RESPONSE TO COMMENTS DOCUMENT

EPA's Decisions to Deny Applications for a Modified NPDES Permit under Section 301(h) of the Clean Water Act for

Guam Waterworks Authority Agana Sewage Treatment Plant

And

Guam Waterworks Authority Northern District Sewage Treatment Plant

Comments received:

Commenter	Representing	Comments Dated
Guam Waterworks Authority	--	June 30, 2009
Guam Environmental Protection Agency	--	June 3, 2009
Joe Payne	Self	January 9, 2009
Paul Tobiason	Self, resident	January 9, 2009
Berrie Straatman	Self	January 11, 2009
Michael Park	Environmental Services, Duenas Camacho & Associates	June 28, 2009
Ken Rekdahl, PE	Self	June 28, 2009
Senator Thomas C. Ada	--	June 22, 2009
Dr. Leonard Olive, GWA General Manager	Guam Waterworks Authority	Public Hearing testimony – June 3, 2009
John Stein	Self	Public Hearing testimony – June 3, 2009
Jack Sablan	Self, rate-payer	Public Hearing testimony – June 3, 2009
Stephen Vold	Self, Class IV operator	Public Hearing testimony – June 3, 2009

The following are responses to comments received from Guam Waterworks Authority (GWA), June 3, 2009 and June 30, 2009.

GWA COMMENT 1: Introduction

"On January 5, 2009, Wayne Nastri, the previous Administrator for Region IX, United States Environmental Protection Agency, issued a tentative decision to deny GWA's application for a section 301(h) of the CWA variance from secondary treatment requirements. GWA's numerous concerns with this decision, which are elaborated in detail in the attached Response document, include:

- Lack of corroborative evidence supporting the basis for the decision as protection of the environment
- Lack of demonstrated negative environmental impact of primary treatment
- Utilization of outdated data as the basis for the tentative decision and the subsequent failure of EPA to request updated data
- EPA's ranking of secondary treatment as the highest CWA priority project at this time
- The inconsistency of positions taken by two divisions of EPA on GWA's planning priorities
- Legal actions and subsequent approvals by EPA guiding GWA into primary treatment rather than secondary, with no revelation of EPA's planned move towards secondary treatment
- Fallacious factual bases of decision

GWA requests that EPA reconsider its decision to tentatively deny GWA's 301(h) waiver application. Instead, EPA should delay this decision and work with GWA to complete studies on the discharges of effluent from the new deep ocean outfalls, and provide GWA with an opportunity to propose additional facility improvements such as disinfection and fine screening. In conjunction with these potential process improvements, EPA, GEPA and GWA should also work on methods for reducing greenhouse gas emissions and improving the treatment of biosolids."

RESPONSE: EPA has made the determination to deny GWA's Clean Water Act (CWA) Section 301(h) waiver applications based on the relevant statutory authority and regulatory criteria. See below for detailed responses to comments raised here.

GWA COMMENT 2: Environmental Protection

"The current EPA Director, Ms. Lisa Jackson, stated in a January 23, 2009 memorandum that all EPA decisions should be based upon the best available science. There is no substantive scientific basis for moving the Agana WWTP to secondary treatment. GWA concurs that additional information is needed to identify any potential impacts. GWA is completely committed to protecting Guam's environment; however, utilizing our limited resources to move to a process that could potentially be environmentally detrimental is not in the best long-term interests of the residents of Guam and their environment.

EPA has been reviewing the current application since 2001. GWA, GEPA and EPA all concur that there is inadequate information to fully make a complete determination and that more information is necessary (see Need for Additional Information section below). Therefore GWA must be allowed time and assisted with resources in order to obtain such information. Otherwise, any EPA decision based on inadequate information is not scientifically based or designed to provide environmental protection; rather it is simply an arbitrary response."

RESPONSE: EPA has provided a substantive and detailed scientific and technical basis for denying the application for the 301(h) waiver in its CWA section 301(h) Tentative Decision Documents ("TDDs", January 05, 2009) and again in the Final Decision Documents "FDDs". The FDDs include a discussion of the CWA decision criteria, a detailed description of the existing wastewater treatment systems, and an analysis of the receiving water including ocean current directions and speed, stratification, and the available dilution in the mixing zone. The FDDs present EPA's review of the sewage treatment plants (STPs) influent and effluent monitoring to determine attainment with primary treatment requirements for biochemical oxygen demand (BOD), total suspended solids (TSS), dissolved oxygen (including initial dilution and far-field analysis based on predictive modeling), suspended solids, and turbidity. EPA evaluated the attainment of water quality standards and the impacts of the discharge on public water supplies, shellfish, fish and wildlife, and recreation. EPA's conclusions with regard to toxic pollutants, pH, nutrients, temperature, salinity, bacteria and whole effluent toxicity are presented in Section C.1 of the FDDs of the EPA's discussion of the statutory and regulatory criteria. Additionally, EPA conducted an evaluation of the monitoring programs established by GWA, which include biological monitoring, receiving water monitoring and effluent monitoring. For the toxics control program, EPA presented a complete review of toxic pollutant source identification, the industrial pretreatment requirements, and nonindustrial source control program. Lastly, EPA considered compliance with other applicable laws including the Coastal Zone Management Act, Marine Protection, Research and Sanctuaries Act, Endangered Species Act, and Magnuson-Stevens Fishery Conservation and Management Act.

EPA's final decisions are based on the available information and the decision criteria established by Congress in the amended CWA section 301(h) authorizing the Administrator to issue National Pollutant Discharge Elimination System (NPDES) permits that modify the secondary treatment requirements of the CWA with respect to certain discharges. All data, materials, and conclusions have been presented in the FDDs as outlined above and as discussed in response to comments, below.

EPA believes GWA has been provided adequate time and opportunity to collect data and to provide information to EPA over the 11 year period since EPA's April 14, 1997 letter to GWA described the possible denial of GWA's 301(h) waivers. EPA does not believe that additional time or data is necessary for EPA to make a conclusive evaluation of the facts of GWA's applications for 301(h) waivers. Nor does EPA believe that additional time or data is necessary to evaluate the activities and performance of GWA during the 23 years that the STPs have been operating under EPA's NPDES permits that initially

granted the waiver. For these reasons, and also because GWA has not otherwise attempted to comply with the provisions of 40 CFR 125.59(g)(1) and (g)(2), EPA denies GWA's request to submit additional information under section 12.59(g) to the extent this comment represents such a request.

GWA COMMENT 3: Secondary treatment can create additional negative environmental impacts.

"EPA's Water Division has not coordinated with the Pacific Island's Office, Waste Division on solids reduction, or Air Division for discussion of greenhouse gas emissions. GWA feels strongly that to install secondary treatment for debatable water quality improvements while creating environmental impacts in other areas is not best for holistic protection of Guam's environment. In EPA's response to comments on the Honouliuli WWTP denial, they note that the criteria for making the 301(h) "decision do not include evaluating the impacts of secondary treatment." This statement is contrary to EPA's fundamental mission to protect the environment."

RESPONSE: : The Clean Water Act criteria for allowing a waiver from secondary treatment based on Section 301(h) of the CWA do not require evaluation of the potential adverse environmental impacts on other media of CWA section 301(b)(1)(B)'s requirement to meet limits based on secondary treatment. Under section 301(b)(1)(B) of the CWA, 33 U.S.C. section 1311(b)(1)(B), Publicly Owned Treatment Works (POTWs) are required to meet effluent limitations based upon secondary treatment as defined by the EPA Administrator under CWA section 304(d). As described in the FDD (page 1), secondary treatment has been defined by the Administrator in terms of three pollutant parameters: TSS, BOD, and pH. Uniform national effluent limitations for these pollutants were promulgated at 40 CFR Part 133 and are included in NPDES permits for POTWs issued under section 402 of the CWA, except to the extent modification is authorized under CWA section 301(h). The statutory requirement that POTW discharges meet limits based on secondary treatment, regardless of potential non-water quality impacts, has been established in the Clean Water Act since enactment in 1972.

Although the potential non-water quality impacts of secondary treatment are not germane to EPA's decision regarding denial of GWA's application for renewal of the 301(h) modified permit, EPA has nonetheless addressed the concerns raised by the commenter regarding these potential impacts below and will support efforts by GWA to minimize any such impacts.

GWA COMMMENT 4: Negative environmental impacts re: septic systems

"Northern Guam has a prolific water lens located in a limestone aquifer. This sole-source aquifer is a precious resource that provides drinking water to 75% of Guam's population. The aquifer is threatened by the proliferation of septic systems. 86% of Guam's septic systems are located over this aquifer, serving 35% of Guam's residents. According to the Northern Guam Lens Study (GEPA, 1982), water from septic systems percolates rapidly through the limestone aquifer, carrying pollutants such as nitrates and

bacteria. Well exceedances of bacteria levels in drinking water wells are traceable to septic tank proliferation. Additionally, there are numerous septic systems located within 1000 feet of existing wells.

The WRMP includes $70M for sewer connections in critical areas to protect the aquifer, and another $103M for improvements to existing sewers. This addresses only the most critical areas: those within 1000 feet of a well, within 200 feet of an existing sewer, or where the sewer extension reaches housing clusters at densities greater than one per unit acre over groundwater recharge zones. The plan noted that upgrading just those connections near both a well and an existing sewer would be $47M (in 2004 dollars). The costs in 2009 dollars will be significantly higher.

Other possible mitigation measures are outlined in the WRMP, including decentralized systems, advanced on-site treatment, and on-site nitrogen removal filters. However, the WRMP recommends centralized wastewater treatment as being the most cost effective and environmentally protective.

GWA strongly believes that aquifer water quality protection is a much higher environmental priority than secondary treatment. The limited resources of Guam's ratepayers would be far better spent in implementing programs to connect unsewered properties to the wastewater system to protect the sole source aquifer."

RESPONSE: EPA agrees that protection of the drinking water source aquifer from domestic sewage must be a high priority. EPA also believes that protection of the receiving waters of coastal waters off Agana Bay and the Philippine Sea from domestic sewage must be an environmental priority. EPA does not believe the two environmental priorities are mutually exclusive. Notwithstanding EPA's final denials of the 301(h) waivers, EPA is prepared to work with GWA to identify and address drinking water and wastewater infrastructure priorities, including construction of secondary treatment facilities and taking into account the types of issues described in the comment. EPA will work with GWA to develop a schedule for implementing projects consistent with achievement of these multiple water infrastructure priorities.

GWA COMMMENT 5: Negative environmental impacts re: nutrient loading

"A substantial body of research has been accumulated in an effort to evaluate the impacts of discharging primary treated wastewater into deep ocean outfalls in areas where the sea water quality is very low in nutrients. These studies have occurred in oceanic waters near islands far from continental influences. The primary common characteristics of the sea water in such areas are that it is of very low turbidity and lacking in significant amounts of basic nutrients to fuel the lowest levels of the food chain.

Near continents, the runoff from rivers and streams provides a regular natural supply of decaying vegetation and animal wastes. These food sources are essential to the marine life. On a continental shelf, the balance is very favorable. In the deep ocean where the percentage of land is very small, what runoff (if any) that does exist is minute compared to a continental costal environment.

What this means is that island environments have beautiful beaches with clear waters, and a very sparse ecology. The predominant organisms are corals.

Studies by the University of Hawaii Water Resources Research Center and the EPA funded Mamala Bay Study in Hawaii have shown that the delivery of primary treated wastewaters through properly constructed discharge outfalls have a favorable impact. They are a means providing essential nutrients to the marine ecology by providing food to the area's waters so that the planktonic plant life can flourish and support an expanded marine biological community."

