**RESPONSE TO COMMENTS**

**City and Borough of Petersburg Wastewater Treatment Plant**
**NPDES Permit AK0021458**

## SUMMARY

On August 8, 2024, the U.S. Environmental Protection Agency Region 10 (EPA) issued a public notice for the proposed National Pollutant Discharge Elimination System (NPDES) permit and the tentative Clean Water Act 301(h) decision for the Borough of Petersburg Wastewater Treatment Plant (WWTP). The public comment period closed on September 23, 2024.

This document presents the EPA's response to comments received during the public comment period and changes to the final permit.

During the public comment period, the EPA received comments from:

- Borough of Petersburg (Petersburg)

## CHANGES IN RESPONSE TO PUBLIC COMMENT

As a result of comments received during the comment period, the following revisions were made to the final permit from the August 2024 draft permit and the final decision document from the August 2024 tentative decision document (TDD):

- The EPA corrected the table of contents and list of figures in the Decision Document to align with those shown in the document.
- The EPA corrected internal references in response to several comments.
- The EPA corrected the Schedule of Submissions to require electronic submittal of Discharge Monitoring Reports (DMRs).
- The EPA corrected the latitude and longitude of the outfall and shifted the locations of the receiving water monitoring stations to align with the revised outfall position.
- The EPA corrected the submittal requirements for the Receiving Water Monitoring Report and Toxics Control Program (Chemical Analysis and Source Identification Results) in the Schedule of Submissions.
- The EPA revised the monthly average TSS effluent limits to 64 mg/L and 641 lbs/day.
- The EPA revised the language in Table 1 and Permit Part II.D.1.a to clarify the timing and frequency requirements for the toxic pollutant scan and require the first sampling during the 1$^{st}$ year of the permit instead of the 2$^{nd}$ year.
- The EPA revised Table 1 to require interim enterococcus monitoring to begin with six months of the effective date of the permit.
- The EPA removed the requirement for quarterly effluent monitoring for arsenic and cyanide in Table 1.
- The EPA clarified the requirements of the surface water observations in Permit Part I.B.2 and Table 4. The final permit requires that the surface water observations be conducted during the receiving water monitoring required in Permit Part I.D.
- The EPA clarified the definition of industrial users identified for potential per- and polyfluoroalkyl substances (PFAS) discharges in Permit Part I.B.2.9.

- The final permit has been revised to establish a WET sampling holding time of 36 hours, not to exceed 72 hours. See Permit Part I.C.5.c.v.
- The EPA corrected the formatting in Permit Part I.D.
- The EPA removed two zone of initial dilution (ZID) boundary stations in the receiving water monitoring program, and revised the timing of the receiving water monitoring to the smallest tide of the monitoring month in Permit Part I.D.
- The EPA clarified that Permit Part I.D.5 requires monitoring of the flow rate concurrent with receiving water monitoring.
- The EPA revised the receiving water monitoring program in Permit Part I.D. The permittee can discontinue monitoring for bacteria if there is continued compliance with the final fecal coliform and enterococcus limits. See Permit Parts I.D.9. and I.D.10.
- The EPA removed the requirement from Permit Part I.E to store and maintain benthic and total volatile solids (TVS) samples.
- The requirement for the permittee to conduct a sediment analysis for TVS has been removed from the Biological Monitoring requirements in Permit Part I.E.

## CHANGES AS A RESULT OF FINAL 401 CERTIFICATION

The EPA made the following changes to the permit as a result of the conditions in the final 401 certification:

- The EPA corrected the minimum dissolved oxygen (DO) limit to 6.0 mg/L at the surface per the final 401 certification.
- The EPA inserted the compliance schedule timeline and details from the final 401 certification.

## CHANGES AS A RESULT OF ESA CONSULTATION WITH THE NATIONAL MARINE FISHERIES SERVICE PURSUANT TO SECTION 7 OF THE ENDANGERED SPECIES ACT

On August 30, 2024, the EPA requested to initiate Endangered Species Act (ESA) Section 7 Consultation with the National Marine Fisheries Service (NMFS) on the reissuance of six (6) 301(h) modified NPDES permits for publicly owned WWTP's located in Southeast Alaska, including the Petersburg WWTP. The EPA submitted a Biological Evaluation (BE) analyzing the effects of the discharges on threatened, endangered, and candidate species and designated critical habitats under the NMFS jurisdiction. The analysis of effects in the BE determined that the discharges may affect, but are not likely to adversely affect (NLAA), any ESA-listed species or designated critical habitat. On October 15, 2024, NMFS concurred with the EPA's NLAA determination and provided the following conservation recommendations, which the EPA has adopted in the final permit as mitigation measures:

- The project proponent will provide NMFS with annual water temperature and water quality reports from each of the six publicly owned treatment works (POTWs) in Southeast Alaska (email information to akr.prd.records@noaa.gov).
- The project proponent will provide NMFS a report of sunflower sea star sighting and density data collected during benthic surveys around each outfall and reference site once during the 5-year permit period. This report also will include the date, water depth of each survey, and water quality.
- If it appears that a sunflower sea star has sea star wasting syndrome or if any dead sunflower sea stars are observed, pictures of the individuals will be taken, and infected individuals will be

counted. The infected sunflower sea stars will not be touched or relocated. These and all sunflower sea star survey findings will be reported to NMFS, including latitude/longitude and transect line, at akr.prd.records@noaa.gov.

The EPA concurs with these conservation recommendations and has included them in the final permit as summarized below:

- Permit Part I.D.11. has been revised – in addition to the EPA and Alaska Department of Environmental Conservation (ADEC), the receiving water monitoring report must also be provided to NMFS.
- Permit Part I.E.5. has been added, and Permit Part I.E.6 has been revised – The new Part I.E.5 requires the observation of the presence and density of sunflower sea stars as part of the benthic survey required in Permit Part I.E. Permit Part I.E.6. has been revised to require the reporting of results to NMFS in addition to the EPA and ADEC.

## THE EPA HAS CORRECTED THE FOLLOWING EDITORIAL ERRORS IN THE PERMIT AND 301(H) DECISION DOCUMENT:

- The EPA corrected typos, formatting, punctuation, and added abbreviations in the permit and Final Decision Document.
- The EPA corrected internal references.
- The EPA clarified the submittal requirements for the whole effluent toxicity (WET) Report and Biological Monitoring Report in the Schedule of Submissions.
- The EPA clarified that the permittee must submit the NPDES and 301(h) Application Renewal in the Schedule of Submissions and Permit Part V.B.
- The EPA added Permit Part I.C.5.iv. to clarify that the salinity of WET samples must match the salinity of the water test organisms were cultured in.
- The EPA revised the Permit Part II.C.5, Table 4, and removed Permit Part III.K, to clarify the permittee has 14 days after the schedule date for each task in the compliance schedule to submit required annual Reports of Progress.
- The EPA moved the table with the list of additional pollutants required to be monitored as part of the toxics control program for Alaska 301(h) facilities to Permit Part II.D.1.a.
- The EPA clarified the content required to be submitted in the non-industrial source control report, in Permit Part II.D.3.b.

## RESPONSE TO COMMENTS ON NPDES PERMIT AND DECISION DOCUMENT

**Comment 1.** *Page 2, Table of Contents. TDD.* The appendices do not align with those shown in the document and not cited correctly in the text. The references Appendix G and there is no Appendix G. Request: Revise the TOC to correspond with the document.

