

Draft Final Recommendations:
Considerations for PSNGP Development

Introduction:

The Puget Sound Nutrient General Permit (PSNGP) Advisory Committee (AC) has completed an eight-month process to develop a set of recommendations to Ecology that will frame conceptual approaches to the first PSNGP. The AC makes these recommendations for the purpose of achieving meaningful progress towards long-term reductions in nutrient loads from the wide variety of plants in Puget Sound. The following combination of approaches comprise the AC's recommendations for how to best achieve Ecology's goal to prevent nutrient-related water quality problems in Puget Sound from continuing to worsen during the first permit term, while also allowing contracted plant capacity to be utilized to support smart growth and comply with Growth Management Act (GMA) requirements.

Interest groups represented on the PSNGP AC:

Utility Caucus members: Rebecca Singer (King County, and the AC chair), Jeff Clarke (Washington Association of Sewer & Water Districts), Joe Grogan (Town of Coupeville), Patrick Kongslie (Pierce County), Mark Sadler (City of Everett), Wendy Steffensen (LOTT Clean Water Alliance), Pete Tjemsland (City of Sequim), Dan Thompson (City of Tacoma)

Utility Caucus alternates: Katherine Brooks (Pierce County), Judi Gladstone (Washington Association of Sewer & Water Districts), John Rabenow (City of Everett), Terri Prather (LOTT Clean Water Alliance)

Tribal treatment plant representative: Chip Anderson (Lummi Tribe)

Environmental group representatives: Mindy Roberts (Washington Environmental Council), Bruce Wishart (Puget Soundkeeper Alliance)

State agencies representatives: Eleanor Ott (Dept. of Ecology), Valerie Smith (Dept. of Commerce)

State agencies alternate: Abby Barnes (Dept. of Natural Resources)

Federal agencies representative: Jennifer Wu (U.S. Environmental Protection Agency)

Federal agencies alternate: Kai Shum (U.S. Environmental Protection Agency)

Contents:

- I. Overall considerations for the first PSNGP
- II. Conduct a regional study to support optimization and long-term planning
- III. Collect the high quality data needed for multiple purposes
- IV. A target load for each plant will trigger additional actions if exceeded
- V. Require optimization at all plants
- VI. Require additional actions if the trigger is reached
- VII. Pursue these actions in parallel with PSNGP issuance and implementation

I. Overall considerations for the first PSNGP

1. The AC agrees that first permit term targets or actions beyond monitoring (section III) and optimization (section V) are not needed for plants that are already operating under seasonal or annual permit limits <10 mg/L total inorganic nitrogen (TIN).

- a. These plants should participate in the regional study (see section II) but are should not be required to do additional planning unless a plant is above or approaching 85% of its rated design capacity.
 - b. Otherwise, the use of the terms “each plant” and “all plants” in the following recommendations does not include these plants.
2. The AC agrees that financial and technical assistance for monitoring, optimization, and planning during the first permit term should be prioritized for the smallest plants (with rated capacities <1 million gallons per day, or MGD).
 3. The AC agrees that a broader state and federal financial strategy is needed to accomplish advanced treatment throughout the region. The Governor should consider a special State legislative session to request grants to help plants with equipment, consulting help, and planning for the first PSNGP and ask for federal funding for this critical infrastructure to lessen the burden on individual utilities and their ratepayers, and to ensure environmental justice and tribal treaty rights in plant upgrades.
 4. The AC agrees that Ecology needs to be sufficiently staffed, through NPDES fees, to implement the PSNGP and individual permits, oversee and interpret increased monitoring, and review optimization reports and facility design and planning documents.
 5. The AC agrees that requirements in the first PSNGP should work with comprehensive planning timelines and that jurisdictions should update their GMA checklists as needed to prepare for design, financing, and construction of future plant upgrades to reduce nutrients.
 - a. The AC does not agree as to whether jurisdictions should be required to include advanced treatment needs in their 2024-25 or 2032-33 Comprehensive Plan updates and financial plans. Utilities prefer the longer timeline to conduct planning and evaluate design options after WQBELs are established. Environmental groups would like to see more tangible progress made during this first permit term toward eventual plant upgrades, including earlier GMA-related updates with high-level planning costs.
 - b. The AC generally agrees that Ecology should assure plants and planners that their ultimate targets in the 15- to 20-year timeline ahead will be met by approaches that achieve TIN concentrations between 8-10 mg/L and 3-4 mg/L.
 - c. The AC does not agree as to whether increases in nutrient loadings from plants should be allowed during the first term to accommodate growth.
 - i. Utilities and federal and state agencies generally accept that modest short-term increases are unavoidable in order to accommodate growth and allow the smoothest possible path to long term reductions.
 - ii. Environmental groups and Tribes insist that any discharges increases to accommodate new connections must be offset by load reductions via optimization or other measures.

