7/30/20 DRAFT

Evolving Recommendations: Considerations for PSNGP Development

Document purpose: The AC is engaged in a months-long process to develop a set of recommendations to Ecology that will frame conceptual approaches to the first PSNGP. Everything in this document is subject to further discussion by the committee. This recommendations document will not be finalized until the AC meeting on October 21, 2020. Until then, it is a continually evolving document intended to capture AC member input given during and between meetings, to support moving the AC closer to understanding the range of issues and making decisions about preferred approaches. As the AC makes such decisions, they will be highlighted to help the group continue to focus on areas where decisions have not been reached. In this version:

Items highlighted in yellow need to be decided/recommended by the committee.

Items highlighted in blue have not yet been discussed by the committee.

Need to add a list of acronyms.

Background information including committee purpose and list of members: in cover letter

> *This committee makes these recommendations for the purpose of achieving an actual, not perceived, water quality improvement. This committee has explored where the flexibilities are for the first permit term. Our final recommendations collectively provide a justifiable and defensible solution for the wide variety of plants that will be covered under the PSNGP. The following combination of approaches will 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 requirements.*

Contents:

I. Overall considerations for developing the first PSNGP

1. The requirements of the first PSNGP must be practical and obtainable, and result in meaningful water quality improvements
2. Level the playing field to ensure that all plants are making a reasonable effort in the short and long terms
3. Growth capacity should be distributed equitably

4. Plants that currently have nutrient reduction technology should not be required to make additional improvements during the first PSNGP
5. Create a clearinghouse of information considering plant size
6. Avoid unintended consequences to plants that are in different phases of planning, design, construction, operations
7. Avoid immediate need to impose additional wastewater rates; plants also should not incur new loans during the first PSNGP
8. Flows, and growth, should not be diverted to other plants

   Comment from Jeff Clarke: If some party could send (allocate) growth to certain areas, presumably where there is nutrient-compliant treatment capacity, where might that be? Answering that question requires more monitoring data, and the setting of a nutrient standard, neither of which is currently available. It also begs the question of whether King County WTD can meet said unspecified nutrient standards with its current facilities, because it currently handles a large percentage of regional wastewater. Shifting the growth away from WTD seems impossible, since other facilities do not have enough capacity (regardless of nutrients) to handle it and shifting flows TO the King County system would depend on a finding that its facilities can take those quantities while meeting nutrient regulations. Those are important issues, which could be discussed by the Advisory Committee—a discussion which would inform our consideration of options. "Allocating growth" is a matter of planning for it, designating and zoning properties, assuring adequate transportation, utility, and educational facilities are available, and then hoping that the market decides those are good places to build. No government agency in our region can force growth where it wants it to go.
9. Plants should be given flexibility to make adjustments and experiment with new approaches without fear of penalty for noncompliance if the changes do not work as hoped or expected
10. Early steps taken during the first PSNGP should lead to successful implementation in the second and third five-year permit terms.
11. Ecology needs to be sufficiently staffed to implement the PSNGP and individual permits

    Comment from Jeff Clarke: The General Permit envisioned by Ecology would require more monitoring, more review of results, and more review of annual optimization reports. Significant increases in facility planning and construction to meet nutrient standards would also require additional Ecology staff time. Does Ecology anticipate having staff resources to carry out this work and not allow permits or reports to lag seriously behind schedule? And if not, what does that mean for the overall process?

II. How to calculate and implement a cap during the first PSNGP

12. For utilities, this first PSNGP must set achievable narrative limits or targets. Plants should not be in fear of being out of compliance, or of not being able to accommodate new connections associated with existing capacity agreements and/or future smart growth to serve increased urban populations. Utilities would like to take a more holistic approach to this problem, do it right once and without more delay.

    a. Prior to setting a cap, Ecology needs to clarify how plants will accommodate expected growth, and whether there can be any future expansions or reversion of cap limits.

b. Utilities want the cap set for their Ecology approved full rated flow capacity, since plants have no direct control over the rate of growth.

    i. This will likely result in a short term increase, not a plateau as Ecology envisioned, to gain the most meaningful long term solutions.

    ii. If plants continue to increase nutrient loads, water quality will continue to degrade, and LOTT may be forced to further reduce their nutrient load to comply with the Budd Inlet TMDL.

c. The committee recommends implementing the cap using something similar to the adaptive management approach employed in the Industrial Stormwater General Permit where tiered actions are triggered by monitoring data.

    i. Using a narrative limit approach, a cap exceedance would trigger actions to achieve long term reductions sooner instead of being a permit violation.

