

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 9
75 Hawthorne Street
San Francisco, CA 94105**

**Response to Comments
from the Public**

**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**

January 5, 2009

Response to Comments from the Public on Sand Island TDD

This document responds to all the comments received on the Sand Island tentative decision except for those from the City and County of Honolulu. A separate document responds to CCH's comments. The names of the commenters and their identifying numbers are listed at the end of this document. Each comment in this document is given a number with the prefix "P." Comments in the Response to Comments from CCH document are given numbers with the prefix "C." Any reference in this document to "public" comments should also be interpreted to include the comments submitted by CCH.

Note: Various commenters refer to a section 301(h) "waiver," whereas EPA uses the term "variance." In the context of the Sand Island decision and response to comments document, these terms can be considered interchangeable.

Comment P1: The impacts associated with upgrading to secondary treatment need to be evaluated and considered in whether to grant a variance. An EIS should be prepared to evaluate upgrading to secondary treatment and alternative options.

Commenter: 68

Response: EPA's decision at hand is whether or not CCH should receive a variance under section 301(h) of the CWA. The criteria for making this decision do not include the type of evaluations the commenters propose. An EIS evaluating treatment plant upgrades is neither necessary nor appropriate in determining whether a variance under section 301(h) of the CWA should be granted. Pursuant to section 511(c) of the CWA, most EPA actions under the CWA are exempt from NEPA. When Congress enacted section 301(h), it set specific criteria for allowing a variance from secondary treatment requirements, and did not require a balancing of other factors, as was done, for example, for a different kind of variance under CWA section 301(m). Nor would such a balancing be appropriate under section 301(h), since variances cannot be allowed unless all the requirements of the section are met. Regarding potential negative impacts from secondary treatment, please see responses to comments P4 and P44. It is EPA's intent to share lessons learned from experience across the nation to ensure that CCH is aware of environmentally sound technologies available to minimize any unintended negative impacts and maximize benefits from treatment plant upgrades.

Comment P2: Upgrading the treatment plant will not "solve the problems" with the Sand Island treatment plant.

Commenter: 68

Response: EPA doesn't agree with the commenters' assertions. However, at this time it is premature to debate the details on how the Sand Island WWTP will perform upon upgrading to secondary treatment. Moreover, the question of the effectiveness of secondary treatment with

respect to specific pollutants is not within the scope of a 301(h) variance decision. POTWs are required to utilize secondary treatment unless an ocean discharge meets all of the 301(h) criteria. Full secondary treatment should reduce the toxicity of Sand Island's effluent, which currently is at levels risky to aquatic organisms, and the concentrations of chlordane and dieldrin in the effluent, which are exceeding water quality standards established to protect human health from ingestion of carcinogens through fish consumption. Once secondary treatment is in place, refinements to treatment processes may be necessary in order to meet water quality standards.

Comment P3: Treatment plant upgrades will divert funds from CCH's collection system upgrades.

Commenter: 68

Response: This comment is not germane to the determination of whether EPA may grant a variance under section 301(h) of the CWA. The question of whether there are valid competing priorities is not one of the 301(h) criteria. As a practical matter, EPA recognizes that there are numerous priorities when it comes to upgrading CCH's wastewater system. Addressing the risk of sewage spills from CCH's collection system is one of EPA's highest priorities. All priorities will be considered when comprehensive schedules are developed for necessary upgrades to CCH's collection system and treatment plants.

Comment P4: Operation of the secondary facility will have negative environmental impacts, including greenhouse gas emissions produced in generating electricity, and gases produced by wastewater degradation. Organics that are removed and not oxidized are removed as biosolids and will eventually degrade to produce carbon dioxide.

Commenter: 68

Response: EPA's decision at hand is whether or not CCH should receive a variance under section 301(h) of the CWA. The 301(h) criteria do not include consideration of the air emissions from secondary treatment operations. However, it is EPA's objective to minimize any negative impacts and maximize benefits that might result from plant upgrades required by the CWA. With respect to greenhouse gas emissions, there will be options to reduce emissions by methods such as those in the December, 2006 EPA document, "Opportunities for and Benefits of Combined Heat and Power at Wastewater Treatment Facilities." It is EPA's intent to share lessons learned from experience across the county to ensure that CCH is aware of environmentally sound technologies available to minimize any unintended negative impacts from treatment plant upgrades. See also response to comment P44.

Comment P5: No benefits will be realized as a result of an upgrade to secondary treatment.

Commenter: 68

Response: EPA does not agree with the commenters' assertions. However, at this time it is premature to debate the details on how the Sand Island WWTP will perform upon upgrading to secondary treatment. Moreover, the question of the effectiveness of secondary treatment is not within the scope of a 301(h) variance decision. POTWs are required to utilize secondary treatment unless an ocean discharge meets all of the 301(h) criteria. With this in mind, it's worth noting that full secondary treatment should reduce the toxicity of Sand Island's effluent, which currently is at levels risky to aquatic organisms, and the concentrations of chlordane and dieldrin in the effluent, which are exceeding water quality standards established to protect human health from ingestion of carcinogens through fish consumption. Refinements to treatment processes may be necessary in order to meet water quality standards.

Comment P6: EPA actions are fragmented, and don't look at the greater environmental good. EPA's Science Advisory Board (SAB) concluded in 1990 that U.S. environmental policy is focused and fragmented. The commenters cite recommendations from an SAB report as an improved means for addressing risks. Granting the waiver would be consistent with the CWA, the SAB report, and state and national environmental policies.

Commenter: 68

Response: EPA disagrees that the approach to the CCH wastewater problems is fragmented. In addition to addressing the problems with the Sand Island treatment plant, EPA has taken enforcement actions to address the shortfalls in CCH's collection system, and considers improving the collection system to be a priority. Opportunities to reduce greenhouse gas emissions and energy use will be made available during the design of the secondary treatment process. EPA has reviewed the SAB report cited by the commenters and notes that one of the SAB report's recommendations is that it is important to address risks to the nation's natural ecosystems, such as oceans. The report states that these ecological systems have "limited capacity for absorbing the environmental degradation caused by humans." The report goes on, "Although ecological damage may not become apparent for years, society should not be blind to the fact that damage is occurring, and the losses will be felt, sooner or later, by humans. Moreover, when species and habitat are depleted, ecological health may recover only with great difficulty, if recovery is possible at all." EPA's approach in the Sand Island decision is to consider risks to ecological health using not only biological data but also whole effluent toxicity data and chemical-specific water and sediment quality data, rather than simply waiting for documentation of species and habitat depletion. This approach is consistent with the CWA, the SAB report, and state and national environmental policies

Comment P7: A white paper is attached which presents three alternatives to EPA's tentative denial. These are: 1. variance granted for present plant, 2. variance denied, treatment plant upgraded to secondary treatment, and 3. variance granted and outfall extended.

Commenter: 68

Response: EPA has reviewed and considered the commenters' alternatives analysis. Responses to specific aspects of this analysis are included as responses to separate comments below. However, it is important to recognize up front that EPA does not have the legal authority to substitute this alternative analysis approach for the statutory criteria contained in 301(h). Decisions on whether variances from secondary treatment may be granted must be made based on the 301(h) criteria.

Comment P8: A Background section cites the provisions of section 301(h), information about CCH's application for a renewed variance from secondary treatment, and a summary of EPA's Findings, Conclusion and Recommendation.

Commenter: 68

Response: EPA does not disagree with the presentation of this background information.

Comment P9: A section entitled "SIWWTP Treatment System and Receiving Waters" describes the Sand Island treatment plant, tabulates TSS and BOD removal rates, and describes the outfall in the ocean waters of Mamala Bay.

Commenter: 68

Response: EPA does not disagree with this summary.

Comment P10: It is noted that EPA found that the discharge cannot consistently achieve the water quality standards for Whole Effluent Toxicity (WET). CCH permit requires monitoring for chronic toxicity by exposing two test organisms, *Ceriodaphnia dubia* (a freshwater water flea) and *Tripneustes gratilla* (a Hawaiian sea urchin). Testing has shown that WET test results consistently meet the water quality standards for *C. dubia*, but do not meet the water quality standards for *T. gratilla*. The commenters believe *T. gratilla* is an inappropriate species to use given that the test method has not been approved. They allege that the reason the test has not been approved is because this test method would not pass the approval process. These tests have high failure rates indicating problems with the test.

Commenter: 68

Response: The commenter is correct that the Sand Island discharge passes testing performed with *C. dubia*, and fails testing done with *T. gratilla*. As further background, toxicity testing is performed across the nation to determine if wastewater effluent is harmful to aquatic life. EPA's regulations list a number of specific species which may be used for this testing, and provide that other species may be used if they are selected and approved by the State implementing the NPDES program. While the mainland fresh water flea, *C. dubia*, is on the list of approved species, the State of Hawaii and EPA desired to also utilize a Hawaiian marine species to determine whether there are impacts on local aquatic life. The HDOH, EPA's Office of

Research and Development, and EPA Region 9 scientists jointly selected *T. gratilla* as a representative, local species appropriate for this testing. This species has been used in Hawaii's permits for over 10 years. EPA intends to add the *T. gratilla* method to *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* (EPA/600/R-95/136, August 1995; West Coast manual), but the update has taken longer than anticipated. The delay with revising the West Coast manual is due to a lack of staff time at EPA to complete the necessary edits, it is not because of any problems with the *T. gratilla* method. See also response to comment C31. In commenting on "high failure rates" the commenters seem to be implying that the failure of the Sand Island effluent to pass WET tests using *T. gratilla* is unrelated to toxic impacts caused by exposure to wastewater, but is instead caused by the test method itself. However, other marine water dischargers in Hawaii, including POTWs utilizing secondary treatment operated by CCH, are passing WET tests using *T. gratilla*. If the test method were the cause of the effects, it would not be possible for other dischargers to pass this test. See also response to comment C37.

Comment P11: Chlordane/Dieldrin - It is noted that EPA has found that the discharge may adversely affect fishing due to toxic pollutants in the effluent. Background information is provided on the historical use of chlordane and dieldrin for pest control. They are resistant to biodegradation, and leach into groundwater. CCH's collection system has many deficiencies, including degraded pipe which has resulted in a large volume of ground water infiltrating into the collection system. This ground water carries pesticides. The commenters believe that repairs to the collection system will result in decreases to the amount of pesticides entering the system over time, however chlordane and dieldrin will be present in wastewater for many years. Secondary treatment will not effectively remove these pesticides. Removal will occur via settling in sludge, thus limiting biosolids reuse potential. If pesticide-contaminated biosolids are applied to land, leaching will occur, and recontaminate ground water, starting the cycle again. 1993 data indicating the presence of chlordane in fish tissue should be treated as history and not used in decision making. EPA's concerns with these pesticides in the discharge are misplaced, as nonpoint source and storm water discharges containing these pesticides likely pose a greater risk to fisherman.

Commenter: 68

Response: EPA does not disagree with the description of how pesticides most likely are entering CCH's collection system. However, based on the scope of the deficiencies in CCH's collection system, and the need to address sewer pipes throughout the system, we are not optimistic that collection system repairs will result in significant declines in pesticide levels anytime in the near term. EPA does not necessarily agree that secondary treatment will not remove these pesticides. Although there is little data on the relative removal efficiencies of primary and secondary treatment for these pesticides, chlordane and dieldrin are hydrophobic and would be expected to adhere to solids in the wastewater. Secondary treatment removes additional solids in the wastewater and EPA believes it would therefore remove more chlordane and dieldrin than primary treatment alone. However, at this time it is premature to debate how the Honouliuli plant will perform after it is upgraded to full secondary treatment. If pesticides removal does result in increased levels of pesticides in biosolids, this will need to be taken into

account in determining the disposition of these biosolids. Moreover, the question of the effectiveness of secondary treatment with respect to a specific pollutant is not within the scope of a 301(h) variance decision. POTWs are required to utilize secondary treatment unless it can be demonstrated that an ocean discharge from the POTW meets all of the 301(h) criteria. Once secondary treatment is in place, refinements to treatment processes may be necessary in order to meet water quality standards. Although, based on the limited data available, EPA is not concluding that the results of fish tissue analyses point to adverse impacts from the discharge, regardless of whether there are elevated levels of chlordane in fish tissue, one of the 301(h) requirements is that the discharger must demonstrate that the State water quality standards will be met under a 301(h) modified permit. With respect to chlordane, based on the data submitted in CCH's application, and more recent effluent monitoring data submitted to EPA by CCH since the tentative decision, exceedances of the Hawaii water quality standard for chlordane have occurred. The question of whether there are other sources of these pesticides is not germane to the 301(h) decision. Under EPA's regulations at 40 CFR 125.62(f), an applicant must demonstrate compliance with various 301(h) criteria not only on the basis of the applicant's own discharge, but also taking into account the applicant's discharge in combination with pollutants from other sources. This is also spelled out in parts of section 301(h) itself. However, it should not be perceived that other sources of pesticides are not a priority. For example, the management of particulate-laden storm water is required pursuant to storm water permits issued by Hawaii Department of Health, including CCH's Municipal Separate Storm Sewer System permit.

Comment P12: EPA improperly evaluated ammonia data in concluding that the state water quality standard is exceeded. Ammonia concentrations should not be considered at each station separately. If mixing were properly considered, ammonia would not be considered a problem.

Commenter: 68

Response: The water quality standards must be met at all monitoring stations at and beyond the ZID. Averaging results from all stations does not ensure that the criteria are met at all stations. Averaging data from stations affected by the discharge with stations not impacted by the discharge could mask an adverse effect of the discharge. Not only were there exceedances at individual stations and depths, but there were also exceedances of the geometric mean criterion in some years when all depths were combined at each individual ZOM station, as discussed on page 54 of the Sand Island tentative decision.

Comment P13: Hawaii's Water Quality Standard for Ammonia – Rather than having a standard for ammonia, the relevant standard should be expressed in terms of total nitrogen. The State of Hawaii must comply with the requirement to conduct triennial reviews of state standards. If this review had been done properly, the state would have eliminated their ammonia standards in place of a total nitrogen standard.

Commenter: 68

Response: EPA's review of a 301(h) application must apply and assess the criteria that are contained in the Hawaii water quality standards at the time of the 301(h) review. The commenter is correct that states must conduct reviews of their water quality standards on a triennial basis. The triennial review process includes opportunity for public input. EPA will provide HDOH with a copy of this response to comments for their consideration. EPA recommends that, if the commenter believes that the current standards should be revised, the commenter should submit comments to HDOH during the next triennial review.

Comment P14: Based on an April, 2007 Supreme Court ruling, greenhouse gases are pollutants under the Clean Air Act and EPA must consider CO₂ emissions in its variance decision.

Commenter: 68

Response: EPA does not agree that CO₂ emissions must be considered in the variance decision. Rather, a variance cannot be granted unless all the criteria of section 301(h), which do not include evaluations of emissions from secondary treatment process, are met. However, this does not mean that EPA is not concerned about the potential for increased CO₂ emissions. It is EPA's objective to minimize any negative impacts and maximize positive benefits from plant upgrades required by the CWA. With respect to CO₂ and other greenhouse gas emissions, there will be options to reduce emissions by methods such as those in the December, 2006 EPA document, "Opportunities for and Benefits of Combined Heat and Power at Wastewater Treatment Facilities." It is EPA's intent to share lessons learned from experience across the county to ensure that CCH is aware of available environmentally sound technologies.

Comment P15: A cost estimate was done by Hawaii Pacific Engineers. The study estimated a capital cost for upgrading the Sand Island WWTP to secondary treatment as \$453M in 2003 dollars. Annual O&M costs were estimated as \$14.6M, based on operation at the 90 mgd design capacity. Costs may be significantly higher in today's dollars, given increasing energy costs. These costs should be considered in EPA's decision on whether to issue a renewed variance.

Commenter: 68

Response: The consideration of cost was also recommended in CCH's comments on the Sand Island TDD. More detail can be found in the response to comment C72, but to summarize, financial considerations are not included in the statutory criteria listed in section 301(h) of the CWA. In the case of the Sand Island facility, water quality standards are not being maintained, and the statutory criteria in section 301(h) of the CWA are not being met. The statute is clear that unless the specified criteria, which do not include cost considerations, are met, a variance from secondary treatment may not be granted by EPA.

Comment P16: Given that none of the [three] alternatives [discussed by the commenters] will meet the water quality standards for chlordane and dieldrin, the question of addressing them

should be tabled and not used in the decision process. It is a higher priority to address these pesticides in nonpoint source and storm water discharges.

Commenter: 68

Response: It is not an option to table the consideration of specific pollutants in determining whether a discharge meets the criteria of 301(h). Pursuant to the CWA, EPA must make conclusions on whether the discharge will achieve water quality standards. The question of whether there are other sources of these pesticides is not germane to this decision. Under EPA's regulations at 40 CFR 125.62(f), an applicant must demonstrate compliance with various 301(h) criteria not only on the basis of the applicant's own discharge, but also taking into account the applicant's discharge in combination with pollutants from other sources. This is also spelled out in parts of section 301(h) itself. However, it should not be perceived that other sources of pesticides are not a priority. For example, the management of particulate-laden storm water is required pursuant to storm water permits issued by Hawaii Department of Health, including CCH's Municipal Separate Storm Sewer System permit. See also response to comment P11.

Comment P17: The Hawaii State water quality standard needs to be reviewed and updated.

Commenter: 68

Response: See responses to comments P13 and P51.

Comment P18: The process for updating water quality standards should use EPA's "Guidelines for Ecological Risk Assessment."

Commenter: 68

Response: HDOH could consider this document, along with other information, when amending water quality standards in HAR Chapter 11-54.

Comment P19: Plant upgrades were completed after the permit renewal application was submitted in 2003. Prior to these improvements, there were no documented health impacts or environmental harm. Plant improvements have resulted in increased TSS and BOD removal efficiencies. Future improvements to clarifiers will result in additional improvements.

Commenter: 68

Response: EPA recognizes that there have been improvements in the Sand Island plant's removal of TSS and BOD. This does not change the fact that the Sand Island discharge does not meet the criteria of 301(h). The commenters may be implying that information submitted in the 2003 application does not reflect plant upgrades. However, EPA's TDD utilized data that was submitted by CCH into 2007. For example, even though earlier data showed that the plant

would not meet the current water quality standards for bacteria, EPA also analyzed data submitted after the disinfection system became operational in late 2006, and concluded that the proposed discharge can meet water quality standards for bacteria, provided CCH adequately operates and maintains the UV disinfection system. Regarding the lack of documented impacts of environmental harm, pursuant to the CWA, conclusions about water quality impairments are not made solely on the basis of severe impacts such as fish kills, algae blooms, or grease slicks. Water Quality Standards have been developed to protect beneficial uses of water bodies, and prevent such severe impacts. As described in the TDD, in order to determine whether the discharge will not interfere with the attainment or maintenance of water quality which assures protection and propagation of a Balanced, Indigenous Population (BIP) of shellfish, fish, and wildlife in areas actually or potentially impacted by the discharge, EPA analyzes three types of information: biological data, whole effluent toxicity data, and chemical-specific water and sediment quality data. While available biological data do not demonstrate impacts to species in the vicinity of the outfall, whole effluent toxicity and chemical-specific (ammonia nitrogen) water data results present a different picture. As a result of the toxic effects found in WET testing, and the potential impacts on marine life due to exceedances of the water quality standard for ammonia nitrogen, EPA concluded that the applicant had not demonstrated that the discharge under a renewed variance would not interfere with the attainment or maintenance of water quality which assures a balanced indigenous population of shellfish, fish, and wildlife. Similarly with regard to health effects, decisions under the CWA are not based only on demonstrated actual, existing adverse impacts to public health. Rather, a goal of the CWA is to attain *and maintain* conditions under which water quality standards are met so that actual adverse impacts to human health and the environment do not occur. See CWA section 101(a). One of the requirements of section 301(h) is that the applicant demonstrate that its proposed discharge “will not interfere, alone or in combination with pollutants from other sources, with the attainment or maintenance of that water quality which ... allows recreational activities, in and on the water.” CWA section 301(h)(2). This requires ensuring that water quality will be protected before the occurrence of adverse effects, not waiting until there are severe impacts. As described in the TDD, EPA found that because of the exceedances of water quality standards designed to protect human health, the applicant had not demonstrated that the discharge would not interfere with the attainment or maintenance of water quality which allows recreational activities (fishing), due to pollutants in the effluent. Please also see responses to comments P46 and P52.

Comment P20: The bacterial quality of the recreational waters 1000 feet from shore has not changed since the UV disinfection system was installed. Since the discharge does not affect these nearshore waters, operation of the UV system has validated the position that the discharge does not affect these waters. Although there may be benefits from operation of the UV system on waters approximately 3000 feet offshore, this does not confirm the need for continued operation of the UV system.

Commenter: 68

Response: EPA has not asserted that the discharge is impacting nearshore waters 1000 feet from shore. However, the bacterial quality of water in the vicinity of the outfall has improved

significantly since the UV system was installed. In making conclusions about the need for continued operation of the UV system, the commenters seem to misunderstand how Hawaii's recreational waters are defined. Pursuant to the BEACH Act, 40 CFR Section 131.41(c)(2), enterococcus criteria apply to Hawaii's marine waters to a distance of 3 miles from shore. Under HAR 11-54-3, these waters are classified as Class A waters whose recreational uses must be protected. The question of continued use of the UV system is addressed in response to comment P21.

Comment P21: During the early 1990's a doctor from the University of Hawaii medical school presented his opinion that people could not get sick swimming at the outfall. He noted that State epidemiological records did not show any evidence of illnesses attributed to wastewater discharges.

Commenter: 68

Response: Although epidemiological records can be helpful in illustrating whether or not a discharge is causing illnesses, they do not provide definitive conclusions on whether a the discharge poses a risk to human health. Water Quality Standards have been developed to protect beneficial uses of water bodies, including recreational uses. Prior to the installation of the UV disinfection system, the bacteria levels in the Sand Island discharge exceeded the current water quality standard applicable to the waters in the vicinity of the outfall. Under the CWA, the exceedance of water quality standards indicates that beneficial uses are not being protected. EPA has concluded that the Sand Island discharge will meet water quality standards for bacteria provided that CCH adequately operates and maintains the UV disinfection system. See also responses to comments P19 and P52.

Comment P22: As a result of a lawsuit in the 1990's CCH provided \$8M to finance the Mamala Bay study of impacts from the Sand Island and Honouliuli discharges on Mamala Bay. A hydraulic model of the Bay was developed, and it was recommended that the Sand Island discharge be disinfected. The basis for this recommendation was a flawed model of predicted public health impacts from the discharge on nearshore waters within 1000 feet of the shore.

Commenter: 68

Response: EPA is familiar with the Mamala Bay study. EPA has concluded that the Sand Island discharge is not having a negative impact on waters within 1000 feet of shore. However, data also show that current water quality standards could not be met further from shore without disinfection.

Comment P23: According to anecdotal reports from CCH, people who as far out as two miles are not in direct contact with the water.

Commenter: 68

Response: In 2003, CCH had a survey done to measure the usage of the offshore waters (Ward Research 2003). This survey indicated that residents participated in recreational activities out to two miles from shore and beyond. The activities identified included direct contact activities such as swimming and snorkeling. However, even if these survey results had not documented these uses, given that HAR 11-54-3 classifies waters three miles from shore as Class A waters whose recreational uses must be protected, water quality standards protecting recreational uses must be attained.

Comment P24: The UV system should be turned off or only run part time. For part time operation, consideration should be given of only running the system when currents are moving shoreward from the discharge.

Commenter: 68

Response: The basic premise of this comment seems to be that the only time there is a problem with bacteria levels in the Sand Island discharge is when there are nearshore findings of elevated bacteria. As described above, water quality standards protecting recreational uses apply in the vicinity of the outfall as well. Data submitted by CCH indicate that beginning in 2007, the Sand Island discharge has consistently attained the applicable water quality standard for bacteria. Prior to 2007, bacteria concentrations in the vicinity of the outfall exceeded water quality standards. It has been concluded that continued operation and maintenance of the UV disinfection system should result in continued attainment of the water quality standard for bacteria. Should CCH choose to turn off this disinfection unit, it appears likely that water quality standards for bacteria will no longer be attained.

Comment P25: The UV system uses significant amounts of electric power, production of which requires emission of greenhouse gases.

Commenter: 68

Response: EPA does not disagree that this is a very energy-intensive operation, and that production of this energy can result in emission of greenhouse gases. During the design of upgrades to the Sand Island facility, EPA will work with CCH towards improved energy efficiencies. It should be noted that the reduced solids levels present in secondary-treated water enable UV-disinfection to operate more efficiently, thus utilizing less electrical power than is necessary to disinfect primary-treated effluent.

Comment P26: Alternative Action 2 would deny the variance and require secondary treatment. Secondary treatment is intended to remove organic material (BOD) from wastewater, and also removes some total suspended solids (TSS). Since BOD and TSS are not having detrimental impacts, secondary treatment would not be for these purposes.

Commenter: 68

Response: While the removal of BOD and TSS are, along with maintaining specified pH levels, included in the minimum effluent quality achieved by secondary treatment pursuant to EPA's regulations (40 CFR 133.102), it does not follow that the only impact of secondary treatment is to remove BOD and TSS. Under the CWA, secondary treatment is the minimally acceptable level of treatment for POTWs that do not qualify for 301(h) variances. In the preamble to its proposed rule implementing section 301(h), EPA recognized that secondary treatment incidentally removes toxic pollutants along with suspended solids. 43 Fed. Reg. 17485 (1978). Please also see response to comment P11.

Comment P27: Chlordane and dieldrin are resistant to biodegradation and secondary treatment will not attain water quality standards for these pesticides. If EPA is considering secondary treatment for this removal, it will fail.

Commenter: 68

Response: EPA does not necessarily agree that secondary treatment will not remove these pesticides; however, at this time it is premature to debate how the Honouliuli plant will perform after it is upgraded to full secondary treatment. Moreover, the question of the effectiveness of secondary treatment with respect to a specific pollutant is not within the scope of a 301(h) variance decision. POTWs are required to utilize secondary treatment unless it can be demonstrated that an ocean discharge from the POTW meets all of the 301(h) criteria. Once secondary treatment is in place, refinements to treatment processes may be necessary in order to meet water quality. See also response to comment P11.

Comment P28: The *T. gratilla* WET test is not approved. Based on anecdotal reports, all WET tests have high failure rates, which may be the reason it is unapproved.

Commenter: 68

Response: See response to comments P10, C31 and C37.

Comment P29: Bioaccumulation of chlordane, if it is occurring, is probably not related to the discharge. Chlordane was not detected in sediments around the outfall, which supports the conclusion that bioaccumulation is not occurring as a result of the discharge.

