Case 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 ASSOCIATION,

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.

RESPONSE BRIEF OF RESPONDENT-INTERVENORS

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CORPORATE DISCLOSURE STATEMENT

Pursuant to Fed. R. App. P. 26.1, Union Oil Company of California and XTO Energy Inc. provide the following corporate disclosures:

Union Oil Company of California is a California corporation. It is 100 percent owned by Unocal Corporation, a Delaware corporation. Unocal Corporation is 100 percent owned by Chevron Corporation, also a Delaware corporation. Chevron Corporation is publicly traded under the symbol "CVX".

XTO Energy Inc., a Delaware Corporation, is publicly traded under the symbol "XTO".

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I. INTRODUCTION

This Petition for Review concerns the renewal of the federal wastewater discharge permit for oil and gas platforms operating in Alaska's Cook Inlet (the "2007 Permit."). Since the 1980s, the Environmental Protection Agency ("EPA") has issued a series of permits for these platforms under the National Pollution Discharge Elimination System ("NPDES") authorized by section 402 of the federal Clean Water Act ("CWA"). 33 U.S.C. § 1342.

NPDES permits generally impose two types of limits on effluent discharges: technology-based limits, reflecting the capabilities of applicable treatment technologies, and water quality-based limits, reflecting state water quality standards. *See* 40 C.F.R. § 122.44(a)(1) & (d). This appeal includes disputes over both the technology-based and water quality-based effluent limits contained in the 2007 Permit.

The 2007 Permit's technology-based limits are from enforceable guidelines specific to the Cook Inlet facilities that were adopted as regulations by EPA in the 1990s. 40 C.F.R. Part 435, Subpart D. Many of the Petitioners now before this Court unsuccessfully challenged those guidelines. *Texas Oil & Gas Assn. v. EPA*, 161 F.3d 923, 937-940 (5th Cir. 1998). The Petitioners (collectively, "Keeper") now argue that despite the duly adopted guidelines for Cook Inlet, EPA

nevertheless should have imposed more stringent technology-based effluent limits in the 2007 Permit. However, EPA was required to conform the technology-based limits to its previously-issued regulatory guidelines. *See* 33 U.S.C. § 1342(a)(1)(B).

Keeper also objects to the methods EPA used in selecting and calculating water quality-based effluent limits. Most of the objections relate to decisions made by the State of Alaska exercising its independent role in the permitting process, which Keeper intentionally and incorrectly attributes to EPA. Regarding the decisions actually made by EPA, its methods for calculating water quality-based limits were consistent with its regulations, and supported by the administrative record. EPA's record is more than adequate to support EPA's decisions now before the Court. Keeper's preferred approach to calculating water quality-based limits actually would have produced less stringent limits. Finally, Keeper seeks additional limits where there are no corresponding state water quality standards, and so no limits may be imposed.

Keeper's remaining issues relate to decisions made by the State of Alaska's Department of Environmental Conservation ("ADEC"), not to EPA's actions. ADEC issued a Certificate of Reasonable Assurance, as required by CWA section 401 (33 U.S.C. § 1341(a)(1)), that the 2007 Permit would satisfy state water quality standards (the "401 Certification"). ER 62-81. Keeper objects to the

mixing zones ADEC authorized for the discharges covered by the 2007 Permit, and to ADEC's determination that the 2007 Permit complies with the antidegradation policy contained in Alaska's water quality standards.

Keeper should have pursued their objections to the 401 Certification in state court, not here. *See* 40 C.F.R. § 124.55(e). To the extent this Court nevertheless delves into ADEC's certification, it will find adequate support for that state agency's decision in the record. Keeper offers a procedural objection to ADEC's determination that the 2007 Permit satisfies Alaska's antidegradation policy, without alleging any error in how the policy was actually applied to the 2007 Permit. Keeper asks the Court to second guess ADEC's conclusion that mixing in Cook Inlet is influenced more by tides and wind than by freshwater inputs, its selection of tidal regimes for modeling discharge impacts, and its selection among alternative approaches to determining acute mixing zones.

The Court should decline Keeper's invitation to ignore the deference it owes to agencies, particularly on technical matters such as modeling the impact of discharges on receiving waters, and calculating water quality-based discharge limits. *See The Lands Council v. McNair*, 537 F.3d 981, 993 (9th Cir. 2008) (en banc). The Court also will find that each objection raised by Keeper is countered by the administrative record, which supports the determinations EPA made in issuing the 2007 Permit.

II. STATEMENT OF JURISDICTION

EPA issued the 2007 Permit effective June 14, 2007, under authority of CWA section 402, 33 U.S.C. § 1342. Because the 2007 Permit is a general NPDES permit, this constituted final, appealable agency action. *See* 40 C.F.R. §124.19. Petitioners correctly state that this Court has original jurisdiction to review EPA's decision to issue the 2007 Permit under 33 U.S.C. §1369(b)(1)(F). Petitioners timely filed their petition for review of EPA's decision on June 15, 2007. 33 U.S.C. § 1369 provides that any such petition must be filed within 120 days of the contested agency decision.

III. STATEMENT OF THE ISSUES

1. Did EPA, in determining technology-based effluent limits for the 2007 Permit, properly rely on the effluent limitation guidelines promulgated for the Coastal Subcategory of the Oil and Gas Extraction Point Source Category?

2. Does the administrative record support EPA's selection of water quality-based effluent limits, and its calculation of those limits?

3. May this Court consider a challenge to ADEC's certification issued under CWA section 401, in the context of an appeal of an NPDES permit issued by EPA?

4. Was the determination in ADEC's 401 Certification that the 2007 Permit satisfies the "antidegradation" policy contained in Alaska's water quality standards arbitrary and capricious or contrary to law?

5. Were the mixing zones authorized by ADEC's 401 Certification arbitrary and capricious or contrary to law?

IV. STATEMENT OF THE CASE

EPA issued the 2007 Permit under authority of CWA section 402, 33 U.S.C. § 1342. This Court has original jurisdiction to hear an appeal of EPA's decision under CWA section 509(b)(1)(F), 33 U.S.C. §1369(b)(1)(F). This Court's review is conducted on the administrative record created before EPA, as provided by the Administrative Procedures Act, 5 U.S.C. §§ 701-706.

V. STATEMENT OF FACTS

A. Alaska's Cook Inlet

The 2007 Permit applies to oil and gas facilities located in Cook Inlet, a tidal embayment that extends some 180 miles into the south-central coast of Alaska. ER 305.[1] The East and West Forelands divide Cook Inlet into upper and lower inlets. ER 314. Upper Cook Inlet is 17 to 19 miles wide, *id.*, and has an area of about 310 square miles. ISER 49.

[1] A map of Cook Inlet marked with platform locations appears at ER 266.

The tidal flux in Cook Inlet is enormous. Given a typical 23 foot tide, about 1.5 trillion gallons of water flow into upper Cook Inlet, then flush out again on the ebb tide. ISER 49. The combined produced water discharges from all of the Cook Inlet platforms is about 0.000004 percent of this volume. ER 544. The turbulence associated with tidal currents, as well as wind, results in vertical mixing of the Inlet's waters. ER 323.

The waters of upper Cook Inlet also are full of silt, produced by the grinding action of the glaciers that feed the major rivers flowing into the Inlet. Average suspended sediment concentrations are 200 milligrams per liter (mg/l), with maximum concentrations of 2000 mg/l. ISER 50. This means that each tidal flux in upper Cook Inlet moves about 2.4 billion pounds of fine sediment. *Id.*

Three major rivers flow into the northern inlet: the Susitna, Matanuska, and Knik Rivers. ER 314. The salinity, temperature, and suspended sediment concentrations in northern Cook Inlet change with the seasons, reflecting variation in the freshwater input from these rivers. *Id*, ER 323. Salinity increases to the south. In the north, near Anchorage, salinity ranges from 6 parts per thousand ("ppt") to 15 ppt in the summer, compared to 20-25 ppt near the forelands during the same period. ER 323.

Marine life is and always has been more diverse and abundant south of the Forelands, in the lower inlet, than to the north in the upper inlet. ISER 53. This is

due to the high sediment content of the water and the constant shifting of bottom sediments by the strong currents. *Id.* Over 90 percent of the commercial fishing in Cook Inlet occurs south of the Forelands. *Id.*

B. The Permitted Facilities

The first offshore oil discovery in Cook Inlet occurred in 1962. ISER 54. This led to extensive exploration in the 1960s and 1970s. Today, there are sixteen offshore oil and gas platforms (three of which have suspended production) located in upper Cook Inlet, north of the Forelands.[2] ISER 51.

Most of the Cook Inlet platforms are of an older design, and rely on three onshore facilities to separate and treat produced water and other wastewater streams. *See* ISER 51-52. The onshore facilities are connected to the platforms by subsea pipelines. Wastewater from the onshore facilities is piped out from shore, in some cases great distances, before being discharged in deep water. ISER 52.

The villages of Nanwalek and Port Graham, appellants in this action, are located in the southern part of Cook Inlet. Their location is indicated on several maps included in the administrative record. *E.g.*, ER 362. It is just over 100 miles from the nearest oil and gas facilities in the upper inlet to these two communities. ISER 55.

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[2] Platform locations are marked on a map appearing at ER 266.

C. Produced Water Discharges From Permitted Facilities

Much of this appeal is focused on the discharge of "produced water," a mixture of water, oil, and natural gas extracted from the hydrocarbon reservoir in conjunction with oil production. ER 57. The Cook Inlet platforms produce oil from mature reservoirs. Cook Inlet oil production peaked in 1970 at 220,000 barrels a day, and has now declined to about 20,000 barrels a day. ISER 54. As oil fields age, the ratio between hydrocarbons and produced water changes: the water percentage increases. ISER 61. A newly tapped reservoir produces mostly oil, as the pore space in the rock is filled with 60 to 70 percent hydrocarbons. ISER 62. As reservoir fluids are produced over time, pressure in the reservoir decreases, and the oil production rate also decreases. *Id.* This stage of production – primary production – typically recovers 15 to 25 percent of the oil in place. *Id.*

Secondary recovery, commonly via waterflooding, is initiated to enhance recovery. *Id.* In waterflooding, water is injected into the reservoir to increase pressure, pushing some of the remaining oil toward production wells. Over time, increasingly large quantities of water are produced from the reservoir, with a corresponding decrease in oil. ISER 63. Properly operated waterfloods should recover an additional 15 to 20 percent of the original oil in place. *Id.*

D. The NPDES Program

CWA Section 301(a) requires that any discharge of pollutants to waters of the United States be authorized by permit. 33 U.S.C. § 1311(a). CWA Section 402 authorizes issuance of NPDES permits for wastewater discharges. 33 U.S.C. § 1342(a). NPDES permits must incorporate technology-based effluent limits, (developed under CWA section 301), and water quality-based effluent limits (derived from state water quality standards under sections 301(b)(1)(C) and section 302, 33 U.S.C. §1312). 33 U.S.C. § 1342(a)(1).