        1. The actions must be appropriate and achievable for the individual plant, and be defensible and enforceable.

d. Consider requiring plants approaching or beyond 85% of their rated capacity – and growing – to do more, faster, leaving the others under less pressure.

    Comment from Jeff Clarke: Did they say what it is they want done faster? And how that can be done while complying with various laws and sound engineering practices?

e. Consider focusing on the largest plants with the largest loads to do more, faster.

13. Total nitrogen loading is the best metric for capping the load for the first and future PSNGPs.

    a. A percent removal target is inconsistent with the goal of preventing further increases in nutrients and would need to be changed for the second PSNGP.

14. Plants can achieve nutrient reductions by other means than biological and other nutrient removal technologies, such as by side stream treatment and reclaimed water. Areas of new development can have different, innovative requirements like separate plumbing or approaches more similar to how an industrial pretreatment program works. It would be up to the jurisdiction to come up with a comprehensive set of solutions.

    Comment from Jeff Clarke: This paragraph suggests a number of steps that theoretically could be carried out to reduce nutrients. If they are to be placed on the table for serious consideration, the Committee should take the time to have engineers and planners come in and discuss what is involved so we will know how practical they are. The “separate plumbing” suggestion in particular raises a number of questions. Presumably it would apply to new developments moving forward, rather than retrofits. Even so, one presumes it would have a significant impact on housing affordability.

    a. The permit should include evaluation (timing? implementation?) of side-stream treatment in the planning process. Side-stream management process changes can include:

i. Side-stream treatment by installing a nitrogen removal process for the side-stream)

1. This approach should be considered for implementation through long term planning, beyond optimization and compliance with the cap.

ii. A change to how de-watering operations are conducted to continuous operation from business hours only operation

iii. Dilution and dosing of centrate to reduce ammonia loading

b. These components should be considered based on technical and economic feasibility

15. The committee recommends that the same caps should/should not be established for all WWTPs and that the caps be applied in zones or individually.

a. Utilities believe that no single approach to setting a cap can or will simultaneously:

i. Utilize the widely variable and in many cases very limited available data,

ii. Avoid cutting off growth,

iii. Meaningfully keep the water quality problem from getting worse, and

iv. Keep plants in compliance.

b. Utilities recommend that the requirements in the PSNGP be based on specific analysis of data for each facility.

i. There is not one single solution to develop the cap.

ii. Caps should be reflective of each WWTP's operations and water quality impact.

iii. The cap should be a limit, but not a reduction.

iv. The cap calculation must consider and accommodate growth.

16. The committee does not agree as to whether to use existing data to calculate caps or whether additional, higher quality data are needed.

a. AC members remain concerned about the inconsistent types and amounts of monitoring available for the cap calculation.

i. Utilities want the data issue addressed first, but Ecology's current PSNGP issuance schedule does not allow this to happen.

1. Plants with the least amount of data might not have a cap set.

2. Data gathered during this permit term should be used how, regarding cap calculation.

b. The committee recommends that 1 year/3 years of monthly/quarterly data are needed for the calculation; or just use the best available data and make sure the permit can accommodate better information that comes in during the permit term.

    i. Year to year variability due to climate and meteorological events would not be captured in 1 or 3 year datasets.

c. The committee disagrees as to whether adequate data exist – both as to quantity and timing (how recently data should have been collected) – and what data could be used.

    i. 2006-07 wastewater treatment plant effluent monitoring data are in EIM and not in PARIS because those data were not required for compliance.

    ii. Larger plants have long been required to do quarterly nutrient monitoring.

    iii. Plants collect, at minimum, once-in-5 years data.

17. The committee does not agree as to whether the same approach should be used to calculate the cap for all facilities:

    a. The committee agrees that a representative load is most accurately determined using the flow for the day of the sample collection.

    b. Environmental groups recommend that Ecology should use same (non-parametric) approach for all plants, and maybe allow a waiver for a different approach if a compelling reason is provided by an individual plant.

        i. Plants should provide relevant data they have collected that was not permit-required, and therefore is not in PARIS.

        ii. Equitably distribute reserve capacity to accommodate growth.

        iii. No additional targets should be established for plants that are already operating nutrient removal technologies.

        iv. Make it a hard cap and use it as an interim limit until achievement of water quality based effluent limits is required.

    c. Federal agencies recommend the non-parametric approach and also recommend looking at categories of facilities to build permit requirements.

