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SHVIR. APPEALS BOARD

July 15, 2009

### VIA HAND DELIVERY

Clerk of the Board Environmental Appeals Board U.S. Environmental Protection Agency 1341 G Street, N.W. Sixth Floor Washington, D.C. 20005

NPDES Appeal No. 09-01

Dear Clerk:

Enclosed for filing is an original and six copies of the Reply Brief in Support of Consolidated Petition for Review and Motion to Supplement Record on Appeal in the above-reference case, filed on behalf of the City and County of Honolulu.

Please date stamp and return a copy to the courier for our files. If you have questions, do not hesitate to contact me.

Sincerely yours,

Bryan M. Killian

Boston Hartford Hong Kong London Los Angeles New York Orange County San Francisco Santa Monica Silicon Valley Tokyo Walnut Creek Washington

**Enclosures** 

cc: All Counsel of Record

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# BEFORE THE ENVIRONMENTAL APPEALS BOARD UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, D.C.

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	) )

### MOTION TO SUPPLEMENT RECORD ON APPEAL

Petitioner City and County of Honolulu hereby moves to supplement the record on appeal by adding the following items:

- A. NPDES permits issued to the Kailua and Waianae Waste Water treatment plants in 1999 (attached as Ex. A to CCH's opening brief).
- B. Affidavit of Jeremiah Bishop (attached as Ex. B to CCH's opening brief).
- C. Declaration of Kenneth Tenno (attached a Ex. C to CCH's opening brief).
- D. Memorandum from Jacques Landy, Environmental Engineer Permits

  Issuance Section (W-5-1) and David Stuart, Life Scientist, Oceans & Estuaries

  Section (W-7-1) to File re: Deletion of Discharge Limitation for Flowrate from

Final Section 301(h) Modified NPDES Permit for the Honouliuli Wastewater Treatment Plant (Attach. 1 to this motion).

E. State of Hawaii, Act 126, 25th Legislature, 2009, signed by the Governor of Hawaii June 16, 2009 (Attach. 1 to CCH's reply brief); Testimony of Chiyome Leinaala Fukino, M.D., Director of Health (April 6, 2009) in support of SB, HD1 Relating to Water Quality Standards; and DHOH, Rationale for the Proposed Revisions to the Department of Health Water Quality Standards (March 18, 2009) (attachment to Ms. Fukino's testimony) (Attach. 2 to CCH's reply brief).

Items A, B and C should be admitted because they are necessary to answer arguments and assertions Region 9 first made in the Response to Comments it issued along with its final decisions on CCH's waiver applications. As such, these materials may appropriately be added to the record on appeal. *In re Dominion Energy Brayton Point, L.L.C.*, NPDES Appeal No. 07-01, slip op. at 15 (Sept. 27, 2007). Item D should be admitted because it describes the basis for a decision

<sup>&</sup>lt;sup>1</sup> CCH also included, as Exhibit D to its opening brief, Region 9's Tentative Decision regarding a 301(h) variance for Point Loma. In its Response to CCH's brief, Region 9 conceded that the Tentative Decision was issued after the close of the comment period in CCH's cases, and that the Region had considered the Point Loma Tentative Decision and included it in the administrative record (which was certified after CCH filed its supplemental consolidated brief). Region 9 Br. at 119, citing Doc. H.21.135; S.9.25. Because the Point Loma decision is already in the administrative record, it has not been included in this motion.

underlying an important feature of the current Honouliuli permit that is a central focus of CCH's appeal and is part of the administrative record. Doc. H.12.4. Item E should be admitted because the Hawaii legislation and supporting testimony are public documents subject to judicial notice, they were issued after the record in this case closed, and they are relevant to rebut statements made by Region 9 that its decisions enforce judgments made by the State of Hawaii concerning what is necessary to protect the health of the State's citizens.

# Exhibit A NPDES Permits for Other Treatment Plants in Hawaii

In its comments, CCH criticized Region 9's use of *T. gratilla* toxicity testing, pointing out that Region 9 did not consider the *T. gratilla* test sufficiently reliable to use it for compliance testing under the Sand Island permit. Sand Island Comment C32, at 32, Doc. S.1.5, p. S-01-152. In response, Region 9 asserted that "HDOH has routinely issued permits requiring WET compliance monitoring using *T. gratilla*, including at CCH facilities such as the Kailua and Waianae WWTPs." Response to Sand Island Comment C32, at 33, Doc. S.1.5, p. S-01-153.