EPA has adopted regulations governing the NPDES permit program, 40 C.F.R. Part 122, as well as administrative rules for the permitting process. 40 C.F.R. §§ 124.1-124.21 (general procedures) *and* §§ 124.51-124.66 (NPDES-specific procedures). Among other things, these rules authorize general NPDES permits (§ 122.28), specify how technology-based and water quality-based limits are to be derived (§§ 122.44(a)(1) and 122.44(d), respectively), specify the process for obtaining state § 401 certifications (§ 124.53), and describe the effect of a state's § 401 certification on NPDES permit decisions (§ 124.55).

1. Regulatory Criteria For Technology-Based Effluent Limits

The CWA sets standards for determining technology-based effluent limits, including the "best available technology" ("BAT") for nonconventional and toxic pollutants. 33 U.S.C. § 1311(b)(2)(A), (C), and (D). EPA's regulations require

that NPDES permits contain effluent limitations based on the applicable technology standards. 40 C.F.R. § 122.44(a)(1).

The CWA requires EPA to develop rules (referred to as "guidelines") that determine the effluent limits that specific categories or classes of dischargers can achieve when implementing the applicable technology standards. 33 U.S.C. § 1314(b). EPA refers to these as "effluent limitation guidelines" or "effluent guidelines." Where EPA has developed effluent guidelines for a discharge source category, those guidelines are the applicable technology-based effluent limitations for that category. *See* 33 U.S.C. § 1311(b)(2); 40 C.F.R. § 125.3(c)(1). If EPA has not yet adopted effluent guidelines for the applicable source category, EPA determines the appropriate technology-based limits on a case-by-case basis, applying best professional judgment. 40 C.F.R. § 125.3(c)(2) and (d). This is often referred to as a "BPJ" technology determination. Once EPA has promulgated effluent guidelines for a source category, it may no longer impose case-by-case BPJ technology determinations for discharges covered by the guidelines. 33 U.S.C. § 1342(a)(1)(B).

2. Regulatory Criteria For Water Quality-Based Effluent Limits

In developing an NPDES permit, EPA evaluates whether individual pollutants would be discharged at a level that will cause, or have the reasonable potential to cause, an excursion above any state water quality standard in the

receiving water. 40 C.F.R. § 122.44(d)(1)(i). In making this determination, the agency must consider variability in the pollutant concentration in the effluent. 40 C.F.R. § 122.44(d)(1)(ii). In addition, when a state's section 401 certification authorizes a mixing zone, EPA will consider the effect of dilution within that mixing zone in determining whether a discharge has reasonable potential to exceed state water quality standards. 40 C.F.R. § 122.44(d)(1)(ii); ISER 33-39.

CWA Section 303 gives the states the lead in setting water quality standards (although subject to EPA approval). 33 U.S.C. § 1313. In addition, CWA Section 401 gives states the lead in assuring that NPDES-permitted discharges do not interfere with achieving or maintaining state water quality standards, by requiring states to certify that the proposed discharge meets applicable standards. 33 U.S.C. § 1341(a)(1).

In its 401 certification, a state may set out effluent limitations and other conditions as necessary to assure compliance with relevant requirements of the CWA or of state law. 33 U.S.C. § 1341(d). EPA's regulations allow states to authorize mixing zones in their water quality standards.[3] 40 C.F.R. § 131.13. States then apply their mixing zone criteria to a particular discharge through a 401

[3] A mixing zone is an allocated impact zone where water quality criteria may be exceeded, so long as acutely toxic conditions are avoided. ISER 20. In a mixing zone, a discharge undergoes initial dilution followed by secondary mixing in the ambient waterbody. *Id.*

certification. The conditions contained in the state 401 certification "shall become a condition" of the NPDES permit. *Id.*

EPA's NPDES rules reiterate the statutory requirement that a NPDES permit must include any conditions contained in a state § 401 certification. 40 C.F.R. §§ 122.44(d)(3) & 124.55(a). They also make clear that any challenge to conditions based on a state certification should occur in that state's courts: "Review and appeals of limitations and conditions attributable to State certification shall be made through the applicable procedures of the State and may not be made" under federal procedures. 40 C.F.R. § 124.55(e).

If, based on the evaluation just described, EPA determines that a pollutant contained in a discharge will cause or has the reasonable potential to cause a state water quality standard to be exceeded, then the NPDES permit must contain a limit on that pollutant. 40 C.F.R. §122.44(d)(1)(iii)-(1)(v).

E. Development Of The 2007 Permit

1. Technology-Based Effluent Limits

The 2007 Permit contains technology-based limits on discharges of a number of waste streams: drilling fluids; drill cuttings; produced water; produced sand; well treatment, completion and workover fluids; deck drainage; sanitary and domestic wastewater; and chemically-treated sea water and fresh water. ER 485-490. These limits are derived from EPA's guidelines for the Coastal Subcategory

of the Oil and Gas Extraction Point Source Category, which apply to the Cook Inlet facilities. *See* ER 482, ISER 25-27.

EPA adopted effluent limitation guidelines for the Coastal Subcategory (the "Coastal Guidelines") in 1996. 61 Fed. Reg. 66125 (Dec. 16, 1996); 40 C.F.R. Part 435, Subpart D. As explained in EPA's Development Document for that rule, "the wastestreams regulated by the coastal guidelines are drilling fluids, drill cuttings, dewatering effluent, produced water, produced sand, deck drainage, well treatment fluids, well completion fluids, workover fluids, domestic wastes, and sanitary wastes." ISER 22. EPA's Development Document also recognized that the Coastal Guidelines did not address all discharges from oil and gas facilities, and it provided a list of waste streams left for consideration in NPDES permitting, including excess waterflood – treated water in excess of that needed for waterflood injections. ISER 23-24.

EPA's Fact Sheet for renewal of the Permit discussed the Coastal Guidelines requirements that are applicable to the Cook Inlet facilities. ER 481-482, 484-490. It recognized that the Permit cannot impose technology-based limits more stringent than those provided in the Coastal Guidelines on waste streams that are addressed by the Coastal Guidelines. ER 482. Accordingly, the Permit incorporates the Coastal Guidelines' limits of 29 milligrams per liter ("mg/l") daily maximum and

42 mg/l monthly average concentration of oil and grease in produced water discharges. ER 30; *see* 40 C.F.R. § 435.43.

EPA's Fact Sheet also explained that certain waste streams were not addressed in the Coastal Guidelines, that as a result the agency was free to set technology-based standards by BPJ for such waste streams, and that EPA had concluded that a BPJ technology determination was warranted for chemically treated sea water. ER 482, 489-49. EPA expressly acknowledged in the Fact Sheet that it could only impose a technology-based limit on this waste stream because it was not addressed by the Coastal Guidelines. ER 482.

2. Water Quality-Based Effluent Limits

The 2007 Permit contains limits on the concentration of metals and hydrocarbons in produced water discharges, and on the produced water's whole effluent toxicity, based on the requirements of Alaska's state water quality standards. ER 30-34, 484, 491-506. ADEC's 401 Certification, which authorized mixing zones for produced water discharges from the existing facilities, ER 68, 492-493, forms the basis for the 2007 Permit's water quality-based effluent limits. Concentrations of hydrocarbons, metals and ammonia, as well as whole effluent toxicity, are allowed to exceed state water quality standards within the specified

mixing zones, ER 69, as authorized by Alaska's water quality standards. Former 18 AAC 70.240-70.270.[4]

a. Alaska's Criteria For Mixing Zones

Alaska water quality standards authorize the use of mixing zones. Former 18 AAC 70.240-70.270. They provide that, before a mixing zone will be approved, the effluent must be treated to remove, reduce, and disperse pollutants, using methods found by ADEC to be the most effective and technologically and economically feasible, consistent with the highest statutory and regulatory treatment requirements. ER 70; former 18 AAC 70.240(a)(3). The State's regulations require that a mixing zone must be as small as practicable. ER 70; former 18 AAC 70.240(a)(2). Alaska will not allow a mixing zone that will result in pollutants bioaccumulating, bioconcentrating, or persisting above natural levels in sediments, water, or biota to significantly adverse levels, considering toxicity and exposure, former 18 AAC 70.250(a)(1)(A), or cause lethality to passing organisms. Former 18 AAC 70.255(b)(1).

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[4] *See* Addendum. Alaska has recodified its mixing zone provisions into a single regulatory section, 18 AAC 70.240, effective March 26, 2006. *See* "history" in the regulation's codification. The requirements remain unchanged. *Compare* 18 AAC 70.240 (2006) with former 18 AAC 70.240-70.270 (2003). Both versions are available at http://dec.alaska.gov/water/wqsar/wqs/index.htm (viewed 3/9/2010). The mixing zone application and draft 401 certification for the Permit were developed under the prior codification, and the final 401 Certification for the permit refers to the prior codification. *See* ER 69.

ADEC has explained its approach as follows:

> If a mixing zone is restricted by the size of the waterbody, DEC determines the dilution at the boundary of that mixing zone and bases permit limits on that dilution. If water quality criteria can be met in a mixing zone that is smaller than the water body would allow under regulations, then the size of the mixing zone is restricted to that required to meet the water quality standard. In order to meet the "small as practicable" requirement, DEC considers the treatment system technology.

ER 69.

b. The 2007 Permit's Mixing Zones

ADEC based the 2007 Permit's mixing zones on "reasonable worst case" conditions, ER 497, including consideration of the tidal current speeds that would produce the longest or largest mixing zone in its modeling analysis. ER 71. All but one of the mixing zones was calculated using high (90th percentile) current speeds, which produced long, thin mixing zones. ER 69, 71. Five of the hydrocarbon mixing zones calculated using high current speeds are less than 10 meters wide, and the other three range from 11 to 22 meters wide. ER 74.

ADEC evaluated the risk that these mixing zones pose to drifting aquatic organisms, and concluded that they would only be exposed to concentrations above acute thresholds for less than 15 minutes in all of the mixing zones. ER 70. ADEC concluded that no acute effects would be expected from the discharges, since acute criteria are based on a 1-hour exposure. *Id.*

The longest mixing zone for chronic hydrocarbon criteria, calculated using the 90th percentile current speed, is for the Baker platform. ER 71, 76. ADEC concluded that the longest a drifting organism would remain in that platform's chronic mixing zone was 22 minutes. ER 71. Chronic water quality criteria are based on exposures of 48 or 96 hours, so again, ADEC concluded that the Permit's mixing zones would not pose a chronic toxicity threat. *Id.*

For the Trading Bay Production Facility, which has the largest produced water discharge, ADEC determined that the largest, "reasonable worst case" mixing zone would occur at a low (10th percentile) current speed, ER 71, and modeled that discharge accordingly. The 2007 Permit required Unocal to install a new diffuser at Trading Bay. ER 34. This reduced the length of the Trading Bay hydrocarbons mixing zone by a third. ER 75.

