



April 18, 2014

SUBMITTED ELECTRONICALLY TO: efsec@utc.wa.gov

Energy Facility Site Evaluation Council
Attention: Jim La Spina
P.O. Box 43172
Olympia, Washington 98504-3172

Re: Comments on EFSEC's Proposed NPDES Permit Reissuance for Energy Northwest's Columbia Generating Station

Dear Mr. La Spina:

The Northwest Environmental Defense Center and Northwest Environmental Advocates (collectively, Commenters) submit these comments to the Washington Energy Facility Siting Evaluation Council (EFSEC) regarding the proposal to reissue the National Pollutant Discharge Elimination System (NPDES) permit, Permit No. WA-002515-1, for Energy Northwest's (EN) Columbia Generating Station (CGS) located at 76 N Power Plant Loop, Richland, WA 99354. Commenters are both non-profit organizations that represent hundreds of members and are dedicated to protecting public health, the environment, and natural resources.

The CGS is a nuclear-fueled steam electric power generation plant that discharges to the Columbia River and to ground water. Commenters have substantial concerns about the sufficiency of the proposed permit. Based on our analysis, the proposed permit is inconsistent with the federal minimum requirements set forth by the Clean Water Act (CWA), 33 U.S.C. § 1251, *et seq.* As the Columbia River is an interstate water, both Washington's and Oregon's water quality standards must be met, and as our comments explain below, the proposed permit fails to meet these standards as well. Ultimately, the proposed permit lacks the measures necessary to protect the water quality in the Columbia River and the aquatic life that depends on it. We urge EFSEC to reconsider its analysis in light of the comments below and revise the proposed permit terms to ensure the permit is consistent with federal and state laws protecting Washington's and Oregon's waters.

Comments

I. WATER QUALITY BASED EFFLUENT LIMITATIONS

A. EFSEC Misconstrues the Meaning of Water Quality Standards

1. The Legal Definition of a Water Quality Standard

EFSEC misconstrues the requirements of the CWA and implementing regulations that all NPDES permitted sources must not cause or contribute to water quality standards violations, in part because it apparently does not understand the legal definition of a water quality standard. Such 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 the State’s hundreds of individual water bodies.” *Id.*¹ In short, a permitting agency cannot

¹EPA 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.

ignore the narrative criteria and use only numeric criteria where numeric criteria do not exist or where the numeric criteria fall short of providing full support for designated uses.

2. EFSEC Is Required to Use the Narrative Criteria to Ensure Full Protection of Designated Uses Particularly in Light of Washington’s Outdated Numeric Criteria for the Protection of Aquatic Life and Human Health

EPA regulations mirror the statute’s prohibition on point sources causing or contributing to violations of water quality standards. The 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), 122.44(d)(1)(i), 122.44(d)(1)(v), 122.44(d)(1)(vi). In contrast to the legal definition of a water quality standard and the EPA permitting regulations, and while it discusses the applicable narrative criteria, EFSEC states that it “uses numerical criteria . . . to derive the effluent limits in the discharge permit.” EFSEC, *Fact Sheet for NPDES Permit WA002515-1: Columbia Generating Station* (Jan. 15, 2014) (hereafter, Fact Sheet), page 25. This limitation is plainly inconsistent with legal requirements. Instead, EFSEC must also ensure compliance with Washington and Oregon narrative criteria. Washington’s narrative toxic criterion states that

Toxic substances shall not be introduced above natural background levels in waters of the state which have the potential either singularly or cumulatively to adversely affect characteristic water uses, cause acute or chronic toxicity to the most sensitive biota dependent upon those waters, or adversely affect public health, as determined by the department.

WAC 173-201A-240(1). Likewise, Oregon’s narrative toxic criteria, which also must be met, see discussion *infra*, states that,

Toxic substances may not be introduced above natural background levels in waters of the state in amounts, concentrations, or combinations that may be harmful, may chemically change to harmful forms in the environment, or may accumulate in sediments or bioaccumulate in aquatic life or wildlife to levels that adversely affect public health, safety, or welfare or aquatic life, wildlife, or other designated beneficial uses.

OAR 340-041-0033(2).

3. Full Protection of Designated and Existing Uses is Required to Meet Water Quality Standards

a. The Designated Uses

EPA, *Final Rule: Surface Water Toxics Control Program and Water Quality Planning and Management Program*, 57 Fed. Reg. 33040, 33045 (July 24, 1992).

The designated uses of the Columbia River, at the point of discharge and downstream, are set out in Washington and Oregon water quality standards.

b. Existing Uses Require Protection to Demonstrate Compliance with the Antidegradation Policy

In addition, beneficial uses that are “existing” but not designated are protected by Tier I of the antidegradation policy that is a part of state water quality standards, as explained above. 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).

While EFSEC correctly observes that “[t]his facility must meet Tier I requirements [of the antidegradation policy] . . . to maintain and protect existing and designated uses,” the Fact Sheet does not discuss how Tier I has been protected by the proposed permit terms. Fact Sheet at 26. Specifically, nothing in the Fact Sheet identifies what existing uses might require protection but that are not designated uses. Without an analysis of whether there are any existing uses that have not been designated and therefore not taken into account when numeric criteria were developed, the analysis cannot but fail to evaluate whether the discharge is or is not consistent with Tier I requirements. For example, the McNary National Wildlife Refuge is downstream. Some of these uses in the reach or the refuge are generally “aquatic life” but are existing uses in that they have not specifically been identified and protected by numeric criteria adopted by the state.

If the numeric criteria upon which EFSEC incorrectly relies to establish effluent limits were based on protection of species that are less sensitive than other aquatic and aquatic-dependent species, the role of use protection in the water quality standards becomes clear. For example, if the numeric criteria were established to protect salmonids but freshwater mussels are more sensitive, the application of water quality standards requires that either the use support and/or the narrative criteria be applied to provide protection for the freshwater mussels.

This is not just a theoretical construct. Recently, for example, EPA issued new recommended criteria under section 304(a) of the CWA for protection of aquatic life from ammonia that provides protection to freshwater mussels hithertofore omitted. *See* EPA, Aquatic Life Criteria – Ammonia, 2013 Final Ammonia Criteria (“EPA’s 2013 ammonia criteria reflect new data on sensitive freshwater mussels and snails[.]”) (attached as Exhibit 34). Its previous criteria were established to protect fish but not the more sensitive mussels. For that reason, mussels were for all practical purposes existing uses, in that it was assumed numeric criteria were established to protect the uses that had been designated, i.e., commercially and recreationally-important fish. Since Washington’s numeric water quality criteria continue to omit protection of freshwater mussels from the effects of ammonia, this pollutant provides an excellent example of the importance of designated and existing use support that is required in order to ensure a discharge is not violating state water quality standards.

c. Status of Support of Designated and Existing Uses in the Columbia River

Many of the numeric criteria established in Northwest states' water quality standards are intended to provide protection for salmonids. However, salmonids are not the most sensitive species in all instances. Therefore, EFSEC must evaluate whether there are designated and/or existing uses downstream of the CGS discharge that are already affected by pollutants including the CGS discharge.

The CGS discharge at river mile 351 enters the Columbia River in the Hanford Reach, which is defined as:

the portion of the river most closely associated with the Hanford Site, is approximately 51 miles long, extending from Priest Rapids Dam (River Mile (RM) 397) to McNary Pool (RM 346). The Hanford Reach "is the last non-impounded, non-tidal segment of the Columbia River in the United States" and "contains significant riparian habitat that is otherwise rare within the Columbia River system."

Hanford Natural Resource Trustees, Hanford Natural Resource Damage Assessment Injury Assessment Plan (Jan. 31, 2013), pages 3-1 to 3-2 (internal citations omitted) (attached as Exhibit 1). This report discusses some of the aquatic species that are present downstream of the CGS discharge:

The Hanford Reach of the Columbia River also supports a number of economically and/or culturally important fish and mollusk species such as the Chinook salmon (including the endangered Upper Columbia spring-run Chinook), coho salmon, sockeye salmon, steelhead (a Federally-listed threatened species), Pacific lamprey (a Federal Species of Concern), bull trout (threatened), white sturgeon, land snail, freshwater snail, Columbia pebblesnail, freshwater Limpet shortface lanx, and the California floater.

Id. at 3-1. In addition, freshwater mussels have been present in the Hanford Reach including the western pearlshell which is described as having been "largely absent from its historical range" in 2011, making it likely to be an existing use that has been totally or partially extirpated and/ or is on the verge of extirpation. *See id.* at 7-11. Specifically,

The Hanford Reach mussel community has undergone significant change. Mueller et al. (2011) evaluated the species, distribution, and densities of native freshwater mussels in the Hanford Reach. Four species of native mussels were identified, of which the western and Oregon floaters (*Anodonta kennerlyi* and *Anodonta oregonensis*) were most abundant. The California floater (*Anodonta californiensis*) was the next most abundant, while the formerly-abundant western pearlshell (*Margaritifera falcata*) appears to have been extirpated. This species has also been in decline regionally (WCH 2008, Appendix F). Potential causes of decline include physical/chemical habitat alterations, thermal stress, availability

of host fish, competition with non-native species, and the presence of contaminants. Pauley (1961, 1967, 1968) (as cited in Ingersoll et al. 2012) found high levels of pedunculated tumors in Anodonta in the Hanford Reach.

Id. at 7-22.

These examples of uses that are or may be designated generally (e.g., “aquatic life”), uses that may have been present at any time since November 28, 1975 but which have since been extirpated and therefore constitute existing uses, and other existing uses that may or may not be designated all require full support pursuant to the states’ water quality standards. In order to ensure support of aquatic and aquatic-dependent species which are not considered commercially or recreationally important, and to ensure protection of existing uses, EFSEC must first identify those species. We have not attempted to catalogue all designated and existing uses that may not be adequately protected by application of numeric criteria as that is the job of the applicant and permitting agency. What we have demonstrated is that there are designated and existing uses that EFSEC has failed to evaluate.

d. Monitored Effects on Receiving Water Uses

Although not included in Washington Ecology’s 303(d) list or the EFSEC evaluation, data and information exist to demonstrate that chemicals from the Hanford Site are having measurable effects on aquatic species in the CGS receiving water. For example, DOE (2011b) discusses results of sampling in 2006 and 2007 for mussels, sculpin, juvenile suckers, and for Asian clams in situ:

In mussels, the authors found statistically increased observations between study site versus reference site organisms, in two of the 20 measurements: digestive cell vacuolation severity and degraded mantle condition. This study was limited to six study sites and three reference sites.

Exhibit 1 at 7-12. And,

[i]n Asian clams (a non-native species), the authors found statistically increased observations between study site versus reference site organisms, in two of the 19 measurements: the incidence of digestive system epithelial cell shedding, and reproductive system follicle cyst presence. These clams were exposed in situ for periods of 3 or for 7 to 8 months.

Id. at 7-13.

As previously discussed, populations of mussels, which “are sentinels of freshwater community health, *id.* 7-23, have already “undergone significant change,” in the Hanford Reach, *id.* at 7-22. Similarly, prickly sculpin “can serve as a surrogate for other species of conservation concern,” *id.* at 7-26, and are “indicators of stream health,” *id.* at 7-27. It is particularly important to note the life cycle of sculpins, which has “the potential for significant exposure to contaminants in sediments or in upwelling groundwater” and because they have a limited home

range therefore reflect localized water quality. *Id.* Moreover, because numeric criteria in Washington and Oregon have primarily been established on the basis of providing protection for salmonids, sculpins may need to be evaluated based on the requirements of the states' narrative criteria because "sculpin have been reported as being more sensitive to certain metals than are salmonids and other larger fish, and have been extirpated from some streams due to elevated metal concentrations." *Id.* at 7-28. Nothing in the EFSEC fact sheet for the proposed CGS permit indicates that these species have been evaluated for existing water quality impacts on them.