    d. State agencies recommend the non-parametric approach seems to make the most sense considering the large number of plants lacking data. The permit should anticipate tweaks as more data become available.

    e. Utilities' main concern is lack of data and ability to accommodate growth.

        i. Provide an allowance for contracted capacity.

        ii. The cap must be based on historical data not on randomly generated data.

iii. Make sure the load calculation doesn't lead to foreseeable violations or unintended consequences without sufficient baseline information.

iv. There is not enough data for the bootstrapping method. Concern about variance and skew.

v. The first permit should collect more data: three years is needed. Give subsidies to smaller plants to collect this data.

vi. For this permit, targets make more sense than a cap to get water quality improvements.

vii. Provide flexibility with a bubble or offsets.

viii. Discuss implications of quarterly/annual caps or targets.

18. The committee does not agree on a fundamental averaging strategy, and particularly disagrees about using a non-parametric method for calculating the cap:

    a. Federal agencies, state agencies, and environmental groups recommend using a non-parametric 95% or 99% confidence interval where if a plant's average load does not increase it will still be in compliance.

    b. Utilities believe that, given the limited amount of data:

        i. They may be subject to non-compliance, which is an unacceptable risk.

        ii. Small plants do not have sufficient data for this approach; need to collect more data before calculating cap.

        iii. Consider a focus on larger plants with more data this first permit term.

        iv. This approach will not appropriately inform decisions concerning infrastructure investment. Nor will it result in actual (as opposed to perceived) reductions in loading.

19. The committee does/does not recommend that each of these alternates to a cap can/should be considered:

    a. Targets versus limits

    b. A combination of targets and incentives

    c. Load reductions instead of a cap

    d. Performance-based limits, *i.e.*, percent removal (influent versus effluent)

        i. This idea was dismissed by environmental groups, federal agencies, and state agencies as inadequate, because it still allows an increase in nutrient loading as flows increase. Utilities posed the question as to whether this approach would be adequate for a first permit round, while data is being gathered and water quality limits are being determined by the modeling effort?

1. Could an approach like this be used in combination with a somewhat lenient cap for the first round?

    a. This only makes sense if a second permit is timely, and the first permit does not become administratively extended ad infinitum.

ii. A performance goal might be appropriate for a plant that is already implementing nutrient removal technology.

iii. Explore a flow or performance-based trigger that requires additional actions to reduce nutrients.

20. The committee recommends that the cap calculation be seasonal/annual/both (different limits for different seasons).

    Comment from Jeff Clarke: For a number of AC members, the reasons why one or the other could be advantageous (for a facility or for the environment) remain unclear. A fuller discussion would be helpful in having the Committee develop a recommendation.

    a. Annual loading limits will provide plants with more flexibility to make adjustments and meet the cap requirement.

    b. Nutrient reduction is more easily achieved during the May-October season, when the water quality problem occurs, so those limits should be lower. A plant might not be able to reduce loads in the winter.

    c. The committee does not agree as to whether to focus on seasonal or average annual loads during the first PSNGP term.

        i. The committee agrees that annual load reductions will be needed in the long term. The long term goal is both seasonal and annual limits for all plants.

            1. An average load would need to encompass the wide variety of seasonal loads.

            2. There is less data available for setting seasonal limits.

            3. Plant staff advise having different limits for different seasons.

        ii. Federal agencies suggest an annual approach, perhaps using a 12-month average but taking the peak of available data.

        iii. Environmental groups suggest addressing near-field seasonal effects during the first permit term.

            1. Investigate two phases of seasonality: critical June-August versus May-October.

            2. Calculate the average using a robust enough method should be that the seasonal variation would not show up as a trend in loads

iv. Tribal facilities suggest considering the photo period versus temperature for seasonal loading.

21. PSNGP cap calculation needs to/should not address CSO events. How?

    a. A CSO plant's loading is seasonal with large wet/dry variations. CAP should be seasonal where appropriate and allow the plant to operate in compliance.

    b. For CSO plants, quarterly or even monthly data is not adequate to capture variations in loading caused by wet weather events. Calculating loading based on monthly averages for flow and TIN concentration may be one way to mitigate this in the cap calculation.

III. How to assess compliance with the cap during the first PSNGP

22. Consider bubble permits for the first PSNGP

23. Focus on a plant's overall pattern, not a single day, for assessing compliance

    a. Ecology needs to be clear about the length of time that an exceedance is considered a violation, i.e., what is the maximum penalty that can be assessed

    b. Can compliance be phased?