**Response.** The EPA agrees that the table of contents in the TDD does not align with the document. The EPA revised the table of contents in the final decision document.

**Comment 2.** *Page 3, List of Figures. TDD.* The List of Figures numbers and titles do not align with those shown in the document. The figures are not cited in the text. Request: Revise the List of Figures to correspond with the document.

**Response.** The EPA agrees that the table of figures in the TDD does not align with the document. The EPA revised the table of figures in the final decision document.

**Comment 3.** *Page 14, Figure 2. TDD.* The proposed permit limit is at or below multiple points on the effluent monthly average line. No explanation is provided. Based on the historical data compliance with the proposed permit limit is infeasible and should be a greater value. The purpose of the waiver is to have achievable permit limits. *Request:* For TSS, provide the basis and revise the proposed permit limit to an achievable value.

**Response.** The EPA reviewed the TSS analysis in the fact sheet, pages 73-76, based on the formula presented in Table E-2 –Appendix E, of the 1991 Technical Support Document for Water Quality-based Toxics Control. This formula calculates a monthly average limit based on the 95$^{th}$ percentile of the effluent data. However, the EPA determined that there was a technical error in the analysis presented in the fact sheet, and the number of compliance samples should be 1, based on the usual number of compliance samples that were taken by the Permittee during the previous permit cycle.

Therefore, the EPA revised the monthly average TSS effluent limits in the final permit to 64 mg/L, and the concentration-based effluent limit to 641 lbs/day. This limit is achievable at the 95$^{th}$ percentile of the facility's current performance. There was no change to the maximum weekly effluent TSS limits. The summary of the revised effluent calculation is presented in Appendix A.

**Comment 4.** *Page 55, Appendix F. TDD.* The GLEC 2021 Dilution Modeling Report was used without consideration of the mixing zone modeling update completed and submitted by Petersburg. The update evaluated both fecal and ammonia. The GLEC 2021 results are infeasible for compliance with ammonia. *Request:* Consider the updated mixing zone modeling and revise the ZID such that compliance is achievable for ammonia. See ammonia comments about the Permit.

**Response**. Section 301(b)(1)(c) of the CWA requires the development of limitations in permits necessary to meet WQS of affected States. Discharges to State or Tribal waters must also comply with conditions imposed by the State or Tribe as part of the CWA 401 certification of the permit. To maintain a 301(h) waiver, the EPA must be able to show in a technical support document that a facility is able to meet State and Federal water quality standards (WQS) at the boundary of the ZID which can be and often is larger than the mixing zones. In calculating permit effluent limits, the EPA uses the ZID dilution; however, if a State conditions a 401 certification with more stringent effluent limits, then the EPA must include those limits in the final NPDES permit. See Clean Water Act section 401(d).

The ammonia effluent limit is a condition of ADEC's 401 certification; ADEC did not use the GLEC report to calculate the ammonia limit. Instead, ADEC used a separate mixing zone analysis submitted by the permittee to determine the appropriate mixing zones and ammonia limit. The limits in ADEC's draft 401 certification were more stringent than the ones that the EPA calculated based upon the ZID; therefore, as required under Clean Water Act section 401(d), the EPA used the limits from the certification in the final permit. Under the State's regulations, ADEC is also responsible for issuing the compliance schedule as part of their 401 certification.

The EPA used information from the GLEC[1] report to determine the ZID dilution which provided, in part, the basis for continuing the 301(h) waiver. The EPA also used the ZID dilution to calculate ammonia limits in the draft permit. However, since ADEC included more stringent ammonia limits in the final 401 certification and the limits calculated by the EPA were less stringent, the EPA is required to include the 401 certification ammonia limits in the final permit pursuant to CWA section 401(d).

The Permittee also submitted a comment noting their concerns with the feasibility of meeting the effluent limits, including ammonia, to ADEC. Please refer to ADEC's response to comments for their response to this comment.

No change was made to the final permit as a result of this comment.

**Comment 5.** *Page 1, Cover.* The latitude is incorrect, given as 59.819594N. *Request:* Correct the latitude. Fact Sheet page 9 has the correct latitude of 56.819594.

**Response**. The EPA acknowledges the incorrect latitude and longitude of the outfall. The Permittee provided a revised outfall location on December 9, 2024, of 56.81965N, 132.92318W. The EPA revised the final permit to reference the correct outfall location and shifted the location of the receiving water monitoring stations accordingly. This change does not affect any other conditions in the permit.

**Comment 6.** *Page 2, Schedule of Submissions.* Discharge Monitoring Report (DMR), DMRs are due monthly and must be postmarked on or before the 20th of the month following the monitoring period indicates that the DMRs should be mailed in. However, when referring to Part III.B. it states that DMRs and other documents are to be submitted electronically. *Request:* Please revise text about mailed submission to electronic submission.

**Response**. The EPA agrees that the permittee must submit DMRs electronically and has corrected the Schedule of Submissions accordingly.

**Comment 7.** *Page 2, Schedule of Submissions.* Surface Water Monitoring Report (SWMRP) section states that the report must be submitted with the next permit application (See Permit Part I.D). Part 1.D states that receiving water monitoring must be completed on an annual basis with Part 1.D (9) (a & b) stating that the data and report must be submitted by January 31st of the following year of the data collection. *Request*: Please clarify what report is due with the next permit application.

**Response**. The receiving water monitoring report (formerly the surface water monitoring report) must be completed on an annual basis and submitted on January 31st of the following year as an attachment to NetDMR, and with the NPDES and 301(h) Application Renewal. The EPA revised the Schedule of Submissions accordingly.

[1] 2021. Great Lakes Environmental Center. Mixing Zone Dilution Modeling for Six Alaska POTWs.

Additionally, the EPA moved the language from Permit Part I.B.2 requiring the Permittee to observe the surface water to Table 4, and added a row in Table 4 for oil and grease, to clarify that the observations of the surface water in Permit Part I.B.2 should be included in the receiving water monitoring report in Permit Part I.D.

**Comment 8.** *Pages 2, Schedule of Submissions.* Chemical Analysis and Source Identification. This table states that the permittee must submit the results of the chemical analysis and source identification with the next permit application. However, in Part II.D.1 it states that the analysis complete in year two must be submitted in January of the following year and complete testing again in year four and submit the results with the permit application. *Request:* Please clarify if the second-year results also need to be included with the permit application along with the fourth-year results.

**Response.** The results of the chemical analysis and source identification must be submitted annually by January 31st of the following year and with the NPDES and 301(h) Application Renewal. The EPA revised the Schedule of Submissions to clarify these requirements.

**Comment 9.** *Page 6, Table 1.* BOD5, % removal. While the "DMR data indicates the discharge is consistently achieving greater BOD5 removal than the federal primary treatment standard of 30%" is a long-term average between 2018 and 2023. There are months when the influent is less than the effluent limitations and 30% removal is not achievable. *Request:* Request a footnote to BOD5, % removal stating the limitation is not applicable when influent concentrations are less than the effluent limitations. This would avoid noncompliance during months when the influent concentration is low and achieving the effluent limitations.

**Response**. The 2001 permit required the facility to achieve 30 percent BOD removal on a quarterly basis, which the permittee has been able to achieve. To continue to qualify for the longer averaging period, the treatment facility must be properly designed and well operated; the permittee must meet all section 301(h) requirements using the longer averaging basis, and, the applicant cannot achieve 30 percent removal for BOD on a monthly basis (40 CFR 125.60(c)) due to circumstances beyond the permittee's control.