B. The Facility Must Meet Water Quality Standards of the Downstream State, Oregon

Federal regulations require that NPDES permits include conditions necessary to ensure compliance with the water quality requirements of all affected states. 40 C.F.R. § 122.44(d)(4). Despite the fact that the discharge from the CGS facility enters the Columbia River at river mile 351.75, which then becomes a bi-state water body at river mile 309, where Oregon water quality standards apply,² EFSEC did not evaluate the discharge for compliance with Oregon's water quality standards. Therefore, EFSEC must still determine if the discharge has the reasonable potential to cause or contribute to excursions above Oregon's water quality standards, in addition to Washington's water quality standards.

If the discharge has the reasonable potential to cause or contribute to excursions above Oregon's water quality standards, water quality-based effluent limits must be established which ensure compliance with Oregon's water quality standards, in addition to Washington's water quality standards, whichever is more stringent. This is not only a legal requirement but in this particular instance a good policy outcome because Oregon's water quality standards for toxic contaminants are far more up-to-date than Washington's.

For example, Washington remains under the EPA's National Toxics Rule for human health criteria, which are not only based on the now outdated 6.5 grams/day of fish consumption and use criteria that were available in 1992, these criteria actually date to 1980. Instead of using Washington's criteria, that are over two decades old, Oregon's human health criteria were approved by EPA in October 2011 and are based on fish consumption rate of 175 grams/day, using the most up-to-date 304(a) recommended criteria. Likewise, for freshwater, with the exception of ammonia criteria, Washington's aquatic life criteria were all adopted and submitted to EPA on November 25, 1992, and approved by EPA on March 18, 1993, again making them over two decades old. The ammonia criteria are also not consistent with EPA's most recent recommended criteria. Not only is assuring compliance with Oregon's water quality standards required by law, it is appropriate policy under the circumstances of Washington's wholly outdated standards.

Not all of Oregon's aquatic life criteria may be used without further analysis, however. On August 14, 2012, the National Marine Fisheries Service (NMFS) issued a biological opinion

²See, e.g., EPA, Total Maximum Daily Loading (TMDL) to Limit Discharges of 2,3,7,8-TCDD (Dioxin) to the Columbia River Basin (Feb. 25, 1991) at 1-1.

(BiOp) on Oregon's updated aquatic life criteria. See Exhibits 7a, 7b, and 7c (attached). The BiOp concluded that the criteria for cadmium, copper, ammonia, and aluminum posed a jeopardy to species listed under the Endangered Species Act (ESA). Consequently, the use of those numeric criteria must be supplemented by use of the applicable narrative criteria to ensure against jeopardy and to ensure that the designated uses are fully supported consistent with the CWA. As explained above, both states' narrative criteria are applicable and must be met.

C. What's in the Discharge?

The Fact Sheet states that in terms of Outfall No. 1, the "discharge contains heat, residuals from treatment additives, constituents from the intake Columbia River water (concentrated by evaporation), and system corrosion products." Fact Sheet at 10. Immediately prior to this statement, it explains that the chemicals added to "inhibit deposition of solids and to limit corrosion and biological growth in the system" include the following: sulfuric acid, polyphosphate blend, phosphonate copolymer, sodium tolytriazole, sodium hypochlorite, and sodium bromide. *Id.* It also states that a "chemical cleaning" agent is used on the main condenser periodically but it is not named. *Id.* Copper is in the discharge as are "concentrated minerals." *Id.* Hydrogen peroxide, Busan 77, and sodium silicate are added to the service water system blowdown. *Id.* The Fact Sheet also establishes a list of constituents found in the effluent to include: ammonia, chlorine, chromium, copper, bromoform, zinc, antimony, arsenic, lead, mercury, nickel, and selenium. *Id.* at 34. It is unclear that this is a complete list of all constituents in the discharge and the fact sheet does not explain where quantitation limits may prevent identification of contaminants.

D. Impairment Status of Receiving Water

When a permitting agency seeks to determine if 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 agency is required 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). This means that, at a minimum, the permitting agency must know the impairment or pollution status of the receiving water by consulting the states' 303(d) lists and reviewing other data and information on receiving water quality.

Little, if any, water quality monitoring appears to have taken place in the receiving water. Instead, EFSEC relies on a mixing zone study from June 2008 which evaluated 18 parameters in the immediate area of the discharge. Fact Sheet at 15-16. One problem with relying solely on ambient water quality monitoring, however, is that many toxic contaminants are not measurable at levels known to constitute a violation of water quality standards (e.g., numeric criteria) and because many toxic contaminants build up in depositional areas of sediment and/or tissue of aquatic or aquatic-dependent species downstream.

EFSEC cannot rely solely on the states' current 303(d) lists for several reasons. First, the applicable regulations do not provide for any such restriction. Instead, they refer to a requirement to "ensure" and to "achieve" water quality standards. See, e.g., 40 C.F.R. §§ 122.4, 122.44(d). Second, Oregon's list is outdated. Oregon's last approved list was for 2010 and

based on a “call for data” that ended on June 11, 2009, nearly five years ago. *See* Oregon DEQ, Oregon’s 2010 Integrated Report (attached as Exhibit 2) and Oregon DEQ, Call for Data (attached as Exhibit 3). Third, Oregon has declined to update its proposed 2012 list to include all data and information available to it. *See, e.g.*, Feb. 24, 2014 Letter from Nina Bell, NWEA, to Karla Urbanowicz, Oregon DEQ, Re: Oregon’s Draft 2012 Integrated Report and Section 303(d)(1) List of Impaired Waters, pages 8-11 (attached as Exhibit 4); *see also* Oregon DEQ, Methodology for Oregon’s 2012 Water Quality Report and List of Water Quality Limited Waters (Dec. 20, 2013) (attached as Exhibit 5).³ Fourth, Washington’s list is also out-of-date. Ecology last updated its freshwater 303(d) list in 2008, six years ago. *See* Washington DOE, Differences Between the Recent 303(d) Lists (attached as Exhibit 6). Therefore both Washington’s and Oregon’s EPA-approved lists are mere starting points for assessing whether the CGS discharge is contributing to violations of water quality standards. EFSEC, however, must do much more to evaluate the status of the receiving water for the CGS discharge.

1. The States’ Lists Fail to Take Into Consideration the Most Recent Washington and Oregon Fish Consumption Advisories

Washington and Oregon have issued a fish consumption advisory due to elevated levels of mercury and PCBs found in fish tissue from Bonneville Dam, at river mile 145, for 150 miles upstream to McNary Dam, at river mile 292. Neither state has incorporated this fish consumption advisory in its current 303(d) lists. Contributions of mercury and PCBs upstream of river mile 292, from the CGS discharge, would constitute a contribution to the violations of water quality standards represented by these fish consumption advisories regardless of their not having been used by the states to update their 303(d) lists.

a. Water Quality-Based Mercury Limits Are Required

The fact sheet establishes that mercury is present in the discharge. Fact Sheet at 35. It concludes that there is no reasonable potential for mercury to exceed water quality criteria. *Id.*; *see also id.* at 66. The problem is that this conclusion is based on Washington criteria alone, not the applicable and much more stringent Oregon human health criteria for mercury, and it is based, presumably, upon the belief that mercury is not already impairing the receiving water. As a contribution of mercury from the CGS represents the addition of a bioaccumulative pollutant, the permit must include an effluent limit that takes into consideration this fact and existing controls on point and nonpoint sources of mercury, if any exist.

Moreover, the monitoring requirements for any water quality-based permit limits properly derived from use of the Oregon human health criteria and the fact that the receiving water is water quality limited, must be established using sufficiently sensitive methods to demonstrate compliance with those effluent limitations. EPA currently has a proposed rule that is based on “existing EPA regulations.” 75 Fed. Reg. 35712 (June 23, 2010). As this preamble to the proposed rule and an earlier memorandum point out, *existing regulations* require that

³For example, Oregon’s draft 2012 list uses aquatic life criteria that are no longer applicable. *See* Oregon Methodology at 57 (“While the approved aquatic life criteria are effective for Clean Water Act purposes, the approval from EPA occurred late in the process of data evaluation for the 2012 Integrated Report. For the 2012 Integrated Report, the pre-revision aquatic life numeric criteria on OAR 340-041 Table 20 were used.”).

monitoring requirements in permits specify an analytical method that is sufficiently sensitive in light of the effluent limit. Specifically,

EPA therefore expects the permitting authority to require the use of a sufficiently sensitive EPA-approved method for monitoring under the permit in order to ensure that the sampling and measurements required are “representative of the monitored activity” (as required by 40 CFR 122.41(j)(1)). For purposes of monitoring under a permit, a method for mercury is “sufficiently sensitive” when (1) its method quantitation level is at or below the level of the mercury limit established in the permit or (2) its method quantitation level is above the mercury limit in the permit, but the amount of mercury in a facility’s discharge is high enough that the method detects and quantifies the level of mercury in the discharge.

EPA, Memorandum from James Hanlon, Director, Office of Wastewater Management to Water Division Directors, Re: Analytical Methods for Mercury in National Pollutant Discharge Elimination System (NPDES) Permits (Aug. 23, 2007) (attached as Exhibit 8).

Despite the fact that this rule has not been finalized, existing EPA regulations and the statute require that monitoring be “representative of the monitored activity,” EPA guidance illuminates this requirement specifically for mercury, and EPA Region X policy adheres to existing regulations, the proposed regulation, and EPA policy. *See, e.g.*, Nov. 7, 2012 Letter from Michael Lidgard, Manager, Region X NPDES Permits Unit, to Nancy Stellmach, Permit Coordinator, Oregon DEQ, Re: Comments on Proposed National Pollutant Discharge Elimination System (NPDES), Permit for Koppers Inc., Permit No. 101642, page 1 (attached as Exhibit 9). The proposed permit appears to have used the appropriate methodology, specifying Method 1631E, which is the most sensitive method currently available. Proposed Permit at 37.

b. Water Quality-Based PCB Limits are Required, with Appropriate Detection Methodology

The fact sheet states that there is a technology-based limit for PCBs of “no discharge.” The proposed permit specifies the use of Method 608 for PCBs. *See* Proposed Permit at 41. Use of Method 608 is not sufficient to ensure that the discharge will meet the permit limits of “no discharge” of PCBs because this method is not the most sensitive methods available for detection of PCBs. *See id.* at 5 (special condition S1). Moreover, only by using the most sensitive method for PCB monitoring can EFSEC ensure that the water quality-based effluent limits in the permit conform to Oregon’s human health criteria for PCBs.

Oregon’s current PCB criteria for human health are both 0.0000064 µg/L (6.4 pg/L). EPA sets out minimum requirements for NPDES compliance monitoring in 40 C.F.R. Part 136. For PCBs, EPA recommends use of EPA Method 608. The level of detection for PCBs under EPA Method 608 is 0.5 µg/L (500,000 pg/L). The difference between Oregon’s criteria for PCBs and the level of detection in Method 608 is *five orders of magnitude*.

In contrast, the Department of Ecology has achieved detection limits in fish tissue at 0.04 ug/kg for total PCBs and 0.01-0.1 ug/kg for some congeners, 100 pg/L total PCBs (Yakima River) using semi-permeable membrane devices, 5 pg/L for individual congeners (Puget Sound Water Column Study), 10-200 pg/L for individual congeners (Puget Sound Surface Runoff Study), and 10 pg/L (Yakima River TMDL/wastewater treatment plant effluent). All of these results are two to four orders of magnitude better than the current EPA Method 608 on which EFSEC intends to rely in issuing the CGS permit.