RESPONSE: EPA does not disagree that deep ocean outfalls may discharge treated municipal effluent without significant detrimental effects on the ocean environment. Therefore, EPA evaluates an established set of criteria to ensure that the discharge does not have detrimental effects on the ocean environment or its beneficial uses. Pursuant to 40 CFR 125.62(a), an outfall must be located and designed to achieve adequate initial dilution, dispersion, and transport of wastewater such that the discharge does not exceed water quality standards at and beyond the zone of initial dilution. The depth of an outfall is a major factor that influences dilution performance, and subsequently, its ability to comply with specific section 301(h) criteria that concerns effluent quality. Therefore, there are very specific requirements and considerations that EPA must evaluate to grant a modification of permit limits based on secondary treatment to ensure that the discharge of primary treated sewage is carefully controlled and that water quality is not degraded. These criteria include:

(1) there is an applicable water quality standard specific to the pollutant for which the modification is requested, which has been identified under section 304(a)(6) of this Act;
(2) the discharge of pollutants in accordance with such modified requirements will not interfere, alone or in combination with pollutants from other sources, with the attainment or maintenance of that water quality which assures protection of public water supplies and the protection and propagation of a balanced indigenous population (BIP) of shellfish, fish and wildlife, and allows recreational activities, in and on the water;
(3) the applicant has established a system for monitoring the impact of such discharge on a representative sample of aquatic biota, to the extent practicable, and the scope of the monitoring is limited to include only those scientific investigations which are necessary to study the effects of the proposed discharge;
(4) such modified requirements will not result in any additional requirements on any other point or nonpoint source;
(5) all applicable pretreatment requirements for sources introducing waste into such treatment works will be enforced;
(6) in the case of any treatment works serving a population of 50,000 or more, with respect to any toxic pollutant introduced into such works by an industrial discharger for which pollutant there is no applicable pretreatment requirement in effect, sources introducing waste into such works are in compliance with all applicable pretreatment requirements, the applicant will enforce such requirements, and the applicant has in effect a pretreatment program which, in combination with the treatment of discharges from such works, removes the same amount of such pollutant as would be removed if such works

were to apply secondary treatment to discharges and if such works had no pretreatment program with respect to such pollutant;
(7) to the extent practicable, the applicant has established a schedule of activities designed to eliminate the entrance of toxic pollutants from nonindustrial sources into such treatment works;
(8) there will be no new or substantially increased discharges from the point source of the pollutant to which the modification applies above that volume of discharge specified in the permit; and
(9) the applicant at the time such modification becomes effective will be discharging effluent which has received at least primary or equivalent treatment and which meets the criteria established under section 304(a)(1) of the Act after initial mixing in the waters surrounding or adjacent to the point at which such effluent is discharged.

Intrinsic to the considerations listed above is the fact that primary treated sewage contains many other pollutants in addition to nutrients that have the potential to negatively affect the environment. These other pollutants may include bacteria, metals, pesticides, pH, and toxicity. As EPA has documented in the FDDs, the applicant has failed to comply with the nine demonstration criteria necessary to authorize re-issuance of a permit with modified limits for secondary treatment applicable to discharge of partially treated sewage to the ocean, regardless of whether nutrients are beneficial or harmful to this local receiving water environment.

GWA COMMMENT 6: Negative environmental impacts re: biosolids

"The addition of secondary treatment will substantially increase the biosolids production at the WWTP. Currently biosolids are reduced in aerobic digesters and a sludge thickener and dried in one of two 21" centrifuges. The result is 29-30% dry solids. This is disposed of at the Ordot dump.

Guam is facing a solid waste crisis. The dump is operating in violation of NPDES requirements, is virtually full, and the Department of Public Works' solid waste division has been placed into receivership to expedite building of a new landfill and closure of the old dump. As a small island, Guam has limited land area for solid waste disposal, and recycling and solid waste minimization is critical. EPA Water Division should coordinate with the EPA Waste Division and the Pacific Islands office, as any decision to go to secondary treatment will dramatically increase solids production and could potentially have very detrimental impacts on the design life of the new landfill.

Instead of pouring all of GWA's resources into plant upgrades to secondary, it would be better for Guam's environment to spend those limited resources on biosolids treatment that would reduce solid impacts by allowing for biosolids recycling and reuse. This could have the added benefit of providing a high-quality product for Guam's agricultural community, which deals with poor soil conditions. It is likely that EPA would respond that GWA could implement such improvements with secondary treatment, but the reality of Guam's limited resources for wastewater CIP projects would be to make such a program unaffordable."

RESPONSE: The operation of the Ordot solid waste dump in violation of its NPDES permit is not relevant to EPA's 301(h) decision, nor is the generation of solid waste in the form of sewage treatment residuals in Guam. EPA's review of the GWA 301(h) application in this matter is based on the applicable statutory and regulatory criteria. Although EPA acknowledges that ultimate installation and operation of secondary treatment technologies will increase biosolids production, the increase in biosolids as a result of secondary treatment should not have a measurable impact on the total volume of solid waste generated by the population of Guam such that it would affect landfill capacity.

EPA notes that there are several technological options for the treatment and proper disposal of biosolids, and EPA encourages the use of biosolids as soil amendments for land disposal, provided that the biosolids meet certain criteria. EPA would encourage GWA to ensure its industrial pretreatment program and treatment of biosolids are adequate to allow the treated biosolids to be used for beneficial uses such as energy capture or agricultural land application, rather than be disposed in a landfill.

GWA COMMMENT 7: Negative environmental impacts re: greenhouse gas emissions
"Director Jackson also committed EPA to addressing greenhouse gas emissions. There are numerous studies showing that secondary treatment plants contribute heavily to this world-wide problem. Moving the plant to secondary treatment would dramatically increase greenhouse gas emissions.
Typical secondary treatment utilizes activated sludge, a process which requires large amounts of aeration and consequently considerable power. Other technologies are even more power intensive. There would clearly be an increase in greenhouse gas emissions from a secondary treatment facility. Based on current flows and influent BOD, secondary treatment at the Agana WWTP would produce 4,308 lb/day or 1,673,611 lb/year of carbon dioxide.
In EPA's response to comments in their denial of the City of Honolulu's Honouliuli WWTP waiver, EPA referenced certain mitigation methods that can be employed in the implementation of secondary treatment, and consistently referred to the "Opportunities for and Benefits of Combined Heat and Power at Wastewater Treatment Facilities." The Agana WWTP:

- Does not employ anaerobic digesters; replacing the current aerobic digesters would dramatically increase the capital outlay for upgrades
- Is not large enough. Minimum MGD in the study EPA references is 6.8. The Agana WWTP today doesn't reach that even at peak loads.
- Does not have strong enough influent BOD to utilize CHP, as weak influent BOD makes for poor methane production. This is demonstrated at the Apra Harbor WWTP, which has similarly low influent BOD, and which utilizes anaerobic digesters and a waste heat boiler for digester heating. There has never been adequate methane production to operate the waste heat boiler, which therefore runs on fuel oil, and the waste gas burner at the facility has never been lit.
- Methane use still generates greenhouse gas emissions.

Typical secondary treatment utilizes activated sludge, a process which requires large amounts of aeration and consequently considerable power. Other technologies are even more power intensive. There would clearly be a significant increase in greenhouse gas emissions from a secondary treatment facility."

RESPONSE: Upgrading the treatment plant to secondary treatment should not dramatically increase greenhouse gas emissions. The biological process of degrading organic compounds and nutrients in sewage does produce greenhouse gases; however, these gases will be produced whether the biological activity occurs in a controlled environment (secondary treatment units) or in the receiving water (after disposal to the ocean). The net production of greenhouse gas emissions from the biological processes for the breakdown of sewage are essentially equivalent. In fact, concentrating the biological activity in a WWTP affords the opportunity for GWA to capture gases for productive use. EPA encourages GWA to consider installation of methane capture systems on anaerobic biosolids digesters, where feasible, to reduce greenhouse gas emissions.

EPA does acknowledge that additional energy will be required to power the treatment system (including pumps, aeration, mechanical mixing, etc.), which will in turn increase greenhouse gas emissions to operate the facility. However, EPA believes that GWA could increase energy efficiency in some operational areas in a way that would mitigate if not offset increased greenhouse gas emissions. For example, Agana appears to have significant and unaddressed issues with the inflow and infiltration (I/I) of rainwater and groundwater to the sewer system. I/I is water that is not sewage and that does not necessarily need to be treated in a sewage treatment plant. The increases in flow volume sent to the sewage treatment plant increases the cost of treatment. Additionally, the inflow of I/I decreases the treatment efficiency of the plant due to the volume of low organic strength wastewater. In a typical wastewater treatment system, much of the annual operation cost associated with the plant is attributable to the energy expenditure to pump, treat, aerate, and discharge the wastewater. Therefore, there is a direct correlation of energy expenditures to the excess I/I water that is treated, aerated, and pumped through the treatment system. Therefore, EPA encourages GWA to improve control of the inflow and infiltration of rainwater into the sewer system and thus WWTP, thereby saving energy costs and reduce greenhouse gas emissions.

GWA COMMENT 8: History

"GWA's NPDES permit expired in 1991. PUAG applied on time in December 1990 for their permit renewal. In March 1991, the Guam Environmental Protection Agency (GEPA) concurred with the 301(h) waiver.

PUAG operated under an administrative extension for six years until April 15, 1997, when EPA sent PUAG a letter informing them that they intended to issue a tentative denial of the secondary treatment waiver and offered PUAG the opportunity to resubmit their permit application, stating that in order to receive the treatment waivers, the deep ocean outfalls would need to be extended. In June, 1997, EPA sent a letter

acknowledging GWA's intent to submit a revised application. On October 6, 1997, EPA sent GWA an approval of the proposed baseline surveys for the proposed outfalls. On March 27, 1998, GWA resubmitted their application and included projects to extend the outfalls. Additional information was provided in a June 30, 2000 supplemental submittal. In the basis for the tentative decision, EPA states that GWA's application was deficient, but acknowledges that GWA submitted additional information to support the application, and that all information submitted through 2001 was considered in the determination. *GWA received no further communications from EPA after 1998 regarding submittal requirements or deficiencies* (except for those specifically related to the outfall extensions, which are addressed in detail below). In a June 17, 2009 email, Richard Remigio of EPA confirmed that no other correspondence from EPA to GWA was included in the determination.

EPA noted in it's response to comments on the Honouliuli WWTP waiver denial that the causes for delays in issuance of the permit were due to CCH's delays in providing information. EPA will no doubt make the same case for the reason there was no new permit issued for the Agana WWTP from 1991-2001, although the first tentative was not issued until 1997. However, by EPA's own admission, the "window" for submittal of additional information closed in 2001. Had EPA issued a permit at in 2001, the permit would have expired in 2006, and GWA would be a year away from preparing another renewal application. As noted by the Honouliuli commenter, the timely response expectation certainly gives all the outward appearances of being a one way street. Therefore, the TDD constitutes an arbitrary denial."

RESPONSE:

EPA's decisions in this matter are not unreasonable based on the timing considerations cited in this comment. EPA first stated its intention to tentatively deny the 301(h) applications on April 14, 1997 (Marcus, 1997). EPA followed that intention with a June 1997 letter of deficiency (Strauss, 1997), which provided PUAG explicit guidance regarding the information and monitoring required for the revised 301(h) applications. EPA responded again in April 1998 to GWA's applications with a letter of "significant deficiency" identified for both STPs. Although EPA did not have further formal communications with GWA regarding the data requirements for the 301(h) applications, EPA staff continued to have oral communication with GWA regarding the lack or insufficiency of data submissions.

In the more that 11 years since EPA's 1997 tentative denials, GWA has failed to provide adequate information and has failed to conduct the required sampling, studies, and modeling efforts to make the demonstrations required by CWA section 301(h). EPA extensively documented these deficiencies in the TDDs and FDDs, and the deficiencies are summarized below:

- The applicant has not shown that it can consistently achieve Guam water quality standards beyond the zone of initial dilution as required by 40 CFR 125.62
- The applicant has failed to submit the information required to assess whether the proposed discharges would achieve water quality standards for nutrients, whole

effluent toxicity, toxic pollutants, and pesticides as required by 40 CFR 125.62 and 125.63

- The applicant has not continued the monitoring programs specified in its current section 301(h) modified NPDES permits and the current monitoring programs are not sufficient as required by 40 CFR 125.63
- The applicant has failed to develop and implement Urban Area Pretreatment programs as required by 40 CFR 125.65
- The applicant has failed to submit necessary toxic pollutant analyses. Consequently, the applicant has failed to identify and categorize known or suspected sources of toxic pollutants or pesticides as required by 40 CFR 125.66
- The applicant has failed to develop and implement non-industrial source control programs as required by 40 CFR 125.66
- The applicant has not indicated that it plans to implement pretreatment for either WWTP as required by 40 CFR 125.66.
- The applicant has failed to demonstrate that there will be no new or substantially increased discharges from the point source of the pollutants to which the section 301(h) modified limits would apply as required by 40 CFR 125.67
- The applicant has not provided determinations or concurrences from the Guam Bureau of Planning, Guam Department of Agriculture, and Guam Environmental Protection Agency that the applicant's discharges are consistent with the Territory of Guam's Coastal Zone Management Program, nor has it provided determinations from the National Oceanic and Atmospheric Administration (NOAA) that the applicant's discharges are in accordance with Title III of the Marine Protection, Research and Sanctuaries Act, 16 U.S.C. 1431 et seq. or from the U.S. Fish and Wildlife Service and the NOAA's National Marine Fisheries Service that the discharges are not likely to adversely affect listed threatened or endangered species or habitat as required by 40 CFR 125.59

EPA must make a determination for the 301(h) modified permits applications consistent with the applicable regulations established in section 301(h) of the CWA and 40 CFR 125, Subpart G, and Guam water quality standards (GWQS), Public Law 26-113, Guam Administrative Rule, Guam Environmental Protection Agency (GEPA), Division II-Water Control, Chapter 5, Water Quality Standards, Section 5101 et seq. (GEPA 2002).