In its opening brief, CCH proffered, as Exhibit A, four permits issued to the dischargers first mentioned in Region 9's Sand Island Response To Comments.

CCH Br. at 40 n.23 and Ex. A. CCH explained that it proffered these permits

because "Region 9's assertion purported to make other permits relevant for the first time." CCH Br. 40. CCH then demonstrated how the permits were inconsistent with Region 9's description of them and, therefore, undermined the foundation of Region 9's response to CCH's initial criticism. CCH Br. at 40 n.23.

In these circumstances, it is appropriate to supplement the administrative record with the permits in Exhibit A to CCH's opening brief. "[T]he appellate review process can serve as a petitioner's first opportunity to question the validity of material added to the administrative record in response to public comment . . . . In such cases, where a petitioner submits documents in response to new materials added to the record by the Region in response to comments . . ., and where the Board's task is to review the record and the Region's rationale for its final decision, it seem logical if not necessary that the Board consider the petitioner's proffer of evidence in support of its assertion that the Region's conclusions are erroneous or that the Region erred in failing to take into account such materials. For this reason, among others, we have in the past considered such newly submitted materials in the course of evaluating the merits of a petition." In re Dominion Energy Brayton Point, L.L.C., slip op. at 15.

Indeed, by its own actions, Region 9 has effectively conceded the admissibility of the four permits. Since CCH filed its opening brief, Region 9 included two of the permits -- the 2004 Waianae Permit and the 2006 Kailua

Permit -- in the administrative record it filed with the Court. Doc. H. 9.3; Doc. S. 9.1. Region 9 did not include the antecedent 1999 Waianae Permit and the 1999 Wailua Permit. But there is no sound reason to include only the most recent permits, so the Court should order the preceding permits to be part of the record as well.

# Exhibit B <u>Affidavit of Jeremiah Bishop</u>

In the comment period, CCH contended that the test method used by Region 9 to report dieldrin violations probably registered false positives, because it utilized gas chromatography/electron capture detection ("GC/ECD"), a technique CCH argued was unreliable at the levels involved here. To support that assertion, CCH reported that it had tested split samples, utilizing the GC/ECD technique also utilized by Region 9, for one half of each sample. For the other half of each sample CCH reported that it used another method involving gas chromatography/mass spectrography ("GC/MS"), which CCH argued was more accurate at these levels. The results were that the GC/ECD technique Region 9 had used reported substantial levels of dieldrin while the GC/MS testing reported none. Sand Island Comment C29, at 24 - 25, Doc. S.1.5, pp. S-01-144 - S-01-145; Honouliuli Comment C25, at 33 - 34, Doc. H.1.5, pp. H-01-193 - H-01-194. CCH

argued that these results indicated that the test results relied on by Region 9 were probably false positives.

In its Response to Comments, Region 9 responded that the GC/ECD testing it had relied on had been approved by EPA, while the GC/MS test CCH ran had not. Further, Region 9 stated that EPA had also approved a GC/MS test method that CCH had not utilized. This was important, Region 9 argued, because there were significant differences between the GC/MS test CCH had run (Method 8270) and the GC/MS test EPA had approved (Method 625). Response to Honouliuli Comment C25, at 35, Doc. H.1.5, p. H-01-195; Response to Sand Island Comment C29, at 26-27, Doc. S.1.5, pp. S-01-146 - S-01-147.

In its opening brief, CCH answered the new argument Region 9 made in its Response to Comments by proferring the affidavit of Jeremiah Bishop, the chemist who had conducted the GC/MS testing CCH had run on the split samples. Mr. Bishop explained that, as allowed by Method 8270, he utilized testing techniques that were identical to those prescribed by Method 625 (the EPA-approved GC/MS test), with the result that the differences described in Region 9's comments were eliminated. Mr. Bishop also explained that Region 9's critique of Method 8270's appropriateness for multicomponent analytes was not relevant here, because dieldrin is not a multicomponent analyte.