Likewise, PCB monitoring by the Delaware River Basin Commission (DRBC) is conducted using Method 1668, Revision A. *See* Gregory J. Cavallo, Thomas J. Fikslin, Delaware River Basin Commission, Powerpoint: An Evaluation of Methods to Quantify PCB Concentrations, February 16, 2011 (attached as Exhibit 33). As the DRBC states, there are “substantial differences in . . . both the type of results and detection limits achieved” between EPA Methods 608 and 1668A. *Id.* at 4. EPA Method 608 has a detection limit of 0.065 µg/L (65,000 pg/L). *Id.* at 6. In contrast, EPA Method 1668A has “detection limits in the single pg/L range,” namely 1-3 pg/L per congener as demonstrated in over 1,000 samples collected from over 90 NPDES dischargers. *Id.* at 9, 11. The difference between these detection limits is four orders of magnitude. Delaware has pointed out other drawbacks to use of EPA Method 608. For example, it does not analyze for all PCB congeners, *id.* at 7, whereas, in contrast, EPA Method 1668A provides results for all 209 PCB congeners, *id.* at 9. The DRBC points out that this ability to identify individual PCB compounds is “[c]ritical when evaluating weathered samples.” *Id.* at 10. The DRBC points out several other major benefits of the Method 1668A over Method 608, including the ability to compare the results across all media sampled.⁴

2. EFSEC Has Failed to Identify and Take Into Consideration Relevant Washington Impairments

Washington has identified the following areas of the Columbia River as impaired by the stated pollutants or parameters:

- (Lake Wallula) for temperature, TDG
- (Lake Umatilla) for temperature, TDG, DDE, Chlordane, PCBs, dioxin
- (Lake Celilo) for temperature, TDG, dioxin
- Columbia River for DO, pH, temperature, dioxin, aldrin, chlordane, TDG, dieldrin, PCBs, DDE and bioassay in sediment

The Washington Department of Ecology appears to have limited its data and information for the Hanford Reach to a very narrow scope of sources because, in contrast,

The Trustees have identified at least seven partially overlapping databases that contain many measurements of concentrations of hazardous substances in site

⁴*Id.* at 7 (single calibration standard added at 50 µg/L) vs. *id.* at 9 (multiple point calibration standard with lowest calibration point equivalent to 5 pg/L). Likewise, whereas Method 608 applies only to wastewater, *id.* at 6, Method 1668A can be used for water, sediment, and tissue analysis. As a result of its many superior attributes, Method 1668A has multiple advantages including “reduced analytical uncertainty,” and better “comparability between samples and across media.” *Id.* at 10.

media and biotic tissues. The Hanford Environmental Information System (HEIS) database contains the largest numbers of samples of soils, surface water, biota, and groundwater, while other databases contain larger numbers of sediment and pore water samples. HEIS continues to be developed, and may eventually serve as the repository for virtually all site sampling efforts, past and ongoing. A substantial effort has been underway within this past year to add more data to HEIS; as this effort progresses, it may become increasingly less necessary to rely on other compilations of contaminant information. In addition to HEIS, databases with information on aquatic samples include: (a) the Columbia River Component historic database, (b) the Columbia River Component Data Summary Report for the Remedial Investigation of Hanford Site Releases to the Columbia River (WCH 2011), and (c) the River Corridor Baseline Risk Assessment GiSdT database.

Exhibit 1 at 7-10. Therefore, EFSEC may not rely solely upon the Washington 303(d) list to assess whether downstream waters are impaired and whether constituents in the CGS discharge will contribute to such violations individually or collectively, as required by application of the narrative criterion discussed *supra*.

3. EFSEC Has Failed to Identify and Take Into Consideration Relevant Oregon Impairments

Oregon has identified the following segments of the Columbia River as impaired by the stated pollutants or parameters:

- 0-35.2 for arsenic, DDE, dioxin, PCBs, TDG
- 35.2 - 98 for arsenic, DDE, dioxin, PCBs, TDG
- 98 - 142 for arsenic, DDE, dioxin, PCBs, pH (fall/winter/spring), PAHs,
- 142 - 188.6 for dioxin, PCBs, pH, TDG,
- 188.6 - 213.7 for dioxin, TDG
- 213.7 - 287.1 for dioxin, TDG
- 287.1 - 303.9 for dioxin,
- 121.8-319.3 for pH (fall/winter/spring)
- 0 - 306.1 for temperature

While Washington's 303(d) list takes into consideration data on tissue residues found in aquatic life and sediment data, Oregon does not use data or information from these media, in violation of its EPA-approved narrative criteria on toxics which states that "[t]oxic substances may not be introduced . . . in amounts, concentrations, or combinations that . . . *may accumulate in sediments* or bioaccumulate in aquatic life or wildlife *to levels that adversely affect* public health, safety, or welfare or aquatic life, wildlife, or other designated beneficial uses." OAR 340-041-0033(2) (emphasis added). Despite the clear language of its narrative prohibition, Oregon identifies only as of "potential concern" data that demonstrate "elevated sediment levels when compared to certain guidelines or guidance values[.]"

As a result, the following substances were found in sediments at levels that exceed guidelines or guidance values for river miles 0 to 142 were not listed as having violated the narrative criterion: aldrin, alpha-BNC, arsenic, benzo(a)anthracene, benzo(g,h,i)perylene, bhc, cadmium, chromium (hex), chrysene, copper, DDD, DDT, DDE, dieldrin, dioxins/furans, endrin, iron, mercury, nickel, phenol, PAHs, pyrene, silver, tributyltin, zinc. Oregon DEQ, Water Quality Assessment Database: Oregon's 2010 Integrated Report (attached as Exhibit 10).⁵ In addition, for river miles 35.2 to 142 cyanide levels were also elevated but listed as impaired. *Id.* Likewise, despite the clear language of the narrative criterion with regard to amounts that “may . . . bioaccumulate in aquatic life or wildlife,” Oregon DEQ does not use any tissue residue data for listing unless the department of health has issued a fish advisory for human consumption. Exhibit 5 at 58.

Because some of the toxic contaminants found in downstream sediments and tissue are bioaccumulative, the discharge of these pollutants from the CGS upstream is contributing to violations of narrative water quality standards downstream regardless of Oregon's 303(d) listing policies, which do not amend or otherwise change their water quality standards. Similarly, while Oregon does not place waterbody segments on its 303(d) list for combinations of pollutants, *see* Exhibit 5 at 58 (“Two (2) or more valid results not meeting the most stringent applicable criterion for concentrations of a specific toxic substance in the water[.]”), EFSEC is obligated to consider the prohibitions on combinations of pollutants set out in the states' narrative criteria in establishing the effluent limits for the CGS.

4. Hanford Site Operation's and Other Sources' Contribution to Impairment of the Columbia River

In evaluating the discharge and the proposed permit, EFSEC makes no mention of the releases of radioactive and chemical materials from various aspects of the Hanford Site. In fact, chemicals in underground tanks, major groundwater plumes, releases, etc. have been studied. *See, e.g.*, Exhibit 1 at 2-14, Ex. 2-2 (Preliminary Assessment-Focused List of Hazardous Substances). This chart contains a list of radioisotopes, organics, and inorganics, including some of the pollutants that EFSEC states are present in the CGS discharge. However, when a permitting agency seeks to determine if 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 agency is required 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). Not only has EFSEC not evaluated these releases but it has not accounted for existing controls, if any, on these point and nonpoint sources of toxic pollutants.

While we are not able to obtain all the data and information on water, sediment, and tissue contamination that exist on water quality of the Columbia River, there is evidence that neither the applicant nor EFSEC have obtained that relevant information. For example, the U.S. Department of Energy appears to have a substantial amount of data on releases from the Hanford site to the Columbia River. *See* U.S. DOE, Remedial Investigation for Hanford Site Releases to

⁵Database set to search Columbia River, all watersheds, Category 3b “potential concern.”

the Columbia River; Data Quality Objectives Workshop #1 (Feb. 5 and 6, 2008) (attached as Exhibit 11).

Specifically, analytes exceeding human health or ecological screening criteria in sediments include: aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, chromium VI, iron, lead, manganese, mercury, selenium, silver, thallium, uranium, vanadium, zinc, bis(2-ethylhexyl) phthalate, pesticides, carbon tetrachloride, 1,1,2-trichloroethane, 1,2-dichloroethane, chloroform, tetrachloroethene, trichloroethene, along with the radioactive nuclides potassium-40, strontium-90, tritium, uranium-234, and uranium-238. *Id.* at 21 (Table 5-3: Summary of Analytes Exceeding HH or Eco Screening Criteria –Sediments). This same list of analytes exceeded human health and/or ecological screening criteria for surface water. *See id.* at 22 (Table 5-4: Summary of Analytes Exceeding HH or Eco Screening Criteria –Surface Water). These data do not take into consideration areas that have not been evaluated. *See, e.g., id.* at 23 (Preliminary Data Gaps); *id.* at 26 (Study Zones of the Components of the RCBRA on the Hanford Site: “Pathways incomplete for Ecological Receptors Higher than 10 ft. Above the Water Table”).

The primary sources of chemical and radioactive contaminants from the Hanford site operations is former reactor cooling water discharges, contaminated groundwater seepage to the Columbia, and redeposition of contaminants from normal flow and during flooding. *See id.* at 28 (Primary Source Areas). Of the former, USDOE has identified 15 cooling water discharge pipes from eight once-through reactors, meaning that the cooling water containing metals and radionuclides was discharged directly to the Columbia. *Id.* at 29. USDOE has concluded that “[a]reas directly downriver of these pipes have been identified as likely depositional areas.” *Id.* That does not mean, however, that such depositional areas are not themselves sources to other downstream areas. *See id.* at 35 (Primary Source Areas -Redeposition). Some, but presumably all, depositional areas have been identified, including: the far shoreline, mid-river islands, holes or other depositional areas within the Hanford Reach, Lake Wallula, and the deep sediment behind McNary Dam. *Id.* at 38 (Primary Source Areas -Redeposition).

In addition, contaminated groundwater discharging to the river from the 100 Area contains chromium, strontium-90, and tritium; from the 200 Area contains carbon tetrachloride, chromium, technetium-99, tritium, uranium (elemental), and iodine-129; and from the 300 Area contains volatile organic compounds, including but not limited to tetrachloroethene, trichloroethene, 1,2-dichloroethane, tritium, and uranium. *Id.* at 34 (Primary Source Areas - Groundwater Discharge).

The USDOE River Corridor Closure Project document to which we have cited was prepared in 2008. A substantial body of additional data is now available for use by the applicant and EFSEC that are a result of implementing the sampling plans discussed in this document. *See* Washington Closure Hanford, Mission Completion Project Library (attached as Exhibit 12, 12a, 12b, 12c, and 12d).⁶ Not only does EFSEC need to use these data to assess the quality of the receiving water for pollutants which are present in the CGS discharge and to evaluate the

⁶Available at

http://www.washingtonclosure.com/projects/environmental_protection/mission_completion/project_library/#investigation

cumulative impact of the pollutants to assure compliance with narrative criteria but it must assess the controls on these pollution sources, along with the irrigation return flows discharging to this portion of the river, in order to develop appropriate water quality-based effluent limits for the discharge.

For example, results from later work demonstrates that chromium and chromium VI are “prevalent throughout Reach” and “some metals [are] elevated in 300 Area Sub-area island soils and sediments.” USDOE, Data from the Remedial Investigation of Hanford Site Releases to the Columbia River (Oct. 2010) at 8 (Preliminary Findings - new information) (attached as Exhibit 13). The 300 Area Sub-area includes the rivermile of the CGS discharge. *See id.* at 11 (Columbia River Remedial Investigation Area) (300 Area Sub-Area is approximately river miles 340 to 360). The elevated metals include lead and cadmium. While cadmium is not listed as being in the CGS discharge, lead is. These data must be taken into account in establishing the water quality-based effluent limits for the CGS discharge.