EPA notes it is the responsibility and obligation of the 301(h) modified permit applicant to submit a timely, accurate, and complete NPDES permit re-application and 301(h) application. Absent sufficient evidence to support the 301(h) demonstrations, EPA concludes that denial is appropriate. As evidenced by the extensive analysis of available data provided in the FDDs, EPA's decisions are based not only on the basis of GWA's failure to submit information, but also based on available information that affirmatively establishes that the 301(h) demonstrations have not been made. EPA's conclusion that the existing application, data, and information do not meet the minimum demonstration requirements is based on the following factors, among others;

- The applicant does not comply with minimum primary treatment removal rates.
- The applicant cannot consistently achieve the water quality standard for bacteria.

- The applicant's discharges may interfere with the protection and propagation of a balanced indigenous population of fish, shellfish, and wildlife, and may adversely affect recreational activities.

EPA believes that it has provided GWA with ample direction and opportunity to submit the required application materials, information, proposals, and data. EPA notes that GWA did not take the opportunity provided in the public notice of tentative denials to provide EPA with data to support its 301(h) applications, instead requesting more time and stating repeatedly that more information would be provided upon EPA's request.

In addition, EPA notes that GWA only reinitiated its receiving water monitoring programs in September 2008, after EPA informed GWA of the possible tentative denials. GWA did not submit to EPA receiving monitoring data from 1998 to 2008, prior to the tentative denials of January 2009. Such data would have enabled EPA to assess compliance with the monitoring program requirements under 40 CFR 125.63(c) and GWA's current 301(h) modified NPDES permits for the Agana and Northern District plants.

EPA does not have a responsibility to provide the applicant with direction, reminders, assistance, and programmatic support on how to comply with the NPDES permit requirements and/or 301(h) modified permit application requirements. The applicant is obliged to provide regulatory agencies with accurate, complete and timely data and information. It is the responsibility of the applicant to plan to conduct monitoring, and to collect necessary data to comply with the Clean Water Act and implementing regulations, including application requirements. The failure of the applicant to conduct analysis and to provide the requisite studies, modeling, sampling and documentation to support the required 301(h) demonstrations is not a basis to conclude that EPA's decision based on poor science or inadequate data.

Furthermore, the commenter is incorrect in suggesting that EPA only allowed a very limited window for the submission of data that closed in 2001. EPA has not prevented the submittal of additional information, nor has EPA indicated to GWA that additional information would not have been considered until the public comment period closed on June 30, 2009.

EPA has considered all data and information available, regardless of the date of submission, and EPA has considered post-2001 data submissions in its determination. The data analysis presented in Table 2 of the FDD for the Agana STP (page 14) demonstrates EPA's consideration of the most recent available data. The title of that analysis itself is captioned: "Summary of current and proposed effluent limitations and monitoring data for BOD and TSS for the Agana STP. Monitoring data based on Discharge Monitoring Reports (DMRs) from *March 2007 to June 2008.*" *Emphasis added.* For the Northern District facility, Table 2 of the FDD (page 15) titled "Summary of current and proposed effluent limitations and monitoring data for BOD and TSS for the Northern District STP. Monitoring data based on Discharge Monitoring Reports (DMRs) from August 2005 to June 2008" also demonstrated that EPA considered data

generated as of June 2008. Finally, EPA evaluated the submitted whole effluent toxicity test results from October 2007, as explained in the FDD (Agana page 50; Northern District page 51).

GWA COMMENT 9: CCU

"In 2001, the Guam Legislature passed 26-76, creating the Consolidated Commission of Utilities. This law replaced the appointed Board of Directors with an elected Board. The intent of the law was to improve the way GWA was governed, since the appointed Board had failed to improve GWA operations since it had become a public corporation in 1998. From 1988 to 2002, GWA lost over $60 million. In December of 2002, EPA sued GWA for noncompliance with the CWA and SDWA.

The first elected board took office on June 1, 2003. Within six months, the CCU and GWA negotiated and entered into a Stipulated Order with EPA and the federal court to address the gross non-compliance that was the subject of the 2002 lawsuit. By November 2005, GWA raised its first $105M to comply with the initial requirements of the Stipulated Order. GWA management and finances have continued to improve since the changeover to CCU governance and GWA continues to work closely with EPA to fully comply with the SO, a fact acknowledged by EPA itself in its November 9, 2007 brief in District Court of Guam Case No. 02-00022 at page 6. Progress continues to this day. GWA has complied with over 90% of the Stipulated Order items originally required in 2003, and continues to coordinate closely with EPA on all facets of progress.

Up until this time and by virtue of entering into the SO in 2003, GWA acknowledged that there were significant deficiencies in compliance and expediting timely data. Since 2003 GWA has made enormous strides in our compliance and reporting, and has been focusing its attention and limited resources fully on the items and issues identified in the Stipulated Order and Water Resources Master Plan. At no time in the 6 years since the CCU took office in 2003 has the USEPA requested that GWA provide additional information to support the 301(h) waiver application."

RESPONSE: The reorganization of the GWA does not have an affect on the criteria that EPA has used to make its decisions to deny renewal of GWA's 301(h) waivers. Regarding the request for more time to submit additional data, see response above.

GWA COMMENT 10: Stipulated Order and Water Resources Master Plan

"The Stipulated Order made no mention of secondary treatment, although it was designed to address non-compliance of the Clean Water Act and Safe Drinking Water Act violations alleged by EPA in their civil action, including "issues of compliance in GWA's Publicly Owned Treatment Works." Paragraph 42 of the SO required GWA to "restore minimum primary treatment capacity" to the Agana WWTP. This included addressing all issues documented in the 2002 Comprehensive Performance Evaluation of the facility. The CPE recommended restoring all unit processes and improving solids

dewatering facilities. GWA implemented and completed (on time) a project to implement all of these recommendations (including new centrifuges for solids dewatering), at a cost of over $11M. This project was completed in February 2007.

Had EPA included secondary treatment in the Paragraph 42 requirements, the combined costs of doing both projects together would have been significantly less than doing them separately, so clearly this was not a compliance issue. Since the permit had been expired since 1991, the most recent reapplication was in 2000, and EPA has stated that the "window" for submitting additional information to address the 301(h) application closed in 2001 (see below), EPA had sufficient time to analyze GWA's compliance with 301(h) requirements prior to issuance of the Stipulated Order, so EPA's statement that the two processes are separate has no merit (see further discussion below under WRMP).

In 2006, EPA and GWA re-negotiated the Stipulated Order. Again, the revised SO made no mention of secondary treatment, clearly indicated to GWA that as of 2006 EPA was not considering secondary treatment.

The SO also required outfall extension. These outfalls were designed specifically for primary treated waste; secondary treated waste would not have required the depth and distance of these outfalls and would therefore have been significantly less expensive. EPA's failure to address GWA's planning requirements holistically would, should they proceed in their determination, cost Guam ratepayers millions of dollars in unnecessary asset creation.

Paragraph 10 of the Stipulated Order required GWA to prepare a Water Resources Master Plan "that includes a comprehensive analysis… of wastewater treatment... needs for the next twenty years." The WRMP was to include "an infiltration and inflow assessment… septic system hookup needs and alternatives, decentralized treatment systems, consolidation with the U.S. military's wastewater systems, biosolids management and re-use, and an analysis of costs and other impacts."

The WRMP final draft was completed by GWA in 2005. After being public noticed the final document was approved by EPA on June 12, 2007. In its approval letter dated June 12, 2007, EPA stated that "GWA's Final WRMP Report lays out a comprehensive financial program, recommended capital improvement projects and schedule to move GWA towards compliance with the Clean Water Act and the Safe Drinking Water Act."

The WRMP included $338M worth of wastewater projects. These projects included $18M for upgrades to the Agana WWTP, scheduled for 2015. There was no mention anywhere in the document of secondary treatment. EPA clearly had an opportunity to give GWA some indication that they were considering issuing a determination to move GWA to secondary treatment, yet EPA remained silent on the issue – a complete waiver of any opportunity to deny GWA's 301(h) permit. The WRMP is clearly intended to bring the wastewater plant into compliance using only primary treatment. If the EPA had concerns about GWA's need to go to secondary treatment it should have required it in the WRMP – failing to do so again constitutes a waiver on EPA's part and makes the decision to deny GWA's waiver completely arbitrary in nature.

During a March 21, 2008 teleconference between EPA and GWA, Mike Lee and Doug Eberhardt concurred that GWA's planning process has not included any anticipation of the need for secondary treatment, and Mike Lee agreed that EPA approved the GWA Master Plan, which includes only primary.

EPA has pointed out that the WRMP was meant to be a living document, updated as regulatory requirements and priorities change. GWA concurs with this, but argues that the complete failure to even mention moving the two largest Guam treatment plants to secondary treatment, at a cost that could be equal to the total of all other wastewater projects identified in the WRMP, showed clearly that this was in no way a priority or consideration of EPA during the 20 year planning horizon identified in the WRMP.

EPA has argued that the WRMP couldn't be expected to address potential future regulatory requirements such as secondary treatment, but this is inaccurate. The WRMP does include planning for the possibility that Guam's Northern Aquifer could possibly be declared Ground Water Under Direct Influence, and included alternative planning for the possibility that such a determination is made some time in the future. There was no such provision for the potential that the 301(h) waivers might be denied, and no indication anywhere in the documents that secondary planning should even be considered, thereby rendering EPA's statements on this point unreasonable and arbitrary.

During the March 21, 2008 teleconference, Region IX personnel also stated that the NPDES and Stipulated Order processes are completely separate because they are handled in "different divisions" of EPA. However, GWA cannot separate these projects for our planning purposes. When making long term decisions with hundreds of millions of dollars worth of impacts to our ratepayers it is unreasonable to ask us to deal with two separate EPA's and to ask that GWA do so is inherently unreasonable and arbitrary. EPA's Water Division should have coordinated its tentative decision with the actions of the Pacific Islands Office, which is responsible for regulatory compliance, the Stipulated Order, and development of GWA's CIP priorities. Any decision to deny the waivers would force GWA to look at doubling its projected 20 year CIP expenditure (which is clearly not possible based upon the economic realities of Guam's populace), or postpone most or all of the projects that EPA had signed off as being GWA's priorities. In short, it is unreasonable to expect GWA to develop plans, set rates, and move forward in coordination with "one EPA" only to be told by a "separate EPA" that those approved plans and projections are meaningless. Should EPA move to finalize the decision to force GWA to secondary treatment, there would already have been millions of dollars worth of unnecessary expenditures by our ratepayers (see discussion of Outfalls and Stipulated Order)."

RESPONSE: The Stipulated Order was designed to address GWA's non-compliance issues with the NPDES permits applicable to Agana STP and Northern District STP in effect at that time, as well as problems with drinking water treatment plants and distribution systems. In deciding whether to renew Guam's 301(h) permits, EPA could only consider the requirements set out in the statute and the regulations. In addition, EPA can only make such a decision through a public process, including consideration of public comments. Guam's comment, in effect, suggests that EPA bound itself to reissue Guam's 301(h) permit through the positions it took in negotiations leading to the execution of the Stipulated Order. EPA rejects the contention that it either explicitly or implicitly made any such commitment. Regardless, EPA lacks the legal authority to commit to making any such decision with regard to a 301(h) permit on any other basis than the CWA's legal requirements for such permits. In addition, no such decision to

renew a 301(h) permit can be made through an informal process that does not allow for public comment.

EPA did not formalize its tentative decision to deny the waivers until January 2009, and then we solicited and considered comments from GWA and the public to determine whether the tentative decisions should be finalized. Therefore, EPA could not have told GWA that it would have to apply for a secondary treatment permit before 2009, as that would have been premature. In addition, EPA must keep separate the permitting process from enforcement actions. It cannot legally negotiate the terms of a permit while negotiating resolution of an enforcement action; each process has its own independent legal requirements. Here, EPA could not have discussed the terms of an NPDES permit for secondary treatment for GWA's plants before reaching a final decision that such permits would be necessary. Further, negotiation of any NPDES permit terms during discussions of the Stipulated Order would have been improper. Moreover, at no time during the negotiation and implementation of the Stipulated Order did EPA convey in any way to GWA that renewal of the 301(h) waivers was assured.