24. Excursions that occur during experiments or pilot trial activities related to the optimization plan should be exempt from cap compliance

25. Plants that accommodate growth without increasing concentrations should not be penalized. That will be measured how

26. Compliance should be assessed how

27. Adaptive management will be used how

28. What are examples of enforcement strategies that will keep plants accountable?

29. Cap exceedance should not result in a growth moratorium; other actions should be required

    a. Example actions

IV. How to require optimization and adaptive management in the first PSNGP

30. The purpose of optimization and adaptive management is to evaluate existing treatment processes for opportunities to reduce nutrients to the greatest possible extent and as soon as possible without requiring capital investments

    Comment from Jeff Clarke: This suggests that existing "adaptive management" practices simply be shifted to controlling nutrients. The reality is that treatment plant operators use adaptive management to work towards a number of goals, and nutrient control would have to be just one of those factors.

a. Plants should explore using existing equipment to change processes to drive nitrification/denitrification and to reduce overall nutrients as much as possible at a minimal cost while still maintaining other permit requirements

b. Plants should not invest in short term solutions that will not be useful long term

c. Care should be taken to avoid significantly increasing plants' carbon footprint or energy costs

    i. Nutrient removal has higher direct and indirect greenhouse gas emissions, contrary to some plants' goals to achieve and maintain carbon neutrality

d. Optimization may increase staff training and overall hours, and operation budget

e. SOPs should be developed for all optimization approaches

31. Treatment plant vary and planning needs to be considered in evaluating what will and will not be effective for plants on an individualized basis. Optimization is not possible at all plants but it provides the most realistic means of improving water quality over the current conditions during this permit period at some plants. Many plants have already reduced concentrations by a combination of improved technology, design efficiencies, and utilization of reclaimed water systems. Utilities caution that expectations concerning the ability of "optimization" to produce actual, not perceived reductions in loading are unrealistic.

    a. Optimization is not the only means for complying with the cap during the first PSNGP

    b. Optimization should be implemented through an adaptive management approach to achieve improvements and encourage continuous progress

    c. Infiltration, inflow, and overflow impacts on plants' abilities to achieve nutrient reductions should be evaluated

        i. Regular maintenance and line replacements could be targeted to address these impacts

    d. Early progress toward reducing nutrients should not result in future limitations on plant capacity

    e. Plants at or near capacity and with less flexibility might focus on doing more planning to get upgrades online sooner rather than optimizing their current operations

    f. Moratoriums should not be required

    g. Ecology should provide guidance for plants to develop the optimization plan

    h. Ecology should provide incentives for all plants to reduce nutrients sooner than required by the PSNGP

32. The committee disagrees as to whether optimization should be a primary focus of the first PSNGP as a means for plants to comply with a cap in the short term

a. Ecology should take a collective regional approach and consider having a single entity evaluate all of the plants, learn what has worked best for plants elsewhere, and identify appropriate strategies if optimization for nutrients is not feasible at a plant

b. Optimization and budgeting should be part of the planning process

c. Ecology should identify what specific ideas for optimization for nutrient reduction plants should be considering

    i. Provide list of all possible optimization techniques for individual plants to evaluate and rank in order of feasibility for their sites

        1. Plants would not need to try all of the approaches, but they would need to explain why a given technique is not viable at the plant

    ii. The permit should allow for other innovative approaches

    iii. The permit should encourage pilot trials and not penalize plants for failed experiments

    iv. Financial support should be provided for the smallest plants

d. Plants would report what was tried, share what was learned, and list what is planned.

    i. Plants would need to explain/justify why certain techniques are deemed infeasible.

    ii. Initial evaluations could provide the basis for future engineering reports.

    iii. Either Ecology is going to have to review each facility's plan in a timely fashion (Ecology's technical assistance staff could help individual permit managers review the reports), or

    iv. The permit needs to be specific enough that the utility can be sure to submit a compliant plan.

