

# Midway Sewer District

See attached



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## MIDWAY SEWER DISTRICT

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March 12, 2021

Eleanor Ott, PSNGP Permit Writer  
Department of Ecology  
Water Quality Program  
PO Box 47600  
Olympia, WA 98504-7600

Re: Preliminary Draft Puget Sound Nutrient General Permit Comments

Dear Ms. Ott:

The Midway Sewer District (District) appreciates the opportunity to comment on the Puget Sound Nutrient General Permit (PSNGP) Preliminary Draft. The District owns and operates the Des Moines Creek Wastewater Treatment Plant in Des Moines, WA. The District treats wastewater from the Cities of Kent and Des Moines, WA and serves a population of approximately 46,000 domestic, commercial, industrial and Port dischargers. While the District supports Ecology's initiative to reduce nitrogen in Puget Sound, our focus is on an approach that is established in sound science and equitable to our ratepayers.

The Kent and Des Moines areas that encompass our ratepayers had median household incomes of \$68,880 and \$63,875 in 2018, respectively (Source: Data USA [[datausa.io/profile/geo/kent-wa/](https://datausa.io/profile/geo/kent-wa/), [datausa.io/profile/geo/des-moines-wa/](https://datausa.io/profile/geo/des-moines-wa/)]). These median household incomes represent only 72 and 67 percent, respectively, of the median household income of King County (\$95,009, source: <https://datausa.io/profile/geo/king-county-wa/>) as a whole. Further, Kent and Des Moines had 13.7 and 11.8 percent of their respective populations living at or below the poverty level in 2018, according to Data USA. This is significantly higher than the overall rate for King County (9.6 percent) for the same period. Therefore, we have a strong interest in making sure the General Permit requirements are sensible and appropriate for our community so that the outcome is the highest water quality we can attain within affordable rates. We offer the following comments to this end in partnering with you to implement appropriate nitrogen reduction efforts to preserve and enhance water quality in Puget Sound.

### **Nutrient General Permit Approach General Comments**

It appears the proposed tiered approach may prematurely trigger major capital investments given the goals of this initial general permit to monitor and optimize, setting the stage for future permit nutrient cycles to incrementally lower effluent nitrogen concentrations. As such, we propose either removing

the action levels (ALs) entirely from the general permit, or increasing them to provide the necessary flexibility for the following reasons:

- The monitoring, optimization, reporting and planning requirements are substantial, enforceable, and sufficient to achieve the primary goals of the general permit at this stage, which is to prevent increases in TIN loads.
- Ecology specifically states in the permit that it “is not intending to stop growth with the development and issuance of this permit”. Regardless of this intent, the permit essentially treats growth punitively and for facilities with few or no optimization options, even modest growth could easily push facilities above AL0 or AL1. At this regulatory stage, growth-driven exceedances should not trigger additional requirements if the facility remains within its current Ecology-approved design capacity and has optimized its treatment process.
- There are equity issues with the ALs:
  - Lower ALs for facilities that have already optimized or otherwise gotten better treatment. (Although there is some advantage given to facilities already achieving <10 mg/L.)
  - Lower ALs for facilities with better process control and less variability in the effluent.
  - A large inequity in how much of the unused, Ecology-approved design capacity is available to WWTPs.
- There is currently no relief or additional allowance in ALs for facilities that have contract obligations to outside entities, like industries or Ports.
- By definition, optimization is getting the best treatment you can within your existing facility. Because all facilities are required to optimize under Tier 1, it is unclear that other additional (Tier 2 or Tier 3) actions will be practical at any given plant without major capital investments, which are premature at this stage of the regulation and waste load allocation (WLA) development.
- The examples provided in the listed optimization Tiers 1 and 2 appear to be geared towards activated sludge facilities that already have or may be able to retrofit for some level of nutrient removal. Some facilities, like the Des Moines Creek WWTP, operate non activated sludge processes that are particularly difficult or impossible to implement nitrogen reductions without significant capital improvements.
- There is currently uncertainty with the Salish Sea Model (SSM) predictions of dissolved oxygen (DO) excursions and the level of treatment plant nitrogen reduction that will be needed to meet DO criteria. This could result in an overestimate of the anthropogenic nitrogen impacts to Puget Sound and lower than required nitrogen limits for facilities.
- There is currently limited effluent data with which to draw justified conclusions for the Salish Sea Model. For instance, the Des Moines Creek WWTP is only sampled 4x per year using grab samples for effluent nitrogen species. This small sample set using grab sampling (one instant in time) could underrepresent the actual nitrogen load discharged from Des Moines Creek on an annual basis.
- Grab samples used in development of AL0 and AL1 for some facilities may underrepresent the true TIN load in the effluent, resulting in a lower AL0 and AL1 limit than the facilities currently discharge.
- We would likely need to conduct an expensive rate study to determine what would be considered the threshold for “low cost” optimization options for our facility.
- To date, officially released results of the SSM as part of Ecology Publication 19-03-001 (Puget Sound Nutrient Source Reduction Project, Volume 1: Model Updates and Bounding Scenarios, January 2019) has only looked at improvements using a seasonal (April-October) nitrogen