EPA does not agree that it has remained silent on the issue of the determination to move Guam to secondary treatment. EPA first informed GWA of the possibility that EPA could deny the 301(h) waiver in a letter from the Regional Administrator, Felicia Marcus, dated April 14, 2007. EPA subsequently described GWA's failure to carry out sufficient monitoring and to demonstrate adequate protection of the marine environment and public health, and raised concerns over water quality stemming from dissolved oxygen and fecal coliform. The Master Plan recognized that EPA was in the process of reviewing the permit applications for the Agana and Northern District STPs (pages 5-29 and 5-64 to 65). In January 2009, based on the criteria described in this document and the FDD, EPA formally issued its tentative decision to deny the waiver.

EPA does not believe that the requirements of the Stipulated Order and Master Plan are contradictory with the requirements of secondary treatment and the protection of the water quality in Agana Bay and the Philippine Sea. The water and wastewater Master Plan was completed in 2007 and identified priorities for both wastewater and drinking water systems. The Stipulated Order required that a Master Plan be developed and identified a number of wastewater collection and treatment system priorities to address aged and under-capacity collection lines as well as necessary improvements to its treatment plants. These included basic requirements that are needed for the operation of any functioning wastewater treatment system, whether that system is based on primary treatment or secondary treatment. For example, the Stipulated Order required hiring qualified individuals, the restructuring of GWA, preparing an emergency response plan, performing preventative maintenance, completing an operations manual to ensure proper operation and maintenance, and conducting operator training. The Order included requirements for an infiltration and inflow assessment of GWA's wastewater flows and collection systems sufficient to identify and prioritize problem areas, and a detailed five-year plan for financing the continued operation, maintenance, and repair of the POTW and routine maintenance of the POTW. All of these actions would be consistent with

NPDES permitting requirements to comply with secondary treatment, and are not duplicative of existing requirements.

The Stipulated Order included requirements for extensions to the Agana STP and Northern District STP ocean outfalls; requirements to implement corrective actions to restore primary treatment (primary clarifiers, preaeration, aerated grit removal systems, and primary sludge pumps and solids handling) for Northern District; and a schedule to prevent sewage overflows from Agana. GWA argues these outfalls were designed specifically for primary treated waste and that secondary treated waste would not have required the depth and distance of these outfalls and would therefore have been significantly less expensive. While this appears to be a reasonable assertion on its face, EPA rejects that millions of dollars have been wasted for several reasons.

First, in its evaluation of decision criteria, EPA did purposefully consider the impacts of the new outfalls even though GWA did not provide any information or data to support EPA's assessment. EPA used predictive modeling to assess the impact of the proposed discharges on concentrations in the receiving water in the wastewater plumes at the boundary of the zone of initial dilution (ZID), in the wastewater plumes in the farfield (beyond the ZID), near the bottom due to steady-state sediment oxygen demand, and near the bottom due to abrupt sediment resuspension (Agana FDD pages 25-39; Northern District FDD pages 27-42). Based on this analysis, predictive modeling, and assumptions for dilution, effluent quality and treatment levels, EPA was able to conclude that water quality criteria will likely be met at the boundary of the ZID for the new outfall for dissolved oxygen (DO), suspended solids, turbidity, and pH. However, EPA was not able to make a similar determination for other pollutants. EPA has concluded that predictive modeling could not reasonably assure that the proposed discharges would meet the water quality criteria for bacteria, nutrients, individual toxic pollutants, and whole effluent toxicity in the receiving water. Therefore, EPA has concluded that the applicant has not demonstrated that the proposed discharges would meet water quality criteria for these pollutants at and beyond the ZID. Thus, it is not clear to EPA that the unimproved outfalls would have been sufficient to meet CWA requirements after implementation of secondary treatment and, if EPA had made a decision earlier, it is not clear that the requirements of the Stipulated Order would have changed.

Second, regarding the timing of EPA's decisions, EPA notes that the CWA establishes a NPDES permit term not to exceed five years, with the requirement that the discharger provide a reapplication of the permit six months prior to permit expiration. The reasons for this requirement are numerous, but implicit in this requirement is an understanding that a 5 year period is a reasonable period of time for a planning horizon to meet NPDES permitting requirements. During a 5 year period, many changes may occur at a facility, including changes in loadings, treatment operations, industrial processes, wastewater characteristics, or changes to water quality standards. The 5 year period also protects the discharger, acting as a "shield" from more stringent regulatory requirements during this time period. EPA does not believe that GWA has a legitimate expectation that waivers from secondary treatment standards would be granted indefinitely. WWTPs must be continuously upgraded to account for population growth, new treatment technologies,

modifications to water quality standards, and an analysis of the water quality impacts being caused by the facility as data is collected. EPA's decisions, while perhaps not ideal from GWA's perspective, are not unreasonable nor arbitrary.

Additionally, EPA believes the outfall extensions would still have been required had EPA made an earlier determination on the waivers, especially in light of the pending military buildup that will increase flows. As noted elsewhere in comments by GWA, the military build-up will dramatically increase the population of the island of Guam and may drive the plant capacity of the Northern District STP over its current design of 12 MGD.

Lastly, EPA will consider an appropriate time schedule for GWA to implement secondary treatment. EPA recognizes that it will take time for the two treatment plants to be upgraded to full secondary treatment, and that there are many competing wastewater and drinking water infrastructure priorities. EPA is committed to working with GWA to develop a schedule of compliance that is appropriate, given the financial constraints and competing infrastructure priorities facing GWA.

GWA COMMENT 11: Arbitrary Decision

"What makes this decision even more arbitrary is that in an April 4, 1997 letter from Felicia Marcus, the Region IX EPA Administrator, she stated that "[o]ne option to improve the chances of obtaining a favorable 301(h) decision in the future is outfall extensions with proper diffuser maintenance. We suggest that you consider extending both outfalls to deeper waters farther from reef areas and shoreline beaches, and then filing revised 301(h) applications that take into account the outfall extensions."

This letter shows the how utterly arbitrary the decision of EPA really is because on one hand EPA specifically told GWA that it would be able to reapply for the 301(h) waivers after it built deeper and longer outfalls and then prior to GWA even completing work on the outfalls, EPA issued its intention to deny GWA's waiver (GWA was notified on January 8, 2009 that EPA was intending to deny its waivers yet GWA did not complete work on the outfalls until January 15, 2009). The letter clearly implies that a new round of testing would be allowed. Ironically, on January 18, 2002, EPA again sent GWA a letter which indicated testing at the new outfall sites would not only be permitted but required.

Even more pertinent is the fact that the April 4, 1997 letter was a notice of intention to deny GWA's 301(h) waiver, yet from April of 1997 to January 8, 2009, a period of approximately 11 years passed which seems to constitute a waiver on the EPA's part to deny GWA's 301(h) variance. Regardless of whether or not the EPA waived its enforcement capacity by doing nothing, in the aftermath of the 1997 letters in 2002 EPA sued GWA to enforce the CWA and in the settlement of that dispute (the SO) the requirement to extend and deepen the outfalls were included. This means that the provisions of the 1997 letter must have still had merit, otherwise EPA in the SO would have simply required that GWA build a new secondary treatment plant instead of

requiring GWA to first extensively renovate both plants at great expense ($11M for Agana alone) and also extend and deepen the outfalls at additional great expense. Additionally, requiring GWA to provide secondary treatment could force the CCU to choose extremely high rates over their own existence, as the Legislature may eliminate the CCU if their constituents perceive "excessive" rate increases that would be required to pay for both WRMP projects and secondary treatment. EPA is cognizant of the progress GWA has made so CCU's control compared to previously.

Affordability

According to the WRMP, the SO requirements were estimated to be $220M to implement (not including debt service). The WRMP outlined an additional $900M worth of projects over 20 years. Those costs are in 2005 dollars, and will have increased significantly since then due to inflation, fuel costs (which also drives up all material costs as all materials must be shipped to Guam), increased cost of borrowing due to a tighter credit market, increased labor costs due to the military buildup on Guam, and the fact that the WRMP consultant did not take into account a full Guam factor (such as the 2.76 factor utilized by DoD) when calculating cost. Thus, the $900M in costs will likely exceed $1 Billion at the end of the 20 year cycle and these costs do not include the **ADDITIONAL** $300M in costs for secondary treatment.

The WRMP planning was designed to keep rates at an industry and EPA standard 2% of average household income, but concluded that within the first five years of rate increases required to support the CIP projects defined in the WRMP the 25% of lowest income households would exceed the 4% that is considered to define "affordable".

Secondary treatment would require a 600% rate increase just for the capital costs. This does not include additional operating costs, which are significantly higher than those for operation of a primary treatment plant. This massive rate increase will have a negative impact not only on GWA's ratepayers, but Guam's economy as a whole. Guam's competes with Hawaii and other Asian destinations to attract tourists (its number #1 industry) and even now there is fierce competition between destinations. If GWA raises its rates by 600%, the water and sewer costs to Guam's hotels will likely price them out of the market. A corresponding drop in revenues from tourists will have far reaching affects on the Government of Guam to educate its children, to pay for health and safety and to conduct its operations and make debt payments on its obligations. Moreover, the Government will have less money to spend on actual programs since the government is also a customer of GWA. Guam does not have a mainland residential market like Hawaii and Guam's location presents only limited opportunities for other types of industries that are present in Hawaii.

In EPA's response to comments on the Honouliuli WWTP denial, they noted that the affordability criterion is "not one EPA may consider in determining whether to grant a variance under section 301(h) of the CWA." GWA believes this to be false both legally and factually. In fact, the denial, extension or granting of a waiver by EPA is a discretionary act.

In EPA's response to comments on the Honouliuli WWTP denial, EPA concurred that a consideration of all wastewater management priorities is appropriate in determining schedules for future treatment upgrades. EPA has not demonstrated this in issuing the Agana WWTP denial at this time, when GWA is operating under an EPA enforcement action and has been closely coordinating with the Pacific Islands Office to define those

other priorities. EPA has shown no sensitivity to GWA's improvements over the past six years, Guam's limited resources in terms of both dollars and personnel, and has shown clearly that there is no coordination between the Pacific Islands Office and the Water Division.

Outfalls

In letters dated December 1998 and August 1999, EPA informed PUAG that if the outfalls for Agana and NDWWTPs aren't extended, the 301(h) waivers would be denied. Although not explicitly stated, the obvious implication was that if the outfalls were extended, the waivers would be extended as well. (In the Honouliuli response, EPA noted that WQS have changed since those dates; GWA addresses this under WQS, below.)

GWA designed and installed a new outfall in accordance with the 1998 permit application and 2000 application addendum. The total spent on construction was $10,203,222. The outfall was specifically designed using dilution factors for primary treated wastewater. Construction costs were high because of the depths involved (275 feet requires special precautions on the part of the divers completing the installation) and because the pipe was horizontally directionally drilled to protect the reef; a process which created numerous problems due to the limestone formation. The outfall was put on line in December of 2008, and was receiving 100% of the flow as of January of 2009. An outfall designed for secondary treated wastewater would have been shorter and shallower, and any reduction in depth and length would have significantly reduced the cost. It is even possible that GWA could have repaired or sliplined the existing outfall for a secondary discharge instead of installing a new pipe, which would have been constructed at a fraction of the cost.

During a March 21, 2008 teleconference between EPA and GWA, Doug Eberhart acknowledged that there was an anticipation that the installation of the new outfalls would allow for the waivers."

RESPONSE: EPA's decision is not arbitrary due to its suggestion in the April 4, 1997 letter that "[o]ne option to improve the chances of obtaining a favorable 301(h) decision in the future is outfall extensions with proper diffuser maintenance." GWA was on notice at the time that EPA was in the processes of evaluating data regarding the waiver applications and possibly denying GWA's applications.

EPA's suggestion that the outfall extension would improve the chances of obtaining favorable decisions was accurate. However, the criteria by which EPA must evaluate a 301(h) waiver are not related solely to the issues of diffusion of the effluent in the receiving waters. As indicated in the FDDs, numerous factors do not support the renewal of the variances, including: failure to reliably achieve primary treatment, failure to demonstrate the ability of the STPs to achieve water quality standards, failure to implement a pretreatment/source identification program, failure to continue the required receiving water monitoring programs, failure to implement the baseline receiving water monitoring programs for the proposed outfalls, and failure to monitor for additional parameters as required of large applicants. As EPA suggested, an outfall extension can improve the chances of obtaining a favorable decision, provided the applicant meets the remaining decision criteria. GWA incorrectly asserts that the outfall extensions should

be sufficient by themselves to result in renewals of the waivers. At no time did EPA state or imply that extending the outfalls would guarantee renewal of the waivers.