Comment from Patrick Kongslie: Pierce County is opposed to submitting an annual optimization report that would identify what was tried, share what was learned, and list what is planned. This approach is problematic with such a controversial topic. Opening up the means and methods to plant optimization will open up "backseat drivers," so to speak in plant operations and divert the attention away from the ultimate goal, water quality. An optimization plan/schedule can be submitted and approved by Ecology once per permit cycle that defines the plan, implementation, and expected outcome. The results will be seen through the monthly DMRs and discussed in detail upon request of the Ecology Permit Manager. As always, networking among WWTPs is encouraged and we will continue to work together to overcome challenges in operations. Individual plant optimization should be encourage by performance incentives and do not need to be part of a public review/comment process.

e. The PSNGP needs to identify what all plants are currently capable of and fully incentivize optimization, but not penalize plants who have already gone above and beyond to reduce their nutrient loadings.

f. Plants that are geographically situated to have minimal impacts still have far-field impacts, regardless, and those should be addressed.

g. The question is not either/or cap versus optimization, but how to make them complementary.

h. Current plant optimization addresses different issues (energy use, carbon footprint, air emissions) that might be impacted by optimization of operations to reduce nutrient loads.

33. Each plant should use existing resources to address nutrients to the extent possible.

a. Committee members did not reach consensus on how to define a "minor investment" for optimization or what is an appropriate level of effort and doable without rate increase.

i. There was no agreement that a small percentage of the equipment budget is an appropriate cost ceiling.

ii. Some AC members believe the requirements for investments should be driven by plant upgrade designs.

b. Some requirements that could apply to all plants include:

i. Evaluate possible operational adjustments to drive nitrification/denitrification and implement them if economically feasible.

ii. Investigate minor retrofits as part of the optimization plan

iii. Ensure adequate monitoring is implemented to evaluate the plan

iv. Pay close attention to which approaches are short term and which are long term.

v. Complete an economic assessment as part of the optimization plan considering the challenges at the individual plant.

1. An economic feasibility threshold could be established to determine whether the operational adjustments must be implemented. If operational adjustments are below the economic threshold, they would be required to be implemented. If they are above the threshold, they would not be required to be implemented.

a. The threshold could be on a unitized basis such as dollar-per-pound of nitrogen removed

b. Consider household income levels as well

34. Adaptive management should address seasonal variations, equipment functionality, and competing plant priorities.
35. The PSNGP should allow plants to use their own ingenuity to meet nutrient reduction goals.
36. Plants that don't know what their current nutrient loadings are will have a hard time evaluating the impact of operational changes.
37. The PSNGP needs to connect optimization and adaptive management with short- and long-term planning appropriate for each plant.
38. Plants should document the changes they try out and identify what works best for nutrient reduction at their facility.
    a. This should be reported annually by most facilities, since this work should be ongoing except at plants already doing nutrient reduction.
    b. Perhaps reporting could be only once in the 5-year permit cycle at nutrient reduction plants and the smallest plants (<2MGD?) that are not expected to have near-field effects.
    c. Ecology should make it easy for all of the operators to submit a compliant report
39. What level of review and approval by Ecology is appropriate prior to trying out new approaches.
    a. Advance notification should be adequate for what types of adjustments?
40. Limitations posed by current treatment technologies at each facility and as well as commitments to accommodate growth should be addressed how.

V. How to conduct monitoring to provide consistent data needed for future permit decisions

41. The committee disagrees as to whether additional data collection is needed prior to calculating caps for plants to meet in the first PSNGP. The committee agrees that better and consistent data collection is needed across plants during the first PSNGP.
42. The first PSNGP should have new monitoring requirements overlaid on individual permit requirements to address the wide variety of and variability in the available data, and the paucity of data in PARIS for many plants.
43. The monitoring will need to be robust enough to support adaptive management.
44. Monitoring needs should be similar to those involved in a re-rating process.
45. The PSNGP should require plants to gather consistent data that all plants can reasonably incorporate into their operations and improves calculations for the next PSNGP. These data are needed: constituents. Number of samples, sampling interval, over what period of time will be sufficient for most plants/approaches.
    a. Engage lab personnel in identifying parameters; locations; instrumentation; frequency/sampling intervals; and protocols/methods of sampling.

b. Address internal and external factors that might influence variation and skew data for a particular plant.

c. Standardize or normalize daily flow monitoring calculations.

46. The PSNGP should include a QA/QC plan or SAP for monitoring during the first permit term, or even earlier, for widespread, long term, consistent data collection. The SAP should be adequate for all influent and effluent tracking (possibly multiple times per week) and for each key stage in the process. Data should be such that it aids in any future CAP calculation, and optimization efforts, and any future plant upgrade. The SAP should be developed by an experienced plant process consultant with their Operators.

47. Smaller plant operators agree that better data are needed but they are also concerned about capacity for greatly expanded monitoring requirements.