ADEC evaluated how long a drifting organism would remain in the Trading Bay hydrocarbon mixing zone, modeling the exposure using increments of 1/10th of the tidal cycle – changing the current speed every 1.2 hours as the model progressed. ER 71. ADEC concluded that a drifting organism would be exposed to TAH concentrations above the water quality standard for 3.5 hours, using EPA's typical modeling assumptions, or 4.8 hours if the organism managed to remain on the centerline of the mixing zone continuously, for the whole distance it traveled. *Id.* ADEC noted that if the creature remained in the plume for a complete tidal

reversal, the longest possible exposure would still be less than 8 hours. *Id.* Again, ADEC concluded that such exposure would not endanger marine organisms, when compared to the TAH water quality criterion, which is based on a 48-hour exposure period. *Id.*

F. Mixing Zone Changes From 1999 Permit To 2007 Permit

In 1999, the 401 certification for the prior version of the Permit, ISER 67-75, authorized multiple mixing zones for produced water discharge from each facility, with different sized mixing zones for hydrocarbons, acute metals, chronic metals, and whole effluent toxicity. ISER 75. Each of the mixing zones was described as a cylinder extending from the marine floor to the surface, centered on the facility outfall pipe, with a specified radius, and with a dilution factor specific to each mixing zone.[5] ISER 70.

A number of changes were made in the mixing zone approach between the 1999 Permit and the 2007 Permit. EPA took part in the discussions resulting in those changes, even though the decision to approve the mixing zones ultimately rested with the State through its 401 certification. Agency staff and the consultant who prepared the mixing zone application met during application development and discussed the assumptions that would be used in modeling the mixing of the

[5] The "dilution factor" is the factor by which the effluent has been diluted by the time it reaches the outer edge of the mixing zone. *See* ISER 18.

discharge, and also what computer model to use. ISER 7-10. During those discussions, EPA expressed a preference for use of the CORMIX model over the DOS-based PLUMES model that has been used in modeling mixing zones for the 1999 Permit, ISER 58, and as a result CORMIX was used in developing the 2007 mixing zones.

CORMIX and PLUMES use different approaches to predicting dilution, and so their results for a given set of data rarely match. ISER 59. Thus, the mixing zones would have changed from one permit to the next, even if the modeling inputs had not changed. *Id.* But in addition to changing models, the agencies also requires use of a number of more protective inputs and assumptions. As explained in the sections that follow, these changes, along with the change in computer model, produced the differences between the mixing zones for the 1999 Permit and the 2007 Permit. *See* ER 544.

1. The Shape And Size Of The Mixing Zones Was Altered By Changing Current Speed Inputs

The mixing zones for the 2007 Permit were developed using more site-specific data on currents than was used in 1999, to more accurately reflect the dispersion of pollutants in Cook Inlet. ER 69, 544. The 1999 mixing zones were modeled using an assumed low (10^{th} percentile) current speed of 0.19 meter/second, and high (90^{th} percentile) current speed of 0.96 meters/second. ISER 56. For the 2007 Permit, a high current speed of 2.3 meters/second was used

to model the chronic mixing zones, based on additional data from Cook Inlet, including consideration of Spring tidal ranges that were not considered in 1999, and direction from the agencies.[6] ISER 58. Using a tide speed more than two time higher than was used in 1999 understandably produced longer, thinner mixing zones. EPA recognized that "[t]he current speed used in the modeling was the variable that had the most significant effect on mixing." ER 497.

2. Using "Reasonable Maximum Concentrations" Increased Mixing Zone Sizes Without Affecting Permit Limits

In the 1999 Permit, the mixing zones and the effluent limits were based on different measures of future potential discharges. The mixing zones were developed using the "maximum observed concentration" as the starting point. ER 73, ISER 57. The effluent limits, however, were based on a higher starting concentration: the "reasonable maximum concentration" for each pollutant. *Id.*

The "reasonable maximum concentration" accounts for uncertainty in the observed data. ISER 57. Statistical analysis of the variability in the observed concentrations is used to predict the amount by which some future concentration could exceed the highest concentration actually detected in the data set. ER 63, 226-27. The greatest variance between "maximum observed" and "reasonable

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[6] For the 2007 Permit, only the Trading Bay mixing zone was based on low tidal flow of 0.2 meters/second (with increasing speed every 1.2 hours for the longer mixing period modeled for hydrocarbons). ER 71.

maximum" concentrations occurs when there is substantial variability in the observed data, or where the number of observations is very small. ER 63, ISER 60. Depending on the variability in the data, or the size of the data set, the reasonable maximum concentration may be between 1.6 and 13.2 times larger than the maximum observed concentration. ER 63.

In the 2007 Permit, both the mixing zones and the effluent limits were based on the reasonable maximum concentration, ER 73, 226-27, ISER 57, making the approach used by the State in setting mixing zones and by EPA in setting effluent limits more consistent. This shift resulted in larger mixing zones, but no increase in effluent limits – because the method used to determine the need for effluent limits did not change between the 1999 Permit and the 2007 Permit. ER 73, 226-27. Thus, this change in the modeling approach had no effect on the discharge limits in the 2007 Permit.

3. Increased Produced Water Volume Resulted In Larger Mixing Zones

The volume of water produced from Cook Inlet wells has steadily increased since the 1999 permit was issued, as acknowledged during the Permit renewal process. ER 494. As discussed above, this is a function of the aging of the oil fields. This aging effect was magnified by basing the modeling for the 2007 Permit on a projection of further increases in volume that would occur over the life of the 2007 Permit, rather than the maximum rate observed before 2007. ER 494.

ADEC decided to base modeling on this worst-case assumption to assure the resulting mixing zones would be adequately protective under the conditions that could occur under the new permit, and not just based on conditions that existed at the time of permit renewal. *See* ER 664-65, ISER 11-16, 41-43, 46.

VI. SUMMARY OF ARGUMENT

An NPDES permit contains several elements, and EPA correctly compiled all of them in the 2007 Permit. EPA incorporated technology-based effluent limits from the Coastal Guidelines, as required by the CWA. In developing water quality-based limits, EPA relied on the mixing zones authorized by the State of Alaska's 401 Certification, just as it was required to. EPA also used appropriate data in determining what water quality-based limits were needed, and in calculating the limits it imposed.

Keeper's arguments for imposing technology-based limits that go beyond the Coastal Guidelines, Pet. Br. at 22-23, ignore the statutory constraint on case-by-case technology determinations, 33 U.S.C. §1341(a)(1)(B), as well as EPA's selection of oil and grease as indicators for the pollutants found in produced water. ISER 29-31. Keeper's objections to EPA's water quality-based limits are not supported by the record.

Keeper also disputes the State of Alaska's antidegradation analysis and its approval of mixing zones. Pet Br. at 15-20, 37-54. Both are contained in ADEC's

401 Certification, and the validity of that certification is not properly before this Court. *See* 40 C.F.R. §124.55(e); *Ackles v. EPA*, 7 F.3d 862, 867 (9th Cir. 1993). To the extent the Court nevertheless considers Keeper's objections to the 401 Certification, the record adequately support's ADEC's decisions. Accordingly, EPA appropriately relied on ADEC's 401 Certification in issuing the 2007 Permit.

VII. ARGUMENT

A. Standard Of Review

This Court reviews EPA's action in issuing an NPDES permit under the "arbitrary and capricious" standard of review set forth in the Administrative Procedures Act ("APA"), 5 U.S.C. §§ 701-706. Under the APA, the Court may not overturn EPA's permit decision unless it is "arbitrary and capricious, an abuse of discretion, or not otherwise in accordance with law." 5 U.S.C. § 706(2)(A). The arbitrary and capricious standard is "highly deferential, presum[es] the agency action to be valid and [requires] affirming the agency action if a reasonable basis exists for its decision." *Indep. Acceptance Co. v. California*, 204 F.3d 1247, 1251 (9th Cir. 2000) (quotations and citations omitted). Under such deferential review, the court may not "substitute its judgment for that of the agency." *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 416 (1971). Rather, if the agency's reasons and policy choices conform to certain minimal standards of

rationality, the agency's decision is reasonable and must be upheld. *Small Refiner Lead Phase-Down Task Force v. EPA*, 705 F.2d 506, 521 (D.C. Cir. 1983).

This court gives particular deference to agency determinations involving scientific matters within the agency's area of technical expertise. *Lands Council*, 537 F.3d at 993 (9th Cir. 2008) (en banc) (the law "requires us to defer to an agency's determination in an area involving a high level of technical expertise.") (citing cases); *Gifford Pinchot Task Force v. U.S. Fish & Wildlife Serv.*, 378 F.3d 1059, 1066 (9th Cir. 2004) ("An agency's scientific methodology is owed substantial deference."). In such instances, the court will not "impose on the agency [its] own notion of what procedures are 'best' or most likely to further some vague, undefined public good." *Lands Council*, 537 F.3d at 993 (citing *Churchill County v. Norton*, 276 F.3d 1060, 1072 (9th Cir. 2001)). Rather, if an agency makes predictive judgments about areas that are within the agency's field of expertise and discretion, they are to be upheld as long as they are reasonable. *Id.*

Courts also give substantial deference when reviewing an agency's choice and use of a scientific model. *American Forest and Paper Association, Inc. v. EPA*, 294 F.3d 113 (D.C. Cir. 2004) (deferring "to the informed discretion of the responsible federal agency" when confronted with conflicting factual evidence regarding a model's use) (citing cases); *Chemical Mfrs. Ass'n v. EPA*, 28 F.3d

1259, 1265 (D.C. Cir. 1994) ("Generally, the court defers the determination of fit between the facts and the model to the EPA ...."). Indeed, a court may reject the agency's use of the model only if it concludes that "the model bears '*no* rational relationship' to the reality it purports to represent." *American Iron & Steel Inst. v. EPA*, 115 F.3d 979, 1005 (D.C. Cir. 1997) (emphasis in original) (citing *Chemical Mfrs. Ass'n v. EPA*, 28 F.3d 1259, 1265 (D.C. Cir. 1994)).[7] The normal criterion used to evaluate a model is not the accuracy of the assumptions from which it proceeds but the utility of the results it produces. Thus, a court will not find that the use of a model is arbitrary if the model, at some level, makes "assumptions that are not perfectly consistent with natural conditions." *American Iron & Steel*, 115 F.3d at 1004.

B. EPA Correctly Determined The 2007 Permit's Technology-Based Effluent Limits

The 2007 Permit incorporates the EPA Coastal Guidelines' technology-based oil and grease effluent limits. 40 C.F.R. § 435.43; ER 30. Keeper concedes that the Coastal Guidelines authorize the discharge of produced water from Cook

[7] Keeper cites the Ninth Circuit's decision in *Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 508 F.3d 508, 534-35 (9th Cir. 2007) as articulating a standard for review for agency modeling. Pet. Br. at 15. The opinion cited by Keeper was withdrawn and superseded by 538 F.3d 1172 (9th Cir. 2008). Both versions of the opinion only apply the general "arbitrary and capricious" standard, without addressing the degree of deference due to an agency's selection or use of a model.

