NORTHWEST ENVIRONMENTAL ADVOCATES

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Northwest Regional Office
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Re: **Draft NPDES Permit WA0030597 Skagit County Sewer District No. 2 (Big Lake Wastewater Treatment Plant)**

Dear Ms. Miller:

This letter constitutes the comments of Northwest Environmental Advocates (NWEA) on the proposed issuance of NPDES Permit WA0030597 Skagit County Sewer District No. 2 (Big Lake Wastewater Treatment Plant).

Although nitrogen and phosphorus end up in Puget Sound and its tributaries from diverse sources, such as stormwater and agricultural lands, the Washington Department of Ecology (Ecology) has concluded that municipal and industrial discharges are the primary source of anthropogenic nutrient inputs into the Sound. Thus, a critical component of Washington's effort to attain and maintain water quality standards in Puget Sound must be to impose limits, under the Clean Water Act (CWA), on the amounts of nitrogen and phosphorus that sewage treatment facilities may discharge into rivers and the Sound. Although, as demonstrated in the fact sheet that accompanies this draft NPDES permit, Ecology appears to believe that it can suspend the requirements of the CWA and the federal and state regulations that govern the issuance of NPDES permits on various grounds, that approach is contrary to law, as explained in the comments below. Ecology is prohibited from issuing NPDES permits that allow dischargers to cause or contribute to violations of water quality standards including the violations that have been measured, those that have been predicted to exist by Ecology models, those that are threatened to develop as nutrient pollution increases, and those that in combination with other factors and parameters—such as lowered flows and higher temperatures—create increasingly more widespread and deleterious effects on water quality and the beneficial uses that depend upon high quality waters.

Ecology has sought to continue "the dialogue" about nutrient pollution in Puget Sound without taking any of the actions required by the CWA and state law to control a pollution problem that it both can mitigate and is required to mitigate. It refuses to complete a Total Maximum Daily Load (TMDL) for Puget Sound nitrogen, or even to commit to developing a TMDL for Puget Sound in the future, to address dissolved oxygen and other nutrient-driven impairments in the Sound and its embayments. It then relies on its own failure to issue a TMDL as the basis for not including water quality-based effluent limitations (WQBEL) in NPDES permits that it issues. Ecology has informed EPA that it will not adopt numeric nutrient criteria because it intends to

rely, primarily, upon its existing water quality standards for dissolved oxygen to address the effects of excess nutrients, yet when confronted with that very scenario in Puget Sound, it neither commits to developing a TMDL nor issues NPDES permits with nutrient limits, thereby putting the lie to its commitments. In response to a 2018 rulemaking petition from NWEA regarding its failure to comply with a 1945 Washington State law requiring the use of all known, available, and reasonable treatment ("AKART") for the control and reduction of pollution, a technology-based requirement, Ecology promised that it would "use current permit reissuance schedules . . . by mid-2019" to "set nutrient loading limits at current levels," "require permittees to initiate planning efforts," and "require reissued discharge permits to reflect the treatment efficiency of the existing plant [with nutrient removal processes]," yet it has not included any of these three items in the permits that it has proposed to issue since then. *See* Letter from Maia Bellon, Ecology Director, to Nina Bell, NWEA, Re: *Petition for Rulemaking to Adopt a Presumptive Definition of "All Known, Available, and Reasonable Treatment" as Tertiary Treatment for Municipal Sewage Dischargers to Puget Sound and its Tributaries* (Jan. 11, 2019) at 2 (hereinafter "AKART Denial"); *see also* Letter from Nina Bell, NWEA, to Tricia Miller, Ecology, Re: *Draft NPDES Permit No. WA0030597 for Skagit County Sewer District No. 2 Big Lake Wastewater Treatment Plant* (Oct. 4, 2019). In short, Ecology has been engaged in a shell game. *See* Northwest Environmental Advocates, *Before the U.S. Environmental Protection Agency, Petition for Corrective Action or Withdrawal of Authorization from the State of Washington to Issue National Pollutant Discharge Elimination System Permits* (Feb. 13, 2017).

Now, Ecology has reissued a new draft permit in which it concedes that the source is causing or contributing to violations of water quality standards yet it proposes to not require effluent limitations to prevent that result.

I. NPDES PERMITS ISSUED IN WASHINGTON STATE ARE PROHIBITED FROM CAUSING OR CONTRIBUTING TO VIOLATIONS OF WATER QUALITY STANDARDS AND MUST MEET STATE TECHNOLOGY-BASED REQUIREMENTS

A. Discharges are Prohibited from Causing or Contributing to Violations of Water Quality Standards; Reasonable Potential Findings Required

If the technology-based limits required by the federal and state statutes and regulations are not sufficient to ensure that a discharge will not cause or contribute to violations of water quality standards, permits must include WQBELs. 33 U.S.C. §§ 1311(b)(1)(C), 1342(a)(2) ("[T]here shall be achieved . . . any more stringent limitation, including those necessary to meet water quality standards . . . established pursuant to any State law or regulations [.]"); *see also, id.* §§ 1311(e), 1312(a), 1313(d)(1)(A), (d)(2), (e)(3)(A); 40 C.F.R. §§ 122.4(a), (d).[1] The agency issuing an NPDES permit "is under a specific obligation to require that level of effluent control which is needed to implement existing water quality standards without regard to the limits of practicability." S. Rep. No. 92-414, at 43 (1971). Because WQBELs are set irrespective of costs and technology availability, they further the technology-forcing policy of the CWA. *See NRDC v. U.S. E.P.A.*, 859 F.2d 156, 208 (D.C. Cir. 1987) ("A technology-based standard discards its fundamental premise when it ignores the limits inherent in the technology. By contrast, a water quality-based permit limit begins with the premise that a certain level of water quality will be maintained, come what may, and places upon the permittee the responsibility for realizing that

[1] The federal regulations are made applicable to states by 40 C.F.R. § 123.25(a).

goal."); *see also Riverkeeper, Inc. v. U.S. E.P.A.*, 475 F.3d 83, 108 (2d Cir. 2007) (Sotomayor, J.) (referencing the Act's "technology-forcing imperative"), *rev'd sub nom by Entergy Corp*, 556 U.S. 208.

WQBELs must be set at a level that achieves water quality standards developed by the states for waters within their boundaries. *See* 33 U.S.C. §§ 1313(a)(3), (c)(2)(a); 40 C.F.R. Part 131; *PUD No. 1 of Jefferson Cnty. v. Wash. Dept. of Ecology*, 511 U.S. 700, 704–707 (1994); WAC 173-220-130(1)(b)(i) and (iii), (2), (3)(b); *Port of Seattle v. Pollution Control*, 90 Pd.3d 659, 677 (Wash. 2004) ("NPDES permits may be issued only where the discharge in question will comply with state water quality standards."); *Defenders of Wildlife v. Browner*, 191 F.3d 1159, 1163 (9th Cir. 1999). Such water quality standards consist of designated uses for waters and water quality criteria (both numeric and narrative) necessary to protect those uses. 33 U.S.C. § 1313(c)(2)(a); 40 C.F.R. §§ 131.10–.11. Under the CWA's "antidegradation policy," state standards must also protect existing uses of waters and prevent their further degradation. 40 C.F.R. § 131.12; *see also* WAC 173-201A-010(1)(a) ("All surface waters are protected by numeric and narrative criteria, designated uses, and an antidegradation policy.").

EPA's permitting regulations mirror the statutory requirement for WQBELs. 40 C.F.R. § 122.44(d). NPDES effluent limitations must control all pollutants that are or may be discharged at a level "which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." 40 C.F.R. § 122.44(d)(1)(i). Accordingly, WQBELs in NPDES permits must be "derived from" and comply with all applicable water quality standards. 40 C.F.R. § 122.44(d)(1)(vii). WQBELs are typically expressed numerically, but when "numeric effluent limitations are infeasible," a permit may instead require "[b]est management practices (BMPs) to control or abate the discharge of pollutants." 40 C.F.R. § 122.44(k)(3). However, "[n]o permit may be issued: . . . [w]hen the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected States." 40 C.F.R. § 122.4(d).

Thus, establishing WQBELs requires the state to translate applicable water quality standards into permit limitations. *See Trustees for Alaska v. U.S. E.P.A.*, 749 F.2d 549, 556–57 (9th Cir. 1984) (holding that a permit must do more than merely incorporate state water quality standards—it must translate state water quality standards into the end-of-pipe effluent limitations necessary to achieve those standards). As the D.C. Circuit put it, "the rubber hits the road when the state-created standards are used as the basis for specific effluent limitations in NPDES permits." *American Paper Inst., Inc. v. U.S. E.P.A*, 996 F.2d 346, 350 (D.C. Cir. 1993). NPDES "permits authorizing the discharge of pollutants may issue only where such permits *ensure* that every discharge of pollutants will comply with all applicable effluent limitations and standards[.]" *Waterkeeper Alliance, Inc. v. EPA*, 399 F.3d 486, 498 (2d Cir. 2005) (emphasis in original).

Although numeric criteria are easier to translate into a permit limitation, permit writers must also translate state narrative standards. *See id.* EPA regulations clearly specify that narrative criteria must be evaluated and must be met, and that limits must be established to ensure they are met. *See* 40 C.F.R. §§ 122.44(d)(1) (limits must be included to "[a]chieve water quality standards established under section 303 of the CWA, *including State narrative criteria* for water quality"); 122.44(d)(1)(i) (limitations must include all parameters "*including State narrative criteria* for water quality"); 122.44(d)(1)(ii) (reasonable potential must be evaluated for "in-stream excursion *above a narrative* or numeric criteria"); 122.44(d)(1)(v) (WET tests required where reasonable potential exists to cause or contribute to a narrative criterion excursion unless

chemical-specific pollutants are "sufficient to attain and maintain applicable numeric and *narrative State water quality standards*"); 122.44(d)(1)(vi) (options for establishing limitations where reasonable potential exists for a discharge to cause or contribute to an excursion *above a narrative criterion*) (emphases added). As the court in *American Paper* found, when it upheld EPA's permitting regulations pertaining to narrative criteria, faced with the conundrum of narrative criteria "some permit writers threw up their hands and, *contrary to the Act*, simply ignored water quality standards including narrative criteria altogether when deciding upon permit limitations." 996 F.2d at 350 (emphasis added); *see also, id.* at 353, "[EPA's] initiative seems a preeminent example of gap-filling in the interest of a continuous and cohesive regulatory regime[.]"); *City of Taunton, Massachusetts v. U.S. Environmental Protection Agency*, 895 F. 3d 120, 133 (1st Cir. 2018) ("When issuing NPDES permits for states that employ narrative criteria, the EPA must translate those criteria into a 'calculated numeric water quality criterion.'").

EPA has explained that a WQBEL is "[a]n effluent limitation determined by selecting the most stringent of the effluent limits calculated using all applicable water quality criteria (e.g., aquatic life, human health, wildlife, translation of narrative criteria) for a specific point source to a specific receiving water." EPA, *NPDES Permit Writers' Manual*, Appendix A at A-17 (Sept. 2010) (hereinafter "EPA Manual").[2] The first step in establishing a WQBEL is determining if one is required. 40 C.F.R. § 122.44(d)(1) ("Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality."). Because one requirement in issuing a WQBEL is both to determine if the discharge, collectively with other sources of the same pollutant, are causing or contributing to violations of water quality standards, and to limit that discharge accordingly, the federal regulations require the permit writer to assess the role of other sources in causing the violation. *Id.* at § 122.44(d)(1)(ii) ("When determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity), and where appropriate, the dilution of the effluent in the receiving water."). If, having conducted this evaluation, the permit writer determines that a discharge "causes, has the reasonable potential to cause, or contributes to an instream excursion above the allowable above the allowable ambient concentration of a State numeric criteria within a State water quality standard for an individual pollutant, the permit must contain effluent limits for that pollutant." *Id.* at § 122.44(d)(1)(iii). Where a state finds a reasonable potential to cause or contribute to a violation of narrative criteria for which the state has no numeric criteria, the federal regulations establish methods for establishing effluent limits. *Id*. at § 122.44(d)(1)(vi)(A-C).

The matter of determining whether a discharge is causing or contributing to a violation of standards is not resolved by the permit writer's merely looking at the point of discharge and whether it is on the state's 303(d) list for a parameter or pollutant discharged or affected by a parameter or pollutant in the discharge. The process begins with a determination of reasonable

[2] *Available at* http://www.epa.gov/npdes/pubs/pwm_app-a.pdf .

potential:

> NPDES permits "must control all pollutants or pollutant parameters" that the EPA "determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." 40 C.F.R. § 122.44(d)(1)(i). The EPA has interpreted "reasonable potential" to mean "some degree of certainty greater than a mere possibility." *In re Upper Blackstone Water Pollution Abatement Dist*., 14 E.A.B 577, 599 n. 29 (EAB 2010).

City of Taunton, 895 F. 3d at 133.

First, there is a question of the nature of the parameter or pollutant discharged and how it is anticipated to affect water quality. Nitrogen discharges are among those pollutants that have a far-field effect, creating impacts on dissolved oxygen and algal growth—which can be both deleterious by itself and contribute to lowered dissolved oxygen—far away from the point of discharge. *See, e.g.*, EPA Manual at 176 ("Nutrients are another class of pollutants which would be examined for impacts at some point away from the discharge. The special concern is for those water bodies quiescent enough to produce strong algae blooms. The algae blooms create nuisance conditions, dissolved oxygen depletion, and toxicity problems (i.e., red tides or blue-green algae); *id*. at 198 ("[pollutants] such as BOD may not reach full effect on dissolved oxygen until several days travel time down-river.").

For pollutants such as nutrients, the Environmental Appeals Board (EAB) has held that:

> The plain language of the regulatory requirement (that a permit issuer determine whether a source has the "reasonable potential to cause or contribute" to an exceedance of a water quality standard) does not require a conclusive demonstration of "cause and effect." *See In re Upper Blackstone Water Pollution Abatement Dist*., NPDES Appeal Nos. 08-11 through 08-18 & 09-06, slip op. at 31-34 & n.29 (EAB May 28, 2010), 14 E.A.D. ___.

In re Town of Newmarket, NPDES Appeal No. 12-05, slip op. at 54 n. 23 (EAB Dec. 2, 2013) (emphasis added); *see also City of Taunton*, 895 F. 3d at 136 ("the EPA did not need to show causation . . . to support its conclusion that the Taunton Estuary was nutrient impaired. Rather, the EPA needed only to conclude that the further discharge of nitrogen had the 'reasonable potential to cause, or contribute to an excursion above any State water quality standard.'"). In other words, the fact of a source's contributing to loading of a pollutant that has been identified to be causing a water quality impairment is sufficient to support a reasonable potential determination.