48. Ecology should look at ways to assist with funding additional testing at smaller plants.

VI. How to approach short- and long-term planning requirements for facilities

49. Keep plants accountable for both making improvements during the first permit term and taking steps toward making necessary improvements in future permit terms

50. GMA Comprehensive Plan updates are due in 2024 or 2025; the next will be in 2032. Plans for plant upgrades need to be in this update. Jurisdictions will start work on plans next year and the following.

    a. Requirements in the first PSNGP should work with the comprehensive planning timeline.

        i. Update GMA checklist to include requirement for nutrient reduction

            1. Jurisdictions must plan to provide sewage treatment for current and expected population without impacting water quality

            2. Optimization/adaptive management needed if level of service not met

    b. Plants and planners need targets and a timeline, and a clear understanding of how terms are used and what needs to be accomplished; they can't do this quickly or efficiently before Ecology sets WQBELs or other meaningful goals to meet

        i. LOTT (which serves the entire Thurston County UGA) has managed nutrient loads using water conservation and reclaimed water approaches; their 1998 "Highly Managed Plan" is an example of a successful approach to this work

        ii. All utilities should identify what it will take for their plants to achieve a defined level of nitrogen removal: during the first PSNGP, plants that are not already doing nutrient reduction should plan to evaluate solutions for reducing nitrogen concentrations to 10 mg/L and/or lower, toward the limit of technology around 3-5 mg/L

1. This should be a high level evaluation that estimates future costs, documents specific initial and long-term site constraints, and identifies potential implementation challenges
2. The engineering design report should/should not be completed in the first PSNGP.

iii. During the first PSNGP utilities should also be looking for other discharge locations (*i.e.*, reclaimed water)

iv. Address collaboration in the short term, perhaps first, to see what can be accomplished with the equipment plants have now

v. Make a regional plan for equitable rate structures to address funding shortages and ensure environmental justice in plant upgrades

vi. Consider a special State legislative session ask for grants to help facilities with equipment, consulting help, and planning for the first PSNGP

vii. Ask for federal funding for this critical infrastructure.

c. Any city/county that cannot accommodate expected growth without keeping their nutrient loads in check must make a six-year plan to provide the required services. GMA actions are triggered when a plant reaches 85% of its rated capacity.

51. The PSNGP should provide a compliance schedule to plan and build the infrastructure needed to accommodate future growth and meet eventual WQBELs.

52. Plants should evaluate new investments for their nutrient impact, similar to how purchases are currently evaluated for energy efficiency, carbon footprint, and greenhouse gas emissions.

53. Manage septage intakes how.

a. If plants were to stop receiving septage at facilities, especially plants with digesters, the effluent nitrogen load would be reduced. However, septage haulers would need a disposal option with sufficient capacity to handle this load while avoiding the mere transfer of this load to another part of the Puget Sound region: it would have to go to another treatment plant that currently removes nitrogen. LOTT has instituted a moratorium on septage.

i. Is Ecology proposing coordination of Puget Sound-wide septage hauling? A coordinated approach would be better to determine how and where septage would be best disposed of to reduce nitrogen discharges to the Puget Sound and avoid backlash from the septage haulers

ii. Is Ecology considering alternatives to septage hauling to treatment plants?

VII. Outstanding questions or concerns to address in parallel with PSNGP issuance

54. Develop a state funding strategy to lessen the burden on individual utilities and their ratepayers

55. Get more science to address near versus far field contributions and seasonality
56. Apply emerging science during the first PSNGP term
57. Provide a reward structure for the greatest reductions in nitrogen
58. Develop a bigger picture for trading

    Comment from Jeff Clarke: The concept that plants with "flexibility and space" can "trade with others" is attractive, but lacking a thorough survey of Puget Sound wastewater plants, their capacities and nutrient levels, as well as agreement on cap levels, we cannot know whether or not such available capacity is significant.

    a. Determine equivalency factors to be used in future trading

        i. The currency needs to be place-specific, because near-field and far-field pounds per day are not the same

        ii. Percent removal cannot be used for trading; it must be a mass loading

    b. Consider (1) setting regional limit, (2) creating incentives for source reductions, (3) allowing arrangements for public and private trades, and (4) allowing some utilities to pay into a fund.

59. Consider allowing small plants to make demonstrable reductions in other sources of nutrients
60. Match new PSNGP monitoring with individual permit requirements
61. Improve Ecology's schedule and priorities for updating permits that are overdue for reissuance
62. Put monitoring and planning requirements in permits overdue for reissuance now, and focus on optimization efforts