Inlet facilities, subject to limits on oil and grease content. Pet. Br. at 3-4. But Keeper claims EPA should have gone beyond the Coastal Guidelines and imposed additional technology-based limits on produced water discharges. Pet. Br. at 20-23.

Keeper argues that EPA should have developed constituent-specific effluent limits for any metal or organic substance that may have been found in produced water and that was not previously identified in the Coastal Guidelines development documents. Pet. Br. at 22-23. Keeper never raised this issue with EPA during development of the 2007 Permit; their comments only asked that EPA apply best professional judgment to impose zero discharge on produced water, a limit more stringent than required by the effluent guidelines. ER 563-65, 606-612. EPA rightly responded that it could not impose technology-based limits on produced water more stringent than provided for in the Coastal Guidelines. ER 167; *see Natural Res. Def. Council v. EPA*, 859 F.2d 156, 200 (D.C. Cir. 1988) (§ 402(a)(1) "preclude[s] the establishment of BPJ permit limits once applicable effluent guidelines are in place.").

Since Keeper never raised with EPA the issue of developing technology-based limits for specific constituents of produced water, they should not be allowed to pursue that issue in this Court. *Marathon Oil Co. v. United States*, 807 F.2d 759, 767 (9th Cir. 1986) (federal courts "will not consider issues not presented

before an administrative proceeding at the appropriate time.") But the claim is groundless in any event. EPA expressly found, when it developed the Coastal Guidelines, that controlling oil and grease is a suitable surrogate for the organic substances and metals that may be found in produced water, and that it is neither practical nor warranted to develop individual limits for specific constituents. ISER 29-31.

Keeper acknowledges EPA's determination, in issuing the Coastal Guidelines, that limiting oil and grease is an indicator for control of toxic and nonconventional pollutants (the pollutants subject to BAT requirements). Pet. Br. at 22. Indeed, EPA's Coastal Guidelines Development Document explained in detail why effluent limits on oil and grease were selected as BAT for produced water discharges to Cook Inlet. ISER 28-32. EPA recognized that treatment methods used to remove oil and grease also remove other organic pollutants and metals. ISER 29-30. EPA also explained why it would not be feasible to regulate each pollutant found in produced water separately:

> The feasibility of regulating separately each of the constituents of produced water determined to be present was evaluated during development of the Offshore Guidelines .... EPA determined that it is not feasible to regulate each pollutant individually for reasons that include the following: 1) the variable nature of the number of constituents in the produced water, 2) the impracticality of measuring a large number of analytes, many of them at or just above trace levels, 3) use of technologies for removal of oil which are effective in removing many of the specific pollutants, and 4) many of the organic pollutants are directly associated with oil and grease because they are

> constituents of oil, and thus, are directly controlled by the oil and grease limitation. These reasons apply to the Coastal Guidelines.

ISER 31.

The courts have upheld the regulation of indicator pollutants as both workable and efficient. *Natural Res. Def. Council v. EPA*, 822 F.2d 104, 125 (D.C. Cir. 1987). In that decision (cited by Keeper, Pet. Br. at 21), the D.C Circuit recounted EPA's justification for taking this approach:

> EPA replies, with persuasive force, that it frequently does not impose specific effluent guidelines for certain pollutants, especially in regulating toxics, but instead treats other 'regulated' pollutants as 'indicators' of the probable level of the unregulated pollutants because the model treatment technology (the basis for the effluent guidelines) removed both.

822 F.2d at 125. EPA made exactly that finding in the Coastal Guidelines, in selecting oil and grease as an indicator for organics and metals. ISER 29. Thus, contrary to Keeper's claims, the oil and grease limits in the Coastal Guidelines do regulate the organics and metals found in produced water, including those not specifically identified in sampling done during guideline development, and EPA did correctly incorporated technology-based limits on produced water discharges into the 2007 Permit.

C. EPA Properly Calculated The 2007 Permit's Water Quality-Based Limits

1. EPA Compiled A Legally Sufficient Administrative Record Supporting Its Effluent Limit Calculations

Keeper claims that the administrative record is insufficient to support EPA's selection of effluent limits because the record does not contain the results from certain computer model runs that supported ADEC's mixing zone decisions. Pet. Br. at 23-25. This claim reflects a misunderstanding of the separate roles of ADEC and EPA in the NPDES permitting process,[8] and is wrong as a matter of administrative law.

Here, ADEC's 401 Certification authorized mixing zones for the discharge of produced water. ER 68-75. The 401 Certification also specified dilution factors, a numeric value that specifies how much each discharge would be diluted by the applicable mixing zone. ER 76. The modeling that Keeper asserts should be in EPA's administrative record was performed to support ADEC's determination of mixing zone sizes and associated dilution factors. *See* ER 69-71. Indeed, Keeper acknowledges obtaining those model results directly from ADEC, including results Keeper indicates correlate to the mixing zone sizes and dilution factors contained in ADEC's 401 Certification. Pet. Br. at 25.

[8] Keeper acknowledges intentionally confusing this distinction: "Inletkeeper refers to EPA for all the modeling and other decisions discussed in this brief, even if actually performed by another agency or entity, because EPA relied on those decisions …." Pet. Br. at 11 n.7.

Keeper is incorrect in asserting that the computer model printouts are needed to demonstrate that EPA based its selection of effluent limits on relevant factors. Pet. Br. at 24-25. EPA's record on this question is more than adequate. In responding to comments on the draft 2007 Permit, EPA explained how it used the dilution factors developed by ADEC to determine which wastewater constituents had reasonable potential to exceed water quality standards, and so required water quality-based effluent limits:

> The dilution factor from the mixing zone analysis was then applied to the maximum potential effluent concentration to calculate the maximum potential concentration in the receiving water at the boundary of the mixing zone. Finally, this value was compared to the most stringent applicable water quality standard. If the concentration at the mixing zone boundary exceeds the standard, reasonable potential is shown and effluent limits for the parameter must be included in the permit.

ER 226. EPA then set forth tables that detail, for each pollutant and each facility, the maximum potential concentration at the point of discharge (and how that concentration was derived), the applicable dilution factor, the resulting concentration at the boundary of the mixing zone, the relevant water quality standard, and EPA's determination whether the boundary concentration showed a reasonable potential to exceed the applicable standard. ER 229-236.

EPA also explained that, due to the limited data available for many parameters, it had decided to include effluent limits at all facilities for any parameter shown to have a reasonable potential to exceed at any one facility. ER

228. This resulted in water quality-based limits for all the facilities on TAH, copper, mercury, manganese, silver, and zinc. *Id.* EPA then detailed how it calculated those water quality-based effluent limits. ER 237. It also further elaborated on its method of calculating limits in response to public comments on the draft permit. ER 199, 218-219.

Thus, Keeper is incorrect in asserting, Pet. Br. at 23-25, that the record does not show the basis for EPA's water quality-based effluent limits. To the contrary, the record does contain that information, including how EPA derived the potential concentrations of pollutants at the edge of each mixing zone, and each of the other steps involved in deriving the effluent limits. ER 226-239. Accordingly, the Court should conclude that EPA adequately documented its decision-making process in the administrative record.

2. EPA Used Appropriate Data And Assumptions In Determining "Reasonable Maximum Concentrations"

Keeper claims that EPA failed to use available monitoring data in estimating the "reasonable maximum concentration" of pollutants contained in produced water. Pet. Br. at 29-33. This claim is simply not true.

EPA, in preparing the *draft* permit, did perform its calculations using only the single values that the companies provided in their permit renewal applications. *See* ER 226. But when EPA prepared the final version of the 2007 Permit, the agency also considered the effluent data presented in the companies' August, 2005

revised mixing zone application (which summarized the prior 5 years of monitoring under the prior NPDES permit, and one-time sampling conducted to support the renewal application – *see* ER 676, 691-699), and the agency also conducted its own review of discharge monitoring reports filed between December, 1998 and December, 2003. ER 226.

Keeper suggests that approximately 49 monthly data points should have been available from sampling conducted under the 1999 Permit. Pet. Br. at 31. Approximately that many samples were available, but only for the constituents that were required to be monitored under the 1999 Permit. *Compare* the 1999 Permit (ER 790-94) *to* the mixing zone application (ER 692-699). The 1999 Permit required routine monitoring for TAH, TAqH, and certain metals – with the set of metals differing between facilities. ER 790-94. The results from that monitoring are reflected in the mixing zone application.

The application contains a set of tables, one for each facility. ER 692-699. In each table, the first column shows the number of samples analyzed for a specified constituent, and the second is the percentage of those samples in which the constituent was detected. These tables show that between 45 and 58 samples, depending on the facility, were analyzed for the constituents monitored under the 1999 Permit.

But the application also presents the results of less frequent sampling, including one-time sampling for a much broader set of constituents – those for which the number "1" appears in the first column of the tables at ER 692-699.[9] In setting effluent limits, EPA used the data from this broad, one-time sampling event in its analysis, just as it was required to by the regulations cited by Keeper. Pet. Br. at 30; *see* 40 C.F.R. §122.44(d)(1)(ii).

Keeper also objects to the use of the measured maximum concentration in calculating the TAH permit limit for the Trading Bay facility, and to the copper concentration EPA used for the same facility. Pet. Br. at 33-37. The Trading Bay TAH concentration in question was included in the mixing zone application, ER 697, and the copper concentration was identified in the EPA fact sheet issued at the start of the public comment period on the draft permit. ER 526. Neither Keeper nor any other party objected to EPA's use of either figure during the public comment period. Accordingly, these very technical objections should not be considered for the first time by this Court. *See Marathon Oil Co.*, 807 F.2d at 767 (9th Cir. 1986). Nor should this Court substitute its judgment for that of the agency on so technical a question. *See Lands Council*, 537 F.3d at 993 (deference

[9] For a discussion of the supplemental sampling conducted to support the renewal application, see the exchange of correspondence between Unocal and EPA on this subject. ISER 1-6.

to an agency's determination required in areas involving a high level of technical expertise).

If the Court nevertheless considers these claims, it will find that they undercut, rather that support, Keeper's objections to the 2007 Permit. For example, if EPA had used Keeper's preferred copper concentration in calculating effluent limits, the result would have been to remove the copper limit from the 2007 Permit entirely, rather than to impose more stringent limits.

The acute mixing zone for copper at the Trading Bay facility is 83 meters long, and will be less than 1 meter long after the new diffuser is installed at that facility. ER 75. Within that distance, ADEC concluded the metals effluent would be diluted 20.3 times. ER 76. This mixing zone was calculated using the maximum copper concentration of 11 ug/l advocated by Keeper. *See* ER 697; Pet. Br. at 36; *compare* metals dilution factors in ER 681 (mixing zone application) *with* ER 76 (ADEC's 401 Certification).

