King County Dept Natural Resources & Parks

Please see attached comment letter submitted on behalf of King County Wastewater Treatment, Stormwater services, and Science sections.

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Department of
Natural Resources and Parks
Director's Office
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April 6, 2018

Susan Braley
Water Quality Program
Department of Ecology
PO Box 47600
Olympia, WA 98504-7600
Online submittal form: http://ws.ecology.commentinput.com/?id=ph6ZP

Dear Ms. Braley:

King County would like to thank the Washington State Department of Ecology (Ecology) for your efforts to clarify the Water Quality Program's Policy 1-11 (Policy 1-11) over the past two years. We appreciate Ecology's extensive efforts to provide opportunities to share ideas and work together to better determine how waterbodies are assessed for attainment of water quality standards. King County invested considerable staff time in this effort because we recognize the importance such policies play in maintaining and restoring water quality and watershed health.

Policy 1-11 and the subsequent decisions to prioritize water cleanup plans are particularly important to King County and our residents and businesses. King County provides wastewater treatment for 1.5 million people and businesses and also manages stormwater for over 250,000 people. Both our wastewater and stormwater programs are managed under National Pollution Discharge Elimination System permits, and King County is also a designated Water Pollution Control Agency under state law. We have protected or restored thousands of acres of riparian areas, rivers, creeks, shorelines, intertidal zones, floodplains, wetlands, and adjacent forests with the goal of restoring the chemical, hydraulic, and biological integrity of our waters. As part of these extensive science, monitoring, remediation, and restoration programs, King County collects surface water, sediment, benthic macroinvertebrate, and fish and shellfish tissue data. Analysis of these data and associated modeling efforts have supported Ecology's Total Maximum Daily Loads (TMDLs) and implementation plans, as well as other cleanup efforts, such as those under the Sediment Management Standards.

The current Policy 1-11 review draft is an improvement over the existing policy. While we support the cleanup, reorganization and additional clarity in some specific areas, we also request additional changes (see attachment). The current draft also includes several substantive revisions that had not been presented or discussed since King County reviewed previous preliminary versions. Thus, many of our detailed comments reflect recent changes which have not yet received much public review and discussion. King County scientists and management are interested and available to discuss our comments.

King County supports the TMDL program, but knows that developing TMDLs is a laborious and expensive process. Given our common interests and responsibilities to improve water quality, King County requests additional engagement with Ecology to ensure that subsequent processes to select and develop TMDLs provide the most benefits to water quality in a timely manner.

While Policy 1-11 includes new, helpful text describing prioritization of TMDLs, the section discusses only one statewide, Ecology-hosted TMDL planning meeting per year for this purpose. Given the importance of developing strategic and effective water cleanup plans, King County recommends additional opportunities to work with Ecology's Headquarters and the Northwest Regional Office, such as periodic regional meetings to identify waterbodies where proactive source control, restoration, and/or other actions can serve as a baseline for a TMDL or other cleanup plans (e.g., 4B plan).

Within the legal boundaries and other considerations, it is our hope that Ecology's efforts to prioritize and implement actions related to the TMDL program also support broader efforts to enhance watershed health and resiliency. Two examples King County would like to explore further with Ecology are:

- Potential synergies between the Our Green Duwamish stormwater collaborative, Ecology's Pollutant Loading Assessment project, and environmental and social justice initiatives. King County and Ecology have similar interests in integrating toxics cleanups with water cleanup and habitat restoration programs, all of which are of concern to tribal and underserved communities in the Green Duwamish watershed. We request that Ecology help prioritize resources and funding to integrate these objectives in that focal area.
- Opportunities to leverage the recent Bear Creek Watershed Study to implement priority protection, restoration, and acquisition recommendations in targeted catchments. Considerable time, money and effort were invested in the Bear Creek study and King County would like to explore with Ecology the most cost effective ways to restore aquatic health in the basin.

In sum, the latest Policy 1-11 draft is a step forward, but much work remains. King County welcomes opportunities to work with Ecology to prioritize TMDLs and craft 4B plans that attain designated uses as well as address broader watershed needs. We look forward to additional engagement to prioritize these issues and support projects in partnership with Ecology and our other regional partners.

