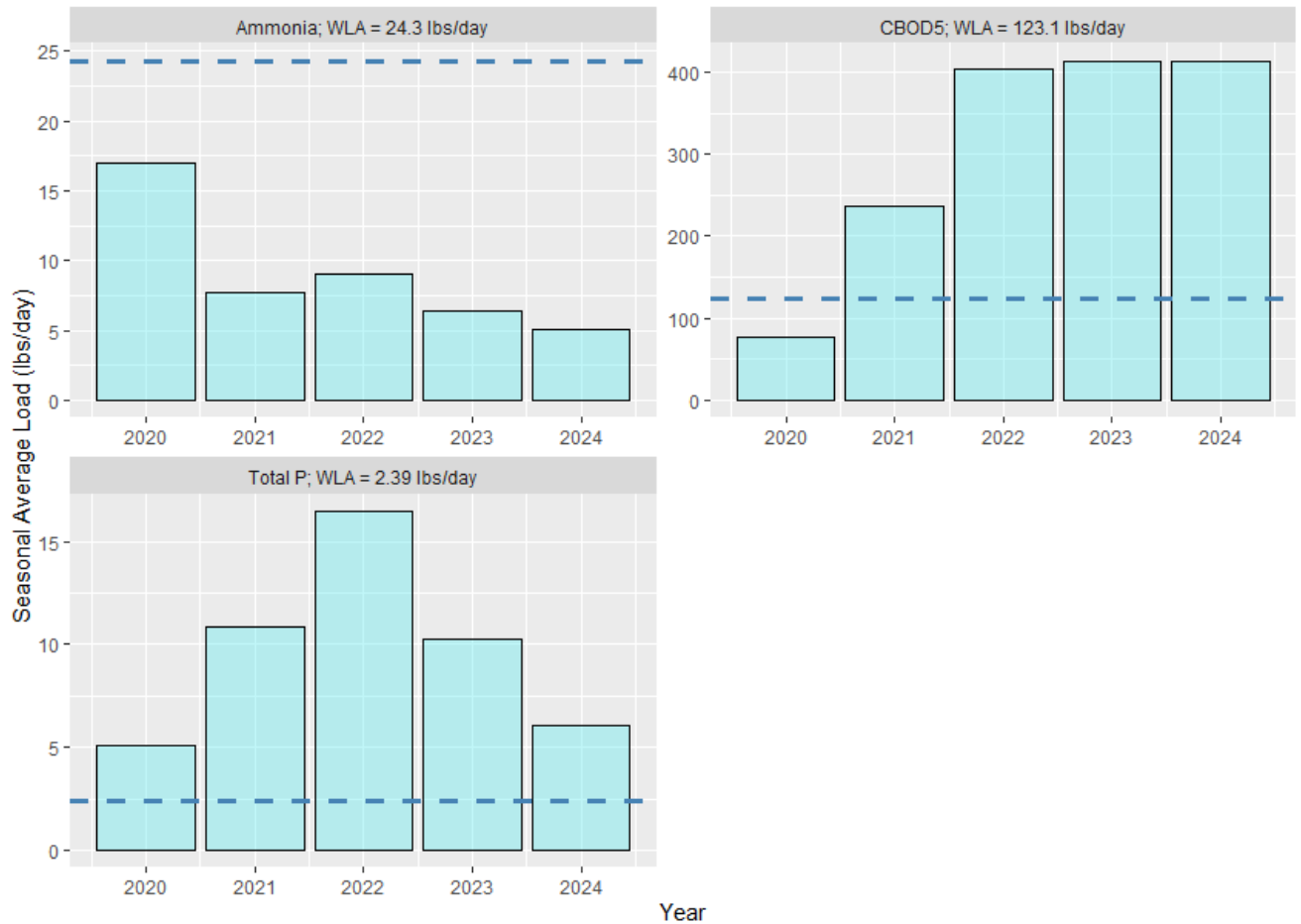
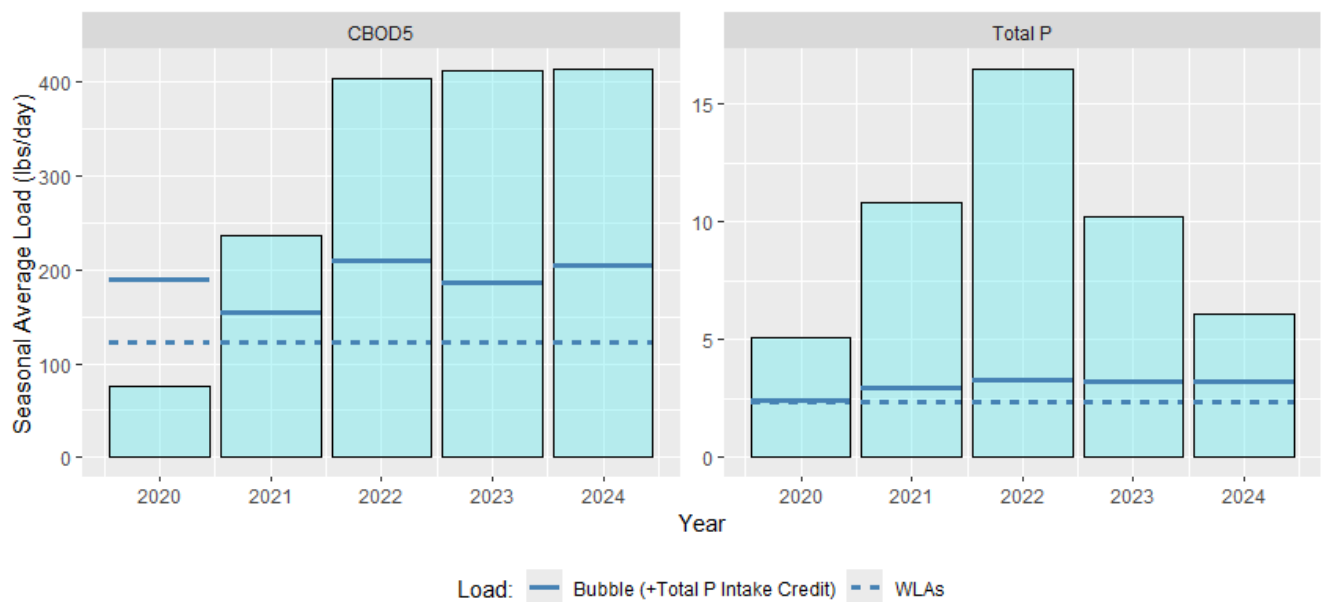


