No. 07-72420

UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

COOK INLETKEEPER, COOK INLET FISHERMEN'S FUND, NATIVE VILLAGE OF NANWALEK, NATIVE VILLAGE OF PORT GRAHAM, and UNITED COOK INLET DRIFT ACCOCIATION,

Petitioners,

v.

U.S. ENVIRONMENTAL PROTECTION AGENCY, and LISA JACKSON, Administrator of the U.S. Environmental Protection Agency,

Respondents,

and

UNION OIL COMPANY OF CALIFORNIA, and XTO ENERGY INC.,

Respondent-Intervenors.

PETITIONERS' REPLY BRIEF

Emily Anderson
Victoria Clark
Trustees for Alaska
1026 W. 4TH Avenue, Suite 201
Anchorage, AK 99501
Phone: (907) 276-4244
Facsimile: (907) 276-7110

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INTRODUCTION

By issuing the Cook Inlet General Permit ("CIGP") EPA has failed to protect the water quality of Cook Inlet. EPA has already admitted that the CIGP unlawfully allows the backsliding of permit limits in violation of the Clean Water Act ("CWA"). Despite EPA's attempts to justify the remaining portion of the permit decision, the CIGP also lacks protective Technology Based Effluent Limits ("TBELs") and Water Quality Based Effluent Limits ("WQBELs"). Therefore, for the following reasons, and those presented in Cook Inletkeeper's Opening Brief, EPA's decision to approve the CIGP was arbitrary, capricious, an abuse of discretion and otherwise not in accordance with the law.

ARGUMENT

I. THE COURT SHOULD RETAIN JURISDICTION TO DETERMINE WHETHER EPA ALLOWED UNLAWFUL "BACKSLIDING" IN VIOLATION OF THE ANTIDEGRADATION POLICY.

EPA admits that it relied on the State of Alaska's legally flawed antidegradation analysis to support the unlawful "backsliding" in the CIGP. EPA Brief at 25. Yet, EPA is unwilling to acknowledge that the flawed antidegradation analysis was not only due to a procedural violation, as conceded by EPA, but also a substantive one. Because EPA and the State will not fix the legal defects challenged in this Petition for Review, the Court should deny EPA's Motion for Partial Voluntary Remand and reach the merits of the "backsliding" issue.

The "backsliding" prohibition and antidegradation mandate are two of the fundamental water quality protections in the Clean Water Act ("CWA"). Both requirements ensure that the states and EPA correctly implement the NPDES permitting program in a way that advances the CWA's ultimate goal of water pollution elimination. 33 U.S.C. § 1251. Without these legal protections in place, as clearly demonstrated in this case, there is absolutely no assurance that water quality is protected and not unlawfully degraded.

Despite its failure to promulgate antidegradation implementation procedures for over thirteen years, the State of Alaska continues to issue 401 Certifications, with little analysis, that assert that water quality is not being degraded by EPA's permitting decisions. And for EPA's part, it continues to knowingly and blithely rely on these legally flawed certifications. This illegal practice simply cannot be allowed to continue.

In addition, the State's proposal to develop interim antidegradation procedures, which EPA proposes to then base its decision on, is a legally defective process under state law. The Alaska Administrative Procedure Act requires the State to promulgate regulations for the antidegradation procedures. Without a court order, there is absolutely no assurance that Alaska will follow through and promulgate regulations that are legally sufficient under the CWA and Alaska state law.

For these reasons, and those articulated in Petitioners' Opposition to EPA's Motion for Voluntary Remand, the Court should retain jurisdiction, deny EPA's Motion for Voluntary Remand, and vacate the admittedly unlawful effluent limits at issue.

II. EPA ARBITRARILY FAILED TO EXERCISE BEST PROFESSIONAL JUDGMENT AND IMPOSE MORE STRINGENT TECHNOLOGY-BASED EFFLUENT LIMITS IN THE CIGP.

In developing the CIGP, EPA arbitrarily failed to impose technology-based effluent limits ("TBELs") for pollutant parameters not covered by the effluent limitation guidelines ("ELGs") for the Coastal Subcategory of the Oil and Gas Extraction Point Source Category ("Coastal Subcategory"). In a weak attempt to justify its decision, EPA cites to 40 C.F.R. § 125.3 and its purported limited ability to impose more stringent technology requirements than those identified in the ELGs. ER 167; EPA Br. at 32. While this may be an accurate interpretation of EPA's regulatory limitations for pollutants considered while creating the ELGs, it does not let EPA off the hook for all of the other toxic pollutant parameters that are discharged every day under the CIGP into Cook Inlet. EPA must still inquire about whether available technologies exist that could reduce or eliminate the pollutants that are not currently regulated under the ELGs.

