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Bryan M. Killian
Direct Phone: 202.373.6191
Direct Fax: 202.373.6001
bryan.killian@bingham.com

March 11, 2009

VIA HAND DELIVERY

Clerk of the Board
U.S. Environmental Protection Agency
Environmental Appeals Board
1341 G Street, N.W.
Suite 600
Washington, DC. 20005

Dear Clerk:

Enclosed please find one original and six copies of the Supplemental Brief in Support of Consolidated Petition for Review in Appeal NPDES No. 09-01, and accompanying exhibits, filed on behalf of the City and County of Honolulu.

Please date stamp one copy of the Petition and return it to the Courier. If you have any questions please feel free to contact me.

Sincerely yours,

Bryan M. Killian

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Washington

Bingham McCutchen LLP
2020 K Street NW
Washington, DC
20006-1806

T 202.373.6000
F 202.373.6001
bingham.com

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BEFORE THE ENVIRONMENTAL APPEALS BOARD
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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In re:	)	
City & County of Honolulu Sand Island Wastewater Treatment Plant Honouliuli Wastewater Treatment Plant	)	NPDES Appeal No. 09-01
NPDES Permit Nos. HI0020117 & HI0020877	)	

SUPPLEMENTAL BRIEF IN SUPPORT OF CONSOLIDATED PETITION FOR REVIEW

Counsel for City and County of Honolulu

David Salmons
Robert V. Zener
BINGHAM MCCUTCHEN LLP
david.salmons@bingham.com
robert.zener@bingham.com
2020 K Street NW
Washington, DC 20006
202-373-6000
202-373-6001 (fax)

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BEFORE THE ENVIRONMENTAL APPEALS BOARD
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NPDES Permit Nos. HI0020117 & HI0020877	)	

SUPPLEMENTAL BRIEF IN SUPPORT OF CONSOLIDATED PETITION FOR REVIEW

This Supplemental Brief is being filed pursuant to the Board's order of February 2, 2009, in support of the issues identified in the petitions for review filed February 9, 2009, in NPDES Nos. H10020117 and H10020877. The petitions for review were filed on a consolidated basis, as is this brief, because of the significant overlap in the issues raised with respect to these permits.

INTRODUCTION

Section 301(h) of the Clean Water Act ("the Act") authorizes EPA to issue variances from the general requirement that municipal treatment plants install secondary treatment. Variances are available for plants discharging into the ocean, provided their discharge meets certain conditions designed to protect the marine environment, public water supplies, and recreation, as well as several other statutory criteria. This case concerns the two principal wastewater treatment plants serving the City and County of Honolulu (CCH) — the Honouliuli and Sand Island plants. The plants have been operating since April 1991 (Honouliuli) and January 1990 (Sand Island) under final permits that, following Region 9's prior decisions to

grant Section 301(h) variances, exempted them from the secondary treatment requirement. CCH applied for renewal of these permits in a timely manner. In Final Decisions issued January 5, 2009, despite the absence of any evidence from the EPA-approved ecological monitoring program showing that the quality of the effluent has worsened or has affected the marine environment in any way, Region 9 altered course and denied the variances.

Region 9 rested its Final Decisions on findings that the discharges from the Honouliuli and Sand Island plants did not meet the State of Hawaii's EPA-approved water quality standards, but its findings are irrational, arbitrary and capricious, and erroneous as a matter of law. Hawaii's EPA-approved water quality standards include mixing zones that, as set for CCH's plants, are significantly larger than the mixing zones used by Region 9 for purposes of its Final Decisions on the variance applications. By changing the mixing zones and taking measurements of water quality at locations deep inside the boundaries of the EPA-approved state mixing zones, Region 9 did not apply the approved *state* water quality standards, as it purported to do, but instead effectively adopted new water quality standards *of its own*. Region 9 has no authority under the Act to adopt standards different from the approved state water quality standards, particularly when EPA itself has determined that Congress did not intend for Section 301(h) to displace approved state standards.

Region 9 defends its illogical position on the ground that, in the Section 301(h) setting, EPA regulations require it to use the more restrictive federal mixing zone when measuring compliance with approved state water quality standards, including state standards not applicable to the pollutants for which a variance is sought. If the pertinent regulation is interpreted to contradict what Congress intended in Section 301(h), it is unlawful. It also leads to arbitrary and capricious, conflicting procedures and results: *completely* applying EPA-approved state water

quality standards (*i.e.*, measuring numerical levels at the edge of the state-defined mixing zone) for purposes of the permit, yet *incompletely* applying them (*i.e.*, measuring numerical levels inside the narrower, federally imposed mixing zone) to measure the applicant's eligibility for a secondary treatment variance. In any event, Region 9 has plainly misconstrued the pertinent regulation. It does not authorize testing compliance with state water quality standards at the edge of the federal mixing zone for *all* state standards. Instead, in line with how Region 9 has applied those standards throughout the life of the Honouliuli and Sand Island permits, it (at most) authorizes testing at the edge of the federal mixing zone for only those state water quality standards applicable to the pollutants for which an applicant is seeking a variance (biochemical oxygen demand [BOD] and total suspended solids [TSS]).

In addition to its mixing zone errors, which fatally affect both Final Decisions, Region 9 lacked valid evidence for its findings of environmental and recreational harm, and it failed to respond to CCH's comments pointing out errors in measurement and testing methods. For all these reasons, the Final Decisions should be reversed and the cases remanded to Region 9 for further proceedings.[1]

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[1] CCH has reason to believe that the Administrative Record in this case may not be complete. On April 12 and 19, 2007, shortly after the Tentative Decision for the Honouliuli application, CCH filed FOIA requests with Region 9 seeking the underlying documents. On December 14, 2007, shortly after the Tentative Decision for the Sand Island application, CCH filed another FOIA request for the underlying documents. Region 9 withheld numerous documents, claiming privilege. But on March 20, 2008 — after the comment period for Honouliuli closed and less than two weeks before the comment period for Sand Island closed — Region 9 released several documents it had previously withheld, some of which would have supported the comments. At least one of the documents directly pertains to this appeal and is discussed at footnotes 22 and 30 below. Others of the late-released documents relate to matters at issue in the comment period, including the appropriate species for whole effluent toxicity testing and the frequency of recreational activities in open ocean waters where Region 9 found bacteria violations.

On September 8, 2008, following unsuccessful negotiations, CCH filed a FOIA suit, alleging that the privilege claims are without merit and that additional documents must be produced. *City & County of Honolulu v. U.S. Envtl. Prot. Agency & Wayne Nastri,* Civ. No. CV 08-00404 SOM-LEK (D. Haw.). So far, EPA has refused to file a Vaughn index, which is a routine requirement (similar to an expanded privilege log), in FOIA cases where privilege is claimed. *Lion Raisins, Inc. v. U.S.A. Dep't of Agriculture*, 354 F.3d 1072, 1082 (9th Cir. 2004).

More recently, on February 26, 2009, CCH's counsel received further documents from the Department of Justice responsive to the FOIA request. One of these documents supports CCH's position in the Petition (and would have supported CCH's position in the comments) and is described at footnote 14 below and the accompanying text.

STATEMENT

I. Legal Background.

Under the Clean Water Act, no person may discharge into the waters of the United States without a permit issued by either EPA or a state with an approved permit program. 33 U.S.C. §§ 1311(a), 1342(a), (b). Among other requirements, a permit must contain limitations sufficient to ensure that the discharge will meet water quality standards. 33 U.S.C. § 1311(b)(1)(C); 40 C.F.R. § 122.44(d). Water quality standards describe the quality that water must meet to be consistent with its designated uses. 33 U.S.C. § 1313(c)(2)(A). States must adopt water quality standards and submit them to EPA for approval as consistent with federal law. 33 U.S.C. § 1313(a)(3), (c). If a state fails to adopt standards consistent with federal law, EPA may issue federal standards. 33 U.S.C. §§ 1313(b), (c)(3), (c)(4).

In addition to requiring compliance with water quality standards, the Clean Water Act requires municipal treatment plants to install secondary treatment. 33 U.S.C. § 1311(b)(1)(B).[2] EPA regulations explain that a plant with secondary treatment can attain a minimum level of effluent quality for three parameters: BOD, TSS, and pH (a measure of acidity). 40 C.F.R. § 133.102. In 1977, Congress adopted Section 301(h) in response to the contention of several municipalities that secondary treatment was an unnecessary yet significant expense for plants

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Believing that Region 9's conduct may reflect a deliberate withholding of pertinent documents, CCH moved on February 9, 2009, for a stay of these proceedings pending resolution of the FOIA suit. The motion was heard March 9, 2009 and has been taken under advisement.

CCH believes that its ability to challenge Region 9's decisions may have been compromised by the Region's withholding of pertinent documents. In the meantime, pending the District Court's resolution of the FOIA issues, we believe that the present record, including information CCH has already obtained through FOIA (which we presume will be added to the administrative record), is sufficient to require reversal. But if additional information pertinent to the appeal emerges as a result of the FOIA suit, CCH reserves the right to submit it to the EAB.

[2] Secondary treatment is "[t]he second step in most publicly owned waste treatment systems in which bacteria consume the organic parts of the waste. It is accomplished by bringing together the organic parts of the waste, bacteria, and oxygen in trickling filters or in the activated sludge process." Disinfection is the final stage of the process. EPA, *Terms of Environment: Glossary, Abbreviations and Acronyms*, http://www.epa.gov/ocepatterms/sterms.html.

discharging into the ocean. 33 U.S.C. § 1311(h); *Natural Res. Defense Council v. EPA,* 656 F.2d 768, 772-73 (D.C. Cir. 1981). As amended in 1987, Section 301(h) authorizes EPA, with the state's concurrence, to issue permits that modify the secondary treatment requirement with respect to discharges from publicly owned treatment works into marine waters, if the applicant meets certain requirements. Three of these requirements are relevant to this case:

> (1) there is an applicable water quality standard specific to the pollutant for which the modification is requested . . . ;
>
> (2) the discharge of pollutants in accordance with such modified requirements will not interfere . . . with the attainment or maintenance of that water quality which assures protection of public water supplies and the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife, and allows recreational activities, in and on the water;
>
> * * * *
>
> (9) the applicant at the time such modification becomes effective will be discharging effluent . . . which meets the criteria established under section [304(a)(1)] of [the Clean Water Act] after initial mixing in the waters surrounding or adjacent to the point at which such effluent is discharged.

33 U.S.C. § 1311(h). Section 304(a)(1) of the Clean Water Act — referred to in Section 301(h)(9) —directs EPA to publish "criteria for water quality" on the "kind and extent of all identifiable effects on health and welfare, including . . . shorelines, beaches, . . . and recreation which may be expected from the presence of pollutants in any body of water . . . on the concentration and dispersal of pollutants . . . [and] on the effects of pollutants on biological community diversity, productivity, and stability . . . ." 33 U.S.C. § 1314(a)(1). EPA's criteria under Section 304(a)(1) serve as "guidance" for the states in developing the criteria included in the state water quality standards. 40 C.F.R. § 131.3(a). "States generally rely on the criteria recommended by EPA in establishing standards." 57 Fed. Reg. 60848, 60874 (Dec. 22, 1992).

II. Procedural History.

CCH seeks EAB review of Region 9's denial of Section 301(h) variances for two of its treatment plants. Both plants currently operate under Section 301(h)-modified NPDES permits, in accordance with Region 9's prior recommendations. Most of the plants' effluent has been subject only to primary treatment; the Honouliuli plant uses some secondary and tertiary treatment.[3] Outfalls are located some 1.7 miles offshore, at the depth of about 200 feet. Honouliuli Final Decision at 14;[4] Sand Island Final Decision at 13.[5] The cost of installing secondary treatment for the entire flow at both plants is estimated to exceed $1.2 billion. Honouliuli Comments at III-6;[6] Sand Island Comments at III-12.[7]

As noted, Section 301(h) was originally enacted in 1977. CCH originally applied for a variance for the Honouliuli plant in 1979. Region 9 issued a Tentative Decision denying the variance for TSS in 1981. CCH requested reconsideration in 1983, and in 1988 EPA issued a Tentative Decision recommending that the variance be granted. In 1991, EPA issued an NPDES

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[3] Primary treatment at Sand Island includes "centrifugation, heat drying, and pelletization." Sand Island Final Decision at 13. "Currently a portion of the pellets are being marketed to landscapers and a portion is being landfilled." *Id.* Since 1996, the Honouliuli plant has used secondary treatment for up to 13 MGD (million gallons per day). (The total design flow of the plant is 38 MGD.) Honouliuli Final Decision at 14-15. Honouliuli also uses tertiary treatment for water recycled for irrigating golf courses and to supply feed water for industrial use. Honouliuli Final Decision at 15-16. Tertiary treated water that is not reused is sent back to the effluent. *Id.*

[4] "Honouliuli Final Decision" refers to Decision of the Regional Administrator Pursuant to 40 C.F.R. part 125, subpart G, dated January 5, 2009, on City and County of Honolulu's Honouliuli Wastewater Treatment Plant Application for a Modified NPDES Permit Under Section 301(h) of the Clean Water Act.

[5] "Sand Island Final Decision" refers to Decision of the Regional Administrator Pursuant to 40 C.F.R. part 125, subpart G, dated January 5, 2009, on City and County of Honolulu's Sand Island Wastewater Treatment Plant Application for a Modified NPDES Permit Under Section 301(h) of the Clean Water Act.

[6] "Honouliuli Comments" refers to CCH's August 27, 2007 Response and Comments to Tentative Decision of the Regional Administrator Pursuant to 40 C.F.R. part 125, subpart G, Regarding the City and County of Honolulu's Honouliuli Wastewater Treatment Plant Application for a Modified NPDES Permit Under Section 301(h) of the Clean Water Act.

[7] "Sand Island Comments" refers to CCH's March 31, 2008 Response and Comments to Tentative Decision of the Regional Administrator Pursuant to 40 C.F.R. part 125, subpart G, Regarding the City and County of Honolulu's Sand Island Wastewater Treatment Plant Application for a Modified NPDES Permit Under Section 301(h) of the Clean Water Act.

permit in accordance with the 1988 Tentative Decision. That permit was set to expire in 1996, but it has been administratively extended since then. Honouliuli Final Decision at 11-12. CCH filed its current application for a permit in 1995, 180 days before the prior permit's expiration date, as required by the regulation. The application was updated in 2000 and 2004. *Id.* Notably, the application is limited to BOD and TSS, which are two of the three pollutants EPA uses to define the minimum effluent quality achievable by secondary treatment. 40 C.F.R. § 133.102. (The third pollutant is pH; CCH did not apply for a pH variance.)

The Sand Island plant has also been operating under Section 301(h)-modified permits. CCH originally applied for a variance for Sand Island in 1979; submitted a revised application in 1983; received a favorable Tentative Decision in 1985; and received a draft NPDES permit in 1987 and a final permit in 1990, which became effective in 1992. Sand Island Final Decision at 12. CCH applied for the next variance in 1994, well before the permit's expiration date. While the reapplication was pending, Region 9 issued a modified permit in 1995. In 1998, CCH's reapplication was granted and a new 301(h) modified permit was issued. That permit was set to expire in 2003, and it has been administratively extended since then. CCH timely submitted its current application for a Section 301(h) variance in 2003. Sand Island Final Decision at 12. Like the Honouliuli plant application, the Sand Island application for a variance was limited to BOD and TSS.