Second, there is a question as to whether a waterbody must actually be impaired in order for a discharge to present a reasonable potential to cause or contribute to violations of water quality standards. Again, the EAB provides assistance on the plain meaning of the permitting regulations and the policy rationale behind them:

> NPDES regulations do not support the City's contention that a permit authority must include effluent limits only for the pollutants discharged into receiving waters that are identified as impaired on the state's 303(d) list.

* * *

> NPDES permitting under CWA section 301 applies to individual discharges and represents a more preventative component of the regulatory scheme [than 303(d)] in that, under section 301, no discharge is allowed except in accordance with a permit. Moreover, the CWA's implementing regulations require the Region to include effluent limits in discharge permits based on the reasonable potential of a discharge facility to cause or contribute to exceedances of water quality standards, even if the receiving water body is not yet on a state's 303(d) list. *See* 40 *C.F*.R. § 122.44(d)(1)(i). Although a 303(d) listing could presumably establish that water quality standards are being exceeded, necessitating an appropriate permit limit, the Region is not constrained from acting where a water body has not yet been placed on the 303(d) list. *Id.; see also In re Upper Blackstone Water Pollution Abatement Dist., 14* E.A.D. 577, 599 (EAB 2010) (explaining that the NPDES regulations require a "precautionary" approach to determining whether the permit must contain a water quality-based effluent limit for a particular pollutant), aff'd. 690 F.3d 9 (1st Cir. 2012), *cert. denied*, 133 S. Ct. 2382 (2013).

In re: City of Taunton Department of Public Works, NPDES Appeal No. 15-08, slip op. at 38-39 (EAB May 3, 2016), *aff'd*. 895 F.3d 120 (1st Cir. 2018); *see also City of Taunton*, 895 F. 3d at 137 ("we hold that the EPA did not act arbitrarily or capriciously in determining that the Taunton Estuary and Mount Hope Bay were already nutrient impaired, such that further nitrogen discharges would have at least a 'reasonable potential' to give rise to violations of state water quality standards.").

Third, there is the question of whether a permit writer can simply not include an effluent limit because to do so is challenging. Clearly the statute and regulations demonstrate that the answer is "no." Federal courts agree. The Second Circuit cited with approval its decision in *Waterkeeper All., Inc. v. EPA*, 399 F.3d 486, 498 (2d Cir. 2005) for the proposition that "NPDES permits 'may issue only where such permits *ensure* that every discharge of pollutants will comply with all applicable effluent limitations and standards.'" *N.R.D.C. v. U.S. EPA* 808 F.3d 556, 578 (2d Cir. 2015) (emphasis in original). Moreover:

> Even if determining the proper standard is difficult, EPA cannot simply give up and refuse to issue more specific guidelines. *See Am. Paper Inst., Inc. v. EPA*, 996 F.2d 346, 350 (D.C. Cir. 1993) (articulating that, even if creating permit limits is difficult, permit writers cannot just "thr[o]w up their hands and, contrary to the Act, simply ignore[] water quality standards including narrative criteria altogether when deciding upon permit limitations"). Scientific uncertainty does not allow EPA to avoid responsibility for regulating discharges. *See Massachusetts v. EPA*, 549 U.S. 497, 534 (2007) ("EPA [cannot] avoid its statutory obligation by noting the uncertainty surrounding various features of climate change and concluding that it would therefore be better not to regulate at this time.").

Id. The First Circuit and EAB have agreed that uncertainty does not excuse the permit writer from its obligation to set permit limits. *Upper Blackstone Water Pollution Abatement Dist. v. U.S. EPA*, 690 F.3d 9 (1st Cir. 2012), *cert. denied*, 133 S. Ct. 2382 (2013); *In re City of Taunton* at 61-62; *City of Taunton*, 895 F. 3d at 140 (citing *Massachusetts v. EPA*, 549 U.S. 497, 534, 127 S.Ct. 1438, 167 L.Ed. 2d 248 (2007) (explaining that the EPA cannot avoid its statutory

obligation to regulate greenhouse gases by "noting the uncertainty surrounding various features of climate change" when "sufficient information exists to make an endangerment finding").

Fourth, there is a question as to whether in the absence of a TMDL a permit must comply with the statute and regulations that require compliance with water quality standards. There is no question that it must; the lack of a TMDL is no defense for a failure to find reasonable potential and to establish a WQBEL. As the First Circuit has explained,

> TMDLs take time and resources to develop and have proven to be difficult to get just right; thus, under EPA regulations, permitting authorities must adopt interim measures to bring water bodies into compliance with water quality standards. *Id*. § 1313(e)(3); 40 C.F.R. § 122.44(d); *see also, e.g.*, 43 Fed. Reg. 60,662, 60,665 (Dec. 28, 1978) ("EPA recognizes that State development of TMDL's and wasteload allocations for all water quality limited segments will be a lengthy process. Water quality standards will continue to be enforced during this process. Development of TMDL's . . . is not a necessary prerequisite to adoption or enforcement of water quality standards . . . .").

Upper Blackstone Dist., 690 F.3d 14 n. 8. The First Circuit also explained that waiting for the completion of exhaustive studies is equally unacceptable:

> [N]either the CWA nor EPA regulations permit the EPA to delay issuance of a new permit indefinitely until better science can be developed, even where there is some uncertainty in the existing data. . . . The Act's goal of "eliminat[ing]" the discharge of pollutants by 1985 underscores the importance of making progress on the available data. 33 U.S.C. § 1251(a)(1).

Id. Likewise, the EAB recently held the same:

> Where TMDLs have not been established, water quality-based effluent limitations in NPDES permits must nonetheless comply with applicable water quality standards. In discussing the relationship between NPDES permitting and TMDLs, EPA has explained that the applicable NPDES rules require the permitting authority to establish necessary effluent limits, even if 303(d) listing determinations and subsequent TMDLs lag behind. 54 Fed. Reg. 23,868, 23,878, 23,879 (June 2, 1989); *see also In re Upper Blackstone Water Pollution Abatement Dist.*, 14 E.A.D. 577, 604-05 (EAB 2010) (expressly rejecting the idea that the permitting authority cannot proceed to determine permit effluent limits where a TMDL has yet to be established) , *aff'd*. 690 F.3d 9 (1st Cir. 2012), *cert. denied*, 133 S. Ct. 2382 (2013).

In re City of Taunton at 11; *see also id.* at 40-41 (citing, *inter alia*, 54 Fed. Reg. 23,868, 23,879 (June 2, 1989) (clarifying in the preamble to 40 C.F.R. § 122.44 that subsection (d)(1)(vii) "do[es] not allow the permitting authority to delay developing and issuing a permit if a wasteload allocation has not already been developed and approved"); *see also* Ecology, *Water Quality Program Permit Writer's Manual* (Revised July 2018) (hereinafter "Ecology Manual") at 195 ("In the absence of a basin TMDL and the resultant WLA, the permit writer must develop

an individual WLA.").[3]

In its Permit Writer's Manual, Ecology misstates the law by creating an exemption that is not justified or supported by the statute, federal or state regulations, or case law:

> If the pollutant is a far-field pollutant, is present in the discharge and is the subject of a TMDL in progress, the permit writer may defer any water quality-based limits on the pollutant until the TMDL is completed and a WLA is assigned. When the WLA is assigned the permit writer may modify the permit or incorporate the WLA at the next reissuance, depending on timing.

Id. at 198.[4] Similarly, the guidance states that if a TMDL has not been started yet, the permit writer may ask the question: "Can the effluent be treated or can the effluent or pollutant(s) be removed seasonally at a cost which is economically achievable or reasonable"? *Id*. at 199 fig. 23. This question and the options that flow from its answers are not supported in federal law. There is no provision in the statute or regulations for deferring needed WQBELs based on TMDLs' being in progress. In fact, delaying an effluent limit due to the time needed to develop a TMDL is parallel to allowing a compliance schedule to meet an effluent limit due to the time needed to develop a TMDL—an approach EPA has determined is prohibited.[5]

Fifth, in the absence of a TMDL, is the permit writer obligated to assess the individual discharger's responsibility to cease contributing to violations of water quality standards? Not

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[3] This statement is immediately contradicted on the next page in the Ecology Manual, which incorrectly asserts that a "basic principle" of permitting is that:

> A point source discharging to a water body with multiple sources (point and nonpoint) of impairment, which is a minor source of the impairment, and may gain relief from a TMDL is not required to have a final limitation as the numeric water quality criteria before a TMDL is completed.

Id. at 196. In fact, there is no such exemption for minor sources in the statute or the regulations nor is there any provision for a permit writer to determine whether a TMDL may provide "relief" to a discharger. Ecology cites no law to support its principle.

[4] *See also, id.* at 179 ("Suspected water quality problems due to nutrients are best handled by a TMDL process conducted by the EA Program.") While this may very well be true, if Ecology does not develop TMDLs its permit writers must still meet federal and state regulatory requirements when issuing NPDES permits.

[5] *See* Memorandum from James A. Hanlon, Director, Office of Wastewater Management, EPA, to Alexis Strauss, Director, Water Division, EPA Region 9 Re: *Compliance Schedules for Water Quality-Based Effluent Limitations in NPDES Permits* (May 10, 2007) at 3 ("A compliance schedule based solely on time needed to develop a Total Maximum Daily Load is not appropriate, consistent with EPA's letter of October 23, 2006 to Celeste Cantu, Executive Director of the California State Water Resources Control Board, in which EPA disapproved a provision of the Policy for Implementation of Toxic Standards for Inland Waters, Enclosed Bays, and Estuaries for California.").

only do the federal regulations explain that the answer is clearly "yes," as discussed above, but so has the First Circuit:[6]

> The Act's TMDL and interim planning process both contemplate pollution control where multiple point sources cause or contribute to water quality standard violations. 33 U.S.C. § 1313(d), (e). Under earlier legislation, including the 1965 Federal Water Pollution Control Act, when a water body failed to meet its state-designated water quality standards, pollution limits could not be strengthened against any one polluter unless it could be shown that the polluter's discharge had caused the violation of quality standards. *See EPA v. California ex rel. State Water Res. Control Bd.*, 426 U.S. 200, 202-03 (1976). This standard was ill-suited to the multifarious nature of modern water pollution and prevented the imposition of effective controls. *Id.* In 1972, Congress declared that the system was "inadequate in every vital aspect," and had left the country's waterways "severely polluted" and "unfit for most purposes." S. Rep. No. 92-414, at 3674 (1971). The CWA rejected the earlier approach and, among other things, introduced individual pollution discharge limits for all point sources. 33 U.S.C. 1311(b). To maintain state water quality standards, the Act establishes the TMDL and continuing planning processes, which target pollution from multiple sources. *Id.* § 1313(d), (e). . . . We thus reject the notion that in order to strengthen the District's discharge limits, the EPA must show that the new limits, in and of themselves, will cure any water quality problems.

Upper Blackstone Dist., 690 F.3d 32-33. The law clearly establishes that an NPDES permit may not be issued for discharges that may cause or contribute to violations of water quality standards. While "cause" may be considered to refer to the sole source of a violation, "contribute" sweeps all sources of a pollutant into the regulatory requirements, including this permittee. Federal regulations provide only very limited exceptions. For example, 40 C.F.R. § 122.44(d)(1)(ii) requires that in determining reasonable potential a permit authority "use procedures which account for existing controls on point and nonpoint sources of pollution."

Sixth, with regard to this provision that the permitting agency take existing controls on nonpoint sources into account in issuing a permit, here the law requires that Ecology make a finding on those existing controls and include a provision in the permit to address the finding. Where Ecology finds that it cannot determine whether there are existing controls on nonpoint sources contributing nitrogen to the receiving water affected by the discharge's nitrogen or where Ecology finds that existing controls on nonpoint sources of nitrogen are not sufficient, Ecology must at a minimum include a provision to address the nonpoint source contribution in the near future. For example, in 2012, EPA issued an NPDES permit that contained a provision described as:

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[6] Ecology has not even committed to using its modeling results for Puget Sound to develop a TMDL that would lead to wasteload allocations for dischargers such as this. *See, e.g.*, Ecology, *South Puget Sound Dissolved Oxygen Study Water Quality Model Calibration and Scenarios* (March 2014) at 22 ("Ecology may not conduct a TMDL if alternative management approaches are used to address violations."). The agency cannot simultaneously refuse to develop a TMDL and claim that it is waiting to complete a TMDL before it develops wasteload allocations for specific dischargers' NPDES permits.

> referencing the need to achieve nitrogen loading reductions from nonpoint sources in order to achieve water quality standards in the Lamprey River and specifying that collaboration with the State and other stakeholders, including certain specified steps, is required to accomplish that goal.

In re Town of Newmarket, New Hampshire, 16 E.A.D. 182, 194 (Dec. 2, 2013). Further,

> This provision includes a "reopener condition," which provides:
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> > Following issuance of the final permit, EPA will review the status of the activities described above * * * at 12 month intervals from the date of issuance. In the event the [nonpoint source] activities * * * are not carried out within the timeframe of this permit (5 years), EPA will reopen the permit and incorporate any more stringent total nitrogen limit required to assure compliance with applicable water quality standards.

Id.; *see also* EPA, *Authorization to Discharge Under the National Pollutant Discharge Elimination System, Town of Newmarket, NH, Permit No. NH010096*, at 2-3 (Nov. 16, 2012).[7] While nitrogen in the Great Bay Estuary to which Newmarket discharges is described as being primarily from nonpoint sources, the contribution of nonpoint sources to Puget Sound's excess nitrogen is also substantial. *See* Ecology, *Puget Sound Dissolved Oxygen Model: Nutrient Load Summary for 1999–2008* (Nov. 2011) at xvi ("In Puget Sound, rivers contribute slightly lower DIN loads (41%) than WWTPs (59%) on an annual bases (Figure ES-6, top). However, WWTP loads dominate (81%) during the summer months when river loads are low due to lower flows.").

Another approach to meeting the federal regulation is demonstrated by Wisconsin's phosphorus rule, which includes a watershed adaptive management option. *See* Wis. Admin. Code NR 217.18. This provision allows permittees, in circumstances where nonpoint sources and urban stormwater are significant sources, to submit a plan with specific actions that will achieve compliance with the phosphorus criterion. *Id.* at (2). A permit that incorporates these provisions nonetheless also includes WQBELs that will take effect if the plan fails or is terminated. *Id*. at (2)(e)(1). If the criterion is not met within ten years after permit issuance, the permittee is allowed an additional five years to come into compliance with the WQBEL. Thus, the permits issued by Wisconsin provide for existing or nonexisting controls on nonpoint sources.

Last, there is a question related to whether the waterbody is impaired but is not currently listed on the state's EPA-approved 303(d) list.[8] The key here is impairment, not the technicality of

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[7] *Available at* https://www3.epa.gov/region1/npdes/permits/2012/finalnh0100196permit.pdf (last accessed July 1, 2020).