Figure 5: Seasonal Loadings with Credit and Bubble Allocation



Appendix E – Request for Compliance Schedule Extension



3320 N. ARGONNE
SPOKANE, WASHINGTON 99212-2099

PHONE 509.924.1911
FAX 509.927.8461

May 1, 2024

Via E-mail (phal461@ecy.wa.gov)

Mr. Pat Hallinan, Water Quality Permit Coordinator
Eastern Regional Office
Washington Department of Ecology
4601 N. Monroe St.
Spokane, WA 99205-1295

Regarding: Request for Compliance Schedule
Inland Empire Paper Company NPDES Permit No. WA 000082-5

Dear Pat:

Inland Empire Paper Company (IEP) requests a limited compliance schedule extension throughout the term of its current NPDES permit for attainment of the final waste load allocations (WLA) for Total Phosphorus (TP) and Carbonaceous Biochemical Oxygen Demand (CBOD) established under the Spokane River and Lake Spokane Dissolved Oxygen Total Maximum Daily Load (TMDL)¹. IEP has met the deadlines for the compliance schedule established under the 2011 NPDES permit and is currently meeting the final WLA for Ammonia. Compliance with the TP and CBOD limits will depend on significant modification and optimization of IEP's effluent treatment system. Compliance may also depend on the use of implementation tools for nutrients that can be incorporated into the next permit issuance, including an internal trade for a reduction of IEP's ammonia WLA for a subsequent increase to the Total Phosphorus (TP) WLA.

IEP believes that this request is reasonable and in accordance with WAC 173-220-190(2), *Modification and revocation of permits*:

The department may, upon request of the permittee, modify a schedule of compliance or an operating condition in an issued permit if it determines good and valid cause exists for such revision (such as...other event over which the permittee has little or no control and for which there is no other reasonably available remedy).