The CWA imposes a strict requirement on EPA to impose TBELs to control pollutant discharges on an industry-by-industry basis. Toxic discharges, like the

produced water effluent discharged under the CIGP, are controlled at a level that represents the "best available technology economically achievable" ("BAT"). 33 U.S.C. § 1311(b)(2)(A)(i). Because the discharges controlled by this standard are toxic pollutants, the BAT standard is dynamic. In fact, the BAT standard is meant to encourage and in some instances "force" technological innovation and upgrades in treatment technology at less advanced facilities.

EPA can set TBELs by promulgating ELGs for industry categories or by applying best professional judgment ("BPJ") on a case-by-case basis during the development of a permit where the guidelines are inapplicable. 40 C.F.R. § 125.3(c)(1), (2). In the development of the CIGP, EPA simply applied the ELGs for oil and gas facilities operating in the coastal subcategory even though the ELGs do not apply to all of the toxic pollutants discharged under the CIGP. For reasons established 14 years ago, the ELGs exempt Cook Inlet operators from the nationwide prohibition against discharging toxic produced water directly into the waterbody.

Since the development of the ELGs, the oil fields in Cook Inlet have aged, and the produced water discharged into Cook Inlet has increased exponentially. EPA has not revised the ELGs despite acknowledging that "[s]ignificant environmental, economic, and technological changes have occurred since the last review of the guideline which Region 10 believes warrants additional review." ER

167. Nor did EPA use its authority to, at the very least, investigate whether the pollutant parameters that were not considered in the development of the ELGs,[1] but which are discharged at ever-increasing rates, could be controlled using new or already-required technologies. As a result, EPA's failure to consider and implement BAT is arbitrary and capricious for the reasons that follow.

A. *Cook Inletkeeper exhausted its administrative remedies.*

Although as a general rule, the Court "will not consider issues not presented before an administrative proceeding at the appropriate time," this Court has interpreted the exhaustion requirement broadly. *National Parks and Conservation Assoc., v. Bureau of Land Management,* 586 F.3d 735, 741 (9th Cir. 2009) (*citing Marathon Oil Co. v. United States,* 807 F.2d 759, 767-68 (9th Cir. 1986)). There is "no bright-line standard" to determine whether the exhaustion requirement is met. *Great Basin Mine Watch v. Hankins,* 456 F.3d 955, 968 (9th Cir. 2006). However, petitioners will meet the requirement if an issue was presented with "sufficient clarity to allow the decision maker to understand and rule on the issue raised." *Id.*

In this case, EPA contends that Cook Inletkeeper's argument regarding EPA's duty to impose TBELs on a case-by-case basis for pollutant parameters not

[1] The toxic pollutant parameters that were not considered in developing the ELGs, but which are found in the produced water effluent regulated under the CIGP, include the following: 1,2-dichlorobenzene; Acenapthene; Antimony; Chromium; Mercury; Selenium; and Silver. *Compare* ER 753-54, 235 (listing pollutants in TBPF produced water), *with* ER 827 (listing pollutants considered in adopting the 1996 ELGs).

considered in the development of the ELGs is waived because it was not sufficiently articulated in comments at the administrative level. EPA Br. at 26, 31. Rather, EPA claims that Cook Inletkeeper's argument that zero discharge should be imposed for produced water using best professional judgment is a completely distinct argument that bears no relationship to the argument raised in the Opening Brief. *Id.* at 32. EPA is simply splitting hairs.

Curiously, in its response to Cook Inletkeeper's comments on this issue, EPA addressed its ability to use best professional judgment to set TBELs. In relevant part, EPA stated:

> To establish a limit based on BPJ, it must be determined whether a need for additional controls beyond the existing ELGs is necessary. The need for additional controls may result from not falling under any category for which an ELG exists or there is a discharge of pollutants that are not addressed in the development of the ELGs…. Here, the oil and gas operators are specifically covered by the ELGs. Therefore, EPA does not have the flexibility to develop additional technology-based limitations unless the Effluent Guideline is revised.

ER 167.