Commenter: 68

Response: Data relevant to the question of whether there is bioaccumulation of chlordane is limited. EPA has not concluded that bioaccumulation of chlordane is currently occurring, based on the results of the referenced sediment sampling or based on fish tissue data. Regardless of whether there are elevated levels of chlordane in fish or sediment, one of the 301(h) requirements

is that the discharger must demonstrate that the State water quality standards will be met under a 301(h) modified permit. With respect to chlordane, based on the data submitted in CCH's application, exceedances of the Hawaii water quality standard for chlordane have occurred. This standard has been established at a level designed to ensure that there is not bioaccumulation in fish tissue at levels that would pose a risk to human health. See also response to comment P19.

Comment P30: The EPA method of determining that the water quality standard for ammonia is not met is flawed. The State of Hawaii should update their standard to a standard for total nitrogen, doing away with the ammonia standard.

Commenter: 68

Response: EPA disagrees that the methodology is flawed (see also responses to comments P12 and P13). If the commenters believe Hawaii's water quality standards are flawed, we recommend that they contact the Hawaii Department of Health, and/or raise these concerns during the next Hawaii triennial review hearing (see also response to comment P51).

Comment P31: Construction and operation of secondary treatment is very expensive.

Commenter: 68

Response: The consideration of cost was also recommended in CCH's comments on the Sand Island and TDD. More detail can be found in the full response to CCH's comments, including comment C72, but to summarize, financial considerations are not included in the statutory criteria listed in section 301(h) of the CWA. In the case of the Sand Island facility, water quality standards are not being maintained, and the statutory criteria in section 301(h) of the CWA are not being met. The statute is clear that unless specified criteria, which do not include cost considerations, are met, a variance from secondary treatment may not be granted by EPA.

Comment P32: Several aspects of the secondary treatment process will result in increased production of greenhouse gases. CO₂ will be produced as an oxidative end product of biodegradation and from biosolids. If methane is recovered for energy recovery, it will produce carbon dioxide.

Commenter: 68

Response: EPA's decision at hand is whether or not CCH should receive a variance under section 301(h) of the CWA. The criteria for making this decision do not include consideration of air emissions. However, it is EPA's objective to minimize any negative impacts and maximize benefits that might result from plant upgrades required by the CWA. With respect to greenhouse gas emissions, there will be options to reduce emissions by methods such as those in the December, 2006 EPA document, "Opportunities for and Benefits of Combined Heat and Power at Wastewater Treatment Facilities." It is EPA's intent to share lessons learned from experience

across the county to ensure that CCH is aware of environmentally sound technologies available to minimize any unintended negative impacts and maximize positive benefits from treatment plant upgrades. See also responses to comments P4 and P44.

Comment P33: The comment mentions an abstract from a paper entitled, "Greenhouse Gas Production in Wastewater Treatment: Process Selection is the Major Factor." Based on the abstract, the paper compares aerobic and anaerobic treatment technology, and points out advantages of anaerobic methods.

Commenter: 68

Response: EPA does not disagree with the conclusions presented in this paper. Factors such as these will be considered during the design of the secondary treatment process.

Comment P34: A table presenting estimated Greenhouse Gas production from secondary treatment is presented. This table estimates that upgrading the SIWWTP to secondary treatment will result in an increase of 220 tons/day in greenhouse gas emissions.

Commenter: 68

Response: EPA's decision at hand is whether or not CCH should receive a variance under section 301(h) of the CWA. The 301(h) criteria do not include consideration of the air emissions from secondary treatment operations. However, it is EPA's objective to minimize any potential negative impacts and encourage potential positive impacts resulting from plant upgrades required by the CWA. It is EPA's intent to share lessons learned from experience across the county to ensure that CCH is aware of available environmentally efficient technologies.

As a fundamental matter, the commenters have not supported their conclusion that upgrading the Sand Island WWTP to full secondary treatment will increase greenhouse gas emissions relative to emissions from the current operations at this facility. The only empirical information provided by the commenters which supports their conclusions was provided in the second of two tables labeled "Table 4" in their 3/31/08 SIWWTP comments. This "Table 4" (on page 17) is entitled "Estimate of Greenhouse Gas Production." This table concludes that approximately 220 tons per day of carbon dioxide will be produced. The commenters state that this emission estimate illustrates the significance of the environmental impacts resulting from implementing secondary treatment at the Sand Island WWTP, and imply that emissions would be approximately 220 tons/day more than is currently emitted using only primary treatment. There are several errors in this analysis. Most fundamentally, the table utilizes the influent BOD of 131,000 lb/day as a starting point for this calculation. This is the amount of BOD that enters the SIWWTP. Thus the calculation is an estimate of carbon dioxide emissions which result from the operation of both primary and secondary treatment operations at SIWWTP, not solely from upgrading the facility by adding secondary treatment. Given that the existing primary treatment operations at SIWWTP achieve BOD removal of approximately 50%, in order to calculate emissions from the use of secondary treatment, the commenters should have begun their calculations with a value

approximately half of the 131,000 pounds per day of the BOD that enters the SIWWTP.

With respect to gas emissions generated by secondary treatment, it is important to point out that whether or not secondary treatment is utilized, solids in municipal wastewater will ultimately decompose and produce carbon dioxide (CO₂). In the existing treatment operations at SIWWTP, decomposition of solids release greenhouse gases to the atmosphere and discharges containing elevated levels of solids decompose in the ocean, contributing to the problem of increased acidification of marine waters. A substantial benefit from secondary treatment is that solids are treated on-site through anaerobic digestion. The resulting methane gas can be captured and combusted to produce power for plant operation (thus reducing greenhouse gas emissions produced at a power generating facility). Options to reduce emissions are described in the December, 2006 EPA document, "Opportunities for and Benefits of Combined Heat and Power at Wastewater Treatment Facilities."

Another benefit from upgrading the SIWWTP is that secondary treatment will provide a cleaner effluent with higher UV transmissivity, thus reducing power required for disinfection.

These benefits resulting from an upgrade to the SIWWTP, in terms of reduced power needs and decreased greenhouse gas emissions, have not been factored into the commenters' calculations.

By their errors in their calculations, and by not factoring in the benefits that are available in terms of reduced power requirements, the commenters present an inflated and inaccurate estimate of greenhouse gas emissions from the upgrade of the SIWWTP to secondary treatment. See also responses to comments P4, P32, and P44.

Comment P35: Alternative 3 would grant a variance and require an extended outfall which would discharge at a greater depth, thus preventing the surfacing of the effluent plume. The commenters note that there is a greater frequency of plume surfacing than was anticipated when the outfall was designed.

Commenter: 68

Response: EPA is obligated to make its variance decisions based on the application provided by the permittee. The extended outfall suggested by the commenters was not part of CCH's application. However, if CCH had chosen to include an extended outfall as described by the commenters, the discharge would still have to meet water quality standards in the vicinity of the outfall. The question of whether or not the plume would surface would not change this conclusion, as the water quality standards apply at all depths of the water column, not just the surface.

Comment P36: The UV disinfection system is expensive to operate and contributes to increased greenhouse gas emissions from generation of the electricity needed to operate it. An outfall that prevents surfacing of the discharge plume would make disinfection unnecessary.

Commenter: 68

Response: In the matter of the energy demands associated with UV system operation, EPA does not disagree that this is a costly, energy-intensive operation, and that production of this energy can result in emission of greenhouse gases. During the design of upgrades to the Sand Island facility, EPA will work with CCH towards improved energy efficiencies, including evaluating whether operation of UV disinfection system is still necessary following secondary treatment, which generally reduces the need for disinfection, or if the UV system could be reconfigured to use less energy to disinfect a secondary effluent. The extended outfall suggested by the commenters was not part of CCH's application. However, if CCH had chosen to include an extended outfall as described by the commenters, it appears that the discharge would still occur in Class A state waters. If such a discharge was not disinfected, it would likely contain levels of bacteria which would exceed water quality standards in the vicinity of the outfall.

Comment P37: An extended outfall would result in less exposure of biota to the discharge.

Commenter: 68

Response: Please see response to comment P35.

Comment P38: Details are provided on design and cost considerations of an extended outfall. The commenters take the position that this approach will be cost-effective and will meet the criteria for a variance.

Commenter: 68

Response: Please see response to comment P35.

Comment P39: Table 6 compares alternatives using a points system and concludes that the highest scoring alternatives are an extended outfall and granting a variance with no new construction. Secondary treatment receives the lowest point total. A Summary and Conclusions section reiterates these findings. Secondary treatment is costly, does not provide positive benefits and will create negative impacts via CO₂ emissions

Commenter: 68

Response: This approach for deciding whether a section 301(h) variance can be granted is inconsistent with the CWA section 301(h), and there is no legal basis for using this methodology for granting a renewed variance under current statutes and regulations. See also response to comments P1, P4, P44, and P50. Moreover, it is EPA's view that secondary treatment will provide benefits in the removal of toxic pollutants, including pesticides, that are not achieved by the other alternatives.

Comment P40: EPA has stated that the CWA requires that a variance be denied if the 301(h) criteria are not met, however if the resulting action does not address the issue and causes greater environmental harm, that cannot be the intent of the law. With the Science Advisory Board recommendations in mind, EPA should do a thorough environmental impact statement before going further.

Commenter: 68

Response: We disagree that upgrading to secondary treatment “does not address the issue.” The commenters seem to be alleging that secondary treatment will not attain water quality standards. POTWs that do not meet the criteria under 301(h) are required to utilize secondary treatment unless it can be demonstrated that an ocean discharge from the POTW meets all of the 301(h) criteria. Once secondary treatment is in place, refinements to treatment processes may be necessary in order to meet water quality standards. There is no basis for conducting an Environmental Impact Statement on alternatives. Pursuant to section 511(c) of the CWA, decisions on variances under 301(h) are exempt from NEPA. See also responses to comment P1 and P6.

Comment P41: The commenter attached a document entitled “Sand Island Wastewater Treatment Plant Cost Estimates” dated March 28, 2003.

Commenter: 68

Response: Neither cost considerations nor the eventual configuration of a secondary treatment plant are factors EPA may consider in evaluating whether a variance under CWA section 301(h) may be granted. Please see responses to comments P15 and C72. However, cost considerations and options for configuration of a secondary plant will be considered when developing a schedule for necessary plant upgrades.

Comment P42: Increasing sewer fees will result from upgrading the WWTPs to secondary treatment. Some commenters noted that they believe the increased fees would have severe impacts on elderly and low-income residents.

Commenters: 5, 10, 12, 28, 29, 34, 39, 48, 54, 58, 69, 78, 82, 88, 115, 116, 128, 130, 132, 133

Response: See responses to comments C72, C76, and C78.

Comment P43: Attention should be focused on repairs to CCH’s collection system, including replacement of aging pipes and pump stations, instead of treatment plant upgrades.

Commenters: 5, 11, 12, 14, 17, 20, 23, 30, 31, 34, 38, 47, 53, 59, 63, 65, 71, 72, 73, 74, 75, 76, 77, 80, 83, 84, 86, 88, 89, 90, 96, 97, 106, 109, 110, 111, 113, 114, 117, 125, 127, 129, 130, 131, 132, 133

Response: The question of whether there are valid competing priorities is not one of the 301(h) criteria established by Congress; therefore, it is not one EPA may consider in determining whether to grant a variance under section 301(h) of the CWA. As a practical matter, however, EPA recognizes that there are numerous priorities when it comes to upgrading CCH's wastewater system. These priorities will be considered when comprehensive schedules are developed for necessary upgrades to CCH's collection system and treatment plants.

Comment P44: There will be negative impacts from secondary treatment, including greenhouse gas emissions, increased energy demands, and increased solid waste.

Commenters: 6, 15, 16, 18, 23, 29, 36, 40, 59, 59, 60, 62, 63, 67, 72, 75, 82, 84, 93, 95, 99, 106, 116, 131

Response: EPA's decision at hand is whether or not CCH qualifies for a variance under section 301(h) of the CWA. The criteria for making this decision do not include the type of evaluations the commenters propose. When Congress enacted section 301(h), it established specific criteria for allowing a variance from secondary treatment requirements, and did not require a balancing of other factors, as was done, for example, for a different kind of variance under CWA section 301(m). Nor would such a balancing be appropriate under section 301(h), since variances cannot be allowed unless all the requirements of the section are met. However, it is EPA's objective to minimize any negative impacts and maximize beneficial impacts that might result from plant upgrades required by the CWA, and to share lessons learned from experience across the county to ensure that CCH is aware of available environmentally sound technologies. With respect to greenhouse gas emissions and energy demand, for example, many modern wastewater treatment plants utilize gases created during secondary treatment to generate electricity, thus reducing operating costs, energy demand, and emissions at wastewater treatment plants, as discussed in the December, 2006 EPA document, "Opportunities for and Benefits of Combined Heat and Power at Wastewater Treatment Facilities." Energy demands, potential emissions, and sludge volume are matters that will need to be reviewed in detail during the design of treatment plant upgrades. EPA intends to work with CCH to ensure that treatment plant upgrades are made in a manner that takes advantage of state-of-the-art energy efficiencies used throughout the U.S. Please also see response to comment P34.

Comment P45: The decision was not based in science. There is no scientific reason for the EPA to suddenly change its position and deny the waiver. EPA must base its decision on the science presented by experts rather than simply enforce a rule because a book says it must be enforced. The EPA will gain credibility and acceptance when it listens and makes decisions based on rational scientific evidence.

Commenters: 18, 41, 47, 53, 87, 104, 114, 121, 128, 129, 130

Response: EPA's decision is based on the best science and information available to EPA, and EPA considered all the scientific evidence submitted during the public comment period. EPA does not have the discretion to depart from the specific criteria for allowing a 301(h) variance established by Congress in the Clean Water Act. Regarding the changes from the prior 301(h) decision, EPA now has all of the monitoring data that CCH collected since the current permit was issued in 1998. For example, EPA now has data on whole effluent toxicity collected by CCH using *T. gratilla* since January 1999. When Congress developed the Clean Water Act NPDES program, it specifically limited permits to 5 years (see CWA section 402(a)(3) and (b)(1)(B)), thereby putting the burden on EPA and/or state permitting agencies to ensure that permits were changed, when necessary, to reflect any new water quality or technology requirements, and new information obtained during the previous permit term. Section 301(h) was added to the CWA with the understanding that permits would need renewing every five years, and that new 301(h) evaluations would be conducted at that time. ("[A 301(h)] waiver would be based on stringent criteria.... The waiver would be reviewed every 5 years to assure continued compliance with these conditions." Report of the Committee on Environment and Public Works, U.S. Senate, Report No. 95-370, page 678, July 23, 1977.) Although permits may be administratively extended beyond five years, this is not intended to produce a situation in which once a 301(h) waiver is granted, it will be extended indefinitely.

Comment P46: Monitoring data do not show adverse impacts in the vicinity of outfalls, and no exceedances in nearshore waters. There has not been any evidence that the discharge at current levels causes any harm to the environment.

Commenters: 16, 18, 21, 29, 38, 40, 48, 59, 65, 67, 78, 83, 84, 86, 93, 95, 96, 101, 104, 106, 108, 113, 115, 117, 126, 127, 130, 132, 133

Response: EPA is aware of the results of the environmental studies submitted by various commenters, and has considered them in our decision-making process. Pursuant to the CWA, conclusions about water quality impairments are not made solely on the basis of severe impacts such as fish kills, algae blooms, or grease slicks. Water quality standards have been developed to protect beneficial uses of water bodies, and prevent such severe impacts from happening. This is based on the stated goal of the Clean Water Act to attain and maintain good quality water. (See CWA section 101(a).) One of the requirements of section 301(h) is that the applicant demonstrate that its proposed discharge "will not interfere, alone or in combination with pollutants from other sources, with the attainment or maintenance of that water quality which assures ... protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife." (CWA section 301(h)(2)). This requires ensuring that water quality will be protected before the occurrence of adverse effects, not waiting until there are severe impacts. As described in the TDD, in order to determine whether the proposed discharge would assure protection of a balanced indigenous population of fish, shellfish, and wildlife, EPA considered three types of information: biological data, whole effluent toxicity data, and chemical-specific water and sediment quality data. While available biological data do not demonstrate actual impacts to

species have already occurred in the vicinity of the outfall, whole effluent toxicity and chemical-specific (ammonia nitrogen) water data results present a different picture. As a result of the toxic effects found in WET testing, and the potential impacts on aquatic life due to exceedances of the water quality standard for ammonia nitrogen, EPA concluded that the applicant has not demonstrated that the discharge under a renewed variance would allow for the attainment or maintenance of water quality which assures a balanced indigenous population of shellfish, fish, and wildlife.

Comment P47: The 301(h) criteria are a “one size fits all” approach which should be replaced by an approach that considers the unique situation in Hawaii.

Commenters: 10, 15, 29, 31, 32, 34, 40, 128, 129

Response: POTWs in Hawaii are subject to the Clean Water Act’s 301(h) criteria for variances from secondary treatment. This process takes into account local factors by considering site-specific data provided by the facility seeking a variance and state-specific water quality standards. In this case the conclusion is that the Honouliuli facility does not attain water quality standards, including standards established by the State of Hawaii for the protection of marine waters in the vicinity of the outfall.

Comment P48: The outfalls are situated such that the effluent is well diluted in the Pacific Ocean and primary treatment is sufficient.

Commenters: 21, 27, 62, 130

Response: The dilution referred to by the commenter was considered in evaluating whether the discharge would meet water quality standards. In calculating the expected dilution, EPA used a model that takes into consideration specific information about the outfall (e.g., depth and port configuration), discharge (e.g., flow rate and temperature), and receiving waters (e.g, salinity and temperature profiles). After factoring in this dilution, EPA found that water quality standards for ammonia nitrogen, chlordane, dieldrin, and WET would not be met in the receiving waters. When Congress adopted section 301(h), it did so based on the understanding that it was legitimate to treat ocean discharges differently – but only if the specific criteria in section 301(h) were met. The expectation was never that all ocean dischargers would receive section 301(h) variances, but only those meeting the criteria in section 301(h) of the Act.

Comment P49: I urge EPA to grant CCH their requested exemption. I encourage the EPA to grant the Honouliuli WWTP 301(h) waiver.

Commenters: 5, 6, 11, 12, 23, 26, 28, 29, 35, 40, 42, 47, 48, 53, 58, 60, 65, 67, 75, 83, 93, 96, 97, 100, 101, 102, 104, 107, 113, 115, 117, 120, 121, 126, 129, 130, 131

Response: EPA has received numerous comments in favor of continuing the variance. EPA has carefully considered all these comments and the information submitted by the commenters. However, our analysis indicates that several of the necessary criteria in the Clean Water Act would not be met. Therefore, we must deny the request for a renewed variance.

Comment P50: Secondary treatment provides no measurable benefit. Local scientists believe secondary treatment is not needed. They note that they believe there is not a scientific basis for upgrading the treatment plants, and there will not be benefits from upgrading.

Commenters: 6, 10, 15, 17, 21, 23, 24, 26, 27, 32, 33, 35, 39, 41, 54, 59, 62, 63, 69, 71, 73, 75, 81, 82, 84, 86, 88, 89, 90, 93, 97, 99, 104, 112, 115, 125, 127, 129, 132, 133, 134

Response: When Congress passed the Clean Water Act in 1972, it mandated that all publicly-owned treatment plants needed to achieve secondary treatment levels of performance. This requires a greater reduction in levels of solids and oxygen-demanding substances in the effluent, with the incidental benefit of reducing other pollutants in the effluent that accompany the solid matter. When section 301(h) was added in 1977, secondary treatment remained the standard required by the Act – unless a specific treatment plant that discharged into the ocean could demonstrate that it would meet the specific section 301(h) criteria set forth in the Act. Even in discharges to the ocean, the reduction in oxygen-demanding substances, solids in general, and other pollutants that can adhere to solids benefit both the environment and recreational activities in the area of the outfall. Another incidental benefit of secondary treatment is that the wastewater is farther along in the process towards achieving water quality that would allow reuse, e.g. for irrigation. Wastewater must be highly treated before it is clean enough to reuse.

Comment P51: The decision is based on questionable state water quality standards.

Commenter: 16, 18, 33, 53

Response: The requirement in CWA section 301(h) is that the modified discharge would meet existing water quality standards, or, if none exist for a given pollutant, water quality criteria established by EPA under Clean Water Act 304(a). All of Hawaii's water quality standards were adopted following public comment and have been approved by EPA. Additionally, under CWA section 303(c)(1), States are required to hold public hearings for the purpose of reviewing and, if necessary, updating their water quality standards at least every three years. EPA reviews new or revised water quality standards that are submitted to it by a State but does not revisit those standards when making permit decisions such as whether to grant a 301(h) variance. If commenters believe Hawaii's water quality standards are flawed, we recommend that they contact the Hawaii Department of Health, and/or raise these concerns during the next Hawaii triennial review hearing.

Comment P52: Under current levels of treatment, there have not been any beach closures caused by the deep-ocean outfall. There has not been any evidence presented that the discharge at current levels causes any harm to public health.

Commenters: 20, 132, 133

Response: EPA has found that the discharge results in exceedances of water quality standards. The lack of beach closures does not change this conclusion. See response to comment P46. Decisions under the Clean Water Act are not necessarily based on drastic events such as fish kills, or beach closures. Rather, a goal of the Clean Water Act is to attain and maintain conditions under which water quality standards are met so that actual threats to human health and the environment do not happen. One of the requirements of section 301(h) is that the applicant must demonstrate that its proposed discharge "will not interfere, alone or in combination with pollutants from other sources, with the attainment or maintenance of that water quality which ... allows recreational activities, in and on the water." (CWA section 301(h)(2)). This requires ensuring that water quality will be protected before the occurrence of adverse effects, not waiting until there are severe impacts. As described in the TDD, EPA found that because of the exceedances of water quality standards designed to protect human health, the applicant had not demonstrated that the discharge would not interfere with the attainment or maintenance of water quality which allows recreational activities, specifically fishing (fish consumption). See also response to comments C56 and C57, which discuss EPA's conclusions regarding risks to public health as a result of exceedances of the water quality standards for chlordane and dieldrin and response to comment P54 regarding fishing.

Comment P53: No health threats result from current treatment.

Commenters: 16, 17, 19, 20, 21, 29, 53, 65, 70, 82, 88, 92, 116, 127

Response: See response to comment P52.

Comment P54: Recreation does not exist in deep, distant water.

Commenters: 19, 132, 133

Response: Hawaii's marine waters are designated for recreation. Therefore, this use must be protected with criteria, and, in accordance with 40 CFR 125.62(a), the discharge must meet these criteria at the boundary of the ZID throughout the water column. Bacterial concentrations detected at bottom depths do not always stay at the bottom of the water column. With the changing environmental conditions that affect the receiving waters, a trapped plume of discharged effluent containing a high concentration of bacteria can surface to depths where recreation is more plentiful. Additionally, CCH's recreational use survey, which was conducted in 2003, confirmed that residents participated in recreational activities in ocean waters out to two miles from shore and beyond. The survey identified recreational activities including swimming, surfing/bodyboarding/windsurfing, snorkeling, paddling/canoeing/kayaking, fishing, diving,

sailing, boating, and waterskiing. Additionally, recreational uses also include fishing, and EPA's finding is that CCH has not demonstrated that its discharge will not interfere with the attainment or maintenance of that water quality which allows recreational activities. This finding is based on the treatment plant's inability to meet water quality standards for chlordane and dieldrin, standards promulgated by the State of Hawaii to protect against carcinogenic effects in persons eating fish caught in Hawaii's waters. See also responses to comment C57.

Comment P55: Primary treatment is sufficient.

Commenters: 12, 14, 18, 27, 29, 32, 41, 42, 54, 59, 84, 93, 115

Response: The discharge does not meet the requirements of section 301(h), including the need to meet Hawaii water quality standards. CWA section 301(h) regulations require water quality standards to be met at the boundary of the zone of initial dilution.

Comment P56: I support your requirement that Honolulu have the proper secondary waste water treatment plants.

Commenters: 4, 25, 44, 45, 46, 50, 51, 55, 56, 57, 66, 85, 103, 135

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P57: The need to treat Honolulu's sewage to secondary stage is obvious.

Commenters: 3, 4, 9, 13, 25, 37, 52, 55, 61, 85, 104, 124, 135

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P58: The ocean water and the precious creatures within it are too important to jeopardize their well being by the flushing of our poisonous effluent into their environment.

Commenters: 3, 4, 9, 66, 124

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P59: I support continuation of the waiver.

Commenter: 14, 16, 17, 24, 30, 38, 40, 59, 73, 82, 84, 89, 104, 113, 109, 119,

Response: See response to comment P49.

Comment P60: I respectfully request that the EPA reconsider its position to tentatively deny the City the 301h waiver. The decision should be based on scientific fact.

Commenter: 17, 18, 20, 21, 36, 38, 59, 67, 74, 79, 82, 86, 87, 89, 92, 93, 99, 109, 110, 111, 117

Response: See responses to comments P45 and P49.

Comment P61: As for the new requirement for secondary treatment, my fear is that the cost will take away from the attention and resources that our collection system critically needs.

Commenters: 12, 26, 27, 32, 38, 53, 54, 59, 69, 73, 75, 96, 104, 110, 127, 130, 131

Response: See responses to comments C72 and C78.

Comment P62: I urge you to work with the City, State Health Department and environment advocates to reissue the waiver permit and allow the City to focus on spill prevention work.

Commenters: 63, 65, 70, 109

Response: EPA agrees that collection system improvements are necessary; however a 301(h) variance can only be granted if the 301(h) criteria are met, and competing wastewater priorities are not one of those criteria. In order to protect water quality and adhere to the CWA, EPA must address both collection system problems and treatment plant deficiencies. It is not an option to somehow trade off between these two priorities. It is EPA's intention to work with CCH and the State of Hawaii to develop comprehensive schedules for necessary upgrades to CCH's collection system and treatment plants.

Comment P63: A quick electronic search of the Clean Water Act, as amended, turns up abundant admonitions to the Agency to consider economic efficiency, cost effectiveness, feasibility or the like in regulatory decisions. EPA has clearly not included these factors in this decision. Consider the following: First, any project that purports to increase value, monetary or otherwise, to society should pass an efficiency test, by demonstrating benefits in excess of costs. This common-sense rule holds in the public or private sector, in whatever field activity.

Commenter: 54

Response: See response to comment C72.

Comment P64: EPA unfortunately does not consider the severe financial impacts and associated quality of life degradation issues that will result from the financial burden of secondary treatment. Many families in Hawaii are already struggling to survive. It makes

absolutely no sense to create more financial hardships and social problems through unnecessary increases in sewer bills. EPA is concerned that laboratory testing showed that primary effluent had some toxic effects on sea urchins. Why inflict severe financial pain on our residents to minimize theoretical impacts on a small patch of ocean floor, especially when actual marine surveys indicate no adverse impacts?