EPA used ADEC's 20.3 dilution factor in calculating the "reasonable potential" for Trading Bay's discharge to exceed the copper standard, along with a maximum effluent concentration of 103 ug/l. ER 235. Using these figures, EPA projected EPA a concentration at the edge of the acute mixing zone of approximately twice the acute water quality criterion, which indicated a "reasonable potential" to exceed that criterion. *Id.* Since the calculation showed a

"reasonable potential" to exceed the copper standard, EPA included a copper limit in the 2007 Permit.

If EPA had used the same concentration in its effluent limit calculation that ADEC used in the mixing zone calculation (11 ug/l, as advocated by Keeper (Pet. Br. at 36), rather than 103 ug/l), then EPA would have projected a copper concentration at the edge of the acute mixing zone of 1.08 ug/l – one-fifth of the applicable criterion, instead of twice the criterion. *See* ER 235. It then would have concluded – as it did for all other parameters that were below applicable criteria – that there was no reasonable potential for the Trading Bay discharge to exceed the acute copper criterion. *Id.*

Trading Bay was the only facility that EPA found had a reasonable potential to exceed for copper. *See* ER 228. Thus, copper limits were applied to all of the facilities solely because of the calculation applied to the Trading Bay discharge. *See* ER 228. Thus, if EPA had used the concentration advocated by Keeper, then it would have found that no copper limits were needed for any of the Cook Inlet facilities. *Id.*; *see* ER 198-99. Instead, however, EPA adopted copper limits for Trading Bay that are more stringent than those contained in the 1999 Permit. *Compare* ER 790 *with* ER 33. Thus, Keeper has no basis to complain about the way in which EPA calculated water quality-based effluent limits.

3. EPA Used A Conservative Method To Set Water Quality-Based Effluent Limits

Keeper objects to the method EPA used to develop water quality-based effluent limits for the 2007 Permit. Pet. Br. at 54-56. But as Keeper notes, Pet Br. at 54, EPA was required to include limits on any parameters that have a reasonable potential to exceed an applicable water quality standard. 40 C.F.R. § 122.44(d)(1)(i). EPA did so here, and went beyond that requirement by imposing limits on all facilities for each parameter that showed reasonable potential at any facility. ER 228.

As with EPA's "reasonable potential" analysis discussed above (Section VII.C.2), EPA's calculation of effluent limits builds on the mixing zones approved by ADEC. ADEC set chronic criteria mixing zones for hydrocarbons, metals, ammonia, and whole effluent toxicity, and acute mixing zones for metals and ammonia. ER 74-76. Each mixing zone was based on a "driver": the constituent that required the most dilutions to achieve water quality standards. *See* ER 237. ADEC also identified the dilution factors achieved within each mixing zone. ER 76.

In the draft permit, EPA calculated effluent limits by multiplying the water quality standard by the dilution factor associated with the applicable mixing zone. ER 237. Public comments pointed out that, since all metals are subject to the same mixing zone, this approach would have produced higher (i.e., less stringent) limits

than necessary for non-driver metals. ER 218-19. In fact, no limits were needed for those metals with reasonable maximum concentrations projected to be below applicable water quality standards at mixing zone boundaries, as they would have no "reasonable potential" to exceed water quality standards. *See* 40 C.F.R. § 122.44(d)(1)(i); ER 219, 228. But EPA remained concerned about foregoing limits on parameters for which there was little data. ER 228.

Accordingly, in the final permit EPA included limits at all facilities for any parameter that showed reasonable potential to exceed at any of the facilities. *Id.* EPA did so for many of the non-driver constituents by setting maximum daily limits equal to its projection of the reasonable maximum concentration, also called maximum projected effluent concentration, for that constituent at that facility. ER 237. Normally, this value would be divided by the available dilutions to determine concentration at the edge of the mixing zone, *see* ER 226, and no limit would be required if the result fell below the applicable standard. Using the reasonable maximum concentration as a permit limit is more stringent than required, since it effectively discounts the available capacity of the mixing zone.

Keeper nevertheless objects that EPA should have calculated all water quality-based effluent limits using procedures recommended by EPA's guidance document. Pet. Br. at 54-55. If EPA had done so, the result would have been much higher limits than EPA generated using reasonable maximum concentrations

– or no limits at all. For example, the guidance document procedure would have produced limits on copper at the Dillon platform of 128.7 ug/l daily maximum and 53.0 ug/l monthly average. *See* ER 624. The actual permit limits, calculated using EPA's approach, are 14.0 ug/l daily maximum and 9.3 monthly average. ER 33.

Still, Keeper maintains that EPA erred by "entirely failing" to calculate acute limits on whole effluent toxicity and TAH. Pet. Br. at 56. EPA "failed" to do so because there are no acute water quality standards for these two parameters, only chronic standards. 18 AAC 70.030 (whole effluent toxicity standard); ER 69 (TAH standards based on chronic toxicity). Since there are no applicable acute standards for these parameters, EPA's could not calculate acute limits. *See* calculations cited by Keeper at ER 624-631.

D. EPA's Reliance On ADEC's 401 Certification Was Proper

Keeper's remaining issues are all substantive objections to ADEC's 401 Certification decision, not decisions made by EPA. Pet. Br. at 15-20 (arguing that ADEC's 401 Certification is invalid, and therefore the 2007 Permit improperly authorizes "backsliding"); Pet. Br. at 25-28, 37-54 (arguments challenging the 401 Certification's mixing zone determinations).[10] The Court should reject these arguments without further consideration, on grounds that they relate to a state

[10] Keeper consistently, and incorrectly, attributes ADEC's decisions to EPA throughout these portions of their opening brief. *See* note 8, *supra*.

decision that is not before this Court. If the Court nevertheless delves into Keeper's objections, it will find that they are groundless.

1. The Correct Forum For Review Of A 401 Certification Is State Court

EPA is required to incorporate state 401 certification terms and conditions into an NPDES permit, 33 U.S.C. § 1341(d), including any mixing zones established by the state. *See* 40 C.F.R. §122.44(d)(1)(ii); ISER 35. (401 Certification is conclusive on mixing zones). EPA's regulations are clear that any objection to a state 401 certification is decided by the state agency and the state courts. 40 C.F.R. § 124.55(e) ("Review and appeals of limitations and conditions attributable to State certification shall be made through the applicable procedures of the State and may not be made through" procedures established in the federal regulations).

The federal courts have agreed that review of a 401 certification belongs in state court. "[T]he proper forum to review the appropriateness of a state's certification is the state court." *Roosevelt Campobello Int'l Park Comm'n v. EPA*, 684 F.2d 1041, 1056 (1st Cir.1982); *Ackels v. EPA*, 7 F.3d 862, 867 (9th Cir. 1993) ("Petitioners' only recourse is to challenge the state certification in state judicial proceedings"); *Keating v. FERC*, 927 F.2d 616, 622 (D.C. Cir. 1991) (validity of state certifications is properly left to the states because the certification decision turns on "questions of substantive state environmental law – an area that Congress

expressly intended to leave to the states. . . ."); *but see Dubois v. United States Dep't of Agric.*, 102 F.3d 1273 (1st Cir. 1996) (allowing federal review where state seeks to apply a standard in a way that is invalid under federal law). Where, as here, a petitioner objects to the substance of a 401 Certification, it must bring its challenge in a state administrative or judicial proceeding.

Indeed, Keeper pursued the same claims regarding the 401 Certification in a state administrative proceeding initiated more than a year after the appeal being heard by this Court was filed. That state appeal was dismissed as untimely.[11] Now Keeper asks this Court to decide whether ADEC properly applied the state antidegradation policy and state rules governing mixing zones. These issues go to the validity of ADEC's 401 Certification under state law, and do not belong in federal court. *See Ackels*, 7 F.3d at 867. Furthermore, having failed to pursue a timely appeal in state court, Keeper should not be allowed to circumvent the state's appeal process by reviving these claims in this proceeding.[12]

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[11] It is appropriate for the Court to take judicial notice of undisputed public records and decisions issued in other forums, like the state order dismissing Keeper's appeal. *See United States v. 14.02 Acres of Land More or Less in Fresno County*, 547 F.3d 943, 955 (9th Cir. 2008).

[12] Allowing a collateral attack on the validity of ADEC's 401 Certification in this proceeding not only would require this Court to consider state law issues that should be heard in state court, but also effectively would amount to equitable tolling of Alaska's statute of limitations, which was held to bar Keeper's state appeal. That limitation bars administrative appeals filed more than 30 days after ADEC's decision, 18 AAC 15.200(a), facilitating administration of this combined

(Footnote Continued)

2. Alaska Properly Applied Its Antidegradation Policy In Issuing 401 Certification

The 2007 Permit contains effluent limits for some pollutants from some covered facilities that are less stringent than the limits for the same pollutants at the same facilities in the 1999 Permit. Keeper acknowledges that the CWA allows this downward revision, so long as the change complies with Alaska's antidegradation policy, part of the state's water quality standards.[13] Pet. Br. at 16-17. Keeper further acknowledges that ADEC conducted an antidegradation analysis and concluded that the 2007 Permit was consistent with 18 AAC 70.015, the state antidegradation policy. ER 62, 77-81. While not mentioned by Keeper, EPA also independently reviewed the permit conditions and concluded that state water quality standards, including the State's antidegradation policy, would be met. ER 177, 185-86.

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federal/state permitting system. Equitable tolling would not be appropriate for Keeper's claims. *See Marley v. U.S.*, 567 F.3d 1030, 1035-36 (9th Cir. 2009), quoting *John R. Sand & Gravel Co. v. United States*, 552 U.S. 130 (2008).

[13] CWA § 402(o)(1) allows EPA to relax water quality-based effluent limits if doing so will comply with CWA § 303(d)(4). 33 U.S.C. § 1342(o)(1). For waters like Cook Inlet that currently meet water quality standards, § 303(d)(4)(b) allows relaxation of such limits only if consistent with the CWA's antidegradation policy. 33 U.S.C. § 1313(d)(4)(b). EPA regulations require that an antidegradation policy meeting CWA requirements be incorporated into each state's water quality standards. *See* 40 C.F.R. § 131.6(d). Alaska's water quality standards include an EPA-approved antidegradation policy. *See* 18 AAC 70.015.

Keeper argues that ADEC's antidegradation analysis is invalid, as a matter of law, because Alaska has not adopted an antidegradation implementation *plan* to accompany its admittedly satisfactory antidegradation *policy*. Pet. Br. at 17-20. However, Keeper has failed to allege any substantive error in the way the state actually applied the antidegradation policy to the 2007 Permit. Indeed, the record is devoid of any evidence suggesting that the antidegradation policy was in any way misapplied. As Keeper has not claimed that the less stringent effluent limits are inconsistent with the substantive requirements of the state's antidegradation policy in any way, Keeper has offered this Court no basis to conclude that the lack of an antidegradation plan had any effect on application of the policy to this permit, let alone rendered Alaska's 401 Certification invalid.