While EPA now argues that Cook Inletkeeper did not raise the issue in precise legal terms, based on EPA's response, it apparently understood the argument and articulated its abilities and limitations. As such, Cook Inletkeeper sufficiently raised the issue for exhaustion purposes. Despite EPA's objections, it simply failed to determine whether the ELGs actually cover all of the pollutant parameters present in the increasingly toxic produced water effluent. In doing so,

it arbitrarily failed to consider whether it should use best professional judgment to impose TBELs on the pollutant parameters that are not currently covered by the ELGs.

B. *The ELGs for produced water oil and grease limits do not cover all of the pollutant parameters present in the effluent.*

EPA and the Industry-Intervenors (collectively "Unocal") both rely heavily on the notion of "indicator pollutants" in the ELGs to support EPA's failure to impose more stringent TBELs on the list of toxic pollutants identified by Cook Inletkeeper (*i.e.,* 1,2-dichlorobenzene, acenapthene, antimony, arsenic, chromium, mercury, selenium, and silver). Cook Inletkeeper is not disputing EPA's discretion to use "indicator pollutants" to guide the control of a variety of pollutant parameters commonly found in produced water effluent. *See* 40 C.F.R. § 122.44(e)(1)(ii). Rather, Cook Inletkeeper opposes the abuse of the "indicator pollutant" concept to serve as a catchall to control all pollutants in the produced water waste stream discharged from Cook Inlet facilities. Especially troublesome in this case, is the reliance on the "indicator pollutant" concept to incorporate and supposedly control the aforementioned pollutants, which were neither identified nor considered when the site-specific ELG zero-discharge exception was developed for Cook Inlet.

EPA relies on references to the Offshore Category ELG development document to support the notion that the pollutant parameters identified by Cook

Inletkeeper (*i.e.,* 1,2-dichlorobenzene, acenapthene, antimony, arsenic, chromium, mercury, selenium, and silver) were considered by EPA in the development of the Coastal Subcategory ELGs and thus covered by the ELGs. EPA Br. at 33-34, n. 5. When EPA promulgated the ELGs for the Coastal Subcategory, it identified oil and grease as a proven "indicator pollutant" for other toxics in the produced water waste stream including "phenol, naphthalene, ethylbenzene, and toluene." 61 Fed. Reg. 66,086, 66098 (Dec. 16, 1996); RSER 153. To support the finding that oil and grease is also an indicator for organic pollutants, EPA relied on data from the Offshore Category ELGs Development Document. RSER 153. That data is presented in Table VI-6 of the Coastal ELGs to demonstrate that the use of gas flotation methods remove oil and grease and organic pollutants. Petitioners' Supplemental Excerpts of Record ("PSER") 5. Of the pollutant parameters identified by Cook Inletkeeper, however, only arsenic is listed in Table VI-6. *Id.*

In addition, EPA used data summarized in the Offshore ELGs Development Document to supplement various tables in the Coastal ELGs Development Document "particularly with respect to certain treatment system performance data and the composition of produced water in Cook Inlet." ER 823. For instance, EPA supplemented Table VIII-5, which reflects the composition of produced water for Cook Inlet, with several organic pollutants that were not specifically identified in the Cook Inlet sampling study. ER 824, 827. In this case, none of the pollutant

parameters identified by Cook Inletkeeper are listed, and therefore were not considered in the development of the Coastal Subcategory ELG exception for Cook Inlet.

Since the Coastal ELGs Development Document does not support EPA's decision, it makes a last ditch effort to confuse the issue by cherry-picking a variety of tables and language from the Offshore Category ELGs Development Document that contain references to the various pollutant parameters that Cook Inletkeeper identified. RSER 157-62. These tables are presented out of context and largely list pollutant parameters that were identified during a sampling study for the Offshore Category ELGs. The tables, however, do not support EPA's contention that oil and grease serves as an "indicator pollutant" for the parameters identified by Cook Inletkeeper. It merely shows that the parameters were present in the produced water effluent in the Offshore Category study.