The EPA determined that the Petersburg WWTP is properly designed, and well operated, due to the facility's consistent ability to meet the permit limits. The permittee also has met all section 301(h) requirements using the longer averaging basis during the previous permit term.

To evaluate the permittee's ability to achieve 30 percent BOD removal on a monthly basis, the EPA evaluated the permittee's percent BOD removal since June 2018. During the 5-year period evaluated in the 2024 fact sheet, from June 2018 – May 2023, the facility achieved at least 30% removal of BOD every month (see Table 2 in Appendix B). However, in December 2023 and January 2024, the facility's percent BOD removal was 26% and 29%, respectively. The reported influent BOD concentrations for December 2023 and January 2024 were 96.4 mg/L and 109.5 mg/L, respectively, which are in the lowest 10% and lowest 15% of influent concentrations at the facility since June 2018.

40 CFR 125.60(c)(1)(iii) allows dilute influent on a seasonal basis, as experienced at the Petersburg WWTP, to qualify as a circumstance beyond the permittee's control to meet 40 CFR 125.60(c)(1)(iii), with the condition that the facility may not have excessive I&I. To qualify for a designation of non-

excessive flow, the facility must meet the criteria in 40 CFR 125.60(c)(1)(iii) plus the additional criterion that the total flow to the POTW is less than 275 gallons per capita per day.

To calculate the total per capita daily flow, the EPA used the population served by the facility, 3,000 people, and the average maximum daily flow to the treatment facility between June 2018 and May 2023 of 0.92 MGD (920,000 GPD), resulting in a per capita daily flow of 307 gallons (920,000 / 3,000 people = 307 GPD per person).

Since the facility's per capita daily flow is greater than 275 gallons, the Petersburg WWTP does not meet the criteria in 40 CFR 125.60(c)(1)(iii) for eligibility for a longer BOD averaging period.

If there is a future exceedance of the BOD percent removal requirements, the permittee can document the reason in the DMR and discuss any ongoing issues with EPA's Enforcement and Compliance division.

The EPA did not make any changes to the final permit in response to this comment.

**Comment 10.** *Page 7-8, Table 1.* Monitoring requirements. Arsenic, copper, cyanide, and zinc are being required based on data collected in 2002 and 2005. This data is approximately 20 years old and should not be the basis for requiring monitoring a parameter. Rather monitoring specific parameters should be based on recent data (in the past 5 years), if that data does not exist then use the Toxic Pollutant Scans during this permit cycle that are required in years 2 and 4 to determine what parameters should be monitored. *Request:* Remove arsenic, copper, cyanide, and zinc as monitoring only parameters and base the next permit off of the data that is more current.

**Response.** See response to comment #23 for a discussion of copper, zinc, and arsenic and response to comment #24 for a discussion of cyanide. The EPA has removed the quarterly effluent monitoring for arsenic and cyanide as explained in response to comment #23.

**Comment 11.** *Pages 7, Table 1.* The total ammonia (as N) effluent limitations are not consistently achievable and will result in compliance issues. A review of the historical data shows that typically the coldest and warmest months (January, February, July and August) would be greater than the draft limits. DEC shared the RPA spreadsheet with the ammonia calculations. The spreadsheet AML and MDL match those in permit/fact sheet. The AML in the RPA shows that it is being driven by the acute WQS which is counterintuitive since it should be driven by the chronic WQS considering that it is a longer duration limit. Based on CORMIX analysis performed, for the AML to be driven by the chronic WQS the acute dilution factor would need to be at least 11. If the current effluent limits were to remain in the final permit, it is likely that Petersburg would not be able to comply with the ammonia standard which could lead to the requirement of secondary treatment. *Request:* Change the driving criteria for AML to be Chronic WQS by increasing the acute dilution factor to at least 11 for ammonia.

**Response.** ADEC has included the dilution factors and ammonia limits as a condition of the 401 certification. Under the State's regulations, ADEC is responsible for issuing the compliance schedule as part of their 401 certification. Please see the response to comment #3 above and also refer to ADEC's response to comments for their response to this comment. No changes were made to the final permit as a result of this comment.

**Comment 12.** *Page 7, Table 1.* Petersburg requests that that concentration effluent for ammonia be removed and allow Petersburg to have an ammonia effluent loading limit only. *Request:* Petersburg requests that that concentration effluent for ammonia be removed and allow Petersburg to have an ammonia effluent loading limit only.

**Response.** In general, 40 CFR 122.45(f)(1) states that NPDES permits shall have limitations, standards or prohibitions expressed in terms of mass. According to 40 CFR 122.45(f)(2), "pollutants limited in terms of mass additionally may be limited in terms of other units of measurement, and the permit shall require the permittee to comply with both limitations" (emphasis added). Thus, in general, pollutants must be limited in terms of mass, and limits in terms of other units of measurement, including concentration, are discretionary.

When determining how to express effluent limits for ammonia, the EPA followed the guidance in Section 5.7.1 of the Technical Support Document for Water Quality-based Toxics Control (TSD), which states, in relevant part, "mass-based effluent limits alone may not assure attainment of water quality standards in waters with low dilution. In these waters, the quantity of effluent discharged has a strong effect on the instream dilution and therefore upon the receiving water concentration. At the extreme case of a stream that is 100 percent effluent, it is the effluent concentration rather than the effluent mass discharge that dictates the instream concentration. Therefore, EPA recommends that permit limits on both mass and concentration be specified for effluents discharging into waters with less than 100-fold dilution to ensure attainment of water quality standards.".

As stated in Section 6.1.3 of the U.S. Environmental Protection Agency NPDES Permit Writers' Manual, the procedures in the TSD "were developed specifically to address toxic pollutants but have been appropriately used to address a number of conventional and nonconventional pollutants as well." This particular recommendation is applicable to all types of pollutants, since it concerns the physical mixing of the discharge and the resulting influence of the effluent concentration upon the receiving water concentration, as opposed to the effects of any particular pollutant upon the receiving water.

In this case, the mixing zone authorized for ammonia is less than 100-fold dilution; thus, the EPA is retaining the concentration-based effluent limits in the final permit.

No changes were made as a result of this comment.

**Comment 13.** *Page 7, Table 1.* WET Testing. "Petersburg is classified as a major facility and requires more frequency toxicity monitoring. Increased monitoring will also help to better characterize WET for the next permit cycle." WET testing sample frequency has increased from 1/permit term to 1/quarter. This is significant increase in sampling for a small utility that is remote and has a difficult time with samples meeting hold times due to shipping schedules. This sampling requirement will cost the facility $30K to $40K/year which is a large financial burden on the facility. *Request:* Revise page 13 from eight consecutive quarterly tests before reduction in frequency to the following, if four consecutive quarterly tests pass, then the frequency is reduced to annually.

**Response.** The EPA appreciates the commenter's concerns regarding the costs associated with new permit requirements. As discussed in the fact sheet, with only two data points collected 20 years ago, the toxicity of the current discharge is highly uncertain. Due to the designation of the facility as

a major facility discharging >1 million gallons per day and the contribution of the Petersburg Baler Facility, an industrial source of toxic pollutants, to the treatment system, the EPA is requiring additional WET monitoring quarterly to better characterize WET and inform the reasonable potential analysis in the next permit cycle. If eight consecutive WET tests do not exceed the WET trigger (see Permit Part I.C.), then the monitoring frequency may be reduced to annually.