EPA disagrees that decisions on the 301(h) applications should be delayed until sufficient monitoring data is collected to assess impacts of the newly extended outfalls. Although EPA's regulations do allow for applications to be based on improved discharges, and extending outfalls is specifically mentioned as an example of an improved discharge, EPA's regulations in no way suggest that EPA must delay decision making until the improvements have been made and data is collected for the improved discharge. Furthermore, EPA found based on modeling that the discharge would not meet water quality standards, namely for enterococcus even with the improved/extended outfalls. To meet this standard would require dilution of 8,000 to 1 and the dilution here is 200 to 1 for Northern District STP and 100 to 1 for the Agana STP. Accordingly, the fact that the news outfalls are operational does not alter EPA's analysis on this issue. Moreover, there are other 301(h) criteria that the discharge fails to meet, as explained in the FDDs and elsewhere in this response to comments.

Although GWA asserts in its comments that EPA's position that affordability cannot be considered as part of the review of a 301(h) application is "false both legally and factually" and that the "denial, extension or granting of a waiver by EPA is a discretionary act," GWA provided no explanation or basis for these statements. Specifically, GWA did not identify any statutory or regulatory criteria that would include affordability as one of the factors that should be taken into account. EPA continues to conclude that its decisions on 301(h) waivers must be based on the statutory and regulatory criteria and that affordability is not pertinent to any of those criteria.

EPA will work with GWA to develop a compliance schedule for upgrading its wastewater treatment plants to secondary treatment that will consider priority drinking water and wastewater infrastructure improvement needs and costs. Pursuant to requirements in the 2003 Stipulated Order, GWA completed a Master Plan for wastewater and drinking water improvements and is completing or has completed interim renovations to its existing wastewater facilities to provide and/or restore primary treatment for wastewater at the Agana and Northern District wastewater plants. The Stipulated Order and Master Plan were appropriately designed to address compliance with the GWA's current permits (see also response to comment 10). Negotiation of schedules for completing secondary treatment will build on GWA's Master Plan and will take into account other expected changes in Guam, including the military build-up.

Please see also the response to GWA comment 10.

GWA COMMENT 12: Need for Additional Information
"125.57 (a)(2) The discharge interferes with the attainment or maintenance of water quality which ensures the protection and propagation of a balanced indigenous population of shellfish, fish and wildlife and allows recreational activities in and on the water.

125.57(a)(3) The applicant has established a system for monitoring the impact of such discharge on a representative sample of aquatic biota.

There is no data that shows that GWA does not meet these requirements. EPA's argument throughout the TDD is that GWA has not provided adequate information for EPA to make a determination and therefore EPA is forced to presume that GWA is not meeting these requirements. Stated simply, there is no evidence and no scientific argument presented by the EPA to support the assertion that GWA does not meet this requirement.

As noted by EPA in their TDD, GWA completed offshore monitoring for the 1998 reapplication. GWA has also been sampling offshore since the new outfall was put on line in December 2008 (offshore monitoring actually began October 2008). This outfall was installed pursuant to EPA direction and in full coordination with EPA (see Outfall section above). Since the outfall was put on line, there has been no time to perform any studies to show that the effluent as discharged out of this outfall ensures "protection and propagation."

In February 2009, Dr. Laurie Raymundo, Coral Ecologist for the University of Guam's Marine Lab, began a study to look specifically at potential wastewater impacts on Guam's reefs. As of June 2009, Dr. Raymundo has stated that it is too early to see any pattern in the data. GWA has not yet had the opportunity to perform comparisons of biological impact assessments that involve comparisons of biological conditions and habitat characteristics as discussed in the TDD. Therefore, GWA is requesting that EPA allow GWA adequate time to complete and implement studies that will demonstrate compliance with this requirement and demonstrate protection of Guam's marine habitat. As a precedent, when EPA determined that there was inadequate data to evaluate Honolulu's 301(h) discharges, EPA funded the Mamala Bay study. To add scientific rigor to EPA's decision making process, GWA is requesting both the time to complete such studies now that the new outfall is on-line, and EPA funding to execute complete and thorough scientific research expeditiously. In their June 3, 2009 Position Statement regarding EPA's tentative determination, GEPA concurred that there is a lack of data to determine the impacts based upon the 2001 WQS (see section on WQS below).

EPA has consistently stated both in press releases and throughout the TDD that GWA "failed to submit the information required." During a March 21, 2008 conference call, EPA stated that the "window" for GWA to provide information closed in 2001. EPA references the June 1997 letter as the basis of their request for information. Prior to issuance of the TDD, current GWA staff did not even have a copy of this letter. The "new" GWA under the CCU cannot be expected to address comments sent to a less efficient PUAG/GWA six years prior to the CCU and the SO. No additional requests for the information described as being deficit were ever received, and to current GWA staff was given no indication after 2003 that the application was considered to be incomplete. As an additional example of this, on January 18, 2002, EPA sent a letter asking EPA to do additional baseline monitoring. GWA did not complete additional monitoring at that time. On December 20, 2004, during the post-CCU area, EPA again sent a letter requesting that GWA perform additional baseline monitoring at the outfall sites. GWA fully complied with this request, completed the quarterly analysis, and submitted it to EPA, who concurred that the analyses fully complied with the request.

GWA as a public corporation under the CCU is a fundamentally different organization than previously. The Justice Department recommended to the Guam Federal Court in connection with the Ordot Dump and landfill case that that the CCU should take over operation of Guam's solid waste division because of their effectiveness in overseeing GWA and GPA. It is contradictory to state that actions by the pre-CCU PUAG are binding on the new GWA when even EPA itself has recognized that GWA is not the same as before. It is arbitrary and misleading to have EPA officials speak with GWA on a weekly basis from 2003 to 2007 without mentioning in any way that EPA was intending to deny GWA's waivers based on a lack of information. If it had been, GWA could have been provided an opportunity to spend the approximately $35M spent in rehabilitation to Agana and Northern towards upgrading its plants. EPA is well aware of GWA's funding constraints (see Affordability) and has at least some duty to help GWA spend those limited resources in the most environmentally beneficial manner possible.

EPA is required to provide "reasonable response times." GWA has addressed any requests that EPA made for additional information in the post-CCU era; therefore, GWA counters that the lack of written communication on the 301(h) waiver application from 1999 to 2009 is not a "reasonable response time" and that today's GWA could not anticipate that their application was inadequate or insufficient as stated in the TDD. In denying its application at this juncture EPA has acted in an arbitrary and capricious fashion without regard to environmental concerns, costs to Guam or to GWA's ratepayers. Moreover, had the "new" GWA been informed at any time from 2003-2009 that EPA required additional information, studies, or other data in order to maintain the 301(h) waivers, it would have been promptly procured. For example, when EPA requested that GWA perform toxicity testing at the Agana WWTP in 2007, it was completed promptly.

In EPA's response to comments on the Honouliuli WWTP denial, they noted that "If EPA's concerns with the application were limited to the monitoring program, EPA would work with CCH on improvements to the monitoring program." Since the "window" for GWA to submit information closed in 2001 (according to EPA personnel and the TDD page 7), and EPA's last request for information from GWA on the 301(h) application was 1997, GWA therefore requests that EPA work with GWA on developing improvements to the monitoring program prior to issuance of a final decision."

RESPONSE:

EPA maintains that GWA, as the discharger, has the responsibility to provide the necessary data, which it did not, not even as part of its comments on the tentative decisions to deny the waivers. Based on existing data and modeling, EPA concluded that GWA does not meet the criteria to qualify for the waivers.

EPA disagrees that a "window" for GWA to submit new information closed in 2001 (please see also response to GWA comment 17). For these reasons, and also because GWA has not otherwise attempted to comply with the provisions of 40 CFR 125.59(g)(1) and (g)(2), EPA denies GWA's request to submit additional information under section 12.59(g) to the extent this comment represents such a request.

GWA COMMENT 13: BOD Removal

"When the Agana WWTP was put back on line in 2007 after its renovation, BOD removal quickly came into full compliance. At the same time, GWA discovered that septage haulers throughout Guam were indiscriminately dumping into GWA manholes and that the Agency had no control over what these haulers were putting into the system.

The Agana WWTP was the only one being operated 24 hours/day. A decision was made to require all septage haulers on island to dispose of their loads at the Agana WWTP where the loads could be monitored for oil and grease and randomly sampled. All haulers were licensed and a fee structure implemented for disposal. A public relations campaign was implemented to inform all residents that if they saw any truck dumping anywhere else they should call GWA Dispatch immediately.

Once the haulers began to discharge to Agana WWTP, the NPDES BOD limit became increasingly difficult to meet. GWA performed a sampling and analysis study looking at BOD in hauled waste, including the percent of soluble BOD. (See Attachment 1.) This showed clearly that the hauled waste was the likely cause of the BOD exceedances. However, the need for control over septage haulers remains. GWA put into the next bond issuance project list a project for a septage receiving station, which will be located at the NDWWTP. In the meantime, ND does not have any location for receiving septage, and the smaller wastewater plants would be even less able to attenuate the flows than Agana is. Once the septage can be removed, GWA is confident that BOD will once again be in full compliance. EPA has been fully apprised of these conclusions and efforts, both in meetings and via Discharge Monitoring Reports.

EPA has concurred that GWA's BOD discharges will meet the WQS at the ZID of the new outfall. However, the clear lack of negative impacts from GWA's discharge is critical in discussions of GWA's % removal requirement (see below)."

RESPONSE: As described in the FDDs and acknowledged by the GWA, GWA has a history of non-compliance with minimum BOD removals required to achieve primary treatment for both the Agana and Northern District STP. As described by the commenter, GWA continues to have problems complying with BOD removal rates required to obtain a 301(h) waiver. Although EPA commends GWA for taking steps to better handle septage in the Agana system, GWA did not provide any information or analysis that demonstrates that the Agana treatment plant is now meeting or would meet primary treatment requirements once the septage receiving station is in operation.

GWA COMMENT 14: 30% Removal Requirement

"EPA states that GWA has not complied with the requirement to remove 30% of BOD and TSS.

Industry standard influent BOD is 300 mg/L. GWA's influent BOD averaged 96 mg/L between October 2007 and December 2008. This is below the daily maximum discharge limit of 160 mg/L and some months falls below the average discharge limit of 80 mg/L.

The physical treatment process simply cannot remove 30% of this small of a concentration of influent. Secondary treatment would require 85% removal, and despite additional biological treatment processes would not be successful in removing that percentage from such low influent; moving to secondary therefore would not address this problem. This can be shown by the fact that secondary wastewater treatment plants on Guam, including the Apra Harbor WWTP, all have the same issue with low influent BOD and an inability to remove the required percentage, yet these facilities meet permitted discharge limits.

Typically it is presumed that low influent BOD is caused by inflow and infiltration (I&I). Graph 1 shows that there is no correlation between rainfall, influent flow and BOD, and there is no fluctuation in inflow to the plant between rainy season and dry season, so there is no demonstrable inflow source to the plant. The solid green line is the maximum effluent discharge limit and the dashed green line is the average discharge limit. In other words, the influent BOD is in many cases less than the requirements for effluent BOD.

Additionally, one of EPA's consultants stated during a site visit to Guam (during which he was accompanying the Pacific Island's Office) that tropical environments typically have low influent BOD, and that EPA needs to complete studies to validate this and to determine the cause.

One additional potential source of low influent BOD is groundwater infiltration. GWA has a robust CCTV inspection program and is programming annual collection system repairs into our five year rate plan. There have not been significant amounts of groundwater infiltration discovered to date, but any CIP repairs that found to be necessary as a result of this program are promptly implemented. Should GWA be forced to move to secondary treatment, money for such collection system rehabilitation would not be available.

The percentage removed is therefore not relevant; the critical criteria are whether or not the plant can protect water quality. EPA concurred in their TDD that GWA could meet the WQS at the ZID for both BOD and TSS. While it is true that 30% removal is a requirement of 301(h), EPA does have some discretion in this, such as in modifying the averaging period. It is clear that environmental protection should take precedence over arbitrary, non-material and theoretical requirements. EPA's failure to issue a decision for 10 years demonstrates that it has discretion in this matter, yet when the EPA tries to deny GWA's waiver at this juncture, it is clearly an abuse of this discretion.