[8] Ecology's Permit Writer's Manual incorrectly states the law in asserting two "basic principles." The first assertion is that "[a] water body listed on the 303(d) list is not a presumption of impairment unless the listed section is the point of discharge." *Id.* at 194. While this statement is less than clear, it appears to suggest that a discharge to a non-listed segment that flows into a downstream listed segment is not a discharge that contributes to a violation of water

303(d) listing. *See In re City of Taunton* at 38 ("NPDES regulations do not support the City's contention that a permit authority must include effluent limits only for the pollutants discharged into receiving waters that are identified as impaired on the state's 303(d) list."). Moreover, the finding of reasonable potential has repeatedly been deemed to be a low bar in order to ensure that NPDES permits protect water quality. EPA regulations require that NPDES limits "*must* control all pollutants" that "*may be* discharged at levels" that will cause or contribute to violations. 40 C.F.R. § 122.44(d)(1)(i) (emphasis added). The emphasis is regulation of discharges that *may* be a problem. As the EAB observed of EPA's action of issuing a permit with nutrient limits,

> the Region observed that "[e]ven if the evidence is unclear that a pollutant is currently causing an impairment, a limit may be required if the pollutant has the reasonable potential to cause, or contribute to an exceedance of a water quality standard (i.e., the permit limit may be preventative)." Response to Comments at 36. The Region also noted that "the pollutant need not be the sole cause of an impairment before an NPDES limit may be imposed; an effluent limit may still be required, if the pollutant 'contributes' to a violation." *Id*. (citing *In re Town of Newmarket*, NPDES Appeal No. 12-05, slip op. at 54 n. 23 (EAB Dec. 2, 2013), 16 E.A.D. ___). Ultimately, the Region concluded that the City's discharges cause, have a reasonable potential to cause, or contribute to nitrogen-related water quality violations in the Taunton Estuary and Mount Hope Bay. . . . As such, CWA regulations required the Region to impose a nitrogen limit in the Permit. *See* 40 C.F.R. § 122.44(d)(1)(vi)[.]

In re City of Tauton at 37.

B. Applicable Water Quality Standards

Water quality standards are defined as the designated beneficial uses of a water body, in combination with the numeric and narrative criteria to protect those uses and an antidegradation policy. 40 C.F.R. § 131.6. The CWA requires numeric criteria adopted in water quality standards to protect the "most sensitive use." 40 C.F.R. § 131.11(a)(1).

However, since that is not always possible, the task of evaluating whether standards have been met also requires an assessment of the impacts to designated beneficial uses. In *PUD No. 1 of Jefferson County v. Washington Department of Ecology*, 114 S. Ct. 1900, 1912 (1994), the U.S. Supreme Court underscored the importance of protecting beneficial uses as a "complementary requirement" that "enables the States to ensure that each activity—even if not foreseen by the criteria—will be consistent with the specific uses and attributes of a particular body of water." The Supreme Court explained that numeric criteria "cannot reasonably be expected to anticipate all of the water quality issues arising from every activity which can affect

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quality standards. This is incorrect. Washington's water quality standards require that "[u]pstream actions must be conducted in manners that meet downstream water body criteria." WAC 173-201A-260(3)(b); *see also* 40 C.F.R. § 131.10(b) ("the State shall take into consideration the water quality standards of downstream waters and shall ensure that its water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters.").

the State's hundreds of individual water bodies." *Id*.[9] In short, a permitting agency cannot ignore the narrative criteria and use only numeric criteria where either numeric criteria do not exist or where the numeric criteria fall short of providing full support for designated uses.

Washington's water quality standards for marine and fresh waters including Puget Sound are intended to be "consistent with public health and public enjoyment of the waters and the propagation and protection of fish, shellfish, and wildlife, pursuant to the provisions of chapter 90.48 RCW." WAC 173-201A-010(1). As in federal law, Washington's regulations make the legal definition of a water quality standard very clear: "All surface waters are protected by numeric and narrative criteria, designated uses, and an antidegradation policy." WAC 173-201A-010(1)(a). In addition, the state rules clarify that:

> Compliance with the surface water quality standards of the state of Washington requires compliance with chapter 173-201A WAC, Water quality standards for surface waters of the state of Washington, chapter 173-204 WAC, Sediment management standards, and applicable federal rules.

WAC 173-201A-010(4). The designated uses for marine waters are set out at WAC 173-201A-612, Table 612. Currently applicable dissolved oxygen criteria applicable to Puget Sound waters are set out at WAC 173-201A-210(1)(d). The designated uses for freshwaters are

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[9] EPA regulations implementing section 303(d) of the CWA reflect the independent importance of each component of a state's water quality standards:

> For the purposes of listing waters under §130.7(b), the term "water quality standard applicable to such waters" and "applicable water quality standards" refer to those water quality standards established under section 303 of the Act, including numeric criteria, narrative criteria, waterbody uses, and antidegradation requirements.

40 C.F.R. § 130.7(b)(3). When EPA adopted these regulations it clearly stated the expectations it had of states:

> In today's final action the term "applicable standard" for the purposes of listing waters under section 303(d) is defined in § 130.7(b)(3) as those water quality standards established under section 303 of the Act, including numeric criteria, narrative criteria, waterbody uses and antidegradation requirements. In the case of a pollutant for which a numeric criterion has not been developed, a State should interpret its narrative criteria by applying a proposed state numeric criterion, an explicit State policy or regulation (such as applying a translator procedure developed pursuant to section 303(c)(2)(B) to derive numeric criteria for priority toxic pollutants), EPA national water quality criteria guidance developed under section 304(a) of the Act and supplemented with other relevant information, or by otherwise calculating on a case-by-case basis the ambient concentration of the pollutant that corresponds to attainment of the narrative criterion. Today's definition is consistent with EPA's Water Quality Standards regulation at 40 CFR part 131. EPA may disapprove a list that is based on a State interpretation of a narrative criterion that EPA finds unacceptable.

set out in WAC 173-201A-602 Table 602. The dissolved oxygen criteria for freshwater are set out in WAC 173-201A-200(1)(d). In addition, the following standards apply to both marine and fresh waters:

> Upstream actions must be conducted in manners that meet downstream water body criteria. Except where and to the extent described otherwise in this chapter, the criteria associated with the most upstream uses designated for a water body are to be applied to headwaters to protect nonfish aquatic species and the designated downstream uses.

WAC 173-201A-260(3)(b). Likewise, the following narrative criteria also apply to both marine and fresh waters:

> Toxic, radioactive, or deleterious material concentrations must be below those which have the potential, either singularly or cumulatively, to adversely affect characteristic water uses, cause acute or chronic conditions to the most sensitive biota dependent upon those waters, or adversely affect public health[.]
>
> Aesthetic values must not be impaired by the presence of materials or their effects, excluding those of natural origin, which offend the senses of sight, smell, touch, or taste[.]

WAC 173-201A-260(2)(a), (b) (hereinafter "narrative criteria"); *see also* WAC 173-201A-210(1)(b).

Finally, Washington's water quality standards contain an antidegradation policy, the purpose of which is to "[r]estore and maintain the highest possible quality of the surface waters of Washington" and "apply to human activities that are likely to have an impact on the water quality of a surface water." WAC 173-201A-300(2)(a), (c). To ensure this outcome, Tier I of the antidegradation policy "is used to ensure existing and designated uses are maintained and protected and applies to all waters and all sources of pollution." *Id*. (2)(e)(i). Tier I requires:

> (1) Existing and designated uses must be maintained and protected. No degradation may be allowed that would interfere with, or become injurious to, existing or designated uses, except as provided for in this chapter.
> (2) For waters that do not meet assigned criteria, or protect existing or designated uses, the department will take appropriate and definitive steps to bring the water quality back into compliance with the water quality standards.

WAC 173-201A-310. Federal regulations explain the meaning of "existing uses" that may not be designated uses: Tier I requires the maintenance and protection of "[e]xisting instream water uses and the level of water quality to protect the existing uses[.]" 40 C.F.R. § 131.12(a)(1). Existing uses are "those uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards." 40 C.F.R. § 131.13(e).

Washington's antidegradation policy also includes the purpose of "ensur[ing] that all human activities that are likely to contribute to a lowering of water quality, at a minimum, apply all known, available, and reasonable methods of prevention, control, and treatment (AKART)[.]"

WAC 173-201A-300; *see also* Laws of 1945, Ch. 216, § 1; RCW 90.48.520; RCW 90.52.040; RCW 90.54.020(3)(b); Washington Attorney General Opinion, AGO 1983 No. 23; Northwest Environmental Advocates, *Petition for Rulemaking to Adopt a Presumptive Definition of "All Known, Available, and Reasonable Treatment" as Tertiary Treatment for Municipal Sewage Dischargers to Puget Sound and its Tributaries* (Nov. 14, 2018) (hereinafter "AKART Petition"). AKART is defined as "the most current methodology that can be reasonably required for preventing, controlling, or abating the pollutants associated with a discharge." WAC 173-201A-020. No discharger may be granted a mixing zone if it is not fully compliant with AKART. WAC 173-201A-400(2). This requires an affirmative finding by Ecology that AKART has been met.

C. NPDES Permits Issued in Washington Must Meet Requirements that All Known, Available, and Reasonable Treatment be Employed

Since 1945, Washington State has declared a public policy of maintaining the waters of the state to "the highest possible standards." Laws of 1945, Ch. 216, § 1. To implement that policy, for more than 70 years Washington has required the use of all known, available, and reasonable treatment methods to prevent and control in-state water pollution. *See* Laws of 1945, Ch. 216; *see also* RCW 90.48.010.

AKART in Washington law is both a procedural and substantive requirement. The procedural requirement applies to Ecology. That agency must make an AKART determination each time it issues an NPDES permit to a discharger under section 402 of the Clean Water Act and RCW 90.48.162 authorizing a discharge of treated sewage to state waters. It must then establish effluent limits in the permit that are consistent with the AKART determination. RCW 90.48.520 ("In order to improve water quality by controlling toxicants in wastewater, the department of ecology shall in issuing and renewing state and federal wastewater discharge permits review the applicant's operations and incorporate permit conditions which require all known, available, and reasonable methods to control toxicants in the applicant's wastewater."). *See also* RCW 90.48.010 ("the state of Washington will exercise its powers, as fully and as effectively as possible, to retain and secure high quality for all waters of the state."); RCW 90.52.040 (the Director of Ecology "shall . . . require wastes to be provided with all known, available, and reasonable methods of treatment prior to their discharge or entry into waters of the state."); RCW 90.54.020(3)(b) ("wastes and other materials and substances shall not be allowed to enter such waters which will reduce the existing quality thereof, except in those situations where it is clear that overriding considerations of the public interest will be served.").

In 1983, faced with questions pertaining to whether sewage discharged to Puget Sound required secondary treatment, the Washington Attorney General issued an opinion making clear that Ecology must evaluate AKART each time it issues an NPDES permit:

> Such statutory directions [to implement AKART] to the Department of Ecology, however, clearly do bring into play the expertise of the department as administrator of the state's water pollution control system. *Accord, Weyerhaeuser v. Southwest Air Pollution Control Authority*, 91 Wn.2d 77, 586 P.2d 1163 (1978). The precise level of treatment required by those general standards involves, primarily, engineering determinations; *i.e*., as to what treatment methods are "known," what treatment methods are "available," and what treatment methods are "reasonable" with respect to the particular installation

> in light of the factual circumstances surrounding it. To make those determinations a review must be conducted by the department of existing engineering technologies in order to enable it to decide which methods of treatment--including but not limited to "secondary treatment" as above defined--are suitable with respect to the waste situation involved in the particular case. *Cf., Weyerhaueser, supra*.

Washington Attorney General Opinion, AGO 1983 No. 23, at 14 (footnotes omitted) (hereinafter "Attorney General 1983").

Notwithstanding this stated need for Ecology to evaluate engineering and economic issues pertaining to AKART at the individual facility level, the State of Washington has long relied on first defining AKART by classes of dischargers, particularly municipal dischargers. In 1977, Congress amended the Clean Water Act, to allow EPA to grant waivers from secondary treatment requirements to municipal sewage treatment plants discharging to marine waters. Clean Water Act § 301(h). Certain Washington dischargers sought these waivers, which gave rise to the Washington Attorney General's 1983 opinion in which it found that Ecology was prohibited from concurring in any such waivers by Washington's AKART requirements. *Attorney General 1983* at 6.

Despite the Attorney General's opinion, some municipalities continued to seek section 301(h) waivers. *See e.g.*, Ecology Memorandum from Art Johnson to Carol Fleskes, Re: *Comments on the Reapplication for a 301(h) Marine Waiver by the City of Tacoma for the North End Wastewater Treatment Plant* (April 10, 1984).[10] As Ecology persisted in asserting a generic determination, subject to individualized assessments, that AKART required secondary treatment, the PCHB upheld its discretion to do so:

> [Ecology's] response [to the Attorney General's 1983 opinion] was to make a generalized engineering determination, expressed in its municipal strategy document, that secondary treatment is ultimately required of all municipalities by the State Standard [of AKART]. However, it provided for case-by-case evaluation of each municipal discharge to determine if the generalized determination is appropriate for that source at the time the question is asked. Thus, in its denial of concurrence [of the marine discharge waiver] here, [Ecology] stated that secondary treatment is "normally 'reasonable' unless compelling evidence to the contrary is presented."
>
> This approach essentially establishes a generic treatment level as appropriate for the entire class of municipal dischargers and, then, allows for a sort of variance from this level on a showing of "compelling evidence."

Port Angeles v. Ecology, PCHB No. 84-178, Final Findings of Fact, Conclusions of Law & Order (1985) at 22 - 23. Ecology subsequently adopted a new WAC Chapter 173-221, establishing discharge standards and effluent limitations based on secondary treatment for municipal sewage treatment plants. WSR 87-23-020 (Order 87-26) (filed Nov. 12, 1987). This

[10] *Available at* https://test-fortress.wa.gov/ecy/publications/documents/84e14.pdf (last accessed July 3, 2020).

chapter has not been revised since that date.

Whether Ecology could rely solely on such discharge standards established by rule for a class of dischargers to ensure that AKART was met for each individual source at the time of permit issuance was addressed years later. In *Marine Environmental Consortium et al. v. State of Washington*, PCHB Nos. 96-257, 96-258, 96-259, 96-260, 96-261, 96-262, 96-293, 96-264, 96-265, 96-266, and 97-110, Second Order on Summary Judgment (1997), the PCHB addressed this issue with regard to net pens. *Id.* at 3. Citing *Weyerhaeuser* for its holding that a regulation cannot be considered in isolation and that an agency must still meet all statutory requirements, the PCHB held that simply establishing some requirements for an entire industrial sector did not relieve Ecology of ensuring that an individual source met the statutory AKART requirements. *Id*. at 6. Therefore, before Ecology can blindly rely on a regulation that purports to establish AKART, it must prove that it continues to represent "all known, available, and reasonable methods" of prevention, control, and treatment. Applying this standard here, the age of Ecology's municipal sewage treatment standards alone—33 years old—precludes any plausible argument that these discharge standards represent all known and available treatment technology.