Because Mr. Bishop's affidavit addressed an argument first made by Region 9 in its Response to Comments, admitting the affidavit in the record is appropriate under In re Dominion Energy Brayton Point, L.L.C., slip op. at 15. Region 9's brief argues that Mr. Bishop's affidavit, while correct in some respects, does not fully answer all its concerns about use of the Method 8270 test. But that argument goes to the merits, not admissibility. Region 9 also argues that Mr. Bishop's affidavit is late, because CCH should have anticipated Region 9's objections and addressed them in the comment period. But that is an exercise in 20/20 hindsight. CCH could not reasonably have foreseen the ways in which Region 9 would respond to its comments. For example, Region 9 concedes, as Mr. Bishop points out, that one of the objections it made was an outright error; Region 9 concedes that dieldrin is not a multicomponent analyte and that, therefore, its rejection of Method 8270 as unsuitable for multicomponent analytes was utterly irrelevant. Region 9 Br. 121. CCH was not obligated to foresee that Region 9 would make such a mistake. But in Region 9's view, CCH should have imagined all the innumerable ways Region 9 could have fallaciously responded to CCH's comments and rebutted all of them in advance.

# Exhibit C <u>Declaration of Kenneth Tenno</u>

In addition to questioning the appropriateness of CCH's use of Method 8270, Region 9's Response to Comments also argued that it had not been given sufficient material to determine whether CCH had actually used split samples, as it claimed. Response to Honouliuli Comment C25, at 36, Doc. H.1.5, p. H-01-196. The Declaration of Kenneth Tenno responds to Region 9's concern.

In its brief, Region 9 argues that CCH should have anticipated this objection and furnished this information with its comments. But test results are frequently submitted without backup laboratory data sheets and custody forms. The laboratory material is, of course, preserved, so that it is available if the agency has questions and wants to see the back-up data and forms. For example, the Sand Island Permit requires the permittee to submit "[t]he results of all monitoring" required by the permit. Doc. S.12.2, p. S-12-153. The permittee must retain backup data for 3 years (5 years for some types of data), and make that data available to the State or EPA on request. Doc. S.12.2, p. S-12-186 - S-12-187 (Standard NPDES Permit Conditions). The Honouliuli permit is similar. H.12.4, pp. H-12-1203, H-12-1207 - H-12-208. By initially submitting only the test results, while retaining the back-up data in case Region 9 requested it, CCH was merely following accepted practice.

#### Other Material

### 1. Region 9 Memorandum

CCH's opening brief also referred twice to an undated Region 9 memorandum, apparently written in April, 1991,<sup>2</sup> relating to the NPDES Permit the Honouliuli plant received May 3, 1991. (That permit is currently in effect. While it expired by its terms in June, 1996, it has been administratively extended since that date. Region 9 Br. at 18.) A copy of the memorandum is attached to this motion. (Attach. 1).

The memorandum, written by two Region 9 staff members for the file, explains "the background to EPA's decision [concerning one aspect of the permit], the water quality impacts that may be expected as a result of it, and the regulatory basis for it." Attach. 1, at 1. It describes the basis for the Region's decision to remove a maximum hourly flow limitation that had been in the draft permit. As part of that decision, the Region had to address whether "the Honouliuli discharge [will] meet all other Hawaii water quality standards in the receiving water at the new projected flow rates." Attach. 1 at 3. It was in that context that the memorandum made the two statements quoted in CCH's opening brief regarding compliance with the bacteria standards. Attach. 1 at 4-5, quoted in CCH Br. 36 n.22, 55 n.30. Thus, the memorandum is not merely a part of the Region's internal

 $<sup>\</sup>frac{2}{3}$  The date "4/11/91" is inked in the upper right-hand corner of the first page.

deliberations; it describes the agency's decision. Compare In re Dominion Energy Brayton Point L.L.C. (formerly USGen New England), Brayton Point Station, 12 E.A.D. 490, 524-25 (EAB 2006).

While the memorandum describes the basis for the Region 9's decision to issue Honouliuli's current permit, rather than the Region 9's decision to deny a 301(h) variance now before the Court, the Region's previous decision is relevant for two reasons. First, it shows why CCH did not have to propose disinfection before the Sand Island monitoring results were in. The memorandum supports CCH's argument that "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." CCH Br. at 36. Second, the memorandum shows why Region 9's use of single samples to indicate violations of the geometric mean standard was arbitrary and capricious. As discussed in CCH's brief, the memorandum relates Region 9's previous understanding, on which CCH relied, that multiple samples were required. CCH Br. at 55 n.30.