In regards to shipping schedules, the EPA appreciates the commenter's concern regarding the logistical challenges of meeting hold time requirements for samples, from remote locations. Samples collected for use in the NPDES permitting program are subject to the holding time requirements outlined in 40 CFR Part 136. The final permit has been revised to establish a WET sampling holding time of 36 hours, not to exceed 72 hours. The permittee must document in the DMR for the month following the sample collection the conditions that resulted in the need for the holding time exceeding 36 hours and the potential effect on the sampling results. See Permit Part I.C.5.c.v.

**Comment 14.** *Pages 8 & 11, Table 1 & 3.* PFAS. Currently there are no regulations pertaining to PFAS for wastewater discharge. The only proposed regulation pertains to drinking water set at 4 ng/L. Therefore, the Borough of Petersburg objects to the wastewater discharge permit that sampling will be required on a semi-annual basis for two years and furthermore seeks relief from this monitoring based on the following rationale.

First, the currently proposed regulations are for drinking water which typically come from freshwater sources. The communities that are renewing the 301(h) wastewater discharge permits are all discharging to the marine environment. Therefore, there is no impact to potential drinking water sources for any of these communities.

Second, a presence/absence study of PFAS in wastewater discharge for small communities that have little to no industrial activity calls into question if the requirement even makes sense. This puts all of the burden of cost (dollars, labor availability and time, risks, etc.), on very small utilities whose budgets are already strapped. With the new disinfection requirement in the draft permit, communities are already wondering where the money is going to come from to design, build, and implement disinfection. To require expensive tests for research purposes of the EPA causes additional burden for something that does not even have a regulation in place.

Additionally, the method detection limit for this methodology is extremely low and has communities concerned about what the ramifications are if PFAS is detected at all. With no regulatory requirements being in place at this time, consequences could potentially come back to the communities in the form of requirements of treatment which is extremely expensive and which these small communities cannot afford.

The PFAS sampling requirement also includes the sampling of influent, effluent, and sludge. Three samples that may not be necessary. Knowing that these facilities are primary treatment, if PFAS concentrations are entering the facility, then they are likely also leaving the facility. Again, these communities do not have the money for sampling for research purposes.

Instead, a common-sense stepwise approach should be employed. First, conduct an industrial user survey to determine if there is a likelihood of PFAS being present in the community at levels higher

than the proposed drinking water standard. If the survey indicates that there is a possibility, then require sampling at the cost to the potential polluter, not the utility.

The Borough of Petersburg believes that this requirement is being required too early in the process and requests that this requirement be delayed until EPA is further in the process of drafting regulations and determining what would be required if PFAS is detected in these facilities.

*Request:* Delete the monitoring requirements for PFAS on Pages 8, and 11-13 of the permit, and update the fact sheet. Add to the permit the requirement to conduct an industrial user survey with a focus on potential introduction of PFAS into the sewer collection system and submit a report summarizing the findings not later than 3 years or during the permit cycle from the effective date of the permit.

**Response**. The EPA is not limited in requiring monitoring only for pollutants that have established water quality standards. Under Clean Water Act section 308, The EPA has broad authority to prescribe the collection of data and reporting requirements in NPDES permits. See also 40 CFR 122.44(i) (permittees must supply monitoring data and other measurements as appropriate).

As discussed in the August 2024 fact sheet, the purpose of these monitoring and reporting requirements is to better understand potential discharges of PFAS from this facility and to inform future permitting decisions, including the potential development of water quality-based effluent limits. In December 2022, the EPA released a guidance memo[2] to the EPA Regions and States for addressing PFAS in NPDES permitting. The memo recommends PFAS monitoring for all POTW permits since they are known contributors of PFAS into the aquatic environment through a variety of industrial, commercial, and consumer sources. The permit conditions reflect the recommendations in the memo as well as the EPA's commitments in the PFAS Strategic Roadmap, which directs the Office of Water to leverage NPDES permits to reduce PFAS discharges to waterways "at the source and obtain more comprehensive information through monitoring on the sources of PFAS and quantity of PFAS discharged by these sources."

PFAS regulations currently in development as part of the Strategic Roadmap include efforts to develop a primary drinking water regulation and ambient water quality criteria for the protection of aquatic life and human health. Aquatic life criteria are designed to protect aquatic life from toxics exposure and typically include both a freshwater and marine component. The draft aquatic life criteria for PFAS, released for public comment in April of 2022, includes benchmarks for marine waters. Human health criteria are designed to protect people from exposure to toxics resulting from the consumption of water and/or fish or other aquatic organisms. While direct exposure to PFAS through the consumption of water influenced by the permitted discharge is not likely since the discharge is to open ocean, the consumption of fish and other aquatic organisms within the receiving waters could be a potential exposure pathway since PFAS chemicals have been shown to bioaccumulate and bio-magnify within the aquatic environment.

[2] Addressing PFAS Discharges in NPDES Permits and Through the Pretreatment Program and Monitoring Programs, Office of Water, USPEA, Dec 2022.

The EPA agrees with the commenter that any PFAS chemicals entering the facility are likely to be exiting the facility. The draft permit already required the permittee to conduct an industrial user survey and assess which users may be potential sources of PFAS chemicals. Sampling the influent, effluent, and sludge will provide necessary data to determine PFAS levels at each of these three points in the treatment process for use in future permitting decisions. Influent data shows how much PFAS is entering the facility, effluent data will provide data on how much is being discharged and removed through the primary treatment process, and sludge data will show how much PFAS is partitioned within the sludge. The EPA notes Petersburg does have industrial sources that the EPA believes could have the potential to discharge PFAS into the treatment plant. Influent monitoring will assist in determining whether the industrial source does introduce PFAS to the facility. For these reasons, the EPA did not make changes to the PFAS monitoring requirements as requested by the commentor.

As stated in the August 2024 fact sheet, the EPA acknowledges there is currently no approved analytical method for PFAS in 40 CFR Part 136. However, 40 CFR 122.44(i)(1)(iv)(B) provides that, in the case of pollutants or pollutant parameters for which there are no approved methods under 40 CFR Part 136 or methods are not otherwise required under 40 CFR chapter I, subchapter N or O, monitoring shall be conducted according to a test procedure specified in the permit for such pollutants or pollutant parameters. Therefore, the final permit retains the requirements that until there is an analytical method approved in 40 CFR Part 136 for PFAS, monitoring shall be conducted using Method 1633, which was finalized on January 31, 2024.

The EPA appreciates the commenters concerns about the uncertainty of potential future permitting decisions that will be informed by the data collected. In spite of these, the EPA and States have obligations under the CWA to ensure permits are protective of human health and the environment and the conditions in the permit reflect the agencies latest efforts and commitments to address PFAS as described in the Strategic Roadmap and 2022 guidance memo.

The comment closes with a request that the PFAS monitoring provisions be removed from the final permit and an industrial user survey with a focus on potential introduction of PFAS into the sewer collection system be added. The EPA maintains that PFAS monitoring is necessary to obtain comprehensive PFAS information and ensure sufficient and representative data is available to inform future permitting decisions, including the potential development of effluent limits to meet future water quality standards, and fulfill our obligation to carry out the CWA. The PFAS monitoring provisions have not been removed from the final permit.