Additionally, this request is further supported by the four factors set forth in WAC 173-201A-510(4)(e) for a compliance schedule to meet waste load allocations under a TMDL:

¹ WA Department of Ecology. Publication No. 07-10-073, Spokane River and Lake Spokane Dissolved Oxygen Total Maximum Daily Load. Revised February 2010

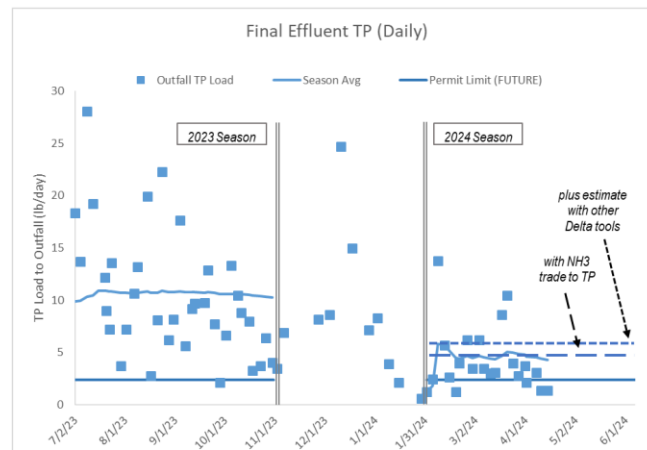
WAC 173-201A-510(4)(e) When an approved total maximum daily load has established waste load allocations for permitted dischargers, the department may authorize a compliance schedule longer than ten years if:

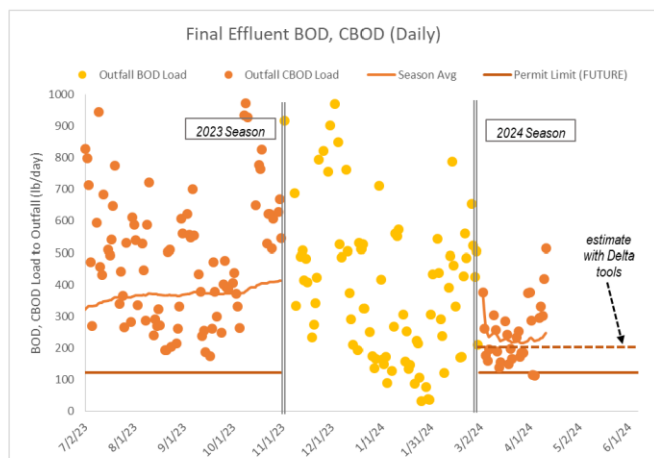
- (i) The permittee is not able to meet its waste load allocation in the TMDL solely by controlling and treating its own effluent;
- (ii) The permittee has made significant progress to reduce pollutant loading during the term of the permit;
- (iii) The permittee is meeting all of its requirements under the TMDL as soon as possible; and
- (iv) Actions specified in the compliance schedule are sufficient to achieve water quality standards as soon as possible.

The following information is provided by IEP to support the requirements of WAC 173-220-190(2) and WAC 173-201A-510(4)(e):

1. The permittee is not able to meet its waste load allocation in the TMDL solely by controlling and treating its own effluent.

Over the past 20 years, IEP completed numerous upgrades to its pulp and paper mill processes and effluent treatment system. These investments culminated in the installation of state-of-the-art Ultra-Filtration (UF) membrane technology, making IEP the first in the pulp and paper industry to treat its effluent to this level. With all of these technological investments, IEP has been able to achieve the final and seasonal limits for Ammonia, and although significant progress has been made over the past two years of the current permit, IEP has not yet been able to demonstrate consistent compliance with the TP & CBOD limits as illustrated in the following recent performance graphs:





IEP is confident that the TP and CBOD WLAs can be achieved with consideration of both the additional technological upgrades discussed herein and Delta Elimination tools allowable under the DO TMDL.