Admission of the memorandum is appropriate. The administrative record must consist of "the evidence relied upon and the evidence discarded." Ohio Valley Envtl. Coal. v. Aracoma Coal Co., 556 F.3d 177, 192 (4th Cir. 2009) (emphasis added); Ethyl Corp. v. EPA, 541 F.2d 1, 36 (D.C. Cir. 1976) (en banc) (emphasis added). The document is in the agency files, is pertinent, and is not

covered by privilege. In these circumstances, "those challenging informal agency action [do not] have the burden of assuring that the agency considers its own records and documents." *Am. Petroleum Inst. v. Knecht*, 456 F. Supp. 889, 910 (C.D. Cal. 1978), *aff'd* 609 F.2d 1306 (9th Cir. 1979). The memorandum thus is part of the administrative record.

### 2. Recent Hawaii Legislation and Supporting HDOH Testimony

On June 16, 2009, the Governor signed legislation that, among other things, changes Hawaii's water quality standard for chlordane to conform to the EPA Criteria, and to extend Hawaii's water quality standards for bacteria but limit their depth to 33 meters. We have appended to the CCH Reply brief a copy of that legislation (Attach. 1) and a copy of the Director of the Hawaii Department of Health supporting the legislation, and a memorandum from the HDOH explaining its judgment that these changes are consistent with public health with an adequate margin of safety. (Attach. 2).

These are public documents of which judicial notice may be taken. They were issued after the comment period, and they are relevant to the Region's claim that its decision is necessary to enforce Hawaii's judgment concerning protection

of Hawaii citizens. Accordingly, they are appropriate for inclusion in the record.

Respectfully submitted July 15, 2009.

Respectfully submitted,

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Dated: July 15, 2009



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

75 Hawthorne Street San Francisco, Ca. 94105 discussion of new WET limits, basel on new dilution of Isomple luss of Isomple luss

#### MEMORANDUM

SUBJECT: D

Deletion of Discharge Limitation for Flowrate from Final Section 301(h) Modified NPDES Permit for the

Honouliuli Wastewater Treatment Plant

FROM:

Jacques Landy, Environmental Engineer

Permits Issuance Section (W-5-1)

David Stuart, Life Scientist Oceans & Estuaries Section (W-7-1)

To: File

EPA has decided to remove the maximum hourly flow limitation of 1.43 m³/sec (32.6 MGD) from the final 301(h) permit for the Honouliuli WWTP. The remaining discharge limitations contained in the July 21, 1988 draft 301(h) permit, including mass emission rate (MER) limits for biochemical oxygen demand (BOD) and suspended solids (SS), will remain in the final permit. Following is a discussion of the background to EPA's decision, the water quality impacts that may be expected as a result of it, and the regulatory basis for it.

#### Background:

In a letter to EPA dated June 22, 1989, the Hawaii Department of Health stated that the Honouliuli 301(h) waiver request should be approved up to the 25 MGD flowrate limit requested in Honolulu's application. DOH further recommended that all additional flows be treated to secondary treatment levels, and requested that EPA review the feasibility of disposing of the additional increment of secondary effluent through the Honouliuli outfall.

A follow-up DOH letter to EPA dated March 28, 1990, rescinds the June 22, 1989, letter. In this letter, DOH states: "The final determination on the proposed Section 301(h) modified permit should be based on the mass emission rate calculated at the 25.08 MGD flows, but without any enforceable limit for maximum flow." Thus, primary treated effluents would be permitted to be discharged from the Honouliuli outfall above the flowrate limit

contained in the draft 301(h) permit, so long as permitted mass emission rates of BOD and SS continue to be achieved. The DOR letter further states: "EPA and State enforcement actions would be prompted if these mass emission rates are exceeded."

In response to the March 28, 1990, DOH letter, EPA decided to investigate the water quality impacts of discharging higher flowrates than an annual average of 25.08 MGD from the Honouliulicutfall. The flows of 25.08 MGD had formed the basis for EPA's technical evaluation and tentative approval of the Honouliuli 301(h) waiver application. On May 15, 1990, EPA obtained from Honolulu revised flowrate projections for the Honouliuli WWTP through 1995, the end of the 301(h) permit period under consideration. On November 1, 1990, and November 13, 1990, EPA's Office of Research and Development facility in Newport, OR, transmitted to EPA-9 the results of water quality models conducted with the new effluent flow projections. Upon further analysis of the modeling results by EPA-9, the projected 1995 Honouliuli discharge was determined to comply with section 301(h) criteria, including applicable State water quality standards. Results of EPA's analysis of water quality impacts of the 1995 Honouliuli discharge are discussed further below.