The only authority Keeper has cited does not even address the argument they have advanced. *See* Pet. Br. at 17. Keeper relies exclusively on *N.W. Envtl. Advocates v. EPA*, 268 F.Supp.2d 1255 (D.Or. 2003), which held that states are required by regulations implementing CWA § 303 to adopt implementation methods, as well as an antidegradation policy, in their water quality standards. That decision says nothing about the ability of states to properly apply the antidegradation policy to individual permitting decisions in the absence of generally applicable procedures. Indeed, Keeper has not alleged any substantive error in the way the policy was applied in this case.

Keeper's argument frames a potential challenge to EPA's approval of Alaska's water quality standards (which are not presently before this Court), but not to ADEC's application of those standards to this particular permit. As to this permit, Keeper's failure to identify any substantive error in ADEC's analysis or in its conclusion is dispositive: the handful of less stringent limits in the 2007 permit are lawful, as ADEC – and EPA – concluded that the antidegradation policy was satisfied. ER 62, 77-81, 177, 185-86.

In an attempt to link ADEC's antidegradation decision to the EPA-issued permit that is actually before the Court, Keeper argues that EPA had an independent duty to confirm that ADEC's antidegradation finding complied with CWA requirements, and that EPA should have rejected ADEC's decision because Alaska has not adopted antidegradation implementation procedures. Pet. Br. at 19-20. This argument fails for the same reason Keeper's direct challenge to ADEC's decision fails: Keeper has not shown that such procedures are necessary to apply the antidegradation policy to an individual permit decision, and did not identify any substantive error in how the policy was applied to this permit. Keeper also ignores the fact that EPA did review ADEC's antidegradation decision, and EPA affirmed that decision in its response to public comments on the draft 2007 Permit. ER 177, 185-86.

In any event, EPA's "independent obligation" to review state 401 certifications is limited in scope. In *City of Tacoma v. Federal Energy Regulatory Comm'n*, 460 F.3d 53 (D.C. Cir. 2006), cited by Keeper, the D.C. Circuit limited FERC's role to considering the state's facial compliance with requirements of CWA § 401, and rejected any obligation to consider application of state law standards. 460 F.3d at 67-68. *Accord Natural Resources Def. Counsel v. EPA* ("*NRDC*"), 279 F.3d 1180, 1188 (9th Cir. 2002) ("To be sure, EPA does not act as a reviewing agency for state certification, and the proper forum for review of state certification is through applicable state procedures.").[14]

Finally, while Keeper's challenge rests on Alaska's failure to adopt antidegradation implementation procedures, Pet. Br. at 19-20, Keeper also makes passing mention of a perceived failing in ADEC's public notice. *Id.* As this Court explained in *NRDC*, notice and comment requirements are satisfied where a rule is a "logical outgrowth" of the rule originally proposed. 279 F.3d at 1186; *see also*

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[14] In *NRDC*, this Court also held that "EPA has its own independent obligation to determine whether a permit will comply with the state's water quality standards." 279 F.3d at 1188. *NRDC* did not directly address the scope of that obligation, but relied upon *In Re Ina Rd. Water Pollution Control Facility*, 2 E.A.D. 99 (EPA Envtl. App. Bd. Nov. 6, 1985), which limited EPA's duty to situations in which "a State commits clear error in its certification, for example, where a state overlooks applicable State water quality standards." 279 F.3d at 1186-87. *NRDC* was decided not on compliance with state water quality standards, but rather on EPA's error in failing to provide public notice on a change in the final NPDES permit that was not a logical outgrowth of the draft permit that had been circulated for comment. 279 F.3d at 1187.

Environmental Def. Ctr. v. EPA, 344 F.3d 832, 851 (9th Cir. 2003) ("a final regulation that varies from the proposal, even substantially, will be valid as long as it is in character with the original proposal and a logical outgrowth of the notice and comments.") (internal citations and quotations omitted). The inquiry is whether interested parties could have anticipated that the change was possible from its draft and, thus, reasonably should have filed their comments on the subject during the notice and comment period. *NRDC*, 279 F.3d at 1186.

ADEC's conclusion that the 2007 Permit satisfies the State's antidegradation policy did not change between its draft and final 401 Certification. In the draft that was circulated for public comment, ADEC found "any reduction in natural water quality of Cook Inlet to be in accord with the requirements of 18 AAC 70.015, Antidegradation Policy." ER 594, 666. ADEC's draft also explained why anti-backsliding requirements had not been triggered. ER 602-603. The final 401 Certification reached the same conclusion. ER 66, 77-81. The only change was to spell out the agency's analysis of the various elements of the antidegradation policy, but the conclusion remained the same.

The draft certification put Keeper on notice of the antidegradation issue and of ADEC's conclusion, as indicated by Keeper's comments on the issue, which focused almost entirely on the (false) claim that ADEC cannot analyze compliance

with the antidegradation policy without an approved implementation plan.[15] ER 565-567. ADEC responded to what substantive comments it did receive, and provided further explanation for its conclusion, which did not change. ER 77-81. This situation is quite different from *NRDC*, where neither ADEC nor EPA gave notice of a significant change in requirements of the 401 certification and the NPDES permit between draft and final agency action. *See* 279 F.3d 1186-88. Here, there was no change. If this Court were to hold that ADEC should have provided notice and invited comment on its final decision, which was exactly the same as the position on which it accepted public comment, then it will have effectively nullified the "logical outgrowth" comment, and will force agencies to go out for comment on the slightest changes from draft decisions.

3. EPA Properly Relied On ADEC's Mixing Zone Modeling

a. ADEC's Modeling Of Outfall Configurations Was Appropriate

Keeper objects to the outfall configurations used in modeling the Trading Bay facility's existing discharge (before installation of a new diffuser, which was

[15] Keeper also has failed to allege or demonstrate the necessary prejudicial error resulting from the alleged lack of opportunity for comment. *See Miami-Dade County v. EPA*, 529 F.3d 1049, 1061 (11th Cir. 2008) ("Before we may vacate an agency action [for procedural failure] during the notice-and-comment period, we must take 'due account…of the rule of prejudicial error.'"). In order to show prejudicial error, Keeper was required to "indicate with reasonable specificity," the aspect of the rule to which it objects and "how it might have responded if given the opportunity." *Id.*

completed in the summer of 2009 as required by the 2007 Permit – *see* ER 34) and the approach used to simulate some discharges that occur above the ocean surface. Pet. Br. at 39-41. This objection is moot, since the new diffuser is now in place. But to the extent it has any continuing relevance, the issues were decided by ADEC, informed by input from EPA, and the decisions are explained in the record.[16] This Court does not sit in review of state certification decisions. See *NRDC*, 279 F.3d at 1188. If it did, it would be appropriate for this Court to defer to the agencies on these modeling issues. *See American Iron & Steel*, 115 F.3d at 1004-1005.

There was an exchange in May, 2004 (more than a year before the revised mixing zone application and almost two years before the draft permit was issued) in which the consultant who prepared the mixing zone application explained to EPA's permit writer how and why characteristics of the Trading Bay diffuser ports had been modified for the model. ER 706. This explanation was reiterated in comments on the draft permit. ISER 65-66. Thus, EPA and ADEC were aware of

[16] Even though existing record materials document the actions taken related to outfall configurations, Keeper attempts to support its argument with citations to extra-record documents from ADEC's modeling of mixing zones. Pet. Br. at 39-40. Here, as elsewhere, the extra-record material is offered without context, or evidence that the documents present ADEC's final views on any particular modeling issue.

and accepted these modeling parameters, and the record provides a rational explanation for their selection.

As for Keeper's complaint (which again relates to a diffuser replaced last year) that modeling using the actual sizes of the discharge ports shows bottom attachment of the plume, Pet. Br. at 39-40, ADEC attributed this to initial modeling of the discharge pipe as if it lay on the sea floor, when it fact it sits on a concrete base that raises the plume above the sea floor. ER 543. As the record sets out a rational basis for the modeling decisions that were made, the Court should defer to the agencies' judgment on those decisions. *Chemical Mfrs. Ass'n*, 28 F.3d at 1265.

The May, 2004 exchange also discusses the difficulties the consultant experienced in modeling surface discharges, as well as his proposed alternative modeling approach for those discharges. ER 705-706. This issue remained a topic of discussion between the parties, and in February, 2005, the consultant had a conference with EPA and ADEC staff and one of the authors of the CORMIX model, Robert Doneker. ISER 40. Based on Mr. Doneker's advice, a different approach was used: the surface discharge was simulated "using a mirror approach," as if the discharge were occurring near the sea floor, at a velocity and with negative buoyancy to achieve an effect like that of a drop from some height. *Id.* This recommendation was followed in preparing the mixing zone application. ISER 66.

Keeper attempts to discredit Mr. Doneker's approach with *non sequiturs*. Pet. Br. at 41. For example, Keeper speculates that he may not have been told of the decision to model 10th percentile and 90th percentile tides, rather than tidal reversal. But tidal movement has nothing to do with simulating the entry of the effluent discharge into the water. Similarly, the issue of bottom attachment of the plume – which Keeper attributes to the Trading Bay outfall, not the surface discharges – has nothing to do with simulating the dropping of water onto the surface of the ocean. Keeper has failed to show any flaw in the modeling of outfall configurations, let alone so significant a gaffe as to warrant reversal. *See Chemical Mfrs. Ass'n*, 28 F.3d at 1265 ("Generally, the court defers the determination of fit between the facts and the model to the EPA…").

b. ADEC's Modeling Of Toxics Discharges Was Consistent With EPA Guidance.

Keeper claims that ADEC's determination of acute mixing zones and modeling of potential acute effects was flawed because ADEC did not use a setting in the CORMIX model to dictate the size of the acute zone.[17] Pet. Br. at 41-43. This argument was advanced in comments by Keeper's consultant, ER at 134, and

[17] Keeper's brief relies on computer printouts that Keeper obtained directly from ADEC that are the subject of Keeper's motion to supplement the record. However, there is no need for the Court to consider any information contained within the printouts in resolving this issue, which turns on EPA's guidance and the existing record, not the computer printouts.

responded to by ADEC. ER 539-540. EPA's response to comments notes that this was ADEC's decision and directs attention to ADEC's response. ER 224.

EPA's guidance on setting water quality-based limits, the Technical Support Document, recognizes four approaches to preventing lethality to passing organisms (i.e., avoiding acute effects). ER 877-878. If the model user selects the option advocated by Keeper, the CORMIX model will apply one of those four methods (an acute zone of 50 times the square root of the mixing zone port). *See* ER 134; ER 877.