Sincerely,

Christie True
Director

cc: Josh Baldi, Division Director, Water and Land Resources Division, Departement of Natural Resources and Parks

King County Detailed Comments

Page vii: The definition of "Call-for-data" should just specify the most recent 10 years of data with any exceptions.

Page viii: The definition of "Data validation" conflicts with usage in other parts of the document and with Environmental Information Management (EIM) specified Quality Assurance (QA) levels. King County previously recommended simplified data usability checklists be incorporated into the EIM submittal process. While it is not clear from the revised Policy 1-11 the extent which these might be incorporated into EIM uploads, the definition of "data validation" in Policy 1-11 now includes a data usability review. EIM does not require, and Ecology has previously stated, that data validation is not required for data to meet the Credible Data Act [RCW 90.48.585 Section 1(a through d)]. This issue is further complicated by the fact that EPA has multiple levels of data validation depending on the program and decision required.

The validation definition is also in conflict with the expectations and requirements of the Credible Data Act, which only requires data to be representative of the water body. To remedy this we recommend:

a) The definition of data validation be removed from Policy 1-11 since it is not used again in the document;
b) Add a definition of a "data usability review" that includes all the elements necessary under the Credible Data Act;
c) Develop a standardized set of questions about each dataset loaded into EIM which address the four main points of the Credible Data Act; and
d) Provide a means for sampling plans, QA plans and water quality reports generated by other researchers and agencies to be uploaded and stored in EIM alongside their associated data, similar to how Ecology documents are linked to EIM records.

Page viii and page 2: The definition of impairment includes a qualifier that impairments occur when water quality standards are not "persistently" met. The water quality standards are intended to protect designated uses over as little as an hour (acute aquatic life toxicity) up to a maximum of a lifetime exposure (drinking water designated uses for carcinogens). Because of the wide variety of potential uses of the word persistent, we recommend persistence be defined and only used as part of the individual parameter subsections.

Page 9: The data verification section has emphasized the business rules in place within EIM that potentially flag data as 'different' or 'questionable'. Based on discussions with Ecology, EIM coordinators develop trusted relationships with agencies and data submitters, and these relationships, in partnership with the database business rules, play a large role in the EIM data review and upload process. In the interest of consistency and transparency, King County recommends a standardized set of data usability questions be utilized for all EIM submittals and the answers to these questions be part of the public records associated with each EIM data package.

Page 10: "Data Unusable for the Assessment" section. King County would prefer that Ecology's EIM data submittal process include a standardized series of questions and answers that document:

a) That appropriate QA procedures were actually followed,
b) The samples and measurements are representative of the Assessment Unit (AU) under investigation and that the sampled locations are Waters of the State,
c) That the authors of the study, in cooperation with Ecology scientists, both concur the data are usable for making decisions about water quality conditions and potential impairments.

Ecology staff explained the data usability portions of the EIM upload process to King County during the November 29, 2017 meeting on credible data. These steps, while adequate in most cases, are still not reproducible nor publically transparent. A standardized series of quality assurance verification, representativeness, and usability questions as part of the EIM acceptance process would remedy this concern.

Page 11: Thank you for recognizing that some water quality monitoring projects are not intended to capture the overall water quality within an AU. King County recommends that EIM staff specifically address the usability of data for listing purposes at the time of each upload and ensure that the decision is documented (i.e., identify or flag spill and/or swimming beach monitoring program data sets).

Page 17: "Category 2". Because the definition of persistent varies by parameter and the designated use intended for protection, King County recommends that discussions of persistence be limited to the parameter specific sections of Policy 1-11. There are also other legitimate reasons for use of "Waters of Concern, Category 2". In addition to data failing to demonstrate a persistent water quality problem, variable results may fail to show a statistically relevant change from natural conditions, or the timing of exceedances may occur outside of critical conditions. Overall, there are many potential reasons to categorize a waterbody of concern other than pollutant persistence.

Page 25: "Natural Conditions". Air deposition is increasingly understood as a significant source of pollutants. This is especially true in natural systems far from any localized human effluents or discharges. We request that Ecology clarify that information indicating "there are no human impacts" should be focused on processes and discharges regulated under the Clean Water Act and RCW 90.48.