A more informative measure of the oil and grease "indicator pollutant" relationship to other organic pollutants is found in the abovementioned Table VI-6, which was specifically included in the Coastal Subcategory ELG Development Document to support the use of oil and grease as an "indicator pollutant" for other organic pollutants. PSER 5. Since EPA failed to present evidence in the record that 1,2-dichlorobenzene, acenapthene, antimony, chromium, mercury, selenium, and silver were considered in the development of the site-specific ELG exception

for Cook Inlet, or that the use of oil and grease can logically be used as an indicator to control these pollutants, EPA's failure to impose TBELs for the abovementioned pollutants is arbitrary, capricious, an abuse of discretion, and otherwise not in accordance with the law. As such, the decision should be remanded to EPA to exercise best professional judgment in the development of TBELs for the CIGP.

III. EPA ARBITRARILY DEVELOPED WQBELS BASED IN PART ON DILUTION VALUES DERIVED FROM FLAWED MIXING ZONE MODELING THAT BEARS NO RATIONAL RELATIONSHIP TO THE ACTUAL CONDITIONS IN COOK INLET.

EPA and Unocal use a variety of tactics to attack the serious issues raised by Cook Inletkeeper regarding the adequacy of EPA's approval of the CIGP. Admittedly, the issues raised in this case are complex because, by nature, the issues are rooted in the legal requirements of the CWA The CWA sets up an intricate legal framework and layers of regulatory controls that, currently in the case of Alaska, involve input from both federal and state agencies.

Contrary to EPA's and Unocal's contentions, however, the issues raised by Cook Inletkeeper are not so "highly technical" as to warrant the absolute deference proposed by EPA and Unocal. The "technical" decisions are based on real-world, common sense principles.

In this case, computer models and mathematical calculations were used to simulate and predict the fate of pollutants that are discharged into Cook Inlet under the CIGP. As with any mathematical equation, the numbers used control the result. Simply stated, without accurate inputs based on reasonable decisions, the model results and subsequent calculations are skewed, and therefore inaccurate. Ultimately, if the results are inaccurate then there is no assurance that the water quality of Cook Inlet is adequately protected. That is what this case is about. Here, the inaccurate model inputs, and therefore calculations, make the CIGP legally defective for the reasons that follow.

A. *The administrative record does not support EPA's WQBELs determination.*

EPA and Unocal both argue that there is no need to include the CORMIX mixing zone modeling runs in the administrative record, as requested by Cook Inletkeeper, because mixing zone decisions are entirely left to the State. EPA Br. at 34-35; Unocal Br. at 29. Unocal goes on to argue that Cook Inletkeeper is operating under a "misunderstanding" of the separate roles of EPA and ADEC. Unocal Br. at 29. Contrary, to Unocal's contention, Cook Inletkeeper is quite clear about the two agency's roles in this permitting process and how EPA's ultimate WQBEL decision relied on ADEC's decision, which triggers EPA's duty to ensure compliance with the CWA and water quality standards.

WQBELs are established when EPA determines that a discharge has the reasonable potential to cause or contribute to the exceedance of WQS. In making that determination, EPA must,

> use procedures that account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing, and *where appropriate, the dilution of the effluent in the receiving water*.

40 C.F.R. § 122.44 (emphasis added).

EPA would not need to consider the dilution of the effluent in the receiving water if mixing zones were not approved. In this case, the mixing zones and the modeled dilution values are an integral part of EPA's decision-making. In fact, EPA cannot perform the Reasonable Potential Analysis without the dilution values.

Although the scope is "narrow" under the arbitrary and capricious standard of review, the agency must still "examine the relevant data and articulate a satisfactory explanation for its actions including a rational connection between the facts found and the choice made." *Motor Vehicle Mfr's Ass'n., v. State Farm Mut. Auto. Ins. Co.,* 463 U.S. 29, 43 (1983) (internal quotations omitted). In reviewing that explanation, the Court must "consider whether the decision was based on a consideration of the relevant factors and whether there has been a clear error of judgment." *Id.* To get a full picture of EPA's review, or lack thereof, the CORMIX model runs are essential and must be included in the administrative record, as detailed in Cook Inletkeeper's motion.

As the record stands, there is no support for the dilution values used by EPA in its Reasonable Potential Analysis. Those dilution values are key to the reasonable potential calculation because it helps to determine the effluent quality that is necessary to meet WQS in the receiving water at the mixing zone boundary. Without independent verification of the dilution values and the subsequent reasonable potential calculation by EPA, its determination of WQBELs is arbitrary, capricious, an abuse of discretion, and not in accordance with the law.

B. *The Court has jurisdiction to hear issues relating to the dilution values derived from ADEC's mixing zone modeling.*

Unocal consistently objects to this Court's review of anything related to ADEC's 401 Certification. Unocal Br. at 29, 38, 39. Interestingly, EPA makes no such objection.