Commenters: 38, 41, 59, 72, 113, 128, 132, 133

Response: See responses to comments C72, C74, C77 and P46.

Comment P65: It is my hope that the EPA and City will take a path that leads not to litigation, but rather will focus on long-term solutions that upgrade Honolulu's wastewater system for the benefit of its citizens without bankrupting the City. A mutual commitment that is system wide, cost-effective and feasible would be a win for Honolulu.

Commenter: 2

Response: EPA agrees that dialogue between CCH and EPA is important. Please see also response to comment C72. Although cost considerations cannot be taken into consideration in determining whether a section 301(h) variance can be granted, EPA considers it appropriate to take into consideration such information when determining the schedule under which CCH makes infrastructure improvements to both its collection system and its treatment plants.

Comment P66: I am concerned too about the extraordinary financial burden a requirement for full secondary treatment would place on our taxpayers. Given the huge investment of resources required to bring the City and County's sewage and wastewater systems into compliance, I believe it is important that we focus first on the elements of the system that pose the greatest risks.

Commenter: 65

Response: See responses to comments C74-C78

Comment P67: With Hawaii's cost of living as one of the highest in the country, I hope you can understand it is important that the additional financial burdens placed on its citizens be measured, and result in positive and tangible outcomes.

Commenter: 2, 12, 17, 54

Response: See responses to comments C74 and C77.

Comment P68: Why burden the people of Honolulu with the unnecessary cost of secondary treatment?

Commenter: 83, 97, 113, 132, 133

Response: See responses to comments C74, C77 and C78.

Comment P69: I remain hopeful that the City and County of Honolulu will be provided with a reasonable time frame to work with the EPA to address infrastructure improvements.

Commenter: 30

Response: See response to comment C79.

Comment P70: I believe that Mayor Hannemann, in his short tenure in office, has demonstrated a strong commitment to improving the City's wastewater system. Mayor Hannemann has made a long-overdue commitment to focus on this problem and has taken the politically difficult position of raising sewer fees to finance the repairs.

Commenter: 2, 53, 65, 73

Response: See response to comment C80.

Comment P71: Since 2004 (and in prior years), the City has significantly increased its spending on all wastewater CIP projects (including planning, design, construction, project management, equipment). According to data provided by the Department of Environmental Services, the following amounts have been encumbered and/or budgeted for:

FY 2004.....	\$68,923,000
FY 2005.....	\$107,309,000
FY 2006.....	\$205,800,000
FY 2007.....	\$338,897,000
FY 2008.....	\$350,724,000
FY2009.....	\$224,594,000

Commenter: 38

Response: See response to comment C80.

Comment P72: Polluted ocean water is a danger to public health and will destroy us and our tourist industry. If we wait until the ocean is so badly polluted that the fish are too poisonous to

be eaten not all the money of the world can treat it clean again. The wastewater has to be treated and cleaned, before it goes into the ocean in order to procrastinate further pollution. The ocean is Hawaii's next environment, recreational area as well as source of nourishment (seafood), therefore the ocean should not be our cesspool. The sewage must be cleaned/treated in the best possible way before it goes into the ocean. It's our responsibility now, to take action, before it is too late. Ocean pollution is irreversible.

Commenter: 9

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P73: It is my understanding that the EPA's job is to control and reduce pollution in the interest of public health and welfare. A recent court case established that green house gases were pollutants within the meaning of the act and directed EPA to consider the generation of CO₂ when making their decisions. My question for EPA in relation to the Honouliuli and Sand Island 301(h) waivers is "Show me how the decision to require secondary treatment at either facility accomplishes the mandate to balance the huge increase in the generation of CO₂ that would be required by secondary treatment against the benefits gained by going to secondary treatment."

Commenter: 134

Response: See responses to comments P4, P32, and P44.

Comment P74: In working to provide solutions that improve our aging water infrastructure significant resources will need to be committed. While I continue to secure as many federal resources as possible for this purpose, we must realize that collaborative action and additional financial resources are necessary to make the needed improvements. I remain committed to working with all parties to address the conditions of our aging waste water infrastructure, as this issue is of great importance to the residents of Oahu.

Commenter: 30

Response: See response to comment P62.

Comment P75: I respectfully ask that the EPA consider all aspects of requiring secondary treatment of sewage in Ewa Hawaii. I work with environmental laws frequently and have found them to be reasonable. I am requesting that reasonable criteria be applied to conditions here in Hawaii. A cost benefit analysis should be used to determine if secondary treatment should be required. This should include secondary effects such as additional energy and pollution that would result from going to secondary treatment, and other impacts such as economic hardship that would result.

Commenter: 34

Response: Regarding economic issues, see responses to comments C72 through C78; regarding secondary effects, see responses to comments P1, P4 and P44.

Comment P76: For the past five years over \$1 million has thus far been spent in replacing old inefficient sewage lines. In the city's future 6-year CIP Budget an additional \$1 million will be spent for old inefficient sewage lines in my district to feed into Sand Island Wastewater Treatment Facility. I respectfully request EPA to respect my district's funding priority in replacing the old inefficient sewage lines. If EPA mandates secondary waste-water treatment at the Sand Island Wastewater Treatment Facility, there will be no funds to bring old inefficient sewage lines in accordance to EPA standards.

Commenter: 73

Response: See responses to comments C72 through C79.

Comment P77: Although effluent ammonia concentrations occasionally exceed water quality standards, the primary rationale EPA provides for concerns is that this could result in algal blooms. There are no historical reports of algal blooms occurring relative to the outfall and no recollection of such occurrences regardless of the quality of the effluent discharged through the outfall.

Commenter: 16

Response: Please see response to comment P78.

Comment P78: The concentration of nutrients, including ammonia, was all within normal levels and to my knowledge has never caused an algal bloom in either area.

Commenter: 84

Response: Under section 301(h), the applicant must demonstrate that State water quality standards will be met under a 301(h) modified permit. With respect to ammonia nitrogen, based on the data submitted in CCH's application, exceedances of the Hawaii water quality standard have occurred, regardless of whether there have been impacts such as algal blooms. Additionally, there are limitations on the biological data submitted by CCH; for example, data on plankton populations are scarce, and samples may not have been collected during critical conditions. Therefore, it may be that the discharge has in fact stimulated algae blooms but they have not been detected.

Comment P79: EPA assessed nutrient data from each sampling station at each depth for total nitrogen, nitrate+nitrite nitrogen, and phosphorus. Additionally, EPA analyzed water quality data for chlorophyll a (the indicator used to measure the presence of algae). The Sand Island discharge met all three criteria levels (geometric mean, 10% limits, and 2% limits) for all four Hawaii Department of Health (HDOH) water quality standards at all depths.

EPA noted that the Sand Island discharge failed to meet HDOH standards for ammonia. EPA also noted that ammonia contains nitrogen, excessive amounts of which can stimulate growth of large numbers of algae that can subsequently lower dissolved oxygen, reduce water clarity, and adversely affect other aquatic organisms. Since 2000, ammonia concentrations complied with standards at the surface beyond the Zone of Mixing where algae might grow and exceeded standards at mid- and bottom-depth only occasionally (<7% of time). Additionally, the chlorophyll a standard (which is an indicator of algae) has not been exceeded, as noted above.

The lack of algal blooms suggests that current nutrient levels are not detrimental to receiving waters. In fact, the Tentative Decision document states, "EPA does not...consider it likely that the proposed discharge would cause algae blooms so severe that they should be characterized as extreme biological impacts." In balance, rejection of the 301(h) variance for exceeding the ammonia standard is inappropriate.

Commenter: 23

Response: See response to comment P78 regarding algal blooms. The quotation from the tentative decision is found on page 66 of that document and is related to EPA's analysis of the requirement in 40 CFR 125.62(c)(3) that conditions *within the ZID* not contribute to *extreme adverse biological impacts*. This is different than the general requirement that the applicant must demonstrate that a modified discharge would not interfere with the attainment or maintenance of what water quality which assures the protection and propagation of a balanced indigenous population of shellfish, fish and wildlife. It also does not relate to the conclusion that the discharge will not meet Hawaii's water quality criterion for ammonia nitrogen. We also note that EPA's decision is not based solely on exceedances of the Hawaii water quality criterion for ammonia nitrogen. Other water quality standards, whole effluent toxicity, chlordane, and dieldrin, are also exceeded.

Comment P80: The application of stringent coastal water ammonia standards to a deep ocean low-nutrient environment is not justifiable since ammonia toxicity, oxygen depletion due to nitrification of ammonia, and eutrophication problems due to excess nitrogen are not concerns with the Sand Island WWTP discharge. If eutrophication was a concern, secondary treatment alone would not resolve this concern in warm weather climates, biological secondary treatment results in nitrification of ammonia to nitrates, a form of nitrogen that would tend to promote algal blooms.

Commenter: 59

Response: EPA acknowledges that in many circumstances treatment beyond secondary may be needed to reduce nutrients to levels that meet state water quality standards. However, the question of whether secondary treatment alone would result in attainment of water quality standards is not pertinent to the evaluation of an application for a section 301(h) variance. The level of treatment proposed by the applicant is what EPA is required to evaluate. EPA has evaluated CCH's application and concluded that the proposed discharge would not meet section 301(h) requirements, including attainment of state water quality standards.

Comment P81: It is unwarranted to force the City to go to secondary treatment because of ammonia concentrations in the zone of mixing (ZOM) surrounding the outfall for three reasons:

- 1) The Sand Island plant has met its permit requirements for ammonia in ZOM which are based upon a geometric mean.
- 2) The reason for establishing limits for ammonia, as well as for nitrate, nitrite, and total nitrogen is to prevent eutrophication. To date there is no indication of this occurring in the receiving waters.
- 3) Secondary treatment is not an effective process in reducing total nitrogen. This process will oxidize ammonia to nitrate and nitrite, and as a result, it will have little impact on the potential for eutrophication.

Commenter: 62

Response: EPA disagrees that it is unwarranted to require the Sand Island treatment plant to be upgraded to secondary, as EPA's assessment is that the level of treatment proposed in the 301(h) application would not meet the section 301(h) criteria, including attainment of water quality standards. EPA's assessment is that the water quality criterion for ammonia nitrogen has not been attained beyond the zone of initial dilution, including at zone of mixing stations, which allow for more dilution than occurs at the zone of initial dilution. See also response to comment C39. In accordance with 40 CFR 125.62(a)(i) the proposed discharge must meet water quality standards at and beyond the zone of initial dilution. This applies whether or not environmental impacts, such as eutrophication have been observed in the receiving water, and whether or not secondary treatment alone would result in attainment of standards.

Comment P82: Secondary treatment is intended to remove biochemical oxygen demand (organic carbon) and total suspended solids. Advanced secondary treatment would be required to remove ammonia-nitrogen. The energy requirements to remove ammonia-nitrogen are higher than the requirements for secondary treatment, which further burden our island's energy resources.

Commenter: 67

Response: The question before EPA at this time is whether the application submitted by CCH for the Sand Island treatment plant meets the requirements of section 301(h), and EPA has concluded that it does not. There are a variety of treatment technologies that can meet secondary treatment requirements, some of which effectively remove ammonia nitrogen. The removal of ammonia nitrogen is one factor CCH could consider when it designs secondary treatment facilities.

Comment P83: Ammonia-nitrogen in the receiving water has not shown any evidence of creating phytoplankton growth. Secondary treatment is not intended to remove ammonia-nitrogen. The basis for establishing water quality standards for ammonia, nitrite+nitrate, and phosphorus in open coastal waters is to prevent excessive phytoplankton. The water quality standards that would indicate excessive phytoplankton (i.e., turbidity, chlorophyll a and light extinction coefficient) are not being exceeded.

In EPA's tentative decision to deny the waiver, it states that past "biological data do not indicate the presence of phytoplankton blooms or other signs of excessive marine plant growth." The decision further states "EPA does not....consider it likely that the proposed discharge would cause algae so severe that they should be characterized as extreme adverse biological impacts."

Commenter: 67

Response: Under section 301(h), the applicant must demonstrate that State water quality standards will be met under a 301(h) modified permit. With respect to ammonia nitrogen, based on the data submitted in CCH's application, exceedances of the Hawaii water quality standard have occurred, regardless of whether there have been impacts such as algal blooms. Additionally, there are limitations on the biological data submitted by CCH; for example, data on plankton populations are scarce, and samples may not have been collected during critical conditions. Therefore, it may be that the discharge has in fact stimulated algae blooms but they have not been detected. Please see also responses to comments P78, P79 and P82.

Comment P84: The ammonia standard, which I wrote, incidentally -- I wrote all of the water quality standards in Hawaii -- is a statistical standard. It's misapplied by the EPA, who only use it in a point location. It's a -- it's spatial and time standard with statistics. You -- you just simply didn't do that. And if you do do that, you find that the standard is met, all of the -- in the 90 percent, 98 percent and at the geometric mean if you do the mathematics right.

Commenter: 112

Response: HDOH adopted their nutrient criteria for a whole class of waters, such as open coastal waters. Hawaii's water quality standards contain no implementing provisions that would limit the criteria by depth or the time period for determining a geometric mean. Section 301(h) regulations require water quality standards to be met at the edge of the ZID. Combining monitoring results from all receiving water stations into one average would not be appropriate

under this regulation. Rather, the numeric criteria must be met at each station and each depth. At any given time, the effluent plume tends to move in a single direction. Averaging data points affected by the plume with data from the unaffected side of the monitoring grid would not ensure protection at all locations. Data were only collected from the ZOM; there were no data collected at the ZID, where Section 301(h) regulations require water quality standards to be met. Since there were exceedances at the ZOM, there were most likely more exceedances at the ZID.

Comment P85: Why, if we have a problem with ammonia levels have we never had a problem with algal blooms. Perhaps it has to do with the way the limit was established by the state and that the limit was never designed to be used in this manner. If EPA were to set forth the inherent differences in dealing with the discharge of wastewater into a nutrient deficient ocean flowing past an isolated island verses discharging wastewater into a nutrient rich freshwater river flowing past a City we could better understand EPA's rationale.

Commenter: 134

Response: Hawaii's nutrient standards are not limited to freshwater rivers, and those analyzed in the applicant specifically apply to the open coastal waters in which Mamala Bay is located. Under section 301(h), the applicant must demonstrate that State water quality standards will be met under a 301(h) modified permit. With respect to ammonia nitrogen, based on the data submitted in CCH's application, exceedances of the Hawaii water quality standard have occurred, regardless of whether there have been impacts such as algal blooms. Additionally, there are limitations on the biological data submitted by CCH; for example, data on plankton populations are scarce, and samples may not have been collected during critical conditions. Therefore, it may be that the discharge has in fact stimulated algae blooms but they have not been detected.

Comment P86: I ask that EPA explain why, in setting limits for conventional pollutants as was done in the last SI 301(h) waiver permit issued to SI, they selected data that resulted in the lowest possible limits, incorporating data that was skewed by special circumstances that artificially lowered the flow of nutrients to the plant while excluding much of the remaining data, including most of the highest values recorded by the plant, and ignored historical data that showed that much higher nutrient levels were common in the past and could therefore be expected in the future. This has made it much more difficult for the plant to meet the nutrient discharge limit and makes it progressively more difficult and therefore more costly, for the plant to meet the limit as the collection system is repaired and upgraded.

I would also request that EPA provide their rationale for requiring the removal of additional conventional pollutants, or nutrients, from the wastewater before discharge, at very high cost, in light of the recent announcements that the waters around the Hawaiian Islands are considered nutrient poor, based on the recent analysis of nine years of satellite photos by the National Marine Fisheries Service.

Possibly as a result of the growing area of nutrient poor waters in the Pacific Ocean the inshore fishery in Hawaii is in decline and the removal of additional nutrients from the wastewater will, if anything, aggravate that inshore fishery, a resource that many in Hawaii depend on for subsistence eating and/or making a living through fishing.

Commenter: 134

Response: Limits contained in the 1998 Sand Island NPDES permit are based on NPDES regulations and Hawaii's water quality standards. Please see response to comment P85 regarding the necessity of analyzing existing water quality standards in determining whether a 301(h) variance can be granted. See also response to comment P13 regarding changes to water quality standards.

Comment P87: The denial notes exceedance of enterococcus levels at the five shoreline stations (Page 41 of the denial document). While the "blame" is given to the Sand Island WWTP outfall discharge, consideration should be given to other sources such as non-point pollution, and that there are many different species of enterococcus. In fact, your allusion to higher readings in rainy months could be related to non-point sources for nearshore waters. Further coverage of this concept can be found at the website:

http://www.coastalconference.org/h20_2007/pdf_07/2007-10-24-Wednesday/Session_2A-Bacterial_Indicators/Guzman-Does_Enterococcus_Indicate_Fecal_Contamination_Presen.pfd.

Commenter: 19

Response: The Sand Island TDD (p. 42) states the following, "Because the likely source of shoreline exceedances is non-point source runoff, EPA concludes that shoreline stations do not appear to be exceeding water quality standards due to influence from the discharge." Thus EPA is not "blaming" the outfall for the shoreline exceedances, and agrees with the commenter regarding the source of the exceedances. EPA is not denying the Sand Island variance application based on bacteria.

Comment P88: The effluent is discharged in deep ocean waters from a pipe that extends nearly 2 miles offshore. The likelihood of a plume of sewage plant effluent from Sand Island returning to the beaches and containing sufficient bacteria to cause health problems is less than 1 percent as stated by Tom Huetterman, chief of Clean Water Act compliance for EPA Region 9, in a Honolulu Star Bulletin article dated October 5, 2002, a copy of which is attached.

Commenter: 38

Response: On page 42 of the tentative decision, EPA concluded that shoreline stations do not appear to be exceeding water quality standards due to influence from the discharge and the likely source of shoreline exceedances is non-point source runoff. EPA is not denying the Sand Island variance application based on bacteria.

Comment P89: The Beach Act and implementing regulations now require compliance with State recreational standard at the Sand Island diffuser located about 10,000 feet offshore at a depth of about 240 feet. The City has done surveys to show that there is no significant recreational activity at the diffuser location that necessitate an enterococci standard of 7/100 cfu. Since the outfall began operating in 1976, the Department of Health has never received reports of illness to occasional divers or consumption of fish caught in the outfall vicinity.

Commenter: 63

Response: Hawaii's water quality standards designate marine waters out to three miles from shore as recreational waters. For waters within 300 meters (1,000 feet) from shore, Hawaii's water quality standards in HAR Chapter 11-54 state that enterococci content shall not exceed a geometric mean of 7 cfu/100 mL and no single sample shall exceed the single sample maximum of 100 cfu per 100 mL. EPA's promulgated criteria apply to waters between 300 meters (1,000 feet) from shore and three miles from shore. CCH's recreational use survey, which was conducted in 2003, confirmed that residents participated in recreational activities in ocean waters out to two miles from shore and beyond. The survey identified recreational activities including swimming, surfing/bodyboarding/windsurfing, snorkeling, paddling/canoeing/kayaking, fishing, diving, sailing, boating, and waterskiing. See response to comment P52 about illness.

Comment P90: In accordance with the BEACH Act, the EPA is still in the process of determining more suitable bacterial indicators and concentrations needed to protect people using waters for recreational activities. Why is EPA using these exceedances to deny the waiver reissuance when this work is ongoing?

Commenter: 63

Response: EPA is not denying the Sand Island 301(h) waiver application because of bacteria.

Comment P91: Analysis of over five years of water quality data collected at 31 sampling stations in the vicinity of the Sand Island outfall indicates a dramatic change in enterococcus levels associated with the advent of UV treatment at the WWTP beginning in November 2006.

Commenter: 64

Response: EPA's tentative decision notes the decrease in enterococcus levels after CCH began operating a UV system to disinfect the Sand Island effluent. EPA is not denying the Sand Island 301(h) variance application based on bacteria, having found that the discharge can meet bacteria water quality standards so long as the UV system is adequately operated and maintained.

Comment P92: Prior to UV treatment, there were two general areas where high enterococcus count level occurred: in the vicinity of the outfall with high levels extending eastward from the

outfall at the surface and westward at depth; and along the shoreline with high values in Keehi Lagoon and in the vicinity of the Ala Wai Canal outflow. At the surface and at the shore, the high levels tended to coincide with rain events. During the UV treatment, offshore levels dropped dramatically at all stations and depths; however, levels remained high during rain events at the shore stations, particularly those near the Ala Wai Canal. We conclude that the shore stations, especially Waikiki and Ala Moana, are influenced primarily by contaminated water exiting the Ala Wai canal during heavy rain events, and that these stations are less influenced by offshore contaminated water from the outfall, when present (i.e., during the pre-UV phase). The exception appears to be the R moorings at the mouth of Keehi Lagoon, which appear to be influenced more by surface plume advection than shoreline run-off.

During the pre-UV phase, surfacing of the outfall plume tended to occur primarily during heavy rain events in the winter when background stratification levels of the upper water column are at a seasonal low. The dramatic reduction in enterococcus levels at all offshore stations during the UV phase indicates that the offshore water quality is not strongly affected by Ala Wai outflow or other sources of coastal runoff. While there is strong evidence to suggest that water quality at the shore, as measured by enterococcus count levels, is largely independent of the offshore outfall plume (with the notable exception of the Keehi Lagoon entrance), and conversely that offshore water quality is independent of coastal rain runoff, we caution that there have been relatively few heavy rain events during the UV treatment phase. Longer time series are required to assess the impact of contaminated runoff waters during heavy rain events. We have related high enterococcus count levels at the Waikiki and Ala Moana monitoring stations to heavy rains and subsequent outflow of contaminated water via the Ala Wai Canal, but direct sampling of the Ala Wai outflow and other major stream outflows is needed to help quantify the major sources of contaminated run-off and the tendency for spread along the shoreline. This is presently underway under an extension of this present contract with the City and County of Honolulu.

Although UV treatment dramatically reduced enterococcus count levels at all offshore stations, we note that the overall impact in terms of percent exceedances at the surface is somewhat marginal except in the nearfield of the outfall. During the pre-UV phase, most stations away from the outfall exhibited above threshold levels at the surface on the order of 1-3% of the time, and mostly during heavy rain events. It does not appear that the UV treatment would have a pronounced impact on the levels near shore, except perhaps in the vicinity of Keehi Lagoon. A limited campaign of UV treatment during heavy winter rain events may bring offshore surface enterococcus counts to acceptable levels without year-round treatment. Enterococcus levels below the surface at many of the offshore stations, but particularly at the D and E stations, are above threshold level at all times of the year in the absence of UV treatment. Thus limited UV treatment during rain events will not bring these subsurface waters into full compliance.

Commenter: 64

Response: EPA has concluded that the Sand Island discharge would attain water quality standards for bacteria in the waters beyond the zone of initial dilution, if the UV system was operated on a continuous basis. See response to comment C61.

EPA recognizes that there are additional sources of bacteria to nearshore waters, but EPA did not try to identify specific sources, as this was not relevant to the review of this particular 301(h) application.

Comment P93: EPA officials misled the public by stating at the public hearing that Hawaii DOH had accepted that the recreational zone was now from shoreline to three miles out. Based on this new zone for recreation, EPA cited many enterococci water quality standard violations, especially for Honouliuli and Sand Island outfall before the use of UV treatment. The effective Hawaii DOH document (Chapter 11-54) still states that the recreational zone is shoreline to 1,000 feet from shore. I was not able to find a Hawaii DOH document, which stated that the recreational zone is now from shore to three miles from shore. Moreover, there has not been a public hearing to discuss increasing the recreational zone from shore to three miles from shore.

Commenter: 70

Response: The Sand Island outfall discharges to Hawaii's Class A waters. As stated on page 39 of the Sand Island tentative decision, HAR Chapter 11-54-3 (Classification of water uses) states the following: It is the objective of class A waters that their use for recreational and aesthetic enjoyment be protected. Any other use shall be permitted as long as it is comparable with the protection and propagation of fish, shellfish, wildlife, and with recreation in and on these waters. These waters shall not act as receiving waters for any discharge which has not received the best degree of treatment or control compatible with the criteria established for this class.

HAR Chapter 11-54-8 (Specific criteria for recreational areas) applies to marine recreational waters within 300 meters (1,000 feet) from shore, and EPA's promulgated criteria apply to waters between 300 meters (1,000 feet) and three miles from shore. EPA's promulgated criteria apply because the waters between 300 meters (1,000 feet) and three miles from shore are designated for recreation. In responding to comments on the BEACH Act rule, EPA noted that if the State of Hawaii believed that primary contact recreation does not occur in certain waters, the State could conduct a use attainability analysis consistent with 40 CFR 131.10(g) to remove the use. The State has not conducted a UAA, nor did it comment on EPA's analysis of water quality standards applicable in Hawaii waters in the Sand Island 301(h) TDD.

Comment P94: During my work career, I've been up close and personal with every outfall in the state of Hawaii. The work has included theoretical and environmental studies and interior and exterior inspection to the pipelines. I have more than just a technical interest in water quality. I spend most of my free time in the ocean surfing, paddling, fishing or diving. I have two sons that do the same. I'd like to see Hawaii maintain its water quality for them and for future generations. I also want to see our tax dollars spent where they'll have the greatest impact. And there are obvious sources of water degradation in Hawaii that are not being addressed. Millions and millions of dollars have been spent studying this outfall, and the controversy goes on. In late 2006, the city started ultraviolet disinfection of the Sand Island effluent. Our company was retained by the city to study the effects of that disinfection on

bacteria levels in Mamala Bay. Our study began at the same time as the disinfection. At this point, we're about halfway done with the two-year study. The heart of our effort has been an analysis of the water samples collected by the city and county field team. I'd like to emphasize to the EPA that this is actual data. It's not computer models predicting what may happen to the receiving waters.

Previous studies completed by the City (the annual Sand Island Outfall monitoring reports submitted annually) and by others (Edward K. Noda in 1998) have concluded that there is no evidence that links the bacteriological exceedance levels with the outfall discharge. On the contrary, the occasional high nearshore bacteriological readings appear to be related to non-point shoreline discharges. Our work to date, I think, more clearly makes that point than any of the other work to date.

We have found, as other studies have found, that the bacterial levels you find occasionally onshore are not due to the outfall. They're due to nearshore sources, such as the Ala Wai Canal.

Commenter: 87

Response: EPA is also concluding that, as a result of the operation of the UV disinfection system, the Sand Island discharge is not resulting in elevated bacteria levels.