In May 2007, Region 9 issued a Tentative Decision that recommended denying CCH's variance application for the Honouliuli plant. In December 2007, Region 9 issued a Tentative Decision that recommended denying CCH's variance application for the Sand Island plant. CCH responded to both Tentative Decisions during the respective ensuing comment periods. On January 5, 2009, Region 9 issued Final Decisions denying the variances for both plants.

III. Region 9's Final Decisions.

Region 9's Final Decisions deny the variances on two principal grounds. First, Region 9 concluded that CCH failed Section 301(h)(9) because it did not show "that it can consistently achieve state water quality standards" for chlordane, dieldrin, whole effluent toxicity, ammonia nitrogen, and (for Honouliuli only) bacteria. Sand Island Final Decision at 10; Honouliuli Final Decision at 10. Notably, Region 9 found that the plants did meet the two secondary-treatment related standards for which CCH applied for a variance—BOD and TSS. Sand Island Final Decision at 22-38; Honouliuli Final Decision at 29-44. Second, Region 9 concluded that CCH failed Section 301(h)(2) because it did not show that its proposed discharge would not interfere with attainment or maintenance of water quality that "assures protection and propagation of a balanced, indigenous population (BIP) of shellfish, fish, and wildlife; and will allow recreational activities." Sand Island Final Decision at 10; Honouliuli Final Decision at 10.

Region 9 based those conclusions on its findings that the plants' proposed discharges would exceed EPA-approved state water quality standards. For both plants, Region 9 found violations of water quality standards for chlordane, dieldrin, whole effluent toxicity, and ammonia nitrogen. Sand Island Final Decision at 82, Honouliuli Final Decision at 99. For Honouliuli only, Region 9 found a violation of the bacteria standard. Honouliuli Final Decision 99. Those findings, in Region 9's view, were sufficient to conclude that CCH did not satisfy Section 301(h)(9). Region 9 also relied on its findings of violations of Hawaii's water quality standards to conclude that CCH did not satisfy Section 301(h)(2). Region 9 found that the plants' discharges might cause environmental harm (*i.e.*, toxic impacts to marine life and nutrient-related impacts) and recreational harm (*i.e.*, bioaccumulation that might adversely affect persons consuming fish from near the outfalls). Sand Island Final Decision at 82, Honouliuli

Final Decision at 99. Region 9 also found, for Honouliuli only, that pathogens in the proposed discharge might affect recreational activities. Honouliuli Final Decision at 99. In finding potential environmental and recreational harm, Region 9 almost wholly relied on its findings that the discharges would violate state water quality standards, even though the environmental data indicated that the discharges were not actually having adverse impacts. *See, e.g.*, Sand Island Final Decision at 67, 75; Honouliuli Final Decision at 82-83, 90, 91.

Region 9's pivotal findings of state water quality standard violations were based principally on water quality measurements taken or calculated at the edge of an area called the "zone of initial dilution" (the "ZID"). Region 9 explained that when an effluent plume is first discharged, it will rise to a level of "neutral buoyancy," *i.e.*, "where the plume density equals ambient water density." Sand Island Final Decision at 17. After reaching that level, the plume will spread horizontally. Region 9 took the position that water quality had to be monitored at the point where the plume initially reaches neutral buoyancy, even though—in the case of Sand Island—the ocean monitoring program that EPA required and approved did not require monitoring at the edge of the ZID. *Id.* at 20; Response to Sand Island Comment 4.1, at 7-8.[8] In its Comments on the Tentative Decisions, CCH criticized Region 9's approach. Hawaii's water quality standards, which EPA had approved,[9] allow for monitoring at the larger "zone of mixing" (the "ZOM") that accounts for some subsequent horizontal spreading and thus allows additional

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[8] "Response to Sand Island Comment" refers to EPA's January 5, 2009 Response to Comments from the City and County of Honolulu on the Environmental Protection Agency's December 7, 2007 Tentative Decision regarding the City and County of Honolulu's request for a Variance at the Sand Island Wastewater Treatment Plant under Section 301(h) of the Clean Water Act.

[9] Hawaii's water quality standards, as contained in Hawaii's Department of Health Administrative Rules, Chapters 11-54 and portions of 11-55, were approved by EPA on July 10, 1989. 55 Fed. Reg. 31891, 31892 (Aug. 6, 1990). Subsequent approvals of the standards, as revised, were issued May 9, 1990, and November 4, 1992. 57 Fed. Reg. 21087, 21091 (May 18, 1992); 60 Fed. Reg. 51793, 51797 (Oct. 3, 1995). Region 9 states that a package of amendments and typographical corrections was approved by EPA October 28, 2004. Response to CCH's Sand Island Comment C23, at 20.

mixing. *See* Honouliuli Comments at I-9 - I-10; Sand Island Comments at I-11 - I-12; *see also* HAR (Haw. Admin. Rules) § 11-54-9 ("Zones of Mixing"). The state ZOM, as calculated for these plants and included in their EPA-approved NPDES permits, is about five times as wide as the federal ZID and is more than 70 percent longer.[10] In CCH's view, as expressed in its Comments, the wider ZOM is an essential feature of Hawaii's water quality standards; one cannot take measurements at points *inside* the ZOM and then claim to find violations of the state water quality standards expressly designed to apply *outside* that zone. Region 9 rejected CCH's view, relying on an EPA regulation requiring that a Section 301(h) applicant's discharge "not exceed at and beyond the zone of initial dilution [a]ll applicable water quality standards." 40 C.F.R. § 125.62(a)(1)(i), cited in Response to Honouliuli Comment C5.1, at 7-8;[11] Response to Sand Island Comment C4.1, at 8; *see also* 40 C.F.R. § 125.58(dd) (defining "zone of initial dilution").

SUMMARY OF ARGUMENT

Region 9 denied CCH's variance requests because it concluded that CCH did not satisfy Sections 301(h)(2) and (h)(9). That conclusion rested almost wholly upon Region 9's findings that the Honouliuli and Sand Island plants violated state water quality standards. Those findings are irrational and unlawful. In addition, Region 9's conclusion that CCH did not satisfy Section 301(h)(2) was clearly erroneous and unlawful because it relied on invalid evidence and inadequately responded to CCH's Comments.

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[10] Region 9 approved CCH's calculation of the ZID at Honouliuli as being "a rectangle . . . 122 m (400 ft) wide and 660 m (2,165 ft) long, centered over and parallel to the diffuser." Honouliuli Final Decision at 25. Honouliuli's ZOM is 610 m (2,000 ft) wide and 1,128 m (3,700 ft) long. *Id.* The Sand Island measurements are similar. *See* Sand Island Final Decision at 20 (ZID is 469 feet wide and 3,860 feet long; ZOM is 1,400 feet wide and 4,800 feet long).

[11] "Response to Honouliuli Island Comment" refers to EPA's January 5, 2009 Response to Comments from the City and County of Honolulu on the Environmental Protection Agency's December 7, 2007 Tentative Decision regarding the City and County of Honolulu's request for a Variance at the Honouliuli Wastewater Treatment Plant under Section 301(h) of the Clean Water Act.

1. Region 9's conclusion that CCH did not satisfy Section 301(h)(9) rested on its finding of violations of Hawaii's water quality standards, which in turn rested primarily on water quality at the boundary of the federally defined ZID. Hawaii's water quality standards, adopted in accordance with the Clean Water Act and approved by EPA, include provisions for defining mixing zones, and EPA has approved the specific ZOMs for Honouliuli and Sand Island. EPA itself has recognized that state implementation policies, including mixing zones, "are inseparable from the standards themselves." 63 Fed. Reg. 36742, 36787 (July 7, 1998). Consequently, EPA reviews both to determine whether they are "technically well founded and consistent with the CWA." *Id.* Nothing in Section 301(h)(9) supports using a federal mixing zone when the applicable, EPA-approved state water quality standards incorporate a different mixing zone; indeed, EPA agrees that Congress did not intend for Section 301(h)(9) to upset the Act's general scheme of deference to *state* standard-setting. But by relying upon water quality at the edge of a mixing zone significantly narrower than that specified in Hawaii's approved water quality standards, Region 9 effectively imposed its own water quality standards, undoing EPA's prior approval of the state standards and the plants' ZOMs. Region 9's conclusion that "violations" found at the narrower ZID constitute violations of the *state's* water quality standard is thus demonstrably unlawful, irrational, and arbitrary and capricious.

Region 9 contends that 40 C.F.R. § 125.62(a)(1)(i) allowed it to make its own water quality standards, including for pollutants that are not even the subject of CCH's variance applications. Region 9 has plainly misapplied the regulation, which requires ZID testing only for "*applicable* water quality standards." 40 C.F.R. § 125.62(a)(1)(i) (emphasis added). Because TSS and BOD are the only pollutants for which CCH has requested a Section 301(h) variance, the only "applicable" state water quality standards are those dealing with TSS and BOD. For all

other state water quality standards, Region 9 had no lawful basis to measure compliance at the ZID. CCH has satisfied all applicable standards at the ZID. Region 9 had no lawful justification for finding violations at the ZID and for denying CCH's applications for § 301(h) variances on that basis.

If Region 9's reading of the regulation were correct, the regulation would be unlawful because it would conflict with the statutory requirement of deference to EPA-approved state water quality standards — a requirement that Section 301(h)(9) does not upset.

Moreover, in light of the unassailable fact that Hawaii's ZOMs are used for purposes of CCH's NPDES permits, it would be arbitrary and irrational to use the federal ZID for purposes of the variance applications.

2. Region 9's conclusion that CCH did not satisfy Section 301(h)(2) is also clearly erroneous for two principal reasons. First, Region 9 found that the plants' violations of state water quality standards were evidence of environmental and recreational harm; but for the reasons already given, Region 9 erred in even finding violations of *state* water quality standards because it had no authority to rely on water quality at the edge of the federal ZID, not the state ZOM. Second, Region 9 erred in relying on (supposed) violations of water quality standards as the sole indication of potential environmental and recreational harm, when all the biological evidence, as Region 9 recognized, demonstrates *no adverse impacts* at all. By relying exclusively on the supposed violations, Region 9 effectively made Section 301(h)(2) into a standards-enforcement provision, which it is not. That function is served primarily by the permit itself, which must comply with water quality standards independently of any secondary treatment variance.

3. In the Honouliuli Final Decision, Region 9 found that the Honouliuli proposed discharge would violate the water quality standard for bacteria. In making that finding, Region 9 refused CCH's request to consider the curative effects of a disinfection system for Honouliuli's primary treated effluent, even though Region 9 found that the recently installed disinfection system at the Sand Island plant was the dispositive reason why Sand Island's primary treated effluent did not violate the same water quality standard. Region 9 gave no valid reason for its refusal. Region 9 declined to entertain CCH's proposal because it was not made in the permit application. But Region 9 acknowledged that post-application proposals could be made if justified by new information. Such new information clearly was available. CCH proposed installing a disinfection system at Honouliuli in its Comments on the Tentative Decision, shortly after Sand Island's disinfection system began to operate and show favorable results on primary treated effluent. Because the efficacy of disinfection systems for primary treated effluent was not well understood (as Region 9 acknowledged), CCH needed the previously unavailable data from the Sand Island plant before it could reasonably propose installing a disinfection system at the Honouliuli plant as the appropriate remedy. Moreover, CCH's permit for Honouliuli *requires* the plant to conduct monitoring for bacteria and to adopt disinfection if monitoring shows violations or in other specified circumstances. Contrary to Region 9's conclusion, CCH acted diligently, and Region 9 was aware at all times that disinfection was under consideration. Region 9 gave no valid reason for its refusal to consider disinfection for Honouliuli's primary treated effluent.

4. A. Region 9 found violations of the whole effluent toxicity (WET) standards, based on tests run on a species (*T. gratilla*) that was not on EPA's approved list. While EPA allows permitting authorities to use unapproved species that they determine provide reliable

results, CCH's Comments pointed out that in the Sand Island permit, as well as other permits, *T. gratilla* was not deemed sufficiently reliable for compliance testing. Region 9's response was that testing for variance purposes was different than testing for permit compliance purposes. Region 9 gave no explanation for this supposed difference, and there is none. Its reliance on WET testing based on an unapproved species was arbitrary and capricious.

B. Region 9 denied the variances in part on a finding that the Honouliuli and Sand Island discharges violate Hawaii's water quality standard for chlordane. That standard is based on EPA's water quality criteria for chlordane as they existed in 1980. Since then, EPA has made its water quality criteria less stringent, in reliance on developments in scientific knowledge. But Hawaii has not changed its water quality standard for chlordane. Region 9 rejected CCH's comment that its discharges did not violate the EPA criterion and, thus, met the requirements of § 301(h)(9). Region 9's position was unlawful and arbitrary and capricious. Section 301(h)(9) requires the discharger to comply with EPA's water quality criteria, *not* the state water quality standards. As EPA itself has recognized, "in section 301(h)(9) applicants must meet the section 304(a) criteria as if they were regulatory." 57 Fed. Reg. 60848, 60874-75 (Dec. 22, 1992). When the state standards are based on the current EPA criteria, then it might be reasonable to equate a violation of the state standard with a violation of the EPA criteria. But when the state standards are stricter than EPA's criteria, a water quality standard violation does not demonstrate a criteria violation; and the ultimate issue under § 301(h)(9) is whether there is a criteria violation. Here, there is not. Similarly, under § 301(h)(2), the ultimate issue is actual harm to health and the marine environment. CCH complies with EPA's current criteria for chlordane, which is based on the latest scientific knowledge with regard to the potential human health effects of chlordane via a fish consumption pathway. In determining that issue for purposes of §

301(h)(2), it was arbitrary and capricious for Region 9 to ignore EPA criteria based on the most recent scientific knowledge concerning that subject.

C. WET testing for *T. gratilla* involves comparing the impact of the effluent on the species with a control sample. In several instances here, the impact was minuscule but nevertheless statistically significant. For example, one test showed a 99 percent fertilization rate in *T. gratilla* exposed to the effluent and a 100 percent rate in the control group. Region 9 found that difference statistically significant and concluded that it was a violation without considering whether that 1 percent difference was biologically significant. CCH commented that Region 9, by relying on this kind of test result, was ignoring the ultimate issue—whether statistically significant impacts on *T. gratilla* fertility were also biologically significant. Region 9 rejected this comment on the ground that statistical significance was dispositive. That was arbitrary and capricious.

D. Region 9 based its finding of bacteria violations at Honouliuli largely on geometric mean measurements. However, many of these measurements were based on single samples. CCH pointed out that geometric mean measurements must be based on multiple samples because the purpose of the geometric mean is to ascertain the "central tendency" of a "series" of data. Region 9 rejected that comment on the ground that Hawaii's water quality standard authorizes geometric mean measurements on the basis of single samples. That is an erroneous reading of Hawaii's water quality standard, which has a separate limitation for single samples. It is also arbitrary and capricious because it ignores the plain purpose of geometric mean measurements.