In addition, cadmium at levels currently allowed by Oregon water quality standards for protection of aquatic life have been determined to cause jeopardy to salmonids. Therefore, in evaluating the combined effect of multiple pollutants to ensure compliance with the narrative criteria and designated use support, the effect of this pollutant cannot be assumed to be that which the states have already used and incorporated into their numeric criteria. The maximum chromium VI detected was in shallow sediments at river mile 357, a few miles downstream of the CGS discharge. *Id.* at 39 (Hexavalent Chromium in Shallow Sediment). The data collected by the US DOE for their human and ecological risk assessments include non-Hanford pollutants, particularly metals, making this a rich source of data. For example, Johnson Island – at rivermile 345-346 – is described as a “hot area,” *id.* at 214 (Exposure Assessment), for both radionuclides and metals, *id.* at 227. Again, EFSEC is obligated to use these data in evaluating the need for WQBELs for the CGS discharge and in establishing such limits.

5. Impairment of Existing and Designated Uses

In addition to EFSEC’s failure to review data on contamination of water, sediment, and tissue to which the CGS may contribute under the terms of its existing permit and the proposed permit, EFSEC also failed to evaluate possible contributions to existing impairments of designated and existing uses. As discussed elsewhere in these comments, there are a range of aquatic and aquatic-dependent species, including freshwater mussels, in the immediate and near-field area of the discharge which must be considered as Washington’s standards require full support of existing and designated uses. In addition, there are pollution impacts to species further downstream which come from pollution sources throughout the Columbia River basin providing another context in which the CGS discharge must be evaluated.

Specifically, these include reproductive failure and reproductive abnormalities in bald eagles, mink, and otter from such pollutants as mercury, DDT and its metabolites. *See., e.g.*, Henny, C.J., R.A. Grove, and O.P. Hedstrom (Feb. 12, 1996), *Field evaluation of mink and river otter on the Lower Columbia River and the influence of environmental contaminants, final report submitted to the Lower Columbia River Bi-State Water Quality Program* (attached as Exhibit 15); EPA, Columbia River Basin: State of the River Report for Toxics (Jan. 2009) at 24 (attached

as Exhibit 14) (“PCBs can also adversely affect the ability of mink and otter to reproduce. Mink are especially sensitive to the toxic effects of PCBs. Studies in the late 1970s showed that PCBs in mink from the Lower Columbia River were as high as those levels that are reported to cause total reproductive failure in female mink.”), at 21 (DDE caused reproductive failure in bald eagles and osprey); WDOE, Lower Columbia River Bi-State Program, Contaminant Ecology of Fish and Wildlife of the Lower Columbia River, Summary and Integration (April 1996) at 26 (attached as Exhibit 16) (“The river contains each type of contaminant which was studied - dioxin, chlorinated hydrocarbons, PCBs, trace metals, as well as other classes such as aromatic hydrocarbons. Some species, such as the mink and river otter, apparently tolerate certain contaminants like chlorinated hydrocarbons. However, the same mink and otter are affected by the other contaminants such as dioxins and PCBs. In every instance in which dioxins were studied, they were present in harmful levels. The river otter, mink, eagle, and phytoplankton are all very sensitive to PCBs which are found in excess of risk thresholds. The primary variable which determined the presence and deleterious effects of the contaminants in question was simply whether it had been studied. . . . What has been measured is reflected in poorly producing eagles, the near extirpation of mink, and impacted development of river otter male genitalia.”). There are many more reports on the topic of basin-wide contributions to Lower Columbia River use impairments; we have not attempted to collect and provide all of them.

People using the Columbia River are also designated uses affected by the CGS discharge in combination with other pollution sources, including the Hanford site. *See, e.g.*, Exhibit 11 at 27 (Preliminary Conceptual Exposure Model includes as potential receptors: rural residents, native Americans, dredge workers, avid anglers, casual users, and aquatic biota). The Hanford site releases are also expected to potentially impact fish, benthic invertebrates, and island wildlife and birds. *Id.* at 79 (Assessment Endpoints Reflect These Major Receptor Groups).

E. Establishing the Water Quality-Based Effluent Limits for the CGS

1. EFSEC Misconstrues Clean Water Act Permitting Requirements

The Fact Sheet indicates some odd and extra-legal thinking about required effluent limits. Specifically, it states that:

The limits in this permit reflect information received in the application and from supporting reports (engineering, hydrogeology, etc.). EFSEC evaluated the permit application and determined the limits needed to comply with the rules adopted by the state of Washington. EFSEC does not develop effluent limits for all reported pollutants. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation.

Fact Sheet at 19. EFSEC appears to believe that if a pollutant is “not treatable at the concentrations reported” that no effluent limit need be considered. It has cited no law to support that proposition nor will it find any. This finding is directly contrary to the requirements of EPA regulations. 40 C.F.R. § 122.44(d)(1)(i) (“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.”)

Likewise, pollutants that “are not controllable at the source,” are not exempted from coverage by the CWA and EFSEC does not cite any legal support for this proposition. *See id.* Similarly, pollutants that are “not listed in regulation” presumably refers to pollutants for which the state has no numeric criteria but that too is not a legal basis for failing to establish an effluent limit if one is needed. *See Jefferson County, supra*, and discussion of narrative criteria. In short, by establishing at the outset of its analysis that these three rationale can be used to support a decision to not propose an effluent limit, or perhaps even evaluate whether one is needed, EFSEC has tainted its entire proposed permit and the fact sheet that is required to set out the thinking behind the permit conditions or why no conditions are needed. The reader of this fact sheet is left not knowing to what pollutants or parameters EFSEC has applied this rationale and as it is impossible to know, it is impossible to comment on the entirety of the proposed permit language before the public.

EFSEC also has determined that it is not responsible for any pollutant that the applicant has not identified:

EFSEC does not usually develop limits for pollutants not reported in the permit application but may be present in the discharge. The permit does not authorize discharge of the non-reported pollutants.

Fact Sheet at 19. While we agree with EFSEC’s conclusion that the permit does not authorize discharge of any non-reported pollutants, EFSEC is obligated by Washington’s rules to issue a permit that addresses all pollutants.

Specifically, Washington’s water quality standards implementation rules state that “[w]aste discharge permits, whether issued pursuant to the National Pollutant Discharge Elimination System or otherwise, must be conditioned so the discharges authorized will meet the water quality standards.” WAC 173-201A-510. While EFSEC claims in the fact sheet that non-reported pollutants are not authorized, that is not what the permit says. Special condition S1, the discharge limits, states that all discharges must be consistent with the permit’s terms and that the discharge of named pollutants more frequently or in excess of stated levels is a permit violation. *See Proposed Permit at 5.*

The permit does not, however, state that discharge of any pollutant not named and limited in the permit is a violation of the permit. Instead, it is entirely silent. Therefore, while EFSEC is correct that the proposed permit does not authorize non-reported pollutants, this statement is misleading because neither does it prohibit them. The permit should be revised to clearly prohibit the discharge of unauthorized pollutants. In fact, that is the only way in which EFSEC can ensure that it has not authorized a discharge that may cause or contribute to violations of water quality standards in violation of the statute and implementing regulations.

The permit also contains a provision that allows so-called “non-routine and unanticipated” discharges without public notice and comment or modification of the permit:

1. Beginning on the effective date of this permit, the Permittee is authorized to discharge non-routine wastewater on a case-by-case basis if approved by EFSEC. Prior to any such discharge, the Permittee must contact EFSEC and at a minimum provide the following information:
 - a. The proposed discharge location
 - b. The nature of the activity that will generate the discharge
 - c. Any alternatives to the discharge, such as reuse, storage, or recycling of the water
 - d. The total volume of water it expects to discharge
 - e. The results of the chemical analysis of the water
 - f. The date of proposed discharge
 - g. The expected rate of discharge discharged, in gallons per minute
2. The Permittee must analyze the water for all constituents limited for the discharge and report them as required by subpart 1.e above. The analysis must also include any parameter deemed necessary by EFSEC. All discharges must comply with the effluent limits as established in Special Condition S1 of this permit, water quality standards, and any other limits imposed by EFSEC.
3. The Permittee must limit the discharge rate, as referenced in subpart 1.g above, so it will not cause erosion of ditches or structural damage to culverts and their entrances or exits.
4. The discharge cannot proceed until EFSEC has reviewed the information provided and has authorized the discharge by letter to the Permittee or by an Administrative Order. Once approved and if the proposed discharge is to a municipal storm drain, the Permittee must obtain prior approval from the municipality and notify it when it plans to discharge.

Proposed Permit at 20-21. The Fact Sheet provides no legal authority for a permit condition that purports to authorize EFSEC to issue a permit modification through a letter or administrative order.

EFSEC cannot modify an NPDES permit in advance through a condition that bypasses public and EPA review. States may establish permit requirements that are more stringent than federal requirements but not less stringent. 40 C.F.R. § 123.25(a). Federal regulations require that draft permits be developed, 40 C.F.R. § 124.6(d), a fact sheet be developed, 40 C.F.R. §§ 124.8 and 124.56, and a public notice be issued and public comment be offered, 40 C.F.R. § 124.10. A permit may be modified, pursuant to 40 C.F.R. § 122.62, where there are alterations or additions to the permitted facility or activity, such as a discharge not previously contemplated, or new information is available that was not available at the time of permit issuance. We are unable to find any provision in law, however, that allows a permitting agency to essentially modify a permit in advance, bypassing all of the procedures that are required by law.

2. EFSEC Failed to Address Other Sources of Pollution and the Potential Impacts of Multiple Pollutants

EFSEC has failed to “account for existing controls on point and nonpoint sources of pollution,” as required by 40 C.F.R. § 122.44(d)(1)(ii) because it has not identified all the pollutants being discharged or released by other sources to the receiving water nor has it evaluated the existing controls on those sources. Moreover, both the Washington and the Oregon narrative criteria for toxics require protection of designated uses from the combined effects of multiple pollutants. Washington’s narrative toxic criteria prohibits the introduction of toxic substances which “have the potential either singularly or cumulatively to adversely affect characteristic water uses[.]” WAC 173-201A-240(1). Similarly, Oregon’s narrative toxic criterion prohibits the introduction of toxic substances “combinations that may be harmful[.]” OAR 340-041-0033(2).

In both instances, there need not be proof that the combinations of pollutants are harmful but, rather, the criterion requires that an evaluation be made of the “potential” that multiple chemicals “may” harm uses and that appropriate prohibitions be based on that evaluation. Here, EFSEC has ignored altogether the potential for multiple pollutants from the CGS in conjunction with other point and nonpoint sources to result in harm to designated uses.

3. Meeting Washington’s Antidegradation Policy Requires Use of AKART

Washington’s antidegradation policy, which is a part of the state’s water quality standards, requires 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). 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. The concept of AKART applies to both point and nonpoint sources of pollution. The term “best management practices,” typically applied to nonpoint source pollution controls is considered a subset of the AKART requirement.

WAC 173-201A-020.

In addition to AKART’s applying to Tier II reviews, “[a] discharger shall be required to fully apply AKART prior to being authorized a mixing zone.” WAC 173-201A-400 (2). EFSEC has proposed to provide the CGS discharge with a mixing zone. Therefore CGS must demonstrate compliance with AKART as part of its evaluation of setting water quality-based effluent limitations.

In contrast, while the fact sheet acknowledges these requirements, *see e.g.*, Fact Sheet at 20, it only provides a one-sentence conclusion, without explanation or analysis, that “EFSEC has

determined that the treatment provided at Columbia Generating Station meets the requirements of AKART (see “Technology-based Limits”).” *Id.* at 28. The referenced section cites to federal limitations for steam electric power generation set out at 40 C.F.R. § 423.13. *Id.* at 20. There is no basis for EFSEC to believe that AKART is the equivalent of only that which the technology-based requirements of the Clean Water Act and EPA’s implementing regulations require.