6. The AC agrees that Ecology should encourage each jurisdiction to come up with a comprehensive set of solutions that works for their plant and community and give plants credit for achieving reductions through such projects. Ecology should provide a reward structure for the greatest reductions in nitrogen, the soonest.
 - a. The AC agrees that Ecology should allow and encourage plants to achieve nutrient reductions by projects/approaches including: satellite plants; alternatives to marine discharge locations (*i.e.*, recycled or reclaimed water); expanded maintenance and line replacements and other I/I reduction efforts; source control; pretreatment programs; requiring separate plumbing and/or other building scale solutions.

II. Conduct a regional study to support optimization and long-term planning

7. The AC agrees that utilities should initiate coordination and work together with Ecology and the Association of Washington Cities to fund and conduct a Sound-wide study as soon as possible (in advance of permit issuance, if possible) and to be completed no later than the end of year 4 of the first permit.
 - a. The first deliverable of the study should be a synthesis of reports on optimization efforts. The study would share findings with plants about what has worked best for plants elsewhere, to assist categories of plant sizes and types in identifying optimization opportunities. This should not delay optimization efforts at any plants.
 - b. The permit should require each plant to either participate in the regional study or choose to conduct an independent nutrient reduction evaluation by the end of year 2.
 - c. The study will have a single entity coordinate a consistent evaluation of all of the plants (including those already <10 mg/L TIN) to produce a regional nutrient evaluation report that identifies what can be collectively accomplished toward nutrient reduction goals and, for each plant:
 - i. An assessment of current plant equipment and capacities and appropriate short-term strategies (side stream treatment, plant footprint re-purposing, outside fence opportunities) to be implemented if optimization for nutrients is not feasible at a given plant, and
 - ii. Advanced treatment technologies and other options for long-term nutrient reductions, and
 - iii. Risk for not meeting demand for capacity; land area for expansion; and time requirements to design and build upgrades or a complete rebuild.
 - d. The regional study may also include the following topics as agreed to by the participating utilities:
 - i. A regional plan for equitable rate structures to address funding shortages and ensure environmental justice in plant upgrades.

- ii. Guidance for plants to evaluate new investments for their nutrient impact, similar to how purchases are currently evaluated for energy efficiency, carbon footprint, and greenhouse gas emissions.
- iii. A regional approach to coordinating septage intakes: determine where septage is most problematic and how and where septage would be best disposed of to reduce nitrogen discharges to Puget Sound while still providing septage hauling services.