E. CCH's comments raised a question concerning the reliability of the test method that Region 9 relied on to find violations of the water quality standard for dieldrin. CCH pointed

out that the method was unreliable in the circumstances of this case because of the low levels of dieldrin involved and the presence of other substances interfering with the test results. CCH also offered the results of testing under a more sensitive, EPA-approved, alternative test method, which found no dieldrin where Region 9's method found dieldrin at levels exceeding the Hawaii water quality standard. EPA rejected this comment, largely on the basis of criticism of the method CCH used. CCH is now proffering new evidence showing that Region 9's assertions with regard to the alternative method CCH used are based on factual errors. CCH is also proffering a recently issued Tentative Decision by Region 9 on another variance request, which takes an inconsistent position with reference to dieldrin testing. The case should be remanded for Region 9 to reconsider its findings with regard to the dieldrin water quality standard.

ARGUMENT

I. Region 9 Clearly Erred in Using a Narrow, Federally Defined Mixing Zone As Its Principal Basis for Determining Where to Assess Compliance with State Water Quality Standards.

Fundamental to Region 9's findings that CCH violated state water quality standards, and hence did not satisfy Section 301(h)(9), was its reliance on water-quality measurements taken at the edge of the federally defined ZID, which is closer to the sources of the discharges than the state-defined ZOM. Although ZOM measurements in some instances showed violations, the ZID violations were more frequent, and Region 9's adverse conclusions were significantly affected by the quantity and frequency of violations *at the ZID*. *See* Honouliuli Final Decision at 63 (chlordane), 64 (dieldrin), 75 (whole effluent toxicity), 77-79 and Tables 21-24a (ammonia nitrogen); Sand Island Final Decision at 51 (chlordane), 52 (dieldrin), 60 (whole effluent toxicity); *see also id.* at 63-64 (finding that Sand Island violated the ammonia nitrogen standard

because the measurements taken at the ZOM indicated that there would have been higher levels at the edge of the smaller ZID).[12]

Region 9's adverse conclusions are clearly erroneous. In combining Hawaii's numerical standards with the federal ZID, Region 9 created, and found violations of, *its own water quality standards*. Region 9's assertion that it found violations of *state standards* is thus demonstrably false. EPA itself has recognized that state mixing zones are "inseparable from the standards themselves." 63 Fed. Reg. 36742, 36787 (July 7, 1998).

Region 9 contends that an EPA regulation (40 C.F.R. § 125.62(a)(1)(i)) allows it to make its own water quality standards in this way. But that regulation permits a federal mixing zone only for "applicable" water quality standards, which are confined to those secondary treatment related standards for which the permittee seeks a variance, *i.e.*, BOD and TSS only. To read the regulation more broadly, as Region 9 does, would conflict with Congress's policy, incorporated into Section 301(h)(9) and endorsed by EPA, of deference to EPA-approved state water quality standards. And there is no rational or valid legal basis for using one measure for purposes of a plant's NPDES permit while using another, more restrictive measure for purposes of a Section 301(h) variance for the same permit. Insofar as the regulation permits any combination of state numerical standards with the federal ZID, it does so only for water quality standards that CCH did not violate here (*i.e.*, the "applicable" standards for BOD and TSS). All

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[12] Region 9 relied on readings outside the ZOM for its finding that the Honouliuli plant violated the bacteria standard. CCH challenges that finding in Part III, *infra*, for Region 9's failure to consider disinfection as the appropriate remedy.

With respect to its other findings of water quality standard violations, Region 9 placed significant reliance on water quality at the edge of the ZID, although in some instances it also noted ZOM violations. *Virk v. INS,* 295 F.3d 1055, 1060 (9th Cir. 2002) (the agency "may not give weight to plainly irrelevant factors"); *Casino Airlines, Inc. v. Nat'l Transp. Safety Bd.,* 439 F.3d 715, 717-18 (D.C. Cir. 2006) ("[W]hen an agency relies on multiple grounds for its decision, some of which are invalid," the court may only "sustain the decision [where] one is valid and the agency would clearly have acted on that ground even if the other were unavailable." (Citations omitted.)). Except with respect to bacteria violations at Honouliuli, Region 9 clearly "gave weight" to water quality at the edge of the ZID, and it is not clear that it would have found violations had it recognized that that water quality at the edge of the ZID was not a lawful ground for denial.

the other standards should be assessed at the edge of the ZOM, as state law requires, and Region 9's findings based on use of the federal ZID should be reversed.

A. Assessments of Water Quality at the Edge of the Federal ZID Are Not a Valid Basis for Findings That CCH Violated State Water Quality Standards.

As EPA has affirmed, a state-defined mixing zone is an integral part of a state's water quality standards. States are given the choice of whether to allow mixing zones, and if they opt to have them, states get to control the procedures and criteria for defining them, provided they are consistent with the Clean Water Act and approved by the Regional Administrator. *See* EPA, *Water Quality Standards Handbook,* chap. 5, § 5.1.1. (2d ed.), EPA 823-8-94 (Aug. 1994, revised June, 2007). In line with that guidance, Hawaii's water quality standards authorize mixing zones and set procedures and criteria for defining them. HAR § 11-54-9. EPA approved Hawaii's water quality standards, and in so doing approved the mixing zone provision included in the standards. 60 Fed. Reg. 51793, 51797 (Oct. 3, 1995). To put it succinctly, Hawaii adopted water quality standards, which EPA approved, setting numerical limits that *do not apply within the ZOM.*

Region 9 purported to find violations of Hawaii's standards premised on measurements taken at the edges of the ZID for Honouliuli and calculated to be in exceedance at the edge of the ZID for Sand Island, both of which are substantially smaller than, and entirely contained within, the ZOMs for these facilities. Those purported findings are illogical and unlawful. State standards cannot be violated where they do not apply. Applying the portion of Hawaii's water quality standards that sets numerical limits, while not applying the portion that defines where those numerical limits apply—the relevant mixing zones—is as arbitrary and irrational as applying the numerical limits of an entirely different state, like California or Florida, and claiming to find violations of Hawaii's standards. When a state provides for a mixing zone

within which its standards need not be met, the zone is inseparable from the state's numerical limits. By applying self-created hybrid water quality standards in its Final Decisions (*i.e.*, applying Hawaii's numerical limits with a smaller mixing zone, the ZID), Region 9 effectively nullified EPA's approval of Hawaii's standards and enacted its own, exercising authority far in excess of the scope of EPA's limited delegation to Region 9. At a minimum, Region 9 clearly erred when concluding, as it did throughout the two Final Decisions, that the plants violated *state* water quality standards when these standards were not even applied.

B. Region 9 Had No Rational or Valid Legal Basis to Create Its Own Water Quality Standards.

1. Region 9's Position Is Novel and Based on a Misunderstanding of the Relevant Regulations, Which, as Historically and Correctly Understood, CCH Satisfies.

Region 9 contends that it had no choice but to make its own water quality standards because of 40 C.F.R. § 125.62(a)(1)(i). That regulation requires that an applicant's discharge "not exceed at and beyond the zone of initial dilution [a]ll applicable water quality standards." The "zone of initial dilution" is elsewhere defined as "the region of initial mixing surrounding or adjacent to the end of the outfall pipe or diffuser ports, provided that the ZID may not be larger than allowed by mixing zone restrictions in applicable water quality standards." 40 C.F.R. § 125.58(dd). The negative implication of that definition, which Region 9 embraced, is that a federally defined ZID may override a state's EPA-approved mixing zone if the ZID is smaller. *But see* 44 Fed. Reg. 34784, 34801 (June 15, 1979) (stating that the final clause in the definition of "zone of initial dilution" was included in response to a commenter "who suggested that any proposed ZID should conform to State requirements").

The regulation, however, cannot be lawfully read to authorize overriding state mixing zones for *all* water quality standards. Instead, the regulation requires testing at the ZID for "all

applicable water quality standards." 40 C.F.R. § 125.62(a)(1)(i) (emphasis added). Applicable standards, a subset of all standards, are identified in 40 C.F.R. § 125.61, "Existence of and compliance with applicable water quality standards," which provides that "[t]here must exist a water quality standard or standards *applicable to the pollutant(s) for which a section 301(h) modified permit is requested.*" 40 C.F.R. § 125.61(a) (emphasis added). In other words, at most, the only "applicable" standards for which ZID testing is authorized under the regulation are those standards applicable to the particular pollutants related to secondary treatment for which the applicant is seeking a variance.

This is always how EPA has understood the regulation. *See* 44 Fed. Reg. 34784, 34786 (June 15, 1979) (in discussing the precursor to 40 C.F.R. § 125.62(a)(1)(i), "Since the request for a modification is limited to BOD, suspended solids, and pH, an analysis of impacts on State and Federal water quality requirements for these pollutants is mandatory"). Indeed, Region 9 itself, in its 1988 Tentative Decisions for both plants, acknowledged that the ZID is appropriate for BOD and TSS and that the ZOM is appropriate for all other standards.[13] And a briefing document, apparently from the early 1990's, summarizes Section 301(h)(1) as requiring the discharger to: "1. Have applicable water quality standards a. BOD5 - D.O. b. TSS - light transmittance, turbidity, %removal c. pH."[14]

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[13] The April 4, 1988, Tentative Decision for Honouliuli (at 24) states: ". . . in addition, the applicant provides the dimensions of the zone of mixing (ZOM) for the purpose of determining compliance with State water quality standards. This ZOM measures 610 meters (2,000 feet) by 1,128 meters (3,700 feet), and is centered over and in parallel to the diffuser. Waters outside of the ZOM must meet all applicable federal and state water quality standards. Although *dimensions of an approved ZOM would take precedence in determining compliance with State water quality standards*, the zone of initial dilution was reevaluated by Tetra Tech, Inc. (1987) to determine compliance with 301(h) regulations for *parameters for which the applicant is requesting a variance (i.e., BOD and SS)*. Using the method described in the TSD, an average diffuser depth of 61.3 meters (201 feet) below mean sea level (MSL), and external dimensions of the diffuser, the dimensions of the ZID are 124.2 meters (407.5 feet) wide and 660.7 meters (2,167.7 feet) along the centerline of the diffuser, in close agreement with the applicant's calculations." (emphasis added)

[14] Counsel for CCH received this document from the Department of Justice in a letter dated February 26, 2009.

EPA defines the minimum effluent quality attainable by secondary treatment in terms of just three pollutants: BOD, TSS, and pH. *See* 40 C.F.R. § 133.102; *see also* 40 C.F.R. § 125.619(a). The Honouliuli and Sand Island plants satisfied the minimum effluent quality for pH without secondary treatment. CCH thus applied for variances only for BOD and TSS, making BOD and TSS water quality standards the *only* applicable standards for CCH's variance applications. Based on measurements made (or calculated) at the edge of the ZID, Region 9 found that the plants complied with water quality standards for both pollutants (and pH, too). *See* Honouliuli Final Decision at 32, 41-42 (BOD), 79-80 (pH); Sand Island Final Decision at 38 (BOD); 64 (pH).[15]

Region 9 nonetheless concluded that CCH failed Section 301(h)(9) because of supposed violations, unlawfully applied at the edge of the ZID, of other water quality standards that EPA does not use to define secondary treatment and for which CCH was not seeking a variance — including standards for chlordane, dieldrin, whole effluent toxicity, ammonia nitrogen, and (for Honouliuli only) bacteria. Accordingly, Region 9's conclusion that CCH failed Section 301(h)(9) was unlawful and arbitrary and capricious. Not only does it contradict the clear import of the regulations, it also contradicts Region 9's consistent position on testing at Honouliuli and Sand Island. For purposes of its Section 301(h) permits, CCH has never had to comply, at the edge of the ZID, with numerical water quality standards for pollutants for which CCH was not seeking a Section 301(h) waiver. Before the 2007 Tentative Decisions, Region 9 consistently measured CCH's compliance with state standards (except for the standards for TSS and BOD) using data gathered at the edge of the ZOM. *See* 1988 Tentative Decision for Honouliuli (footnote 13, above). Region 9's interpretation of the regulation, which prevailed for almost

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[15] Although Hawaii has no water quality standards for TSS, it has related standards for turbidity and light extinction coefficient, which Region 9 concluded were met. *See* Honouliuli Final Decision at 42-44; Sand Island Final Decision at 38.

twenty years, demonstrates its reasonableness. Region 9, moreover, has not offered a reasonable basis for the switch in position; it has stated only that the earlier position was wrong because "[t]he regulatory language in 40 C.F.R. § 125.62(a)(i) [sic] regarding the need to achieve water quality standards at the ZID is clear." Response to Honouliuli Comment C5.1, at 7-8; *see also* Response to Sand Island Comment C4.1, at 7-8 ("[P]ursuant to Clean Water Act regulations implementing 301(h) variances, all water quality standards must be achieved at and beyond the ZID"). Region 9 is only half right: 40 C.F.R. § 125.62(a)(1) is clear, but not in a way that supports Region 9's novel position.

2. Region 9's Understanding of the Relevant Regulations Seriously Diminishes the Primary Role of the States in Setting Water Quality Standards — A Role That Section 301(h) Does Not Displace.

If 40 C.F.R. § 125.62(a)(1)(i) were read as authorizing EPA to override state mixing zones for *all* water quality standards, it would be unlawful and arbitrary.[16] Principally, it would contravene the Clean Water Act's policy, incorporated into the statutory text and affirmed by EPA, of deferring to states and their knowledge of local conditions. State-created water quality standards are such a central feature of the Act that no statutory provision should be interpreted to negate them unless it plainly does so. EPA correctly interprets the Act to charge states with the primary obligation of creating local water quality standards by adapting the criteria of Section

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[16] Section 509(b)(2) does not preclude the Board from considering the validity of the EPA regulation on zones of initial dilution. That provision precludes judicial review in any civil or criminal proceeding for enforcement of any EPA action with respect to which review could have been obtained by direct petition in a Court of Appeals under 33 U.S.C. § 1369(b)(1). That provision does not apply to administrative review. And in any event, a rule regarding calculation of the "mixing zone" is not an "effluent limitation or other limitation" subject to judicial review under 33 U.S.C. § 1369(b)(1)(E). Moreover, CCH could not have obtained review of the regulation when it was issued in 1994. 33 U.S.C. § 1369(b)(2); 59 Fed. Reg. 40642 (Aug. 9, 1994). At that time, a challenge to the regulation would not have been ripe. Both Honouliuli and Sand Point were operating under permits issued pursuant to tentative Section 301(h) variances that did not require secondary treatment. Honouliuli Final Decision at 11-12; Sand Island Final Decision at 12. The regulation did not "presently" require CCH to make modifications, and thus CCH could not allege any "present damaging effect." *Diamond Shamrock Corp. v. Costle,* 580 F.2d 670, 673 (D.C. Cir. 1978). As the Seventh Circuit has pointed out, if courts allowed challenges to the prospective application of a regulation, parties would have the incentive "to petition for review of everything in sight." *Am. Paper Inst., Inc. v. EPA*, 882 F.2d 287, 289 (7th Cir. 1989).