As a general rule, "the courts of the United States are bound to proceed to judgment and to afford redress to suitors before them in every case to which their jurisdiction extends." *New Orleans Public Service, Inc., v. Council of the City of New Orleans,* 491 U.S. 350, 358 (1989). The CWA confers original jurisdiction over the "[r]eview of the Administrator's action…in issuing or denying any permit under section [402 for the CWA]" to the Circuit Court of Appeals. 33 U.S.C. § 1369(b)(1)(F). That is not to say, however, that the federal Circuit Courts have jurisdiction over all aspects of CWA NPDES permit decisions. In cases where a state imposes more stringent limitations on a discharge than would otherwise be

required under the CWA, a challenge to the state-issued 401 Certification is properly the jurisdiction of the state courts. *Ackels v. EPA,* 7 F.3d 862, 867 (9th Cir. 1993). However, if as contested here,

> a state seeks to approve a standard that is less stringent than the federal CWA's floor, or seeks to apply a standard in a way that is otherwise invalid under federal law, then federal agencies and the federal courts are obligated to resolve the application of the federal CWA in any case that properly comes before them.

Dubois v. United States Department of Agriculture, 102 F.3d 1273, 1300 (First Cir. 1996).

Under the CWA, EPA has an independent duty to establish effluent limits that ensure compliance with water quality standards before issuing any NPDES permit. *See* 33 U.S.C. § 1311(b)(1)(C); *Natural Resources Defense Council v. EPA,* 279 F.3d 1180, 1188 (9th Cir. 2002) (*citing Dubois,* 102 F.3d at 1300 & n. 33). The issues that Cook Inletkeeper raises regarding ADEC's mixing zone modeling and EPA's subsequent reliance on the dilution values that were derived from that process, directly calls into question EPA's independent duty to ensure that water quality standards are met under the CIGP. Cook Inletkeeper contends that EPA has a duty to ensure that the inputs and outputs from the CORMIX modeling are accurate and correct in order to meet the requirements of the CWA. As a result, all of the issues raised that relate to ADEC's mixing zone modeling

and EPA's use of the dilution values to determine reasonable potential and set WQBELs in the CIGP fall squarely within the jurisdiction of this Court.

C. *EPA's Reasonable Potential Analysis was based in part on the arbitrary calculation of reasonable maximum concentrations.*

Before EPA can lawfully issue an NPDES permit and allow the discharge of pollutants into a waterbody, it must ensure that the permit contains effluent limits that meet water quality standards. This determination rests on the reasonable potential analysis. WQBELs are established when EPA determines that a discharge has reasonable potential to cause or contribute to the exceedance of WQS. 40 C.F.R § 122.44(d)(1)(iii).

EPA contends that it used a "conservative" approach to set WQBELs in the CIGP. EPA Br. at 51. Unocal makes a similar argument. While on the surface EPA's calculation may appear to be reasonable, the data that EPA used, at least in some instances, was unreasonably skewed.

As EPA explained, the reasonable potential analysis is based on a rather simple calculation. EPA Br. at 38-39. The foundation of the calculation is based on the availability of sampling data, for any given pollutant, that is collected over time by the industry. EPA Br. at 38. Using the data set, EPA determines the *maximum observed concentration* for any given pollutant parameter. *Id.* A statistical table is then used to determine the reasonable potential multiplying factor based on the "coefficient of variation" and the number of available data

samples. *Id.* at 39. The end result provides the *reasonable maximum concentration,* which is essentially a prediction of what the highest concentration of the pollutant in the effluent might be. *Id.*

The reasonable maximum concentration is important because it is the value that EPA compares to the WQS to determine whether the pollutant has reasonable potential to cause or contribute to the exceedance of WQS. If so, EPA sets a WQBEL. This is where the fundamental problem lies with this statistical calculation, and particularly how it was conducted in this case.

First, for a variety of pollutant parameters, EPA admits that it only used one data point to determine the initial *maximum observed concentration.* EPA Br. at 48. EPA argues that the decision is reasonable because it independently reviewed "summarized data" from Unocal's application and independently reviewed the DMR reports. EPA, however, also acknowledged that it used "reasonable potential multipliers" *calculated by the industry applicant* and that the "multipliers do not incorporate all of the effluent data used" in the updated analysis. ER 227. Even EPA admits that "it is more difficult to predict possible concentrations with fewer samples." EPA Br. at 39. The predictions are even less accurate when EPA relies on summarized data and multipliers that were calculated without the consideration of the entire data set. Thus, this is a flawed process that yields arbitrary results.