The draft permit required the permittee to conduct an industrial user survey and assess which users may be potential sources of PFAS chemicals. The EPA has clarified the definition of industrial users to include in the survey required in Permit Part I.B.2.9. No other changes were made to the permit in response to this comment.

**Comment 15.** *Permit Page 9, Table 1.* Toxic Pollutant Scan. States "See Permit Part I.C", but Part I.C is WET testing it should reference II.D *Request:* Change the reference to See Permit Part II.D.

**Response.** The EPA agrees with the commenter that the correct reference is Permit Part II.D. The EPA has revised Table 1 accordingly.

**Comment 16.** *Page 15, Page 18& 19, Part I.D.2.* Receiving water monitoring. Monitoring in Frederick Sound is at 12 stations (1 center of ZID, 4 corners of ZID, 2 reference stations, and 5 additional sites). The effort to perform the sampling and testing at these sites at the lowest tide of the year will have several challenges that should be understood. With this 3x increase in stations, and the need to position the sampling vessel on the exact GPS locations for each, will require an extended period to complete each round of sampling. It is anticipated that it will take between 20-30 minutes per site to position on anchor and perform the testing and sampling. In total this sampling effort could take 6 hours long, not counting travel time to the reference sites and additional sites. This would easily be a 7-8 hour day on the water, depending on weather. This is a significant burden for a small utility and also calls into question if it is even feasible due to hold times of samples and potential safety concerns. This leads to further comments that address the realism of what the permit is requiring: The samples will not be possible to collect during the lowest tidal state of the month. Some samples will be collected prior to low tide and some will be collected after low tide. Low slack tide does not last long enough to collect all samples required in the permit. In fact there will be considerable time before and after the lowest tidal state that sampling and testing will be occurring. With this in mind, language in the permit should reflect this reality, or at a minimum the regulators need to understand that the permit that they wrote is not possible to achieve.

ii. Sampling and testing during the lowest tide of the month will also coincide with the largest tidal fluctuations between high tide and low tide, which means that the greatest tidal flow velocities will be occurring during sampling and testing. This amplifies the difficulty for anchoring in the correct GPS locations as specified in the permit. Based on Petersburg's sampling experience and local knowledge, it is requested that sampling and testing occur during the smallest tides of the month. This will give Petersburg staff the best opportunity to test and sample at all required sites the shortest time frame possible. Although it will admittedly also reflect the worst case scenario for receiving water quality since the tidal flush will also be at is lowest point of the month.

iii. The ZID is quite small in comparison to our previous mixing zone. The requirement to sample and test at all 4 edges of the ZID and in the center of the ZID seem impractical and unwarranted. Petersburg requests that the sampling sites be reduced to 2 sites at the ZID boundary. Since the ZID is so small, and GPS positioning is +/- 30', trying to pinpoint 5 separate sites at the ZID is impractical and provides no additional value to ascertain the water quality above what the old permit provided. Reducing the ZID sites will help to mitigate the time requirement to accomplish all sampling and testing at low tide. Additionally, the TDD in §G.2 does not mention the need for additional monitoring stations and instead states the 2001 program is being maintained.

*Request:* Remove the ZID center and 3 of the ZID boundary stations. Have two ZID boundary sampling stations at the diagonal from one another so to increase the distance between the two stations. Change the sampling schedule to coincide with the smallest low tide of the month. Request a reduction in the number of receiving water monitoring stations.

**Response.** The EPA acknowledges the commenter's concerns with implementing the receiving water monitoring program. Per 40 CFR 125.63(c), water quality monitoring programs for facilities with 301(h) waivers must provide adequate data for evaluating compliance with water quality standards at and beyond the ZID. However, since prior sampling results showed little difference between the ZID boundary stations, the EPA believes that sampling at the southeast and northwest boundaries of the ZID will be sufficient to evaluate compliance at the ZID boundary. The EPA revised the ZID boundary stations in Permit Part I.D.2 accordingly.

In addition, the EPA understands the difficulty with sampling during the lowest daylight slack tides of the month. Permit Part I.D. allows flexibility with the tidal requirements if there are safety or logistical concerns, which includes the inability to complete sampling within one day. The EPA's intent with specifying the tide is to maintain consistency with tidal conditions across sampling events. However, the EPA believes that consistency can be achieved by sampling during the smallest tides of the monitoring month instead and has revised Permit Part I.D accordingly.

**Comment 17.** *Page 19. Part I.D.5.* Flow rate is being required to be measured. However, flow rate is not one of the parameters that is listed in Table 4 nor does it clarify what flow rate is being measured. *Request:* This item appears erroneously added to the receiving water monitoring section. Please delete or clarify what is being requested.

**Response.** Permit Part I.D.5 refers to the effluent flow rate, which should be recorded at the time of receiving water monitoring. The EPA revised the final permit to clarify the requirement.

**Comment 18.** *Page 18 & 19. Part I.D.2.* The bullet labeling is incorrect. See 2.b, 2.d, and 6. *Request:* Correct the bullet formatting.

**Response.** The EPA agrees that the formatting in Permit Part I.D.2 is incorrect in the draft permit. The EPA revised the formatting in the final permit.

**Comment 19.** *Page 23-26. Part II.C. Compliance schedule.* The utility is unable to achieve the compliance schedule within five years due to construction challenges, supply chain issues, escalating costs and inflation, availability of contractors and equipment, delays in procurement, staff, budget, hiring challenges finding qualified individuals, limited and expensive housing for construction crews and staff hires.

Petersburg has a small staff and it is difficult to manage multiple projects at the same time. The disinfection project will be a very large project for Petersburg and it will take considerable attention and time to complete. A ten year schedule is more reasonable and will allow Petersburg to seek various grant possibilities and provide the time to mitigate that to the greatest extent possible should be considered by ADEC. Since no grant funding seems to be available for this project, debt financing is the only option on the horizon currently. As the annual debt service on what is likely a $10M project could raise local wastewater rates by over 100%, the Borough needs significant time to seek a grant, or grants, in support of this mandated yet unfunded project. The search for grant funds in combination with a very heavy time requirement for staff as we develop and carry this project forward, causes us to request an extension of implementation time. *Request:* Extend the compliance schedule to ten years, with deliverables due every two years instead of one.

**Response**. Under the State's regulations, ADEC is responsible for issuing the compliance schedule as part of their 401 certification. Please also refer to ADEC's response to comment for a response to this comment. ADEC's notice of review, responses to comments, and final 401 certification were provided to the permittee on December 6, 2024, and are available with the final permit and 401 certification on EPA's website at: https://www.epa.gov/npdes-permits/npdes-permit-petersburg-wastewater-treatment-facility-alaska. Pursuant to CWA section 401(d), the EPA has included the compliance schedule in the permit.

The EPA has established November 1, 2025 as the effective date of the final permit. Since the schedule of compliance for bacteria begins at the effective date of the permit, this will provide additional time for the permittee to secure funding, complete a disinfection study, and design and construct a disinfection system. Establishing a later effective date is consistent with the EPA's regulations at 40 CFR 124.15(b)(1).