Page 27: "Prioritizing TMDLs". Water quality impairments across Puget Sound continue to grow despite robust wastewater, treatment, stormwater requirements and Growth Management Act focused development. This suggests that site-specific studies examining unexpected or unknown pollution sources and influences will be increasingly important. King County has conducted many such studies in both the Lake Washington and Green/Duwamish watersheds. Development of a robust process to prioritize these water quality issues for actual cleanup plans

is paramount among King County's priorities. King County anticipates working together to develop a collaborative process between Ecology (both the Northwest office and headquarters) and other local stakeholders to fulfill our mutual objectives of cleaner water and sediment.

Page 29: "Bacteria". King County is encouraged by the use of average bacteria values across the entire AU, because multiple sampling events may be conducted in one day within an AU. For instance, multiple samples are often collected during a storm or from different portions of a stream AU. We request that Ecology clarify that all sampling events during each sampling day be averaged to provide a single average bacteria value per AU per day.

Page 30: "Bacteria". We request that Ecology either identify in Policy 1-11, or develop in EIM, the database codes identifying results from sampling programs that intentionally target high bacteria levels, spill events or other conditions deemed not representative of ambient conditions.

Page 33: "Use of Beach Environmental Assessment, Communication, and Health (BEACH) Program *Enterococcus* spp. Data". This entire section will require revisions in late 2018 or early 2019 to incorporate changes in the recreational use bacteria criteria. In general, how will Policy 1-11 be updated in the future to address this change, and how will you solicit public input for minor revisions? King County would appreciate some introductory discussion, or a separate subsection, on how information in Policy 1-11 will be updated to address criteria changes.

Page 34: "Benthic Biological Indicators". Please clarify up front that this section only applies to freshwaters.

Page 34: "Periphyton Communities". While King County agrees that periphyton communities can potentially be indicative of nutrient or other pollutants, we know of no Puget Sound specific indices or metrics which could be useful to determine if designated uses are being met or impaired. King County suggests that periphyton data are best applied as one of several lines of evidence including nutrients, metals and B-IBI indices to decide if a particular waterbody is impaired and to potentially help focus future stressor identification studies. Please clarify that periphyton data alone are insufficient to make impairment decisions.

Page 36: "B-IBI Category 5 Determinations". The use of a single 10^{th} percentile "bright-line" B-IBI score to designate impairments was not previously recommended or preferred by Ecology to assess these data. As recently as December 2017, Ecology proposed use of dual B-IBI thresholds to establish "clearly impaired" and "meeting designated uses" in a manner similar to the ranking of contaminated sediment below the SQS, between the SQS and the SizMax and above the SizMax. King County generally supports these types of scales as they explicitly acknowledge the uncertainty and variability in the environmental conditions of our waters and sediments. The use of the ecoregion's 10^{th} percentile of the B-IBI scores for reference sites is an acceptable alternative to King County. We request that Ecology publish the specific reference tolerance levels for the Hilsenhoff Biotic Index and the fine sediment and metals tolerance indices in Policy 1-11. If the intent is to periodically update these reference tolerance levels, please provide information on the frequency and process for these updates. Future application of the

temperature index currently in development suggests that additional indices will be added at Ecology's discretion. King County scientists would appreciate the opportunity to participate in the process for determining how these indices will be applied to water quality decisions at Ecology.

Pages 40-48: "Dissolved Oxygen and pH Assessments". King County supports the hypergeometric tests and tables presented in these sections. We recommend that all tables and figures in Policy 1-11 be consecutively numbered for future ease of reference.

Page 55: "Temperature". King County believes both the 7-DADmax and 1-Dmax should meet the thresholds presented in the table on Page 55 to describe a waterbody as unimpaired, regardless of the basis for the original impairment decision.

Page 60: "Toxics – Aquatic Life Criteria". King County agrees that multiple bioassay results measuring statistically significant responses with known pollutants present (even if below criteria) are cause for additional investigation of the impairment. By extension, when bioassays fail to show significant impairments of growth, mortality, or reproduction, the lack of adverse effects demonstrates that the aquatic life beneficial use is met and the AU should at a minimum be placed in Category 2. We request that these same principles be applied to sediments evaluated in later sections of Policy 1-11 and under MTCA.