Water Quality Impacts of Higher Plows:

Will the Honouliuli discharge meet Hawaii light transmittance standards in receiving water at the new projected flow rates?

Since the applicant will be operating the Honouliuli WWTP at the present (post-December 1984) treatment level and future peak flows can be estimated from the projected annual average flows, compliance with Hawaii water quality standards for light transmittance at the 1995 end-of-permit term can be predicted, assuming that turbidity levels observed at Station 5 (closest to the outfall) since 1986 are conservative ambient values. Initial dilutions were recalculated using the EPA-approved model UPLUME, the 1995 end-of-permit-term maximum 3-hour flow of 2,036 m<sup>3</sup>/sec (46.46 MGD), and various density profiles submitted by the applicant.

The maximum increase in turbidity under the most critical receiving water conditions is calculated using the equation in the EPA Technical Support Document (TSD):

$$T_f = (T_e - T_a)/S_a$$

where:

T<sub>f</sub> = maximum increase in turbidity at completion of initial dilution, NTU

Te = peak effluent turbidity, 74 NTU (see revised application Table IIIB-4.3)

 $T_a = \text{peak ambient turbidity, 0.16 NTU (see Figure 3)}$ 

S<sub>a</sub> = predicted critical initial dilution, 127 (see Frick, W., Nov. 1, 1990, personal communication)

Thus, the  $T_f=0.58$  NTU. When added to the peak "natural" turbidity recorded since 1986  $(T_a)$ , the total turbidity of the receiving water under the worst-case scenario is projected to be 0.74 NTU, or 0.26 NTU below the "not to exceed at any time" "dry" limit of 1.0 NTU. The EPA came to the same conclusion in the 1988 TDD  $(p.\ 21)$ , but using the "wet" standards. In the original calculations, EPA accepted certain peak 1981 turbidity data measured prior to the installation of the Honouliuli discharge  $(-1.00\ NTU$  at Barbers Point). However, as subsequently noted, these 1981 data (Tetra Tech, Inc. 1987, Table 6) were limited to brief episodic events and "should not be construed as possible worst-case conditions under predischarge ... scenarios" (Tetra Tech, Inc. 1987, p. 20). Thus, EPA erred in its original inputs to the above equation, but came to the correct conclusion using a different standard classification.

Hawaii light transmittance standards are also expressed in light extinction coefficient limits, but since there are no effluent data for this parameter, no prediction can be made based on future effluent flows. However, since the peak light extinction coefficient in the receiving water since 1986 (0.06 k, see Figure 4) is only 0.11 of the "not to exceed any time" "dry" limit (0.55 k), it is reasonable to presume peak flows by the end of permit term will not result in exceedances of this upper "dry" limit.

Therefore, EPA predicts that, under the most critical conditions of stratification during the plume height-of-rise, the projected Honouliuli discharge will meet the Hawaii light transmittance standards in the receiving waters.

Will the Honouliuli discharge meet all other Hawaii water quality standards in the receiving water at the new projected flow rates?

#### Dissolved Oxygen Concentration

EPA Region 9 recalculated the dissolved oxygen concentration (DO) for the fall (most critical) period immediately following initial dilution to be 6.16 mg/L, using an ambient DO concentration at the trapping level (6.26 mg/L), a negligible effluent DO concentration, an immediate dissolved oxygen demand of 7.0 mg/L, a predicted minimum initial dilution of 127, and the equation in the EPA Technical Support Document (TSD). Using another equation (Baumgartner 1981), the percent DO depression attributable to the effect of the wastewater was calculated to be 1.7%. Therefore, the DO depression after initial dilution will meet the Hawaii 25% depression limit. DO depressions due to BOD exertion in the farfield, steady-state oxygen demand or abrupt sediment resuspension

are not affected by increased flows only and will therefore remain unchanged from values calculated in the Tentative Decision Document (TDD).