AKART is also a substantive requirement that applies to all dischargers: "Regardless of the quality of the waters of the state, all wastes and other materials and substances proposed for entry into said waters shall be provided with all known, available, and reasonable methods of treatment prior to entry." RCW 90.54.020(3)(b); *see also* WAC 173-201A-500 ("it shall be required that all activities which discharge wastes into waters within the state, or otherwise adversely affect the quality of said waters, be in compliance with the waste treatment and discharge provisions of state or federal law.").[11] AKART applies to all discharges including those from sewage treatment plants. *See* WAC 173-201A-020 ("The concept of AKART applies to both point and nonpoint sources of pollution."); *see also* RCW 90.48.010 (AKART applies to "industries and others"); RCW 90.52.040 (no exceptions to AKART); RCW 90.54.020(3)(b)(3) (no exceptions to AKART other than municipal sewage treatment dischargers located on five enumerated rivers); *Attorney General 1983*, at 13-14 ("All waste proposed for discharge into public waters must be provided with 'all known, available, and reasonable methods of treatment' prior to being discharged into those waters—regardless of the quality of the waters."); *In the Matter of City of Bellingham v. Washington Ecology*, PCHB No. 84-211 Final Findings of Fact, Conclusion of Law and Order 27 (June 19, 1985) ("RCW 90.52.040 applies to municipalities.").

In order to implement AKART, Ecology must require dischargers to use increasingly more stringent treatment as technological advancements become known, available, and reasonable in order to prevent, control, and abate the discharge of pollutants. *See* WAC 173-201A-020

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[11] AKART applies as a technology-based requirement, regardless of the quality of the receiving water. *See* RCW 90.52.040 (Ecology shall require AKART "regardless of the quality of the water of the state to which wastes are discharged or proposed for discharge, and regardless of the minimum water quality standards established by the director for said waters"); RCW 90.54.020(3)(b) ("Regardless of the quality of the waters of the state, all wastes and other materials and substances proposed for entry into said waters shall be provided with all known, available, and reasonable methods of treatment prior to entry."); RCW 90.48.520 (Ecology is required to incorporate permit conditions that require AKART "regardless of the quality of receiving water and regardless of the minimum water quality standards."); *Attorney General 1983* at 7.

("AKART shall represent ***the most current*** methodology that can be reasonably required for preventing, controlling, or abating the pollutants associated with a discharge.") (emphasis added); *see also Attorney General 1983* fn. 19 (citing *Weyerhaeuser v. Southwest Air Pollution Control Authority*, 91 Wn.2d 77, 586 P.2d 1163 (1978)) ("The use of the encompassing word 'all' [in AKART] indicates to us that the existing 'state of the art' or 'best available' treatment technologies are required to be used."); *Puget Soundkeeper v. State*, 102 Wash. App. 783, 789, 892, 895 (2000) ("[T]he statutory scheme envisions that effluent limitations will decrease as technology advances."). By requiring that dischargers implement and incorporate new technologies as they become available, AKART insures that water quality continues to improve as "reductions in effluent limits are driven by advances in technology." *Id.*; *see also Attorney General 1983* at 14 (AKART "include[s] but [is] *not limited* to 'secondary treatment'") (emphasis added). By definition, technology that is known, available, and reasonable will change over time.

In fact, the PCHB has already determined that tertiary treatment is AKART for municipal sewage discharges, concluding that:

> The advanced tertiary treatment technology employed at the [Spokane] Facility is AKART and will result in high quality removal of PCBs, as well as address the requirements of the DO TMDL and the 1998 Dissolved Metals TMDL. By providing tertiary treatment, the Facility offers the most advanced treatment of effluent available and deploys the best currently available treatment technology to reduce the discharge of PCBs to the Spokane River at potentially undetectable levels.

Sierra Club v. Washington, PCHB No. 11-184, Findings of Fact, Conclusions of Law and Order (July 19, 2013) at 9 (internal citations omitted), *id.* at 25 (reiterating that "state of the art tertiary treatment works . . . constitutes AKART"). The treatment technology determined to be AKART for Spokane County was a "step-fed nitrification/denitrification treatment system with membrane filtration and chlorination, also referred to as advanced tertiary treatment." *Id*. at 9.

In addition, Ecology is required to apply AKART when it issues NPDES permits under the federal Clean Water Act because the AKART standard is incorporated into the state's antidegradation policy and implementation methods, components of the state's federally-approved water quality standards. One stated purpose of the state's antidegradation policy is to "[e]nsure that all human activities that are likely to contribute to a lowering of water quality, at a minimum, apply all known, available, and reasonable methods of prevention, control, and treatment (AKART)." WAC 173-201A-300(2)(d). *See also* 40 C.F.R. §§ 122.4(d) (NPDES permits must comply with water quality standards), 131.6(d) (water quality standards include antidegradation policy). Washington's water quality standards also place a premium on the implementation of AKART before a discharger may take advantage of any dilution analysis available under the state's mixing zone policy that relaxes the applicability of water quality standards in a defined area. *See* WAC 173-201A-400(2) ("A discharger shall be required to fully apply AKART prior to being authorized a mixing zone."); WAC 173-201A-400(13)(a) (AKART's role re-emphasized for any discharger seeking an exceedance from the mixing zone policy's numeric size and overlap criteria). Finally, Washington's antidegradation policy places a premium on improving the definition of AKART by the "use and demonstration of innovative pollution control and management approaches that would allow a significant improvement in AKART for a particular industry or category of action." WAC 173-201A-320(4)(iii).

II. THIS DISCHARGER CAUSES OR CONTRIBUTES TO VIOLATIONS OF WATER QUALITY STANDARDS

Discharges of nitrogen to Puget Sound, directly and indirectly via tributaries, are by definition causing or contributing to violations of water quality standards, at a minimum those of dissolved oxygen and the narrative criterion that prohibits deleterious material that causes adverse effects.

A. Dissolved Oxygen Violations in Puget Sound

Ecology has been studying and modeling dissolved oxygen levels in Puget Sound for many years and, therefore, many permit cycles. As of 2012, Washington's EPA-approved 303(d) list of impaired waters included 140 segments of Puget Sound impaired for dissolved oxygen. *See* Ecology, *South Puget Sound Dissolved Oxygen Study Water Quality Model Calibration and Scenarios* (March 2014) (hereinafter "2014 DO Scenarios") at 35, 36.[12]

In the course of this process, Ecology has concluded that:

> Portions of South and Central Puget Sound are on the Clean Water Act Section 303(d) list of impaired waters because observed dissolved oxygen (DO) measurements do not meet the numeric criteria of the Washington State water quality standards. There are not violations across the entire South or Central Puget Sound. Human sources of nutrients can increase algae growth, which can decrease oxygen as the additional organic matter decays. Low oxygen can impair fish and other marine life.

Id. at 9. The model predicts an additional array of additional dissolved oxygen violations, based on decreases greater than 0.2 mg/L below predicted natural conditions, based on all current human sources as well as the increase in impairments that is associated with current NPDES permittees discharging at maximum allowable levels. *See id.* at 17, fig. ES-3.

Ecology's model predicts "minimum DO [that] naturally falls below the applicable numeric criterion throughout most of South and Central Puget Sound." *Id*. at 89. Levels of DO are predicted to be as low as 4.58 mg/L in waters for which the numeric criterion is set at 7 mg/L; 3.92 mg/L in waters for which the numeric criterion is set at 6 mg/L; and as low as 4.95 mg/L in waters for which the numeric criterion is set at 5 mg/L. While these predictions of natural conditions may be perceived as currently supplanting the numeric criteria and adding an additional increment of 0.2 depression to these predicted natural dissolved oxygen levels, even this result does not eliminate the anthropogenic effect on dissolved oxygen levels. *See id.* at 90, fig. 45.

Recently, Ecology has continued to confirm its initial findings that nitrogen is causing and contributing to violations of dissolved oxygen standards. Ecology, *Puget Sound Nutrient Source Reduction Project: Vol. 1: Model Updates and Bounding Scenarios* 9 (Jan. 2019) (hereinafter

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[12] An additional 555 segments are listed as having insufficient data on which to conclude impairment. *See* 2012 WQ Search Tool, Washington State Water Quality Assessment, 303(d)/305(b) Integrated Report, *available at* https://fortress.wa.gov/ecy/wats/approvedsearch.aspx.

"2019 Model Updates") ("Low levels of dissolved oxygen have been measured throughout Puget Sound and the Salish Sea. In numerous places, seasonal oxygen levels are below those needed for fish and other marine life to thrive, and water quality standards are not being met. Nutrient pollution from human activities is worsening the region's naturally low oxygen levels.").

Ecology has determined that nutrient discharges from sewage treatment plants discharging to Puget Sound are causing or contributing to violations of dissolved oxygen water quality standards in Puget Sound:

> Excess nutrients can cause too much plant and algae growth which ultimately depletes dissolved oxygen (oxygen). Many parts of Puget Sound have oxygen levels that fall below the concentrations needed for marine life to thrive and are below our state's water quality criteria. Discharges of excess nutrients to Puget Sound from domestic sewage treatment plants (WWTPs) are significantly contributing to low oxygen levels in Puget Sound. Ecology must require WWTPs to control nutrients consistent with the US Clean Water Act and Washington's Water Pollution Control Act.

Ecology, *Focus on: Water Quality Permitting to Control Nutrients in Puget Sound* (Aug. 2019) at 1. This determination is extensively documented. *See, e.g.*, the following documents and their attachments: Northwest Environmental Advocates, *Petition for Corrective Action or Withdrawal of Authorization from the State of to Issue National Pollutant Discharge Elimination System Permits* (Feb. 13, 2017); Northwest Environmental Advocates, *Petition for Rulemaking to the Department of Ecology Seeking a Total Maximum Daily Load and Wasteload Allocations for Nitrogen in Puget Sound* (Oct. 10, 2017); Northwest Environmental Advocates, *AKART Petition.* This discharger is on Ecology's list of sewage treatment plans that might be subject to the general permit and is included in the modeling documents cited in the attachments to the previous documents. Ecology, *Potential Permittee List for a Puget Sound Nutrients General Permit* (Aug. 7, 2019) at 3; *see also* Ecology, *Puget Sound Dissolved Oxygen Model: Nutrient Load Summary for 1999–2008* (Nov. 2011) at 121 (App. E).

Finally, most recently, Ecology has made a determination that sources of nitrogen are causing or contributing to violations of water quality standards. *See, e.g.*, Letter from Heather Bartlett, Ecology to Susan Poulsom, EPA, Re: *Clean Water Act 401 Final Certification for EPA National Pollutant Discharge Elimination System Permit No. WA0023256 – Suquamish Wastewater Treatment Plant* (Dec. 16, 2019) (hereinafter "Suquamish 401") at 3 ("Nutrients discharged from wastewater treatment plants contribute to low dissolved oxygen (D.O.) levels, below state water quality criteria, in Puget Sound. . . . All wastewater discharges to Puget Sound containing inorganic nitrogen contribute to the D.O. impairment."); *see also* Ecology, *Puget Sound Nutrient Forum* [consolidated Powerpoint Presentations] (Jan. 30, 2020) (hereinafter "Forum Powerpoint").

B. Narrative Criterion Violations In Puget Sound

Ecology has,

> frequently document[ed] extensive algal blooms, Noctiluca blooms, and jellyfish masses at the surface. Many of the phytoplankton blooms show high abundances of autotrophic flagellates. In contrast, depth-integrated algal biomass

> (chlorophyll a) shows a significant steady decline from 1999 to 2011. These seemingly opposing observations - high algal biomass and Noctiluca at the surface and decreasing biomass below the surface - could be clues to a shifting food-web structure and nutrient fluxes in Puget Sound.

Laura Friedenberg, *et al., Increasing nutrients, changes in algal biomass, and large Noctiluca blooms in Puget Sound: Is eutrophication fueling the microbial food web?*, Publication No. 13-03-019 (April 2013) (citations omitted) (hereinafter "Friendenberg Publication"). Again, Ecology most recently confirmed that nitrogen discharges to Puget Sound are responsible for violations of the narrative criteria:

> Excessive nutrients flowing into marine waters can lead to profound consequences for the ecosystem. In addition to low levels of oxygen, some effects include:
> - Acidification, which can prevent shellfish and other marine organisms from forming shells.
> - Shifts in the number and types of bottom-dwelling invertebrates.
> - Increases in abundance of macroalgae, which can impair the health of eelgrass beds.
> - Seasonal reductions in fish habitat and intensification of fish kill events.
> - Potential disruption of the food web.

2019 Model Updates at 9.

1. *Algal Growth Causes Deleterious Conditions*

Excess nutrients cause algal blooms, particularly in combination with warm temperatures and sunlight. *See, e.g., Harmful algal blooms in Puget Sound.*[13] These harmful algal blooms in Puget Sound may have been increasing over the last two decades. *See, e.g.*, *Harmful Algal Blooms*, Encyclopedia of Puget Sound, Puget Sound Institute, University of Washington.[14] Among the findings by Ecology are the following:

- Although ocean boundary conditions significantly drive water quality in Puget Sound macro-nutrients have continued to steadily increase independent of ocean variability.
- Changes in the silicate to dissolved inorganic nitrogen (Si:DIN) ratio are considered a sign of human nutrient inputs.
- A decline in the Si:DIN ratio paired with the measured increase in nitrate will increasingly favor the growth of non-silicified phytoplankton species such as the dinoflagellate Noctiluca.
- Over the last two years, the Department of Ecology's Eyes Over Puget Sound reports (EOPS) have documented extensive near-surface blooms of Noctiluca and other dinoflagellates in Puget Sound.

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[13] *Available at* https://www.eopugetsound.org/articles/harmful-algal-blooms-puget-sound.

[14] *Available at* https://www.eopugetsound.org/science-review/section-3-harmful-algal-blooms.

- Noctiluca is frequently associated with eutrophication of coastal environments.
- Noctiluca blooms reduce chlorophyll a concentrations in the water column. The impact of Noctiluca grazing on phytoplankton biomass appears in Ecology's Victoria Clipper ferry transect data.
- Despite large, frequent surface blooms of dinoflagellates, chlorophyll a concentrations have significantly declined and sub-surface clarity has significantly increased.
- Changes in the lower food web structure may have much larger implications for ecosystem functioning.

See Friedenberg Publication.