Page 61: "Toxics – Aquatic Life Criteria". Not all water quality samples analyzed for metals are paired with hardness values. For instance, multiple samples for metals analysis may be collected in a short span of time or over a depth profile, but only one hardness measurement may be associated with the data set. The reverse may also be true in certain circumstances. We request that Ecology allow for use of average hardness values collected closely, but not necessarily precisely paired with samples for metal analysis. This accommodation is particularly relevant for samples collected from lakes or streams during baseflow conditions because hardness results are typically within analytical precision under these conditions. Likewise, we recommend that for multiple discrete metals or other toxics results collected on one day should be averaged to most closely identify the exposure concentration for 24-hour and 4-day chronic criteria.

Page 61: "Toxics – Aquatic Life Criteria". King County agrees that modeled hardness data are inappropriate for deciding if metals concentrations are impairing aquatic life. Nevertheless, Ecology should accept average hardness data for lakes or rivers when collected contemporaneously with metals samples. Hardness does not vary in these waterbodies on such short timescales and water quality investigations can use average hardness and average metals concentrations to best estimate exposure concentrations.

Page 61: "Toxics – Aquatic Life Criteria". King County desires Ecology to preferentially evaluate dissolved metals sample concentrations for comparison with criteria. When only total metals values are available, appropriate total to dissolved conversions may serve as a surrogate for dissolved concentrations.

Pages 65-66: "Fish and Shellfish Harvest Use Assessment". Inclusion of a list or table of "high site fidelity marine species" would improve the clarity of this subsection.

Page 66: "Fish and Shellfish Harvest Use Assessment". King County does not support the use of quasi-composite samples to make listing decisions. Two individual fish of one species should not be combined with 1 individual of another species to make listing decisions. We believe that collecting six or nine fish from a waterbody to form 2 to 3 composite samples represents a bare minimum data requirement. King County recommends that waterbodies be placed in Category 2 or 3 when fewer than the minimum number of fish/shellfish samples are available.

Page 67. "Fish and Shellfish Harvest Use Assessment". Reference doses and cancer slope factors are based on arithmetic mean exposure concentrations over a day or lifetime, respectively. On this basis, we believe Ecology's use of the median fish tissue concentration is inappropriate. This is especially true for environmental data like fish tissue contaminant concentrations that are almost always log-normally distributed. In these cases, use of the median concentration is biasing the assessment lower in a non-conservative manner. While King County recognizes that Ecology chose the median in an attempt to avoid substitutions for non-detect results, there are important toxicological reasons to use the arithmetic mean exposure concentration. Results below detection limits are typically incorporated into risk assessments following EPA guidance using ½ the detection limit in the arithmetic average calculations. This avoids loss of potentially important information in highly skewed datasets.

Page 71: "Domestic Water Supply Use Assessment". Ecology's EIM database has never accepted "blank" results in the past and we know of no initiatives to incorporate laboratory or field QA samples into EIM. King County agrees that evaluating blanks is a critical step in examining low level organic contaminants in water. We recommend water data that is validated according to EPA data validation guidelines be identified as such in EIM so that it may be incorporated into the assessment appropriately. Data not validated according to EPA Superfund Contract Laboratory National Functional Guidelines (e.g., EPA document EPA-540-R-2017-002) should not be included in the assessment as these un-validated results cannot confidently be considered representative of the AU exposure concentrations. The text on page 71 implies that Ecology data managers may not be following EPA National Functional Guidelines for data validation and the National Functional Guidelines for Data Review are also not cited in Policy 1-11, Chapter 2. While not every analytical result requires such a high level of scrutiny to be credible under Washington's Credible Data Act, low level organic contaminant analyses are frequently cross-contaminated in the field or the laboratory and only results validated under the National Functional Guidelines should be included as credible for comparison with DWECc and DWECn values.

Page 71: "Domestic Water Supply Use Assessment". Median contaminant concentrations are used for comparison with the calculated DWECn and DWECc values. When conducting a toxicological assessment, reference doses and cancer slope factors are not based on median exposures; they are based on arithmetic average exposures. This is particularly important for environmental media where exposures are frequently log-normally distributed. When some

detection limits are not adequate for comparison with the DWECn and DWECc that represents a situation where more, higher quality data are warranted. In lieu of analysis with adequate detection limits, we request that Ecology utilize Category 2 to highlight the AU is of concern.