304(a)(1) "to reflect site-specific conditions" and "to protect the types of biota in, and beneficial uses of, their local waters." 59 Fed. Reg. 40642, 40650 (Aug. 9, 1994). Such flexibility is desirable because states are in the best position to know their environmental needs, and it is logical because the resulting standards "are subject to EPA review and approval." *Id.* In this scheme, "EPA may step in and promulgate water quality standards itself only in limited circumstances" because "the water quality standards referred to in section 301 *are primarily the states' handiwork.*" *Am. Paper Inst., Inc. v. EPA*, 996 F.2d 346, 349 (D.C. Cir. 1993) (emphasis added).

Mixing zones are an integral part of state water quality standards. As EPA itself recognizes, their "characteristics [should] be defined on a case-by-case basis," taking into consideration "the physical, chemical, and biological characteristics of the discharge and the receiving system; the life history and behavior of organisms in the receiving system; and the desired uses of the waters." EPA, *Water Quality Standards Handbook,* chap. 5, § 5.1.1. (2d ed.), EPA 823-8-94 (Aug. 1994, revised June, 2007)., chap. 5 § 5.1. Thus, mixing zones are best set by states in conjunction with their numerical water quality standards, taking into account, among other factors, the size of the water body involved. *See* EPA, *Water Quality Standards Handbook,* chap. 5, § 5.1.1. (2d ed.), "State Mixing Zone Methodologies" - "Size" ("If the total area affected by elevated concentrations within all mixing zones combined is small compared with the total area of a water body . . ., then mixing zones are likely to have little effect on the integrity of the water body as a whole").

Section 301(h)(9) does not clearly override the statutory policy of deference to state standards, particularly with respect to mixing zones. The section merely requires a variance applicant to show that its effluent "meets the criteria established under section 1314(a)(1) of this

title after initial mixing in the waters surrounding or adjacent to the point at which such effluent is discharged." 33 U.S.C. § 1311(h)(9). EPA has correctly recognized that Section 301(h)(9) establishes a hierarchy of applicable water quality standards for variance applications. Applicable state standards take precedence, followed by EPA-promulgated standards when no applicable state standards exist, followed at last by the "criteria" of Section 304(a)(1) (33 U.S.C. § 1314(a)(1)) when neither the state nor EPA has adopted applicable standards. *See* 59 Fed. Reg. 40642, 40650 (Aug. 9, 1994). Significantly, EPA rightly states that state standards are foremost because Congress, in adding Section 301(h)(9), did not intend to displace the preexisting, primary role given by the Act to states to write their own water quality standards. *See id.* ("EPA does not believe that, in amending section 301(h), Congress intended to interfere with this statutory scheme . . . . Rather, EPA believes that the intent of [Section 301(h)(9)] was to ensure compliance with the national Section 304(a)(1) criteria in those cases where the states have not adopted a directly corresponding State standard and EPA has not itself promulgated a standard in light of such State inaction"). Accordingly, the unspecific reference to "initial mixing" in Section 301(h)(9) does not clearly, or even reasonably, establish a federal mixing zone applicable to all variance applications. There is no reason to believe that Congress wanted regional administrators, in assessing an applicant's satisfaction of Section 301(h)(9), to dissect state water quality standards, remove their mixing zones, and splice in entirely different ones. Rather, in light of the rest of the Act and EPA's specific understanding of the rest of Section 301(h)(9), the general reference to "initial mixing" accommodates whichever mixing zone (if any) accompanies the applicable water quality standards: state mixing zones for state standards; federal mixing zones for federal standards. By adding a federal mixing zone to the numerical criteria from the Hawaii standards, Region 9 is constructing a new water quality standard without

following the Act's procedure for establishing new standards. 33 U.S.C. § 1313(b), (c). Thus, both the text of the Act and EPA's own interpretation of Section 301(h)(9) show that Region 9's reliance on 40 C.F.R. § 125.62(a)(1)(i) to justify its use of the ZID instead of Hawaii's EPA-approved ZOM is distinctly aberrant.

3. Region 9's Understanding of the Relevant Regulations Is Inconsistent with the Basic Purpose of the 301(h) Variance Scheme and the NPDES Permitting Process.

Using a federal mixing zone in lieu of a state mixing zone is also inconsistent with the basic purpose of the variance application regime that Section 301(h) establishes. Congress chose to let ocean-discharging municipalities apply for variances precisely because it recognized that the increased dilution or mixing of ocean discharges made applying across-the-board secondary treatment requirements particularly irrational. As the House Report explained, "improvements in outfall design achieving rapid dilution, in the ability to predict the dispersal patterns of outfall discharges, and in monitoring capability to analyze environmental effects," coupled with "increases in capital costs, reduction in Federal funding levels, and rising operating costs," made it desirable to allow municipal ocean discharges "where it can be shown that unacceptable adverse environmental effects will not result." H.R.Rep. No. 97-270, at p. 17, reprinted at 1981 U.S.C.C.A.N. 2629, 2645. In this context, Congress thought it was reasonable to allow municipalities to discharge in the ocean where "currents, tides, waves and depth" could "combine to create circulation or flushing action which rapidly disperses wastewater and its components." H.R.Rep. No. 97-270 at p. 16, reprinted at 1981 U.S.C.C.A.N. 2629, 2644. Mixing zones, then, are an important part of Section 301(h). They give legal effect to the dilutive potential of ocean water. Because the centerpiece of the Section 301(h) regime is the mixing zone, it is impossible to imagine that Congress intended to allow EPA to override and

ignore state mixing zones in the Section 301(h) context. If the state-defined ZOM were not used here, it would be virtually meaningless.

It is equally impossible to imagine that Region 9 has accurately implemented Congress's intent for Section 301(h)(9) in light of the fact that compliance with relevant state water quality standards — their numerical limits *and* mixing zones — is a necessary part of the underlying NPDES permit. *See* 33 U.S.C. § 1311(b)(1)(C); 40 C.F.R. § 122.44(d); *see also Am. Paper Inst.*, 996 F.2d at 350 ("[O]nce a water quality standard has been promulgated, section 301 of the CWA requires all NPDES permits for point sources to incorporate discharge limitations necessary to satisfy that standard. On its face, section 301 imposes this strict requirement as to all standards." (internal citation omitted)). Region 9 does not dispute that the state-defined ZOM, included in the plants' NPDES permits, is the proper mixing zone to use when determining whether the plants have complied with their permits and the standards incorporated therein. There is no indication in Section 301(h)(9), its text or history, suggesting Congress's intent to authorize EPA's arbitrary and discrepant use of mixing zones — *i.e.*, ZOM for measuring state water quality standard compliance in the primary permit context; ZID for measuring state water quality standard compliance in the Section 301(h) waiver context.

4. There Is No Authority for Region 9's Reading of Section 301(h) To Authorize Federal Preemption of EPA-Approved State Mixing Zones.

In determining whether a federal statute should be read to preempt state law, federal courts must consider whether "the state law conflicts with the federal law by standing as an obstacle to the full accomplishment of federal regulatory objectives," and whether there is an "overriding federal interest requiring preemption." *Golden Nugget, Inc. v. Am. Stock Exch.*, 828 F.2d 586, 588 (9th Cir. 1987). Region 9 has failed to explain why any "overriding federal interest" necessitates its expansive interpretation of Section 301(h), where "full accomplishment

of federal regulatory objectives" can be achieved by EPA using its existing authority to review state water quality standards (including state mixing zones) and individual state-issued permits.

To the contrary, EPA itself has explained that it has ample authority under other provisions of the Clean Water Act to take into account all relevant environmental considerations in determining whether to approve mixing zones in state standards. According federal preemptive effect to Section 301(h) is not needed to ensure that state mixing zones are consistent with the objectives of the Clean Water Act.

The Act requires state water quality standards to "protect the public health or welfare, enhance the quality of the water and serve the purposes of [the Act]." 33 U.S.C. § 1313(c)(2)(A). If the Administrator determines that the state standard is "not consistent with the applicable requirements of [the Act]," she may require changes or may disapprove the state standard and issue a federal standard in its place. 33 U.S.C. § 1313(c)(3).

EPA has concluded that these provisions give it broad authority to review whether state mixing zones are consistent with environmental concerns. For example, EPA has said that it has the authority to require states to "specifically identify prohibitions (where appropriate) or limit mixing zones where necessary to protect existing or designated uses." 63 Fed. Reg. 36742, 36790 (July 7, 1998). EPA's current policy prohibits "lethality to organisms passing through the mixing zone." 63 Fed. Reg. at 36788. Where that is not sufficient "to protect nonmotile benthic and sessile organisms or critical habitat areas," existing EPA policy requires states to consider prohibiting location of mixing zones in "areas used by aquatic life for breeding or feeding, locations of shellfish beds, locations of critical habitat for threatened and endangered species, across tributary mouths, shallows, near shore areas." 63 Fed. Reg. at 36789. EPA also may require state provisions to address instances where mixing zones "could intrude upon public

drinking water supply intakes or public swimming beaches, or where mixing zones prove to be attractive to aquatic life or wildlife." 63 Fed. Reg. at 36790.

EPA has pointed out that it has authority to impose such protective requirements on state mixing zones not only through its authority under the Clean Water Act to approve state water quality standards, but also through its review of mixing zone provisions in individual state-issued NPDES permits. 63 Fed. Reg. at 36789; 33 U.S.C. § 1342(d).

In short, Region 9 has failed to identify any federal interest that would be served by interpreting Section 301(h) to authorize creation of a separate federal mixing zone, overriding the EPA-approved state mixing zone. Section 301(h)(9) does not require an applicant to meet *any* state water quality standards at the edge of the ZID. State water quality standards simply cannot be measured in places where they do not apply. In concluding that CCH did not satisfy Section 301(h)(9), Region 9 unlawfully held CCH to Region 9's own independently established water quality standards. To the extent that 40 C.F.R. § 125.62(a)(1)(i) authorizes testing hybrid water quality standards in variance applications, it applies only to water quality standards for which the discharger sought a variance. If read more broadly, the regulation is unlawful. The Final Decisions, accordingly, were clearly erroneous and should be reversed.

II. Region 9 Clearly Erred in Concluding That the Proposed Discharge Would Cause Environmental and Recreational Harms.

Region 9 purported to find that, with a variance, CCH's wastewater treatment plants may cause environmental and recreational harm, contrary to Section 301(h)(2). *See* Sand Island Final Decision at 10 (finding #4); Honouliuli Final Decision at 10 (finding #4). Region 9 found that both plants' proposed discharges might cause such environmental and recreational harm because they would likely be toxic outside the ZID and might have nutrient-related effects outside the ZID. Region 9 conceded that the biological data did not support these conclusions, but rather

indicated the absence of environmental and recreational harm. Nevertheless, it made an adverse finding of potential environmental and recreational harm based primarily on violations of state water quality standards measured at the edge of the ZID.

For two primary reasons, Region 9's findings and conclusions are unlawful and clearly erroneous.

First, Region 9 clearly erred in finding that CCH's wastewater treatment plants had violated *Hawaii's* water quality standards because Region 9 concocted *its own* water quality standards, by combining the numerical levels in the state's standards with the federal ZID. Yet as already shown with respect to Region 9's conclusion on Section 301(h)(9), state water quality standards cannot be violated in places where they do not apply.[17] That error permeates Region 9's Section 301(h)(2) analysis, for the only evidence of environmental and recreational harm that Region 9 musters is (supposed) violations of state water quality standards. Thus, if the Board determines that Region 9 could not substitute the federal ZID for the state ZOM when applying state water quality standards, it must reverse Region 9's conclusion on Section 301(h)(2) as well, and order further consideration in light of the correct water quality standards.

Second, it was legally erroneous for Region 9 to rely entirely on CCH's supposed violations of water quality standards for its findings of environmental and recreational harm. Those supposed standards violations were the crux of the agency's Section 301(h)(2) analysis; besides them, no evidence tended to show the forbidden harm. *See, e.g.*, Responses to

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[17] For many of the same reasons already discussed in Part I above, 40 C.F.R. § 125.62(a)(1)(i) cannot lawfully license Region 9 to use the federal ZID in place of the state ZOM when assessing an applicant's compliance with Section 301(h)(2). As an initial matter, it is not even clear that Region 9 relied upon 40 C.F.R. § 125.62(a)(1)(i) for its findings on Section 301(h)(2); the only citations in the Final Decisions to the regulation are in connection with Section 301(h)(9). *See* Honouliuli Final Decision at 10; Sand Island Final Decision at 10. In any event, the chief reason why the regulation is unavailing is that there is no indication in the statute that Congress intended any of the Section 301(h) criteria to alter the primary rule of deference to state water quality standards. And it imports the federal ZID only to "applicable" water quality standards, meaning those for the pollutants for which an applicant is seeking a Section 301(h) variance.

Honouliuli Comments C41 and C42, at 63, 64. All the evidence, in fact, showed no actual harm whatsoever, meaning that CCH's past transgressions of water quality standards (assuming they happened) never resulted in actual environmental or recreational harm. The text of Section 301(h)(2) focuses on harm, not technical compliance with standards. Compliance issues are addressed elsewhere in the statute—in Section 301(h)(9) (requiring compliance with federal water quality criteria), and in Sections 402(a)(1) and 301(b)(1)(C) (requiring permits to include limitations complying with water quality standards).[18] If Congress had wanted Section 301(h)(2) to require compliance with water quality standards or criteria, it would have said so, as it did in these other provisions. One cannot presume that Congress addressed the issue of standards compliance implicitly in Section 301(h)(2) of the Act, where it addressed that issue explicitly in other provisions of the statute.

Region 9's findings of supposed environmental and recreational harm make it clear that it was relying exclusively on supposed water quality standards violations and ignoring biological data pointing the other way. Thus for its first finding (of toxic impacts beyond the ZID), Region 9 relied upon violations of the standard for whole effluent toxicity in sea urchins (despite the biological and sediment quality data showing no actual toxic impacts); for its second finding (potential nutrient-related effects), Region 9 relied upon violations of the standard for ammonia nitrate (again despite the biological data showing no resulting blooms, which the standard is designed to prevent). *See* Sand Island Final Decision at 75-76; Honouliuli Final Decision at 82-83, 90-92. Region 9 concluded that the plants' proposed discharges posed a risk of recreational harm because two pollutants (chlordane and dieldrin) were in the effluent at levels exceeding the water quality standards, even though neither pollutant was detected at elevated levels in fish (at

[18] Section 402(a)(1) requires permits to comply with Section 301. Section 301(b)(1)(C) requires achievement of effluent limitations "necessary to meet water quality standards."

both plants) or in sediment (at Sand Island). *See* Sand Island Final Decision at 80; Honouliuli Final Decision at 97. (For Honouliuli only, Region 9 found that bacteria levels would interfere with water contact recreation; as discussed in Part III below, that finding was clearly erroneous because it is based on Region 9's arbitrary refusal to consider CCH's proposal to disinfect Honouliuli's primary treated discharge as an alternative to secondary treatment.) On the basis of its findings of environmental and recreational harm, Region 9 concluded that CCH had failed to satisfy Section 301(h)(2).