Related to the permittee's request to reduce monitoring conditions, the EPA made two changes. First, the EPA revised Table 1 to allow the permittee to begin effluent enterococcus monitoring within six months of the effective date of the permit. Additionally, the EPA used a suspended solids deposition analysis to review the requirement to conduct a sediment analysis for total volatile solids (TVS) from the Biological Monitoring requirements in Permit Part I.E.

The 301(h) regulations at 40 CFR 125.63(b)(2) provide that small 301(h) applicants are not subject to sediment analysis requirements if they discharge at depths greater than 10 meters and can demonstrate through a suspended solids deposition analysis that there will be negligible seabed accumulation in the vicinity of the modified discharge. The Petersburg WWTP discharges at depths greater than 10 meters and the suspended solids deposition analysis provided below demonstrates there will be negligible seabed accumulation in the vicinity of the discharge.

Figure B-2 in Appendix B of the 1994 Amended Section 301(h) Technical Support Document provides a simplified graphical method for small estuarine dischargers to assess the potential for suspended solids deposition around their outfall using the reported daily solids mass emission rate (y-axis in Fig. B-2) and the height-of-rise of the discharge (x-axis in Fig. B-2). For the discharge height-of-rise, also known as the plume trapping depth, the height-of-rise from dilution modeling should be used, or 0.6 times the water depth, whichever is larger. With a discharge depth of ~18.3 meters (~60 feet) and a trapping depth of ~15 meters (~50 feet), the height-of-rise of the Petersburg discharge is approximately 15 meters (~50 feet); 15 meters (~50 feet) was selected for the x-axis in Figure B-2.

The guidance recommends calculating the suspended solids daily mass emission rate using the average flow rate and an average suspended solids concentration. The reported maximum monthly average flow rate from the Petersburg WWTP between 2016 and 2021 was approximately 0.64 million gallons per day and the maximum monthly average TSS concentration was 73 mg/L. To determine the daily loading of solids the monthly average concentration of TSS was multiplied by the reported average monthly flow and the loading conversion factor of 8.34 (see Footnote 1 in Table 1 of the final permit for more information on mass loading calculations).

73 mg/L X 0.64 million gallons per day X 8.34=389.6 lbs/day.

Using this loading rate along the y-axis and 15 meters along the x-axis in Figure B-2, the projected steady state sediment accumulation is expected to be well below 25g/m2. The EPA considers this to be a negligible accumulation of sediment.

Therefore, the applicant has satisfied the requirement of 40 CFR 125.63(b)(2) and the requirement to conduct sediment TVS analysis has been removed from the final permit.

The EPA also removed the requirement from Permit Part I.E. to store and maintain benthic and TVS samples.

**Comment 20.** *Page 27. Part II.D.* Table 4 The Industrial Pretreatment Program Requirements are premature for Petersburg and should be removed. The Borough of Petersburg population was 3,317 in 2022 and the last Toxic Pollutant Scan was conducted in 2005. Under the new permit Toxic Pollutant Scans are required in years 2 and 4 of the permit. Due to the previous data being nearly 20 years old, and the community make up of Petersburg potentially changed during that time, it would be practical to use the newly collected information during the new permit to determine if a pretreatment program is necessary. Petersburg would like to collect the Toxic Pollutant Scan in years 1 and 4 of the permit so that the results of the scan are available to determine what the pretreatment program would need to target or if there really is a need for a pretreatment program at all.

*Request:* Change II.D.1.a to state the Toxic Pollutant Scans occur will occur in year 1 and 4 of the permit. Change II.D.2 to "The permittee will perform a toxic pollutant scan, complete an analysis, present the results, and provide a conclusion whether a pretreatment program is required or an alternative approach is appropriate in a report submitted for approval by EPA and also submitted to ADEC. If the conclusion is a pretreatment program, then the permittee will submit a pretreatment program to EPA for approval within 24 months. If the conclusion is an alternative approach, then Petersburg will confer with EPA."

**Response**. As discussed on pages 53 and 54 of the fact sheet, the Clean Water Act section 301(h) regulations at 40 CFR 125.66(c) require applicants with known or suspected industrial sources of toxic pollutants to develop and implement an approved pretreatment program in accordance with 40 CFR Part 403. The Petersburg Baler Facility discharges to the WWTP. The Baler Facility meets the definition of an "industrial source" pursuant to 40 CFR 125.58(j). Consequently, as required under the Clean Water Act Section 301(h) regulations, Petersburg is required to develop a pretreatment program.

In order to allow Petersburg to use the results of the toxic pollutant scan in the development of the pretreatment program submittal, the EPA has revised Table 1 and Permit Part II.D.1 to require the permittee to conduct the first toxic pollutant scan during the 1st year of the permit. EPA has also revised the timing requirements of the scan, clarifying that the dry weather season and wet weather season are defined as between May – August and September – April, respectively.

## Response to Comments on NPDES Fact Sheet

**Comment 21.** *Page 11. Treatment Process.* The first statement in the paragraph says that maximum monthly design flow is 1.2 mgd. However, in the draft permit it shows that the average monthly flow is 1.2 mgd and a maximum daily flow is 3.6 mgd. Please change the paragraph in the fact sheet to say average monthly design flow is 1.2 mgd. *Request***:** Change the first sentence to say, "The average monthly design flow of the facility is 1.2 million gallons per day (mgd). " or "the maximum design flow is 3.6 mgd".

**Response**. The EPA agrees that the average monthly design flow is 1.2 MGD and the maximum daily flow is 3.6 MGD. The EPA Region 10 does not revise fact sheets after the public notice period and instead corrects information, provides any additional explanation in the response to comments document, and, if necessary, revises the final permit in response to comments received. The correct design flow was used to calculate effluent limits in the draft permit; therefore, no change was made to the final permit.

**Comment 22.** *Page 11, Treatment Process***.** "The mixture then flows through the belt filter press and the dewater solids are composed on site using either an aerated static or aerated turned pile method." Composed should be composted. *Request:* Change composed to composted.

**Response**. The EPA agrees that the correct word in the description is composted. The EPA Region 10 does not revise fact sheets after the public notice period and instead corrects information, provides any additional explanation in the response to comments document, and, if necessary, revises the final permit in response to comments received. No change was made to the final permit as a result of this comment.

**Comment 23.** *Page 12-13. Table 2.* Parameters from the Pollutant Scans in 2002 and 2005 have Avg Daily values that are higher than the Max Daily values. This is not possible. It looks as though the values were swapped. However, many of the values used were also non-detect. With the samples being collected nearly 20 years ago and with the high MDL, the values shown in the table is biased. Arsenic, lead, selenium, and thallium were all non-detected values. These values should be replaced with ND and if they have been placed in the monitoring only portion of the effluent sampling requirements should be removed as there is no basis for requiring them. The cyanide average daily value should be 0.007 ug/L and max daily should be 0.008 ug/L.

*Request:* Update the Avg Daily and Max Daily values so that the max value shows in the max daily column and average daily value shows in the average daily column. Also, removed parameters that were listed as non-detected: arsenic, lead, selenium, and thallium.

**Response.** The EPA agrees that the average daily and max daily values in Table 2 of the fact sheet were swapped for chloroform, copper, phenol, and zinc. However, the correct values for these pollutants were used to determine reasonable potential in the draft permit and therefore, there is no change to the basis for the final permit as a result of this error. Since the EPA Region 10 does not revise fact sheets after the public notice period and instead corrects information, provides any additional explanation in the response to comments document, and, if necessary, revises the final permit in response to comments received, no changes to the final permit were made in response to this error.