GWA has met the 30% removal requirement for TSS at the Agana WWTP. Graph 2 shows the percent removal since the plant was put on line after renovation as required under the SO.

EPA should allow GWA time to address the programmed septage hauler program and grit removal systems to meet this paper BOD requirement, since according to the TDD there is no negative environmental impact from BOD or TSS. Additionally, EPA should recognize that any funding that would be available to address any potential groundwater infiltration would be diverted by a requirement to go to secondary treatment (see Affordability) and therefore GWA would be equally unlikely to meet the 85% removal required of a secondary treatment plant."

RESPONSE: GWA has raised a number of issues that are not related to the section 301(h) statutory and regulatory criteria. The 30% removal rate for BOD and TSS is a mandatory minimum requirement for facilities that have applied for a 301(h) waiver from secondary treatment. EPA cannot modify this requirement of the CWA, regardless of the reason for the low rate of removal and regardless of the extent of impacts in the receiving water from BOD and TSS. Also, whether or not construction of secondary treatment facilities would result in removal of 85% of the BOD and TSS on a monthly basis is not relevant to the criteria specified in the statute and regulations for review of 301(h) waiver applications. Nor does the timing of EPA's decision affect the underlying criteria.

GWA suggests that EPA has discretion to modify the averaging periods to achieve compliance with the BOD removal rates. As noted in the FDD (pages 22-25), the Agana STP achieved the 30% removal requirement only 11% of the time during the 28 months that were assessed for BOD removal. EPA also evaluated compliance based on an annual average, and determined that BOD removal rates would not be achieved on an annual basis (page 24 of FDD). GWA did not provide in their comments any additional analysis indicating that the Agana plant had consistently met the 30% removal requirement using some other averaging period, and EPA does not see how any modification to the averaging period would result in compliance.

EPA conducted a similar analysis for the Northern District STP. Of the 70 months that were assessed for BOD removal, the applicant achieved the 30% removal requirement 61% of the time. Removal efficiency rates for monthly averaged percent removal of BOD ranged between - 20.83 to 81.17%. Of the 70 months that were assessed for TSS removal, the applicant met the percent removal requirement for TSS 50% of the time. EPA also assessed whether the 30% removal requirement would have been achieved based on the annual average of removal rates if GWA had been a longer averaging period pursuant to 40 CFR 125.60(c)(1), and EPA concluded the facility would not be able to consistently meet the minimum 30% removal requirement for BOD and TSS based on a longer averaging period.

EPA rejects any implication that EPA needs to assess the opinion regarding influent in tropical climates prior to making decisions on the 301(h) applications. EPA does not necessarily agree with GWA that the weak influent is caused by factors other than infiltration and inflow. Moreover, although further insight into the causes of weak influent would be valuable in several contexts, this information is not germane to making decisions on the 301(h) applications.

The issue before EPA is whether or not the proposed discharges would meet the primary treatment requirements of section 301(h). GWA has not provided any information that demonstrates the two facilities in fact meet primary treatment requirements. EPA continues to conclude in its final decisions that neither facility meets primary treatment requirements.

GWA COMMENT 15: Monitoring Program

"EPA states that GWA has not 'continued the monitoring program specified in its current section 301(h) modified permit.' While acknowledging that past practices were inadequate, GWA is in fact currently completing off-shore monitoring in accordance with the permit requirements. The offshore monitoring was initiated just prior to putting the new outfall on line (in October 2008), and therefore all necessary data relative to the new outfall is being collected. EPA did have this data prior to issuance of the TDD. The outfall has only been on-line since December 2008, and therefore even if GWA had a history of monitoring data there would not yet be adequate monitoring information to determine compliance with the regulations. The permit requires GWA to monitor only for floating materials, odor, color, total coliform bacteria, temperature, salinity, pH, dissolved oxygen and turbidity so information on these parameters would not have impacted any of the TDD determinations on nutrients, toxics, etc."

RESPONSE:

As documented throughout the FDDs and in this document, EPA's decisions to deny the waivers are based on numerous factors, only one of which is the failure of GWA to perform the required monitoring. As a waiver applicant, GWA had a duty to provide adequate data to demonstrate compliance of the proposed discharges with all water quality standards at the ZID. GWA could have based its demonstration on actual data for the old outfalls and/or modeling for the new outfalls. While monitoring for nutrients, toxics, and other pollutants is not required under the current permits, this monitoring is required for 301(h) applicants under 40 CFR 125.63(c). In fact, EPA had suggested to GWA that it refer to the 301(h) Amended Technical Support Document (ATSD) in order to implement the monitoring requirements applicable to its 301(h) waiver applications.

GWA's apparent assertion that EPA had received offshore monitoring data prior to the issuance of the tentative denials, beginning in October 2008, is incorrect. Also, the newly acquired data concerning offshore monitoring was not signed with the appropriate certification and was not submitted by GWA until January 29, 2009. Given that EPA's tentative decisions were issued on January 5, 2009, it would not have been possible for EPA to consider the offshore monitoring data from October 2008 for analysis in the TDDs. The TDDs do evaluate the receiving water monitoring data provided to EPA in GWA's 2001 submission, which covered the period from April 1989 to July 1997. EPA did not receive any other ambient water quality monitoring data.

For the Final Decision Documents, EPA included an evaluation of the data submitted in January 2009. In September, 2008 GWA re-instated the collection of quarterly water column physical-chemical data consistent with their receiving water monitoring permit requirements. GWA collected samples at three monitoring locations: near-field, far-field, and control and at three depths: surface, middle, and bottom. Parameters include: floating materials, odor and color (visual observation), fecal coliform (surface only), temperature, dissolved oxygen, pH, salinity, and turbidity. No receiving water monitoring was conducted for toxic pollutants. This data was submitted to EPA in a quarterly Discharge Monitoring Report (DMR) in January, 2009. EPA evaluated this

additional data for consistency with EPA's tentative decisions regarding these parameters and concluded that the new data does not change EPA's assessment of water quality impacts. As discussed above, EPA had already concluded in the Tentative Decision Document that the criteria will likely be met at the ZID for the parameters analyzed in the receiving water (dissolved oxygen, salinity, temperature, pH, and turbidity), and therefore the new data does not change this assessment.

Regardless of the analysis concerning receiving water quality monitoring data, EPA would still deny the waivers based on the numerous other criteria that GWA has failed to meet, which include: failure to reliably achieve primary treatment, failure to demonstrate the ability of the STPs to achieve water quality standards, failure to implement a pretreatment/source identification program, failure to continue the required receiving water monitoring programs, failure to implement the baseline receiving water monitoring programs for the proposed outfalls, and failure to monitor for additional parameters as required of large applicants.

As mentioned above, GWA failed to submit adequate baseline monitoring data as required for large 301(h) applicants for the proposed extended outfalls, despite repeated requests from the EPA. Specifically, GWA failed to establish and comply with appropriate biological monitoring such as sediment and fish tissue analysis, in accordance with 40 CFR 125.63(b). Accordingly, EPA concluded that GWA failed to demonstrate that it had established an adequate monitoring program.

GWA COMMENT 16: Resources

"EPA states that GWA has not demonstrated that it has the resources to carry out the monitoring program. However, the program is now budgeted and being consistently implemented. As EPA's Pacific Island's Office is aware, GWA now has a modern and well-staffed laboratory located at the Agana WWTP with a full-time Laboratory Manager and Laboratory Technician who are responsible for the monitoring. The laboratory is managed by Veolia Water Guam, a subsidiary of Veolia Water Eau, which is one of the largest water / wastewater companies in the world and which has a successful track record of compliance. There is no question of GWA ensuring that this monitoring is completed as required."

RESPONSE:

EPA is encouraged that the commenter has taken steps to ensure that appropriate monitoring will be conducted in the future, and EPA is concluding in the FDDs that GWA has demonstrated it has the resources to carry out the proposed monitoring programs. However, EPA is still concluding that GWA has failed to meet section 301(h)(3) and 40 CFR 125.63, because of GWA's failure to submit the monitoring data required in the existing permits and the additional monitoring data required as part of its 301(h) applications.

GWA COMMENT 17: Bacteria

"EPA states that the design of the new outfall does not allow sufficient dilution for the discharge to meet the WQS for bacteria.

In EPA's 1997 letter tentatively denying the original permit application, EPA cited two fecal coliform studies and noted that the documents warned that 'significant fecal coliform contamination can enter coastal waters of Guam from stormwater runoff, point source contaminators and perhaps resuspension of contaminated sediments.' Nothing in the studies or EPA's statements verified that there was significant point source contamination from the outfalls, and recent information from GEPA indicates that non-point source pollution and stormwater runoff are significant sources of bacterial contamination.

Ironically the April 1997 EPA letter also noted that the studies did NOT recommend chlorination because chlorine can be far more detrimental to marine biota than bacteria.

The letter recommended that GWA resubmit their application and include a proposal to extend the outfall. GWA did so (see sections on History and Outfalls above). EPA and GEPA approved the design of the outfalls.

During a teleconference between EPA and GWA on March 21, 2008, EPA stated that the primary bacteriological reason discussed for the denial was the Beach Act pathogen criteria, although EPA staff then noted that this doesn't really apply to Guam because GEPA already has adequate pathogen criteria in their Water Quality Standards. GWA noted that bacteria can be addressed with disinfection and this does not necessarily require secondary treatment. Region IX personnel emphatically stated that GWA applied for a 301(h) waiver without requesting disinfection and therefore the denial will be based on the 1998 application, and there is no opportunity for revision of that application or discussion of any alternative other than secondary treatment (despite the fact that the application is 11 years old).

During a teleconference with EPA staff on April 3, 2009, EPA stated that the "window" for GWA to submit any additional information had closed in 2001. The current version of the GWQS was issued in 2001. GWA is being arbitrarily denied the opportunity to provide any modifications after this date to adjust to the new WQS. The permit application was submitted based upon the WQS issued on January 2, 1992, which included only a fecal coliform standard of 200/100 mL for a 30 day period and 400/100mL at any time. GWA has been provided no subsequent opportunity to modify our application to address the updated WQS, which were used in evaluating our permit application and as the basis for the tentative decision.

The fact that GWA is being denied the opportunity to present new information, despite the fact that the EPA has on at least one occasion since 2001 indicated to GWA in writing that if it extends out its outfalls it will be provided a new opportunity to obtain a 301(h) waiver, is unreasonable, arbitrary and capricious on the part of EPA."

RESPONSE:

The commenter is incorrect in stating EPA only allowed a window for the submission of data which closed in 2001. EPA did not prevent the submittal of additional information at any time. In addition, EPA encouraged GWA to submit any additional information during the public comment period that would demonstrate that the proposed discharges meet the criteria for obtaining a section 301(h) variance.

EPA allowed GWA to revise its applications when GWA stated it intended to build the extended outfalls, but it has not offered an opportunity for GWA to revise its applications more recently. The 301(h) regulations do not contemplate that a discharger will be given multiple opportunities to revise its application in an attempt to find the minimum level of treatment that would meet the 301(h) criteria. Further, as the permits under which the Northern District and Agana STPs are operating were issued in 1986, EPA does not believe that an additional round of waiver applications and tentative decisions would be appropriate.

GWA stated in its 301(h) variance applications that the effluent from both Northern District and Agana will not achieve GEPA's water quality standard for bacteria. GWA reached this conclusion based on the predicted dilution performance of its proposed outfalls combined with the lack of disinfection. EPA agrees with GWA's conclusion. EPA notes that the facilities discharge in the vicinity of Tanguisson Bay (Northern District STP) and Agana Bay (Agana STP), both of which are included on the Guam list of impaired waters due to elevated levels of bacteria. EPA recognizes that there are other sources of bacteria, but the Northern District and Agana STPs are clearly contributing bacteria as well. EPA does not believe that the outfall extensions alone will be able to meet water quality standards for bacteria.

Furthermore, data regarding discharges from the outfall extensions would not change EPA's determination that GWA failed to meet other 301(h) criteria. For example, additional receiving water data could not cure the past failure of the treatment plants to meet primary treatment requirements.

EPA acknowledges that disinfection using chlorine can have adverse impacts on aquatic life, and that these impacts can be significant if the chlorination/dechlorination process is not properly controlled, but concerns about the impacts of chlorine do not mean that GWA is exempt from meeting water quality standards for bacteria. Many NPDES discharges are disinfected without adverse impacts to aquatic life.