Accordingly, Region 9's findings of potential environmental and recreational harm, and its conclusions that CCH's two wastewater treatment plants did not satisfy Section 301(h)(2), are clearly erroneous because all were based on Region 9's defective view of Section 301(h)(2) as providing for water quality standard enforcement. Disabused of its error, Region 9 must reconsider its decision. The two Final Decisions both expressed Region 9's opinion that CCH's substantial biological and empirical data, which showed no harm, at the very least pointed in the other direction from the evidence of (supposed) water quality standards violations. *See, e.g.*, Honouliuli Final Decision at 90, 91, 97 (calling the whole of the evidence — *i.e.*, CCH's biological data versus the relevant water-quality-standard violations — "mixed" for the toxic impact, nutrient-related effects, and recreational harm findings); Sand Island Final Decision at 75, 76, 80 (same). Without any evidence of real-world environmental and recreational harm, on reconsideration Region 9 will have nothing to counter CCH's favorable biological data.

III. Region 9 Clearly Erred in Refusing Adequately to Explain Why It Would Not Consider Disinfection as the Appropriate Treatment Modification at the Honouliuli Plant.

Region 9 found a violation of the water quality standard for bacteria at the Honouliuli plant but not at the Sand Island plant. *Compare* Honouliuli Final Decision at 59-60, *with* Sand

Island Final Decision at 48. In reaching these divergent conclusions, Region 9 refused to consider evidence for Honouliuli's application that it considered and found dispositive for Sand Island's application. Region 9 rejected CCH's comment that it should consider disinfection on the ground that this proposal had not been made in the application. Although Region 9 acknowledged that a post-application proposal could be considered if justified by new information, it ignored the same new information it had relied on in its Sand Island decision, showing that disinfection worked for primary treated effluent at Sand Island (an issue Region 9 acknowledged was previously unclear). Region 9's disparate treatment of the same evidence and its failure to give a reasonable response to CCH's comment requesting consideration of disinfection at Honouliuli were arbitrary and capricious. *See* 40 C.F.R. § 124.19; *see also In re: Arecibo & Aguadilla*, Order Denying Review, NPDES Nos. 02-09 & 03-05, available at 2005 WL 627642 (EAB, March 10, 2005) ("[T]he petitioner must . . . explain why the permit issuer's previous response [to objections] evidences clear error, an abuse of discretion, or otherwise warrants review").

At issue are data concerning the effectiveness of a newly installed ultraviolet (UV) disinfection system at the Sand Island plant, which went into preliminary operation in November 2006 and started a year-long pilot test in December, 2006. That system disinfects primary treated effluent, not secondary treated effluent. Because "[t]he efficacy of continuous UV disinfection with primary effluent is not well understood," Sand Island Final Decision 48., the results of any test of UV disinfection on primary treated effluent — especially a test in nearby waters — are important to determining whether UV disinfection can help a wastewater treatment plant comply with water quality standards for bacteria without secondary treatment. Region 9 concluded that the results of the Sand Island testing "indicate that the UV system can adequately

disinfect the [Sand Island] effluent." *Id.* Accordingly, Region 9 concluded that Sand Island's primary treated discharge, which had violated the water quality standard for bacteria before CCH installed a UV disinfection system there, "can meet water quality standards for bacteria, provided CCH adequately operates and maintains the UV disinfection system." *Id.*

In its comments on Region 9's 2007 Tentative Decision on the Honouliuli plant, in addition to contesting Region 9's conclusion that the Honouliuli effluent violated the water quality standard for bacteria, CCH asked Region 9 to consider a disinfection system like Sand Island's as the appropriate remedy for any bacteria exceedances at the Honouliuli plant. Honouliuli Comment C5.3, at 8.[19] In its response, Region 9 admitted that, in part because of the favorable Sand Island testing results, it was "aware that bacterial concentrations can be addressed through disinfection." Response to Honouliuli Comment C21, at 29. Yet, Region 9 refused to consider that information for the Honouliuli variance application. In Region 9's view, CCH had not proposed disinfection as part of the Honouliuli variance application and therefore could not revise its application to include a disinfection proposal unless it had "additional information it was previously not able to provide despite diligent efforts." *Id.* (citing 40 C.F.R. §§ 125.59(d)(3) and (g)). Region 9 found that exception inapplicable. The Region believed that CCH had known "for several years that it would not be able to meet" the water quality standard for bacteria at the Honouliuli plant because CCH, responding to a proposed regulation in 2004, commented that its primary treated effluent would not meet "EPA's criteria at the point of discharge unless the plant was upgraded to secondary treatment to allow effective disinfection." Response to Honouliuli

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[19] "Honouliuli Comment C5.3" refers to CCH's Comment C5.3, as set forth in Region 9's Response to Honouliuli Comments. We have followed the same practice for the Sand Island comments. Region 9's Responses to the Honouliuli and Sand Island comments number and describe each comment before each Response. For the most part, we have cited and relied on Region 9's descriptions of CCH's comments because they are generally accurate and it is more convenient to read each comment in conjunction with the Region 9's corresponding response.

Comment C21, at 29. Region 9's response to CCH's comment clearly misapplied the governing regulations; Region 9 had no legal basis to reject CCH's disinfection proposal.

Region 9's principal reliance on CCH's 2004 comment is unavailing. As a matter of law, CCH acted diligently in proposing disinfection as a solution, and its proposal was supported by "additional information it was previously not able to provide despite diligent efforts." Response to Honouliuli Comment C21, at 29. Because CCH's 1998 Sand Island permit required a one-year test of disinfection on that plant's primary treated effluent, *see* Sand Island Final Decision 48, CCH obviously knew about disinfection and technically could have proposed it in the Honouliuli variance application before Region 9's 2007 Tentative Decision. Yet CCH's decision not to propose disinfection before the Tentative Decision, far from being the result of inexcusable neglect, was clearly the most prudent course. CCH could not have reasonably substantiated such a proposal until it had studied the results of the preliminary operation of Sand Island's disinfection system. Disinfection of primary treated effluent, as Region 9 recognizes, was "not well understood," Sand Island Final Decision 48, and before the Sand Island data, good data on the efficacy of disinfection in the absence of secondary treatment were lacking. The efficacy of disinfection *combined with secondary treatment*, however, was well understood, which is why, in the 2004 CCH comment on which Region 9 now relies, CCH assumed that the Honouliuli Plant would have to be "upgraded to secondary treatment to allow *effective* disinfection." Honouliuli Final Decision at 60 (emphasis added). CCH's 2004 comment simply demonstrates that, in 2004, it did not know disinfection of primary treated effluent could be an effective alternative to secondary treatment.[20] Sand Island's disinfection system was testing that

[20] Region 9's reliance on CCH's 2004 comment is also misplaced, for it misunderstands the comment in another way. In Region 9's view, the comment is a concession by CCH that it was on notice in 2004 that it might need to propose disinfection as an alternative to secondary treatment in the Honouliuli variance application. But, critically, the comment only acknowledges possible violations of the water quality standard *at the point of*

very possibility, and it only started preliminary operation in November 2006 and did not start its year-long test until December 2006. CCH proposed disinfection for Honouliuli soon after it had favorable data from Sand Island, *i.e.*, it dutifully came forward with "additional information it was previously not able to provide despite diligent efforts."[21]

Region 9 nonetheless believes that CCH should have included a disinfection proposal in Honouliuli's original variance application, despite that both CCH and Region 9 knew at that time that Sand Island was then installing, and soon going to be testing, an otherwise unproven disinfection system in nearby waters. That course, however, was fraught with potential waste; it would have been unnecessary to propose building and testing an expensive disinfection system at Honouliuli before knowing the results of the pending tests at Sand Island. But perhaps more significantly, Region 9's view is based on its erroneously equating the proposal CCH could have made in its original Honouliuli variance application with the proposal CCH eventually made after the Tentative Decision. The former would have been a proposal for an unproven, potentially useless disinfection system, whereas the latter was a proposal for a proven, useful system. Region 9's position also misses the bigger point: even if the two proposals could be equated, the previously unavailable information from Sand Island *justifies* CCH's later proposal for disinfection at Honouliuli, according to the governing regulations.

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discharge. What matters for Honouliuli variance application is compliance with the standard *at the edge of the mixing zone*, whether that point is the state-defined ZOM or the federal ZID, since both are removed from the point of discharge. CCH's 2004 comment simply does not concede violations of the water quality standard relevant to this case; indeed, throughout the proceedings related to Honouliuli's variance application, CCH has strenuously contested Region 9's assertion that the water quality standard for bacteria was meaningfully violated. Thus, because CCH did not concede relevant violations in 2004, Region 9 cannot reasonably conclude that CCH waited too long when it proposed disinfection for Honouliuli after the 2007 Tentative Decision.

[21] In its comments on Honouliuli, CCH reminded Region 9 that its 1988 Tentative Decision required frequent monitoring of bacteria and said that "effluent disinfection [must] be initiated if unacceptable high concentrations occur within these areas." Honouliuli Comments at page I-10.

Moreover, entirely apart from the Sand Island testing, there are additional and independent reasons why it was error for Region 9 to require CCH to have proposed disinfection in its application. In the first place, there were no bacteria water quality standards in effect beyond 1000 feet from shore until December 2004, *after* the latest amended application (filed August 2004). It was in December 2004 that the EPA standards under the federal BEACH Act went into effect. 40 C.F.R. § 131.41. Until that time, Hawaii's standards applied and covered only the first 1,000 feet. It was only after the EPA standards took effect that CCH could reasonably determine whether disinfection was needed.

Moreover, the current Honouliuli permit provides that: "If the results of [the Sand Island] monitoring program indicate that disinfection of the Sand Island WWTP effluent shall be required, disinfection of the Honouliuli WWTP effluent shall also be required." Honouliuli permit at 60, ¶20. Thus, it was clear to all that disinfection would have to await the outcome of bacteriological monitoring, but if that monitoring were adverse, disinfection would be required. Indeed, an internal EPA document going back to 1991, discussing the Honouliuli permit, stated that "if the early morning bacterial samples, as required in the final 301(h) permit, indicate potential exceedance of the standard, the permittee will be required to disinfect the effluent."[22] It is arbitrary and capricious for Region 9 now to ignore the issue of disinfection when it was specifically provided for in CCH's existing permit. In addition, CCH had made reasonable challenges to Region 9's findings of bacteria violations, contending that they pose no hazard to recreational use and that they rested on invalid use of geometric mean measuring. Until Region 9

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[22] Memorandum to File from Jacques Landy, Environmental Engineer, Permits Issuance Section (W-5-1) and David Stuart, Life Scientist, Oceans & Estuaries Section (W-7-1), regarding Deletion of Discharge Limitation for Flowrate from Final Section 301(h) Modified NPDES Permit for the Honouliuli Wastewater Treatment Plant, at 5. This document was received from Region 9 on March 8, 2008, well after the Honouliuli comment period.

rejected those challenges, which did not happen until the Tentative Decision at the earliest, an affirmative proposal for disinfection would have been premature.

Region 9, in sum, clearly erred in refusing adequately to explain why it would not consider CCH's proposal for disinfection at the Honouliuli plant. That error is particularly troubling in light of its consequences. It is arbitrary and capricious to require CCH to install secondary treatment when the objective data point to an equally effective, but significantly cheaper, solution.

IV. Region 9 Failed Adequately to Respond to Comments on Its Testing Methods and Measurements

A. Region 9 Failed to Explain Its Use of an Unapproved Test Method for Whole Effluent Toxicity That Was Not Sufficiently Reliable for Determining Permit Compliance.

Hawaii's water quality standards provide that state waters shall be free of acute and chronic toxicity, using listed tests or other methods specified by the director. HAR § 11-54-4(b)(2). The Sand Island permit requires CCH to conduct whole effluent toxicity ("WET") tests according to certain methods, including tests on two species: the *C. dubia* (a freshwater flea) and the *Trypneustes gratilla* (a Hawaiian sea urchin). Sand Island Final Decision at 55. The tests involve exposing the test species to samples of effluent at various dilutions and comparing their effects to control samples. The tests at Sand Island indicated consistent compliance with respect to the *C. dubia*, but frequent exceedances for the *T. gratilla*. Sand Island Final Decision at 56. Honouliuli also met the tests with respect to the *C. dubia* but not the *T. gratilla*. Honouliuli Final Decision at 70.

In its comments, CCH contended that the test used for the *T. gratilla* was not sufficiently reliable, pointing out that the *T. gratilla* was not on EPA's list of approved marine species for bioassay testing for wastewater effluents and that, unlike the different test used for the *C. dubia*,

the *T. gratilla* test was still in draft form, had not been finalized, and did not have a protocol subjected to inter-laboratory variability testing, as required for approved methods. Sand Island Comment C31, at 30-31. In addition, CCH pointed out that, in the permit issued to Sand Island in 1998, the *T. gratilla* test was not deemed reliable enough to determine permit compliance. Instead, the Sand Island permit provided that only the *C. dubia* test was to be used for compliance purposes. Sand Island Comment C31, at 30. The permit provided that "[t]he chronic toxicity discharge limitation in Part A.1 of this permit does not apply to monitoring results for toxicity tests using *Trypneustes gratilla*." Sand Island Comment C32, at 32.

In response, Region 9 asserted that the determination of permit compliance was different from the determination of eligibility for a Section 301(h) variance. See Response to Sand Island Comment C32, ("EPA used WET test results from the Sand Island WWTP as part of its assessment of whether or not the proposed discharge would meet the requirements of section 301(h), not to determine compliance with the permit"). That is a meaningless distinction. In both settings, what matters (in Region 9's view) is compliance with Hawaii's water quality standards. Permits are required by law to observe limitations meeting water quality standards; thus, permit compliance is linked to standards compliance. In deciding CCH's Section 301(h) variance application, Region 9 did not directly base its decision on the *T. gratilla* test results; it based its decision on CCH's compliance with Hawaii's water quality standards, which it measured with the *T. gratilla* results.

Region 9 has given no rational explanation for why a test method that is not reliable enough for use in determining permit compliance is reliable enough to determine eligibility for a secondary treatment variance. If the *T. gratilla* results are not reliable for finding permit noncompliance, they are not reliable for adverse determination under Section 301(h). It cannot

be that the consequences of failure are different in the two settings, since an adverse determination under Section 301(h) is at least as serious as finding noncompliance with the underlying permit.

Region 9 also noted that the limitation it used in the WET test for CCH's Section 301(h) variance application (103 TUc) is higher, and thus more favorable to CCH, than the limitation in the permit (94 TUc). Response to Sand Island Comment C32, at 32. Yet Region 9 offered no explanation for why a test method that is unreliable for a 94 TUc limitation is suddenly reliable for a 103 TUc limitation.