As ADEC explained in its response to comments, the agency relied on one of the other approaches recognized by EPA's guidance document: a demonstration that a drifting organism would not be exposed to concentrations above an acute threshold for more than an hour. ER 539-540 (ADEC response to comments); ER 878 (EPA guidance). Indeed, modeling showed that acute exposures at all facilities would be under 15 minutes, and in many cases no more than 1 to 2 minutes. ER 539-540; ER 70 (401 Certification).

Keeper fails to acknowledge that EPA's guidance recognizes more than one method for evaluating potential acute effects. Pet. Br. 41-42. As ADEC applied a well established method for evaluating acute effects and explained how the results of that method supported its decision, if this Court reaches the issue it should defer

to the agency's selection of its analytic approach and uphold ADEC's determination. *See Lands Council*, 537 F.3d at 993.

c. Keeper's Objections To Pollutant Concentration Inputs In Some Model Runs Are Irrelevant To Adequacy Of ADEC's Dilution Modeling.

Keeper also complains that some of ADEC's CORMIX model runs were performed with inputs of 100 percent pollutant concentration. Pet. Br. at 42-43. Again, this objection relates to analysis performed by ADEC that is not part of EPA's administrative record. If the Court reaches the question of the adequacy of ADEC's modeling, as with the toxicity issue addressed in the prior section, it need not review the actual model runs to resolve the issue.

Keeper deems the model runs "nonsensical" because a model run that starts with 100 percent pollutant concentration will not state the actual pollutant concentration at the edge of the mixing zone. *Id.* Keeper ignores the fact that a model may be run for other purposes, such as determining the degree of dilution that occurs within a given mixing distance. The rate of dilution is independent of pollutant concentration.[18] ADEC's 401 Certification provides both mixing

[18] Keeper also makes no effort to relate the model runs it has criticized to other model runs ADEC performed that did use reasonable maximum concentrations as starting concentrations. That analysis would be relevant, if the Court were reviewing ADEC's mixing zone determination, which it is not. The issue before the Court is EPA's permit decision, not the adequacy of ADEC's modeling performed to support the 401 Certification.

distances and the dilutions achieved within the relevant distance for each set of parameters. ER 74-76.

Keeper's argument regarding pollutant concentration inputs has no bearing on the validity of the dilution factors identified in ADEC's modeling, because EPA used ADEC's dilution factors, not its projected pollutant concentrations, in setting effluent limits. ER 226. Keeper has failed to show that ADEC improperly used the CORMIX model, and the Court, assuming it reaches the issue, should defer to ADEC's decisions on how best to use the model in forming its 401 certification decision. *See American Forest and Paper Association, Inc*, 294 F.3d 113.

d. ADEC Properly Modeled Cook Inlet As An Ocean Environment.

Keeper argues that, in modeling discharges to Cook Inlet, ADEC should have used the modeling approach that has been developed for estuaries, rather than the approach developed for ocean environments. Pet. Br. at 43-53. EPA deferred to ADEC on this issue, as ADEC was the agency that authorized the mixing zones. ER 224. In response to comments from Keeper's Consultant, ADEC explained not only why it believes Cook Inlet behaves more like the ocean than like an estuary, but also how factors considered in modeling estuaries were applied to ADEC's Cook Inlet analysis. ER 545-546. In doing so, ADEC did far more than declare the choice "a matter of opinion," as suggested by Keeper. Pet. Br. at 43. Courts generally defer to an agency's determination of the fit between the facts and a

model, *see Chemical Mfrs. Ass'n*, 28 F.3d at 1265, and it certainly is appropriate for the Court to do so here.

In dilution modeling, the nature of the receiving waters influences the selection of critical design conditions – the conditions most likely to produce the lowest dilution rates or worst-case mixing. *See* ER 879-880. While Cook Inlet may be characterized as an estuary for some purposes, ADEC concluded that for purposes of mixing zone modeling, it behaves more like marine waters and not like an estuary. ER 545-46.

EPA guidance suggests that mixing in estuaries is tidally influenced, but also influenced by the freshwater inputs from rivers, with that influence varying seasonally. ER 880. ADEC evaluated other definitions of "estuary" as well, each involving waters that experience variations in salinity over time due to seasonal variation in fresh water inputs from rivers and land drainage. ER 545-46. ADEC noted that, while salinity varies over the 180 mile length of Cook Inlet, Inlet waters do not show the significant variation in salinity with depth that characterizes an estuary. ER 546. Thus, ADEC concluded that for modeling purposes, Cook Inlet behaves more like an ocean environment. *Id.*

Contrary to Keeper's claims, Pet. Br. at 43, EPA's Environmental Assessment supports ADEC's conclusion that Cook Inlet mixing is influenced more by tides than by seasonal variation in fresh water inputs: "Because tidal

turbulence is the major mixing factor in Cook Inlet, rather than seasonally varying fresh water input, this flushing rate is relatively invariant from season to season." ER 323. The same page notes that the greatest salinity variation occurs in the upper Inlet, near Anchorage – well north of the area where the permitted discharges occur. *Id.*

Keeper also argues, starting from the premise that Cook Inlet should have been modeled as an estuary, that ADEC's analysis was flawed because it failed to model slack tide and tidal reflux, both of which are conditions associated with tidal reversal. Pet. Br. at 44-47. But ADEC fully responded to comments from Keeper's consultant on these issues, explaining that it did, in fact consider slack tide conditions and tidal reflux, as well as other factors that could affect mixing. ER 541-42. ADEC recounted the results of a CORMIX model run performed in tidal reversal mode, which showed a mixing zone a little longer than when using a 90th percentile current speed. ER 541. ADEC stated it considered this a screening analysis to see if there was a significant reason to pursue the matter further and expressed doubts about whether the model fit what actually occurs in Cook Inlet at slack tide. *Id.* ADEC also explained that, because of the tremendous tidal exchange volumes (*see* ER 544) and the very dynamic nature of Cook Inlet, tidal reflux need not be analyzed. ER 541. EPA supported that decision. ISER 9. Moreover, ADEC's 401 Certification expressly discusses the exposure that could

occur in the largest mixing zone (Trading Bay) in a tidal reversal scenario: "Furthermore, should an organism be within the plume for a complete tidal reversal, then the greatest length of time the organism might remain in the plume is less than 8 hours...." ER 71.

ADEC provided a rational basis for its decision to model Cook Inlet as an ocean environment. This Court should not substitute its judgment for that of the state agency, and should defer to its assessment of the best fit between the facts and the modeling objectives. *See Chemical Mfrs. Ass'n*, 28 F.3d at 1265.

e. Modeling Of Discharges Against "Critical Design" Conditions For Ocean Environment Was Appropriate.

Keeper also objects to the manner in which ADEC modeled the tidal currents of Cook Inlet, and its evaluation of potential stratification of the water column. Pet. Br. at 48-53. As with the other modeling decisions discussed above, the Court should defer to the agency's informed discretion on these issues. *American Forest and Paper Association, Inc.*, 294 F.3d 113.

As explained in the record, the modeling contractor treated the receiving waters as having uniform density, rather than being stratified, because, while there is evidence of some stratification of Cook Inlet at mid-channel, the evidence did not support extrapolating that condition to the discharge locations near shore. ER 708. This rationale was adopted by ADEC. ER 542. Furthermore, EPA noted that

modeling conducted with some stratification did not significantly affect the modeling results. ER 184-85. As the agencies provided a rational basis for their decision, the Court should not attempt to substitute its judgment for that of the agencies on this technical question. *See Lands Council*, 537 F.3d at 993.

Regarding currents, Keeper misrepresents the purpose and the effect of the analysis performed to identify 10th and 90th percentile current speeds. Pet. Br. at 50-52. The 10th and 90th percentile currents were identified by statistical analysis, as Keeper acknowledges. Pet. Br. at 51 n.23. They are a mathematical construct of, respectively, a speed slower than all but 10 percent and a speed faster than all but 10 percent of the predicted tidal flows. *Id.* They are not intended to represent the slowest or fastest tidal flow that may occur in Cook Inlet, but rather a "reasonable worst case scenario," which may occur under relatively slow or fast tidal regimes, depending on other variables. *See* ER 186, 195, 497, 706 (EPA comment). Keeper's objects that there are tidal velocities that are lower than the 10th percentile value, Pet. Br. at 51, but that is the inevitable result of using a statistically selected value that is intended to be representative of slow speeds, rather than using the slowest possible current speed.

Keeper also objects to the way in which the 10th and 90th percentile currents were calculated, arguing that a different approach would have produced a lower 10th percentile speed and a higher 90th percentile speed. Pet. Br. at 51-52. The

record shows that the modeling consultant, ADEC, and EPA put substantial thought into selecting the scenarios to be modeled for the Cook Inlet discharge, including the selection of current speeds. ER 69-74, 493-500, ISER 9, 58. The consultant explained to EPA and ADEC the reasoning behind the approach ultimately adopted by the agencies:

> Our present recommendation of using the combination of data surrounding the highest and lowest current speeds for 2004 is made partly out of concern about biasing the current evaluation too far toward higher speeds. We feel the suggested approach provides a better representation of the lower current speeds that occur in Cook Inlet, yet still provides a reasonable representation of the higher speeds.

ER 704. The Court should defer to the agency's informed discretion on these issues. *American Forest and Paper Association, Inc.*, 294 F.3d 113.

Finally, Keeper claims Cook Inlet was modeled as if it were a river, or as if it had a 48-hour tidal cycle. Pet. Br. at 44, 53. This misrepresents the purpose and effect of the analysis in question, which focused on current speeds rather than direction. *See* ER 704. To determine the 10th percentile and 90th percentile currents, all current speeds during the selected 48 hour periods were converted to positive numbers[19] and then statistically analyzed. This analysis identified a 10th

[19] When noting the speed of a tide relative to a point in space, tidal direction is indicated by a positive or negative number. However, the absolute speed of the tide – the measure used in this analysis – is a positive number.

percentile speed of 0.2 meters/second and a 90th percentile speed of 2.3 meters/second. *See* ISER 46.

The modeling showed that all but one of the discharges was diluted to below water quality standards and reached the edge of the applicable mixing zone in less than 25 minutes. ER 539-540, ISER 45. There was no need to model the full "tidal cycle," as the discharge had diluted and left the mixing zone in far less time than the tide flows in a single direction. Only the discharge from Trading Bay, modeled at 10th percentile current speed, takes longer to dilute, and ADEC's 401 Certification provides a detailed account of the adjustment in current speeds made each 1.2 hours (a 10th of the tidal cycle) in evaluating the Trading Bay discharge, as well as the results of modeling during a tidal reversal. ER 71. Keeper's objection is not only groundless, but premised on a misunderstanding of the method used to model the Cook Inlet discharges.