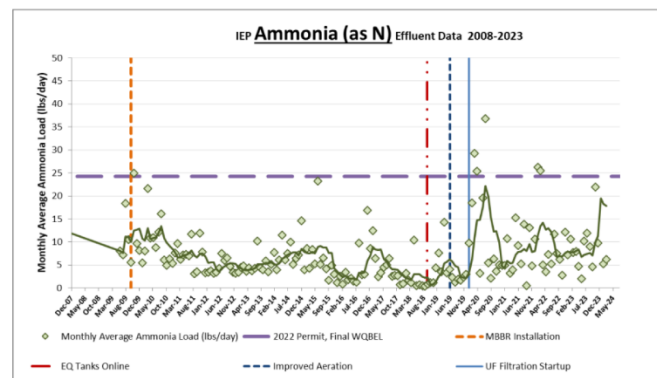
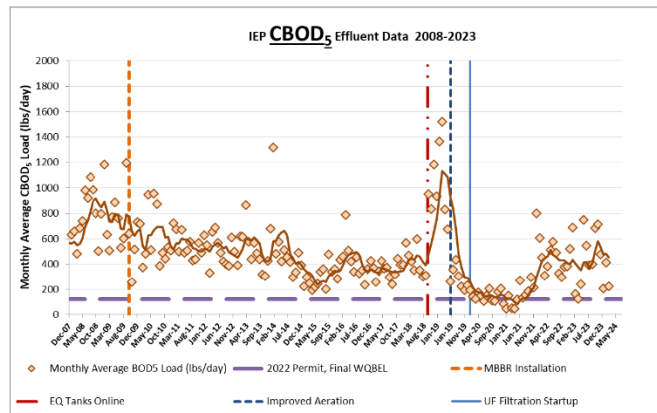
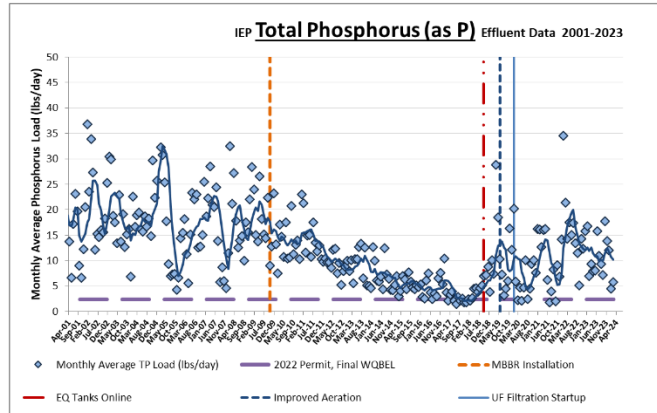
2. The permittee has made significant progress to reduce pollutant loading during the term of the permit;

Under the compliance schedule provided in the 2011 NPDES permit, IEP completed an in-depth analysis of treatment alternatives², implemented numerous mill-wide process improvements³, and installed state-of-the-art effluent treatment technologies⁴. These improvements achieved substantial reductions in nutrient loading as evidenced by IEP's ability to meet the final limits for Ammonia as well as substantial reductions in TP and CBOD loadings approaching the TMDL WLAs. With all of these modifications and the UF system in place, IEP has achieved the highest level of water quality treatment for any pulp and paper mill in North America. However, prior to issuance of the most recent NPDES permit renewal dated August 1st of 2022, performance of IEP's wastewater treatment system (WWTS) deteriorated, adversely affecting IEP's capability of attaining the DO TMDL WLAs:

² Inland Empire Paper Company. Permit Condition S5, Technology Selection Protocol for Total Phosphorous, CBOD, and Ammonia, October 30, 2015

³ Inland Empire Paper Company. Permit Condition S4, Total Phosphorous, CBOD, & Ammonia Best Management Practices Plan. November 1, 2021

⁴ Inland Empire Paper Company. Permit Condition S5, Schedule of Compliance for Total Phosphorous, CBOD, and Ammonia. 2021 Annual Status Report

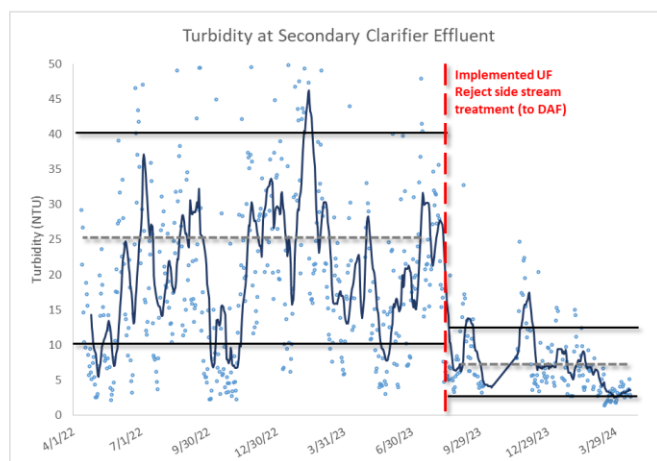


This loss in WWTS performance coincided with the installation of the UF Membrane System, the technology selected based on nearly 20 years of evaluation to provide the balance of nutrient removal towards attainment of the final TMDL limits. Considering that IEP is the first pulp and paper mill in the industry to fully treat its effluent using UF membranes, there was limited experience, research or scholarly references to provide technical insight. Consequently,