Region 9 also quoted a sentence from the Sand Island permit, which it believes implies that *T. gratilla* data are valid and useful for purposes other than permit compliance. *See* Response to Sand Island Comment at 32-33 ("Chronic toxicity for *Trypneustes gratilla* is defined by an exceedance of an average daily chronic toxicity value of 94 TUc"). But Region 9 completely ignored that in the context of the permit, this quote was not intended to open the use of these data for any regulatory purpose but, rather, the permit itself specifies how the data are to be used—a certain level of exceedances triggers accelerated monitoring, which may eventually lead to a requirement to investigate what chemical may be causing the problem. *See* Sand Island Permit § B., at 12-16. Region 9 also offered a spirited defense of Hawaii's right to use an indigenous species for toxicity testing. Response to Sand Island Comment 33, at 33-34. CCH fully supports Hawaii's use of indigenous species; but that does not dispense with the requirement to use a reliable test method, with adequate inter-laboratory variability testing, for purposes of permit compliance as well as 301(h) variance determination.

Region 9 asserted that Hawaii has routinely issued permits requiring WET compliance monitoring using *T. gratilla* since the Sand Island permit was issued. Response to Sand Island

Comment 32, at 33. Those permits' relevance is not obvious; each plant and permit is different. Assuming the permits are relevant, Region 9's assertion is incorrect. Because Region 9's assertion purported to make other permits relevant for the first time, we are proffering them for inclusion in the record. *See* Exhibit A, attached. These permits show that *T. gratilla* WET testing is *not* authorized for permit compliance in other Hawaii permits.[23] In any event, the use of an unreliable test method is not justified, regardless of how many permits are issued that include that method.

Region 9 also pointed out that EPA's regulation listing nationally approved test methods does not apply to the estuarine and marine organisms in the Pacific, 40 C.F.R. part 136, Table IA, and that EPA has continued to recommend that NPDES permitting authorities implement chronic WET tests in permits for facilities that discharge into the Pacific Ocean based on test methods and species in [the 'West Coast manual']." Response to Sand Island Comment C31, at 31. Region 9 also refers to HAR § 11-54-4(b)(2)(B), which provides that chronic toxicity may be measured using the toxicity tests listed in the regulation or other methods specified by the state director. *Id.*

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[23] The permits provide, in relevant part:

- *1999 Waianae Permit*: "The chronic toxicity discharge limitation is specified in Part A.1 of this permit and does not apply to monitoring results for toxicity tests using *trypneustes gratilla*." (Page 7)
- *1999 Kailua* Permit: "The chronic toxicity discharge limitation is specified in Part A.1 of this permit and does not apply to monitoring results for toxicity tests using *trypneustes gratilla*. However, if the chronic toxicity for Trypneustes gratilla exceeds 186 then the Permitee shall initiate a Toxicity Reduction Evaluation (TRE) in accordance with Part B.3." (Page 7)
- *2004 Waianae Permit*: "This chronic toxicity discharge limitation does not apply to monitoring results for toxicity tests using *trypneustes gratilla*. Rather, for the purposes of additional (accelerated) testing, toxicity reduction evaluation/toxicity identification evaluation, and reporting requirements below, chronic toxicity for *Trypneustes gratilla* is defined by an exceedance of a chronic toxicity threshold value of 117.84 TUc, applied as a daily maximum." (Page 7)
- *2006 Kailua Permit*: "This chronic toxicity discharge limitation does not apply to monitoring results for toxicity tests using *trypneustes gratilla*. Rather, for the purposes of additional (accelerated) testing, toxicity reduction evaluation/toxicity identification evaluation, and reporting requirements below, chronic toxicity for *trypneustes gratilla* is defined by an exceedance of a chronic toxicity threshold value of [sic]." (Page 7)

Additionally, footnote 8 to the table of effluent limitations in Part A.1 of the permits provides that the "Limitation does not apply to monitoring results using *trypneustes gratilla*."

But the "West Coast manual" does not specify *T. gratilla* as a test species,[24] and neither does HAR § 11-54-10.[25] And while EPA regions retain the authority to specify tests on a case-by-case basis, and the state director retains similar discretion under HAR § 11-54-10, neither EPA nor the State relieves the Region of the obligation to respond to comments addressing significant issues raised by the tests it proposes to use. The lack of inter-laboratory variability studies for WET testing based on the *T. gratilla* is a significant issue. Indeed, in 2002 EPA withdrew two species from its list of approved methods because inter-laboratory variability studies had not been conducted. Guidelines Establishing Test Procedures for the Analysis of Pollutants; Whole Effluent Toxicity Test Methods; Final Rule, 67 Fed. Reg. 69952, 69955 (Nov. 19, 2002). EPA stated that it continued to support these testing methods for applications other than NPDES compliance. *Id.* But again, EPA did not purport—and indeed did not have the legal authority—to relieve the regions of their obligation to respond to comments raising significant issues regarding test methods. And while the Director of Health in Hawaii has approved *T. gratilla* testing in permits for purposes other than permit compliance, this does not explain why a method not deemed sufficiently reliable for permit compliance purposes may be used to deny a secondary treatment variance.

Agency action is arbitrary and capricious when the agency "failed to articulate a rationale" for what it did. *Arrington v. Daniels,* 516 F.3d 1106, 1116 (9th Cir. 2008). "An agency that changes its policy is obligated to supply a reasoned analysis for that change." *Lynch*

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[24] The "West Coast manual" provides toxicity tests for ten species: "the topsmelt, *Therinops affinis*; the red abalone, *Haliotis rufescens*; the Pacific oyster, *Crassostrea gigas*; mussel, *Mytilus spp.*; the mysid, *Holmesimysis costata*; the [purple] sea urchin, *Strongylocentrotus purpuratus*; the sand dollar, *Dendraster excentricus*; and the giant kelp, *macroystis pyrifera.*" EPA/600/R-95-136, Short-Term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to West Coast Marine and Estuarine Organisms, August 1995, at p. 2.

[25] HAR § 11-54-10 provides for toxicity tests as provided in three EPA manuals, or "[a]s otherwise previously specified or approved by the director." None of the three manuals provides for *T. gratilla* testing. As discussed in the text, *T. gratilla* testing has been "approved by the director" only for purposes of monitoring under the permit, not for purposes of compliance.

v. Dawson, 820 F.2d 1014, 1021 (9th Cir. 1987) (citing *Motor Vehicle Mfrs' Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 57 (1988)). Here, Region 9 failed to supply a reason, let alone a reasoned analysis, for its decision to rely on a test for purposes of the Section 301(h) variance that was not reliable enough for purposes of determining permit compliance. Region 9's decision was arbitrary and capricious and cannot stand.

In addition to the unreliability of using *T. gratilla* as a test species for WET testing, *T. gratilla* testing is not a part of the Hawaii water quality standards. The Hawaii water quality standard HAR § 11-54-4(b)(4) for chronic toxicity provides that they "shall be enforced through effluent limitations or other conditions in discharge permits." The Sand Island permit specifically provides that "the chronic toxicity discharge limitation in Part A.1 of this permit *does not apply* to monitoring results for toxicity tests using *Trypneustes gratilla*." Sand Island Permit Part B.1.b at 13.

B. Region 9 Failed Adequately to Explain Why It Ignored Comments Pointing Out That the Plants Did Not Violate EPA's Water Quality Criteria for Chlordane.

CCH's comments for the Honouliuli plant pointed out that "using the most current EPA National Recommended Water Quality Criteria (which include the most current toxicity factors and regulatory defaults for fish consumption, etc.), there were . . . no exceedances of chlordane over the 5-year [monitoring] period." Honouliuli Comment C23, at 30. CCH's Sand Island Comments further explained that the Hawaii water quality standards were based on a 1980 EPA criteria document. Sand Island Comment 25, at 22. In 1997, CCH pointed out, EPA released a *Toxicological Review of Chlordane (Technical)* (EPA, December 1997), which "indicated that the carcinogenic potency of chlordane was about 4.6-fold lower than believed at the time the 1980 AWQC [Ambient Water Quality Criteria] were developed." Sand Island Comment 25, at

22. In addition, in 2002, EPA revised upward its assumptions concerning fish ingestion rates. *Id.* On the basis of the net effect of both these revisions, EPA released updated water quality criteria in 2002, which were carried forward to its most recent water quality criteria issued in 2006. *Id.* (citing *National Recommended Water Quality Criteria,* (EPA Office of Water, 2006)). The current EPA criteria, issued in 2006, establish a human health criterion for fish consumption of 0.00081 μg/L (microgram per liter) for chlordane.[26] This is almost double the level established in 1980, which was the basis for the Hawaii water quality standard for chlordane.[27]

While, based on Region 9's calculations, the recent chlordane readings would have consistently exceeded Hawaii's water quality standard for chlordane of 0.00016 μg/L, they were consistently *below* the current federal criteria. Sand Island Final Decision at 51, Figure 3a; Honouliuli Final Decision at 63, figure 4.[28] CCH's comments for Sand Island pointed out that "[u]sing the 2006 chlordane AWQC (0.00081 μg/L) currently considered by EPA to be protective of a fish consumption pathway, . . . the annual average concentration of chlordane in the effluent *has never exceeded the protective level over the entire evaluation period of 2000-2007.*" Sand Island Comment C26, at 22-23 (emphasis added). CCH made the same point with respect to Honouliuli. Honouliuli Comment C23, at 31 ("no exceedances of chlordane over the 5-year period").

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[26] EPA, Office of Water, Office of Science and Technology, *National Recommended Water Quality Criteria*, 2006, at p. 8.

[27] The human health criterion for chlordane adopted in 1980 was 0.48 ng/l (nanogram per liter) (the equivalent of 0.00048 μg/L), assuming an increased lifetime cancer risk of 10^{-6}. The EPA current criterion is 0.00081 μg/L (also based on a 10^{-6} lifetime cancer risk).

[28] In the passages cited, Region 9 compares the chlordane readings to Hawaii's current chlordane standard of 0.000016 μg/L, and a level 10 times higher (0.00016 μg/L), which is the level the standard would have been had a typographical error not been made in the original standard. In its Comments, CCH argued that Region 9 should have corrected the typographical error. Region 9 refused to do so, partly because it deemed it Hawaii's responsibility to make the correction, and partly because it found violations even at the "corrected" level. Response to Sand Island Comment C23, at 20; Response to Honouliuli Comment C23, at 32. For purposes of the present discussion, the "typographical error" point is not relevant. At either the present or the "corrected" level, Region 9 found chlordane violations of the state standard, but would not find violations of the federal criterion.

Region 9 rejected CCH's comment, on the ground that "[t]he value cited in this comment, 0.00081 µg/L, is not Hawaii's water quality standard. Therefore, CCH's review of the monitoring data against this value is not relevant." Response to Sand Island Comment C26, at 23. More generally, Region 9 stated that it was not "appropriate to assess concentrations of these pesticides against general EPA criteria when the State of Hawaii has specifically adopted criteria for these pesticides to ensure the fish caught by anglers in Hawaii's waters will be safe to eat." Response to Honouliuli Comment C23, at 32. Region 9 also pointed out that "States have flexibility when adopting criteria for toxic pollutants" and suggested that Hawaii may have a stricter standard than the federal criteria based on a higher rate of fish consumption. Response to Sand Island Comment C29, at 25. Region 9 insisted that "[r]egardless of the basis for Hawaii's adoption of State criteria for pesticides, the numeric criteria adopted by the State are the criteria that must be met." *Id.*

Region 9's response to CCH's comments was based on a clear error of law, and was arbitrary and capricious.

The error of law is apparent. Section 301(h) does not require a discharger to meet state water quality standards that are stricter than the federal water quality criteria, as a condition for a secondary treatment variance. Section 301(h)(9) provides that the applicant's discharge under a modified permit must "meet[] the criteria established under section 304(a)(1) of the Clean Water Act." It is undisputed that both plants' discharges met "the criteria established under section 304(a)(1) of the Clean Water Act" with respect to the fish consumption standard for chlordane. Under the literal language of the statute, the plants complied with Section 301(h)(9).

To be sure, Region 9 may validly assume that if the discharges comply with the EPA-approved state water quality standard, they must also comply with EPA's own water quality

criteria. That is because, to obtain EPA approval under Section 303, the state's water quality standards typically must be at least as strict as EPA's water quality criteria. But if the discharges violate the state water quality standards, *and the state standards are stricter than the federal criteria,* then a finding of violation of the state standards does not mean a violation of the federal standards. Under the literal language of Section 301(h)(9), the ultimate question is whether the discharges "meet[] the criteria established under section 1314(a)(1) [304(a)(1)] of this title [the Clean Water Act]." 33 U.S.C. § 1311(h)(9). Here they do, and that is the end of the matter.

Section 304(a)(1) provides that the Administrator "shall develop and publish . . . criteria for water quality accurately reflecting the latest scientific knowledge" on certain specified subjects. 33 U.S.C. § 1314(a)(1). That section does not, however, provide for the adoption of *state* standards. Rather, that is provided for in Section 303 of the Act, which requires states to submit proposed standards to EPA for review and authorizes the Administrator to approve those state standards if they comply with the requirements of the Act, including the water quality criteria provided for under Section 304(a)(1). *See* 33 U.S.C. § 1313(a)(3). Accordingly, by requiring compliance only with the "criteria established under Section 304(a)(1)," Section 301(h)(9) conditions variances on compliance with the federal criteria, not on state water quality standards that are more stringent than the federal criteria.

Region 9 was right in saying that Hawaii has the flexibility to adopt water quality standards that are stricter than the federal criteria, and those standards may be enforced through the federal permit mechanism. But there is nothing in Section 301(h) indicating that permittees must meet stricter water quality standards *as a condition of obtaining the secondary treatment variance* merely because the state has voluntarily adopted a standard more stringent than the federal criteria. The *only* reference to water quality standards in Section 301(h) is Section

301(h)(1)'s reference to "an applicable water quality standard *specific to the pollutant for which the modification is requested.*" (emphasis added). Chlordane is *not* a "pollutant for which the modification is requested." There is no plausible way to construe Section 301(h) as implicitly providing for enforcement of a state water quality standard that does not fall within the only explicit reference the provision makes to state water quality standards. There is *no* statutory support for Region 9's assertion that "the numeric criteria adopted by the State are the criteria that must be met." Response to Sand Island Comment 29, at 25. Section 301(h)(9) specifically provides that the criteria *adopted by EPA* are the criteria that must be met.

Nor is Section 301(h)(2) a basis for Region 9 to require compliance with Hawaii's stricter chlordane standard. As we discussed above (at pp. 29-30), Section 301(h)(2) is not a provision for enforcement of water quality standards at any level of stringency, let alone a standard that is stricter than the federal criteria. Rather, as we pointed out, Section 301(h)(2) focuses on actual environmental harm, not on compliance with state water quality standards.

In the context of Section 301(h)(2)'s focus on actual environmental harm, it was arbitrary and capricious, as well as a violation of law, for Region 9 to ignore EPA's water quality criteria. Section 304(a)(1) requires the EPA criteria to "accurately reflect[] the latest scientific knowledge." EPA's updated chlordane criteria did just that. They followed a 1997 study, in which EPA comprehensively analyzed and revised its risk assessment for chlordane exposures. *Toxicological Review of Chlordane (Technical),* National Center for Environmental Assessment, EPA Office of Research and Development, 1997. Under Section 301(h)(2), the issue before Region 9 was whether the Plants' discharge of chlordane would "interfere . . . with . . . protection of public water supplies and the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife, and allow[] recreational activities, in and on the water." To say

that Region 9 may ignore EPA water quality criteria that are based on the "latest scientific knowledge" as "not relevant" to that issue (Response to Sand Island Comment C26, at 23), and to infer a risk of bioaccumulation based on exceedances of the erroneous and outdated Hawaii water quality standards alone, defies logic and is totally arbitrary and capricious.