Comment P95: I'm a professor of oceanography at the University of Hawaii. I'm speaking to you as a consultant who has had the chance to look at the bacteria data collected by the city and county, and I wanted to give you some of our preliminary results. It's been a phenomenal service, a phenomenal data set. I'd like to commend the city and county for their efforts in collecting it. It's very conclusive. Once you turn on the UV radiation, it shuts down the bacteria counts almost completely offshore. There's no doubt about that. But what that -- it doesn't say here is that if you look at the counts nearshore, it has almost no effect. So in terms of the impact on water quality that secondary treatment will provide, it will certainly cut down the offshore counts. But the nearshore counts, where 99 percent of the recreation is taking place, will be unaffected. Because that is all runoff through the Ala Wai and during rain events. So to propose a solution of this type that -- where 99 percent of the funds are addressing one percent of the problem seems to be completely backwards. I just take exception to the EPA's reporting of this because nowhere in that does it say that the impact on Waikiki will be zero as a result of this secondary treatment. I'm also a little concerned as a taxpayer that if the treatment of the data that I've had to look at has been treated this way, I'm a little concerned about the way the other data's been treated. I think there needs to be more careful analysis of the data.

Commenter: 98

Response: EPA is not denying the variance request because of bacteria. EPA agrees that there may be other sources of bacteria in nearshore waters, but the 301(h) criteria do not allow EPA to approve a 301(h) application that does not otherwise meet the 301(h) criteria simply because there are other sources of pollutants in the area that may be pose a higher threat to public health.

The relative priority of other wastewater infrastructure projects can be considered during development of a schedule to design and construct secondary treatment facilities.

Comment P96: The Environmental Groups are aware of the bacteria results associated with Sand Island's discharges and are worried about the health and environmental consequences on their members, the general public, and the aquatic environment. EPA promulgated new WQS for Hawaii's waters effective December 16, 2004 pursuant to the BEACH Act of 2000. The BEACH Act WQS establish a single sample maximum enterococci bacteria limit of 104 to 501 colony forming units (cfu) per 100 ml, depending on frequency of use of the waters. The HDOH has yet to amend Hawaii Administrative Rules to specify the water usage for the Mamala Bay waters in issue and the appropriate enterococcus cfu WQS. Thus, it remains a factual question to be resolved in future permit determinations what the level of water contact usage is and the appropriate enterococci WQS under the BEACH Act rules.

Commenter: 135

Response: Please see response to comment C18.

Comment P97: Based on factual data in CCH's application (i.e. the 2003 Recreational Use Survey by Ward Research referred to in TDD) as well as the administrative record evidence by this letter, Mamala Bay far-shore waters are in fact used frequently for contact recreation. For these reasons, 104 cfu per 100 ml is the appropriate single sample standard to apply for all surface waters of Mamala Bay, including those near the Sand Island outfall, to ensure public health protection. However, the Sand Island discharge causes WQS to be violated whether the standard is 104 or 501 (or some value in-between) cfu per 100 ml. As documented in the TDD, CCH's receiving water monitoring data demonstrates that there were numerous exceedances of the single sample maximum limit between 2005 and 2007. Although EPA concluded that the ultraviolet (UV) disinfection unit at the SIWWTP can adequately disinfect the effluent based on preliminary data, Environmental Groups do not agree that there is enough data to support this conclusion. CCH began operating the UV disinfection unit in 'start up' mode between November 2006 and August 2007. During the start up mode operations, there were five months that CCH violated the monthly maximum daily bacteria effluent limit in the existing Sand Island NPDES permit according to CCH's monthly Discharge Monitoring Reports (DMR). Since beginning the official trial period in September 2007, CCH has exceeded its maximum monthly bacteria limit in one of the last four months of 2007 (i.e. October 2007) for which DMR data is currently available. Thus, the Environmental Groups believe it is premature for EPA to conclude that the UV disinfection unit will reliably function and reduce bacterial levels in the near-shore waters to below WQS.

Commenter: 135

Response: EPA's 301(h) analysis reviewed receiving water data to determine the ability of the discharge to meet water quality standards at the zone of initial dilution, as required pursuant to

CWA 301(h). We did not assess compliance with permit effluent limits. The receiving water monitoring data, which are collected on a quarterly basis, have shown that water quality criteria for bacteria are met when the UV disinfection unit is operating. We concluded that if CCH continuously maintains and operates the UV disinfection unit, bacteria criteria should be met consistently. Subsequent to the TDD, EPA has analyzed more recent data, which also indicate that the facility should be able to meet water quality standards for bacteria by consistent use of the UV disinfection.

CCH sampled offshore and nearshore waters on eight days in October 2007. No exceedances of the bacteria criteria were detected in the receiving water during this month. The highest reported concentration (65 cfu/100 mL) resulted from the October 3rd sample at the middle depth of station D5.

Comment P98: EPA should further consider evidences from the Mamala Bay Study Commission which would support finding that the Sand Island and Honouliuli WWTP effluent plumes, taken together, risk causing exceedances of WQS in the near-shore waters. The Blumberg Study calculated the frequency with which pre-BEACH Act WQS at Diamond Head, Queen's Surf, Waikiki, Ala Moana, Sand Island, Ewa, and Oneula beaches were exceeded over a given year. During the study's one-year simulation of weather and current conditions, the researchers found 17 instances where fecal coliform standards were exceeded, with 16 of those instances "due solely to the outfall sources." A total of 402 violations of enterococci standards occurred at the same beaches over the same period. "Approximately 50 percent of these were due to outfall sources," the researchers concluded.

Commenter: 135

Response: The Mamala Bay study was done several years prior to installation of the UV system at Sand Island. Based on data collected since the UV system has been in operation, EPA has concluded that when the UV disinfection system is operated on a continuous basis, the Sand Island discharge meets water quality standards for bacteria at the edge of the zone of initial dilution and would not cause exceedances in nearshore waters.

Comment P99: As the co-chair of the HWEA Biosolids Committee, I have reviewed your tentative decision on the SIWWTP 301(h) Variance Application and am concerned with the recommendations. It is my belief that the EPA's decision to deny the City and County of Honolulu's 301(h) Variance Application does not fully consider all of the environmental impacts associated with upgrading the SIWWTP and could result in doing more harm to the environment than good.

The SIWWTP currently produced 24.9 dry metric tons (DMT) of solids each day. If the SIWWTP were upgraded to full secondary treatment, their solids rate would increase. Utilizing industry averages for biosolids generation from secondary treatment, it is estimated that upgrade would result in the production of an additional 18 DMT of solids or an increase of approximately

75 percent. The City has a contractual relationship with the Synagro Corporation to stabilize and pelletize the SIWWTP sludge for beneficial reuse. Synagro's current capacity is 31 DMT per day at maximum capacity. Assuming that Synagro could consistently operate at its maximum capacity, then 11.9 DMT per day would need to be disposed of in a landfill or otherwise disposed of. This will exacerbate the City's already tenuous landfill situation.

Commenter: 99

Response: It is correct that upgrading to secondary treatment would increase the amount of solids that the SIWWTP would need to handle. EPA's decision at hand is whether or not CCH should receive a variance under section 301(h) of the CWA. The 301(h) criteria do not include consideration of an increase in the need for handling solids removed in the treatment process. However, it is EPA's objective to minimize any potential negative impacts and encourage potential positive impacts resulting from plant upgrades required by the CWA. It is EPA's intent to share lessons learned from experience across the county to ensure that CCH is aware of available environmentally sound technologies. EPA recognizes the landfill capacity challenges faced by CCH. It is our intention to continue to work with CCH to encourage the beneficial reuse of biosolids generated by wastewater treatment operations.

Comment P100: Chlordane and dieldrin though present potentially in the Sand Island WWTP discharge, are not being discharged into the treatment system by users. Their presence is the result of groundwater contamination infiltrating into the collection system. The use of chlordane and dieldrin has been banned since the late 1980s. Concentrations of these two pesticides in the Sand Island WWTP effluent are not the result of discharge into the system, but are likely the result of contaminated groundwater entering the collection system. In summary, the chlordane and dieldrin in the Sand Island WWTP discharge is not a point source that can be regulated or controlled.

Commenters: 16, 23, 59, 67

Response: The discharge of wastewater from the Sand Island WWTP is a point source as defined in the Clean Water Act. Therefore, an NPDES permit is required for the discharge. EPA agrees that chlordane and dieldrin most likely enter the Sand Island collection system via infiltration, but this is not relevant to the determination that the Sand Island discharge is a point source. See also the response to comment P11.

Comment P101: Chlordane and dieldrin will not be removed, at significant levels, by secondary treatment. Amounts removed via sludge discharge, if any, will be transferred to our landfills and will continue to be a threat to our environment.

Commenter: 18, 59, 62

Response: EPA does not necessarily agree that secondary treatment will not remove these pesticides. Although there is little data on the relative removal efficiencies of primary and secondary treatment for these pesticides, chlordane and dieldrin are hydrophobic and would be expected to adhere to solids in the wastewater. Secondary treatment removes additional solids in the wastewater and EPA believes it would therefore remove more chlordane and dieldrin than primary treatment alone. However, at this time it is premature to debate how the Honouliuli plant will perform after it is upgraded to full secondary treatment. If pesticides removal does result in increased levels of pesticides in biosolids, this will need to be taken into account in determining the disposition of these biosolids. Moreover, the question of the effectiveness of secondary treatment with respect to a specific pollutant is not within the scope of a 301(h) variance decision. POTWs are required to utilize secondary treatment unless it can be demonstrated that an ocean discharge from the POTW meets all of the 301(h) criteria. Once secondary treatment is in place, refinements to treatment processes may be necessary in order to meet water quality standards.

EPA agrees that chlordane and dieldrin removed via secondary treatment would likely end up in the sludge. All biosolids from the Sand Island WWTP must be properly handled and disposed of in accordance with applicable requirements.

Comment P102: It is my understanding that analytical methods used by the City may have resulted in higher than actual readings for pesticides.

Commenter: 59

Response: EPA disagrees that the method used by CCH in accordance with their permit resulted in higher than actual readings for pesticides. See response to comment C29.

Comment P103: Secondary treatment is not designed to efficiently remove pesticides.

Commenter: 59, 62, 108, 112, 127

Response: Full secondary treatment should reduce the concentrations of chlordane and dieldrin in the effluent, which are exceeding water quality standards established to protect human health from ingestion of carcinogens through fish consumption. Once secondary treatment is in place, refinements to treatment processes may be necessary in order to meet water quality standards. See also response to comment P101.

Comment P104: A more prudent approach to reducing chlordane levels would be to continue with the sewer rehabilitation program now underway which will seal old sewer lines and reduce the amount of groundwater, and hence chlordane, entering the sewers.

Commenter: 62, 112

Response: EPA agrees that collection system improvements are necessary. However, based on the scope of the deficiencies in CCH's collection system, and the need to address sewer pipes throughout the system, we are not optimistic that collection system repairs will result in significant declines in pesticide levels anytime in the near term. In order to protect water quality and adhere to the CWA, EPA must address both collection system problems and treatment plant deficiencies. It is not an option to somehow trade off between these two priorities. It is EPA's intention to work with CCH and the State of Hawaii to develop comprehensive schedules for necessary upgrades to CCH's collection system and treatment plants.

Comment P105: The State of Hawaii WQ standards for chlordane, dieldrin and ammonia are not technically derived and need to be evaluated to see if the current low levels are required to protect indigenous fish, shellfish and wildlife. Has the State Department of Health confirmed that the current standards are technically derived and valid?

Commenter: 63

Response: The requirement in CWA section 301(h) is that the modified discharge must meet existing water quality standards, or, if none exist for a given pollutant, water quality criteria established by EPA under Clean Water Act 304(a). All of Hawaii's water quality standards were adopted following public comment and have been approved by EPA. Additionally, under CWA section 303(c)(1), States are required to hold public hearings for the purpose of reviewing and, if necessary, updating their water quality standards at least every three years. EPA reviews new or revised water quality standards that are submitted to it by a State but does not revisit those standards when making permit decisions such as whether to grant a 301(h) variance. If commenters believe Hawaii's water quality standards are flawed, we recommend that they contact the Hawaii Department of Health, and/or raise these concerns during the next Hawaii triennial review hearing.

Comment P106: It is nonsensical to deny the waiver reissuance because there are no controllable sources of chlordane and dieldrin into the City's sewer system. Chlordane and dieldrin are legacy pesticides that have been banned for many years by EPA and there are no direct discharges from industrial or commercial users into the sewer system. The City recognizes that residual chlordane and dieldrin used in termite ground treatment before the EPA ban, may be entering the sewer system via infiltration and inflow. Therefore, the City is attempting to address the chlordane and dieldrin issue through its very costly pipe rehabilitation and repair program.

Commenter: 63

Response: See response to comments P11 and P104.

Comment P107: Hawaii's water quality standards for dieldrin and chlordane are likely the most stringent in the nation. Hawaii's water quality standards for chlordane is approximately 50 times lower than the EPA recommended criterion; it is approximately 36 times lower than the California water quality standard. Hawaii's water quality standard for dieldrin is approximately 2 times lower than the EPA recommended criterion; it is approximately 6 times lower than the California water quality standard.

Constituent	EPA ¹	California ²	Hawaii ³
Chlordane	0.00080	0.00057	0.000016
Dieldrin	0.000052	0.00014	0.000025

¹ EPA, Current National Recommended Water Quality Criteria, <http://www.epa.gov/waterscience/criteria/wqcriteria.html>, February 9th, 2007
² EPA, 40CFR Part 131.38
³ Hawaii Administrative Rules, 11-54-4

Commenter: 67

Response: States have flexibility when adopting criteria for toxic pollutants. This flexibility allows states to incorporate conservative assumptions when setting criteria. For example, when developing their numeric standards for toxic pollutants in 1989, the State of Hawaii applied a fish consumption value of 19.9 grams per day. This rate reflected the higher consumption rate of fish by Hawaii residents. At that time, EPA assumed a nationwide daily consumption rate of 6.5 grams per day. However, in 2000, EPA increased this national consumption rate to 17.5 grams per day. Regardless 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.

Comment P108: Per the tentative decision, EPA concluded that the proposed discharge will not ensure compliance with the state's water quality standards and will not result in the maintenance of water quality which assures protection, propagation of balanced indigenous population within the zone of initial dilution. This conclusion is primarily based on EPA's determination that the proposed discharge would exceed water quality standards to chlordane, dieldrin, and whole effluent toxicity. Yet the decision goes on to say the data is mixed and is inconclusive whether the discharge will cause bioaccumulation and toxic pollutants in fish. It goes on to say that dieldrin has not been detected in fish tissue. Further, neither chlordane nor dieldrin was detected in the sediments. I think it's important to note out that chlordane and dieldrin, these both -- both these pesticides, as non-water soluble compounds, would not be removed by the addition of secondary treatment.

Commenter: 110

Response: EPA's conclusion that the proposed discharge will not ensure the protection and propagation of a balanced, indigenous population of fish, shellfish and wildlife is based on the results of whole effluent toxicity testing, and the discharge's exceedance of the State of Hawaii's

water quality standard for ammonia nitrogen. Additionally, EPA has concluded that the discharge exceeds the State of Hawaii's water quality standards for chlordane and dieldrin. Regarding fish tissue and sediment results, EPA's final decision notes that these data, in and of themselves, do not point to adverse impacts from the discharge. However, water quality standards are established at protective levels to prevent unacceptable levels of bioaccumulation. Regarding the issue of removing of pesticides in secondary treatment, see response to comment P101

Comment P109: EPA has pointed to the presence, in the wastewater discharged, of chemicals used in the 1970s and 1980s for termite control, chemicals that were the only ones available and had to be used if a home was to qualify for FHA loans. They quote limits for chlordane that a senior DOH official has stated are in error by a factor of 10 due to typographical error in a table. They also mention high levels of dieldrin found in our wastewater using the 30 year old test specified in the permit, a chemical not detected using a more modern, more accurate test. Has EPA investigated this information in formulating their tentative decision, and if not why.

Commenter: 134

Response: EPA has used the State of Hawaii's promulgated water quality standard for chlordane in analyzing the application. Regarding the commenter's point regarding a typographical error in the chlordane limit, see response to comment C23. CCH has not yet conducted the formal process to amend the Hawaii water quality standards, nor did they comment on EPA's use of the existing chlordane standard in the TDD. Regarding the analytical method for dieldrin, see response to comment C29. Additionally, as noted on page 49 of the TDD, EPA evaluated whether the State water quality standard for fish consumption for chlordane would be exceeded if it were set at 0.00016 µg/L, rather than at the existing value of 0.000016 µg/L. EPA found that this less protective limit would have still been exceeded in 87 of the 105 months analyzed in the TDD.

Comment P110: I understand that the improvements to the collection system should eliminate the discharge of the pesticides dieldrin and chlordane.

Commenter: 2

Response: See response to comment P11

Comment P111: EPA states that the sea urchin WET test results clearly indicate the effluent exerts a toxic effect. It is also important to note that EPA's basing these conclusions of effluent toxicity on testing protocol that has not been approved by the authoritative agency, namely, the EPA. Why base a decision that is so important, so significant for the people of Hawaii on a draft testing protocol that your agency has not even approved?

We believe that the *T. gratilla* WET tests should be stopped until improvements can be incorporated and it is proven to be a reliable and meaningful test. Certainly, results for the current test methods should not be used as a measure of toxicity.

The sea urchin WET test has no validity because it is not an EPA approved test method. The test procedure itself is highly variable in its results (perhaps that is why EPA has not approved this test method in the first place).

Commenters: 16, 18, 23, 59, 62, 67, 91, 110

Response: Please see responses to comments P10, C31, C37 and C38.

Comment P112: EPA has used results from two WET tests as the basis for their conclusion. The Sand Island effluent has met all of the WET tests performed on *C. dubia*.

Commenters: 16, 23, 62, 67

Response: See response to comments P10 and C37

Comment P113: Secondary treatment would not necessarily change the results from a flawed test, as demonstrated at other wastewater treatment facilities with secondary treatment that have "failed" the *T. gratilla*-based test.

It is important to note that the Hilo, Waianae and Kailua plants, which are secondary facilities, periodically fail this test as well.

Commenters: 16, 62

Response: See response to comment C37.

Comment P114: The Sand Island WWTP's wastewater is also relatively free of toxic materials compared to other heavily industrialized cities.

Commenter: 59

Response: The extent of industry that contributes wastewater to the Sand Island WWTP is not directly relevant to the review of the Sand Island 301(h) application. However, regardless of the amount of industry, the discharge must be able to meet water quality standards, including the WET criterion, to qualify for a variance. EPA's assessment is that the proposed discharge would exceed the water quality criterion for WET. Also, Sand Island has a pretreatment program to control toxic materials entering their collection from industrial sources. EPA has concluded that

CCH is complying with pretreatment program requirements necessary to obtain a renewed 301(h) variance.

Comment P115: Based on testimony provided by the City and other local experts, EPA should be well aware of its questionable basis for denying the SIWWTP waiver. Effluent toxicity testing results utilizing sea urchins are suspect due to the unapproved and potentially unreliable procedures used. Surveys of abundant marine life around the outfall discharge indicate no signs of effluent toxicity.

Commenter: 59

Response: Regarding the sea urchin test method, please see response to comments P10, C31 and C38. In evaluating whether the applicant had demonstrated that the modified discharge would not interfere with the attainment or maintenance of that water quality which assures protection of a balanced, indigenous population of shellfish, fish, and wildlife, EPA assessed not only the biological data collected by CCH around the outfall, but also the chemical-specific and WET data. EPA's *Technical Support Document for Water Quality-based Toxics Control* states that an integrated approach to water quality-based toxics control consists of whole effluent, chemical-specific, and biological assessments (EPA, 1991). Because each approach has its limitations, exclusive use of one approach alone cannot ensure required protection of aquatic life. EPA has considered the available information on WET, specific chemicals, and the biological data collected near the outfall and found that the proposed discharge would not attain water quality standards established to protect aquatic life, specifically WET and ammonia nitrogen.. Thus, the primary basis for EPA's conclusion that the applicant has failed to demonstrate that a modified discharge would not interfere with the attainment or maintenance of that water quality which assures protection of a balanced, indigenous population of shellfish, fish, and wildlife is that the proposed discharge would not attain these water quality standards.

Comment P116: The WET is carried out with the Hawaii Sea Urchin to determine if more and accelerated testing is necessary. Unlike the *C. dubia* test, this test has yet to be approved and is now undergoing peer review after being in use for at least fifteen years.

Commenter: 62

Response: Please see response to comments P10, C31, C37 and C38.

Comment P117: A more effective approach for any WET failure is to work to identify the toxin and prevent it from entering the system.

Commenter: 62

Response: In order to receive a renewed 301(h) variance, CCH must demonstrate that the discharge from the Sand Island WWTP can meet water quality standards, including WET. EPA

agrees that identifying the pollutant or pollutants causing the toxicity in the Sand Island WWTP effluent and taking steps to control those pollutants is extremely important. For that reason, CCH's permit includes a requirement to conduct a toxicity reduction evaluation when permit limits for WET are exceeded.

Comment P118: The U.S. Court has ruled previously that violations of WET requirements in NPDES permits should not be subject to enforcement. Why then are you using the noncompliance with Sand Island WET test requirements as a basis for your tentative decision to deny reissuance of the waiver permit?

Commenter: 63

Response: In accordance with the requirements of section 301(h), EPA assessed whether the proposed discharge would meet water quality standards for WET, not whether the Sand Island WWTP has been in compliance with its permit (see also response to comment C32)

Comment P119: The Sand Island WWTP NPDES permit is very clear. Part B.1.b states that the "chronic toxicity discharge limitation in Part A.1 of this permit does not apply to monitoring results for toxicity tests using *Tripneustes gratilla*." The Sand Island WWTP has been in compliance with WET test limits and in compliance with Hawaii Water Quality Standards for toxicity.

Commenter: 67

Response: In accordance with the requirements of section 301(h), EPA assessed whether the proposed discharge would meet water quality standards for WET, not whether the Sand Island WWTP has been in compliance with its permit (see also response to comment C32).

Comment P120: The EPA has required the use of the Hawaii Sea Urchin for WET testing in several Hawaii NPDES permits. A major issue associated with this requirement is whether the test method for *Tripneustes gratilla* is approved and for that matter, appropriate. The County of Hawaii questioned the use of *Tripneustes gratilla* in a letter to EPA dated February 28, 2007. This letter and EPA's response, dated June 7, 2007, are provided in Enclosures A and B, respectively.

Commenter: 67

Response: The Hawaiian sea urchin test is appropriate for assessing toxicity of the Sand Island WWTP effluent (please see response to comments P10, C31, C37 and C38).

Comment P121: The method in the Sand Island WWTP permit conflicts with EPA's own guidance regarding use of indigenous species. EPA's letter to the County of Hawaii (Enclosure B) [see comment P120] states "EPA has continued to recommend that NPDES permitting authorities implement chronic WET in permits for West Coast facilities based on Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms." The publication of the Federal Register that makes this "recommendation" also includes regulatory direction to not use wild indigenous species. Specific language (emphasis added) from the Federal Register is provided below (See 60 Fed. Reg. 53529 (October 16, 1995)):

b. Indigenous (Feral) Test Organisms

Comment: The use of indigenous species from the receiving water should be allowed effluent toxicity tests.

EPA response: The use of feral (feral indicates wild) indigenous species from the receiving water is not allowed due to the lack of control in the quality of the test organisms, including such factors as range in age, possible previous exposure to contaminants, disease, and injury during collection, all of which might significantly affect organisms sensitivity to toxicants, and the precision and reproducibility of the test. However, the above discussion does not mean that EPA is adverse to persons developing methods based on organisms indigenous to specific surface waters. These toxicity methods would need to include QA/QC provisions that assure a proper level of precision and reproducibility, and would need to use test organisms cultured in a laboratory that are unaffected by environmental stresses. Such methods could be submitted for approval as an alternative test procedure (40 CFR 136.4(a) and (d)).

Commenter: 67

Response: See response to comment C33.

Comment P122: I reviewed the West Coast Methods (EPA/600/R-95/136, August 1995) in response to EPA's letter [see comment P120]. The test organism section in the test methods implies field collection of test organisms if for broodstock culturing and handling for topmelt, mysids, the pacific oyster, the red abalone, and the embryo-larval development test method for the Purple Sea Urchin. Method 1008.0 for the Purple Sea Urchin fertilization test, provides instructions for holding adult urchins for seven days. The WET method for *Tripneustes gratilla* does not provide similar instructions.

Commenter: 67

Response: Instructions for handling organisms are specific to each test method, including the *T. gratilla* test method. Most laboratories in Hawaii (and California) have relied upon spawning wild-caught urchins the day of collection, because they do not have the facilities to hold or

culture urchins, although the Pacific Biomedical Resource Center and Oceanic Institute have held *T. gratilla* for short periods of time with spawning success. It is not uncommon to spawn organisms shortly after collection to obtain viable gametes, because whole organisms are not used in the fertilization toxicity tests. Not all methods recommend holding test organisms. For instance, sand dollars do not thrive longterm in a laboratory holding system. As stated in Section 16.6.33.5 of EPA/600/R-95/136, "It is probably most convenient to obtain sand dollars, use them, and then discard them after they cease to produce good quality gametes."

Comment P123: The letter (3rd Paragraph - Enclosure B) [see comment P120] also references the statement in Hawaii Administrative Rules Chapter 11-54-4: *All state waters shall also be free from chronic toxicity as measured using the toxicity tests listed in section 11-54-10, or other methods specified by the director.* The WET method using *Tripneustes gratilla* is not listed in the references in 11-54-10. I was told by the Hawaii Department of Health on February 26, 2007, that the method is a requirement of EPA Region IX, not the DOH. As important, as stated previously, the Sand Island WWTP discharge has been in compliance with chronic toxicity limits as defined in its permit.

Commenter: 67

Response: See response to comments P10, C31 and C32.

Comment P124: The letter (4th Paragraph – Enclosure B) [see comment P120] states that the reference in WET test methods discouraging the use of "feral" or wild caught organisms are "recommendations" not "requirements." Each of the EPA methods manuals, including West Coast methods ((EPA/600/R-95/136, August 1995), Section 6.2.5.1.6 states that "Test organisms obtained from the wild must be observed in the laboratory for a minimum of one week prior to use...." The use of the word "must" is not permissive and does not imply a "recommendation" but a "requirement."

Commenter: 67

Response: The commenter is referring to a section of the methods manual that discusses the drawbacks of using wild caught organisms in general. This section does not set requirements for particular test methods. Rather, as stated in Section 6.4.1 of EPA/600/R-95/136, August 1995, "Instructions for culturing, holding, and/or handling the recommended test organisms and broodstock are included in specified test methods." Specific instructions are found in the *T. gratilla* test method.

