WTD Nutrient Management Strategy

Near term approach for long term results

Presented to the Metropolitan Water Pollution Abatement Advisory Committee
June 24, 2020

King County
Department of Natural Resources and Parks
Wastewater Treatment Division

Timeline

2006-2014	• King County participated on a Technical Advisory Committee for Department of Ecology's South Sound and Salish Sea Model development
2017	• July – King County staff presented nutrient and phytoplankton trends in central Puget Sound at Ecology's Puget Sound Nutrient workshop • Sept – King County met with Ecology to discuss Ecology's Puget Sound Nutrient Source Reduction Project and identify opportunities for King County to participate. • Nov – King County sent Ecology technical questions on the Salish Sea Model
2018	• Jan – Ecology presented King County with answers to technical questions on Salish Sea Model • April – Staff attend the Nutrient Form meetings (ongoing – monthly) • Sept – King County participated in Puget Sound Partnership's Implementation Strategy for Marine Water Quality
2019	• Aug – Ecology announces Puget Sound Nutrient General Permit concept • Oct – King County comments in Ecology's General Permit solicitation process • Dec – Ecology announce Total Inorganic Nitrogen (TIN) caps in individual permits
2020	• Jan – Ecology announces moving forward with a general permit • Feb - General Permit Advisory Committee process begins – King County has seat on Advisory Committee

Puget Sound Nutrient General Permit Advisory Committee – Membership

5 Caucuses

- Federal (1)
- State (2)
- Tribal (1)
- Environmental (2)
- Utility (7)

Puget Sound Nutrient General Permit Advisory Committee – Schedule

April 15 – GP kick-off

- Monthly meetings there after
- Each meeting focused on a topic
  - Cap calculation
  - Optimization
  - Monitoring
  - Planning

September 30 – finalize draft recommendation

October 21 – review and adopt final recommendations

Analyzing the Data

What are our current loading rates?	• By plant • Total • Seasonally
How long can we remain compliant based on current loading?	• Consider growth • Consider partnerships
What about a bootstrap limit?	• At current loading how long can we continue to comply?

Science

Puget Sound Model

Ecology Modeling Review

Ambient and Outfall Monitoring Data Analysis

Plankton literature Review

Assessing Two Technologies

- Partial Granulation with Bioaugmentation

- Simultaneous Nitrification-Denitrification (SND)

Examples of Other Available Technologies

Possible Near Term Evaluation

- Hybrid Fixed-Film/Ballast
- Membrane Aerated Biofilm Reactor (MABR)
- Aerobic Granular Sludge (Sequencing Batch Reactor)
- Partial Granulation with Granule Recovery

How Much Will This Cost?

- No current estimates

Expansion of assessments to include:

- Best technology for site and process
- Operation and maintenance
- Staffing
- Contracting
- Procurement

Potential Constraints

- Footprint – limitations based on location
- Not all technologies are equal – “one size fits all”
- Growth – it takes decades to expand facilities
- Partnerships may be limited

Questions?

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