III. Collect the high quality data needed for multiple purposes

8. AC members agree that better and consistent data collection is needed across plants during the first PSNGP for both influent and effluent to inform and evaluate process changes and optimization, produce accurate loading estimates, measure progress, and be used in future runs of the Salish Sea Model (SSM).
 - a. Utilities prefer that each plant provide a thorough Sampling and Analysis Plan (SAP) to ensure standard methods and comparable data.
 - i. Consult with experienced plant operators and laboratory personnel.
 - ii. Include parameters; locations; instrumentation; frequency/sampling intervals; and protocols/methods of sampling.
 - iii. Identify and address internal and external factors that might influence variation and skew data for particular plant operations.
 - b. State agencies prefer building the SAP into permit compliance monitoring requirements that describe the sampling goals in a way that each facility must provide a representative sample.
9. AC members agree that large plants (>10 MGD rated capacity) will sample 3-4 times each week; medium plants (3-10 MGD) will at least sample weekly; and small plants (<3 MGD) will sample at least monthly. Plants may need to sample more frequently to characterize discharges.
 - a. Allow reduced sampling frequency once loading variability is adequately documented and the plant's request is approved by Ecology (Plants would still need to maintain the monitoring needed to support plant operations, refine processes, continue to calculate loads, and demonstrate compliance).
 - b. Allow a moderate decrease of sampling in winter after baseline data are collected and Inflow/Infiltration (I/I) influence is well understood
10. AC members agree that, although the primary purpose of influent testing is to inform plant operations, frequent ammonia and carbonaceous biochemical oxygen demand (CBOD), and monthly total Kjeldahl nitrogen (TKN) samples are needed to inform future regulatory decision making.
 - a. Alternative lab analyses may avoid TKN toxic waste and worker safety issues

11. AC members agree that these effluent data are needed: TIN (ammonia plus nitrite plus nitrate), TKN, total organic carbon (TOC), and CBOD.
 - a. Plants should randomize timing of sample collection to ensure representative data.
 - b. It will be important to determine during the first permit term whether, if water quality standards are not met by TIN reductions, carbon reduction may be needed.
12. AC members agree that the monitoring will trigger required actions when target loads are exceeded (see section IV). The AC agrees that the focus should be on a plant's overall pattern, not a single day, for assessing whether the target load is exceeded.
 - a. Ecology should be clear about the length of time that an exceedance is considered to trigger additional required actions.

IV. A target load for each plant will trigger additional management actions if exceeded

13. The AC generally agrees that Ecology should establish an interim target load for TIN as part of a narrative water quality based effluent limit (WQBEL) at each plant using the best available data. Exceeding the target will not result in a permit violation. Instead, the exceeding the target load will trigger implementation of actions that prevent further increases in nutrients (see section VI).
 - a. The AC agrees that both seasonal and annual reductions will eventually be needed but members do not agree as to whether both seasonal and annual target loads should be established for the first permit term and whether sufficient data are available.
 - b. Utilities are concerned that insufficient representative and high quality data exist to calculate meaningful target loads or provide a baseline by which to measure progress at many plants.
 - c. Utilities urge Ecology to set each plant's target load at its approved rated capacity to avoid any risk of moratoria.
 - d. Environmental groups and tribes urge Ecology to set the target load at each plant's current loading using the best available data to prevent declines in water quality.
 - e. Federal agencies and the state agency caucus lead generally agree that plants should be given reasonable accommodation for loading due to growth in this first permit term; a moderate increase above plants' current loading should be allowed without triggering actions.
 - f. The AC does not agree as to whether bubble permits should be allowed in the first permit.
 - g. The AC agrees that Ecology should continue the same loading parameter (TIN) into the second PSNGP to support trading.
14. The AC members are not in agreement as to how the target load should be calculated.

- a. State and federal agencies and environmental groups generally agree that Ecology should use the same (non-parametric) approach for all plants using a minimum of 1 year data to calculate a 12-month average.
- b. Utilities prefer that Ecology use a minimum of 3 years of data, and discard 2020.
- c. The AC agrees that Ecology should allow a waiver for a different target load calculation approach if a compelling reason is provided by an individual plant.
- d. The AC agrees that a representative load is most accurately determined using the flow for the day of the composite sample collection.
- e. The AC generally agrees that plants with rated capacity <1 MGD and having the least amount of data should not have a target load set until data is gathered early in the first permit to set a target load for the remainder of the permit term.