Ecology's models also predict algal blooms:

> The April model predictions include algal blooms in Sinclair Inlet, Oakland Bay, and Totten Inlet. EOPS [Eyes Over Puget Sound] aerial photos show a red phytoplankton bloom in Sinclair Inlet, brown algal bloom in Oakland Bay, and red-brown bloom in Totten Inlet. The June model predictions include algal blooms in Port Madison (Central Puget Sound), Filucy Bay (near McNeil Island), and Henderson Inlet. EOPS aerial photos show a Noctiluca (a dinoflagellate) bloom in Port Madison accumulating at surface in filaments following large eddies, phytoplankton bloom in Filucy Bay across from McNeil Island in colors of green and brown, and green and red phytoplankton bloom in Henderson Inlet. The EOPS photos represent ground truth of algal blooms in these two periods as predicted by the model.

2014 DO Scenarios at 76.

There is ample evidence that algal blooms in Puget Sound are caused, in part, by anthropogenic nutrient contributions, a violation of the narrative criteria.

2. *Jellyfish Cause Deleterious Conditions*

Poor water quality is also associated with increases in jellyfish that are associated with declines in fish. *See* Greene C, *et al.*, *Forty years of change in forage fish and jellyfish abundance across greater Puget Sound, Washington (USA): anthropogenic and climate associations*, Mar Ecol Prog Ser 525:153-170 (2015).[15] This study involved a 40-year evaluation of jellyfish and forage fish abundance in Puget Sound that found trends in abundance of all forage species in four subbasins of the Sound. The historically-dominant forage fishes (Pacific herring and surf smelt) have declined in surface waters in two subbasins (Central and South Puget Sound) by up to two orders of magnitude. While two other species of forage fish (Pacific sand lance and three-spine stickleback) increased in all four of the subbasins, jellyfish- dominated catches increased three- to nine-fold in Central and South Puget Sound, and abundance positively tracked human population density across all basins. The strongest predictors of forage fish declines were human population density and commercial harvest. Forage fish support salmonids, sea birds, and marine mammals; jellyfish do not. This trend in relative declines/abundance may explain plummeting populations higher in the food chain, such as Chinook salmon and orca whales.

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[15] *Available at* http://www.int-res.com/abstracts/meps/v525/p153-170/

Regardless, the abundance of jellyfish is itself a violation of the narrative criterion. Ecology's failure to consider the narrative criteria, antidegradation policy, and designated uses when developing its 303(d) list cannot excuse its permit writers' failure to establish permits that comply with all aspects of water quality standards.

C. Human Nutrient Sources Are Causing and Contributing to Violations of Water Quality Standards in Puget Sound

Ecology has concluded that nitrogen is causing the violations of dissolved oxygen in Puget Sound. *See, e.g.*, *2014 DO Scenarios* at 13. *See also Suquamish 401* and *Forum Powerpoint*. It has also concluded that "[t]he dominant human sources are through marine point source discharges of treated municipal wastewater. Watershed inflows, which include both natural and human components, deliver nitrogen to the surface waters of South and Central Puget Sound." *Id*. at 13-14; *see also* Ecology, *Puget Sound and the Straits Dissolved Oxygen Assessment Impacts of Current and Future Human Nitrogen Sources and Climate Change through 2070 (March 2014)* (hereinafter "Future Impacts") at 7 ("Human nitrogen contributions from the U.S. and Canada to the Salish Sea have the greatest impacts on DO in portions of South and Central Puget Sound. Marine point sources cause greater decreases in DO than watershed inflows now and into the future."). By 2014, Ecology had also concluded that:

> Wastewater treatment plants deliver 3,250 kilograms/day (kg/d) of total nitrogen (TN) to South Puget Sound and 24,740 kg TN /d to Central Puget Sound. Watersheds deliver 2,410 kg TN/d to South Puget Sound and 2,910 kg TN/d to Central Puget Sound. Natural sources within the watersheds deliver 1,510 kg TN/d to South Puget Sound and 2,530 kg TN/d to Central Puget Sound. Atmospheric deposition to the marine water surface discharges an additional 360 kg TN/d. Comparing the natural and anthropogenic loads from sources within the South and Central Puget Sound, anthropogenic sources contribute about 6 times the nutrient loading compared to natural loads. External anthropogenic load entering the Edmonds open boundary from north is relatively high at approximately 40,000 kg TN /d.

Id. at 15. As a result of modeling, Ecology concluded that:

> Compared with natural conditions, current human nutrient loads to South and Central Puget Sound (both internal and external to model domain) cause >0.2 mg/L decreases in daily minimum oxygen concentrations in portions of Totten, Eld, Budd, Carr, and Case inlets of South Puget Sound (Figure ES-3a). We also found violations in East Passage in Central Puget Sound.

Id. at 16. In addition, Ecology determined that:

> If marine point sources (internal to model domain) discharged at their maximum permitted loads every day of the year, maximum loads would cause >0.2 mg/L depletions in more regions of the South Sound inlets and in a large portion of Central Puget Sound[.]

Id. at 18. And the agency found that "marine point sources alone cause >0.2 mg/L depletion in more regions than human sources in watershed inflows alone." *Id*. (citations omitted).

Other findings of the report include the following:

- A 25% reduction would eliminate nearly all of the violations in East Passage and Case Inlet, and would reduce the magnitude and extent of violations in the other South Puget Sound inlets.
- A 50% reduction would further decrease the maximum depletion, and a 75% reduction would eliminate all violations except in Eld Inlet, where the maximum violation would be 0.24 mg/L.
- Central Puget Sound sources influence at least East Passage, Carr, and Case Inlets.
- South Puget Sound sources decrease oxygen in Carr, Case, Totten, Eld, and Budd Inlets.
- Central Puget Sound sources may decrease oxygen in Totten, Eld, and Budd inlets but the proportion of Central Puget Sound sources reaching South Puget Sound has not yet been determined.
- Results indicate that current sources violate the standards
- Results indicate that marine point sources have a greater impact than human sources within watersheds
- South Puget Sound sources have the largest impact on finger inlets.
- There is a possible under-estimation of violations due to possible over-prediction of DO (though not statistically significant) in the bottom layers of shallow inlets.
- Human sources decrease DO by up to 0.38 mg/L below natural conditions. Violations occur for up to 13 weeks.
- In the spring, chlorophyll a levels reflect strong algae growth, particularly in the shallow regions of South and Central Puget Sound.
- East Passage also exhibits strong algae growth, potentially spurred by vertical mixing near the Tacoma Narrows sill. Surface DO levels increase while DIN decreases during high algae growth.

See, id. at 20-21. Ecology's determination has not changed with the passage of time. *See* Ecology, *Focus on: Water Quality Permitting to Control Nutrients in Puget Sound* (Aug. 2019) at 1 ("Discharges of excess nutrients to Puget Sound from domestic sewage treatment plants (WWTPs) are significantly contributing to low oxygen levels in Puget Sound. Ecology must require WWTPs to control nutrients consistent with the US Clean Water Act and Washington's Water Pollution Control Act."). Its most recent modeling work has concluded that "[e]xcessive nutrients in rivers and from point sources flowing into the Sound, such as municipal wastewater treatment plants, deplete dissolved oxygen below the water quality standards. *2019 Model Update* at 9. Running the Salish Sea model, "Ecology found that implementing nutrient reduction at wastewater treatment plants would achieve significant improvements toward meeting the dissolved oxygen water quality standards." *Id*. at 11. More specifically, Ecology summarized its work that showed:

> The results of the first phase of modeling conducted in 2018 confirm that human sources of nutrients are having a significant impact on dissolved oxygen in multiple Puget Sound embayments. It is clear from the modeling study that it will take a combination of nutrient reductions from wastewater treatment plants and other sources of nutrient pollution in watersheds to meet marine water quality standards.

Id. at 11. Ecology modeled nitrogen and $CBOD_5$ reductions with effluent limits set to 8 mg/L in a variety of scenarios. *Id*. at 38. These reductions—which are nowhere close to the limits of

technology—do not resolve the problem: "If reductions are made at all municipal wastewater treatment plants as modeled, approximately 10% of the greater Puget Sound would not meet the standards. This represents roughly a 50% improvement in compliance area for the dissolved oxygen standards." *Id*. at 11.

In the fact sheet for this proposed permit and others, Ecology reiterates its findings, stating:

> Early model runs ("Bounding Scenarios") also confirmed that circulation within the inner basins of the Salish Sea distributes a portion of pollutants throughout the waters of the the Sea. Discharges in one basin can affect the water quality in other basins. Thus, all wastewater discharges to the Salish Sea containing inorganic nitrogen contribute to the D.O. impairment.
>
> The Permittee's discharge contains inorganic nitrogen. Therefore, this permit must require the Permittee to control nutrients consistent with the Clean Water Act and Washington's Water Pollution Control Act.

Fact Sheet at 29.

D. Continued Nutrient Discharges, in Combination with Other Circumstances, Will Result in Water Quality's Becoming Worse in the Future

Ecology has pointed out that "nutrient concentrations in Puget Sound have significantly increased and nutrient ratios have steadily changed over the last 13 years despite the strong influence of the ocean on Puget Sound water quality." *Friedenberg Publication* (citations omitted). Ecology's modeling has demonstrated that this trend will continue into the future. The model was run using the maximum permitted loads, resulting in predicted oxygen depletions above the currently-allowable 0.2 mg/L level in Oakland Bay, Totten Inlet, Eld Inlet, Budd Inlet, Case Inlet, and Carr Inlet in the South Puget Sound and Colvos Passage and the region between Tacoma and Seattle in the Central Puget Sound. *See 2014 DO Scenarios* at 100.

In addition, Ecology looked at how future nutrient contributions could worsen dissolved oxygen declines in Puget Sound in combination with population increases, ocean conditions, and climate change. Its report concluded that:

> Human nitrogen contributions from the U.S. and Canada to the Salish Sea have the greatest impacts on DO in portions of South and Central Puget Sound. Marine point sources cause greater decreases in DO than watershed inflows now and into the future. Both loads will increase as a result of future population growth and land use change. Most of the Salish Sea reflects a relatively low impact from human sources of nitrogen. However, future human nutrient contributions could worsen DO declines in regions of Puget Sound.

Future Impacts at 7. Ecology noted that Pacific Ocean trends, climate change, and sediment-water interactions would further decrease DO.

III. THE PROPOSED PERMIT FAILS TO MEET LEGAL REQUIREMENTS

The facts set out above demonstrate that all current point source discharges of nitrogen to Puget

Sound, including from this permittee, are causing or contributing to violations of water quality standards in Puget Sound. The exact location of the point of any given discharge and its impairment status on the EPA-approved 303(d) list is irrelevant to this conclusion for several reasons. First, Ecology has carved the Puget Sound up into thousands of segments or grid cells[16] and it does not and cannot expend the resources to obtain data for that number of small areas of Puget Sound. It cannot carve a waterbody into minute pieces for modeling or 303(d) listing purposes and then point to the absence of data for all the pieces as a rationale to avoid regulation. Second, as discussed above, the effects of nutrients including nitrogen do not occur at the point of discharge but, rather, in combination with other sources and other parameters wherever the circulation of water takes it. These far-field effects are not linked to effects at the precise point of discharge and therefore the analysis for the permit cannot be done on that basis alone. Third, Ecology has already made the necessary findings that require regulation of this nitrogen discharge. Ecology has already determined that Puget Sound is riddled with impairments for numeric dissolved oxygen criteria; it has ignored applicable narrative criteria. Ecology has already determined that marine point sources are the largest contributor to violations of dissolved oxygen standards. Fourth, Ecology has not issued a 303(d) list based on any data on marine water quality since 2009. And Ecology has already determined that even massive reductions in anthropogenic sources of nitrogen from these very marine point sources are required in order to meet the standards throughout the Sound. In contrast, EPA has failed to conduct a reasonable potential analysis for nitrogen from this source.

A. The Discharge Causes or Contributes to Violations of Water Quality Standards and Therefore a WQBEL is Required for Nutrients

As set out in EPA's permitting guidance, there are four steps in the standards-to-permits process: (1) determine applicable water quality standards; (2) characterize effluent and receiving water; (3) determine the need for WQBELs; and (4) calculate WQBELs. *See* EPA Manual at 6-2. The applicable water quality standards have been set out above. *See also id.* at 6-3 ("Water quality standards comprise three parts: Designated uses. Numeric and/or narrative water quality criteria. Antidegradation policy."). In its guidance, EPA points out that:

> In addition to criteria for individual pollutants or pollutant parameters, many states include in their water quality standards criteria for dissolved oxygen. Often, criteria for dissolved oxygen are addressed by modeling and limiting discharges of oxygen-demanding pollutants such as biochemical oxygen demand (BOD), chemical oxygen demand (COD), and nutrients (phosphorus and nitrogen).

Id. at 6-6. Using dissolved oxygen criteria describes Washington's purported approach to

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[16] Ecology has carved the Puget Sound into an unknown number of waterbody segments, with each grid cell sized at approximately 2,460 feet by 3,660 feet. *See* Ecology, *Water Quality Program Policy, Assessment of Water Quality for the Clean Water Act Section 303(d) and 305(b) Integrated Report* (July 2012) at 5. For purposes of modeling, Ecology has divided the South Sound into 2,623 grid cells, each 500 meters square, up to Edmonds. *See, e.g., Ecology, South Puget Sound Dissolved Oxygen Study Circulation Modeling Overview* (Oct. 28, 2009), *available at* http://www.ecy.wa.gov/puget_sound/docs/102809_SPSDOS_hydromodel presentation.pdf at 9.

nutrients.[17] The EPA guidance also repeats a simple statement of the law: "As previously noted, CWA section 301(b)(1)(C) requires NPDES permits to establish effluent limitations as necessary to meet water quality standards." *Id*. at 11. Note, there are no exceptions.

The federal guidance itself does not cover nutrients and far-field effects of oxygen-demanding pollutants because as non-conservative pollutants "the effects of biological activity and reaction chemistry should be modeled, in addition to the effects of dilution, to assess possible impacts on the receiving water." *Id*. at 24; 6-26 ("It is important for permit writers to remember that, in some situations, the selected steady-state model could be more complex than the simple mass-balance equation shown. For example, there could be other pollutant sources along the stream segment; the pollutant might not be conservative (e.g., BOD); or the parameter to be modeled might be affected by multiple pollutants (e.g., dissolved oxygen affected by BOD and nutrients).").[18]

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[17] Ecology claims it need not establish numeric nutrient criteria because,

> Due to a lack of data in estuaries and the known highly complex relationship between nutrients and trophic health in marine systems, statewide criteria were not recommended for marine waters. Ecology has chosen an alternative pathway for the control of nutrient concentrations in marine systems that relies on other indicators and triggers for trophic health, and more water body specific modeling to select nutrient threshold values.
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> * * *
>
> A primary driver in marine waters for setting the agency's priorities is the failure to comply with dissolved oxygen criteria. Paramount to this issue is the role that is played by excessive nutrient contributions from tributaries and point sources in these waters. Several large sectors of Puget Sound have been modeled to date with the focus on where problems with dissolved oxygen and excess algal production have been found to exist.