C. Region 9 Did Not Adequately Respond to CCH's Comment That It Failed to Consider Whether the *T. gratilla* WET Test Results Were Biologically Significant.

In its Tentative Decision, Region 9 placed much of the weight of its recommended negative decision on reported exceedances of the water quality standard for whole effluent toxicity ("WET") using the local sea urchin *T. gratilla*. As we previously described, WET tests involve exposing the test species to samples of effluent at various dilutions and comparing their effects with control samples. In the case of *T. gratilla*, WET testing measures whether sea urchins exposed to the effluent have a lower fertility rate than urchins exposed to the control samples. We previously explained that use of the *T. gratilla* was error because it was not an approved species for WET testing and Region 9 failed to explain why it could rely on *T. gratilla* results for purposes of denying a secondary treatment variance when it did not consider the test sufficiently reliable for purposes of determining permit compliance.

In its comments, CCH also raised another issue concerning *T. gratilla* WET testing. CCH pointed out that Region 9 considered only whether the effects reported for *T. gratilla* were statistically significant, not whether they were biologically significant. As CCH explained, "simple ***statistical*** differences do not always represent ***biological*** effects." Sand Island Comment C34, at 34. Because of the extremely sensitive nature of the protocol used to detect minute mathematical variations, many of the test results that indicate statistical effects are, in fact, not reflective of adverse population impact to this organism. *Id.*

For example, test results from November 11, 2003 triggered a non-compliance finding when the *T. gratilla* test indicated a statistically significant change at a fertilization rate of 95 per cent in the exposed organisms, compared to the corresponding fertilization rate of 100 percent in the control group. Similarly, test results from July 20, 2005 triggered a finding of non-compliance when the test indicated a statistically significant change at a fertilization rate of 99 percent in the exposes organisms, compared to the corresponding fertilization of 100 percent in the control group.[29] These examples demonstrate that a very small statistical change can be misconstrued as toxicity, if statistical significance is the only consideration.

These examples illustrate the importance of a passage from the EPA guidance document on WET testing, which states that the test may "lead to such high statistical power that detected differences may not be biologically significant." EPA, *Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the NPDES Program,* 2000, Appendix D-8-9.

Region 9's Response to this comment was wholly inadequate. It was confined to a defense of the *statistical* validity of WET testing; it addressed only the issue of whether WET tests are a valid measure of small changes resulting from the effluent on *T. gratilla* fertility. Region 9's discussion wholly failed to address the issue CCH raised—whether these effects are biologically significant or meaningful.

Region 9's response addressed four subjects:

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[29] Sand Island Comments, Table IIB-2, "Sea urchin (Tripneustes gratilla) WET Test Results from 130 Test Results Generated over the Period of January 6, 2002, through December 19, 2007." The final column of this Table shows the fertilization rate at the "LOEC," defined in the Table's Notes as "lowest observed effect concentration in percent; lowest test concentration to show a statistical difference from control." Fertilization rates of the control samples were reported in the laboratory reports submitted to the Region in monthly compliance monitoring reports. The yellow shading of the figures for both dates "indicates exceedance of the chronic TU effluent limit of 103 TUc." Table IIB-2, Notes. Table 6 of the Sand Island Final Decision confirms that the *T. gratilla* test results for November, 2003 and July, 2005 were counted as exceedances of the water quality standard.

Ecological Relevance. Region 9 quoted a study demonstrating that WET testing was able to reliably "predict receiving water impacts." Response to Sand Island Comment C34, at 35. But that is entirely nonresponsive. The issue CCH raised was not whether WET testing reliably predicts an impact on the test species, but whether that impact is biologically significant. Region 9's suggestion that CCH is criticizing all WET testing is wrong. CCH's only point was that the results from WET testing should be biologically as well as statistically significant.

False Positive Results in WET Test. Region 9 discusses the various measures taken in properly conducted WET tests "designed to minimize the likelihood of false positives." Sand Island Response C34, at 36. But Region 9, and the EPA technical discussions that Region 9 quotes, focuses exclusively on test procedures, test quality assurance, and statistical evaluations. *Id.* at 36-37. Region 9's discussion may be relevant to the issue of whether the test procedures are adequate to predict, with a high degree of probability, that the effect on the test species observed in the laboratory will actually happen in the real world. But it has nothing to do with the issue raised by CCH—*i.e.*, whether the often small measurable statistical differences in an effect are in fact biologically significant. A critical deficiency in the use of statistical testing for defining "toxicity," using an endpoint such as fertilization success in *T. gratilla*, is that simple ***statistical*** differences do not always represent significant ***biological*** effects. As commonly happens with this urchin species, when the fertilization success in the control group varies by only small percentages, Region 9's approach would interpret a statistically significant difference between the control and test groups as a "toxic" response, without respect to biological significance. EPA's Response to Comment C34 totally misses this point. Indeed, the guidance that EPA itself cites in its Response to Sand Island Comment C34 indicates that caution in

interpreting statistical results from WET tests is prudent because statistical significance does not necessarily mean biological significance:

> [M]inimal variability in all treatments of a test may lead to such high statistical power that detected differences may not be biologically significant. Such tests should be interpreted with caution. Although there is no specific guidance from the USEPA on statistical versus biological significance, various States and USEPA Regions have developed some guidelines.

(EPA, *Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the NPDES Program*, 2000, Appendix D-9.)

Number of Replicates. Region 9's Response also observes that increasing the number of test replicates reduces the possibility that WET tests will result in false positives, and notes that CCH's test laboratory uses more than the recommended number of replicates. Response to Sand Island Comment C34, at 37. Again, this shows how much Region 9 is confusing statistical improvements with the issue of biological relevance. Region 9 states that WET tests "can be designed to increase the power to detect differences by decreasing variability." *Id.* However, simply detecting differences does not provide greater power to identify whether those differences are actually indicative of biological harm, only that there has been some statistical change that may in fact be within the range of normalcy. Region 9 has not specifically addressed the fact that many of the statistically significant differences that have been designated as "toxic" for *T. gratilla* tests with Sand Island effluent occurred at fertilization rates of more than 90 percent, and even as high as 99 percent. This alone should demonstrate that there is a serious question whether small differences in fertilization rate at such a high overall level are biologically significant.

Statistical Controls on Variability. Finally, Region 9's Response has a lengthy discussion of "Statistical Controls on Variability." Response to Sand Island Comment C34, at 37-40. But as the title indicates, this is solely a discussion of statistical significance, not

biological significance. The discussion focuses on the "percent minimum significant difference (PMSD)," which Region 9 describes as "a measure of test sensitivity that establishes the minimum difference required between a control and a treatment in order for that difference to be considered *statistically significant*." Sand Island Response C34, at 37 (emphasis added). Region 9's discussion totally bypasses the question raised by CCH of whether statistically significant results in *T. gratilla* testing are biologically significant.

Region 9 also stated its "opinion that a more appropriate approach for ensuring biological significance is by establishing appropriate bounds on the percent minimum significant difference (PMSD)." Response to Sand Island Comment C35, at 41. As noted, PMSD is a purely statistical measure and does not address the biological significance of statistically significant results. The PMSD metric proposed by Region 9 characterizes the within-test variance, not the actual biologically significant population variance.

For the *T. gratilla* WET test, where fertilization success is the endpoint of concern, probably the best depiction of overall biological variability over time is the sperm-to-egg ratio required to reach optimum fertilization in control urchins (*i.e.*, those not exposed to the effluents). The CCH laboratory standard operating procedure (SOP) indicates that for each *T. gratilla* test conducted (on test organisms collected the same day as testing), the control sperm-to-egg ratio is "optimized" by choosing "the lowest sperm to egg ratio that gives about 90% fertilization" in the control group. Thus, if the lowest sperm-to-egg ratio that gives 90% fertilization varies from test to test, this reflects biological "noise" with respect to fertilization ability in this species.

For the Sand Island plant, the record indicates that, for urchin tests conducted from 2002 through 2007 (94 test events), the control sperm-to-egg ratios resulting in 90 percent fertilization

in controls ranged from a low of 206 to a high of more than 2,000. *See* CCH's Sand Island Comments, Table IIB-2. This tenfold range reveals that this species of urchin shows considerable variability in fertility from week to week and month to month. Yet even with this degree of variability, the urchin populations offshore of Oahu (where the test organisms are collected) are thriving. This type of natural variation is expected within any biological species or system, and reflects some degree of resilience to natural stressors. The important question is, at what point does a reduction in fertilization success, as measured in the laboratory, become a meaningful measure of an adverse effect to the real-world population, especially when there is no evidence that the real-world population is suffering any ill effects.

The statistical PMSD approach that Region 9 advocates would suggest that as little as 3 percent difference between control and test fertilization can be biologically meaningful, whereas the CCH record of sperm-to-egg ratios across 94 tests varies by an order of magnitude. It is clear that using only statistical significance cannot accurately or adequately reflect actual reproductive toxicity. Instead, what is needed is to determine whether the control response and the response at the critical effluent concentration differ by more than some fixed biologically relevant amount, and if not, then the effluent should be deemed not toxic.

In its Comments, CCH suggested that a 70 percent fertilization rate could be used as a measure of biological significance. Sand Island Comment C35, at 40. Use of 70 percent fertilization success as a cutoff for defining an adverse effect in urchin tests has precedent within EPA guidance. EPA Region 1 guidance *Marine Chronic Test Procedure and Protocol* September 1996 (on http://www.epa.gov/region1/npdes/epa_attch.html) states that, in the urchin test, "effluent concentrations exhibiting greater than 70% fertilization, flagged as statistically significantly different from the controls, will not be considered statistically different from the

controls for NOEC [no observable effect concentration] reporting." In other words, they are considered nontoxic when this happens. To demonstrate the importance of this issue, a review of the WET results from 2002-2007 for Sand Island indicates that nearly half of the results considered as excursion ("toxic" events) would not be considered excursions if this measure of biological relevance were accounted for. *See* CCH's Sand Island Comments, Table IIB-2.

Region 9 contends that CCH's approach would find no violation where "a treatment [exposed species] exhibited 70% mean fertilization and the control exhibited 99% mean fertilization." Sand Island Response C35, at 41. But Region 9's approach would attribute biological significance to a result showing 96 percent fertilization in the effluent-exposed organisms and 99 percent in the controls, as long as the small difference was statistically significant. Region 9's rationale for rejection of CCH's specific proposal of a 70 percent cutoff does not justify its position that biological significance must be ignored altogether.

D. Region 9 Failed Adequately to Respond to CCH's Comments on Its Inappropriate Use of Geometric Mean Measurements of Bacteria Concentrations. (Honouliuli Permit Only)

The Hawaii water quality standard for bacteria, which applies within 1,000 feet of the shoreline, contains basically two limits — seven cfu (colony-forming units) per 100 mL (milliliters) for a geometric mean and 100 cfu per 100 mL for a single sample. Honouliuli Final Decision at 45-46. The federal EPA standard, which applied as of December 2004 to marine waters not covered by the Hawaii standards, also has separate limits for a geometric mean (35 cfu per 100mL) and a single sample (104 to 501 cfu per 100 mL, depending on circumstances). Honouliuli Final Decision at 46.

In its Final Decision, Region 9 relied extensively on findings of geometric mean and single sample violations at offshore locations. Honouliuli Final Decision at 51-52 (2007 data),

52-54 (2008 data), 54-56 (2005 and 2006 data), 57-59 (data prior to 2005). The Final Decision indicates that Region 9 placed particular importance on the fact that, in a total of 20 months in 2007 and 2008 (the most recent monitoring period covered by the Decision), "the geometric mean was exceeded during all 20 months at one or more ZID stations." Honouliuli Final Decision at 59.

CCH's comments challenged Region 9's use of the geometric mean. CCH pointed out that the Tentative Decision had "compared geometric mean-based criteria with single samples taken on a monthly or quarterly basis." Honouliuli Comment C16. CCH argued that this was contrary to Hawaii's bacteria standard. That standard requires, as a basis for geometric mean testing, "not less than five samples which shall be spaced to cover a period between twenty-five and thirty days." HAR § 11-54-8(b)(1). This requirement implements the purpose of geometric mean testing, which is to gain a more representative sample over a longer period of measurement — one that is less subject to the wide oscillations often observed in trying to accurately estimate the actual concentrations of the organisms of concern (in this case, *Enterococcus* bacteria).

In its Final Decision, Region 9 conceded that "[a] geometric mean represents the central tendency of a series of data points." Honouliuli Final Decision at 48. Region 9 explained that the geometric mean was "[t]he best way to interpret a series of bacterial measurements taken over a period of time." *Id.* Yet, inexplicably, the Final Decision continued to rely on single monthly measurements as surrogates for geometric means, without explaining how a measurement based on a single data point can represent the "central tendency" of a "series" of measurements.

Region 9's attempt to explain its use of the geometric mean is patently inadequate. Attempting to respond to CCH's Comments, Region 9 cited the provision of Hawaii's standards

stating that "where sampling is less frequent than five samples per twenty-five to thirty days, no single sample shall exceed the single sample maximum *nor shall the geometric mean of these samples taken during the thirty-day period* exceed 7 CFU per 100 milliliters." Response to Honouliuli Comment C16, at 21 (quoting HAR § 11-54-8(b)(2) (emphasis added)). Region 9 explained that, "when only one sample was available," it "assessed that sample against the geometric mean criterion" in accordance with that provision of the Hawaii standards. *Id.* This was based on Region 9's reading of HAR § 11-54-8(b)(2) as providing that, "when there is a single sample . . . the geometric mean still applies." Response to Honouliuli Comment C18, at 24.