The EPA acknowledges that the samples were collected 20 years ago, and there is uncertainty if the data set reflects the current discharge. Although the 20-year-old data indicates that the discharge might have reasonable potential to cause or contribute to an excursion of the water quality standards for copper and zinc, due to uncertainty of whether the limited data set reflects the current discharge, the permit does not include effluent limits. Instead, the permit requires that the permittee monitor copper and zinc in the effluent once per quarter to calculate reasonable potential in the next permit cycle.

Additionally, the EPA agrees that the 2002 and 2005 results for arsenic, lead, selenium, and thallium were non-detects as indicated by the original lab report. For these pollutants, the draft permit found reasonable potential for the discharge to cause or contribute to an excursion of water quality standards and required monitoring for arsenic. Using the corrected values for arsenic, the discharge does not have reasonable potential for arsenic (see Appendix B). Therefore, the EPA has removed the quarterly effluent monitoring of arsenic from the final permit.

The EPA also agrees that the cyanide average daily value should be 0.007 ug/L and the max daily value should be 0.008 ug/L. An incorrect value for the maximum concentration of cyanide was used to determine reasonable potential. The EPA has re-calculated the reasonable potential for cyanide and determined that there is no reasonable potential to exceed the water quality standards for cyanide (see Appendix C). Therefore, the EPA has removed the quarterly monitoring for cyanide from the final permit.

**Comment 24.** *Page 23, List of pollutants of concern.* The list includes parameters that were tested in the pollutant scan in 2002 and 2005 that were listed as non-detected. This includes arsenic, lead, selenium. These parameters should be removed from the list as they were not detected in the samples. *Request:* Remove arsenic, lead, and selenium from the pollutants of concern.

**Response**. See the response to comment #23.

**Comment 25.** *Page 30, Part IV.A.3, Table 9.* No citation and/or description of how the values shown in Table 9 were determined is provided. *Request:* Provide documentation by reference and/or text about the calculation of the shown dilution factors.

**Response**. The dilution factors in Table 9 are a condition of ADEC's 401 certification of the permit and were determined in a mixing analysis conducted by ADEC in coordination with the permittee. The permittee submitted a similar comment to ADEC during the public comment period for the 401 certification. ADEC's notice of review, responses to comments, and final 401 certification were provided to the permittee on December 6, 2024, and are available with the final permit and 401 certification on the website at: https://www.epa.gov/npdes-permits/npdes-permit-petersburg-wastewater-treatment-facility-alaska.

**Comment 26.** *Page 45. Table 13.* Arsenic. The basis states that Arsenic is a pollutant of concern at the Petersburg WWTP and was detected in effluent in two samples taken in 2005 but not in one from 2023. If the pollutant scans from 2002 and 2005 is what is being referenced, those samples were non-detect and should not be used as basis for requiring monitoring. *Request:* Remove arsenic as a requirement to monitor.

**Response.** See the response to comment #23.

## APPENDIX A. TSS EFFLUENT LIMIT CALCULATION

**Table 1. Revised TSS Effluent Limit Calculation**

| Input | |
|---|---|
| LogNormal Transormed Mean | 3.685 |
| LogNormal Transformed Variance | 0.082 |
| Number of Samples per month for compliance monitoring | 1 |
| Autocorrelation factor ($n_e$) | 0 |
| Output | |
| E(X) | 41.54 |
| V(X) | 147.43 |
| VARn | 0.08 |
| MEANn | 3.66 |
| VAR(Xn) | 147.43 |
| Results | |
| Average Weekly Effluent Limit | 77.6 |
| Average Monthly Effluent Limit | 63.9 |

**Calculation of Mass Based-Limit:**

Average monthly limit = 64 mg/L x 1.2 MGD x 8.34 = 641 lbs/day

## APPENDIX B. BOD PERCENT REMOVAL

**Table 2. Petersburg WWTP BOD Percent Removal, 6/2018 - 5/2023**

| DMR DATE | INFLUENT BOD, MONTHLY AVG (mg/L) | EFFLUENT BOD, MONTHLY AVG (mg/L) | ACHIEVED BOD PERCENT REMOVAL |
|---|---|---|---|
| 06/30/2018 | 198.0 | 91.7 | 54% |
| 07/31/2018 | 212.0 | 105.5 | 50% |
| 08/31/2018 | 187.0 | 111.4 | 40% |
| 09/30/2018 | 183.0 | 96.4 | 47% |
| 10/31/2018 | 175.5 | 84.3 | 52% |
| 11/30/2018 | 148.5 | 74.5 | 50% |
| 12/31/2018 | 139.5 | 68.8 | 51% |
| 01/31/2019 | 121.5 | 76.0 | 37% |
| 02/28/2019 | 178.0 | 100.3 | 44% |
| 03/31/2019 | 140.5 | 90.5 | 36% |
| 04/30/2019 | 122.0 | 54.7 | 55% |
| 05/31/2019 | 155.7 | 85.3 | 45% |
| 06/30/2019 | 219.4 | 79.7 | 64% |
| 07/31/2019 | 198.9 | 116.9 | 41% |
| 08/31/2019 | 252.0 | 125.3 | 50% |
| 09/30/2019 | 195.8 | 75.5 | 61% |
| 10/31/2019 | 155.5 | 66.0 | 58% |
| 11/30/2019 | 149.0 | 49.4 | 67% |
| 12/31/2019 | 125.9 | 58.2 | 54% |
| 01/31/2020 | 157.5 | 66.0 | 58% |
| 02/29/2020 | 125.0 | 50.5 | 60% |
| 03/31/2020 | 130.1 | 56.3 | 57% |
| 04/30/2020 | 168.5 | 87.0 | 48% |
| 05/31/2020 | 165.2 | 109.1 | 34% |
| 06/30/2020 | 126.9 | 74.7 | 41% |
| 07/31/2020 | 135.2 | 69.8 | 48% |
| 08/31/2020 | 123.8 | 73.1 | 41% |
| 09/30/2020 | 155.1 | 91.2 | 41% |
| 10/31/2020 | 96.6 | 50.8 | 47% |
| 11/30/2020 | 95.5 | 58.3 | 39% |
| 12/31/2020 | 111.6 | 74.3 | 33% |
| 02/28/2021 | 191.0 | 106.7 | 44% |

| | | | |
|---|---|---|---|
| 03/31/2021 | 124.5 | 72.5 | 42% |
| 04/30/2021 | 89.8 | 58.3 | 35% |
| 05/31/2021 | 108.6 | 67.6 | 38% |
| 06/30/2021 | 116.0 | 72.4 | 38% |
| 07/31/2021 | 205.5 | 109.0 | 47% |
| 08/31/2021 | 249.5 | 105.8 | 58% |
| 09/30/2021 | 142.3 | 47.6 | 67% |
| 10/31/2021 | 94.7 | 49.8 | 47% |
| 11/30/2021 | 140.5 | 55.8 | 60% |
| 12/31/2021 | 122.4 | 73.0 | 40% |
| 01/31/2022 | 86.0 | 56.9 | 34% |
| 02/28/2022 | 110.8 | 59.3 | 46% |
| 03/31/2022 | 138.7 | 75.0 | 46% |
| 04/30/2022 | 133.6 | 80.9 | 39% |
| 05/31/2022 | 138.5 | 81.4 | 41% |
| 06/30/2022 | 180.6 | 105.4 | 42% |
| 07/31/2022 | 208.3 | 121.5 | 42% |
| 08/31/2022 | 182.3 | 104.0 | 43% |
| 09/30/2022 | 114.5 | 58.4 | 49% |
| 10/31/2022 | 109.6 | 60.1 | 45% |
| 11/30/2022 | 130.0 | 63.3 | 51% |
| 12/31/2022 | 123.3 | 66.3 | 46% |
| 01/31/2023 | 84.6 | 47.4 | 44% |
| 02/28/2023 | 64.8 | 41.6 | 36% |
| 03/31/2023 | 135.4 | 89.3 | 34% |
| 04/30/2023 | 105.6 | 52.2 | 51% |
| 05/31/2023 | 165.2 | 87.5 | 47% |
| **AVERAGE** | **146.5** | **77.0** | **47%** |
| **MINIMUM** | **64.8** | **41.6** | **33%** |
| **MAXIMUM** | **252.0** | **125.3** | **67%** |