Ecology, *Nutrient Criteria Development in Washington State* (April 2004) at 37.

[18] See, for example, EPA Region 5's explanation on how to follow the federal regulations in issuing permits for nutrient discharges:

> EPA expects that Illinois EPA will follow 40 CFR § 122.44(d) when it develops permits for nutrient discharges. Specifically, Illinois EPA must: (1) determine whether nutrient discharges will cause, have a reasonable potential to cause, or contribute to an excursion beyond the criteria [in state water quality standards] in proximate and downstream waters; and (2) set nutrient effluent limitations which are derived from and comply with [state water quality standards], as applicable, when it makes an affirmative determination. In addition, Illinois EPA must: (1) determine whether nutrients, either alone or in combination with carbonaceous biochemical oxygen demand (CBOD) and ammonia, will cause, have a reasonable potential to cause, or contribute to an excursion beyond the criteria [at state water quality standards] in proximate and downstream waters; and (2) set nutrient effluent limitations which, either alone or in combination with limits on CBOD, ammonia, and/or dissolved oxygen, are derived from and comply with [state

WQBELs are required to ensure that permits that allow discharges of nutrients to Puget Sound do not contribute nutrients that cause or contribute to violations of water quality standards in part because EPA has repeatedly rejected petitions seeking to amend the definition of secondary treatment to include removal of nutrients. EPA has denied these petitions based explicitly on its belief that WQBELs would be established to address nutrients in individual permits. *See, e.g., Maier v. EPA*, 114 F.3d 1032, 1036 (10th Cir. 1997) ("The EPA maintained that [nitrogen oxygen demand (NOD)] would be better dealt with on a case-by-case basis in NPDES permitting. The EPA therefore characterized NOD controls as a form of "advance treatment" to be imposed by permit where necessary. The EPA also noted that total impact on dissolved oxygen level (ultimate BOD) is to be considered in the NPDES permitting process.") (internal citations omitted). The basis for EPA's position is that,

> The CWA requires application of effluent limitations for nutrients that are met by using advanced treatment where necessary to meet applicable water quality standards. . . . Specifically, where secondary treatment is insufficient to protect the quality of the receiving waterbody, POTWs must meet any more stringent water quality-based effluent limits derived to achieve water quality standards.
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> The EPA's long-held view, consistent with the requirements of the CWA, is that given the site-specific variation in technological feasibility and costs of nutrient treatment systems, as well as how aquatic ecosystems respond to nutrient additions, POTW nutrient discharges are best addressed through water quality-based permitting.
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> * * *
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> In many areas water quality-based permit limits can prevent or correct nutrient-related impairments more effectively than national technology-based nutrient limits due to site-specific variability of waterbody response to nutrients.

Letter from Michael H. Shapiro, Deputy Assistant Administrator, Office of Water, EPA, to Ann Alexander, NRDC (Dec. 14, 2012) at 6. In fact, the Tenth Circuit Court of Appeals asserted that "the EPA and the States approved to administer the NPDES permit program *routinely impose NOD and nutrient limitations on POTWs* on a case-by-case basis by permit." *Maier* at 1043 (emphasis added), *see also id.* at 1044 ("Congress has, in this closely related statutory section, provided for water quality-based permitting as a gap-filling measure [that] gives strong support to the EPA's exercise of delegated authority to fill the gap where it has concluded that NOD should not be part of standard secondary treatment."); 1045 ("[it] is being dealt with —by permit."). As a consequence, Ecology cannot look to the technology-based limits established by EPA and the state to provide assurance that this discharge will not cause or contribute to violations of water quality standards pertaining to nitrogen-driven oxygen demand. And, it cannot avoid the WQBELs that are a required part of the permitting process upon which permitting agencies and the federal courts are relying for nutrient controls. It must address the problem by permit.

> water quality standards] when it makes an affirmative determination.

Letter from Tinka G. Hyde, Director, Water Division, Region 5, EPA to Marcia Willhite, Illinois Environmental Protection Agency (Jan. 21, 2011) at 2 (citations omitted).

B. The Permit Fails to Assess Reasonable Potential for this Discharge to Cause or Contribute to Violations of Water Quality Standards and to Establish Required Effluent Limits

Municipal sewage treatment plant permits have technology-based limits on BOD_5 or $CBOD_5$, sometimes water quality-based limits for the same, and sometimes water quality-based limits on ammonia. None of these individually or together are sufficient to control nitrogen inputs to Puget Sound from this source, which has only a technology-based BOD_5 limit. Ecology was required to assess whether this source has the reasonable potential to cause or contribute to violations of water quality standards in any waterbody to which its pollutants discharge. It has concluded that:

> The Permittee's discharge contains inorganic nitrogen. Therefore, this permit must require the Permittee to control nutrients consistent with the Clean Water Act and Washington's Water Pollution Control Act.

Fact Sheet at 29; *see id.* at 30 ("The inorganic nitrogen in the Permittee's discharge has reasonable potential to contribute to far-field water quality impacts."). However, it has simultaneously concluded that it must continue to run modeling scenarios of its long-running modeling project in order to determine an appropriate permit limit and cites the purported proposition that "[f]ederal rule at 40 CFR 122.44 (d)(vi)(C) requires permits that use indicator parameters to: identify the pollutants intended to be controlled, require appropriate monitoring, and include a reopener clause. . . . [and] documentation . . . on how limiting the indicator parameter will result in control of the pollutant of concern sufficiently to attain and maintain water quality standards." *Id.* This is not what the cited federal regulation requires. Instead, 40 C.F.R. § 122.44 (d)(vi)(C) requires a WQBEL that is consistent with the other applicable federal regulations discussed above. Contrary to Ecology's assertion, the finding that must be documented in the fact sheet must be the basis for "establish[ing] effluent limitations on an indicator parameter for the pollutant of concern." 40 C.F.R. § 122.44 (d)(vi)(C). Ecology's musing about its current and future modeling projects, Fact Sheet at 30, its anticipation of having "numeric point source nutrient load reductions that will support WQBELs by the end of 2024," and its inclusion of a reopener clause, optimization planning process, and monitoring requirements, *id.* at 31, do not add up to an effluent limitation that is sufficient to attain and maintain water quality standards. In the fact sheet, Ecology does not assert that the cap on current nitrogen discharges it proposes as an effluent limitation will prevent this source from causing or contributing to violations of water quality standards. Instead, it explicitly postpones a limitation that it says will come later "once Ecology develops numeric WQBELs for treatment plants in the region." *Id*. The "cap" it calculates in Appendix F of the fact sheet does not assert that it is sufficient to meet water quality standards. *Id*. at 71. As explained above, Ecology's purported intention to calculate necessary load limits in the future, *see id.* at 29-31, does not relieve the agency of determining and incorporating the effluent limits in the permit that it is issuing now.

Instead, Ecology asserts that, while meeting the requirement to have effluent limits based on indicator parameters, it has also determined that determining a numeric effluent limit for nitrogen is "infeasible." *Id.* at 30. While the cited federal regulation does allow for the use of best management practices (BMPs) where numeric effluent limitations are infeasible, it does not allow for issuance of an NPDES permit that does not include such BMPs. While the phrase "BMP" does find itself into the fact sheet in the glossary for this proposed permit, *id*. at 49,

nowhere does Ecology assert that it has established BMPs sufficient to control or abate the discharge of pollutants sufficiently to meet water quality standards, a requirement that is not altered by a finding of infeasibility on the part of the permitting authority. Section 122.44(k) does not negate the applicability of requirements that permits comply with water quality standards. *See, e.g.*, 40 C.F.R. § 122.4(d) ("No permit may be issued: . . . [w]hen the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected States." While we do not concur that a numeric WQBEL is infeasible, if Ecology does not include one that is intended to meet water quality standards it must also include a narrative prohibition on violating water quality standards in the permit.

As demonstrated above, given that this discharger is a known source of nitrogen to Puget Sound, and therefore it is contributing to violations of water quality standards, the permit is required to also contain water quality-based effluent limits for total nitrogen.[19]

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[19] Writing of Kentucky's failure to use available information as the basis for WQBELs, EPA supports our reading of its regulations:

> KDOW [the state agency] states that it had insufficient data to conduct the RPA for these pollutants and, therefore, is requiring five quarters of effluent monitoring for these pollutants, coupled with in-stream chemical and biological monitoring.
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> * * *
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> KDOW does not consider available, valid, and representative data showing that the proposed discharges have the reasonable potential to cause or contribute to violations of WQS. Given the existence of information indicating that reasonable potential exists, KDOW's proposal to conduct the RPA during the permit term does not comply with the CWA and its implementing regulations, which require that the permit contain WQBELs for all discharges that have reasonable potential to cause or contribute to a violation of WQS (40 CFR § 122.44(d)(1)(iii, iv, vi)).
>
> * * *
>
> KDOW can characterize the effluent using data from similar discharges . . . or other sources of information about the likely composition of the effluent. KDOW could have independently sought to obtain such data or rejected the application as not sufficient and required additional data from the applicant.
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> * * *
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> Given the existence of information indicating that reasonable potential does exist, KDOW's approach of deferring an RPA to the middle of the permit term is inadequate.

Letter from James D. Giattina, Director, Water Protection Division, Region 4, EPA to Sandy Gruzesky, Kentucky Department for Environmental Protection, Re: Notice of Specific Objection – Xinergy Corporation (KY0108014) (Oct. 22, 2010) (hereinafter Gruzesky Letter) at 3 – 4. Unlike in the Kentucky example, Ecology does not even acknowledge its obligation to conduct a reasonable potential analysis on nitrogenous oxygen demand pollutants contributing to violations of water quality standards and it ignores, entirely, the data that it does have and the modeling that it has completed. As EPA points out in this letter, there is a distinction between a situation where there is no information whatsoever and where there is sufficient information to connect the content of the effluent and the quality of the receiving water. *See, id.* at 4, fn. 6.

C. The Proposed Permit Fails to Comply with 40 C.F.R. § 122.44(d)(1)(ii)

As discussed above, federal regulations require the permit to, *inter alia*, "use procedures which account for existing controls on point and nonpoint sources of pollution." 40 C.F.R. § 122.44(d)(1)(ii). Nothing in the draft fact sheet demonstrates that Ecology has engaged in this evaluation despite all the evidence, discussed above, about the many other sources of nitrogen pollution in Puget Sound in addition to treated sewage. With regard to nitrogenous oxygen-demanding materials, which this permit does not evaluate, the permit writer must take into account the existing lack of controls on nonpoint sources such as on-site septic systems, which generally contain no nitrogen controls, on agriculture and logging, and the existing lack of controls on permitted discharges from other municipal sewage systems. Ecology's failure to account for these non-existing pollution controls on point and nonpoint sources renders its draft permit inconsistent with federal regulations and the Clean Water Act.

D. The Proposed Permit Fails to Evaluate Whether the Discharge Will Cause or Contribute to Violations of Narrative Criteria

Ecology cites the narrative criteria and the legal requirement to comply with them. Fact Sheet at 26. Ecology's discussion of how it concludes this source will comply with the narrative criteria is a jumble of nonsensical references to narrative criteria and technology-based requirements of AKART. fits in a short paragraph: :

> Ecology considers narrative criteria when it evaluates the characteristics of the wastewater and when it implements all known, available, and reasonable methods of treatment and prevention (AKART) as described above in the technology-based limits section. When Ecology determines if a facility is meeting AKART it considers the pollutants in the wastewater and the adequacy of the treatment to prevent the violation of narrative criteria.

Id. at 27. Ecology adds only that it also uses "whole effluent toxicity (WET) testing when there is a reasonable potential for the discharge to contain toxics." *Id.* This purported analysis does not begin to describe how this facility's discharge impacts narrative criteria in Puget Sound. Nitrogen pollution that affects dissolved oxygen, the food chain, etc., affects aquatic life. Nitrogen pollution that affects local acidification affects shellfish harvesting. Nitrogen pollution that affects algal growth, polluting beaches and causing an aesthetic blight, affects recreation. All of these provisions are relevant. The narrative criteria are not limited to the area immediately near the discharge. WAC 173-201A-260(2)(a) states in pertinent part that "deleterious material concentrations must be below those which have the potential, either singularly or cumulatively, to adversely affect characteristic water uses, cause acute or chronic conditions to the most sensitive biota dependent upon those waters, or adversely affect public health." Discharges of nitrogen are deleterious materials current discharged in concentrations that, in combination with other water quality parameters and pollutants, are adversely affecting the uses of aquatic life, shellfish harvesting, and human recreation, and where algal blooms are toxic, the public health. The same, of course, is true of the other narrative criteria that prohibit aesthetic values from being "impaired by the presence of materials or their effects, excluding those of natural origin, which offend the senses of sight, smell, touch, or taste." WAC 173-201A-260(2)(b).

There is simply no evidence that Ecology made the necessary examination of how this discharge

violates narrative criteria and what effluent limits are necessary to prevent that. Therefore the public can only conclude that it did not. In addition, as this discharge is one of many such discharges that contribute to violations of the narrative criterion in the waters of the Sound, and the fact sheet is silent on the question of whether EPA took existing controls—or lack thereof—on point and nonpoint sources into account, the proposed issuance of this permit is contrary to law.[20]

E. Permit Violates Tier I of the Antidegradation Policy Contained in Washington's Water Quality Standards

As explained above, Washington's water quality standards contain Tier I requirements to protect existing and designated uses. Puget Sound water quality is impaired, failing to fully support existing and designated uses. Such water quality is prohibited. WAC 173-201A-310(1). The continued discharge of nitrogen from this facility, authorized by the draft permit, is a violation of Tier I's prohibition on "degradation . . . that would interfere with , or become injurious to, existing or designated uses[.]" *Id*. In addition, Tier I requires that "[f]or waters that do not meet assigned criteria, or protect existing or designated uses, the department will take appropriate and definitive steps to bring the water quality back into compliance with the water quality standards." WAC 173-201A-310(2). Ecology concludes that its "analysis described in this section of the fact sheet demonstrates that the proposed permit conditions will protect existing and designated uses of the receiving water." Fact Sheet at 18. Yet it does not explain how a permit that it concludes is causing or contributing to violations of water quality standards is consistent with the Tier I requirement that it describes as follows: "Ecology must not allow any degradation that will interfere with, or become injurious to, existing or designated uses, except as provided for in chapter 173-201A WAC." *Id*.