#### o pH Change

The change in the pH following initial dilution was recalculated using the model described in the TSD. The projected increase in effluent flow and consequent change in minimum initial dilution did not result in a maximum change in pH different from that calculated in the TDD. Therefore, no violation of receiving water pH standards will occur.

#### o Recreational Impacts

In the revised 301(h) application, the applicant analyzed recreational impacts solely on the basis of fecal coliform bacteria concentrations. Subsequently, Hawaii bacterial indicator standards have changed. The new State standard, applicable within 305 m (1,000 ft) of shoreline, is contained in the final Honouliuli 301(h) permit: "the enterococci content shall not exceed a geometric mean of 7 colonies/100 mL in not less than 5 samples equally spaced over a 30-day period."

EPA recalculated the bacterial indicator concentrations using the new enterococci standard stated above and peak flow projections for 1995 (Frick, W., 13 November 1990, personal communication). The calculations, based on a model described in the Honouliuli Technical Review Report (TRR) (Tetra Tech, Inc. 1987), were performed on several different combinations of conditions at the projected 1995 peak flow of 46.46 MGD:

The first scenario assumes the "worst case" conditions, which include an estimated initial dilution of 127 for a nonsurfacing plume in a stratified water column and at nighttime. This data is entered into the computer model with the given inputs of a geometric mean of enterococci concentrations (4.1 X 105 colonies/100 mL) from recent (7/19/88 to 12/28/88) effluent data provided by the applicant, a farfield dilution factor of 2.40, a travel time of 5.4 hours to reach the CB3 and CB4 nearshore monitoring stations, and the same procedure established in the 1987 Honouliuli TRR. The result is a final receiving water concentration of 801 colonies/100 mL, well over the limit where the standard applies. The die-off time  $(T_{90})$  required, as a function of initial dilution of the effluent concentration, to exceed the 7 colonies/100 mL standard would be 2 hours 22 minutes. This is considerably less than the required  $T_{90}$  (24 hours) estimated for enterococci to be exposed to sea water during nighttime conditions (Fujioka, R., 8 November 1990, personal communication) and indicates that violations of the standard could take place under these most conservative conditions. However, the probability of all of the above oceanographic and atmospheric conditions occuring 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.

Another scenario assumes all the above conditions but substitutes mid-day sampling. In this case, the result is 5.4 X  $10^{-3}$  colonies/100 mL, which is considerably below the State geometric mean of 7 colonies/100 mL. Now, the  $T_{90}$  of 2 hours 22 minutes required to meet the 7 colonies/100 mL standard is more than twice the minimum time (1 hour) required to kill-off enterococci in seawater during daylight conditions (Fujioka, R., 8 November 1990).

The final scenario describes the "usual case" assumptions. In this case, there is a surfacing plume in an unstratified water column which allows an initial dilution of 889 and daylight sampling conditions. Using the other default inputs above, a final receiving water concentration of 7.7 x 10<sup>-4</sup> colonies/100 mL will result. At this dilution, the minimum T<sub>90</sub> required to exceed the 7 colonies/100 mL standard would then be 3 hours and 45 minutes. This is considerably longer than the 1 hour estimated T<sub>90</sub> for enterococci during daylight hours in Hawalian offshore waters and represents a comfortable margin of safety under the usual conditions

Thus, the conclusions drawn for the enterococci indicator species at the new projected flow rates are the same as those that were developed in the 1987 TRR for fecal coliforms at the projected 1993 flow rates. Exposure to solar insolation appears to be the most critical determining factor for meeting State bacterial standards. Based on several of the most conservative assumptions, the Hawaii bacterial standards may be exceeded at stations when samples are taken under nighttime, early morning, or very cloudy conditions. However, it should be noted that many of the other worst case assumptions used in this model are extremely rare such as, zero ambient current and the use of constant onshore current speeds for calculating travel times, farfield dilutions, and bacterial die-off rates. Without a better understanding of nearshore circulation patterns it is impossible to estimate how all these factors will affect the final enterococci concentrations.

The most current data, reported from the existing nearshore monitoring station (Station 10) during daytime hours, indicate only one exceedance of the enterococci standard since monitoring for this indicator began in April 1987. Nevertheless, 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.

In summary, the Honouliuli discharge is expected to meet all Hawaii water quality standards at the requested new end-of-permit effluent flow rates.