V. Require optimization at all plants

15. The AC agrees that all plants should identify short-term actions (low cost controls and process changes focused on using existing equipment) and implement them as soon as possible, beginning in the first year of the permit.
 - a. The AC agrees that Ecology should provide a menu of nutrient reduction optimization techniques that plants will evaluate and rank in order of effectiveness and feasibility. Each facility should have flexibility to do the best and most efficient optimization in this interim period before numeric WQBELs are established.
 - b. The AC agrees that Ecology should provide a detailed guidance document, published with the permit, specifically for small plants (<3 MGD) to develop their optimization plans; this could alternatively be developed through the regional study (see section II) but must be reviewed and approved by Ecology.
 - c. The AC agrees that Ecology should require individual optimization plans for medium (3-10 MGD) and large (>10 MGD) plants; the regional study could support these plans but must not delay the development of the optimization plans or the implementation of actions that can be implemented immediately.
16. The AC agrees that plants must make demonstrable progress in trying strategies identified in their optimization plans and conduct adequate monitoring to evaluate effectiveness.
 - a. The AC agrees that plants should follow established protocols for all optimization approaches, document their implementation (what was tried, what was learned, what is planned) and quantify results, and provide annual reports to Ecology on the degree of success the plant has achieved through optimization efforts.
17. The AC agrees that Ecology should encourage pilot trials and that intermittent exceedances of regulated conventional parameters such as BOD, TSS or pH that occur during limited time experiments or pilot trial activities that are directly related to the optimization plan should be exempt from individual permit penalties.

- a. The data from monitoring conducted during these trials should not be considered representative of the plant's overall nutrient loadings.
18. The AC agrees that the permit should clearly define what is a sufficiently detailed, compliant annual optimization report and allow streamlined reporting for the smallest plants (<3 MGD) in locations that are not expected to have near-field effects as identified in Ecology's 2018 Bounding Scenarios Report, Publication 19-03-001.
 19. The AC generally agrees that the five plants operated by King County and Tacoma with the largest loads should make additional progress toward nutrient reductions during this term, but the AC has not agreed what that might mean.

VI. Require additional actions if the trigger is reached

20. The AC generally agrees that the permit should use an approach similar to the Industrial Stormwater General Permit to require plants to implement tiered sets of additional actions if they exceed their target loads and the narrative WQBELs established in the first permit. Plants that implement the actions in the required timeframe would not be in violation of the permit.
 - a. The AC agrees that Ecology needs to clearly define the tiers of actions, how they are triggered, and how plants comply. The AC would like to see this detail in the preliminary draft permit language and discuss it during the informal comment period.
 - i. The phosphorus plan example (https://www.ezview.wa.gov/Portals/_1962/Documents/nutrients/Phos_Mgmt_Plan_Example.pdf) is a good starting point. All plants would begin optimization immediately with the simplest activities, and if loading targets are exceeded, then more difficult and costly actions will be required: higher cost controls/process changes, additional equipment purchases, minor retrofits, and other significant changes.
 - (1) Allow plants to select from actions within each tier but require them to explain why other techniques are not viable at the plant.
 - (2) Allow plants to include economic considerations and introduce other innovative approaches in their optimization plans.
 - (3) Understand that plants will seek to avoid stranding assets by making investments that might not work with long-term improvements.
 - ii. Ecology should describe how each of the actions within each tier of action will be defensible and enforceable for various categories of plants.
 - iii. Ecology should also identify what incentives can be provided, and what access plants will have to technical support.
21. The AC generally agrees that any plant that cannot accomplish nutrient reduction by optimization and is not staying below its target load must conduct an evaluation of side

stream treatment opportunities to add nutrient reduction capacity and implement if considered technically and economically feasible.