Washington's antidegradation rule focuses on protecting both existing uses and designated uses by generally prohibiting degradation of water quality below that necessary to maintain existing uses. Each state's antidegradation policy must comply with the federal antidegradation policy promulgated at 40 C.F.R. § 131.12, which EPA has consistently described as the "absolute floor of water quality in all waters of the United States." *See, e.g.*, EPA, *Water Quality Standards Regulation*, 48 Fed. Reg. 51,400, 51,403 (Nov. 8, 1983); EPA, *Water Quality Standards Regulation* (Advance Notice of Proposed Rulemaking), 63 Fed. Reg. 36,742, 36,781 (July 7, 1998)). The antidegradation rule is a separate and independent requirement that is not necessarily satisfied by proper implementation of the applicable state water quality criteria. By characterizing the antidegradation rule's focus on existing uses as the "absolute floor of water quality," EPA clearly contemplated that circumstances would arise where the antidegradation rule's requirements require more stringent limits than would be required by the otherwise applicable water quality criteria. EPA's Office of Water discussed the significance of the antidegradation rule in a 1985 memorandum, which stated that "the antidegradation policy is an integral component of water quality standards and must be considered when developing . . . NPDES permits." Memorandum from Edwin L. Johnson, Director Office of Water Regulations

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[20] For example, EPA has emphasized the federal regulation's requirement to ensure compliance with narrative criteria in its review of state-issued permits. *See, e.g.*, Gruzesky Letter at 2 ("NPDES regulations at 40 CFR 122.44(d)(1)(vi) are clear that NPDES permits must contain provisions implementing narrative WQS, and the RPA that must be completed for numeric WQS, must also be completed for narrative standards.").

and Standards, EPA, to Water Management Division Directors Regions I-X (1985). This memorandum instructed that "[a]ll Agency staff involved in . . . permitting should be reminded that in developing . . . permits . . . consideration must, of course, be given to the States applicable water quality standards, *including the antidegradation provisions*." *Id*. (emphasis added). The regulatory prohibition against issuing a permit that does not ensure compliance with state water quality "standards" requires the permitting authority to consider compliance with all components of the state's water quality standards, including compliance with the antidegradation rule, and not just compliance with the state's numeric water quality "criteria." *See* 40 C.F.R. § 122.4(d) which refers to compliance with water quality "standards," not "numeric criteria."

Issuing a permit that will allow a source to contribute to water quality that is harming existing and designated uses is a violation of Tier I of the antidegradation policy. Nitrogen discharges from this and other facilities is harming existing and designated uses, as discussed above. Ecology's conclusion that the proposed permit conditions—which it acknowledges are less than are required to meet water quality standards in Puget Sound—meet Tier I is without any explanation or basis. See Fact Sheet at 18. Moreover, Ecology does not point to any appropriate and definitive steps to bring the water quality back into compliance with water quality standards and in issuing a permit that fails to include the required effluent limitations, Ecology is just perpetuating its violation of the standard.

F. The Permit Fails to Ensure the Implementation of AKART

As described above, "'AKART' is an acronym for 'all known, available, and reasonable methods of prevention, control, and treatment.' AKART shall represent the most current methodology that can be reasonably required for preventing, controlling, or abating the pollutants associated with a discharge." WAC 173-201A-020. The AKART standard is required to all dischargers. RCW 90.54.020(3)(b), 90.54.040; WAC 173-220-130(1)(a). AKART applies to discharges from domestic wastewater facilities. *Id.*; WAC 173-221-010.

Enhanced secondary and tertiary treatment for the removal, control, and treatment of nutrients is a known method of removing nitrogen. *See, e.g.*, Ecology, *Technical and Economic Evaluation of Nitrogen and Phosphorus Removal at Municipal Wastewater Treatment Facilities* (June 2011).[21] These treatments are known and available methods for removal, control, and treatment of nitrogen. *See, e.g., id.* Therefore, the use of known and available enhanced secondary and/or tertiary treatment for removal of nitrogen is AKART.

AKART is also required in order to obtain a mixing zones in Washington State. *See* WAC 173-201A-400(2); *see also BNSF Railway Co. v. Washington Ecology*, PCHB No. 11-150, Order on Summary Judgment (Dec. 4, 2012) at 20 ("Ecology's regulation governing mixing zones does require a showing that the applicant has fully implemented AKART before a mixing zone may be granted."). Without a showing that the facility has met the AKART requirements, Ecology cannot issue a permit that relies upon a regulatory mixing zone.

It is possible that this facility is using AKART. Ecology states that it is a new "MBR facility [] capable of removing nitrogen, which may be of benefit as new nutrient restrictions are issued in

[21] *Available at* https://fortress.wa.gov/ecy/publications/documents/1110060.pdf (last accessed Oct. 17, 2016).

the region." Fact Sheet at 7. However, there is no way to tell because Ecology relies on a narrow part its regulations to avoid making a finding for this facility that is required by the statute and implementing regulations. *Id*. at 69. In this draft permit, Ecology merely cites to its 33-year old regulations that cannot possibly reflect all known and availble treatment technology by sheer dint of their age and by their own terms do not include technology determined to be AKART for the control of nutrients or toxics. That Ecology has failed to update the regulations to mirror legal requirements for all known and available treatment technologies and to address other pollutants than those included is not a basis for Ecology to evade clear legal requirements to implement AKART in the instant permit. Without determining whether this permittee is using all known and available treatment technology or what does constitute all known and available treatment technology for this type of sewage treatment plant, Ecology cannot even reach the point of determining whether use of all known and available treatment technology would be "reasonable"—economically and in terms of engineering feasibility—for this facility. Moreover, the rationale that Ecology makes for ignoring its obligation to make an AKART determination for nutrient discharges from this facility based on the fact that the domestic wastewater AKART regulations at WAC 173-221-040 are limited to four pollutants contradicts the PCHB decision in *Sierra Club* that Ecology had established AKART for the removal of PCBs in requiring Spokane County to use a tertiary treatment facility.

IV. ECOLOGY'S RESPONSE TO COMMENTS ON PREVIOUS DRAFT PERMIT AND ITS NEW PROPOSED PERMIT CONDITIONS FAIL TO REMEDY THE UNLAWFULNESS OF THIS PERMIT

A. Ecology's Response to Comments on First Draft Permit

Ecology states that sections I and II of NWEA's first set of comments on the draft permit are "general in nature and not specific to the permit." Fact Sheet at 67. While it is true that the comments are general in nature, in that they discuss both legal requirements and the state of Puget Sound water quality, they are not irrelevant to the specific permit. In fact, they lay the foundation for the positions set out in section III and therefore are highly irrelevant to NWEA's position that the proposed permit does not conform with federal or state legal requirements. We suggest that Ecology should respond to those comments and point out where it believes that we do not present a correct interpretation of the law rather than dismissing them as irrelevant.

With regard to far-field impacts of the discharge, Ecology discusses some of the history of its modeling efforts, none of which are relevant to the legal requirement to prevent this discharge from causing or contributing to violations of water quality standards. *Id*. It then states that it "intends to implement a coordinated permitting strategy" in the future to address the problem. *Id*. Ecology's intent to implement a strategy has no bearing on its failure to establish WQBELs that are required by law for this permit. Moreover, its long-held belief that it must have "accurate science" in this context is an inaccurate statement of how it is required to carry out its obligations under federal and state law, as described above in the section that Ecology dismisses as "general in nature and not specific to the permit." *Id*.

Ecology fails to respond to NWEA's previous comments with regard to the requirement to include a WQBEL, stating instead that it has added an "interim cap on nitrogen." *Id*. at 68. As explained elsewhere in these comments, an interim cap does not comply with federal or state law, even when combined with monitoring and optimization planning. Likewise, these responses from Ecology do not address the need to issue a permit that meets the requirements of

40 C.F.R. § 122.44(d)(1)(ii).

With regard to NWEA's previous comments on Ecology's failure to correctly include technology-based limits and AKART requirements in the draft permit and to comply with the requirement to make a determination of what constitutes AKART for this discharger, Ecology makes the following observations:

> Ecology concludes that the technology-based limits included in the original draft of this permit are appropriate.
>
> The regulation does not include nutrient removal in the definition of AKART for domestic wastewater facilities. Nutrients are not included in the WAC for AKART. The legal cases cited by the commenter do not apply broadly to all domestic wastewater facilities. The cases involved legal questions specifically applicable to the facilities or receiving waters involved in those cases.
>
> AKART has been appropriately applied to this discharge.

Id. at 67 – 69. The first and third comments above are entirely conclusory in nature and provide no insight into how Ecology drew its conclusions. As to the second comment above, Ecology is correct that its regulation does not include nutrients in its boilerplace finding of what constitutes AKART for domestic wastewater facilities. However, as Ecology is well aware, it is under a statutory obligation to ensure the use of AKART regardless of whether its 33-year old regulations reflect the state of knowledge of technology availability in the year 2020. As to Ecology's assertion that certain cases cited by NWEA, which go unnamed, are applicable to receiving waters in those cases, the content is absurd on its face. The AKART requirements explicitly does not pertain to the quality of the receiving water. *See, e.g.*, RCW 90.54.020(3)(b) ("*Regardless of the quality of the waters of the state*, all wastes and other materials and substances proposed for entry into said waters shall be provided with all known, available, and reasonable methods of treatment prior to entry.") (emphasis added). Finally, as to the notion that the cases involved "legal questions specifically applicable to the facilities," Ecology has not explained why the outcome of those cases do not pertain to other facilities other than its desire to force citizens to litigate legal issues permit by permit rather than for it to conform to relevant case law. We ask that Ecology explain its reasoning in detail as to why these cases are not relevant to the issuance of this permit and its compliance with the state's AKART provisions.

B. Proposed Conditions are Not Sufficient to Render this Permit Lawful

1. *The Proposed Provisions to Address Nitrogen Discharges are Not the Required WQBELS, they are Not Best Management Practices, and the Optimization Plan is not an Effluent Limit*

Ecology proposes to include a "cap" on nitrogen loading that is roughly equivalent to its current discharge, to include additional monitoring requirements, and to require an optimization plan. *See* Fact Sheet at 31. The cap is not intended to prevent the discharge from causing or contributing to violations of water quality standards and Ecology nowhere demonstrates, or even argues, that it will. The monitoring plan is not intended to prevent the discharge from causing or contributing to violations of water quality standards. And neither is the optimization plan. The fact sheet does not explain the optimization "exercise," other than to state that the "[p]ermittee

can use [optimization] to stay below the annual cap[.]" Fact Sheet at 31. The permit requires an optimization evaluation, *see* NPDES Permit at S10 ("[t]he Permittee must . . . "), but it does not include a required content, *id*. ("[t]he evaluation should"). The evaluation "is intended to help inform facility decision-making and agency regulatory strategies. The outcome of this or any proposed planning or evaluation requirements may help support a regional nutrient reduction framework and a potential future nutrient trading program." *Id*. In other words, the optimization plan is not intended to meet either the technology-based or water quality-based requirements of state and federal law and Ecology nowhere demonstrates, or even argues, that it is. There is no requirement in the permit that the facility implement any "operational adjustments, minor retrofits or refurbishments, minor upgrades, or process optimization that would improve nutrient removal" that might be identified in the evaluation. *Id*. An evaluation is not an effluent limitation.

Instead of including the required effluent limitations, Ecology asserts that, while meeting the requirement to have effluent limits based on indicator parameters, it has also determined that determining a numeric effluent limit for nitrogen is "infeasible." *Id*. at 30. While the cited federal regulation, 40 C.F.R. § 122.44(k), does allow for the use of best management practices (BMPs) where numeric effluent limitations are infeasible, it does not allow for issuance of an NPDES permit that does not include such BMPs. Ecology appears to suggest that its combination of the cap on nitrogen set at current loads, additional monitoring, and the requirement to conduct an optimization evaluation constitute best management practices (BMP) that are allowed when numeric effluent limits are infeasible. Fact Sheet at 31. It is incorrect for several reasons.

First, none of these requirements are based on, derived from, or will ensure compliance with water quality standards. At best, these measures should be considered technology-based effluent limits. However, given the fact that it is feasible to calculate a numeric technology based effluent limit for nutrients— despite Ecology' s refusal to do so—these measures should be included in the permit only to the extent they are "reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA." 40 C.F.R. § 122.44(k)(4). Thus, Ecology must first establish the appropriate technology-based numeric effluent limit, as discussed elsewhere in these comments, and then establish the BMPs necessary to implement and achieve that limit and any other requirements of the CWA.

Second, the measures Ecology has proposed are not BMPs. BMPs are "schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce . . . pollution.'" 40 C.F.R. § 122.2. "BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage." *Id*. BMPs are practices or procedures, and can be "structural" (such as "tarpaulins and shrouds to enclose work areas, retention ponds, devices such as berms to channel water away from pollutant sources, and treatment facilities") or "non-structural" (such as "good housekeeping, preventive maintenance, personnel training, inspections, and record-keeping"). *NRDC v. Sw. Marine, Inc*., 236 F.3d 985, 991 n.1 (9th Cir. 2000). As a result, BMPs must include concrete actions by the permittee that are sufficient to "ensure compliance" with water quality standards. *Natural Resources Defense Council v. U.S. E.P.A.*, 808 F.3d 556, 579 (2015).

Ecology's assertion that its trio of permit conditions constitute BMPs is inconsistent with the regulations and case law. First, a numeric effluent limit set at current loads and designed as a

"cap" is not a BMP as it is neither a practice nor a procedure. Instead, it is an inadequate numeric WQBEL or an inadequate numeric TBEL. Second, monitoring is neither a practice nor a procedure and it is not intended to ensure that a discharge does not cause or contribute to violations of water quality standards. Monitoring is independently required in NPDES permits. *See* 33 U.S.C. § 1342(a)(2); 40 C.F.R. § 122.44(i)(1)-(2). Last, the permit's proposed nutrient optimization plan is not a BMP. The permit calls for development of a "Nutrient Optimization Plan [that] must include both a treatment efficiency optimization evaluation, and a plan for future optimization." NPDES Permit at S11. The plan is required to evaluate for consideration the use of "operational adjustments designed to enhance nitrification and denitrification, and using only minor retrofits such as the incorporation of anoxic zones, review of septage receiving policies and procedures, side-stream management opportunities, and/or minor upgrades [with equipment costs not exceeding 5% of the annual equipment and supplies budget]." *Id*.

This nutrient optimization plan proposed by Ecology is not, for example, the equivalent of nutrient management plans for animal feeding operations that were the subject of *Waterkeeper Alliance, Inc. v. U.S. E.P.A.*, 399 F.3d 486 (2d Cir. 2005). First, in that case, the court held that such plans were technology-based limits, not water quality-based limits. *Id*. at 522 ("The CAFO Rule does not, here, promulgate any WQBELs."). In the permit proposed to be issued by Ecology, the same conclusion must be drawn. There is nothing about a permittee's finding that its facility can or cannot make operational adjustments or minor upgrades that pertains to ensuring that its discharge does not cause or contribute to water quality standards. These optimization steps-should any even be identified and should they even be implemented-are purely based on the availability of technology. Therefore, these optimization plans are not BMPs that are established in lieu of purportedly infeasible numeric effluent limits that are required to meet water quality standards. And, with no water-quality based BMPs, the permit lacks any required effluent limitations given Ecology's determination that there is reasonable potential for the discharge to cause or contribute to violations of water quality standards.