GWA COMMENT 18: Enterococcus as pathogen indicator

"Tests that actually identify the presence of fecal pathogen (disease causing bacteria) contamination in water and the environment from mammalian sources, particularly those which can infect humans, are difficult, tedious, time consuming and expensive. They generally take so long that by the time a positive test result is obtained, it may well be too late to manage a problem for which they could be a cause. Because of this, organisms that are used to evaluate water quality and the environment are not the

actual pathogens that can cause disease, but rather they are classes of bacteria that tend to live in the same conditions as the pathogens and can be identified quickly.

It has long been recognized that the organisms that have historically been used to indicate the presence of fecal contamination in tropical environments are not reliable for this purpose. The reason is that the classes of organisms used for water and environmental quality evaluations are able to thrive in the soils where the growth conditions are always warm and moist. This ability then prevents a determination of the actual source of the indicator organisms and does not provide precise human health related information on the quality of the water or the environment being monitored. Research done by the University of Hawaii Water Resources Research Center by Roger Fujioka et. al. in the early 1990's was among the first presentations documenting this situation, and some alternative organisms were proposed. In 1999, they published a second study in Guam, using the same methods as the Hawaii studies. This study found that "soil becomes an environmental non-faecal source of faecal indicator bacteria" and concluded that "USEPA water quality standards may not be directly applicable to tropical island environments."

The *Development of New or Revised Recreational Water Quality Criteria* (EPA 823-R-07-006; June 2007) notes that enterococci, the indicator organism in the WQS and referenced in the TDD, has several shortcomings in its use as a fecal indicator and that experts "agreed that enterococci are probably not appropriate indicators in all climatic regions (e.g. in tropical and subtropical climates)." EPA, in concurrence with the need of a better method for microbiological evaluation of waters and the environment, has an ongoing program to seek out alternative indicator organisms which provide more precise information on the presence of fecal contamination and likely sources of it.

EPA stated in their Honouliuli TDD response that "Until new methods to detect pathogens are finalized and adopted in 40 CFR 136 and criteria using these new methods are developed and promulgated, the existing criteria remain in effect. In EPA's 301(h) analysis of whether a discharge can attain water quality standards for bacteria, EPA must use the currently applicable water quality standards." This statement proves fundamentally that EPA's scientific arguments lack rigor to make decisions which will result in significant environmental and cost impacts on the Island of Guam. Enterococci are a poor indicator for tropical environments such as Guam according to numerous studies, including EPA's, yet EPA holds GWA to an inappropriate, unscientific standard. EPA's argument that this is based on the law is rendered ineffective by its own failure to issue a decision for 11 years; this demonstrates clearly that EPA has discretion in these matters.

GWA believes that a non-arbitrary and reasonable approach is that EPA postpone a final decision on this topic while allowing GWA and other Guam entities including WERI to contribute to research on appropriate indicator species for tropical environments, and/or allow GWA an opportunity to propose disinfection to address the hypothetical bacteria issue. GWA would be an ideal test platform for such research."

RESPONSE: As specified in the FDDs (Agana page 42; Northern District page 43) Section 5102(B)(2) of GWQS establishes water quality criteria for enterococcus to protect whole body contact recreation for Category M-2 marine waters. Section 5103(C)(1) of GWQS provides that the number of enterococcus bacteria shall not exceed

35 enterococci per 100 ml based on a geometric mean of five (5) sequential samples over a period of thirty (30) days nor have a single sample exceeding 104 enterococci per 100 ml. GWQS have been adopted by GEPA and approved by EPA and are applicable to the marine environment in the vicinity of the discharge.

In EPA's 301(h) analysis of whether a discharge can attain water quality standards for bacteria, EPA must assess applicable water quality standards, and Guam water quality standards do establish criteria for enterococci. The discussion of whether or not enterococci is an appropriate water quality indicator in tropical environments may be an interesting topic for further research, but it is not germane to EPA's decisions regarding 301(h) waivers from secondary treatment and EPA is not acting arbitrarily by basing its decisions on existing water quality standards.

GWA has not provided information on concentrations of enterococci in the effluents or receiving waters. (Agana FDD page 42; Northern District FDD page 43). Therefore, EPA cannot determine directly whether attainment of the enterococcus criteria is met at and beyond the ZIDs in accordance with 40 CFR 125.62(a). However, in GWA's Basis of Design reports, GWA indicated that a dilution of up to 8,000:1 would be necessary to meet water quality criteria for enterococcus at the boundary of the ZID for the proposed discharge (GMP Associates, Inc. 2001). But since the applicant has designed the new outfall for the Agana STP to attain an initial dilution of 100:1, it is unlikely that the proposed discharge through the new outfall would meet GWQS for enterococcus. Similarly, the proposed dilution ratio of 200:1 for the Northern District STP is not likely to enable that plant to meet the water quality standard for enterococcus.

GWA's Basis of Design report estimates that effluent from the Northern District STP would contain approximately 830,000 enterococci per 100 ml after primary treatment, which is consistent with reports of levels of enterococci from other wastewater treatments. For instance, Miescier and Cabelli (1982) found that primary treatment decreased enterococci densities only by about 25%, and therefore, primary treatment alone does not reduce bacteria levels to the extent that would be required to meet GWQS for enterococci. As previously mentioned, GWA does not disinfect effluent from the Northern District or Agana STP, nor has it proposed to disinfect either effluent as part of its section 301(h) application; thus, concentrations of enterococcus concentrations in the effluent are expected to be high.

EPA concludes, given the lack of receiving water data, the extended outfalls in conjunction with primary treatment would not result in meeting bacteria water quality standards for the Northern District and Agana STPs.

Given that the permits under which the Agana and Northern District STPs are operating were issued in 1986, EPA does not agree that final decisions on GWA's 301(h) applications should be further delayed to allow time for further research on pathogen indicators or for GWA to revise its applications again.

GWA COMMENT 19: Nutrients

"EPA states that GWA failed to submit adequate receiving water monitoring data to demonstrate that the proposed discharge would attain WQS for nutrients at and beyond the zone of initial dilution. According to EPA's tentative decision document, the basis of design for the new outfall and an initial dilution of 100:1 were used in making the tentative determination, and concluded that this is a conservative estimate (EPA's own calculated initial dilution was 219:1). The new outfall was designed to meet nutrient concentration compliance (with orthophosphate as the limiting factor at the zone of initial dilution), and according to EPA's own calculations, this design is conservative. Receiving water data from the existing, old outfall would not have been relevant to the ZID for the new outfall. GWA has been monitoring receiving water data and submitting such data to EPA since the new outfall was put on line. However, this monitoring data does not include nutrients. (Please see the discussions above regarding the Need for Additional Information.)

EPA acknowledges that GWA submitted receiving water monitoring data in 1998, but discusses gaps in that data. The TDD also states that EPA has expressed to GWA on "several occasions" since 1997 that GWA "should collect and provide EPA with more recent monitoring information, such as water quality data for nutrients." However, GWA has received no written feedback on the 1998 data submittal, and has had no written communication from EPA on nutrients since September 23, 1997. While acknowledging that PUAG did not complete all quarterly offshore monitoring required by the existing 1986 permit, GWA notes that there was no requirement in this permit for nutrient monitoring. GWA disputes the assertion that it was requested to do additional nutrient monitoring in the period since the CCU has been in office. GWA also disputes EPA's assertion that such monitoring would have shown whether or not GWA could meet GWQS with the new outfall, since it was clearly designed to meet such standards but was not put on line until December 2008.

In the Honouliuli WWTP response to TDD comments, EPA noted that there has been a change in the Hawaii WQS since 1991 when their previous decision was made, and that therefore their decision reflects new criteria. However, EPA stopped requesting nutrient information in 1997 and stopped accepting information from GWA in 2001, the same year that the latest Guam WQS were issued, so for any decision based on the standards of the 2001 WQS, EPA must allow GWA an opportunity to provide additional information and studies so that all information is scientifically rigorous (instead of based on "inadequate information") and relevant to the most current standards. Otherwise the EPA's decision is arbitrary, unreasonable and contrary to mandates that the agency base its decisions on what's best for the environment.

GWA requests that EPA provide GWA with a specific request for the nutrient monitoring data required with the new outfalls and most recent WQS and allow GWA an opportunity to meet that request prior to issuance of a final decision."

RESPONSE:

In it review of GWA's 301(h) applications, EPA has not assessed GWA's compliance with the existing permits, but whether or not the proposed discharges would meet the statutory and regulatory requirements related to section 301(h). The commenter has not

provided any additional information or data to EPA on nutrients. As stated in the FDDs (Agana page 45; Northern District page 46) EPA concluded that the applicant has failed to demonstrate that the proposed discharge would attain water quality criteria for nutrients at and beyond the ZID. The commenter has provided no information to demonstrate that the proposed discharge would attain water quality standards for nutrients or that EPA's conclusion was erroneous.

As stated previously, EPA believes GWA has had sufficient time and opportunity to collect, analyze, and submit nutrient monitoring data to satisfy, in part, requirements related to its 301(h) renewal applications as described in 40 CFR 125.62(a) and 40 CFR 125.63(c).

Please see also EPA's responses to comments 5, 12 and 15.

GWA COMMENT 20: Toxicity

"EPA states that GWA has failed to demonstrate that the discharge is not toxic due to a lack of representative WET data. However, each time the Pacific Island's office has requested GWA to sample for WET, GWA has done so (the claim of inadequate information based on the 1997 EPA letter is discussed in detail elsewhere in this document).

EPA states "in response to EPA's expressed concern for the lack of WET data, GWA finally submitted results for a single WET test from December of 2007." Or put another way, when EPA actually asked the post-CCU GWA to do a WET test, GWA promptly did so. GWA also completed a WET test at Agana in 2003 that was submitted to EPA but is not referenced in the TDD. Since 2003, GWA has made every effort to comply with EPA requests. Had EPA provided feedback or additional requests for sampling after 2003 GWA would have complied.

EPA also states that GWA utilized an inappropriate species. GWA used the same species that was listed in our Umatac-Merizo and Baza Gardens NPDES permits. These plants discharge into fresh water, but lacking any guidance from EPA on desired species, the biologist chose to be consistent with other permit requirements results. No feedback was ever received from EPA regarding this choice until the TDD was issued.

GWA is confident that, like the two tests completed, any additional testing would also have shown that the discharge is not toxic at the ZID.

If EPA found these submittals inadequate, they should have submitted in writing a request for GWA to do additional WET testing and specified the species to be used. EPA should postpone the waiver decision until adequate testing can be completed to fully analyze this issue."

RESPONSE: EPA believes GWA has been provided adequate time and opportunity to collect data and to provide information to EPA regarding toxicity data, and that EPA has adequately expressed the need for GWA to provide information on WET testing to meet the criteria for the 301(h) waiver. In fact, EPA asked GWA for additional toxicity information in an email correspondence dated July 17, 2008. (This email correspondence

can be found in the administrative record for both facilities.) No other test results from 2003 or beyond were provided or mentioned by GWA except for the 2007 test results. Furthermore, GWA did not provide any additional data during the public comment period on WET to assist in the assessment of whether or not the proposed discharges would meet water quality standards and protect marine life.

GWA acknowledges that the WET test was done for the Agana and Northern District STPs using fresh water species and not salt water species. EPA has produced extensive guidance regarding WET testing in EPA guidance manuals, policy documents, and on its website, which is readily available at http://www.epa.gov/waterscience/methods/wet/. All materials list the applicable WET methods based on two factors: either acute or chronic and either freshwater or marine. EPA was not aware that GWA was uncertain as to which test species to use.

GWA COMMENT 21: Toxic Pollutants & Pesticides

"EPA states that in their 1997 letter they instructed GWA to conduct toxic pollutant analysis, and that GWA did so in 1998. Based upon that data, according to the TDD, "*concentrations of all eight of the detected toxic pollutants were estimated to be below the water quality criteria at the ZID.*" In other words, the discharge is not toxic. EPA also states that GWA has not done any additional toxic scans. This is false. GWA completed toxic scans pursuant to requests from EPA's Pacific Island's Office in 2003, 2007 and 2008. These results also showed that the discharge is non-toxic.

As noted in earlier sections of this response, EPA's basis for concluding that GWA has not demonstrated that the discharge would not be toxic is because "GWA has not provided additional toxic pollutant analyses as specified by EPA." While EPA's 1997 letter did request annual analysis, no communications from EPA since that date have requested such analysis, and the "new" GWA under the CCU has completed all additional analysis requested by EPA, as shown by the 2003, 2007 and 2008 results.