It is the quality of the gametes that is critical to the success of a toxicity test, not whether the broodstock are wild caught or maintained in the laboratory. Whether broodstock urchins are wild caught or maintained in the laboratory, good quality gametes are determined by fertilization success, as specified in test acceptability criteria.

Comment P125: The letter (5th Paragraph – Enclosure B) [see comment P120] states that an “interlaboratory study” was conducted in 2002-2003, and that the method is “currently under external peer review.” EPA, through DOH, has required the use of *Tripneustes gratilla* for over 15 years. EPA should have been more forthcoming that this was a “study” and not an approved method. As a study, the results should not be used to penalize or take enforcement action against a permittee. I was told verbally by Ms. Robyn Stuber of EPA that the method was expected to be approved by the fall of 2007. As of today, the method has still not been approved.

Commenter: 67

Response: Updating the *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* (EPA/600/R-95/136, August 1995; West Coast manual) to include the *T. gratilla* method has taken longer than anticipated, but the method is appropriate for use in toxicity testing in Hawaiian marine waters regardless (see response to comments P10 and C31). The interlaboratory study referenced by the commenter is a supplemental aspect of method development that does not change the method itself, it merely documents variability among laboratories conducting the test. This interlaboratory study will supplement the *T. gratilla* method that will be published in the new edition of EPA/600/R-95/136. The City and County of Honolulu Water Quality Laboratory has demonstrated an ability to produce high quality data using the *T. gratilla* method, as demonstrated in the test success rate. The delay with revising the West Coast manual is due to a lack of staff time at EPA to complete the necessary edits, it is not because of any problems with the *T. gratilla* method.

Comment P126: In the weight of evidence approach for environmental assessment, a single chemical test for water quality is given less weight than biocriteria assessment such as the maintenance of fish, benthic and coral population. In this regard, EPA points out that violation of the toxicity assay using sea urchin test as the basis for denying 301h waiver for Sand Island. The sea urchin test is a tricky test to determine efficiency of sperm fertilization of eggs in a given water sample. Toxic chemical in the water sample may be responsible. However, many other factors unrelated to presence of toxic chemicals, especially in whole effluent which are known to contain unknown particulate matter. As a result, EPA must reevaluate the accuracy of the sea urchin toxicity data.

Commenter: 70

Response: When properly conducted, the sea urchin test is reliable (see responses to comments C34-C37). Regarding EPA’s conclusion concerning protection of a balanced, indigenous population of fish, shellfish, and wildlife, see response to comment P115.

Comment P127: I would like to bring up the sea urchin test. I'm in the laboratory. I understand the basis for the sea urchin test. And it's not a test of toxicity. It's a test to determine whether sperm will fertilize the eggs. And many things -- it's called matrix -- and can interfere with it. And there's no test after you do the toxicity or the sea urchin test to confirm that it is actually a toxic chemical involved.

Commenter: 70

Response: The sea urchin test is a test of toxicity. The basis of the test is the exposure of sea urchin sperm to a sample of effluent and then the measuring of whether the sperm exposed to the effluent successfully fertilize sea urchin eggs as well as sperm exposed only to dilution water. Please see also responses to comments C34-C38.

Comment P128: However, as part of the reason for the denial of the Sand Island 301(h) permit, EPA has stated that the sea urchin fertilization test results have shown that the discharge is toxic to sea urchin gametes. I am very familiar with Whole Effluent Toxicity having used it with a number of sea urchin species for some of Hawaii's utility companies over the last 15 years. Both the Sand Island and Honouliuli outfalls routinely fail the test, so from EPA's perspective, this is a scientifically-based reason to deny both of these 301(h) waivers. I maintain that the test protocols as required by EPA are dead wrong and using them will undoubtedly result in test failure. Both of these outfalls have a Zone of Initial Dilution where water quality can be out of compliance with state standards. Outside the Zone of Initial Dilution, these parameters must be in compliance. Rather than use a sea urchin fertilization test protocol that is totally laboratory based and having to add sea salts and do serial dilutions, the water to be tested should come from the boundary of the Zone of Initial Dilution which is the real world situation. If you did so, you would probably find that you pass the test. My more than 30 years of experience both in biology and water chemistry has found that laboratory results may have little to no connection with the real world environment. So before you impose your erroneous decision on Honolulu's citizens by saying the failure of this test is scientific evidence to do so, modify the test protocol as I have suggested and rerun the sea urchin fertilization test and see what you get. You might be surprised. If you don't, I can only conclude that your actions are politically motivated and are not based on science.

Commenter: 78

Response: Testing of effluent, rather than receiving water, is routine in NPDES permits, especially for toxic pollutants and whole effluent toxicity. One reason for testing effluent rather than receiving water is because sampling is typically infrequent and would likely not occur during critical conditions (e.g., when initial dilution is lowest). In accordance with HDOH water quality standards, EPA has estimated the minimum initial dilution. This minimum initial dilution is then taken into account when conducting the toxicity test using effluent. In this way, infrequent sampling can still be protective of critical conditions, even if critical conditions do not

exist on the days that sampling actually occurs. Testing in the manner described by the commenter would not be in accordance with Hawaii's WQS, which requires testing based on the minimum dilution.

EPA has found that toxicity testing of effluent correlates well with biological impacts in the receiving water. EPA has examined sites in both freshwater and saltwater systems to investigate whether or not an evaluation of effluent toxicity can give a valid assessment of receiving water impacts. This effort is described in EPA's *Technical Support Document for Water Quality-based Toxics Control*, which includes the following conclusion regarding the correlation of effluent toxicity measurements to receiving water toxicity in saltwater:

"The results of the studies at these four sites indicates a 94 percent accuracy when using the marine and estuarine toxicity tests to predict receiving water impacts. In only 6 percent of the cases did effluent toxicity tests predict receiving water toxicity that was not present (false positive)." [p. 9]

Comment P129: The whole effluent toxicity and pesticides effluent monitoring data submitted by CCH demonstrates that the discharge is endangering the Mamala Bay ecosystem. CCH's DMRs document that the SIWWTP discharges have been consistently toxic to a local species of sea urchin in laboratory testing - thus violating Hawaii WQS prohibitions on discharging toxic pollutants in toxic amounts. CCH's DMRs further show that the SIWWTP has been consistently discharging the pesticides chlordane and dieldrin above the WQS for these pollutants. It is well accepted that discharges of toxic pollutants above state or federal standards generally supports a finding that such discharges pose an imminent and substantial endangerment to the environment. It is reasonable and prudent for EPA, applying precautionary principles, to seek to curb discharges that exceed the WQS meant to protect the ecosystem from pollution harms.

Commenter: 135

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P130: In general, the fish accumulation results for these pesticides were not significant because no dieldrin was detected and chlordane was detected only 3 times in samples of fish tissue. Note also that these compounds would not necessarily be removed in the secondary treatment process.

Commenter: 16

Response: EPA has concluded that fish tissue data, in and of themselves, do not point to adverse impacts from the discharge. However, EPA concluded that the proposed discharge would not attain the water quality criteria for dieldrin and chlordane. Hawaii's water quality criteria for chlordane and dieldrin are expressed in terms of the acceptable concentration of these pollutants in the receiving water column. EPA's analysis, therefore, is based on the effluent data

for these two pesticides and the estimated minimum initial dilution (which is used to calculate the concentration that would occur in the receiving water under critical conditions). The presence or absence of chlordane and dieldrin in fish tissue is not relevant to the determination of whether the criteria would be met.

EPA also concluded that the proposed discharge may interfere with that water quality that would protect recreation related to fish consumption. This conclusion was based primarily on the failure of the proposed discharge to meet water quality criteria for dieldrin and chlordane. See also response to comment C57.

Regarding the removal of these compounds in the secondary treatment process, see response to comment P101.

Comment P131: The results of the study that lead to the Mayor's objection are not valid because the question of the study "will secondary wastewater treatment improve ocean water?" was leading (the answer can only be no, because nothing can treat a polluted ocean clean). The question should rather be: "Will secondary wastewater treatment procrastinate further ocean pollution?"

Commenter: 3

Response: EPA has reviewed the application submitted by CCH and analyzed the available information against the regulatory and statutory criteria of section 301(h). Our conclusion is that the Sand Island WWTP does not qualify for a renewed variance.

Comment P132: Waivers with the county have exceeded their temporary intent. We need a permanent compliance to improve our ocean water quality standards.

Commenter: 4

Response: Section 301(h) does not contain a limitation on the number of renewals that can be obtained, provided the applicable criteria are met. Congress has imposed a limitation on renewals for other types of variances (e.g., section 301(m)).

Section 301(h) only allows for a variance from secondary treatment requirements (provided the specified criteria are met). The section 301(h) criteria do not allow a variance to be approved if the proposed discharge would not meet water quality standards. EPA's decision to deny the application for Sand Island WWTP is based primarily on EPA's analysis that the proposed discharge would not meet water quality standards.

Comment P133: Every winter or rainy season when the wastewater plants cannot handle the capacity of excessive storm water overflow, the county is dumping raw sewage into our

shoreline community beaches. Where is the justice in that? Our ocean resources deserve better water quality standards than what the C&C of Honolulu, local community and business leaders and high profile politicians say otherwise. The real issue is that these individuals have no raw data to substantiate their position.

Commenter: 4

Response: EPA agrees that spills of raw sewage are a serious problem and that upgrades to the wastewater collection system are needed. However, the inadequacies of the collection system are not directly related to the 301(h) criteria, and no change to EPA's analysis is needed in response to this comment.

Comment P134: Why is the EPA so unscientifically concerned about the oceans? Since 1983 Lilauea Iki on the Big Island has been spewing lava and some of it into the ocean. Does the EPA fine those responsible for "polluting the oceans"?

Commenter: 8

Response: EPA may take enforcement actions, sometimes including fines, when dischargers violate their NPDES permits. Natural sources, such as lava flows, are not addressed by the NPDES program. CCH has applied for renewal of the 301(h) variance for the Sand Island WWTP. EPA has reviewed the application against the 301(h) criteria and concluded that the proposed discharge would not meet the criteria.

Comment P135: Why doesn't the EPA seek solutions rather than fine institutions for violations that are not scientifically proven?

Commenter: 8

Response: EPA has assessed whether the proposed discharge would meet the requirements of section 301(h), not whether the Sand Island WWTP has been in compliance with its permit. There are no fines directly associated with EPA's denial of the 301(h) application.

Comment P136: I attended the informational meeting re: tentative decision on the renewal of variances for the Sand Island Treatment Plant. I found that most of the attendees were City employees or State officials who strongly approved the renewal of the waiver which has been in existence for too many years already. Things will not get better here. The impact of the building boom, high rises with thousands of units to be using the system soon will only impact the quality of water that goes into the ocean in a more detrimental and a health hazard even more than ever.

Commenter: 13

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P137: HWEA has invited EPA to meet and discuss the scientific basis for the conclusions leading to the tentative denial, in addition to the overall advantages and disadvantages for the public and the environment of converting to secondary treatment. Although EPA has not yet responded to our invitation, we hope that they will accept our offer to meet and discuss these issues.

Commenter: 16

Response: EPA did not meet individually with stakeholders, but instead provided an opportunity for all interested parties to submit their comments on our analysis by speaking at the public hearing and/or by submitting written comments. EPA has now considered the comments we have received. This document contains our responses.

Comment P138: The \$9 million Mamala Bay study concluded that two-thirds of the pollutants discharged to Mamala Bay came from nonpoint sources. That estimate would have been much higher if it had included runoff to near shore water bodies such as Pearl Harbor and the Ala Wai Canal. For Pearl Harbor, only 7% of the pollutants discharged to Pearl Harbor was considered in the total to Mamala Bay. And there is much more activity in Pearl Harbor than at the Sand Island outfall.

Commenter: 20

Response: EPA agrees that nonpoint sources and storm water are important contributors of pollutants to Mamala Bay, and that the types of threats identified by the commenter may be of concern in various locations in Hawaii.

Comment P139: Pragmatic measures like the newly added UV light disinfection coupled with the high amount of dilution in the present configuration will suffice.

Commenter: 24

Response: While EPA finds that the SIWWTP can meet bacteria standards with use of the UV system, EPA's analysis is that the UV system coupled with dilution is not adequate to meet other water quality standards.

Comment P140: What really is amazing is that Hawaii was the first in the Nation to approve a patented cutting edge AOWTS (Alternative Onsite Wastewater Treatment System) that addresses multiple environmental, economic, political, and growth management issues. Specific issues are addressed are:

Fresh Water Conservation (up to 140,000 gallons per year/home)
 Allows 24/7 remote monitoring and self reporting diagnostics
 Eliminates 99.99% of pathogens discharged into the environment
 Eliminates 100% of nitrates and phosphates from toilets
 Better alternative to septic systems or municipal sewage connections
 Solution to failing septic tanks or lack of sewage infrastructure
 Reduces Greenhouse gas emissions by lowering energy consumption
 Maintains the convenience of the "flush it and forget it" mentality
 Built to meet or exceed all safety and environmental standards, tests and protocols
 Much lower overall costs than septic tank systems
 Greatly reduces the cost per flush over a sewage connection
 High RV and Marine consumer acceptance by eliminating need to dump holding tanks

What I don't understand is why Hawaii keeps coming up with and complaining about a problem that we have the answer for. We were the first to approve the use of Xerolet in October 2007 yet, Florida, Texas and Indiana are starting to put systems in before us. I have e-mailed, faxed, sent out PR and called most Local Papers, TV stations and others and still not a word wrote or spoken about Xerolet. Hawaii was the first (Iolani Palace) to have a flushing toilet even before the White house and now we are the first to approve an AOWTS solution that we are ignoring.

The first systems will be put in on the North Shore the April 2008. Florida State Parks have purchased Xerolet systems for the Mclarty State Museum at Subastian Inlet. Hawaii's Xerolet's will be installed about that same time.

I would really like an answer to this blatant non-acknowledgement to a solution

Commenter: 49

Response: The commenter suggests a specific method for decentralized wastewater treatment. This is not directly applicable to the issue at hand, whether CCH's application for a renewed discharge permit for the centralized treatment of wastewater at the Sand Island WWTP should be granted.

Comment P141: We've heard from our local experts from the scientific & engineering community that have studied the Sand Island treatment system for well over 30 years, and they unanimously say that there is no benefit to public health in going to higher levels of treatment. (By the way the existing treatment system I'm referring to is the comprehensive treatment and disposal system that includes dispersion and dilution of the effluent through the deep ocean outfall – providing both horizontal distance and vertical depth away from public contact; not just primary treatment of effluent coming out of the plant that has often been mentioned.) Keep in mind that the appropriate level of treatment must be selected based on the effluent disposal options available. Separating the two is improper. The selection of the primary treatment at both Sand Island and Honouliuli were made based on the availability of the deep ocean outfalls and

favorable oceanographic conditions offshore. In other cases, such as the old Kaneohe and Ahuimanu treatment plants (now abandoned), secondary and even tertiary treatment was constructed, since the only available disposal facilities were in Kaneohe Bay and Ahuimanu Stream (an enclosed and sensitive embayment, and a small freshwater stream, respectively). Flows from both of these plants now are sent to the Kailua Regional WWTP where it is treated to secondary levels and discharged through the Mokapu outfall offshore in Kailua Bay – prevailing currents and winds at the outfall are not conducive for primary treatment. The selection of treatment level should be based on engineering design. That is precisely why Congress added Section 301H to the Clean Water Act in 1977 and allowed waivers from secondary treatment as an available option.

Commenter: 53

Response: Under the CWA, the determination of whether an ocean outfall is “conducive for primary treatment” must first answer whether the criteria of section 301(h) are met. If these criteria are met, a municipality may decide that it still is advantageous to use full secondary treatment. Some of the site-specific considerations alluded to by the commenter are taken into account in a 301(h) evaluation in the calculation of critical initial dilution. Consideration is given to water temperature, salinity and current speed in determining this dilution value, which is then taken into account in evaluating whether the diluted discharge achieves water quality standards. EPA has evaluated the application submitted by CCH, which includes both continued use of the ocean outfall as well as primary treatment, and found that the combination is insufficient to meet the 301(h) requirements, including attainment of water quality standards.

Comment P142: Our water professional groups have asked for explanation and discussion of the rationale for the denial of the waiver and have received no response. Without fully understanding the rationale for EPA’s tentative decision, it is impossible to formulate a sound, engineered solution.

Commenter: 53

Response: The rationale for EPA’s tentative decision was presented in the tentative decision document and supporting documents. EPA made the tentative decision document and supporting documents available to anyone interested in reviewing them. EPA held a lengthy public comment period to provide interested parties ample time to review EPA’s documents and prepare comments.

Comment P143: Denial of the waiver would urge conformity with EPA federal standards whereby wastewater plants of similar size are required to implement secondary treatment procedures.

Commenter: 55

Response: EPA agrees that denial of CCH's request for renewal of the 301(h) variance would result in secondary treatment requirements being included in the NPDES permit for the Sand Island WWTP.

Comment P144: Granting another waiver to the City and County would only allow this administration to postpone an upgrade that is long overdue (and like other administrations, spend its monies on other priorities).

Commenter: 55

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P145: If discharge from primary treatment exceeds "safe" levels as determined by the State Department of Health, then the City and County of Honolulu is in violation of the Clean Water Act.

Commenter: 55

Response: EPA assessed whether or not the proposed discharge would meet the requirements of section 301(h), including water quality standards adopted by the State of Hawaii to protect public health and the environment. After evaluating the application for a renewed variance, and considering the comments we received from the public, EPA concludes that the proposed discharge would not meet water quality standards for ammonia nitrogen, chlordane, dieldrin, and whole effluent toxicity adopted by HDOH. This failure is the primary basis for EPA's decision to deny the application for renewal of the 301(h) variance.

Comment P146: Decisions regarding allocation of monies to upgrade wastewater treatment facilities or repair collection systems are a county internal budget matter and not the EPA's responsibility.

Commenter: 55

Response: EPA has not considered how CCH may set priorities and allocate funding for upgrading the treatment facilities or repairing the collection system in evaluating the 301(h) application for Sand Island.

Comment P147: The wastewater that only receives primary treatment is clearly not as safe as the City and County claims or there would be no need to dump it so far offshore.

Commenter: 55

Response: EPA supports the decision of CCH to discharge their treated wastewater through the ocean outfall. After evaluating the application for a renewed variance, and considering the comments we received from the public, EPA concludes that the proposed discharge would not meet water quality standards for ammonia nitrogen, chlordane, dieldrin, and WET adopted by HDOH. This failure is the primary basis for EPA's decision to deny the application for renewal of the 301(h) variance.

Comment P148: The city government has not shown any effort to upgrade the plant knowing that the waiver and variance would expire. This is a continuing problem with the city government. They made the same type decision with the land fill and its termination date. The city government's answer to all problems [is to] wait to the last minute and request a waiver, plead a hardship to the people, etc.

Commenter: 56

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P149: EPA has not analyzed the water quality data using proper methodology as the water quality standards requires the use of geometric mean as the basis of evaluating the data, which EPA has not employed.

Commenter: 59

Response: Some, but not all, of the water quality standards require the use of a geometric mean. EPA has used the geometric mean to assess attainment of those standards that specify use of the geometric mean, for example, in considering attainment of the water quality standards for bacteria and ammonia nitrogen.

Comment P150: I'm here as a citizen this evening. I read this article but -- that's just what brought me here. I don't know who wrote it. I don't know if she's here. I'd love to confront her with it. Just these two sentences speak volumes to me: "Go take a tour of the Sand Island treatment plant. I defy you to tell the difference between the effluent and an ordinary glass of water." I'd love to take a tour with her or anyone and any news agency that'd be willing to go and see what justification's in here. This is a misrepresentation.

Commenter: 94

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P151: I have some knowledge of what goes on in Sand Island. Part of the treatment that we have now that scares the bejeebers out of me is the chemicals that are used to process it

now. Part of them are calcium hypochlorite and ferric chlorite. Ferric chlorite is highly corrosive, to metal, which the plant is predominantly made of. At this point, six bar screens at a cost of \$80,000 apiece have already gone by the wayside in a nine-month period. If it's doing that to metal, how can you tell me it's not damaging our ocean if it's pumped out there? Because the city knows this is the problem, they're planning on changing to aluminum sulfate, not corrosive, not as corrosive. But it's an acid. It's an acid we're going to pump out into the ocean. It's a Level 3 poisonous hazard to the environment. Four is the highest. Somebody explain to me, anybody explain to me, how these two items can be pumped out to the ocean and you tell me it's not a problem. If going to a secondary will stop this, I am so in favor of it. And the city will find a way to pay for it, and I don't want my children and my grandchildren in water that has this floating around in

Commenter: 94

Response: Many wastewater treatment plants use calcium hypochlorite, ferric chlorite, or similar chemicals to enhance the effectiveness of the treatment process. Sand Island's permit does not require nor prohibit use of such chemicals. Whether or not CCH chooses to use such chemicals, the discharge must comply with all permit requirements. This includes effluent limitations, such as those for whole effluent toxicity, which measure whether the final effluent is toxic to aquatic life. In addition, CCH must comply with applicable regulations pertaining to the safe handling and storage of chemicals used in the treatment process.

Comment P152: Conditions have improved since the last waiver was awarded in 1998.

Commenter: 113

Response: Please see response to comment C2.

Comment P153: The question is: is the C&C of Honolulu in compliance with the Clean Water Act?

Commenter: 4

Response: EPA did not assess compliance with Sand Island's existing NPDES permit as part of its evaluation of CCH's application for renewal of its 301(h) variance. Rather, EPA assessed whether or not the proposed discharge would meet the requirements specifically set forth in CWA section 301(h), which included analyzing whether the proposed discharge would meet currently-applicable water quality standards. After evaluating the application for a renewed variance, and considering the comments we received from the public, EPA concluded that the proposed discharge would not meet water quality standards for ammonia nitrogen, chlordane, dieldrin, and WET adopted by HDOH. This failure is the primary basis for EPA's decision to deny the application for renewal of the 301(h) variance. While in some cases a permittee's noncompliance with existing permit terms may be a ground to deny a permit renewal application

(or even terminate a permit during its term) (see 40 CFR 122.64(a)(1)), EPA did not believe it was necessary to analyze whether Sand Island was in compliance with all the terms of its current permit as part of this specific 301(h) evaluation, given our findings that the discharge would not comply with specific water quality standards and that the applicant had not demonstrated that the discharge would not interfere with the attainment and maintenance of that water quality which assures protection and propagation of a BIP and allow recreational activities.

Comment P154: We depend on clean ocean water resources for recreation and food resources.

Commenter: 4

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P155: I understand that the EPA decision is based on 3 factors: the observable effect of whole effluent toxicity (WET) in laboratory tests, the failure to meet the State Department of Health's ammonia standard, and the toxic pollutants dieldrin and chlordane detected at levels above the State's standard. Ultimately, the EPA's decision should be based on protecting Hawaii's near shore recreational waters under the guidelines of the Clean Water Act.

Commenter: 7

Response: The commenter is correct that the primary basis for EPA's tentative decision to deny renewal of the 301(h) variance is that CCH had failed to demonstrate that it could consistently achieve the state water quality criteria for whole effluent toxicity, ammonia nitrogen, chlordane and dieldrin. Further, EPA concluded in the tentative decision document that the proposed discharge may adversely affect fishing due to toxic pollutants in the effluent and the maintenance of water quality supporting a balanced indigenous population of fish, shellfish, and wildlife due to exceedances of toxicity and ammonia nitrogen standards. EPA has now considered the comments we received from the public on the tentative decision, and EPA has again concluded that the proposed discharge does not meet the requirements of section 301(h) for the same basic reasons. EPA disagrees that the decision should be based on "protecting Hawaii's near shore recreational waters under the guidelines of the Clean Water Act." The protections provided under the Clean Water Act are not limited to "near shore recreational waters." The State of Hawaii has designated waters to a distance of three miles from shore for recreational use, and the Clean Water Act provides protections for these waters. Additionally the Clean Water Act requires protections of a balanced, indigenous population of fish, shellfish and wildlife.

Comment P156: I do not believe that all the indicators cited by the EPA would be addressed by the addition of secondary treatment at the Sand Island plant. More specifically, secondary treatment, a technique using microorganisms to consume primary treated wastewater's organic matter, would not necessarily remove toxic chemicals like dieldrin and chlordane. It is more likely that these chemicals are seeping into our recreational waters through run-off from the

surrounding watershed. Thus, watershed management is more likely the solution, rather than secondary treatment.

Commenter: 7

Response: EPA agrees that dieldrin and chlordane are likely entering recreational waters through runoff. However, the question before EPA is not the effectiveness of secondary treatment, nor how to improve watershed management, but whether or not the proposed discharge would meet the requirements of section 301(h). Nevertheless, EPA believes that secondary treatment would likely result in additional removal of both dieldrin and chlordane from Sand Island's effluent (see also response to comment P11), and EPA will continue to work with HDOH and other stakeholders on pollution control on a watershed basis.

Comment P157: Questions have been raised by scientists who have years of experience conducting the City and County's wastewater testing on the issue of the ammonia levels (as no algal blooms have been detected) and the WET tests (regarding the species chosen). These questions should be answered by the EPA with any final decision. The manner that the EPA chooses to answer these questions, and those that have also been raised in the interim decision on the Honouliuli Wastewater Treatment Plant, should be as flexible as the situation and the law allows. Could the City and County provide less than secondary treatment if the proceeding settlements on our sewage collection system dramatically improve those processes? Would extending the outfalls or using newly developed technologies bridge the gap? Rather than continue as an adversary, I hope the EPA will consider itself a partner in our search for solution to this costly and environmentally sensitive issue faced not just on Oahu but many U.S. metropolitan areas.

Commenter: 7

Response: EPA received a number of comments (from CCH and others) on EPA's conclusions in the tentative decision document that the proposed discharge would not attain water quality standards for ammonia nitrogen and WET. EPA has now considered the comments received and prepared responses to them. For example, CCH's comments on WET testing are comments C31 through C38 and CCH's comments on nutrients (including ammonia nitrogen) are comments number C39 through C43.

EPA has responded to the comments within the framework of section 301(h) and evaluated the application as it was submitted by CCH. EPA did not assess other possible scenarios that could have formed the basis for CCH's application, such as extension of the outfall. In response to comments, however, EPA has looked at how planned improvements to the collection system might affect the concentrations of chlordane and dieldrin in Sand Island's effluent and how extension of the ocean outfall might affect attainment of water quality standards. With regard to chlordane and dieldrin, EPA is not optimistic that collection system repairs will result in significant declines in pesticide levels anytime in the near term, based on the scope of the deficiencies in CCH's collection system, and the need to address sewer pipes throughout the

system (see also response to comment P11). With regard to extension of the ocean outfall, please see response to comments P7 and P35.