Finally, even if the optimization plan could be considered a BMP, it is not an effluent limit. First, there is no provision in the proposed permit that implementation of the optimization plans be an enforceable provision of the permit. While the proposed permit requires that "[a]ny significant process optimization that is continued from one year to the next must be reflected in any update to the standard operating procedures in the Permittee's Operation and Maintenance manual per permit Section S5.G," reflecting the process changes in the manual is not the same as making use of the process change an effluent limit. The change must only be incorporated into "any update," which means that if no update occurs, the change will not be reflected in the manual. And, permit condition S5.G is not an effluent limit.

Second, there is no provision in the permit to provide for any meaningful review of the plans developed pursuant to the permit. In *Waterkeeper*, the court held that unless the permitting agency reviewed the nutrient management plans, those plans could not be relied upon to ensured that the plans met a list of specific requirements set out in the governing rules. 399 F. 3d at 498-502. Here, there not only are there no specific requirements to be met that can be counted on to minimize the movement of nutrients to surface waters of the state, there is no provision to ensure that the plans that are prepared are sufficient. The proposed permit requires the plans to be submitted to Ecology but it does not provide for Ecology to review the plans to ensure they are adequate and approve them. If Ecology chooses to rely on these plans as effluent limitations needed to make the issuance of the permit lawful, it must also ensure that it reviews the plans as effluent limitations; permittees do not get to design their own compliance mechanisms under the

Clean Water Act. *See id.* at 501 ("the terms of the nutrient management plans are themselves effluent limitations"); *see also* 33 U.S.C. § 1362(11) (defining effluent limitation to mean "any restriction established by a State or the Administrator on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources[.]").

Last, as effluent limitations, the optimization plans must be made available for public comment. *See Waterkeeper Alliance*, 399 F. 3d at 503-04 (the Clean Water Act provides for the right of the public to meaningfully comment on NPDES permits before they issue); 33 U.S.C. § 1251(e) (public right to assist in the "development, revision, and enforcement of . . . [an] effluent limitation."). Here, the proposed permit includes a requirement that the plan be submitted within 12 months of the permit's issuance and, possibly, be updated each year. Permit S11. Ecology has not established any right of the public to review and meaningfully comment on the plans or the plan updates, which it must do if these updates are effluent limitations. In addition, the fourth paragraph of this provision pertaining to the plan updates refers to it as a "report," which is not otherwise defined or required by the permit, suggesting that the plan update in the previous sentence is actually a report, not a plan. A report is not a BMP; it is a form of reporting.

2. ***Numeric Effluent Limitations for Nitrogen are Not Infeasible***

The basis for Ecology's proposal to use purported BMPs in lieu of a numeric WQBEL for nitrogen is its assertion that "implementing a numeric WQBEL is infeasible." Fact Sheet at 30. As an initial matter, Ecology's use of the word "implementing" is curious and possibly instructive. The regulation on which Ecology relies to avoid a numeric WQBEL when to establish one is infeasible pertains to the calculation of a numeric limit, not the infeasibility of implementing one, as in whether a permittee is capable of meeting a limit. Costs and technological considerations are not appropriate factors for consideration in establishing water quality-based effluent limits. *See, e.g., U.S. Steel Corp. v. Train*, 556 F.2d 822, 838 (7th Cir. 1977); *Defenders of Wildlife v. Browner*, 191 F.3d 1159, 1163 (9th Cir. 1999). Ecology sets out the long chronology of its efforts to model Puget Sound and its future plans to continue doing so, "anticipat[ing]" that it will have load reductions to "support WQBELs by the end of 2024." But, in addition to the fact that it is precluded from authorizing a discharge without meeting the requirements of 40 C.F.R. § 122.44(k), as discussed immediately above, that regulation also does not support Ecology's making a choice not to calculate effluent limits that it actually is capable of calculating.

First, although the "cap" that Ecology has included in the proposed permit is based on the operation of existing treatment technology and is therefore entirely unrelated to meeting water quality standards, *see* Fact Sheet at 31, it is also true that the fact of the cap—representing as it does neither the secondary treatment technology required by federal law nor the AKART standard required by state law—is, according to Ecology, needed to address a water quality problem: "[t]he inorganic nitrogen in the Permittee's discharge [that] has reasonable potential to contribute to far-field water quality impacts." Fact Sheet at 30. As such, Ecology is asserting that it is in fact capable of establishing a numeric water quality-based effluent limit for nitrogen, albeit not one that is sufficient to ensure that the discharge does not cause or contribute to violations of water quality standards. Therefore, Ecology is incorrect in concurrently asserting that calculating a nitrogen effluent limit is "infeasible." Similarly, nitrogen effluent limits are calculated in hundreds of permits in the United States, a fact that flies in the face of Ecology's assertion of infeasibility.

Second, setting nitrogen limits in this permit is not infeasible; it is merely difficult. But difficulty is not a defense against meeting the requirements of the law as discussed in Section I of these permit comments, which is why those comments are pertinent to the issuance of this permit. Courts have already clearly articulated the fact that even if determining an effluent limit is difficult, it is still required. *See, e.g., Upper Blackstone Dist*., 690 F.3d at 14; *City of Taunton*, 895 F. 3d at 140; *Natural Resources Defense Council*, 808 F.3d at 578. Moreover, a plan to establish the needed WQBELs after the year 2024, as Ecology has articulated here, is not adequate to meet the requirements in this permit.

Third, Ecology does not only rely on its desire to continue modeling Puget Sound to shore up a rationale for a numeric load limit but for an entirely different reason, namely to be able to "engage stakeholders on the framework for establishing nutrient load and wasteload allocations at the Puget Sound Nutrient Forum." *Id.* at 31. The desire for stakeholder engagement is not a definition of infeasibility. There is no waiver of Clean Water Act requirements based on a desire for stakeholder engagement. And, as discussed above, Ecology may be talking about "allocations" as an outcome of this stakeholder process in this fact sheet but, in fact, it has declined to develop a TMDL that would have binding wasteload allocations on subsequently-issued NPDES permits. Anything produced by a stakeholder process outside the Clean Water Act procedures and requirements that pertain to an EPA-approved TMDL have no regulatory relevance.

Fourth, Ecology is slow-walking its modeling process. Ecology appears to be able to conduct one model run per year or year-and-a-half. *See* Fact Sheet at 31 ("Ecology currently plans on running a third year of modeling in 2021."). In the recent past, it has conducted model runs that have resulted in absurd delays. For example, in 2019, Ecology reported on its choice to run its model in 2018 with three scenarios that represented a minimalist reduction in nitrogen discharges. *See 2019 Model Updates*. The treatment scenarios, of which there were only three, all involved only seasonal reductions. *Id*. at 72. All three scenarios hypothesized the use of biological nitrogen removal (BNR) at the treatment plants, *id*. at 13, resulting in modeling discharge levels of 8 mg/L, *id*. at 18. This is a low level of treatment for nitrogen. *See AKART Petition* at 60 - 64. Ecology chose not to run any scenario that would have represented a higher nitrogen removal rate so that it could determine a range of necessary treatment options for all facilities. Instead, it used two of its three scenarios to explore the possibility of using the low level of nitrogen treatment at only some of the region's direct dischargers to Puget Sound. *See 2019 Model Updates* at 13 (scenarios included only at sewage treatment plants with nitrogen loading of 1,000 kg/day or higher and only at plants with nitrogen loading at 8,000 kg/day). Not surprisingly, Ecology concluded that "full compliance with the standards at all locations cannot be achieved through these actions alone. . . . It is clear that a comprehensive suite of measures, including watershed load reductions, is needed to fully comply with water quality standards in Puget Sound." *Id.*

This report on model results based on nitrogen reductions was issued in January 2019 based on 2018 modeling; no updates have been issued since then, a year and a half later and over ten years since Ecology began its model. *See, e.g., Ecology, Salish Sea Model*.[22] An additional five

[22] *Available at* https://ecology.wa.gov/Research-Data/Data-resources/Models-spreadsheets/Modeling-the-environment/Salish-Sea-modeling (last accessed July 6, 2020).

scenarios were scheduled to be run in so-called "Year 1," (a convenient sleight of hand to make the modeling exercise look as if has just started) to be completed in June 2020. Ecology, *Puget Sound Nutrient Forum [Powerpoint Presentation], Salish Sea Modeling Scenarios 2019-2020* (July 17, 2019) at 11. And yet more "combinations of reductions from marine and watershed sources" are to be run in "Year 2," to be completed in June 2021. *Id.* The Year 1 scenarios include: (1) leaving sewage treatment plants at current levels, despite knowing that direct dischargers make up the majority of the nitrogen in Puget Sound; (2) running the 2018 scenarios on a basin-by-basin basis, despite having already determined the inadequacy of the 2018 reductions; (3) setting direct dischargers to specific loads rather than concentrations year round (no information is available on how the loads were derived but they are likely based on 8 mg/L treatment level), repeating the effort to limit the level of treatment but extending the time period; (4) keeping direct dischargers without nitrogen limits and increasing population (but excluding climate change impacts), thereby not helping to determine what nitrogen reductions are needed now; and (5) an ambiguous scenario referred to as "everybody, everywhere," in which direct dischargers are set at "advanced nutrient removal levels," which is not defined in public documents, and watershed sources are zeroed out. *Id.* at 16 - 24. Not answered will be impacts on "sensitive watersheds" and climate change influences. *Id.* at 25.

Fifth, Ecology has many options in setting an effluent limit for nitrogen that, while imperfect, would comply with the law. It has determined how much of the excess nitrogen in Puget Sound is coming from the direct sewage treatment plant dischargers. It could take that loading, calculate a percentage of reduction needed, and apply it to all sources. It could do the same and shift percentages to different categories of sewage treatment plants. It could, based on projected population growth and climate change impacts, establish a limits-of-technology approach, setting numeric nitrogen effluent limitations at 3.0 mg/L, and include an additional enforceable compliance schedule in the permit that requires the permittee to engage, for example in water pollution trading or wastewater "polishing" through constructed wetlands, for any of its excess nitrogen discharges that cause or contribute to violations of water quality standards after use of state-of-the-art treatment technology.

Sixth, without any intent to take into consideration the existing controls on nonpoint sources and sewage treatment plants that discharge to Puget Sound tributaries, and no TMDL to designate the respective responsibilities of point and nonpoint sources, there is nothing particularly scientific, precise, or definitive about the effluent limits that Ecology says that it will eventually establish. It has conducted its modeling of Puget Sound and the Salish Sea by combining both point and nonpoint sources into what it terms the "watershed" contributions—approximately one third of the anthropogenic nitrogen load—and stated that it has no plans to develop TMDLs for those watersheds in the foreseeable future. Unrecorded Ecology meeting of Puget Sound Nutrient Forum, May 7, 2020. Therefore, the perfect science that Ecology is attempting to reach before it complies with the law and establishes water quality-based effluent limits in this permit will always remain elusive. And, in the absence of any point or nonpoint source controls over the significant percentage of nitrogen arriving in Puget Sound as "watershed" sources, it will either choose to ignore the requirement of 40 C.F.R. § 122.44(d)(1)(ii) that it "account for existing controls on point and nonpoint sources of pollution" or it will have to guess that there are no such existing controls and err on the side of requiring more nitrogen load reduction from the permittee than might be indicated is required by the model all other things being equal. The introduction of any guesswork obviates the notion that Ecology cannot set effluent limits until it achieves precision in its analysis. It certainly will not be able to rely on the fifth scenario of the Year 1 model, described above, in which it zeros out the nonpoint sources because there are no

existing controls on watershed point or nonpoint sources. And, it has already concluded that "watershed load reductions [are] needed to fully comply with water quality standards in Puget Sound." *2019 Model Updates* at 13.

The point is that Ecology will never be able to establish with pinpoint accuracy precisely how much nitrogen any given source can be allowed in order to not cause or contribute to violations of water quality standards. There are multiple reasons: (1) the lack of nonpoint source controls on which Ecology can rely; (2) the lack of a TMDL that establishes a regulatory framework on which permit writers can rely; (3) the limits of science (the reason why TMDLs include a statutorily-required margin of safety); (4) population growth that will require yet further reductions; (5) unevaluated impacts to water quality parameters other than dissolved oxygen, such as aesthetic uses, localized enhancement of ocean acidification, and adverse impacts to designated marine uses; and (6) the effects of climate change. Ecology's determination to use only data and "best-available" science that will be available in the future, Fact Sheet at 30, belies the fact that it already has data and today's best available science and it is required to act upon those.

Conclusion

In closing, in addition to the many ways in which this proposed permit does not meet state or federal legal requirements and falls well short of protecting the waters of Puget Sound, it also leaves the reader perplexed about Ecology's fundamental understanding of the way that the law works. On page 27 of the fact sheet for this facility, Ecology states the following:

> Ecology considers narrative criteria when it evaluates the characteristics of the wastewater and when it implements all known, available, and reasonable methods of treatment and prevention (AKART) as described above in the technology-based limits section. When Ecology determines if a facility is meeting AKART it considers the pollutants in the wastewater and the adequacy of the treatment to prevent the violation of narrative criteria.

This paragraph is startling in that it evidences the writer's profound misunderstanding of the Clean Water Act and state laws pertaining to the issuance of NPDES permits. Yet, this boilerplate language used in other fact sheets and thus has, apparently, been given great thought by Ecology as an agency. It is unclear what the narrative criteria, or indeed any other aspect of water quality standards, have to do with the application of the technology-based AKART which is so explicitly described as being divorced from the quality of the receiving water, as discussed above. *See, e.g.*, RCW 90.52.040. And, likewise, it is equally befuddling why Ecology believes that AKART has any bearing on its obligation to issue a permit that prevents the discharge from violating narrative criteria in the state's water quality standards. *See, e.g.*, 40 C.F.R. § 122.44(d)(1). The limitations of technology have no bearing on the applicability of water quality standards.

We close with this observation because the water quality problems in Puget Sound, particularly those cause by the discharges of excess nutrients and toxics, are an existential threat. Absent swift and decisive action to halt and reverse the trends that are decreasing dissolved oxygen, increasing ocean acidification, and the poisoning of the region's fish and wildlife, we may soon reach a tipping point after which we will lose the chance to protect and recover the Sound. Given the weight of this moment it is deeply dissappointing to see Ecology propose a permit that

fails to comply with the basic tenets of state and federal law, and thus will fail to protect Puget Sound.

Sincerely,

Nina Bell
Executive Director