- a. Utilities expressed concern that there might be a shortage of technical consultants qualified to do this work.
22. The AC generally agrees that plants that cannot meet their target loads by optimization and side stream treatment then the plants must still be kept accountable to make more progress toward nutrient reductions, but the AC does not agree what that might look like.
- a. These plants could be required to conduct a detailed evaluation of technologies available to achieve TIN concentrations <10 mg/L, down to 3-4 mg/L. This high level evaluation would inform future (early in the second permit term) engineering designs and GMA-required cost estimates and funding plans. Plants with the greatest challenges accommodating growth and meeting target limits could do a feasibility study followed by an engineering report. The intent is for plants to be taking steps toward making necessary improvements in future permit terms in phases and pave the way for these plants to be upgraded with advanced treatment as soon as possible.
 - i. Utilities believe that, even knowing the “bookends” of 10 and 3 mg/L, this effort is not worthwhile until numeric WQBELs are established and plants can begin engineering design work to meet those specific standards.

VIII. Pursue these actions in parallel with PSNGP issuance and implementation

23. The AC agrees that Ecology should increase outreach to elected officials, the development community, and the public including the following messages:
- a. We have exceeded Puget Sound’s capacity to accept sewage treatment from our growing population without causing water quality problems.
 - b. New regulations requiring treatment plants to decrease nutrient loads will require large capital investments that will impact ratepayers. State and federal funding would reduce those impacts.
24. The Environmental Caucus urges Ecology and plants to conduct and increase outreach to communities near the outfall locations, including but not limited to those identified as at greater risk from the Washington Environmental Health Disparities Map, the fishing community, and recreational users. Government-to-government consultation with Tribes is also needed.
25. The AC agrees that Ecology should support utilities’ efforts to initiate efforts to expand the pool of skilled plant operators.
26. The AC agrees that Ecology should apply the Salish Sea Model to understand relative benefits of alternative nutrient load reduction scenarios, including impacts to the near-field and far-field waters of Puget Sound and the seasonality of loading.

27. The AC agrees that Ecology should establish numeric WQBELs for plants during the first permit term to be included in the second permit term. In the second permit, provide a compliance schedule for each plant to plan and build the infrastructure needed to accommodate future growth and meet numeric WQBELs.
28. The AC agrees that Ecology should improve the schedule and priorities for updating individual permits that are overdue for reissuance with a focus on monitoring, optimization, planning requirements, and additional actions triggered by monitoring results.
29. The AC agrees that a bigger picture for trading should be developed before the end of the first permit term, in consultation with Tribes early in the process. Use a mass loading (not percent removal) and determine equivalency factors to be used in future trading; the “currency” needs to be place-specific, because near-field and far-field pounds per day are not the same.
 - a. Tribes (via 7/23/20 NWIFC Letter to Gov. Inslee): Any implementation of water quality trading should not result in shifting unaddressed impairments to treaty resources.
 - b. Environmental groups: Trading frameworks cannot lead to degradation or sacrifice areas in Puget Sound. Any trading program will be implemented pursuant to Final Guidance by Ecology on Water Quality Trading.
 - c. Utilities and Federal agencies: Consider setting a regional limit, creating incentives for source reductions, allowing arrangements for public and private trades, and allowing some utilities to pay into a fund.
 - d. State agencies: Consider more focus on fixing the root cause of problem.
30. The AC agrees that Ecology should implement a Sound-wide comprehensive nutrient reduction plan to address both point and non-point sources.
 - a. Environmental groups note that the plan must also include statutory authorities to carry out the work, along with clearly defined roles, responsibilities, measures of success, and further actions needed in the event nonpoint source reduction is not succeeding.
 - b. Tribes (in 7/23/20 NWIFC letter to Gov. Inslee) note that the state should recognize and apply its advancements in riparian buffer protection to agricultural and urbanizing areas, as complimentary and an important part of addressing watershed nutrient, temperature, and other pollutant loading.