EPA Region 9 is committed to being a partner in addressing the many challenging issues related to the environment in Hawaii and in the other states in our region. HDOH has the authority to implement many of the Clean Water Act programs in Hawaii and we will continue to work collaboratively with HDOH and other stakeholders to address water quality issues in Hawaii.

Comment P158: As the enclosed clipping shows, the opposition by the Sierra Club and other activist organizations to the granting of Honolulu's requested waiver is not based in the science of the Honolulu situation, but is merely a pre-emptive strike against EPA ever granting a waiver anywhere.

Commenter: 10

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P59: You are responsible as well as they are for our health and safety. You are living up to your duties, let them do the same.

Commenter: 13

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P160: This is the same method used in San Diego when the EPA tried this same tactic. Scripps Institution of Oceanography in San Diego proved this was not necessary with their extensive research. Unfortunately the EPA will not admit the error in their ways and continues to appeal. Honolulu's situation mirrors San Diego with similar conditions, direct ocean discharge.

Commenter: 27

Response: EPA's decisions regarding whether a variance from secondary treatment may be granted are based on site-specific determinations based on permittee applications. The commenter makes reference the City of San Diego. In the case of San Diego, Congress added section 301(j)(5) to the CWA, which requires that more stringent criteria be met in order to obtain a variance from secondary treatment. The City of San Diego's current permit for its Point Loma WWTP contains a variance from secondary treatment which became effective in 2003. EPA is familiar with the referenced studies by the Scripps Institute, and does not agree that these studies, which focused on a narrow subset of the relevant criteria, "proved" that secondary treatment was not necessary at the time the 2003 permit was issued. EPA and the State of California issued the 2003 permit after concluding that the City of San Diego met all of the criteria in both section 301(h) and section 301(j)(5) of the CWA.

Comment P161: Upgrade to secondary sewer treatment at the minimum was required through out the U.S. since the 1980's. Hawaii was not paying attention to the serious requirements. They deserve to get fined heavily. They had ample time to plan. What is wrong with their management? Have the federal OMB hold back funds as a threat and have Honolulu work out a time line to get back on line in with pollution prevention works. If small towns in California can do it, Honolulu can do it! It is expensive, but more you hold off, the cost will rise as well.

Commenter: 43

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P162: EPA stands to get sued if they fail to make Honolulu comply. Honolulu stands to get sued by the public if they do not comply. No matter what, compliance is mandatory. Hawaii with contaminated beaches is not a pretty picture. Compliance is necessary.

Commenter: 43

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P163: Waivers under Section 301h were never intended by Congress to be permanent. They were supposed to be granted for economic hardship communities. The outfalls for Sand Island and Honouliuli were never built as designed and not to the depth that would have assured discharge below the ocean thermocline.

Commenter: 44

Response: The commenter is correct that the duration of a specific 301(h) variance is not intended to be indefinite. However, Section 301(h) does not contain a limitation on the number of renewals that can be obtained, provided the applicable criteria are met. Congress has imposed a limitation on renewals for other types of variances (e.g., section 301(m)). None of the 301(h) criteria limit the opportunity to apply to economic hardship communities. The issue in the 301(h) analysis for the SIWWTP is not whether or not the outfall was built as designed. EPA has reviewed the application submitted by CCH. This includes discharging through the current ocean outfall. EPA's conclusion is that the proposed discharge would not meet the requirements of section 301(h).

Comment P164: The city officials, including Mayor Hannemann, who are trying to continue the current practice of discharging water that does not meet the Clean Water Act standards are shooting themselves, and the entire island of Oahu, in the foot with their shortsighted actions. Our economy relies heavily on the purity and cleanliness of our ocean water for recreational activities, and any practice which sullies that only serves to reduce our economic potential. The

risk of polluting seafood resources is great, and long term effects of such actions are not well known. Why should we risk our children's future health for the sake of a little tax savings now? This is especially disturbing in light of the fact that our city government is currently endorsing a \$31 billion mass transit system that is not projected to have any significant impact in reducing traffic gridlock. It is a prime example of the inefficiency of political posturing, and I am glad that the EPA is standing firm to support what is right, rather than folding to the whims of the media and a few political cronies.

Commenter: 46

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P165: We are all supporters of clean water, and a safe and healthy environment for Hawaii. It is our mission as engineering professionals, and more so as residents who live here. However, before we commit to this drastic upgrade, we must be sure that it is something we really need.

Commenter: 53

Response: The decision before EPA is whether or not the proposed discharge would meet the requirements of section 301(h). After evaluating the application for a renewed variance, and considering the comments received from the public on its tentative decision, EPA concludes that the proposed discharge would not meet the requirements of section 301(h).

Comment P166: Sand Island (and, by the way, Honouliuli) represent precisely the situation Congressional representatives had in mind when they added section 301(h) to the Clean Water Act in 1977. EPA officials have stressed that their decision is merely following the law. But the law per se is not in dispute here; EPA's interpretation of the law is the problem. EPA has grasped at a few rare outlying results, sometimes results of clearly unsound scientific procedure, as a foundation for its interpretation of section 301(h). My professional life began just a few years before EPA was created in 1972. Congress's intent in creating the Agency was to provide a means of achieving and preserving environmental values. The Sand Island decision abandons all pretense to this mission, apparently in preference for...what? Mindless catering to unthinking proponents of secondary treatment? Fear of lawsuits? Pursuit of Agency budgetary savings? It is highly disappointing to witness this decline from idealism into bureaucratic nit-picking.

Commenter: 54

Response: This comment does not identify specifically those interpretations of the law made by EPA that the commenter finds problematic. EPA has applied the criteria identified in section 301(h) and its implementing regulations to CCH's proposed discharge for the Sand Island WWTP. EPA's analysis of CCH's application is contained in the final decision document, this response to comments, and the administrative record. See also response to comment C72.

Comment P167: As we understand it, variances from the provisions of the CWA were created by the U.S. Congress for the very narrow instances where a locality could demonstrate justification in not implementing requirements of the law. I believe it was further intended that it be incumbent upon the locality, having been granted a temporary variance, to be working in a determined manner to fully resolve cited deficiencies so that full compliance with the CWA would be achieved as early as possible. In Honolulu, City Administrations - - one right after another - - have “kicked the can” of the decrepit and aging sewage collection and water supply systems down the line to the next administration. It all came to a head two years ago (March 30, 2006) as a massive sewage spill upwards of 50 million gallons of raw sewage poured out of an aging and ruptured 42-inch sewer main (known to be in jeopardy of rupturing) into the Ala Wai Canal besmirching our famed Waikiki Beaches and endangering tourists and locals alike as well as fish and marine life. It was clearly beyond the time to bite the bullet and fix the endemic problems plaguing the City. Similarly, a “train wreck” is rapidly approaching for the City and State on the issue of the mandated closing of existing large capacity cesspools. Since 2000, federal law has required closing and shifting to alternative wastewater systems by no later April 5, 2005, but the State of Hawaii obtained an extension of this mandate until September 2009. Now, faced with the probable failure to meet this mandate, the State is likely seeking another extension. Public schools alone are woefully behind the power curve in solving the problem as only 45 of 322 large capacity cesspools in rural schools have been closed while another 25 projects are in progress. This does not include all the other large capacity cesspools so affected by federal mandate. Faced with massive fines, the State is attempting to address the problem of the highly possible likelihood of contaminated ground water (the State’s only real source of drinking water).

Commenter: 61

Response: The decision before EPA is whether or not the proposed discharge would meet the requirements of section 301(h). In its decision on the section 301(h) application, EPA is not specifically addressing the deficiencies in the Sand Island collection system. While specific 301(h) variances and modified permits are not expected to continue indefinitely (see response to comments P45 and P163), Section 301(h) does not contain a limitation on the number of renewals that can be obtained, provided the applicable criteria are met. Congress has imposed a limitation on renewals for other types of variances (e.g., section 301(m)). After evaluating the application for a renewed variance, and considering the comments received from the public on its tentative decision, EPA concludes that the proposed discharge would not meet the requirements of section 301(h). The issues regarding cesspools raised in this comment are not relevant to the 301(h) analysis, and no response is necessary.

Comment P168: Hold the city of Honolulu accountable with scientific evidence.

Commenter: 66

Response: Comment noted. This comment does not request a change in EPA’s analysis.

Comment P169: Isn't the whole point of the 301(h) waiver program is to protect jurisdictions like ours from spending money wastefully from providing secondary treatment when there's no added environmental benefit?

Commenter: 72

Response: Financial considerations are not included in the statutory criteria listed in section 301(h) of the CWA, and EPA cannot make secondary treatment variance decisions based on cost considerations. Please see also the response to comment C72.

Comment P170: I think that you've had ten years to approve or process this five-year permit application. And my question to you is: Why not allow the city at least the same amount of time to address these shortcomings rather than going through the bureaucratic reaction of just pulling a waiver?

Commenter: 91

Response: EPA is making a decision on the application and supporting information submitted by CCH in May, 2003. CCH had ample time to prepare its application. Also, EPA held a lengthy public comment period on its tentative decision. CCH had ample time to prepare comments on the tentative decision.

Comment P171: Are military facilities and housing exempted from paying for the \$1.5 billion in upgrades required by EPA? If yes, why should I as a resident tax payer be required to foot the bill while others like tourists and military dependents be exempted? Isn't this unconstitutional? Taxation without representation.

Commenter: 8

Response: Issues regarding taxation are not relevant to this 301(h) decision. The decision before EPA is whether or not the proposed discharge would meet the requirements of section 301(h). Financial considerations are not included in the statutory criteria listed in section 301(h) of the CWA, and EPA cannot make secondary treatment variance decisions based on cost or funding considerations (see also response to comment C72).

Comment P172: Various City administrations over the years have fought to maintain the waivers. They have thrown out "boogeyman" numbers to scare the public. But, the true costs have never been shared.

Commenter: 44

Response: EPA has not confirmed the accuracy of cost estimates for facility upgrades cited by CCH, nor have we prepared detailed estimates of these costs ourselves. Financial considerations are not included in the statutory criteria listed in section 301(h) of the CWA, and EPA cannot make secondary treatment variance decisions based on cost or funding considerations (see also response to comment C72).

Comment P173: Honouliuli, for instance, already treats to tertiary for some of its flows that are recycled and has built the expansion to meet secondary treatment. The cost for full secondary compliance could be met by having the Honolulu Board of Water Supply increase its efforts at water recycling using income from the sale of reclaimed water and the avoided cost of new source water development. The BWS already collects fees from developers for service expansion and it is cheaper to recycle than develop new wells and related infrastructure. EPA would not be increasing sewer fees by mandating full secondary at Honouliuli, but it would be encouraging wise water use policy.

Commenter: 44

Response: The proposals described in this comment are beyond the scope of section 301(h). The decision before EPA is whether or not the proposed discharge for the Sand Island WWTP would meet the requirements of section 301(h). Nevertheless, EPA, as a general matter, encourages integrated water supply and wastewater infrastructure planning, including the consideration of wastewater recycling.

Comment P174: At Sand Island, the Clean Water Act requires the City to meet receiving water quality standards with or without a waiver. It can't meet those standards with the waiver. The effort to use ultraviolet disinfection with primary treated effluent was and is a joke. With the new solids handling facility, the City already has digesters, a cost usually assigned to secondary treatment. Once again, the expansion must meet secondary treatment requirements for which no waiver is available under the Clean Water Act. The City continues to include these costs in its numbers to argue against the waiver denials. This is unfair and dishonest.

Commenter: 44

Response: EPA agrees that the Sand Island discharge is required to meet effluent limitations based on water quality standards, with or without a section 301(h) variance, and that the proposed discharge would not meet water quality standards for ammonia nitrogen, chlordane, dieldrin, and WET. Please also see responses to comments P172 and C72.

Comment P175: Honolulu has an excellent bond rating and has never met the hardship criteria. Besides sewer fees, the City has a number of financial tools that could be employed. It could do a better job of collecting fees from developers that reflect the costs of full secondary treatment. It

could use Community Facilities District financing. I introduced and passed the enabling law when on the City Council, but the City has yet to use it.

Commenter: 44

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P176: I urge the EPA to look beyond the public relations campaign being employed by the City Administration and do the right thing by denying the waiver extensions as it has proposed. Decades have passed and it is time for the City to meet its moral and legal obligations under the Clean Water Act.

Commenter: 44

Response: After evaluating the application for a renewed variance and considering the comments received from the public on its tentative decision, EPA concludes that the proposed discharge would not meet the requirements of section 301(h).

Comment P177: An increase in sewer fees of \$300 or so is a small price to pay to bring the City into compliance after such a long reprieve.

Commenter: 55

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P178: My wife and I attended the Public Hearing convened March 12, 2008 in Honolulu, Hawaii that solicited comments on EPA's tentative decision regarding the renewal of the Clean Water Act (CWA) 301 (h) variance requested by the City and County of Honolulu for Secondary Treatment at the Sand Island Wastewater Treatment Plant. We chose not to make an oral statement but instead decided to submit written comments herein. Frankly, we were appalled at the extremely well-orchestrated frontal attack by Honolulu Mayor Mufi Hannemann and his band of politicians, public employees, public union officials, University "experts," tourism officials, contractors and "affected" public citizens; they all "sang" a well-rehearsed party line of negativity - - not necessary, too costly, global warming, impact on "real" needs (i.e., to fix aging sewer system), and on and on. One speaker threatened extended and costly litigation against the EPA while others suggested that the Federal Government fund the Secondary Treatment. The "Hearing", in our minds, was a complete waste of time and was reminiscent of how the Mayor seems to address every issue for which he will not tolerate dissent. By my count, there were in excess of sixty speakers at the hearing, only three of whom spoke against granting a continued variance. Each of these three speakers received verbal abuse for their comments from the assembled audience.

Commenter: 61

Response: Comment noted. This comment does not request a change in EPA's analysis. EPA considered it important to give the public the opportunity to comment either orally at the hearing and/or through submission of written comments.

Comment P179: EPA officials misled the public by stating at the public hearing that EPA was here to listen. By allowing only 2 minutes per oral presentation, this procedure limited the oral presentation of each person to a few simple statements and moreover, insulated EPA officials from entering into dialogue with anyone attending this public hearing.

In my career, all of us have to present our data and defend it. And I've asked EPA to come before such a meeting as this, not to listen, but to interact with us and to discuss the data as EPA interprets and we see it differently.

Commenter: 70

Response: EPA's process allowed extensive opportunity for public input into the decision-making process. Rather than issuing a final decision initially, EPA issued a tentative decision, and then opened a public comment period. The purpose of the hearing was for EPA officials to have the opportunity to listen to interested parties present their views on EPA's tentative decision, not to engage in a debate. The EPA officials at the hearing correctly stated that EPA was there to listen. Speakers were limited to 2 minutes of oral testimony, because many individuals signed up to speak, and EPA wanted to give everyone the opportunity to be heard in a reasonable amount of time. EPA put no limits on the extent of written comments that could be submitted. EPA provided a lengthy comment period to ensure interested parties had more than adequate time to prepare their comments. EPA is now issuing its final decision to deny the variance, only after considering the testimony given by the public at the hearing and the comments submitted by the public in writing during the comment period. See also response to comment P137.

Comment P180: I do wonder how truthful EPA's statement is that they will truly listen to the comments of the people of Hawaii. You heard the overwhelming response in the Honouliuli Wastewater Treatment Plant hearing to grant the waiver, and thus far you've heard much in favor of the waiver for the Sand Island Wastewater Treatment Plant. Will you truly listen or continue on your current path of making blanket decision to deny all waivers?

Commenter: 97

Response: EPA is now issuing its final decision to deny the variance, only after considering the testimony given by the public at the hearing and the comments submitted by the public in writing during the comment period. It is true that the majority of the comments EPA received during the comment period were in favor of granting the variance. The decision before EPA, however, is

whether or not the proposed discharge would meet the requirements of section 301(h). Section 301(h) does not require that EPA base its decision whether or not to grant a variance on the majority view of the comments received during the public comment period. Rather, section 301(h) allows EPA to approve a variance only if specific criteria are met. After evaluating the application for a renewed variance, and considering the comments received from the public on its tentative decision, EPA concludes that the proposed discharge would not meet the requirements of section 301(h).

Comment P181: The politician's were getting away with avoiding health issues and did not take care of the problem and now its catching up with them. EPA should insist that the City comply with its standards. In the end we all benefit!

Commenter: 50

Response: After evaluating the application for a renewed variance and considering the comments received from the public on its tentative decision, EPA concludes that the proposed discharge would not meet the requirements of section 301(h).

Comment P182: It is outrageous that Honolulu should have persisted these many years in non compliance in this serious matter. Our present mayor should not be able to bully his way out of doing the correct thing. The majority of the population is unaware of the toxic discharges and their harmful effects on sealife and ultimately on people eating the sealife. I don't doubt that most of those at the hearing on 3/12 were city workers, encouraged to be there by the mayor, to support his position. The majority of the people would demand the secondary treatment if they truly understood what is at stake here. The mayor has increased all sorts of taxes, some of these should go to this priority. It was never "easy" for a city to comply with the federal Clean Water Act, but other cities did it because it is the right thing to do and Honolulu has the responsibility to comply for the wellbeing of its citizens.

Commenter: 51

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P183: I am stunned at the blatant disregard of well-established Federal Law (CWA) standards by the City and County of Honolulu. Clearly, the City wants a permanent variance so that compliance with standards will never be met. The City must find the funds for the project on a priority basis. EPA must hold the City's "feet to the fire" and grant no further variances. Our children's children demand nothing less than "verbatim compliance" on this issue.

Commenter: 61

Response: After evaluating the application for a renewed variance and considering the comments received from the public on its tentative decision, EPA concludes that the proposed discharge would not meet the requirements of section 301(h).

Comment P184: Please do not allow the city of Honolulu to continue to procrastinate on meeting national standards of compliance for clean water.

Commenter: 66

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P185: Upgraded wastewater treatment is a good investment/the essential investment for keeping Hawaiian waters beautiful and healthy and attractive for locals and tourists alike. The people of Hawaii should not have to wait until people get sick from swimming or eating fish. Swimming ocean waters off Honolulu is periodically polluted when pollution is washed onshore by southerly winds, resulting in 1) dying and increased number of dead reefs on Oahu's south shore, and 2) swimmers and surfers with skin sores and throat and respiratory illness. I ask the EPA to support increased funds to Honolulu so it can more effectively handle pollution of Oahu's south shore water. I would appreciate your supporting tertiary sewage treatment as well as you supporting repair of our sewage system, so I can swim safely off Honolulu.

Commenter: 124

Response: EPA provides funding for wastewater infrastructure through the Clean Water State Revolving Fund loan program. In Hawaii, this program is administered by the Hawaii Department of Health, which ranks project proposals and funds priority projects. These projects can include construction of secondary treatment facilities, tertiary treatment facilities, and collection system improvements. See response to comment P187.

Comment P186: The multi-million dollar Mamala Bay study, funded by the tax payers of Honolulu, should not be ignored. The overwhelming conclusion of this ambitious study was that the discharge of primary effluent had no adverse impact on receiving water quality and that secondary treatment was neither necessary nor desirable. The one concern raised, that of the micro-biological quality of certain near shore waters during unusual conditions of wind and currents, has been addressed by the City with the recently completed disinfection unit at Sand Island. Since completion of this study observations continue to support its findings.

Commenter: 62

Response: EPA is familiar with the Mamala Bay study. However, it would not have been appropriate to base our decision solely on the results of this study. It was necessary for EPA to analyze data provided by the Sand Island facility, including data generated after the Mamala Bay

study. EPA concluded that the Sand Island discharge can attain water quality standards for bacteria with continuous operation of the UV disinfection system. However, EPA also concludes that the proposed discharge will not attain water quality standards for ammonia nitrogen, chlordane, dieldrin, and WET.

Comment P187: As for funding assistance, I have not heard of any mechanism to fund the required improvements except to raise the City's user fees. Even the EPA Clean Water State Revolving Fund (or SRF) Program – one of the federal government's primary funding programs for water infrastructure projects – was threatened to being cut by \$200 million this past year. Federal support of the Clean Water SRF has been steadily declining since 1991 when it peaked at \$3.0 billion annually. Putting the cost facing the City in perspective to the available funding nationally, the previous high in recent years for the Clean Water SRF program was \$1.35 billion the estimated costs for Honolulu's projected upgrades at Sand Island and Honouliuli would require the entire annual amount allocated for the whole nation.

Commenter: 53

Response: The commenter is correct that EPA funds the Clean Water State Revolving Fund program to assist communities with the construction of wastewater infrastructure. The SRF is a loan program, not a grant program, and the funding EPA provides is to capitalize the program. As a revolving loan program, the SRF can fund projects totaling many times the amount of EPA's annual funding. Also, EPA does not necessarily agree with the estimate of \$1.35 billion to upgrade the Sand Island and Honouliuli WWTPs, as EPA has not seen or been provided with a detailed description of the basis for this estimate. EPA has not made its own estimate of the cost to upgrade the treatment plants to full secondary treatment, as assessing the costs of secondary treatment is not part of EPA's evaluation of a 301(h) variance. See response to C72 and P191.

Comment P188: The city wants to spend 4 billion dollars for a rail system, they can spend the money to upgrade the waste water treatment plant to protect our oceans.

Commenter: 56

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P189: By asking Congress -- and it's only a suggestion -- to get \$800 million as a grant to the City and County of Honolulu to build this second system and use this as a model for all other counties in the nation. And if this works, as you think it does, then this would be a perfect way to prove to the nation how well your organization is. So therefore, you have the power right now to solve everyone's problem. The activists would be happy. The county would be happy. The federal government would be happy. We'll all be happy. That's all it takes. So you've heard everything tonight. Nothing more to decide.

Commenter: 102

Response: In recent years, Congress provides funding to EPA for wastewater infrastructure in one of two ways. First, Congress provides funds to EPA to capitalize the Clean Water State Revolving Fund program, a loan program administered in Hawaii by the Hawaii Department of Health. Second, Congress may provide grant funds for individual projects as specific line items in EPA's budget. EPA does not request any line item appropriations.

Comment P190: I ask you to deny the waiver for extension 301(h) for both plants. Our taxes have gone up more than 100% since Mayor Hannemann has taken office creating such a windfall he has talked about giving back some of it. Why would he say we don't have enough money to take care of this problem when he is getting more money than any previous administration in history? According to the city's proposed operating budget for the past 4 years, the city had 1.5 billion in revenue in 2004, and is projected to have 2.5 billion dollars in 2008. This is almost a billion dollars more than the mayor's predecessor. This in 4 short years. And I can guarantee we the tax payers have not seen 1 billion dollars worth of improvements in this community. And he and the city council have raised sewer taxes twice and excise the tax to the tune of 150 million dollars. In addition, our user fees for water and electricity are on the rise, and 2 more sewer tax increases are scheduled for the next year. The city does not have enough revenue to pay for this and all other improvements it needs to. Please make them clean up this mess. Ironically, the mayor is proposing a 6 billion dollar project when we supposedly don't have 1.2 billion to keep our oceans safe and healthy. This isn't about money, it is about whether the mayor and council will be able to have their pet projects like the toy train they want to force on us.

Commenter: 85

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P191: Unless EPA is willing to grant federal funding to defray the cost to upgrade to secondary, the priority should be the collection system. Even though EPA's stance is financial hardship is not a reason enough to grant the waiver because it is not pertinent to the law, the reality is there's only so much funds the people of Hawaii can generate and provide to address various needs.

Commenter: 97

Response: The commenter is correct that financial considerations are not included in the statutory criteria listed in section 301(h) of the CWA, and EPA cannot make secondary treatment variance decisions based on cost considerations. However, questions of priority are relevant for determining schedules for future treatment plant upgrades. During the development of schedules for system upgrades, it is EPA's intention to consider the financial capability of CCH, and the relative priorities for the various wastewater infrastructure challenges CCH faces.

Comment P192: My husband and I are ardent swimmers. The ocean is our love. I would have liked to see our Health Director, Dr. Fukino and other doctors who practice here testify that everything is just fine the way it is with no health problems.

Commenter: 13

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P193: The discharge monitoring reports submitted by the City, legal documents, show that the City has consistently failed to meet receiving water quality standards for decades. This needs to stop. This is a public health issue. Hawaii is unique in that its tropical climate allows recreational water use all year long. Our residents surf, swim, canoe, and fish in these receiving waters and should not be put at risk any longer. Our tourism based economy markets our wonderful beaches and encourages travelers from around the world to come here and enjoy ocean sports.

Commenter: 44

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P194: Members of the Environmental Groups include residents of and visitors to Oahu who regularly use southern Oahu's Mamala Bay waters for fishing, body contact water sports (including outrigger canoe paddling, swimming, surfing, body-surfing, boogie boarding, paddleboarding, kayaking, jet skiing and catamaran sailing) and other forms of recreation, wildlife observation, aesthetic enjoyment, educational study, and spiritual contemplation. Environmental Groups' members are well aware from extended personal observations that the general public of residents and visitors to Oahu regularly use Mamala Bay water for these purposes. During daylight hours, every day of the year there are numerous people in Mamala Bay's near shore waters engaged in various water contact sports. It is also common for many surfers to surf Waikiki's breaks at night during conditions of full moon. Finally, many members of the public engage in frequent water contact in waters well off-shore of the southern Oahu coast, out to and even beyond three miles in the course of outrigger canoe paddling, paddleboard paddling, sailing, motor boating, and fishing.

Outrigger canoe paddling is one of many popular water contact sports on Oahu. For example, the outrigger canoe association Hui Waa has seventeen member canoe clubs with 1,500 members. This association is sponsoring twelve long distance regattas in 2008 in Mamala Bay waters; these long distance regattas typically take several canoes full of paddlers well off-shore. In addition, member clubs conduct regular practice sessions that routinely bring several crews of paddlers up to three miles off-shore (and occasionally further). It is a common practice for paddlers to jump out and swim around in Mamala Bay waters well offshore during both regattas and practice sessions when taking a break from paddling or changing crews. In addition, outrigger paddlers routinely contact ocean waters from spray and the act of paddling while in their canoes.

Furthermore, the Environmental Groups members are well aware from personal observation that the many people who regularly use small to medium sized watercraft, including paddleboards, jet skis, sailboats, catamarans, and motorboats to recreate in Mamala Bay waters inevitably receive water contact from spray.