# APPENDIX C. REASONABLE POTENTIAL

| Pollutants of Concern | | | ARSENIC - SEE Toxic BiOp | CYANIDE (as WAD) - SEE Toxic BiOp |
|---|---|---|---|---|
| Effluent Data | **Number of Samples in Data Set (n)** | | 3 | 2 |
| | **Coefficient of Variation (CV) = Std. Dev./Mean (default CV = 0.6)** | | 0.6 | 0.6 |
| | **Effluent Concentration, µg/L (Max. or 95th Percentile) - ($C_e$)** | | 0 | 0.008 |
| | **Calculated 50th % Effluent Conc. (when n>10), Human Health Only** | | | |
| Receiving Water Data | **90th Percentile Conc., µg/L - ($C_u$)** | | | |
| | **Geometric Mean, µg/L, Human Health Criteria Only** | | | |
| Applicable Water Quality Criteria | Aquatic Life Criteria, µg/L | Acute | 69. | 1. |
| | Aquatic Life Criteria, µg/L | Chronic | 36. | 1. |
| | Acute:chronic ratio | | 1.92 | 1.00 |
| | Human Health Water and Organism, µg/L | | N/A | N/A |
| | Human Health, Organism Only, µg/L | | -- | 220,000. |
| | Metals Criteria Translator, decimal (or default use Conversion Factor) | Acute | 1. | -- |
| | | Chronic | 1. | -- |
| | Carcinogen (Y/N), Human Health Criteria Only | | -- | N |
| Percent River Flow Default Value = **0%** | **Aquatic Life - Acute** | **1Q10** | 0% | 0% |
| | Aquatic Life - Chronic | 7Q10 or 4B3 | 0% | 0% |
| | | 30B3 or 30Q10/30Q5 | 0% | 0% |
| | Human Health - Non-Carcinogen | Harmonic Mean | 0% | 0% |
| | Human Health - Carcinogen | Harmonic Mean | 0% | 0% |
| Calculated Dilution Factors (DF) (or enter Modeled DFs) | Aquatic Life - Acute | 1Q10 | 7.3 | 7.3 |
| | Aquatic Life - Chronic | 7Q10 or 4B3 | 56.0 | 56.0 |
| | Aquatic Life - Chronic Ammonia | 30B3 or 30Q10/30Q5 | 56.0 | 56.0 |
| | Human Health - Non-Carcinogen | Harmonic Mean | 56.0 | 56.0 |
| | Human Health - Carcinogen | Harmonic Mean | 56.0 | 56.0 |

## Aquatic Life Reasonable Potential Analysis

| | | | | |
|---|---|---|---|---|
| σ | $\sigma^2=\ln(CV^2+1)$ | | 0.555 | 0.555 |
| $P_n$ | $=(1\text{-confidence level})^{1/n}$, where confidence level = | **99%** | 0.215 | 0.100 |
| Multiplier (TSD p. 57) | $=\exp(z\sigma-0.5\sigma^2)/\exp[\text{normsinv}(P_n)\sigma-0.5\sigma^2]$, where | **99%** | 5.6 | 7.4 |
| Statistically projected critical discharge concentration ($C_e$) | | | 0.00 | 0.06 |
| Predicted max. conc.(ug/L) at Edge-of-Mixing Zone | | Acute | 0.00 | 0.01 |
| (note: for metals, concentration as dissolved using conversion factor as translator) | | Chronic | 0.00 | 0.00 |
| Reasonable Potential to exceed Aquatic Life Criteria | | | **NO** | **NO** |

## Aquatic Life Effluent Limit Calculations

| | | | | |
|---|---|---|---|---|
| **Number of Compliance Samples Expected per month (n)** | | | 4 | 4 |
| n used to calculate AML (if chronic is limiting then use min=4 or for ammonia min=30) | | | -- | -- |
| LTA Coeff. Var. (CV), decimal | (Use CV of data set or default = 0.6) | | -- | -- |
| Permit Limit Coeff. Var. (CV), decimal | (Use CV from data set or default = 0.6) | | -- | -- |
| Acute WLA, ug/L | $C_d = (\text{Acute Criteria} \times MZ_a) - C_u \times (MZ_a\text{-}1)$ | Acute | -- | -- |
| Chronic WLA, ug/L | $C_d = (\text{Chronic Criteria} \times MZ_c) - C_u \times (MZ_c\text{-}1)$ | Chronic | -- | -- |
| Long Term Ave (LTA), ug/L | $\text{WLAa} \times \exp(0.5\sigma^2\text{-}z\sigma)$, Acute | **99%** | -- | -- |
| (99th % occurrence prob.) | $\text{WLAc} \times \exp(0.5\sigma^2\text{-}z\sigma)$; ammonia n=30, Chronic | **99%** | -- | -- |
| Limiting LTA, ug/L | used as basis for limits calculation | | -- | -- |
| Applicable Metals Criteria Translator | (metals limits as total recoverable) | | -- | -- |
| Average Monthly Limit (AML), ug/L | , where % occurrence prob = | **95%** | -- | -- |
| Maximum Daily Limit (MDL), ug/L | , where % occurrence prob = | **99%** | -- | -- |
| Average Monthly Limit (AML), mg/L | | | -- | -- |
| Maximum Daily Limit (MDL), mg/L | | | -- | -- |
| Average Monthly Limit (AML), lb/day | | | -- | -- |
| Maximum Daily Limit (MDL), lb/day | | | -- | -- |

## Human Health Reasonable Potential Analysis

| | | | | |
|---|---|---|---|---|
| σ | $\sigma^2=\ln(CV^2+1)$ | | 0.555 | 0.555 |
| $P_n$ | $=(1\text{-confidence level})^{1/n}$ where confidence level = | **95%** | 0.368 | 0.224 |
| Multiplier | $=\exp(2.326\sigma-0.5\sigma^2)/\exp[\text{invnorm}(P_N)\sigma-0.5\sigma^2]$, prob. = | **50%** | 1.205 | 1.524 |
| Dilution Factor (for Human Health Criteria) | | | 56.0 | 56.0 |
| Max Conc. at edge of Chronic Zone, ug/L ($C_d$) | | | -- | 0.000 |
| Reasonable Potential to exceed HH Water & Organism | | | **NO** | **NO** |
| Reasonable Potential to exceed HH Organism Only | | | -- | **NO** |