Second, in at least one instance, EPA used a data point that was a statistical "outlier," meaning that compared to the other samples in the data set, the data point was disproportionately unrepresentative. EPA contends that Cook Inletkeeper's argument is waived because it was not sufficiently raised at the administrative level. EPA Br. at 49. That is simply not true. Cook Inletkeeper's expert consultant submitted comments that directly addressed concerns about TAH and that the proposed effluent limits would lead to toxic mass loading because EPA inflated the reasonable maximum concentration value. PSER 2-3.

EPA then defends its action by citing to the purported "maximum observed values" that the industry supplied in the mixing zone application to support the decision. EPA Br. at 48. EPA also objects to the suggestion that it should use its own guidance to eliminate statistical outliers. *Id.* at 49. While it may simply be guidance, EPA refers repeatedly to the Technical Support Document ("TSD") to support its "Updated Reasonable Potential Analysis" for the final permit. ER 226-27. If it followed the procedures in the TSD to calculate the reasonable maximum concentrations then it should have also followed the procedures that would have eliminated statistical outliers. EPA cannot now argue that the TSD is only guidance and not binding when it specifically based its decision on the TSD methodology.

The RMC determination is the first step in the Reasonable Potential Analysis. Due to EPA's failure to follow its own procedures and consider all of the sampling data, the results of the calculation are arbitrary, capricious, an abuse of discretion, and not otherwise in accordance with the law.

D. *EPA set WQBELs using arbitrary dilution values based on unrepresentative mixing zones.*

At the heart of this Petition for Review is EPA's reliance on arbitrary dilution values to support its Reasonable Potential Analysis and WQBELs. Even if, for argument's sake, EPA correctly calculated the reasonable maximum concentrations for each pollutant parameter found in the produced water effluent, the subsequent steps it took led to an arbitrary result. EPA claims that Cook Inletkeeper's arguments are "highly technical." To be sure, EPA and Unocal go to great lengths to confuse the issues that Cook Inletkeeper raised in order to obtain the Court's deference.

Contrary to these collective assertions, however, the mixing zone model is simply based on real-world, common sense principles. For that reason, the Court need not defer to the EPA's expertise, but should instead conduct a searching review to determine whether EPA's reliance on the dilution values from ADEC's mixing zone modeling was reasonable.

1. The Second Step to the Reasonable Potential Analysis.

The second step of the Reasonable Potential Analysis is straightforward. EPA compares the *reasonable maximum concentrations* ("RMC") for the various pollutant parameters, derived from the first step, to the corresponding WQS. Without mixing zones, the RMC is compared to the WQS and applied at the end of the discharge pipe. If the RMC exceeds the WQS then EPA sets a WQBEL.

When mixing zones are authorized, as they are here, EPA, using the RMC as a starting point, instead must compare the projected *receiving water concentration* at the edge of the mixing zone boundary with the WQS to determine whether the discharge has reasonable potential to cause or contribute to the exceedance of WQS. Stated another way, the agency must essentially determine, as accurately as possible, whether a pollutant discharged at a concentration that exceeds the WQS at the end of the pipe, will be sufficiently diluted by the "receiving water" to meet the WQS by the time the pollutant travels to the edge of the mixing zone. If the WQS is exceeded, then EPA must back calculate the WQBEL and limit the amount of pollutant discharged from the end of the pipe so the projected receiving water concentration meets the WQS at the mixing zone edge.

This determination is made, in part, by using a mixing zone computer model to predict the fate and distribution of the effluent in the receiving waters. The model produces "dilution values" that determine the size of the mixing zone based

on effluent concentrations, discharge characteristics, and the ambient conditions of the waterbody. Accurate dilution values are critical to ensure that WQS will not be exceeded at the edge of the mixing zone.

Where mixing zones are allowed, dilution values and WQS are used together to calculate the waste load allocation ("WLA"). ER 907. "The WLA provides a definition of effluent quality that is necessary to meet the WQS of the receiving water." ER 96. This in turn forms the starting point for calculating WQBELs to enforce the WLA when the receiving water concentration at the edge of the mixing zone exceeds the WQS.