Page 71-72: "Domestic Water Supply Use Assessment". Freshwater bivalves are often sparse in urban systems, a keystone element of healthy freshwater ecosystems, and also increasingly threatened by habitat alteration, pollution, and invasive species. The depuration rates of contaminants from freshwater bivalves, which can live decades and in some cases over 100 years, are also unknown. These characteristics make them poor candidates and predictors of PAH persistence. The Category Determination for Domestic Water Supply appears to require analysis of bivalves to demonstrate that PAHs are not "persistent" in the AU. EIM currently does not include chemistry data for any freshwater mussels. King County believes the widespread collection of freshwater bivalves to evaluate drinking water designated uses is inappropriate. Therefore, we recommend that Ecology rewrite the test for non-attainment (Category 5) to require the average detected PAH concentration of three or more water samples collected over at least two years exceed the DWECc. Because non-carcinogenic effects are expressed as daily allowable reference doses, the average detected water concentration from three or more sampling events exceeding the DWECn is sufficient basis to determine impairment for non-carcinogens.

Page 72: "Domestic Water Supply Use Assessment". The basis to require that 90% of the water sample values are below the DWECc and DWECn has not been articulated and does not appear to be based on risks from carcinogens or non-carcinogens. King County recommends that 95% (i.e., a 5% error rate) of water concentrations be less than the DWECn to ensure that any day exceeding the DWECn is a rare event. Because carcinogenic effects are based on lifetime exposures, King County recommends that the 95%ile upper confidence limit (UCL) of the arithmetic mean be compared to the DWECc. AUs with a 95%ile UCL less than the DWECc would be considered Category 1. This would be consistent with other EPA risk assessment guidelines, assumptions, and avoids the current arbitrary Policy 1-11 rule that no single sample exceed 100 times the DWECc or 10 times the DWECn. Highly skewed datasets will instead have a higher 95%ile UCL and remain classified as impaired. King County agrees that 25 or more water samples collected over three or more years is adequate to conclude that the domestic water supply designated use is being met. While freshwater bivalves may in some select circumstances be another line of evidence to document attainment of designated uses, they are not widely monitored for contaminants at this time and should not be a required component of water quality monitoring programs.

Page 73: "Parameter Specific Data Requirements - 2,3,7,8-TCDD Toxic Equivalency Quotient". The only dioxin or furan congener regulated as a pollutant in Washington State is 2,3,7,8-TCDD. The other dioxin/furan congeners are not regulated pollutants on WAC 173-201A Table 240, nor as part of EPA's regulations in FR 85430. Ecology should adopt water quality standards for dioxins and furans other than 2,3,7,8-TCDD if analytical results from these chemicals are going to be used to make impairment decisions. If toxicity equivalent quotients are proposed by Ecology, they could be appropriately incorporated into that rulemaking.

Page 73: "Parameter Specific Data Requirements – Arsenic". King County appreciates Ecology's efforts to develop a realistic health protective evaluation protocol for arsenic in water and tissues.

Page 74: "PCB Sums" King County recommends that Ecology clearly specify that the sum of PCB congeners will use only detected congeners. Ecology has previously stated that non-detect values for any parameter are not used to conclude that an AU is impaired. The policy would be strengthened if the applications of non-detect values were more specifically defined. For instance, how a non-detect value may be used in part to derive a median, but is not used in arithmetic or geometric mean calculations except in specific circumstances.

Page 79: "Assessment Information and Data Requirements - Sediment Data Requirements". King County does not agree with using a 0-16 cm sediment depth as a default biologically active zone. We recommend revising this section to recognize that that default marine biologically active zone according to the Sediment Cleanup User's Manual is 10 cm. When important biological resources are known to burrow deeper (e.g., ghost shrimp), deeper depths may be appropriate on an AU specific basis.

Page 79: "Assessment Information and Data Requirements - Sediment Data Requirements". The EPA Solid Waste Methods in SW-846 no longer reference or report method detection limits. King County agrees that the practical quantitation limits and the new 'lower limit of quantitation' (LLOQ) cited in SW-846 are functionally synonymous. We request that Ecology remove outdated terminology from policy 1-11 to be consistent with currently approved EPA methods.