VIII. CONCLUSION

The methods EPA used in setting technology-based and water quality-based limits for the 2007 Permit complied with EPA guidance and regulations. ADEC properly applied EPA guidance and appropriately exercised its discretion in approving mixing zones for the permitted discharge. Keeper failed to make a timely challenge in state court to those mixing zones, or to ADEC's antidegradation determination, and this Court should not entertain those claims in

this action. To the extent the Court nevertheless does examine ADEC's 401 Certification, it will find that EPA compiled a record that fully explains ADEC's analysis, thus demonstrating that EPA more than satisfied any obligation it may have had to independently evaluate the water quality issues considered by the state.

EPA's issuance of the 2007 Permit is fully supported by the administrative record, and was made in compliance with all CWA requirements. The Court should decline Keeper's invitation to substitute its judgment for that of the agencies, and should affirm EPA's permit decision.

March 15, 2010

Respectfully submitted,

By /s/ Svend A. Brandt-Erichsen

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STATEMENT OF RELATED CASES

Respondent-Intervenors are not aware of any case in this Court that would be deemed a related case under Ninth Circuit Rule 28-2.6

CERTIFICATE OF COMPLIANCE PURSUANT TO FED.R.APP.P. 32(a)(7)(C) AND CIRCUIT RULE 32-1 FOR CASE NUMBER 07-72420

I certify that, Pursuant to Fed.R.App.P. 32(a)(7)(C) and Ninth Circuit Rule 32-1, the attached **response** brief is proportionately spaced, has a typeface of 14 points or more and contains 13,754 words (opening, answering, and the second and third briefs filed in cross-appeals must not exceed 14,000 words; reply briefs must not exceed 7,000 words).

Dated March 15, 2010

/s/ Svend A. Brandt Erichsen
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Counsel for Respondent-Intervenors

ADDENDUM

The Court's determination of the issues presented requires the study of the following: **Alaska's mixing zone regulations (2003), applied by the Alaska Department of Environmental Conservation to the 401 Certification for the 2007 Permit**, relevant parts of which are reproduced below pursuant to Ninth Circuit Rule 28-2.7 and Federal Rule of Appellate Procedure 28(f):

18 AAC 70.240. Mixing zones: department authorization. (a) The water quality criteria and limits set by or under this chapter may be exceeded within a mixing zone authorized by the department. In applying the water quality criteria and limits set by or under this chapter the department will, in its discretion, upon application, authorize a mixing zone in a discharge permit, certification, or order. The department will authorize a mixing zone only if the department finds that available evidence reasonably demonstrates that

(1) the applicable requirements of this chapter will be met;

(2) the mixing zone will be as small as practicable; and

(3) an effluent or substance will be treated to remove, reduce, and disperse pollutants, using methods found by the department to be the most effective and technologically and economically feasible, consistent with the highest statutory and regulatory treatment requirements.

(b) Ongoing compliance with 18 AAC 70.240 - 18 AAC 70.270 is a condition of any permit, certification, or order of the department authorizing a mixing zone.

18 AAC 70.245. Mixing zones: appropriateness and size determination. (a) In determining the appropriateness and size of a mixing zone, the department will ensure that existing uses of the waterbody outside the mixing zone are maintained and fully protected so that any discharge will

(1) neither partially nor completely eliminate an existing use of the waterbody outside the mixing zone; and

(2) not impair the overall biological integrity of the waterbody.

(b) In making a determination under this section, the department will consider

(1) the physical, biological, and chemical characteristics of the receiving water, including volume and flow rate;

(2) the effects that the discharge might have on the uses of the receiving water;

(3) the flushing and mixing characteristics of the receiving water;

(4) effluent treatment technology requirements under federal or state law;

(5) the characteristics of the effluent, including volume, flow rate, dispersion, and quality after treatment;
(6) methods to analyze and model near-field and far-field mixing; and
(7) the cumulative effects of multiple mixing zones and diffuse, nonpoint source inputs located within, or affecting, the receiving water.

18 AAC 70.250. Mixing zones: general conditions. (a) The department will not authorize a mixing zone if the department finds that available evidence reasonably demonstrates that
(1) the pollutants discharged could
(A) bioaccumulate, bioconcentrate, or persist above natural levels in sediments, water, or biota to significantly adverse levels, based on consideration of bioaccumulation and bioconcentration factors, toxicity, and exposure;
(B) be expected to cause carcinogenic, mutagenic, or teratogenic effects on, or otherwise present a risk to, human health; when evaluating a discharge under this paragraph, the department will, in its discretion, require the applicant to perform a department-approved, site-specific analysis based on exposure pathways, including exposure duration of affected aquatic organisms in the proposed mixing zone and patterns of fisheries use and consumption of water, fish, or shellfish in the area; in the absence of a site-specific analysis, the evaluation of a discharge under this paragraph will be based on the most protective assumptions, as determined by the department, regarding exposure pathways, including exposure duration of affected aquatic organisms in the proposed mixing zone and patterns of fisheries use and consumption of water, fish, or shellfish in the area; or
(C) otherwise create a public health hazard through encroachment on water supply or contact recreation uses of the waterbody;
(2) there could be
(A) an adverse impact on anadromous or resident fish or shellfish spawning or rearing;
(B) a barrier formed to migratory species;
(C) failure to provide a zone of passage; or
(D) an adverse effect on threatened or endangered species;
(3) flushing or mixing of the waterbody is not adequate to ensure full protection of uses of the waterbody outside the proposed mixing zone; or
(4) there could be an environmental effect, or damage to the ecosystem that the department considers to be so adverse that a mixing zone is not appropriate.

(b) The department will reduce in size or deny a mixing zone if the department finds that available evidence reasonably demonstrates that the pollutants discharged could

(1) result in undesirable or nuisance aquatic life;
(2) produce objectionable color, taste, or odor in aquatic resources harvested for human consumption; or
(3) preclude or limit established processing activities or commercial, sport, personal-use, or subsistence fish and shellfish harvesting.

(c) For purposes of this section, the department will find that something "could" happen if the department determines that it is reasonably expected to occur.

18 AAC 70.255. Mixing zones: in-zone quality and size specifications. (a) The size, location, or other limits of a mixing zone set by or under this chapter will be established in a discharge permit, certification, or order issued by the department under the appropriate chapter in this title.

(b) Water quality criteria must be met at the boundary of the mixing zone. A discharge may not cause or reasonably be expected to cause
(1) lethality to passing organisms in the mixing zone; or
(2) a toxic effect in the water column, sediments, or biota outside the boundaries of the mixing zone.
(c) Human health and chronic aquatic life criteria apply at and beyond the boundaries of the mixing zone.

(d) Acute aquatic life criteria apply at and beyond the boundaries of a smaller initial mixing zone surrounding the outfall. The smaller initial mixing zone for application of acute criteria must be sized to prevent lethality to passing organisms. Methods for calculating the boundaries of the smaller initial mixing zone for application of acute criteria, unless otherwise specified by the department, must follow procedures under Alternatives 2, 3, or 4 in Section 5.1.2 of the United States Environmental Protection Agency's Water Quality Standards Handbook, Second Edition, August 1994, EPA-823-B-94-005a.

(e) Unless the department finds that evidence is sufficient to reasonably demonstrate, in accordance with this section, that the size limitations of a mixing zone can be safely increased, a mixing zone must comply with the following size restrictions:
(1) for estuarine and marine waters, measured at mean lower low water,
(A) the cumulative linear length of all mixing zones intersected on any given cross section of an estuary, inlet, cove, channel, or other marine water may not exceed 10 percent of the total length of that cross section; and

(B) the total horizontal area allocated to mixing zones may not exceed 10 percent of the surface area;

(2) for lakes, the total horizontal area allocated to all mixing zones may not exceed 10 percent of the lake's surface area; and

(3) for streams, rivers, or other flowing fresh waters, subject to (f), (g), and (h) of this section, the length of a mixing zone may not extend downstream beyond the limits described in (A) or (B) of this paragraph, whichever is closer to the point of discharge, as follows:

(A) beyond the computed point where the variation in the concentration of a water quality parameter across a stream, river, or other flowing fresh water is predicted to be less than five percent, as determined using a standard river flow mixing model accepted by the department; or

(B) beyond the location where the department determines that a public health hazard reasonably could be expected to occur.

(f) For streams, rivers, or other flowing fresh waters subject to (e)(3) of this section, in calculating the maximum pollutant discharge limitations, the volume of flow available for dilution must be determined using

(1) the actual flow as determined by gauging data collected concurrent with the discharge; or

(2) for conventional or nontoxic substances, the default 2-year, 3-day low flow (3Q2) appropriate to the period of discharge; for toxic substances, the 10-year, 7-day low flow (7Q10) as the chronic criteria design flow and the 10-year, 1-day (1Q10) as the acute criteria design flow for protection of aquatic life; for carcinogens, the harmonic mean flow as the design flow for the protection of human health; these low flows must be calculated using methods of Ashton and Carlson, *Determination of Seasonal, Frequency and Durational Aspects of Streamflow with Regard to Fish Passage Through Roadway Drainage Structures* (1984), Carlson, *Seasonal, Frequency and Durational Aspects of Streamflow in Southeast and Coastal Alaska* (1987), or another appropriate regional regression flow model approved by the department; numeric water quality criteria apply at all design flows that are equal to or greater than these critical low flows.

(g) For streams, rivers, or other flowing fresh waters subject to (e)(3) of this section, a mixing zone may not result in

(1) permanent or irreparable displacement of indigenous organisms; or

(2) a reduction in fish or shellfish population levels.

(h) For streams, rivers, or other flowing fresh waters subject to (e)(3) of this section, a mixing zone will not be authorized in an area of

(1) anadromous fish spawning; or
(2) resident fish spawning redds for Arctic grayling, northern pike, rainbow trout, lake trout, brook trout, cutthroat trout, whitefish, sheefish, Arctic char (Dolly Varden), burbot, and landlocked coho, king, and sockeye salmon.

18 AAC 70.260. Mixing zones: application requirements. An applicant requesting a mixing zone shall provide to the department all available evidence reasonably necessary for a decision, including the information and demonstrations required by 18 AAC 70.240 - 18 AAC 70.270 and other information the department determines is necessary to meet the requirements of 18 AAC 70.240 - 18 AAC 70.270. The burden of proof for justifying a mixing zone through demonstrating compliance with the requirements of 18 AAC 70.240 - 18 AAC 70.270 rests with the applicant. The department will, in a timely manner, request and review for completeness, information submitted under this section.

18 AAC 70.270. Mixing zones: termination, modification, or denial of renewal. If the department finds that available evidence reasonably demonstrates that a mixing zone authorized by the department has a significant unforeseen adverse environmental effect, the department will terminate, modify, or deny renewal of a permit, certification, or order authorizing the mixing zone.

CERTIFICATE OF FILING AND SERVICE

I hereby certify that on the 15th day of March, 2010, I electronically filed the foregoing with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit by using the appellate CM/ECF system.

Participants in the case who are registered CM/ECF users will be served by the appellate CM/ECF system.

s/ Svend A. Bradnt-Erichsen
Svend A. Brandt-Erichsen