2. The Mixing Zone Modeling Problem

For a mixing zone computer model to yield accurate results it must have representative inputs based on real-world conditions. The mixing zone modeling that produced the dilution values that EPA relied on in this case, however, bears no rational relationship to the receiving waters in Cook Inlet. This is the crux of the problem and the reason that EPA's decision is arbitrary, capricious, an abuse of discretion, and otherwise not in accordance with the law.

If the dilution potential of the receiving water (i.e., WLA) is overestimated because the agency failed to account for critical conditions in the receiving water environment that lower the dilution potential, then the agency overestimates how much effluent can be discharged into the water to maintain WQS at the edge of the

mixing zone. That essentially means that even if EPA asserts, as it does in this case, that it used a conservative approach to set WQBELs for various toxic parameters, those pollutants are still being discharged at a rate that will violate WQS at the edge of the mixing zone and result in significantly increased pollutant loading in Cook Inlet.

EPA and Unocal vehemently defend the inputs used to model Cook Inlet's dilution potential and urge the Court to defer to ADEC's and EPA's expertise. To support the mixing zone modeling input choices that were made, EPA and Unocal refer repeatedly to ADEC's response to comments. For instance, both EPA and Unocal systematically defend ADEC's choice to model Cook Inlet as an ocean rather than an estuary; to ignore critical design conditions including stratification, tidal reversal, slack tides, or tidal reflux; and to manipulate the outfall configuration. These arguments simply reassert ADEC's decisions to disregard EPA guidance for determining mixing zones, model Cook Inlet in a way that departs from actual hydrological conditions, and approve huge mixing zones to accommodate the dischargers' ever-increasing discharges and pollutant loads. Since these arguments simply rehash the rationale that gave rise to this litigation, these points have already been raised and addressed in Cook Inletkeeper's Opening Brief. *See* Pet. Br. at 39-53.

While courts generally "defer[] the determination of fit between the facts and the model" to the agency, "judicial deference to the agency's modeling cannot be utterly boundless." *Chemical Mfr's Ass'n v. EPA*, 28 F.3d 1259, 1265 (D.C. Cir. 1994). In this case, contrary to EPA's and Unocal's assertions of reasonable decision making, nearly every variable used for the mixing zone model was either manipulated or bears no rational relationship to the Cook Inlet environment. *See* Pet. Br. at 39-53. The model simply does not "fit" the facts. For that reason, EPA failed to account for the dilution potential of the effluent in Cook Inlet, ensure that water quality standards are met at the mixing zone boundaries, and took action to approve the CIGP that was not in accordance with the law. As such, EPA's decision must be vacated.

CONCLUSION

When it issued the CIGP, EPA failed to protect the water quality of Cook Inlet in violation the Clean Water Act. The effluent limits and mixing zones authorized under the CIGP allow increasingly polluted produced water effluent to be discharged into Cook Inlet every day by a handful of aging oil facilities. This action does not comport with the intent of the CWA. Accordingly, the Court must

hold unlawful and set aside EPA's decision to issue the CIGP as arbitrary, capricious, an abuse of discretion and otherwise not in accordance with the law.

Dated: April 14, 2010

Respectfully submitted,

By: s/Emily Anderson
Emily Anderson
Victoria Clark
Trustees for Alaska
1026 W. 4th Avenue, Suite 201
Anchorage, Alaska 99501
(907) 276-4244 x 112
eanderson@trustees.org
vclark@trustees.org

CERTIFICATE OF COMPLIANCE PURSUANT TO FED. R. APP. P. 32(A)(7)(C) AND NINTH CIRCUIT RULE 32-1

This brief is proportionately spaced, has a typeface of 14 points or more and contains 5,095 words.

Dated: April 14, 2010

Respectfully submitted,

By: s/Emily Anderson
Emily Anderson
Victoria Clark
Trustees for Alaska
1026 W. 4th Avenue, Suite 201
Anchorage, Alaska 99501
(907) 276-4244 x 112
eanderson@trustees.org
vclark@trustees.org

CERTIFICATE OF SERVICE:

I hereby certify that, on April 14, 2010 I electronically filed the foregoing Petitioners' Reply Brief with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit by using the appellate CM/ECF system.

I certify that all participants in the case are registered CM/ECF users and that service will be accomplished by the appellate CM/ECF system.

s/ Emily Anderson