Instead, the Washington Permit Writer’s manual describes AKART as requiring an engineering judgment and an economic judgment, neither of which are present here:

In individual permitting situations AKART may be equivalent to *or more stringent than the federal effluent guidelines*. A permit manager may examine a development document and available treatment technologies for a particular category of discharger and make a determination that the federal effluent limitations are AKART. This becomes more difficult as the effluent guidelines become dated and the manufacturing processes change. In some cases the manufacturing processes change to such an extent that they no longer fit those described in the development documents. As described in an earlier section, those effluent guidelines less than 5 years old will always be AKART for the pollutants described in the development document. For effluent guidelines between 5 and 10 years old, the permit manager should compare production processes, pollutants generated and treatment efficiencies at the facility with those in the development document and in the treatability data base. For effluent guidelines older than 10years, the permit writer should do the previous analysis and review unit processes design if time allows. In some cases Ecology permit writers have determined that a category of discharger is capable of better performance than specified under effluent guidelines.

* * *

An AKART determination may take into consideration the treatment performance at a similar manufacturing facility. In this situation the permit writer must assess the costs to the facility to achieve the increased treatment efficiency. Some of the factors to be analyzed are;

1. Are the production processes equivalent?
2. Does this facility have some site specific constraints that would prohibit the increased treatment efficiency?
3. And are the facilities of comparable age?

Washington DOE, Water Quality Program Permit Writer’s Manual (July 2004) at IV-37 to IV-38 (emphasis added).

AKART may not require advances in technology, but it does require the use of widely known better technology as long as it is reasonable. See *Weyerhaeuser Co. v. Sw. Air Pollution Control Auth.*, 586 P.2d 1163, 1166 (Nov. 22, 1978). Only an analysis can determine whether this requirement has been met. There is no such analysis here. Likewise, in a formal opinion, the Washington Attorney General found that in order to determine AKART, “a review must be

conducted by the department of existing engineering technologies in order to enable it to decide which methods of treatment ... [are] suitable with respect to the waste situation involved in the particular case.” Washington Attorney General’s Opinion 1983 No. 23; quoted in *Bellingham v. DOE*, PCHB No. 84-211, 31. In addition, the Pollution Control Hearings Board has characterized AKART at “not a[n] equivalent of [the] federal formulation, but rather as an independent criterion.” *ITT Rayonier, Inc. v. DOE*, PCHB No. 85-218, 7 (1986). Because AKART requires an analysis and because AKART is a part of Washington’s water quality standards, the federally-required fact sheet must include the AKART analysis.

An additional AKART evaluation is required for the use of chlorine and/or bromine. EFSEC establishes that the technology-based limits limit chlorination to less than two hours per day, pursuant to 40 C.F.R. § 423.13(d)(1) without an exception. Fact Sheet at 20. It further states that

The 1995 permit fact sheet documents that in March 1975, Energy Northwest requested and received a waiver of the two hour limitation, stating that it was not appropriate for recirculating water cooling systems. EFSEC later approved the use of bromine as well as chlorine biocides at the facility. Bromine has the same limit and is tested by the same procedure as chlorine.

Id. As a result of this waiver, the 2006 permit prohibited discharges during biofouling treatments and “nor until the concentration of total residual halogens is less than 0.1 mg/L for at least 15 minutes.” *Id.* at 21. The applicant requested, and EFSEC proposes to agree, that this permit limit be modified “to address discharges via gravity flow from the over three mile long discharge pipe that may continue even after the circulating water is isolated from the discharge pipe.” *Id.* The fact sheet states that “EFSEC believes” this limit is the same as the current limit but provides no explanation.

The waiver of the technology-based limit places into question the role of AKART in authorizing a mixing zone for chlorine and/or bromine. According to the Washington Permit Writer’s Manual, in the example of municipal discharges where technology-based limits do not address ammonia and chlorine, the authorization of a mixing zone based on the use of AKART “should be addressed on the design basis or on a water quality basis.” *See* WA DOE Permit Writer’s Manual at VI-8. There is here, however, no discussion of how AKART has been evaluated to allow authorization of a mixing zone in light of the waiver of technology-based limits.

F. EFSEC Authorization of Mixing Zones is Inconsistent with Federal and State Law

1. Mixing Zones are Prohibited for Pollutants Being Discharged to Water Quality Limited Streams

The EFSEC Fact Sheet states with regard to mixing zones: “[t]he pollutant concentrations outside of the mixing zones must meet water quality *numeric* standards.” Fact Sheet at 27 (emphasis added). EFSEC is incorrect in stating that limitations on mixing zones apply only to

“numeric standards” when in fact pollutant concentrations outside the mixing zones must meet water quality standards, including both numeric and narrative criteria. Or, in the words of the rules, “[w]ater quality criteria may be exceeded in a mixing zone as conditioned and provided for in WAC 173-201A-400.” WAC 173-201A-020 (definition of “mixing zone”). Therefore, while criteria may be exceeded within a mixing zone, water quality standards may not be exceeded outside a mixing zone.

In fact, where a discharger contributes a pollutant to a receiving stream such that that pollutant is exceeded at the edge of the mixing zone, that discharger would be, by definition, causing or contributing to the violation of water quality standards, in contravention of the Clean Water Act. The corollary to this is that where a receiving water is water quality limited for a pollutant or combination of pollutants, a mixing zone cannot be authorized by the permitting agency for the same pollutant(s) because, by definition, that source will be contributing to the violation, contrary to the statute and regulations.

This logical result is consistent with Washington’s requirement that authorized mixing zones not be granted

unless the supporting information clearly indicates the mixing zone would not have a reasonable potential to cause a loss of sensitive or important habitat, substantially interfere with the existing or characteristic uses of the water body, result in damage to the ecosystem, or adversely affect public health as determined by the department.

WAC 173-201A-400(4). By definition, exceeding the criteria in the water quality standards is interfering with the uses of a water body and, if the pollutant is bioaccumulative for example, resulting in damage to the ecosystem. Damage to the ecosystem is defined as:

any demonstrated or predicted stress to aquatic or terrestrial organisms or communities of organisms which the department reasonably concludes may interfere in the health or survival success or natural structure of such populations. This stress may be due to, but is not limited to, alteration in habitat or changes in water temperature, chemistry, or turbidity, and shall consider the potential build up of discharge constituents or temporal increases in habitat alteration which may create such stress in the long term.

WAC 173-201A-020. As will be demonstrated below, the use of a mixing zone has the reasonable potential to cause stress to organisms as well as the build up of toxic contaminants which may cause stress over time. Moreover, EFSEC did not conduct the analysis required by the water quality standards rules, which establish a default that a discharge does not include a mixing zone unless the supporting information supports having one.

2. EFSEC Errs in Assuming Toxic Pollutants’ Adverse Impacts Diminish Rapidly Upon Mixing

EFSEC errs in concluding that “[t]oxic pollutants . . . are near-field pollutants; their adverse effects diminish rapidly with mixing in the receiving water.” Fact Sheet at 32. This is patently absurd. Most toxic pollutants are conservative. Many are bioaccumulative, meaning that their effects do not diminish because they have become diluted but, rather, they become more hazardous because they bioaccumulate and biomagnify in the tissue of aquatic life. This is precisely the “potential build up of discharge constituents” referenced in the definition of “damage to the ecosystem.” Of the pollutants in the effluent with a bioaccumulation criteria factor (BCF) equal to or greater than 1,000, and therefore generally considered to be bioaccumulative, the following at a minimum are included: chromium, copper, zinc, arsenic, lead, mercury, nickel, and selenium. *See, e.g.*, EPA, PBT Profiler, Criteria used by the PBT Profiler, Bioaccumulation Criteria (“The PBT Profiler combines the bioaccumulation criteria provided above and highlights chemicals with a BCF $\geq 1,000$ and $< 5,000$ in orange text and those with a BCF $\geq 5,000$ in red.”) (attached as Exhibit 17); *see also* EPA, Bioaccumulation Testing And Interpretation For The Purpose Of Sediment Quality Assessment Status and Needs (Feb. 2000) at 53, Table 4-2 (attached as Exhibit 18). *See also* EPA-Expo-Box, *Aquatic Biota* (attached as Exhibit 35).

For example, EPA comments that “[c]hromium compounds are very persistent in water,” and “there is a high potential for bioconcentration of chromium in aquatic organisms.” EPA, Technical Factsheet on: CHROMIUM (undated) (attached as Exhibit 19). Allowing the use of a mixing zone has the result of increasing the mass loading of a pollutant being discharged. Toxic compounds that both bioaccumulate and biomagnify have effects on uses and the ecosystem that are linked to their mass loading, not just their concentration in ambient water at or near the point of discharge. Therefore, mixing zones are not appropriate where their use will increase or maintain existing unacceptable levels of toxic constituents that are at levels in depositional areas of sediment and in tissue that are causing or are likely to cause effects. Where there is uncertainty in assessing the assimilative capacity of the receiving water, a mixing zone is not appropriate because the permit writer cannot demonstrate the supporting information clearly indicates the mixing zone would not have a reasonable potential to cause a loss of sensitive or important habitat, substantially interfere with the existing or characteristic uses of the water body, result in damage to the ecosystem, or adversely affect public health.

Because mixing zones by definition increase the mass loading of a pollutant to a water body, they can only be used when the receiving water has assimilative capacity. The Columbia River, however, does not have assimilative capacity for many toxic constituents, as discussed *supra*, because the receiving water does not meet water quality standards for those pollutants or it is unknown that assimilative capacity exists. In such an instance, the maximum possible effluent limit for the pollutant, in the absence of a wasteload allocation established in a Total Maximum Daily Load, is the applicable criterion itself applied at the end of pipe, not the edge of a mixing zone. (For lead and zinc, these calculations must be made using the hardness of the effluent to ensure that the effluent will not cause or contribute to an in-stream excursion above water quality criteria.)

In order to evaluate the impact on mass loading that accumulates in tissue and sediment, EFSEC must consider the quality of downstream tissue and sediment and on designated uses, not

limited to salmonids. Contamination in sediment does not disperse evenly but, rather, accumulates in depositional areas. Downstream of the CGS, for example,

The Hanford Reach includes several slack water areas, including the White Bluffs slough (between 100-H and 100-F Areas), the F Area slough (about 1 mile downstream of the 100-F Area), and the Hanford slough at the old Hanford townsite (Weiss and Mitchell 1992). These areas are generally depositional, and typically include more vegetation than erosional areas. A number of fish species also use slack water areas as nursery habitat.

Some contaminants adhere to sediment and tend to be transported along with sediments; consequently, sediment depositional areas can serve as sinks for certain types of contaminants. Biota that live on or in these sediments, or that derive part of their food from sediment-associated food webs, may receive increased exposures to these contaminants.

Exhibit 1 at 3-3.

3. Discharges of Pollutants for Which a Receiving Water is Impaired May Not be Given a Mixing Zone

As has been discussed above, there are many sources of data on the quality of the ambient water, sediment, and tissue residue levels that have not been taken into account in developing the proposed permit conditions. These data are essential to a decision on whether a mixing zone is appropriate in the first instance. It is, therefore, difficult to comment on the use of a mixing zone for parameters where the data have not been evaluated by EFSEC. As a matter of law, however, a discharger may not contribute to violations of water quality standards. By definition, a discharge at a concentration greater than that allowed by the water quality standards is a contribution. And, for bioaccumulative constituents, it is likely that a discharge at those concentrations is a contribution, although in the absence of a Total Maximum Daily Load (TMDL) it is difficult to assess. The absence of a TMDL, however, does not suggest that a mixing zone is allowable.

In Idaho, where EPA issues NPDES permits and Idaho has the ability to modify the permits to include mixing zones through the issuance of 401 certifications, the mixing zone rules are similar to those in most states, including Washington's. Along with various conditions and considerations of width, flow, and the like, Idaho's mixing zones include the following narrative: "The mixing zone is to be located so it does not cause unreasonable interference with or danger to existing beneficial uses." *See* IDAPA 58.060.01.b. This is similar to the requirements of WAC 173-201A-400(4), quoted above that preclude impacts to existing and designated uses and degradation of the ecosystem. In discussing the Idaho restrictions in the context of allowing a mixing zone for a discharge to an impaired water body, EPA has stated that:

A mixing zone for temperature is not permissible in this case because the stretch of the Boise River where Darigold discharges is listed on the Idaho Section 303(d) list for temperature (as well as nutrients, sediment and bacteria).