Commenter: 135

Response: The applicable water quality standards to protect for water contact recreation extend to the state/federal boundary three miles from shore, well beyond the point of discharge. EPA concludes that the proposed discharge would meet these standards, in waters beyond the zone of initial dilution, provided the UV disinfection system is properly maintained and operated continuously. However, based on exceedences of water quality standards for the bioaccumulative pesticides chlordane and dieldrin, EPA also found that CCH had failed to demonstrate that its discharge would not interfere with that water quality which allows the fishing recreational use.

Comment P195: Another activity that the member of Environmental Groups and general public regularly engage in is fishing in far-shore waters. This activity likewise results in water contact when reeling lines in or removing fish from lines.

Commenter: 135

Response: EPA agrees that fishing is a recreational activity in all of Hawaii's offshore waters. See response to comment P194.

Comment P196: Given this widespread, frequent public use of Mamala Bay near-shore and far-shore waters, the Environmental Groups' members and the general public are both very concerned about water quality in these waters and at risk for being immediately affected by the Sand Island and Honouliuli WWTP discharges. It is incumbent upon EPA to act carefully and cautiously to protect Mamala Bay's waters from pollution from human pathogens associated with sewage discharged from the Sand Island and Honouliuli WWTPs.

Commenter: 135

Response: The applicable water quality standards to protect for water contact recreation extend to the state/federal boundary three miles from shore, well beyond the point of discharge. EPA concludes that the proposed discharge would meet these standards, in waters beyond the zone of initial dilution, provided the UV disinfection system is properly maintained and operated continuously.

Comment P197: The TDD clearly documents that the SIWWTP discharge is causing or contributing to adverse impacts on Mamala Bay waters - even without considering the

cumulative impacts from the neighboring Honouliuli WWTP discharges or that growth in the Sand Island service area will likely lead to increased volumes of sewage discharge from the SIWWTP.

Commenter: 135

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P198: Recreational water was extended to two miles, and I could not find any document in Hawaii that approves that it is two miles. It should be 1,000 feet from shore.

Commenter: 70

Response: Pursuant to the BEACH Act, 40 CFR Section 131.41(c)(2), enterococcus criteria apply to Hawaii's marine waters to a distance of 3 miles from shore. Under HAR 11-54-3, these waters are classified as Class A waters whose recreational uses must be protected.

Comment P199: The solid waste left behind from secondary treatment would need to be transported offsite for disposal. Once again, there are additional energy consumption and greenhouse gas production issues from this practice as well. Not to mention traffic and congestion issues already present on Sand Island Parkway and the additional strain on an already maxed-out Waimanalo Gulch.

Commenter: 131

Response: EPA's decision at hand is whether or not CCH should receive a variance under section 301(h) of the CWA. The criteria for making this decision do not include consideration of air emissions or energy consumption associated with secondary treatment. However, it is EPA's objective to minimize any negative impacts and maximize benefits that might result from plant upgrades required by the CWA. With respect to greenhouse gas emissions, there will be options to reduce emissions by methods such as those in the December, 2006 EPA document, "Opportunities for and Benefits of Combined Heat and Power at Wastewater Treatment Facilities." It is EPA's intent to share lessons learned from experience across the county to ensure that CCH is aware of environmentally sound technologies available to minimize any unintended negative impacts from treatment plant upgrades.

Comment P200: Our sewage debacle last year only tells you they wait until something terrible happens before they act.

Commenter: 13

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P201: EPA's decision would make sense if it were based on real threats to human health or if it would help to meet the Clean Water Act's goal of making the nation's waters fishable and swimmable. But EPA's decision is based on technicalities, and it is irresponsible to base an \$800 million decision on the parts per billion of a few water samples.

Commenter: 20

Response: Many toxic pollutants can cause adverse impacts when found in the water in concentrations of only a few parts per billion. Thus, many water quality standards are written in terms of parts per billion ($\mu\text{g/L}$). These are the levels that protect human health and aquatic life. Financial considerations are not included in the statutory criteria listed in section 301(h) of the CWA, and EPA cannot make secondary treatment variance decisions based on cost considerations (see also response to comment C72).

Comment P202: It is my belief that the waiver decision must be based on good science. In this case good science indicates that the waivers requested must be granted.

Commenter: 29

Response: See response to comments P45 and P46.

Comment P203: I assume someone at EPA has read and absorbed the conclusions of the ~100 reports WRRC has produced over the past 25 years (although, parenthetically, the tentative denial decision seems to have ignored these conclusions). Every report has concluded that disposal of primary treated effluent into deep ocean waters nearly two miles off shore has caused no significant deterioration in aquatic habitat or in the variety or number of species and taxa found near the outfalls. A "balanced indigenous population" continues to thrive there.

Commenter: 54

Response: EPA based its decision on the information provided in CCH's application, along with supporting information. EPA is aware of work done by the WRRC. EPA considered all comments provided by the public, which included comments from by several individuals affiliated with the WRRC. EPA concludes that the proposed discharge would not meet the criteria for renewal of the 301(h) variance. EPA has given careful consideration to comments from both CCH and members of the public who are affiliated with the WRRC. With regard to marine life specifically, EPA concludes that CCH has failed to demonstrate that a balanced indigenous population would exist around the outfall, given EPA's assessment that the proposed discharge would not attain water quality standards for ammonia nitrogen or WET. See response to comment P46.

Comment P204: Prolonging the waiver battle is extremely wasteful. It hurts both local residents and the environment, as limited City funds and manpower is being directed away from resolving problems with our sewer system. It would be a true win-win situation if EPA would reverse its decision and simply approve the waiver. At a minimum, the City and EPA should further research the toxicity, pesticide and ammonia issues. It should be determined with a high degree of certainty whether the environmental concerns are valid, whether secondary treatment would resolve these concerns, and whether there are more cost-effective alternatives to resolving the concerns if they are valid.

Commenter: 59

Response: EPA's decision must be consistent with the specific 301(h) criteria in the Clean Water Act, and our determination was based on analysis of a significant amount of data regarding the Sand Island discharge. CCH's permit has already been administratively extended, and further delay in the 301(h) decision is not appropriate. Regarding the commenter's point about the "whether environmental concerns are valid," see response to comment P46, regarding the point about whether secondary treatment will resolve concerns, see responses to comments P2, P27 and P226.

Comment P205: The EPA has accumulated sound science to support its reasoning whereas the University of Hawaii scientists who are opposing the EPA have not conducted adequate scientific studies to back themselves up. And they had time to do this during all of the years of the granted variance and continued granted variance.

Commenter: 66

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P206: Secondary treatment focuses on three pollutant parameters: biochemical oxygen demand (BOD), total suspended solids (TSS) and pH. EPA's tentative decision acknowledges that the Sand Island WWTP is in compliance with the permit requirements for these parameters and that these parameters are not degrading water quality.

Commenter: 67

Response: Although EPA concludes that the proposed discharge would attain the water quality standards related to BOD, TSS and pH, it is also necessary under CWA 301(h) for the discharge to meet all water quality standards and satisfy other 301(h) requirements for a variance to be granted.

Comment P207: EPA officials misled the public by stating at the public hearing that if any water quality standard was exceeded, that EPA was obliged to deny the 301h waiver application.

This EPA statement goes against the use of EPA weight of evidence approach to best determine the impact of several independent measurements used to measure environmental water quality. This weight of evidence approach was supported by three speakers at the Region 5 SWiM in Chicago (March 2008).

Commenter: 70

Response: EPA's statements, at both the public hearing, and in the TDD, that unless all 301(h) criteria are met, a renewed variance cannot be granted, are correct. Although the commenter does not provide specific details about the use of the "weight of evidence" approach, or the "Surface Water Monitoring and Standards Meeting" at EPA's Chicago office, the approach used to conclude that the Sand Island discharge does not meet specific standards is consistent with approaches used by EPA across the country for determining whether water quality standards are being attained. Based on the data provided in CCH's application, the weight of evidence is that the discharge does not attain several applicable water quality standards. CCH also provided comments recommending the use of a "weight of evidence" approach as an alternative to the 301(h) criteria. Please see responses to comments C55 and C62.

Comment P208: We will be submitting a more formal response to your technical document. And what we like to say is though you presented there, we'd like to outline in more detail. We don't like how you guys say that we're not attaining things, but you don't explain to the public what we're not attaining and how you go about interpreting the data. Because it's not me. It's all of the engineers and scientists in this room look at our data set and come to a different conclusion than EPA. I'd just like to make some general comments.

Commenter: 72

Response: This comment consists of introductory remarks and does not require a response. EPA has considered and prepared responses to the comments we received on the tentative decision. The more formal "response" referred to in this comment appears to refer to comments submitted by CCH, which EPA numbered with the letter "C" and responded to elsewhere in EPA's response to comments.

Comment P209: In 1990 and 1998, EPA approved our waivers and -- and you guys actually did an excellent job of reviewing the environmental data. But in this situation, in our reapplication in 2003, we don't see that rigorous analysis. And that's why we're challenging EPA. Since 1988, you guys wanted us to expand our ocean monitoring program, and we've done that. And we did that to ensure that the data we collect would provide a more complete data set to make this evaluation, but you guys -- but EPA has totally ignored this additional data set. With this new data set, it's even clearer today that the 301(h) waiver is the right thing for the city. Therefore, we ask EPA, the stewards of our environment, why they are not considering a more sustainable approach to protect our treasured environment and, in this case, a more balanced view between air versus water pollution. Our conclusion is that EPA has reached a tentative decision that is not

well-reasoned; and it is not supported by monitoring program, and it is not scientifically sound. Help the city to continue and complete the improvements to our collection system in order to protect the health of our beaches and the oceans, and help us make it remain our top priority.

Commenter: 72

Response: EPA has reviewed the application submitted by CCH and analyzed the available information against the regulatory and statutory criteria of section 301(h). EPA has not ignored the data gathered by CCH's ocean monitoring program. EPA has reviewed the data submitted by CCH and EPA concludes that the proposed discharge would not meet the requirements of section 301(h). The primary basis for this conclusion is EPA's finding that the proposed discharge would not attain water quality standards for ammonia nitrogen, chlordane, dieldrin and WET. The 301(h) criteria do not include consideration of the air emissions from secondary treatment operations or competing priorities related to the collection system (see also the responses to comments C72 and C74. Regarding EPA's previous actions, please see response to comment C3. Regarding the monitoring program, see response to comment C4.1.

Comment P210: I'm a taxpayer. You know, you guys almost had me sold. I came in here supporting the waiver. And I've seen the evidence presented saying that, well, we don't meet the standards to get the waiver. But then you told me it took five years to come to a tentative decision to deny the waiver. And to me, when you're presented with evidence that says you don't get it, you don't get it. So why is it 2008 and we're still talking about this?

Commenter: 90

Response: EPA held a public hearing so that EPA officials could listen directly to comments from the public on the tentative denial. EPA has considered the comments received at the hearing and the comments submitted to EPA during the public comment period, and EPA is now issuing a final decision to deny the variance. This comment does not appear to request a change in EPA's analysis.

Comment P211: I'm a licensed engineer, and I participated in the preparation of the 1982 waiver application. Tonight you made your case based on three conditions; that we have shortcomings with pesticides, ammonia, and not meeting one of two whole effluent toxicity tests. What I did not hear you say is that denial of this waiver would resolve these problems.

Commenter: 91

Response: EPA has based its assessment of the application on the regulatory and statutory requirements in section 301(h) of the CWA. The extent to which secondary treatment would address the adverse affects of the Sand Island discharge is not a factor identified in the 301(h) requirements. See also response to comment P226.

Comment P212: As thinking, caring people, shouldn't we be trying to address these shortcomings about the environment? For example, chlordane and dieldrin have been out of production for years. It's most likely coming through infiltration of our aging wastewater system. Shouldn't the city be allowed to follow through with a program to test, study, and optimize improvement for the wastewater system?

Commenter: 91

Response: EPA agrees that it is likely that most of the chlordane and dieldrin is coming through infiltration into the wastewater collection system. CCH is making improvements to the collection system, but EPA is not optimistic that collection system repairs will result in significant declines in pesticide levels anytime in the near term, based on the scope of the deficiencies in CCH's collection system, and the need to address sewer pipes throughout the system (see also response to comment P11).

Comment P213: Shouldn't we be allowed to do a wastewater characterization study to find out the sources of how I view indeed that it might be contributing to the ammonia and nitrogen? And maybe it could be more cost effectively treated at the sources.

Commenter: 91

Response: Ammonia and nitrogen are fundamental components of municipal wastewater and they cannot be removed at the source (toilets). Ammonia can be converted to other forms of nitrogen in secondary treatment processes. Additional treatment can actually remove nitrogen from the wastewater.

Comment P214: What should be done is to write an environmental impact statement, possibly by you; and you would then find that the environmental impact of the secondary treatment is significantly greater and detrimental than the environmental impact of a waiver. So that's my recommendation.

Commenter: 112

Response: EPA's decision at hand is whether or not CCH should receive a variance under section 301(h) of the CWA. The criteria for making this decision do not include the type of evaluations the commenter proposes. An environmental impact statement evaluating treatment plant upgrades is neither necessary nor appropriate in determining whether a variance under section 301(h) of the CWA should be granted. Please see also response to comment P1.

Comment P215: Do not punish the citizens of Oahu because EPA is tired of dealing with the bureaucracy of administering the waiver permit. Perhaps some management could be found where Honolulu pays those EPA employees tasked with this task. Don't make a legalistic

decision made on the basis of a fine point of the law while totally ignoring the empirical evidence.

Commenter: 126

Response: EPA is denying CCH's request for a renewal of the 301(h) variance for the Sand Island WWTP because the proposed discharge does not meet the statutory and regulatory requirements of section 301(h), not to punish the citizens of Oahu or because EPA is tired of dealing with the bureaucracy of administering the permit. EPA has reviewed the information submitted by CCH in its application and supporting documents and has considered the comments we received from the public on our tentative decision.

Comment P216: The Environmental Groups further note that the current inadequately treated Sand Island discharge threatens the health of all those who use southern Oahu's waters for water contact recreation - especially off-shore waters. This is even more true if EPA were to consider the cumulative impacts of CCH's discharge from the neighboring Honouliuli WWTP and predictable future increases in the volume of sewage to be discharged from the SIWWTP. Accordingly, EPA must deny CWA section 301(h) waivers for both the Sand Island and Honouliuli WWTPs.

Commenter: 135

Response: EPA concludes that the discharge from the Sand Island WWTP can attain water quality standards to protect water contact recreation at all locations beyond the zone of initial dilution, provided CCH continues to properly maintain and operate the UV disinfection system on a continuous basis. EPA is making a separate evaluation of CCH's request for a 301(h) variance for its Honouliuli WWTP. EPA does not expect that there will be any cumulative impacts on water contact recreation, considering the discharge from the Honouliuli WWTP and the increases in the volume of wastewater discharged from the Sand Island WWTP estimated in the application, as long as the Sand Island WWTP continues to adequately disinfect its discharge.

Comment P217: The Environmental Groups support EPA's conclusion that the Sand Island discharges may be having a deleterious impact on the ecosystem. In particular, Environmental Groups believe that discharges are adversely affecting the protection and propagation of a balanced, indigenous population (BIP) of fish, shellfish, and wildlife as well as recreational activities. The Environmental Groups note that CCH's sampling program does not test for a variety of toxic constituents routinely found in sewage that likely pose a risk to the aquatic ecosystem. According to recent studies in California, natural and synthetic hormones from pharmaceutical drugs as well as beauty products, flame retardants, and plastic additives are detectable in the aquatic ecosystems in several coastal areas. Primary treated effluent from municipal WWTPs is most likely the source of these contaminants. Various deleterious impacts from these contaminants have been established with respect to fish populations near marine sewage outfalls in California. In particular, scientists have documented that natural and synthetic

hormones will alter and/or disrupt male fish reproductive abilities at low levels of exposure and may ultimately lead to the development [of] female fish characteristics at high levels of exposure. CCH has never analyzed its effluent or conducted biological assays to determine how contaminants such as pharmaceuticals are affecting the Mamala Bay ecosystem. However, the findings from the aforementioned studies suggest that the Sand Island primary treated discharges likely have undesirable levels of hormones and other reproductive disruptive contaminants. The Environmental Groups urge EPA to consider that secondary treatment would likely remove a much greater proportion of these contaminants from the Sand Island effluent stream.

Commenter: 135

Response: EPA recognizes the challenges associated with the analysis, risk assessment and treatment of pharmaceuticals, personal care products, and other chemicals that are emerging as future priorities for the nation's water quality programs. Although we would not assert that all of these emerging chemicals can be addressed by secondary treatment, EPA agrees with the commenter that upgrading to secondary treatment is likely to remove a greater amount of these contaminants. CCH was not required to submit data on the levels of these pollutants as part of their application, because water quality standards have not yet been adopted for these pollutants.

Comment P218: The only shortcoming in EPA's TDD analysis is that it fails to consider the cumulative impacts from the neighboring Honouliuli WWTP discharge and that growth in the Sand Island service area will likely lead to increased volumes of sewage discharge from the Sand Island WWTP. The Honouliuli WWTP discharge outfall is close enough to the SIWWTP discharge outfall that the effluent plumes from these two outfalls undoubtedly commingle at times- increasing the levels of pollutants above that to be expected should either discharge be considered alone. Moreover, both the Sand Island and Honouliuli service areas are expected to grow significantly in population in the future, which will lead to substantially greater volumes of sewage discharges. If treatment is not upgraded at the SIWWTP, this will further exacerbate the adverse impacts of the Sand Island discharge.

Commenter: 135

Response: Although the effluent plumes from the two outfalls may commingle at times, substantial additional dilution will have occurred by the time that the plumes meet, given the distance between the outfalls. It is more likely that the highest concentrations of pollutants will occur in the individual plumes near the outfalls.

Comment P219: For EPA to grant CCH's Sand Island 301(h) waiver application, CCH must show that the SIWWTP discharge meets all the criteria for granting such an application established by CWA Section 301(h) and EPA regulations set forth at 40 CFR part 125, subpart G. The Environmental Groups agree with the TDD that the Sand Island discharge fails consistently to achieve Hawaii WQS beyond the zone of initial dilution for whole effluent toxicity, chlordane, dieldrin, and ammonia nitrogen. The SIWWTP thus fails to meet the

requirements for a CWA section 301(h) waiver established by CWA section 301(h)(9) and 40 CFR sections 125.62(a)(1)(i) and 122.4(d). Two, it is reasonable to conclude that CCH's proposed discharge, both alone and when properly considered in combination with the Sand Island WWTP discharge, will interfere with the protection and propagation of a balanced, indigenous population of fish, shellfish, and wildlife and negatively impact recreational activities given the effluent monitoring data showing that the discharge fails to meet several WQS that are designed to ensure attainment of a BIP and/or to protect recreational uses. The Sand Island WWTP thus fails to meet the requirements for a CWA section 301(h) waiver established by CWA section 301(h)(2) and 40 CFR section 125.62(b), (c), and (d). Three, CCH did not propose a new monitoring program and its existing monitoring program is not sufficient to meet the requirements of CWA section 301(h)(3) and 40 CFR section 125.63. The SIWWTP thus fails to meet the requirements for a CWA section 301(h) waiver established by CWA section 301(h)(5), (6) and (7) and 40 CFR sections 125.65, 125.66, and 125.67. Thus, EPA is compelled by the CWA and its own regulations to deny the Sand Island 301(h) waiver application.

Commenter: 135

Response: EPA agrees that the proposed discharge would not achieve Hawaii water quality standards beyond the zone of initial dilution for whole effluent toxicity, chlordane, dieldrin, and ammonia nitrogen. EPA agrees that the proposed discharge would interfere with the protection and propagation of a balanced, indigenous population of fish, shellfish, and wildlife and negatively impact recreational activities (fishing). These findings provide the basis for EPA's decision to deny the Sand Island application. Although there are deficiencies in the monitoring program, EPA has worked together with CCH to modify the monitoring program in the past and EPA expects that CCH would make and carry out any changes necessary if EPA were to renew the variance. Therefore, the deficiencies in the monitoring program do not constitute a basis for EPA's decision to deny renewal of the variance. See 40 CFR 125.63(a)(2), specifying that EPA may require revision of the proposed monitoring program before issuing a modified permit. EPA disagrees with the commenter's conclusion that the requirements of section 301(h)(5), (6) and (7) and 40 CFR sections 125.65, 125.66, and 125.67 have not been met.

Comment P220: As noted, CCH's Sand Island discharge violates WQS for whole effluent toxicity, chlordane, dieldrin, and ammonia nitrogen. Upgrading the SIWWTP to secondary treatment would have substantial benefits at reducing this pollutant barrage. Secondary treatment would decrease the levels of enterococci bacteria, chlordane, dieldrin, and ammonia nitrogen in the effluent. Moreover, secondary treatment would likely reduce the amounts of hormones, pharmaceuticals, flame retardants, and plastic additives that are likely present in the effluent and impacting the aquatic Mamala Bay ecosystem.

Commenter: 135

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P221: Cities and communities nationwide have been progressively upgrading their sewage treatment plants to secondary treatment in the past several decades. EPA has also been granting fewer and fewer CWA section 301(h) waivers in recent years. These trends are a result of the proper implementation of the CWA generally and WQS in particular. Furthermore, we note that nationwide secondary treatment for sewage wastewater was one of the principal goals that Congress aspired to in enacting the CWA. CCH is one of the largest remaining primary treatment WWTP dischargers in EPA Region 9. The Environmental Groups believe it is time for CCH likewise to make secondary treatment its goal as the CWA envisioned.

Commenter: 135

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P222: The Environmental Groups have read CCH's various statements in reaction to EPA's TDD and note that the City has primarily focused on the significant costs that secondary treatment upgrades will incur. EPA's decision cannot and should not be based upon the expense to comply, however. Instead, EPA's decision must be based on what is legally required by the BEACH Act and the 301(h) decision criteria enumerated in EPA regulations. As stated above, Environmental Groups agree that the application of the relevant laws and regulations require a denial of the waiver. Environmental Groups believe that the costs involved to the secondary treatment upgrade should be handled through a separate process involving stakeholders. We therefore support a reasonable time schedule for CCH to come into compliance as part of the terms of the new permit when it is issued.

Commenter: 135

Response: EPA agrees that financial considerations are not included in the statutory criteria listed in section 301(h) of the CWA, and EPA cannot make secondary treatment variance decisions based on cost considerations (see also response to comment C72). EPA also agrees that CCH should have a reasonable time to come into compliance with secondary treatment requirements. During the development of schedules for system upgrades, it is EPA's intention to consider the financial capability of CCH, and the relative priorities for the various wastewater infrastructure challenges CCH faces (see also response to comment C74).

Comment P223: EPA appears to justify denial of the waivers based on blips in the city's monitoring data. At last year's public hearing, a former colleague noted that the waiver denial essentially amounts to a billion-dollar fine for infractions comparable to traveling 52 miles per hour in a 50 mile-per-hour zone. Now, what's really frustrating is that it appears that the radar gun is faulty because decisions are being made based on unreliable toxicity testing with sea urchins. We're also using a speed limit that is too low, as we are misapplying stringent coastal water quality standards to the deep ocean waters where ammonia and trace pesticides have no adverse impacts

Commenter: 59

Response: EPA concludes that the proposed discharge would not attain water quality standards for whole effluent toxicity, based on tests conducted with *T. gratilla*, which is a reliable and appropriate test organism (see also responses to comments C31 - C38). The Sand Island effluent frequently tests as being toxic when accounting for minimum initial dilution with this test. EPA did not reach its conclusion on whole effluent toxicity on the basis of a few "blips." EPA disagrees that we are misapplying water quality standards for ammonia nitrogen and pesticides. EPA is applying the water quality standards as adopted by the Hawaii Department of Health.

Comment P224: I understand that EPA has been threatened with lawsuits from the environmental groups over the waiver issue. I feel EPA should be more concerned with the high probability that the city will be willing to spend many years of litigation to prove that the waiver is justified. A modest 3 percent return on the \$800 million estimated Sand Island capital cost amounts to \$24 million a year. So any effort to delay secondary treatment makes senses.

Commenter: 59

Response: EPA's final decision to deny the request to renew the section 301(h) variance is based on EPA's evaluation of the application and supporting information provided by CCH considering the statutory and regulatory requirements of section 301(h). EPA's regulations provide that a final decision may be appealed to the Environmental Appeals Board.

Comment P225: With scientific data backing the city, pursuing the litigation route is a prudent option if the waiver is denied. Prolonging the waiver battle is wasteful. It hurts the environment, as limited city funds is being directed away from resolving problems with our sewer system. It would be a true win-win situation if EPA would reverse its decision and simply approve the waiver.

Commenter: 59

Response: EPA's regulations provide that a final decision may be appealed to the Environmental Appeals Board. EPA's final decision to deny the request to renew the section 301(h) variance is based on EPA's evaluation of the application and supporting information provided by CCH considering the statutory and regulatory requirements of section 301(h). During the development of schedules for system upgrades, it is EPA's intention to consider the financial capability of CCH, and the relative priorities for the various wastewater infrastructure challenges CCH faces (see also response to comment C74).

Comment P226: Note that secondary treatment alone would not provide an effluent below the water quality standards.

Commenter: 16

Response: At this time it is premature to debate the details on how the Sand Island WWTP will perform upon upgrading to secondary treatment. Moreover, the question of the effectiveness of secondary treatment is not within the scope of a 301(h) variance decision. POTWs are required to utilize secondary treatment unless an ocean discharge meets all of the 301(h) criteria. With this in mind, it's worth noting that full secondary treatment should reduce the toxicity of Sand Island's effluent, which currently is at levels risky to aquatic organisms, and the concentrations of chlordane and dieldrin in the effluent, which are exceeding water quality standards established to protect human health from ingestion of carcinogens through fish consumption. Refinements to treatment processes may be necessary in order to meet water quality standards.

Comment P227: First, we'd like to ask you the question of how much more environmental benefit would be derived if we should go to secondary treatment. Because right now we don't see from the numerous historical data set that we've collected over several decades that we're harming the marine environment.

Commenter: 72

Response: The question of the effectiveness of secondary treatment is not within the scope of a 301(h) variance decision. Please see also the response to comment P226.

Comment P228: There are no scientific study and data to suggest that the City and County is in violation of water quality standards, set by the EPA regulation.

Commenter: 17

Response: EPA disagrees. EPA's has analyzed the available data and concluded that the proposed discharge would not attain water quality standards for ammonia nitrogen, chlordane, dieldrin, and whole effluent toxicity.

Comment P229: Instead of denying the waiver, it would seem much more prudent and reasonable for EPA to continue to grant the waiver, at least until new & updated State Water Quality Standards are adopted.