IEP hired a team of Subject Matter Experts (SME) to provide assistance in understanding and resolving this challenge, and ultimately to provide direction on additional improvements necessary to achieve the TMDL limits. The SME, with a combined experience exceeding 200 years, were selected based on their expertise and reputation within the industry:

Paul Campbell – Asterbio (DNA analysis)
Allison Esvelt – Esvelt Environmental Engineering
Steve Leach – Leach Microbiology
Amanda Mattingly – The National Council for Air and Stream Improvement, Inc. (NCASI)
Phil Pagoria – Pulp & Paper Wastewater Engineer
George Patrick – ARCADIS Consulting Engineers
Dave Redmon – Redmon Engineering Company

Initial discoveries identified the underlying cause of the degradation of IEP's WWTS, as dispersed bacteria (primarily Zooglea) and associated Extracellular Polymeric Substances (EPS) that created excessive turbidity throughout the treatment system. The root cause of this dispersed bacteria and EPS was due to the installation of the UF System that creates a firewall preventing removal of these constituents from IEP's WWTS and promoting their continued propagation over time. IEP was able to solve this problem by taking the rejects removed by the UF System to its Dissolved Air Floatation (DAF) system where these fine solids are treated and removed from the WWTS. The results were immediate and profound, resulting in a marked decrease in turbidity:



Resolution of the turbidity concern resulted in overall improved WWTS performance, as is shown for the 2024 season on the Final Effluent TP and CBOD graphs on pages 2 and 3 above (under response to Condition #1). This allowed for closer examination of IEP's WWTS performance to determine the primary causes preventing IEP from consistently attaining the DO TMDL WQBELs:

- Orbal performance is oxygen supply limited
- Wastewater temperature is sometimes too high for effective biological treatment
- Low F/M (food-to-microorganism), low dissolved oxygen & low nutrient filamentous bacteria are excessive in the Orbal

In response to these discoveries, IEP has committed to the following multi-million dollar projects as corrective actions to resolve the above challenges:

- Design & install a fine-bubble diffused aeration system in the Orbal
- Reduce wastewater temperature through mill water system revisions and/or additional heat exchanger capacity

Both of the above are significant projects that include major modifications of IEP's WWTS, long-lead equipment deliveries and lengthy construction activities. According to the schedule below, both projects are projected to be completed in the 2nd quarter of 2025. Once the modifications are brought on-line, optimization of IEP's WWTS and establishment of revised operating parameters will be required to adapt to the new conditions. It is hoped that these investments will be sufficient to allow IEP to consistently obtain the final limits for TP & CBOD. However, based on past experience and the large number of variables impacting the WWTS from IEP's processes, IEP has built into the schedule the need for additional treatability study, modeling and further enhancement of the WWTS if needed:

	2024				2025				2026				2027			
Task Description	1Q2024	2Q2024	3Q2024	4Q2024	1Q2025	2Q2025	3Q2025	4Q2025	1Q2026	2Q2026	3Q2026	4Q2026	1Q2027	2Q2027	3Q2027	4Q2027
Procure Long Lead Equipment																
Design																
Construction																
Aeration Equipment Installation and Commissioning																
Optimize System Operating Parameters																
Treatability Study and Modeling (if needed)																
Additional Orbal Aeration or Biological Selector (if needed)																

Considering that the compliance schedule for TP begins in February 2025 and CBOD begins in March 2025, IEP is requesting a compliance schedule for these two nutrients through the end of this permit cycle (8/1/2027).

3. The permittee is meeting all of its requirements under the TMDL as soon as possible;

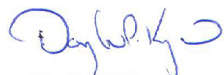
IEP has complied with the requirements of the TMDL as specified in the 2011 and 2022 issued NPDES permits, and is only requesting additional time to improve and optimize its WWTS as outlined herein for compliance with the TP and CBOD limits.

4. Actions specified in the compliance schedule are sufficient to achieve water quality standards as soon as possible.

IEP will exert every effort to complete the enhancement and optimization of its treatment system to meet the final TP and CBOD limits by the end of this permit term. With annual reporting, IEP will provide timely information on the progress towards meeting the final WQBELs and the need for any additional actions, if necessary, to achieve compliance. IEP requests that the compliance schedule for TP and CBOD be extended through the end of this permit cycle (8/1/2027).

IEP appreciates Ecology's consideration of this request for a limited compliance schedule to address enhancement and optimization of its advanced treatment system. Please contact me should you have any questions regarding this information.

Sincerely,



Douglas P. Krapas
Environmental Manager