Idaho's mixing zone policy (IDAPA 16.01.02.060.b) does not allow a mixing zone if it causes unreasonable interference with or danger to existing beneficial uses. Therefore, the state could not certify further thermal impairment of the Boise River.

* * *

Because the beneficial use of the Boise River is already at risk for temperature, any increased thermal loading above that required of the beneficial use criteria would be inappropriate.

See EPA, Response to Comments, Darigold Inc. (undated) at 1, 3 (attached as Exhibit 36). Likewise, in developing another Idaho permit, EPA concluded that:

Mixing zone allowances will increase the mass loadings of the pollutant to the water body, and decrease treatment requirements. Mixing zones can be used only when there is adequate receiving water flow volume and the receiving water meets the criteria necessary to protect the designated uses of the water body. . . . Effluent limit and reasonable potential calculations for cadmium, lead, and zinc did not use mixing zones because the receiving water does not meet water quality standards for those pollutants.

EPA, Revised Fact Sheet, City of Coeur d'Alene Wastewater Treatment Plant at C-3 (attached as Exhibit 20). Moreover, where a "mixing zone is not authorized (for lead and zinc, in this case), either because the receiving water already exceeds the criterion, the receiving water flow is too low to provide dilution, or the State does not authorize one, the criterion becomes the WLA." *Id.* at C-4.

Once EFSEC has evaluated all the applicable data on downstream water quality violations to which the CGS discharge may contribute, then it can determine for which pollutants it can justify a mixing zone. Until it has done so, the default is that there may be no mixing zone.

G. Dilution in Lieu of Treatment Cannot be Authorized by an NPDES Permit

The fact sheet establishes that the CGS impermissibly dilutes its effluent prior to discharge in order to meet permit effluent limits:

At the completion of the cleaning process, if any permit condition is not met, circulating water is pumped to a storage location using temporary pumps and piping. During this pumping process, the concentration of constituents in the circulating water is reduced by the addition of makeup water from the river. When the circulating water meets all conditions for the discharge, blowdown to the river is initiated. After the condenser cleaning process is completed, the stored water will be treated (if necessary) to meet discharge requirements, then discharged.

Fact Sheet at 10. This description quite clearly states that if a permit condition is not met, the effluent is pumped to a storage location during which time river water is added to dilute the concentration of the pollutants, at which point it is discharged. (It is unclear what the last sentence means.)

EFSEC is prohibited from issuing a permit that allows for dilution in lieu of treatment. First, it is obvious that if the CWA were interpreted to mean that dischargers could simply use more water to dilute their effluent, it would undermine the goals of the statute. Second, EPA regulations prohibit this: 40 C.F.R. § 122.45(f)(1) requires that permits establish “limitations, standards or prohibitions expressed in terms of mass,” with the exception of pollutants which cannot appropriately be expressed by mass. The basis for this requirement is to “ensure that dilution will not be used as a substitute for treatment. *See* 40 C.F.R. § 122.45(f)(1)(iii). This portion of the fact sheet does not explain what “constituents” are in the diluted discharge, making it impossible for us to comment on the specific pollutants. The basis for the permit with regard to unknown parameters, however, is illegal.

II. COOLING WATER INTAKE STRUCTURES

EFSEC’s proposed permit improperly and impermissibly authorizes Energy Northwest to retain the existing cooling water system intake structures at the facility without upgrades necessary to protect against fish impingement and entrainment.

A. EFSEC’s Best Professional Judgment Determination Fails to Consider Important Factors

Section 316(b) of the CWA requires EPA to ensure that “the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact.” 33 U.S.C. § 1326(b); 40 C.F.R. § 401.14. In 2001, EPA promulgated national technology-based performance requirements, applicable to most new facilities that withdraw water for cooling purposes, for meeting the “best technology available” (BTA) requirement of section 316(b). 66 Fed. Reg. 65256 (Dec. 18, 2001) (“Phase I”). The Phase I regulations established a two-track approach. *Id.* First, EPA set intake capacity and velocity requirements and required permit applicants to select and implement design technologies to minimize impingement mortality and entrainment. *Id. See also* 40 C.F.R. § 125.84. Second, EPA allowed permit applicants to conduct site-specific studies to demonstrate that alternatives to the requirements in step one would reduce the level of adverse environmental impact of the cooling water intake structures to a comparable level. *Id.* In 2004, EPA finalized similar regulations for existing facilities, 69 Fed. Reg. 41576 (July 9, 2004) (“Phase II”), but suspended that rule following legal challenges. Eventually, EPA, through a settlement, agreed to take final action by publishing Phase II regulations in the Federal Register by April 17, 2014. Recently, EPA submitted a letter to the court indicating that it intends to publish the final rules by May 16, 2014. *See* April 16, 2014 Letter from Preet Bharara, U.S. Attorney, to The Honorable Laura Taylor Swain, U.S. District Judge (attached as Exhibit 21).

Where no federal standards are in place, EFSEC must use its best professional judgment (BPJ) to determine the BTA for minimizing the adverse environmental impact of the cooling

water intake structures. 40 C.F.R. § 125.90(b). EFSEC cites to Ecology's Permit Writer's Manual for the general factors to consider in making BPJ determinations, as well as the existing and proposed EPA rules under section 316(b). In addition, EPA's rules require EFSEC to consider "appropriate technology . . . based upon all available information" and any unique factors relating to the applicant, 40 C.F.R. § 125.3(c), as well as various factors: (1) the age of the equipment and facilities involved; (2) the process employed; (3) engineering aspects of the application of various types of control techniques; (4) process changes; (5) the cost of achieving such effluent reduction; (6) non-water quality environmental impacts (including energy requirements); and (7) technology-based treatment requirements applied prior to or at the point of discharge. 40 C.F.R. § 125.3(d). EFSEC must revise its BPJ assessment to account for all factors required by CWA regulations in making this case-by-case selection of BTA.

Cooling water intake structures "pose various threats to the environment, chief among them the squashing against intake screens (elegantly called "impingement") or suction into the cooling system ("entrainment") of aquatic organisms that live in the affected water sources." *Entergy Corp. v. Riverkeeper, Inc.*, 556 U.S. 208, 213 (2009). Impinged fish that cannot escape may suffocate or lose protective slime and scales through the contact, resulting in delayed mortality. See EPA, Office of Water Enforcement Permits Div., *{Draft} Guidance for Evaluating the Adverse Impact of Cooling Water Intake Structures on the Aquatic Environment: Section 316(b) P.L. 92-500* (May 1, 1977) (attached as Exhibit 22). Entrainment generally impacts organisms that are small enough to pass through the screen mesh size, including fish eggs and larvae. *Id.* The organisms suffer "mechanical damage due to physically contacting internal surfaces of pumps, pipes and condensers; pressure damage to passage through pumps; shear damage due to complex water flows; thermal damage due to elevated temperatures in condenser passage; and toxicity damage caused by the addition of biocides to prevent condenser fouling and other corrosives," plus delayed mortality for those organisms that survive passage. *Id.* Thus the intake screens can present a "double jeopardy situation where the same population will be subject to increased mortality through entrainment of eggs and larvae and additional mortality to juveniles and adults through impingement." *Id.*

Given the specific adverse impacts of cooling water intake structures, a BPJ determination of BTA must focus on minimizing the adverse environmental impacts regarding impingement and entrainment of aquatic life. For EN's cooling water intake structures in the Columbia River, EFSEC must focus on minimizing impingement or entrainment of fish. To the extent that EFSEC instead focuses on the solely the statutory language of section 316(b), see Fact Sheet at 21-25 (addressing "Location, design, and construction"; "Capacity"; "Economic Considerations"; and "Best Technology Available"), it must revise its analysis to conform with EPA's requirements for BPJ determinations.

B. EFSEC's BPJ Determination is Inconsistent with the Statutory and Regulatory Requirements for Cooling Water Intake Structures

EFSEC's determination fails to comport with the statutory and regulatory requirements for cooling water intake structures. The proposed permit itself does not address section 316(b) of the CWA or cooling water intake structures. In the fact sheet, EFSEC states that its BPJ is that the existing cooling water intake system represents the best technology available for minimizing

adverse environmental impacts and achieving compliance with CWA § 316(b). *See* Fact Sheet at 25. This conclusion is flawed because it fails to provide any evidence to support the claimed lack of adverse environmental impact.

1. BPJ Determinations for Existing Facilities Under Section 316(b) Require an Assessment of Existing Adverse Environmental Impacts

Section 316(b) tasks EFSEC with identifying the BTA “for minimizing adverse environmental impact.” 33 U.S.C. § 1326(b). Because EN has been operating its cooling water intake structures for over thirty years, EFSEC must determine the current state of the environment to assess how to best minimize the adverse environmental impact from operating those structures. EPA states that “[o]ne of the first steps that should be taken in determining the best technology available for a cooling water intake structure to minimize adverse environmental impact is the designation of the critical aquatic organisms to be protected.” EPA, *Development Document for Best Technology Available for the Location, Design, Construction and Capacity of Cooling Water Intake Structures for Minimizing Adverse Environmental Impact* (April, 1976), page 6 (excerpts attached as Exhibit 23). Even in 1976, EPA highlighted that “the most widely ignored aspect of data collection for intake structure design is the biological data on the critical aquatic organisms to be protected.” *Id.* at 12. EPA’s draft guidance explains that “[t]he extent of fish losses of any given quantity needs to be considered on a plant-by-plant basis.” Exhibit 22 at 8. EFSEC makes no attempt to identify the critical aquatic organisms in the area potentially affected by the cooling water intake structures. Without this baseline assessment of whether and to what extent thirty years of operating these structures has adversely impacted the environment in the Columbia River, a permit writer is unable to comply with the statutory requirements in section 316(b).

Yet EFSEC failed to conduct its own, or require Energy Northwest to complete, any studies to support its BPJ determination. EPA states that “[t]he overall goal of conducting intake studies should be to obtain sufficient information on environmental impact to aid in determining whether the technology selected by the company is the best available to minimize adverse environmental impact.” Exhibit 22 at 9. In the context of existing facilities like EN’s CGS, “reliable quantitative estimates of the damage that is or may be occurring and projecting the long-range effect of such damage to the extent reasonably possible” are necessary to achieve that overall goal. *Id.* In contrast, historical data, pre-operational models, and the operating experience of other plants is appropriate for BPJ determinations for *proposed* intakes but not *existing* intakes. *Id.* EFSEC ignores EPA’s guidance and instead cites to “initial monitoring” and “documentation of fish impingement surveys conducted in the late 1970s and early 1980s” where EN found no evidence of impingement. *See* Fact Sheet at 22. EFSEC makes no attempt to document or require EN to document the current impact of the facility. Plus, it appears that EN has no recent evidence of surveys to document environmental impacts on endangered species. These outdated studies are not a reasonable basis for assessing the adverse environmental impact of the cooling water intake structures.

In its comments on the preliminary draft permit, EPA emphasized that “it is appropriate, after 30 years since completion of the original studies of impingement and entrainment, that new studies be designed and implemented to evaluate fully the environmental impact of the” cooling

water intake structures. *See* August 8, 2013 Letter from Michael J. Lidgard, EPA Region 10, to Jim La Spina, EFSEC (attached as Exhibit 24), page 3. Rather than conduct studies or request this information from EN, EFSEC simply states that “[n]o adverse environmental impact has been demonstrated.” *See* Fact Sheet at 25. This statement blatantly ignores EPA’s comments noting that there have been no current studies to determine whether there is an adverse environmental impact.