removal for the wastewater facilities. However, the nitrogen loads provided are on a year-round basis. Given the limited data available to justify a year-round limit, a seasonal load cap would be more appropriate.

- The requirement for Tier 2 or Tier 3 actions should include off-ramps for exceedances related to uncontrollable circumstances, such as wet weather events that trigger secondary treatment bypass events that are allowed by existing individual permits.

### **Specific Comments on Proposed Sampling**

The minimum sampling and analysis schedule detailed in section IV the draft PSNGP is a significant increase in monitoring for these compounds for the District. The District currently uses an outside laboratory for its required quarterly samples, and accounts for delays in receipt of results by sampling in the first ½ of the month that the sample is taken so that it does not impact the required deadline for submitting the Discharge Monthly Report. Increasing the frequency to weekly sampling proposed for medium sized facilities will increase the delays for receipt of results that occur at the end of a reporting month. This will need to be factored into submittal deadlines for results required for the Nutrient General Permit.

In addition to potential delays in monthly reporting, the additional cost of sampling will be substantial. The District estimates that, for the costs associated with testing alone, there will be a 1,600 percent increase over current quarterly sample costs. Note the increase does not include cost associated with employee sample processing, data processing, data management, database reconfigurations, sampling issues resulting in resample, transport issues, quality assurance samples, future increases in lab analysis costs, tax, or any samples in addition to what is detailed as those minimum requirements in Table 6. While the District understands the necessity of increased sampling to support a new permit limit, these increased costs will represent a burden on our smaller utility.

The District believes that one method for helping reduce this burden would be to reduce the frequency or eliminate altogether the TKN sampling from the effluent. This test represents the largest fraction of the cost for nitrogen monitoring and eliminating the effluent monitoring for TKN would save a significant portion of the District's costs. Further, TKN is a measure of combined ammonia and organic nitrogen in the effluent, with the large majority being in the ammonia form (typically greater than 85 percent in the Des Moines Creek effluent). As the permit is written to address TIN, which Ecology has stated is used as a surrogate for dissolved inorganic nitrogen (DIN) of concern in Puget Sound, the ammonia and nitrate/nitrite species sampling would be sufficient to meet this requirement.

### **Des Moines Creek Action Levels**

The District appreciates that Ecology took the time on February 12, 2021 to meet with us to discuss the development of the action levels. During that meeting, several items were discussed related to data use in developed of the proposed AL0 and AL1 action levels in the PSNGP. These are as follows:

1. Current action levels are calculated using data from January 2016 through September 2020. As discussed during the meeting, the influent flows and loads were reduced due to the pandemic impacts on SeaTac airport and the surrounding hotel and service industries supporting the airport. The recommendation discussed and agreed to during the meeting was to use data from January 2016 through February 2020 to avoid the reduced flows and loads observed due to pandemic related shutdowns.

2. The Des Moines Creek observed yearly discharge of TIN in 2018, calculated using the quarterly sampling data, was 97 percent of the proposed ALO of 406,000 lb/year in the PSNGP. This would mean that, with growth, the District could be out of compliance of ALO within the first year of the permit issuance. This would give the District nearly no time to develop, review, prioritize and implement any possible optimization strategies determined as part of the Tier 1 requirements before they are forced into the Tier 2 compliance requirements.
  