Region 9's explanation was clearly erroneous. HAR § 11-54-8(b)(2) authorizes use of the geometric mean of "these samples" when there are less than five samples during a thirty-day period. Clearly, "these samples" means more than one sample. The provision's use of the plural is clearly deliberate, because earlier in the same sentence the provision refers to "no single sample." One must credit the drafter with the knowledge that "single sample" and "these samples" have different meanings. This difference in meaning is not mere literalism. It corresponds to the conceded purpose of the geometric mean to measure the "central tendency" of a "series" of data points. Honouliuli Final Decision at 48. The drafter of the Hawaii geometric mean provision was not only careful in her use of the singular and plural, but also understood the purpose of the geometric mean. Region 9's reading of HAR § 11-54-8(b)(2) cannot be justified and does not adequately explain its application of the geometric mean to single measurements, a process that clearly defeats the purpose of using a geometric mean as a measure of compliance.[30]

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[30] In 1991, EPA staff clearly thought the geometric mean required multiple samples. In an internal memorandum, the staffers discussed various conditions that would be needed to result in a violation of the bacteria standard, and then stated: "However, the probability of all of the above oceanographic and atmospheric conditions occurring at one time is very small. The probability of violating state standards would be even smaller because a violation is based on a geometric mean of five samples equally spaced over a 30-day period." Memorandum to File from Jacques Landy, Environmental Engineer, Permits Issuance Section (W-5-1) and David Stuart, Life Scientist, Oceans & Estuaries Section (W-7-1), regarding Deletion of Discharge Limitation for Flowrate from Final Section

Region 9 also attempted to justify its use of geometric means by reference to the preamble to EPA's federal standard. Honouliuli Final Decision at 48. But EPA's federal standard accords with the plain meaning of the Hawaii standard on this issue. The EPA preamble also makes it plain that where only a single sample is available, EPA expects states to use the single sample maximum, *not* the (much lower) geometric mean maximum:

> EPA recognizes the utility of single sample maximums where there are insufficient data (generally fewer than five samples over a given period) to compute a geometric mean for the purposes of assessing waterbodies, *and expects that States and Territories will use single sample maximums in these instances.*

EPA, Water Quality Standards for Coastal and Great Lakes Recreation Waters; Final Rule, 69 Fed. Reg. 67218, 67226/1 (Nov. 16, 2004) (emphasis added).[31]

In short, Region 9's explanation for its use of geometric means to derive violations from single samples was arbitrary and capricious. It flies in the face of the Hawaii and EPA bacteria standards, and it cannot be reconciled with the conceded purpose of geometric mean measurements.

E. The Case Should Be Remanded For Region 9 To Consider New Evidence With Regard to the Testing Method It Used To Find Violations of the Water Quality Standard for Dieldrin.

In its Tentative Decisions, Region 9 found that the discharges violated Hawaii's water quality standard for dieldrin. During the comment period, CCH asserted that Hawaii's water quality standard was at a level below or very near the level of detectability using the standard analytical technique that Region 9 had relied on (EPA Method 608). Sand Island Comment C29, at 24; Honouliuli Comment C25, at 33. CCH asserted that this problem was exacerbated by the

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301(h) Modified NPDES Permit for the Honouliuli Wastewater Treatment Plant, at 4-5. This document was received from Region 9 on March 8, 2008, well after the Honouliuli comment period.

[31] EPA's preamble went on to state that where data are limited the states "may decide to use the single sample maximums *or other similarly derived statistical constructs*." 69 Fed. Reg. 67218, 67226/2 (emphasis added). Region 9, however, did not (and could not) explain how the geometric mean is "similarly derived" as the single sample maximum.

fact that compounds typically found in CCH wastewater (such as fats, oils, and proteins) interfere with the results of EPA Method 608, and thus this method does not provide reliable results for pesticides such as dieldrin at such low levels. *Id.*

To substantiate these assertions, CCH submitted the comparative results of testing split samples using EPA Method 608 and EPA Method SW8270. The fundamental difference between these two methods is that Method 608 uses gas chromatography with an electron capture detector (GC/ECD), while Method SW8270 uses gas chromatography with mass spectrometry (GC/MS). The results from testing split samples under both methods showed that, after eliminating the influence of interfering compounds, dieldrin was not present at detectable levels (with detection limits well below water quality standards) in the effluent from either plant, although tests of split samples using EPA Method 608 continued to report concentrations at levels above the Hawaii standard. *Id.*

CCH also submitted a technical memorandum stating that EPA Method 625 (which also uses GC/MS) "has greater sensitivity and specificity than GC/ECD for the organochlorine pesticides of concern in the effluent matrix under investigation." Quoted in Response to Honouliuli Comment C25, at 35; Response to Sand Island Comment C29, at 26.

Region 9's response criticized CCH's use of Method 8270 in several respects. These criticisms raise new issues, with respect to which CCH seeks to proffer new evidence for this Board to consider, or to remand for Region 9's consideration. In addition, after the comment period and only five weeks before the Final Decisions in this case, Region 9 issued a Tentative Decision in another case, involving Point Loma, California, which addresses the question of dieldrin testing in a manner inconsistent with what Region 9 did here. The Point Loma decision raises additional issues concerning the rationality of Region 9's position on testing.

Both the new evidence concerning Method 8270 testing and the Point Loma decision raise matters the Board or the Region should take into account in assessing its finding of dieldrin violations. *Dominion Energy Brayton Point, LLC*, 13 E.A.D. ------- (NPDES 07-01) (Sep. 27, 2007) (slip op. at 15).

1. Testing Methods

a. Region 9 sought to impugn the reliability of Method 8270 on the ground that it "is not entirely equivalent to Method 625"—Method 625 being the approved EPA method for using GC/MS to test for pesticides. Response to Honouliuli Comment C25, at 35; Response to Sand Island Comment C29, at 26-27. Region 9 pointed to different sample preparation procedures authorized for Method 8270 that are not authorized for Method 625. *Id.* CCH is proffering the affidavit of Jeremiah Bishop (Exhibit B attached), which states that CCH's laboratory used sequential liquid-liquid separatory funnel extraction, which is one of the five different preparation methods specified for Method 8270 and is also authorized under Method 625. Exhibit B paragraph 5.

b. Region 9 further criticized the use of Method 8270, claiming that "this method is not appropriate for the quantification of multicomponent analytes, *e.g.*, Aroclors, Toxaphene, Chlordane, etc., because of limited sensitivity for those analytes." Response to Sand Island Comment C29, at 27. The attached affidavit of Jeremiah Bishop explains that this argument is not pertinent for dieldrin because dieldrin is not a multi-component compound. See Exhibit B, paragraph 6.

c. Region 9 also claimed that Method 8270 is not an appropriate alternative to Method 608 because the method used by CCH, Method 8270SIM, uses "selective ion monitoring" (SIM) which, Region 9 claims, "provides a lesser degree of confidence." Response

to Sand Island Comment C29, at 27. However, the attached affidavit of Jeremiah Bishop points out that Method 8270 states that SIM provides a lesser degree of confidence "unless multiple ions are monitored for each compound." Exhibit B at paragraph 7, quoting EPA, Method 8270C, Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GCMS), § 7.5.5 (Revision 3, December 1996). Mr. Bishop also states that multiple ions were monitored by the CCH laboratory. Exhibit B at paragraph 7. On the basis of the complete language from Method 8270 and Mr. Bishop's affidavit, it is apparent that Region 9 must reconsider its rejection of Method 8270's use of SIM monitoring.

d. Region 9 criticized CCH for not using an EPA-approved testing method, stating that "[u]se of an alternate test method must follow the steps listed in 40 C.F.R. § 136.5, which CCH has not done." Response to Honouliuli Comment C25, at 34; Response to Sand Island Comment C29, at 26. (40 C.F.R. 136.5 requires a discharger proposing an alternate test procedure to obtain approval of the Regional Administrator.)

CCH was not asking for approval of the EPA Method 8270 GC/MS test for purposes of compliance. Instead, CCH explained that it planned to evaluate the results of comparative testing "to further support a recommendation for the most appropriate analytical protocol for pesticides in the next NPDES permit." Honouliuli Comment C25, at 34; Sand Island Comment C29, at 25. But in the meantime, CCH pointed out, the comparative test results raised a "considerable likelihood that those [pesticide] constituents noted by EPA as exceeding WQS are false positives." *Id.* That likelihood, CCH explained, was enhanced by the fact that Method 8270 used the same GC/MS technology that EPA's approved alternate — Method 625 — used, and that Method 625 had "greater sensitivity and specificity" for organochlorine pesticides like dieldrin. Response to Honouliuli Comment C25, at 35; Response to Sand Island Comment C29,

at 26. Region 9's observation that Method 8270 was not approved for compliance testing did not answer CCH's point that comparative test results using Method 8270 raised a significant issue concerning the validity of the test results Region 9 relied on.

In these circumstances, there is a serious issue whether Region 9 willfully ignored the use of multiple ion testing in concluding that the results of CCH's testing under Method 8270C did not call into question the results Region 9 relied on. The case should be remanded for Region 9 to make new findings with respect to its assumed dieldrin violations.

e. In addition to impugning the test method that CCH used for comparison testing, Region 9 also sought to impugn CCH's conduct of the testing. Region 9 stated that "CCH did not provide sufficient information for EPA to confirm that the tests they conducted using Method 608 and Method SW8270SIM were truly based on split samples." (Response to Sand Island Comment C29, at 27.) However, CCH is proffering the attached declaration of Kenneth Tenno (Exhibit C), which explains that split sample testing was, in fact, conducted and supplies the information necessary to respond to EPA's criticisms of the supporting data.

f. Region 9 also criticized CCH's comparative testing because some of it was done with grab samples rather than composite samples. Thus Region 9 stated that "the ten samples collected by CCH from April 24, 2007 through September 4, 2007 were grab samples (*i.e.* a sample from one point in time). The Sand Island permit requires composite samples for the analysis of pesticides. Collection of a composite sample over a 24-hour period ensures that fluctuating levels of pollutants are captured. A grab sample only captures the pollutants discharged at the moment the sample is collected." Response to Sand Island Comment C29, at 27-28.

However, this response misses at fact shown by the record — that CCH did use composite samples for some of the comparative testing, as indicated by the chain-of-custody forms. See, for example, Appendix 9 to Sand Island Comments at 60, 87, and 102. That fact is also confirmed by the declaration of Kenneth Tenno. Exhibit C attached, at paragraphs 2-4..

In addition, this response entirely misses the key point. Composite samples are important if the purpose of the test is to determine whether a body of water complies with water quality standards. For that purpose, the sample needs to capture "fluctuating levels of pollutants." But the purpose of CCH's comparative testing was to determine whether there was a significant difference between the two test methods that might raise a question as to the reliability of EPA's method in this case. For that purpose, the basic requirement is that the two laboratories test the same sample, no matter how the sample was gathered. Region 9 failed to explain why composite samples were needed for this purpose, and there is no valid scientific explanation for Region 9 taking such a position. CCH's ultimate goal for the supplemental studies was to determine whether Method 8270 was superior to Method 608 for dieldrin in CCH effluents, and as such, the sample type is not relevant because analytical performance is not expected to be related to sample type (grab versus composite). During the initial exploratory phase of the supplemental studies, grab samples were collected for the sake of expedience; later, composite samples were collected (14 of 20 total for Sand Island). Moreover, the analytical instrumentation does not "know" what type of sample it is being subjected to. Regardless of whether grab or composite samples were collected and analyzed, dieldrin was never detected using Method 8270, yet always detected using Method 608. That is the result that raised serious question about the measurements Region 9 relied on using Method 608, and that result has nothing to do with whether the samples were grab or composite.

In fact, dieldrin has never been detected in the CCH effluents using the more sensitive and selective analytical method used for the supplemental studies, whereas parallel analyses using Method 608 show consistent detections above the WQS. This discrepancy indicates that the results using the method specified by the permit are likely false positives. Region 9 has not effectively responded to this issue and needs to reconsider its position.[32]

2. Point Loma

Region 9's evaluation of dieldrin results from CCH should also be reconsidered in light of the Region's recent (December 2008) Tentative Decision for the Point Loma, California, wastewater treatment plant. (Exhibit D attached). For Point Loma, the maximum method detection limit (MDL) for dieldrin in effluent was reported to be 0.05 microgram per liter (µg/L), which was well above the applicable water quality standard for that state, and above the CCH permit limits based on the Hawaii water quality standards. As such, dieldrin has not been reported at detectable levels at Point Loma, and Region 9 was not concerned about the relatively high detection level. Specifically, Region 9 was willing to overlook this limitation because, with respect to several pollutants including dieldrin, "EPA determined that the applicant is using MDLs as sensitive as those prescribed under 40 C.F.R. § 136." Point Loma, Tentative Decision dated December 2, 2008, at 37-38 (Exhibit D attached).

A review of the results reported by CCH for dieldrin at Sand Island between 2000 and 2007 indicates that more than 88 percent of the reported levels that allegedly[33] exceed the water

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[32] Region 9 also asserted that states have discretion to incorporate conservative assumptions when adopting water quality standards for toxic pollutants. Response to Honouliuli Comment C25, at 34; Response to Sand Island Comment C29, at 25. But CCH was not asserting that the Hawaii water quality standards were wrong or unenforceable. It was asserting only that, because the Hawaii water quality standard was very low (and because of interfering substances in the effluents), special attention should be paid to the accuracy of the test methods used. Region 9's assertion that states have discretion to set strict standards has nothing to do with the issue CCH raised concerning the accuracy of the test method used to determine compliance with the standard.

[33] Per earlier argument, these readings are believed to be false positives.

quality standards are, in fact, reported at levels below 0.05 µg/L (*i.e.*, the MDL that Region 9 is using in its decision concerning dieldrin for Point Loma). Although the MDL reported by CCH is lower than that reported at Point Loma, the discrepancy points to an inconsistency in the expectations regarding analytical performance across the 301(h) program in Region 9. Region 9 overlooked analytical limitations for Point Loma in reaching its positive Tentative Decision, but it denied a variance for CCH based on levels that are not detectable by the method Region 9 approved at Point Loma.

The Point Loma Tentative Decision was handed down December 2, 2008, after close of the Sand Island and Honouliuli comment periods. We are proffering the decision as new evidence, because it raises an additional question with regard to Region 9's use of dieldrin testing results and is an additional reason Region 9 needs to reconsider its position.

Region 9 has said, in this case, that it is desirable to "avoid penalizing permittees which use laboratories that achieve unusually high precision in their toxicity tests." Response to Honouliuli Comment C31, at 51.[34] Granting, for the moment, Region 9's erroneous assumption that the test results Region 9 relied on to find dieldrin violations were precise, Region 9's reliance in this case on readings below the level of detection that the Region found acceptable for Point Loma penalizes CCH for using a laboratory that employed a more precise method than allowed for Point Loma. Given the discrepancy between the Point Loma Tentative Decision and the Final Decisions in this case, Region 9 needs to reconsider a result that would create an incentive for permittees to employ laboratories using less precise testing methods.

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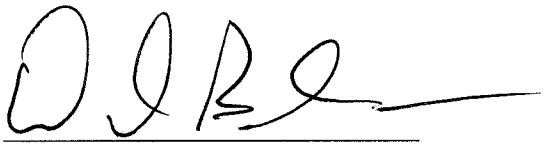
[34] While Region 9 made this comment with respect to WET testing, it is equally valid with respect to any other kind of testing.

CONCLUSION

For the foregoing reasons, Region 9's denial of variances for the Honouliuli and Sand Island plants should be reversed and the cases remanded for further proceedings.

RESPECTFULLY SUBMITTED March 11, 2009.



David Salmons
Robert V. Zener
BINGHAM MCCUTCHEN LLP
david.salmons@bingham.com
robert.zener@bingham.com
2020 K Street NW
Washington, DC 20006
202-373-6000
202-373-6001 (fax)

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing Supplemental Brief In Support Of Consolidated Petition For Review was sent by Federal Express to the below listed person on this 11th day of March, 2009.

Wayne Nastri
Regional Administrator
United States Environmental Protection Agency
Region 9
75 Hawthorne Street
San Francisco, CA 94105-3901

David Salmons