It also ignores the comments from the National Oceanic and Atmospheric Administration (NOAA) regarding the presence of federally protected species of steelhead and salmon in the vicinity of the intake structures. *See* May 7, 2012 Letter from William Stelle, Jr., NOAA Regional Administrator, to Jim Luce, EFSEC Council Chair (attached as Exhibit 25) (noting Upper Columbia Spring Chinook and Upper Columbia River steelhead as species listed under the Endangered Species Act, and Middle Columbia River fall Chinook salmon, all of which inhabit the Hanford Reach in the vicinity of the CGS’s intake structures).

At bottom, it is illogical to claim that something does not exist simply because no one has looked for it. EFSEC must consider the likely adverse environmental impacts, as identified by NOAA, along with the other factors when determining BPJ. EFSEC’s failure to determine the existence and scope of adverse environmental impacts violates section 316(b) of the CWA.

2. The Existing Cooling Water Intake Structures are Outdated

One of the factors that EFSEC fails to consider in making its BPJ determination is the “age of the equipment and facilities involved.” 40 C.F.R. § 125.3(d). The fact sheet does explain that the cooling water intake structures were designed and constructed in late 1970s. Fact Sheet at 21. The existing intake structures are two 42-inch diameter inlets perforated with 3/8 inch diameter holes, each approximately 20 feet long and placed parallel to river flow approximately 350 feet offshore at low water level. The current structures represent a 1970s design to minimize fish entrainment. Much has changed since the 1970s, including design improvements and the fact that many species in the Columbia River have been listed and critical habitat has been designated. EFSEC must require EN to update these outdated structures.

3. EFSEC’s Comparison of Costs and Benefits is Inadequate

EFSEC’s consideration of costs to implement new cooling water intake structures is wholly inadequate because EFSEC provides no foundation for the proposed economic benefit. As stated, the only studies regarding impacts to endangered species are from the 1970s and 1980s, and then only related to impingement. EFSEC claims that it “found no evidence of impingement or entrainment of species from the intake structures at CGS.” *See* Fact Sheet at 23. Of course, there can be no evidence where no studies have been conducted. Any capital costs, when compared to a lack of studies showing adverse impacts, will appear disproportionate. EPA noted in its 2013 comments that “the permit should require facility planning to evaluate the magnitude and cost of [cooling water intake structure] modifications needed to meet the requirements of section 316(b) and address the concerns expressed by NOAA.” Exhibit 24 at 3. In the alternative, EPA suggested that EN proceed directly to modify the cooling water intake structures to meet the objectives as described by NOAA. Exhibit 24 at 3. By failing to rely on

or require recent studies of impingement and entrainment at the facility, EFSEC has completely failed to take a reasoned approach in its assessment of BPJ.

C. EFSEC Improperly Ignores the Concerns of the Expert Federal Agencies

EFSEC's determination improperly discounts the advice and ignores the requests of the expert federal agencies. NMFS and EPA have continually voiced concern about the design and adverse impacts of the existing cooling water intake structures. Those concerns were ignored by the Nuclear Regulatory Commission during the operating license renewal process. In 2011, as part of that process, NRC responded to NMFS's concerns about the potential "take" of species listed under the Endangered Species Act with its own staff's conclusion that the cooling system "may affect, but is not likely to adversely affect" the Upper Columbia River spring Chinook salmon and Upper Columbia River steelhead. Dec. 20, 2011 Letter from David J. Wrona, NRC Chief, to William Stelle, Jr., NOAA (attached as Exhibit 26).

In May of 2012, NMFS advised EFSEC of the presence of federally protected species of steelhead and salmon in the vicinity of the intake structures, referring to 50 C.F.R. § 223.203(b)(9) and NMFS's Juvenile Fish Screen Criteria as applicable guidance. *See* Exhibit 25. In June of 2012, NMFS explained to NRC that it did not concur with NRC's determination of "not likely to adversely affect." *See* June 11, 2012 Letter from William Stelle, NOAA, to Jeremy Susco, NRC (attached as Exhibit 27). NMFS concluded that the existing cooling water intake structures are likely to cause adverse effects, including impingement and entrainment, to the ESA listed species. *Id.*¹

In its assessment of these interactions, EFSEC notes that "no additional information was provided" by NMFS. *See* Fact Sheet at 24. This begs the question, what additional information did NMFS need to provide in its letter of non concurrence? The answer, in the absence of scientific data from EN demonstrating impacts (or the lack thereof) on ESA listed species, nothing more is required. *See* U.S. Fish and Wildlife and NMFS, *Consultation Handbook: Procedures for Conducting Consultation and Conference Activities Under Section 7 of the Endangered Species Act* (March 1998), page 3-12 (excerpt attached as Exhibit 28) ("If the nature of the effects cannot be determined, benefit of the doubt is given to the species. Do not concur in this instance."). Here, the NRC and EFSEC have failed to give the benefit of the doubt to the species and instead rely on the absence of scientific information to continue using the existing cooling water intake structures that likely harm the imperiled species in the Columbia River.

Finally, in February of 2014, NMFS reiterated to EFSEC its concerns about the design of the cooling water intake structures and stated that it disagrees with EFSEC's determination that the existing structures represent BTA. *See* Feb. 28, 2014 Letter from Michael Tehan, NOAA, to Jim La Spina, EFSEC (attached as Exhibit 29). Those comments highlight that formal consultation under the ESA has not concluded regarding the impacts of CGS's cooling water intake structures, but that through its involvement in the NPDES permit process, NMFS may ensure the permit comports with the ESA and thus complete consultation with the NRC.

¹ Here, NMFS's non concurrence letter requires the NRC to complete formal consultation under the ESA. 50 C.F.R. § 402.14. Ultimately, however, NRC never concluded the formal consultation with NMFS regarding the impacts of the CGS, in violation of the ESA.

In its comments on the preliminary draft permit, NMFS requested that EFSEC include a permit provision requiring EN to cooperate with NMFS, Washington State Department of Fish and Wildlife, and NRC to develop and implement a design for the intake screening system that meets NMFS's juvenile fish screening criteria within two years of permit issuance. *See* Aug. 6, 2013 Letter from Bruce Suzumoto, NOAA, to Jim La Spina, EFSEC (attached as Exhibit 30); Dec. 12, 2013 Letter from Michael Tehan, NOAA, to Shannon Khounnala, EN (attached as Exhibit 31). On August 8, 2013, EPA submitted comments to EFSEC on the preliminary draft permit requesting EFSEC to conduct or require EN to conduct new studies to fully evaluate the impacts of the cooling water intake structures. *See* Exhibit 24. EFSEC did not include any permit provisions addressing the cooling water intake structures. Thus EFSEC has chosen to completely ignore the requests of the expert federal agencies and the implications under the ESA.

EFSEC should give NMFS's and EPA's opinions the appropriate weight and deference. EFSEC states that it "must consider both [NMFS's and EN's] opinions in the context of its authorities under the CWA and federal rule for 'minimizing adverse environmental impact.'" *See* Fact Sheet at 25. This improperly places EN's opinions on equal footing with the recommendations of NMFS regarding measures necessary to protect listed species. This is simply incorrect. On one hand, NMFS is the expert federal agency charged with the protection of salmon and steelhead under the ESA. On the other, EN is a private entity seeking to operate the facility; it is not an "expert" in what is necessary to ensure for the continued survival and recovery of list species. As a result, while the information provided by EN must be considered, EFSEC should rely on the conclusions drawn by the expert agencies.²

Finally, EFSEC should not ignore NMFS's 2011 Guidelines. NMFS, *Anadromous Salmonid Passage Facility Design* (July 2011) ("2011 Guidelines") (attached as Exhibit 32). The 2011 Guidelines provides guidance for the proper design of fish passage facilities. EFSEC determined the 2011 Guidelines are "not applicable to CGS, an existing facility, based on the applicability statement in the document itself and the absence of information indicating impingement or entrainment of listed species from the intake structures." *See* Fact Sheet at 24. First, EFSEC's conclusion is based on the absence of information on impingement and

² Similarly, EFSEC should invest little in the opinions from the NRC and its staff on the topics of impacts to ESA listed species or proper design of cooling water intake structures required by the CWA. The NRC staff determined that juvenile fish species are too large to be entrained in the cooling system. Exhibit 26. EFSEC appears to rely on the NRC staff's assessments stating that there was no evidence of Upper Columbia River steelhead spawning observed in Hanford Reach since 2006, and the entrainment studies in 1979-1980 and 1985 collected no life stage of Upper Columbia River steelhead. *See* Fact Sheet at 24. These statements are merely opinions by agency employees speaking beyond the scope of their expert authority. *See* Exhibit 26 at 2 (noting that "[t]he evaluation or implementation of NMFS's screen criteria is beyond the NRC's regulatory authority"). EFSEC improperly treats the NRC staff's assessments on equal footing with NMFS and EPA.

In fact, NRC's staff determinations should be discredited based on the NRC's failure to complete formal consultation as required under the ESA. During the operating license renewal process for the CGS, the NRC itself deferred to the NPDES permit process as the appropriate forum for NMFS to address its concerns. *See* Exhibit 26 at 2 ("NMFS's concerns and modification suggestions regarding CGS's cooling water intake system design would be most appropriately considered as part of the CGS NPDES permit renewal process").

entrainment. As stated previously, a lack of evidence based on the failure to conduct the appropriate study is not the same as a demonstration of no impact. EFSEC cannot realistically hide behind the lack of data as an excuse for failing to act.

Second, simply because the 2011 Guidelines do not require specific actions does not mean EFSEC should disregard NMFS's expert opinion on the steps that should be taken to reduce or eliminate impacts to the most critically imperiled species. In fact, EPA explained that "[u]nder the current section 316(b) regulations, EPA believes NMFS's guidelines are important to consider in determining BPJ controls for minimizing adverse impacts to salmon and steelhead" and that the guidelines "provide important criteria to minimize adverse impacts to Pacific Northwest salmonids that should be considered where the permit authority has discretion." Exhibit 24 at 2. EFSEC enjoys precisely that type of discretion in making a BPJ determination. Thus EFSEC is not free to and should not discount NMFS's 2011 Guidelines.

D. The Proposed Permit Should Include a Provision Requiring Re-evaluation of EFSEC's BPJ When EPA Finalizes its Section 316(b) Regulations

In the very least, EFSEC should require include a permit provisions that requires EN and EFSEC to reconsider this BPJ determination when EPA finalizes the forthcoming section 316(b) regulations for existing facilities. EFSEC has committed to reevaluating its BPJ determination when EPA's final rules are issued, and acknowledges that it may modify the proposed permit accordingly, Fact Sheet at 25, but this commitment should be in the permit itself.

Under 40 C.F.R. § 122.62, EFSEC may modify or revoke and reissue an existing NPDES permit if cause exists. Causes for modification during a permit's term include new or amended regulations on which the permit was based. 40 C.F.R. § 122.62(a)(3). The information must not have been available at the time of the permit issuance, unless it is revised regulations, and consists of information that would have justified the application of different permit conditions at the time of permit issuance. *Id.* These changes require the permittee to request a permit modification. *Id.* This procedure would require EN to request the modification. Given EN's history of avoiding any changes to its existing cooling water intake structures, this route is highly unlikely.

Rather, EFSEC should include a provision in the proposed permit that allows for EFSEC to modify the permit terms, based on the information currently available. EPA blew past its court ordered deadline for new regulations by April 17, 2014, and instead has requested the court to allow an extension for finalizing the section 316(b) rules by May 16, 2014. *See* Exhibit 21. EFSEC should not give EN a free pass on improving its extremely outdated structures simply because EPA has ignored judicially ordered deadlines. Including a provision to revisit the BPJ determination would be consistent with EPA's requests, *see* Exhibit 24.