3. The current action levels are based on 4 grab samples per year that are routinely collected in the first half of the month of each quarter between 7 and 9 AM at the same time that the individual permit compliance composite samples are collected. While the District believed these samples to be representative at the time of collection, it is possible that grab samples are non-representative of the actual discharge loads of the facility. An 18-hour diurnal sampling was conducted on January 20, 2015 for an internal project and at a time when effluent nitrogen monitoring was not required by permit. This diurnal sampling collected a single grab sample every 2 hours during this 18-hour period. The collected data showed that the final effluent TIN concentrations of the samples collected between 7 and 9 AM on the day of sampling was less than half of the concentrations observed in the afternoon, and only 60 percent of the 18-hour average (see table below). If this diurnal sampling is indicative of the typical diurnal pattern for effluent, then the actual discharged levels could be significantly higher than current reported values used to calculate the current ALO and AL1. As the sampling requirements proposed in the PSNGP are for weekly composite samples, this would likely result in immediate non-compliance with the ALO and AL1 action levels. Because of the likelihood of underrepresentation of effluent TIN from grab sampling, the District proposes that concurrent grab and composite samples be collected for the first year to determine if the grabs underrepresent the load. If they are found to underrepresent the true TIN effluent load, the District would petition Ecology for a change in ALO and AL1 to reflect the true discharge of TIN from the facility.

Diurnal Sampling Conducted January 20, 2015			
Time of Day	NH <sub>3</sub> Concentration (mg/L)	NO <sub>3</sub> Concentration (mg/L)	NH <sub>3</sub> +NO <sub>3</sub> Concentration (mg/L)
05:00	<1	13.4	13.4
07:00	<1	13.7	13.7
09:00	<1	13.9	13.9
11:00	4.1	14.7	18.8
13:00	9.7	15.3	25.0
15:00	12.7	15.8	28.5
17:00	11.7	15.9	27.6
19:00	8.8	15.7	24.5
21:00	6.8	15.1	21.9
Average Concentration Over 18 hr Period			<b>20.8</b>

In addition, the current version of the Nutrient General Permit offers no relief or off-ramp to these action levels for facilities that have contracts to accept waste from outside dischargers, like industries or Port Authorities. As an example, the Midway Sewer District currently has a contract with the Port of Seattle to accept all terminal wastewaters from SeaTac International Airport (SeaTac). While SeaTac has had significant reduction in these terminal flows during the coronavirus pandemic due to reduced air travel, SeaTac was one of the fastest growing airports in the country prior to the pandemic. From 2014

to 2016, the SeaTac discharge load of BOD (nitrogen species are not monitored) increased by over 20 percent and represented more than 10 percent of the influent of the Des Moines Creek WWTP.

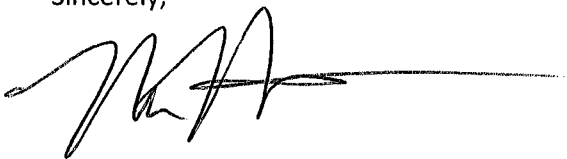
The 2017 Wastewater Comprehensive Plan for Des Moines Creek noted that the airport is currently undergoing a major expansion plan and is anticipating increasing enplaned passengers by 25 percent from 2016 level by 2023, and nearly doubling the enplaned passengers by 2037. This will represent a significant amount of additional influent load, much of which is likely nitrogen due to the nature of the airport terminal wastewaters being higher in urea nitrogen than typical domestic wastewater. This not only impacts the terminal wastewater loads, but also the increased wastewater loads from the significant hotel and service industry that supports the airport and is also part of the Des Moines Creek WWTP collection system.

**Responses to Ecology Questions in Preliminary Draft Relevant to the District**

- Question on use of 99<sup>th</sup> or 95<sup>th</sup> percentile for development of ALO: The District prefers the use of the 99<sup>th</sup> percentile as identified for each facility over the course of the permit cycle for calculating the baseline action levels. This is because there are very few points (4/year) with which to generate the data and using a lower percentile for generating action levels results in a lower amount that does not capture the variation in the effluent nitrogen data that likely occurs but is not captured through permit monitoring requirements in the existing permit.
- Question on suggestions on information for permittees to use to justify decisions on financial and technical analyses to select optimization strategies: The District believes optimization to be the adjustment of existing facilities and operational procedures, and not the purchase of new capital equipment to carry out those adjustments. The District's Policy describes capital improvements to be any equipment purchased with a value equal to or greater than \$500.00.

Thank you for the opportunity to comment on the Puget Sound Nutrient General Permit. We do support continuing the work that we and Ecology have done to improve water quality in our communities and in the State of Washington and look forward to continuing to work together on these goals.

Sincerely,



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