Commenter: 53

Response: EPA does not agree that the 301(h) review process should be put on hold indefinitely waiting for a possible revision to the water quality standards. Moreover, there is no assurance that the water quality standards will be revised such that the proposed discharge would attain the revised standards. EPA must approve any revisions to Hawaii's water quality standards, and

EPA would not approve any revisions that did not have a scientific basis and were protective of human health and aquatic life.

Comment P230: A review of Hawaii's standards for chlordane is warranted, as these are the strictest in the nation, and to date, there has not been any evidence of bio-accumulation of chlordane in fish tissue.

Commenter: 62

Response: States must conduct reviews of their water quality standards on a triennial basis. The triennial review process includes opportunity for public input. EPA will provide HDOH with a copy of this response to comments for their consideration. EPA recommends that, if the commenter believes that the current standards should be revised, the commenter should submit comments to HDOH during the next triennial review. However, EPA's review of a 301(h) application must apply and assess the criteria that are contained in the Hawaii water quality standards at the time of the review.

Comment P231: If the discharge occasionally exceeds some (often arbitrary) standard then the standards need to be reviewed and altered to be more reflective of actual risk.

Commenter: 85

Response: Water quality standards include designated uses (such as aquatic life) and water quality criteria. Water quality criteria are set on the basis of what is necessary to protect the designated uses, not on the basis of what a particular discharge can currently achieve.

Comment P232: I met with Environmental Protection Agency (EPA) Assistant Administrator Granta Nakayama to encourage a meeting of the minds between EPA and the City and County of Honolulu (City) regarding its wastewater system. I wish to go on record and restate my position in support of a "global" settlement which allows the City to address the issues impacting its wastewater system, including upgrading its treatment plants at Sand Island and Honouliuli to secondary treatment.

The City has indicated an interest in negotiating a "global" settlement to resolve existing issues with EPA, including a reasonable implementation timeline. This will allow the City to address anticipated financial concerns.

Commenter: 2

Response: Please see response to comment P233.

Comment P233: The City has indicated an interest in negotiating a "global" settlement to resolve existing issues with EPA, including a reasonable implementation timeline. This will allow the City to address anticipated financial concerns.

Commenter: 2

Response: EPA has also expressed interest in reaching a settlement under which CCH will make necessary upgrades to both their collection system and treatment plants. EPA agrees that CCH should have a reasonable time to come into compliance with secondary treatment requirements. During the development of schedules for system upgrades, it is EPA's intention to consider the financial capability of CCH, and the relative priorities for the various wastewater infrastructure challenges CCH faces. See responses to comments C74 and C75.

Comment P234: I've always been open to a settlement, a global settlement discussion on our waivers. My door has always been open to you. I beseech you to please consider that request so that we can continue the work on the collection system so that we won't have the type of spills that we saw occur along the Kalaniana'ole Highway and Waikiki.

Commenter: 71

Response: See response to comment P233.

Comment P235: I want to assure the public that this relationship is not adversarial. As you know, we're happy to continue to work with you and the state Department of Health in fixing our collection system and other areas of mutual interest and concern. I take you at your word that you said that you want to help us, with respect to our environment and having a healthy economy. And I continue to be very grateful for the award that you gave to our Board of Water Supply when you came to town last year and cited us and recognized us for our outstanding treatment in how we handle our water. I think that's an example of what we can do with the situation perhaps that has suffered from decades of neglect. But I want to assure you that as the mayor my motto has always been: Leave the place better than you found it. And we are taking giant strides forward to ensure that what we have said in terms of our philosophy and our practice will be done in such a way; and no future mayor, no future council will be able to deviate from that.

I'm very grateful for the appearance of some of our council members here tonight, Councilman Tam and Councilman Garcia, Councilwoman Kobayashi. Certainly I'm very appreciative of the other elected officials that are here tonight, Senator Trimble, Representative Bowers, Neighborhood Board Chair Finley; and last but not least, the throng of people that are here tonight that are basically, for the most part, going to validate what we have said. We don't mind paying fees. We don't mind paying taxes if we know it's going to something that is going to benefit this community. Right now we want those hard-earned fees to go to fix our collection system and not to go for a secondary treatment, which we continue to feel is unnecessary.

Commenter: 71

Response: See responses to comments P43 and P233. Secondary treatment is necessary because that is the standard prescribed by Congress in the CWA, and EPA has determined that the SIWWTP does not meet the criteria for a variance from secondary treatment under CWA 301(h).

Comment P236: I hope that you came here tonight with an open mind to be able to hear from the residents, the citizens here who have to bear the burden of your decision should we be forced to go to secondary treatment. And I appreciate the meetings that we've had in the past. And as I said, I would love nothing better than to have a discussion on the global settlement with our Congressional delegation, if I have to, to make sure that we're all in a good place. I'd like to see this thing resolved sooner rather than later, because we're doing excellent work improving our collection system. And I think we just need to know on a global basis what it is we need to do to make sure that you're in a better place and accepting the fact that this new sheriff in town, this mayor who's been in office for three short years, is doing everything humanly possible to make sure that we don't repeat the mistakes of the past and that we set the course, set the agenda that no one would be able to deviate from.

Commenter: 71

Response: EPA does not disagree that the Hannemann administration has taken valuable steps forward towards addressing CCH's wastewater management challenges. However, the demonstration of a commitment to address other priorities cannot be used to justify a variance under section 301(h). Please see also response to comment P233.

Comment P237: The Clean Water Act was mainly concerned with streams, tributaries, rivers, and waterways. If this is the case, Congress needs to enact a Clean Oceans Act. Are other states surrounded by oceans complying with violations with the Clean Water Act? States that have populations of over 1 million people with military and tourist destinations should also comply.

Commenter: 8

Response: The Clean Water Act applies to the nation's coastal ocean waters. All States and U.S. Territories which have coastal waters must comply with relevant CWA provisions which pertain to ocean discharges. The applicability of the CWA is not affected by the size of the military population or number of tourists visiting the state/territory.

Comment P238: Honolulu is currently working closely with EPA on resolving what is truly our number one clean water concern, which is the repair and upgrading of our aging wastewater collection system. Unlike off shore treatment plant discharges, collection system leaks or breaks

directly foul our coastal waters and adversely impact public health. Repairing and upgrading our collection system is a multi-year multi-million dollar effort and should remain the primary concern and objective of both City and the EPA.

Commenter: 21

Response: This comment is not germane to the determination of whether EPA may grant a variance under section 301(h) of the CWA. The question of whether there are valid competing priorities is not one of the 301(h) criteria. As a practical matter, EPA recognizes that there are numerous priorities when it comes to upgrading CCH's wastewater system. Addressing the risk of sewage spills from CCH's collection system is one of EPA's highest priorities. All priorities will be considered when comprehensive schedules are developed for necessary upgrades to CCH's collection system and treatment plants.

Comment P239: I would like to add my suggestion that we look to modern bio-remediation strategies for improving our wastewater systems. There are many examples of systems which use plant microbe cycles to purify water, at a fraction of the operations and maintenance costs of traditional systems, while providing a beautiful natural setting. Such a system would contribute both in functionality and form to our cityscape, and should be strongly encouraged by the EPA for Honolulu's needs.

Commenter: 46

Response: This is one of several comments which suggest a specific treatment technology. It is possible that the technology suggested here, or other suggested technologies, may be used by CCH in upgraded treatment plants which meet full secondary treatment requirements. The CWA does not mandate the use of specific technologies. As long as the secondary treatment performance criteria are met, there is flexibility as to which specific technology is used.

Comment P240: Secondary treatment also converts soluble organic matter into residual solids, or sludge. With the City already hard pressed to dispose of its existing sludge through reuse (conversion to fertilizer) and landfilling, sludge generated by secondary treatment will only further strain Oahu's landfill capacity. Trucking sludge to landfills also results in further fossil fuel consumption and added undesirable truck traffic in the Kalihi industrial area.

Commenter: 59

Response: The decision before EPA is whether or not CCH should receive a variance under section 301(h) of the CWA. The criteria for making this decision do not include evaluation of the impacts associated with secondary treatment. See responses to comment P1 and P99.

Comment P241: Primary treatment is not necessarily "substandard" treatment as some environmental groups have indicated. In fact, there is a national trend among many environmentally conscious small communities to utilize septic tanks, which essentially provides primary level treatment. The primary effluent from septic tanks is typically disposed in leaching fields where microorganisms in the soil completes the treatment process. Many environmentalists support this energy efficient "low tech" treatment concept.

Commenter: 59

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P242: Some may argue that the Sand Island WWTP should be upgraded to full secondary treatment to provide reclaimed water for irrigation and other uses. While this may have some merit in the future, it is presently not cost-effective and viable due to the high salinity of the wastewater (due to saline groundwater infiltration), high cost of treatment and the need for extensive infrastructure to convey the reclaimed water to users. The current trend nationally is to construct small high-tech "satellite" treatment systems near the reclaimed water users to minimize transmission costs.

Commenter: 59

Response: EPA has reviewed the application submitted by CCH and analyzed the available information against the regulatory and statutory requirements of section 301(h). EPA has not considered the benefits of wastewater reclamation in our review, because that is beyond the scope of section 301(h). Nevertheless, EPA agrees that upgrading to full secondary would be a big step towards reclaiming all or a portion of the wastewater treated at the Sand Island WWTP. EPA, as a general matter, encourages integrated water supply and wastewater infrastructure planning, including the consideration of wastewater reclamation.

Comment P243: The conditions that were present in the early 1970's clearly demonstrate the tremendous capacity of our local waters to handle wastewater discharges. In 1972, 62 million gallons of raw sewage was being discharged in 38 feet of water of Sand Island just 3,700 feet offshore. By today's standards, this would be considered a 62 million gallon per day raw sewage spill occurring 365 days a year. There was a constant thick gray-brown surface plume at the surface and thick sludge deposits on the ocean floor. The sewage usually drifted toward Ewa Beach and also to Ala Moana Beach Park at times. In addition to the Sand Island discharge, there were numerous primary and secondary wastewater discharges into Pearl Harbor and thousands of cesspools servicing communities with no sewer systems. Despite all of this, local residents and tourists still swam, surfed and fished in the nearby coastal waters without much concern or serious outbreaks of disease. Local residents harvested and ate the edible Ogo seaweed that grew abundantly in the Ewa area because of the wastewater nutrients.

Commenter: 59

Response: The decision before EPA is whether or not the proposed discharge would meet the requirements of section 301(h). Previous upgrades of the wastewater infrastructure in the area are not germane to the review of the current application. However, EPA does not necessarily agree that the conditions described in the comment were as harmless to human health as the comment seems to imply.

Comment P244: EPA is obviously in a difficult position with regards to the secondary waiver program. EPA's tentative denial of the waiver despite the overwhelming supporting evidence indicates that EPA would simply like to put an end to the waiver program. It would appear that EPA has some underlying reasons for doing so. EPA spent more than ten years reviewing the City's waiver reapplication, which points to EPA's lack of resources and commitment. The waiver program is costly, as EPA should be retaining well-qualified specialty consultants to conduct extensive technical reviews on the waiver reapplication and supporting data. Threats of lawsuits from environmental groups likely have some influence on EPA, as lawsuits are costly and time consuming. EPA would further benefit financially from denial of the waiver since it would reduce EPA's costs by shifting regulatory responsibility to the State Department of Health.

Commenter: 59

Response: An application for the renewal of the Sand Island WWTP permit was submitted by CCH in May 2003. EPA did not spend more than 10 years reviewing this application. The commenter is incorrect in suggesting that lawsuits from environmental groups or a desire to shift regulatory responsibility to the State of Hawaii were reasons for denying this variance request. The basis for EPA's conclusion is that the application did not meet the criteria of section 301(h) of the CWA.

Comment P245: While EPA may be pressured by lawsuits from the environmental groups, I feel EPA should be more concerned with the high probability that the City will be willing to spend many years of litigation to prove that the waiver is justified. A modest three percent return on the \$800 million estimated Sand Island capital cost amounts to \$24 million a year, so any litigation to delay secondary treatment and have the waiver overturned would be cost-effective for the City. With scientific data and the public backing the City, pursuing the litigation route would definitely be a prudent option. Litigation on the waiver issue would be costly and potentially embarrassing for EPA based on all the history and supporting data favoring the City. In my opinion, it would be in the best interest of EPA to avoid litigation with the City.

Commenter: 59

Response: EPA is denying CCH's request for a renewal of the 301(h) variance for the Sand Island WWTP, because the proposed discharge does not meet the statutory and regulatory requirements of section 301(h), not because of the threat of lawsuits or the cost of litigation. EPA recognizes that its decision could be the subject of a petition for review to the Environmental Appeals Board.

Comment P246: The Mamala Bay Study only recommended that the level of wastewater treatment practiced at the Sand Island and Honouliuli WWTPs be upgraded at least to the level of efficiency of chemically enhanced primary treatment to increase the removal of suspended solids and BOD to facilitate effective disinfection, and that appropriate disinfection be provided for the ocean outfall discharge at the Sand Island plant.

The City has spent over \$450 million over the past few years complying with the Mamala Bay recommendations and discharge permit at the Sand Island plant alone. It should also be noted that even spending an additional \$800 million to achieve secondary treatment at Sand Island will not correct the issues raised by the EPA as reasons for the denial in reissuing the discharge permit.

Commenter: 60

Response: EPA has reviewed the application as it was submitted by CCH and analyzed the available information against the regulatory and statutory requirements of section 301(h). EPA did not consider the costs of previous upgrades to the Sand Island WWTP, as this is not relevant to the 301(h) criteria. Similarly, the extent to which secondary treatment would address the adverse affects of the Sand Island discharge is not a factor identified in the 301(h) requirements. Although it is not a basis for EPA's decision, secondary treatment would provide environmental benefits. See responses to comments P186 and P211.

Comment P247: Secondary treatment of the outflow from the Sand Island Wastewater Treatment Plant is well within the technical and engineering capabilities of the industry. Only two of the State's Wastewater Treatment Plants are not equipped with Secondary Treatment.

Commenter: 61

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P248: By the State's own Department of Health standards, the outflow discharging from the plant exceeds toxicity, ammonia and pesticide levels and fails to meet water quality standards that protect fish, shellfish and wildlife and, at the same time, fails to meet water quality standards protecting human health. The City of Honolulu points to "anecdotal data" by observers of "no observed harm" to support their case for a continued variance.

Commenter: 61

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P249: Over the nearly forty years since the EPA was founded, it has accomplished much: witness the monumental restoration of the Great Lakes and the dramatic improvement in air quality throughout our nation. Forcing Sand Island WWTP to implement secondary treatment will accomplish nothing, except to diminish the agency's reputation.

Commenter: 62

Response: The decision before EPA is whether or not the proposed discharge would meet the requirements of section 301(h). EPA has reviewed the application submitted by CCH and analyzed the available information against the regulatory and statutory requirements of section 301(h). EPA concludes that the proposed discharge would not meet the requirements of section 301(h).

Comment P250: EPA, in its wisdom in the '70s, realized that not all areas are equal. On the mainland there are small -- you know, there are limited water bodies, such as rivers and shallow coastal waters; whereas in areas like Hawaii we have a deep ocean outfall that can assimilate waste better, and also in areas like Anchorage, Alaska that have ten-foot tides that wash and flush out waste.

Obviously because of surrounding deep ocean the -- with the new ocean outfall and a step, the ocean acts as our secondary treatment process.

Commenter: 108

Response: EPA agrees that some waters can assimilate organic matter better than others, and took into account ocean dilution in assessing whether or not the proposed discharge would meet water quality standards. EPA concludes that the proposed discharge would attain water quality standards for BOD and TSS, the pollutants for which a variance has been requested, but that the proposed discharge would not meet water quality standards for ammonia nitrogen, chlordane, dieldrin, and whole effluent toxicity. See also response to comment P48.

Comment P251: Secondary treatment will cost up to a billion dollars, and some of the real impacts is having more sludge trucks on the road in Kalihi and all the way to Nanakuli. And others have mentioned about energy usage, and there will be a lot more visible structures that will affect the surrounding areas in Kalihi.

Commenter: 108

Response: The decision before EPA is whether or not CCH should receive a variance under section 301(h) of the CWA. The criteria for making this decision do not include evaluation of the impacts associated with secondary treatment (see response to comment P1).

Comment P252: I have a wastewater equipment business. I survive on the spending of the city and other municipalities; and I don't sell sewer pipe, and I sell a lot of wastewater treatment equipment. We were involved and we supplied the UV disinfection system. I'm intimately aware of our wastewater system. I've also spent most of my career in the Pacific islands working with wastewater operators in third-world countries. And I wanted to specifically address the

ferric chloride and also the comment that's in that newspaper article. I don't sell ferric chloride. But ferric chloride, if it was going out in the ocean, it would show up on our UV disinfection lamps. It (indiscernible) very rapidly and very noticeably, and that was one of our primary concerns for the UV system.

Commenter: 116

Response: Many wastewater treatment plants use ferric chloride or similar chemicals to enhance the effectiveness of the treatment process. Sand Island's permit does not require nor prohibit use of such chemicals. Whether or not CCH chooses to use such chemicals, the discharge must comply with all permit requirements. This includes effluent limitations, such as those for whole effluent toxicity, which measure whether the final effluent is toxic to aquatic life. In addition, CCH must comply with applicable regulations pertaining to the safe handling and storage of chemicals used in the treatment process.

Comment P253: I'm here tonight as a citizen of Honolulu and a taxpayer. And I want to speak on behalf of the taxpayers here. It has to do with the interests of the department. I've worked with the city and county of environmental services now for 25 years. And the last administration, I have been in a litigation lawsuit concerning the last administration. Some of those managers are currently in this administration here. Tonight I'm here to speak on behalf of -- of having the opportunity to come here to talk on for every interest. We have interests here tonight. We're talking about the wastewater, okay? My interest here tonight is as well as the wastewater, but it's also about what is fair, right, and just. I'm here tonight to ask the mayor of Honolulu to help us resolve this problem that exists because there is currently in our administration, there are corrupted officials that are even here tonight in this facility here. And I'm sticking my head out once again on the chopping block here. And I wanted to bring this out here and I'm asking that Terry Ohina (phonetic), corporate counsel do the right thing and -- and bring this madness to an end so that we all can move on. That's why I'm here tonight.

Commenter: 118

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P254: I also want to speak to some comments that were made earlier tonight. The law does not permit the money that is going for transit to be used for sewer, and sewer fees cannot be used for transit. And the billion dollars that the city is using right now for the construction of the sewer lines, it is money that has to be borrowed. We do not have this money sitting around in -- in any type of fund or anything. This is money that has to be borrowed, and that's why we have to pay for it. Our children are going to have to pay for this, as well as our grandchildren.

Commenter: 119

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P255: Before moving to Hawaii about a year and a half ago, I worked in the US Senate. So to me, Congressional intent is important. And someone made a comment earlier that we shouldn't be concerned about the cost; how much it's going to cost to go to secondary treatment shouldn't matter. But in fact when we look at the Congressional record that's promulgated in 301(h), there's a direct reference to this, and I will quote: "In order to achieve needed savings in the cost of treatment of municipal wastes, the committee considers it desirable to make the option of ocean discharges available where it can be shown that unacceptable adverse environmental effects will not result." Based on all I have heard and read from our local scientists and engineers, I believe that this is exactly the type of situation that the 301(h) waiver was intended to address.

Commenter: 120

Response: Please see response to comment C72.

Comment P256: Lastly, I agree with Mr. Simpson, who testified earlier he is not an expert. I believe we should allow the experts to dredge into this environmental issue and again use the science as a decision-making tool.

Lastly, I believe Mr. Simpson is also misinformed. You can't compare mass transit to wastewater. There are different needs, different issues and, most of all, different funding sources. I think we ought to concentrate on the wastewater issue tonight.

Commenter: 121

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P257: I'm a private citizen, private citizen testifying in opposition to the tentative denial. I wanted to share my view on the unfortunate and emotional characterization that the city is dumping feces and urine into the ocean and that we should automatically spend hundreds of millions of dollars to secondarily treat that wasteload. It is a fact that every and all communities exert a wasteload upon its environment. The key is whether that wasteload can be successfully assimilated. The overwhelming and compelling scientific evidence presented suggests two things to me: One, the ocean environment is successfully assimilating the wasteload of Honolulu; and, two, expenditure of even one dollar to improve the level of treatment is not necessary.

Commenter: 122

Response: The decision before EPA is whether or not the proposed discharge would meet the requirements of section 301(h). EPA has reviewed the application submitted by CCH and

analyzed the available information against the regulatory and statutory requirements of section 301(h). EPA concludes that the proposed discharge would not meet the requirements of section 301(h), including the attainment of water quality standards adopted to protect aquatic life. See also response to comment P48 regarding dilution in the ocean.

Comment P258: I'm for the continuance of the waiver. I am a civil engineer. And I'm with the City and County of Honolulu, but I'm here on my own. While Dr. Grigg was studying the waters off Sand Island, or even before that, I used to surf there. And at that time, as he said, all the water was raw sewage. And I got to thank the EPA for -- for, you know, forcing the city to -- to build a treatment plant because otherwise, you know, I see all these condoms floating around, turds and -- and I guess I -- because I drank all the water while I was surfing, most -- most surfers don't -- you can't fail but drink a lot of water. But I survived. And -- and I bought a home and -- and put chlordane in my yard because that was a wonderful, wonderful pesticide. And then the EPA came. And then again, I appreciate the fact that they forced everyone to -- to stop using it. Otherwise it would pollute our groundwater. And that was a great, great decision. But this time I just -- I cannot understand why, with chlordane and dieldrin in the water stream at the highest levels probably in the whole nation, in Kalihi Stream and Manoa Stream, leptospirosis in the streams, alien species, threats to our watershed, why the -- you know, the wastewater out -- and I agree. I wouldn't drink the water that's coming out from that outfall itself. But certainly, certainly if you're swimming, in that area, the water would have to be cleaner than when I was swimming.

Commenter: 123

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P259: I wanted to just set the record straight. The EPA didn't force the city and county to do the deep ocean outfall or to do that plant. That was a local decision based on the study that we, the professionals, made around all of Oahu; where we figured out that the dumping sewage in embayments was bad and that open ocean outfall was good, and that the level of treatment that's appropriate for embayments is not the same level of treatment that's appropriate for the open ocean. So that's a local decision. And I'm sorry you guys weren't here at the time to make it.

Commenter: 112

Response: Comment noted. This comment does not request a change in EPA's analysis.

Comment P260: The commenters enclosed with their comments on the Sand Island TDD a copy of the comments they submitted on August 27, 2007, regarding the TDD for the Honouliuli WWTP.

Commenter: 68

Response: The commenters did not include any argument or discussion linking their Honouliuli comments with the Sand Island tentative decision. These comments are responded to in the Honouliuli response to comments document. It is not necessary to respond to them here.

Names of Commenters

1. City and County of Honolulu
2. Senator Daniel Inouye
3. Elisabeth Ching
4. Jack Grambusch, Jr
5. David Hirao
6. Gertrude Green
7. Congressman Neil Abercrombie
8. Harold Inoshita
9. Rosemarie Tucker
10. Thomas Macdonald
11. Rodney Kim
12. Murray Towill
13. Michelina Mayer
14. Rex Johnson
15. Martin McMorrow
16. Peter Ono
17. Seiyu Kaneshiro
18. John Katahira
19. Leland Lee and Lawrence Agena
20. Gerald Takayesu
21. Gary Okino
22. Bernadette Young (note: the commenter later withdrew her comments)
23. Raymond Matasci
24. John Thorvaldson
25. Wayne Urbonas
26. Richard Greenamyer
27. Al Aliment
28. David McCurdy
29. Henry Eng
30. Senator Daniel Akaka
31. Jon Polokoff
32. Pearl Johnson
33. Douglas Meller
34. Bob Jordan
35. Ron Omura

36. Richard Ito
37. Aaanoosh
38. Romy Cachola
39. Jan Murakami
40. Linda Soll
41. Myron Nomura
42. Stanley Louis
43. Ben Espiritu
44. Steve Holmes
45. Ben Robinson
46. Richard Furst
47. Ken Takemoto
48. Gary Yamamoto
49. Chrystiana Sailer
50. Tom Pickard
51. Elizabeth Connors
52. Martha Wright
53. Jon Nishimura
54. James Moncur
55. Lee Stack
56. Ronald Grunderson
57. Henry
58. Annie Gaurani
59. Roy Abe
60. Eldon Franklin
61. Jerry and Judith Jordan
62. Lee Mansfield
63. David Nagamine
64. Andrew Rocheleau
65. Congresswoman Mazie Hirono
66. John Jordan
67. Woodie Muirhead
68. James Honke, Hans Krock, James Kumagai, and Victor Moreland
69. Klement Kondratovich
70. Roger Fujioka
71. Mayor Mufi Hannemann
72. Eric Takamura
73. Rod Tam
74. Gordon Trimble
75. Robert Finley
76. Tom Brower
77. Tiva Aga
78. Richard Brock
79. Scott McAdam
80. May Hosoi-Lewellyn

81. Russell Takara
82. Athan Adachi
83. Glenn Ida
84. Richard Grigg
85. Michael Simpson
86. Watson Okubo
87. Bob Rocheleau, Marc Ericksen, Hans Krock, Mark Merrifield, and Andrew Rocheleau
88. Joe Kwan
89. Cathy Rose
90. Ronny Lopez
91. Robin Matsunaga
92. Kevin Konishi
93. Ryan Yamauchi and Ron Iwamoto
94. Eileen Kraan
95. James Honke
96. Christopher Balmoja
97. Lori Kahikina-Moniz
98. Mark Merrifield
99. Greg Arakaki
100. Tiffini Hercules
101. Earl Ng
102. Gifford Chang
103. Walter Blair
104. Ed Thompson
105. Scott Dunn
106. Tim Houghton
107. Tom Heinrich
108. Michael Hong and Leighton Lum
109. Jimmy Yamamoto
110. Cliff Lum
111. Cyndy Aylett
112. Hans Krock
113. Rick Egged
114. Collins Lam
115. Yvonne Haxton
116. Mike Elhoff
117. Tiffany Pruiett
118. Kenny Mersburgh
119. Mary Pat Waterhouse
120. Chrystn Eads
121. Ross Tanimoto
122. Guy Inouye
123. Gerald Pakayese
124. Lenora Springer
125. Deborah Kelliher

126. Philip Moravcik
127. Ned Murphy
128. Hal Barnes
129. Gerald Yuh
130. Gil Tam
131. Dale Hazelhurst
132. International Brotherhood of Electrical Workers
133. State of Hawaii Organization of Police Officers
134. Don Piepgrass
135. Fred Madlener on behalf of Jeff Mikulina, Sierra Club, Oahu Chapter; Donna Wong, Hawaii's Thousand Friends; and Mike Costa, Our Children's Earth Foundation