EFSEC determined that the 2011 Guidelines would require new intake screens with smaller diameter perforations, reducing the openings to 3/32 inch, and may also require review of NRC safety requirements for *potential* conflicts. *See* Fact Sheet at 23. EFSEC then relies on the proposed EPA regulations for the exception allowing for site-specific BTA determinations if the requirements specified by regulation *actually* conflict with NRC safety requirements.

Because EFSEC has conducted no review to make this determination, these side references to exceptions in proposed rules are wholly beyond the scope of this BPJ discussion.

EN and the NRC expressly deferred to the CWA permit process for any requirements related to the cooling intake system during the operating permit renewal process in 2012. EFSEC should not allow EN to shirk its responsibility again, now that we are in the context of the CWA permit process. For the reasons set forth above, EFSEC should implement the changes requested by NMFS and EPA in the schedule of compliance in the proposed permit.

III. ANTIBACKSLIDING

The proposed permit improperly removes effluent limitations in violation of the CWA's anti-backsliding provisions. Anti-backsliding refers to statutory and regulatory provisions that prohibit the renewal, reissuance, or modification of an existing NPDES permit that contains effluent limitations, permit conditions, or standards less stringent than those established in the previous permit. Section 402(o) of the CWA expressly prohibits anti-backsliding from certain existing effluent limitations. 33 U.S.C. § 1342(o)(1) and (3). *See also* 40 C.F.R. § 122.44(l). Section 402(o) prohibits (1) the relaxation of technology based effluent limitations based on BPJ to reflect later promulgated effluent guidelines that are less stringent; and (2) the relaxation of effluent limitations based on state standards (i.e., water quality or treatment standards) unless the change is consistent with section 303(d)(4).

These two prohibitions are subject to the exceptions listed in section 402(o)(2). 33 U.S.C. § 1342(o)(2) (including, *inter alia*, where there have been material and substantial alterations or additions to the permitted facility that justify the relaxation, or new information is now available that justifies less stringent limitations). Finally, section 402(o)(3) provides an absolute limit on backsliding if the revised effluent limitation would result in a violation of applicable effluent guidelines or water quality standards, including the state's antidegradation requirements. This floor restricts the extent to which effluent limitations may be relaxed.

A. The Draft Permit Impermissibly Removes Copper Limits

The 2006 permit included numeric effluent limits for copper. *See* Fact Sheet at 40. In the proposed permit, EFSEC states that it "updated" effluent limits for copper based on the effluent mixing study. Fact Sheet at 1. This relaxation of the effluent limitation for copper violates the CWA's anti-backsliding provisions for two reasons. First, it is not merely a relaxation. Rather, the proposed permit removes any effluent limit on copper. Fact Sheet at 40. The lack of *any* effluent limitation is a far cry from a "less stringent effluent limitation" allowed by the anti-backsliding exceptions.

Second, the exception to anti-backsliding cited by EFSEC is inappropriate where the implementation of the less stringent effluent limitation would result in a violation of water quality standards. EFSEC claims a relaxation of the copper effluent limitation is allowed under the exception at 40 C.F.R. § 122.44(l)(2)(i)(A). This regulation is based on the statutory language that creates an exception where "material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent

effluent limitation.” 33 U.S.C. § 1342(o)(2)(A). Regardless of the condenser replacement at the facility, these exceptions do not apply. Both the regulatory and statutory exceptions are subject to the baseline limitation prohibiting a permit with a less stringent effluent limitation if its implementation would result in a violation of a water quality standard. 33 U.S.C. § 1342(o)(3).

As explained in Section I above, EFSEC’s analysis of the water quality standards applicable to CGS’s discharges is incorrect. Under a proper analysis of the applicable water quality standards, it is likely that copper contained in CGS’s discharges following the condenser replacement may exceed the water quality criteria. At the very least, EFSEC may not rely on its current analysis given its misunderstanding of the applicable water quality standards. Thus EFSEC erred in completely deleting any effluent limitation applicable to copper. The proposed permit that contains no copper effluent limit violates the CWA’s anti-backsliding provisions.

B. The Draft Permit Impermissibly Removes Narrative Temperature Limits

The 2006 permit contained a narrative technology-based effluent limit that required circulating cooling water blowdown to be less than the lowest temperature in the circulating cooling water, prior to the addition of makeup water, but with the exception that the temperature may be more than the temperature of the river. EFSEC states that it “updated” effluent limits for temperature based on the effluent mixing study, and that it includes a schedule of activities to address temperature monitoring and compliance with ground water quality standards. Fact Sheet at 1. The update, in fact, removes the narrative technology-based effluent limit for temperature. Fact Sheet at 40. Removing the narrative temperature limit violates the anti-backsliding provisions because it provides for a less stringent requirement and does not meet the limited exceptions under section 402(o)(2).

The lack of any temperature effluent limit is less stringent than the previous narrative temperature limit. As justification for removing the technology-based effluent limit, EFSEC states that it “does not believe removal of this limit results in less stringent requirements.” Fact Sheet at 40. Belief, however, is insufficient. EFSEC has a duty to demonstrate how the deletion of any effluent limit related to temperature is not less stringent than the narrative limit in the previous permit. The permit also does not include a water quality-based effluent limit for temperature. Fact Sheet at 35-37. EFSEC’s errors in calculating the water quality based effluent limitations are described in Section I, above. Removal of the narrative technology-based effluent limit, without explanation or support for why the removal does not constitute a relaxation of the effluent limit, violates the CWA’s prohibition against anti-backsliding.

This relaxation does not meet an enumerated exception to the CWA’s anti-backsliding provisions. EFSEC makes no attempt to justify the change under the anti-backsliding exceptions, but notes that the narrative limit was based on an outdated version of federal rule. To the extent that EFSEC is making this change to reflect 1982 changes to the regulations it was predicated on, *see* Fact Sheet at 40, it directly contradicts the exception based on the availability of information that was not available at the time of the permit issuance. 33 U.S.C. § 1342(o)(2).

Finally, even if the relaxation did somehow meet an exception, the baseline limitation on backsliding in 33 U.S.C. § 1342(o)(3) prohibits EFSEC from removing both the narrative

technology based effluent limit and water quality based effluent limit for temperature. Ecology considers the entire Columbia River impaired for temperature. Fact Sheet at 32. Due to EFSEC's improper analysis of the water quality standards applicable to CGS's discharges and that the entire Columbia River is considered impaired for temperature, it is likely that the relaxation by removing the narrative technology-based water quality standard will result in CGS's discharges causing or contributing to a violation water quality standards for temperature.

C. The draft permit impermissibly establishes less stringent effluent limits for chromium and zinc

EFSEC first asserts that it is adding technology-based limits by establishing numeric limits for chromium and zinc in the proposed permit. Fact Sheet at 1. The previous permit in 2006 limited the discharge of chromium and zinc to "no detectable amount." 2006 Permit, page 8. It did not, as EFSEC claims, fail to include limits. By imposing numeric chromium and zinc limits, EFSEC is authorizing EN to increase the allowable pollutant concentration and load discharged.

EFSEC then seems to recognize this, because in the fact sheet it goes on to justify the change under an exception to the anti-backsliding prohibition. Fact Sheet at 42. It cites to a supposed exception where the change would constitute a cause for permit modification or revocation and reissuance under 40 C.F.R. § 122.62. Yet that is not an exception to the anti-backsliding prohibition. The exceptions are listed at 40 C.F.R. § 122.44(1)(2). What EFSEC may be attempting to claim is exception where "technical mistakes or mistaken interpretations of law were made in issuing the permit under subsection (a)(1)(B) of this section." 33 U.S.C. § 1342(o)(2)(B)(ii); 40 C.F.R. § 122.44(1)(2)(i)(B)(2). But that provision only applies if the mistakes were related to a BPJ determination of BAT.

Here, EFSEC's 2006 permit provision referenced EPA's applicable limits for chromium and zinc. 40 C.F.R. Part 423 (listing maximum daily and maximum average concentrations for chromium and zinc applicable to nuclear fuel generating units). Thus even that exception would not apply. By imposing less stringent effluent limits for chromium and zinc, EFSEC's proposed permit violates the prohibition against anti-backsliding.

IV. MONITORING AND REPORTING

To assure compliance with the permit's limitations, a permit must include requirements to monitor the mass for each pollutant limited in the permit, the volume of effluent discharged from each outfall, and other measurements as appropriate, including pollutants in internal waste streams and intake water. 40 C.F.R. § 122.44(i). Federal regulations require all NPDES permits to specify the required monitoring including the type, interval, and frequency sufficient to yield data that is representative of the monitored activity. 40 C.F.R. § 122.48(b). This includes, when appropriate, continuous monitoring. *Id.* In addition, all permits must specify the requirements for proper use, maintenance, and installation of monitoring equipment or methods. 40 C.F.R. § 122.48(a).

The provisions in the proposed permit do not meet these monitoring requirements. EFSEC's proposed permit merely parrots the federal regulation requiring monitoring that is representative of the monitored activity. Permit Application at 9. It does not specify where the monitoring must occur, or what equipment or method is required. This is particularly cumbersome, given that EFSEC is basing its effluent limits on chronic and acute mixing zones. A proper monitoring location is crucial to obtaining representative monitoring and to demonstrate compliance with the effluent limitations.

The permit must require continuous monitoring from outfall 001, especially for priority pollutants. 40 C.F.R. § 122.44(g) (requiring twenty-four hour reporting for any toxic pollutant or hazardous substance). The permit should also require monitoring for organic contaminants in the discharge with a semipermeable membrane device (SPMD). SPMDs are commonly used to monitor for polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), chlorinated pesticides, polybrominated diphenyl ethers (PBDEs), dioxins, and furans. In combination with *in vitro* and *in vivo* bioindicator tests, SPMDs can determine the potential effect on biota from exposure to complex mixtures of chemicals present at a site.

The proposed permit fails to require any monitoring to "assure compliance" with the permit limitation requiring compliance with water quality standards in violation of the federal requirements. NPDES permits must include monitoring to assure compliance with the permit's limits, 40 C.F.R. § 122.44(i), and include conditions necessary to ensure compliance with the water quality requirements of all affected states. *Id.* § 122.44(d)(4). The permit must include a wide variety of monitoring throughout the region of the receiving water that corresponds with the water quality standard criteria and use designations to demonstrate that the discharge does not cause or contribute to a violation of water quality standards.

The proposed also lacks any required monitoring to assure compliance with section 316(b). EFSEC must require monitoring of the adverse environmental impacts from the existing cooling water intake structures. It is clear from the permit application and fact sheet that there is a lack of information regarding the adverse environmental impacts of the cooling water intake structures on aquatic life. In addition, none of the state or federal entities, tribes, or private entities fully understands where the fish are located in the Columbia River. Given this lack of information, it is essential that EFSEC include monitoring requirements to measure the impacts of the cooling water intake structures to ensure compliance with section 316(b) of the CWA.

In addition to monitoring that is representative of the monitored activity, all permits must specify the applicable reporting requirements based upon the impact of the regulated activity. 40 C.F.R. § 122.48(c). Unless regular reporting is required, EFSEC will have no way to ensure that the CGS's discharges are in compliance with both the monitoring and substantive requirements of the proposed permit, including ensuring compliance with water quality standards and section 316(b) of the CWA. Failure to require self-reporting from EN also prevents the public from reviewing the CGS's compliance with the permit, in violation of the CWA. The lack of monitoring that is representative of the monitored activity or self-reporting requirements also prevents EFSEC from ensuring that the CGS is discharging in accordance with the permit requirements, effectively precluding any enforcement. To adequately protect Washington's and

Oregon's water quality and the wildlife that depends on it, EFSEC's proposed permit for the CGS should include simple monitoring and reporting requirements.

CONCLUSION

Commenters urge EFSEC to reconsider the proposed permit in light of the comments provided above. Pursuant to WAC 463-76-041, we trust that EFSEC will respond to these comments and notify both NEDC and NWEA of the final permit decision.

Sincerely,

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