EPA's conclusion that GWA has not completed adequate analysis to demonstrate that the discharge is not toxic is false. If EPA feels that additional data is necessary, EPA must request that GWA perform additional monitoring prior to finalizing a decision in order to demonstrate that all information is scientifically based (instead of based on "inadequate information"). Otherwise the EPA's decision is arbitrary, unreasonable and contrary to mandates that the agency base its decisions on what's best for the environment."

RESPONSE: EPA concluded in the TDDs that the applicant has failed to demonstrate that the proposed discharge would comply with water quality standards for toxic pollutants at and beyond the ZID. The commenter does not provide any data that would refute EPA's conclusion. Instead, GWA continues to assert that it is EPA's responsibility to request that GWA perform additional monitoring. As EPA has stated previously, it is the responsibility of the permit applicant to provide the proper analysis to satisfy the criteria of a 301(h) waiver. The applicant must demonstrate that the discharge of pollutants will not interfere with the attainment or maintenance of water quality that

assures protection of public water supplies and the protection and propagation of a balanced indigenous population (BIP) of shellfish, fish and wildlife, and allows recreational activities, in and on the water.

Additionally, EPA did, in fact, make a request to GWA to perform analytical monitoring in EPA's letter instructing GWA to conduct annual toxicity tests and toxic pollutant analyses to support its section 301(h) application (Strauss 1997). As mentioned in the response to the Toxicity comment above, EPA asked for additional toxicity information in an email correspondence dated July 17, 2008.

EPA has only received one sample result for toxicity and one sample result for toxic pollutants from each facility. The Northern District STP sampled for Whole Effluent Toxicity (WET) on October 16, 2007 and submitted the data to EPA in response to an information request on July 18, 2008. The Northern District conducted a pollutant scan for toxic pollutants on March 9, 1998 which was submitted to EPA on February 5, 2001.

The Agana STP sampled for Whole Effluent Toxicity (WET) on December 17, 2007 and submitted the data to EPA in response to an information request on July 18, 2008. Agana conducted a pollutant scan for toxic pollutants on March 10, 1998, which was submitted to EPA on February 5, 2001.

As indicated above, the WET testing was erroneously conducted for freshwater species instead of salt water species.

This is the only data that EPA has received from GWA. Thus, EPA has concluded in its FDDs that the applicant has failed to demonstrate that water quality standards for toxic pollutants would be met.

GWA COMMENT 22: Industrial Pretreatment

"EPA states that GWA has not complied with the pretreatment provisions of the regulation. The regulation applies to Categorical Industrial Users as defined in 40 CFR Part 403. The TDD states that GWA did not provide updated information regarding categorical industrial dischargers to the treatment system. GWA submitted with our 2000 application update a copy of the Discharge Survey that was completed in 1999. Based upon survey responses and a review of industrial customers via GWA's billing records showed that there are only two Categorical Industrial Users as defined in the regulation discharging into the Agana WWTP collection system. Since EPA only looked at information provided through 2001, this would not have included the recent requests that GWA made to the Pacific Islands Office for assistance in dealing with military categorical industrial discharges to GWA facilities. DoD has been extremely uncooperative in providing information or sampling and analysis at their categorical industrial facilities (e.g. Naval Hospital and AAFB Landfill). GWA requests that EPA provide assistance in enforcing pretreatment requirements on federal facilities.

GWA acknowledges that the Guam Memorial Hospital is also a Categorical Discharger and is perusing efforts to have that facility complete monitoring pursuant to the regulation. As the Pacific Island's Office is aware, GWA's primary pretreatment issue is not toxics, but is fats, oil and grease, and GWA has kept the Pacific Island's Office abreast of efforts to reduce FOG contributions to the collection system. This effort has included numerous requests that GEPA and EPA provide assistance, as the FOG regulations under GEPA contradict those of GWA, and are inadequate. EPA will no doubt argue that this is not relevant to compliance with 301(h) requirements; however, it does demonstrate that GWA has a robust pretreatment program which focuses on the issue that has the largest impact to operations and therefore effluent quality."

RESPONSE: EPA commends GWA for taking steps to control fats, oil, and grease, but EPA continues to believe that GWA has not complied fully with the pretreatment provisions of section 301(h) or 40 CFR 403. The commenter provides insufficient evidence to support its contention that EPA's conclusions were erroneous. In fact, GWA acknowledges at least 3 Categorical Discharges and clearly indicates in its comment above that these discharges are not controlled by any regulatory mechanism.

As a justification for failing to control Categorical Discharges, GWA states that its primary pretreatment issue is "not toxics". Regardless of the seriousness of problems created by fats, oil and grease, those portions of the pretreatment requirements that pertain to toxics still apply and cannot be ignored. Moreover, based on the March 9, 1998 toxic pollutant analysis, toxic pollutants have in fact been detected in the Agana STP effluent, and GWA acknowledges concerns with toxic pollutants entering the Northern District STP in the comment. (Agana FDDs page 62; Northern District FDD page 63).

GWA also provides a justification for not controlling Categorical Discharges by stating that it has forwarded a request for assistance to EPA. EPA rejects this as a justification for not complying with the pretreatment provisions of the regulation. GWA appears to believe that EPA is responsible for establishing a pretreatment program and for bringing industrial pretreatment categorical users in compliance with GWA's program. While EPA may offer compliance assistance in this regard, the task of establishing and enforcing a pretreatment program is the discharger's responsibility and a requirement of the section 301(h) waiver.

GWA COMMENT 23: Nonindustrial Source Control

"EPA states that GWA does not have a nonindustrial source control program. Current GWA staff state that public education was conducted in 1999, however, copies of such campaign are no longer available. EPA has had no discussions with GWA since 1997 regarding this issue.

The post-CCU GWA has a full time Public Relations Manager and GWA performs extensive on-going public education that includes education of the public on proper disposal of waste. Upon request GWA will submit a CD containing examples of

some of GWA's public education campaigns over the past couple of years (the video files are too large to email). GWA also does an extensive public relations campaign to eliminate illegal discharges by septage haulers (see BOD above). GWA would have been more than happy to provide such information to EPA at any time upon request, or to modify the program to include any elements that EPA considers to be necessary. GWA requests that EPA provide GWA with assistance on defining the desired elements of this nonindustrial program and with the opportunity to implement such a program."

RESPONSE: The commenter provides insufficient evidence to support the contention that EPA's tentative conclusions were erroneous. The materials GWA refers to in its comments (e.g., a "CD containing examples of some of GWA's public education campaigns over the past couple of years" and a PR campaign for septage haulers) do not appear to be adequate to meet the regulatory requirement for a nonindustrial source control program even if they had been submitted. As stated in the TDD, GWA was required to complete all portions of the section 301(h) questionnaire that pertains to large applicants. GWA has not provided adequate information on the development and implementation of a nonindustrial source control program as required by 40 CFR 125.66(d)(2) and (3). Specifically, this requires a public education program designed to minimize the entrance of nonindustrial toxic pollutants and pesticides into its POTW(s); a schedule of activities for identifying nonindustrial sources of toxic pollutants and pesticides; and a control program for nonindustrial sources of toxic pollutants and pesticides. Therefore, in its final decisions EPA has concluded that the applicant has not demonstrated that it has met the requirements of 40 CFR 125.66(d)(2) and (3).

GWA COMMENT 24: General

"The data in Table 1 regarding the new outfall is inaccurate. Design drawings were submitted to EPA for review and approval prior to construction; GWA recommends that these be reviewed and asks that this information be corrected."

RESPONSE: The commenter has not indicated what data, specifically, it believes to be inaccurate about Table 1. EPA believes Table 1 is accurate.

GWA COMMENT 25: Military Build-Up

"It has become impossible to discuss the issue of secondary treatment without referencing Guam's impending military build-up. The military build-up will dramatically increase the population of the island of Guam and may drive the plant capacity over its current design of 12 MGD. Once the plant has to be upgraded to increase its capacity, there is no longer an opportunity for a waiver to apply. Without the build-up, this STP would not need a capacity increase within the 20-year planning horizon of the WRMP. Therefore, any need to go to secondary within that planning horizon is driven by DoD impacts, direct and indirect, and therefore DoD is fully responsible for any necessary upgrades to secondary treatment that take place within that planning horizon."

RESPONSE: EPA is aware of the military build-up in Guam and notes that the issue of responsibility for any necessary upgrades to the STPs is not relevant to EPA's 301(h) analysis.

COMMENT 26: Guam Environmental Protection Agency

Guam EPA hereby provides the following position statement in regards to the United States Environmental Protection Agency (US EPA) tentative denial of the Guam Waterworks Authority (GWA) Wastewater Treatment Plant (WWTP) 30l (h) waiver application for both Agana and Northern Wastewater Treatment Plants.

- Monitoring of receiving waters has been lacking by GWA, in violation of National Pollutant Discharge Elimination System (NPDES) Permit requirements. There is a lack of data and information on the impact on receiving water quality as referenced in the 2001 Guam Water Quality Standards. GWA need to establish a monitoring program to assess water quality impacts on receiving waters
- GWA needs to attain or maintain water quality that allows designated whole body contact recreational activities in and on the water, to include bacteria standards to protect the designated water use for the receiving water, as referenced in the 2001 Guam Water Quality Standards
- GWA needs to attain or maintain water quality that allows protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife as referenced in the 2001 Guam Water Quality Standards
- For GWA to continue operating the WWTP without secondary treatment the discharge must meet a minimum of primary or equivalent treatment, ie, 30% removal of Biochemical Oxygen Demand (BOD) and Total Suspended Solids TSS) and have a pretreatment program, to include controls on toxics from nonindustrial sources as per the Clean Water Act (CWA) 301(h)

Guam EPA understands and supports USEPA working closely with GWA to determine a suitable compliance schedule and ensure the NPDES permit requirements for the WWTP discharges arc met in a timely manner, and in consideration of GWA 's capabilities to finance the required improvements.

RESPONSE: EPA thanks Guam EPA for its support. EPA will work closely with GWA to determine a suitable compliance schedule and ensure that the NPDES requirements are met in a timely manner in consideration of GWA's capabilities.

COMMENT 27: Senator Thomas C. Ada

USEPA's recent decision to tentatively deny GWA's permit renewal for primary wastewater treatment and require upgrade to secondary treatment for the Northern District and Agana Sewage Treatment Plants raises several concerns:

1. USEPA's decision is a significant deviation from the USEPA approved Water Resources Master Pan (WRMP) that was adopted by the Consolidated Commission on Utilities (CCU) to guide the infrastructure development of Guam, and;
2. Financial resources will inevitably have to be diverted from other wastewater infrastructure projects, which can arguable be assigned much higher priority.

It is my understanding that the recent improvements made by GWA, i.e. replacement of the sewer outfalls, are in accordance with wastewater treatment plant requirements issued by USEPA as required in the "Stipulated Order". It would seem prudent that before a commitment is made to construct a Secondary Wastewater Treatment facility, which I understand could cost upwards of $300 million, GWA be allowed sufficient time to collect the necessary data and to perform a study to determine if in fact the upgrades to the sewer outfalls achieving the expected dispersion as theorized.

I am concerned with the conclusion that the source of the contaminations is attributable to the lack of a Secondary Wastewater Treatment process. Such a quantum leap is troubling, and may be unnecessarily costly for Guam. Additionally, the Secondary Wastewater Treatment upgrade brings an anticipated rate increase of 600% for capital costs alone, not including additional operating costs.

The affordability of such a project is beyond what Guam, much less GWA, can afford at this time. As Chairperson of the Committee on Utilities for the 30th Guam Legislature, I Mina' Trenta Na Libeslaturan Guaban, and as a former Vice-Chairperson of the CCU, I believe We must be equally concerned about the continued protection of the northern aquifer that supplies over 75% of the water to the island. Rather than impose additional costs for a Secondary Wastewater Treatment upgrade, the limited resources of ratepayers would be better spent towards developing programs that ensure the protection of the sole source aquifer, specifically, implementing programs to adequately connect unsewered properties to the wastewater system.

It is my understanding that GWA will soon be going out to the Bond Market to borrow funds to continue with improvements to Guam's wastewater infrastructure especially in Northern Guam. I support GWA's plans to expand the wastewater collection system that will eliminate septic tanks and leaching fields over the northern aquifer. The security of the island's drinking water is a critical environmental issue that must not be compromised.

In closing, I respectfully request USEPA's decision be delayed until additional studies can be completed. Should you have any question or concerns please feel free to contact my office.

RESPONSE: For a more detailed discussion of EPA's decision and its relationship to the Water Resources Master Plan and the Stipulated Order, please see EPA's responses to GWA comments.

As documented in the TDD, FDDs, and the response to comments document, EPA has made its decisions based on a number of factors regarding the failure of the existing facilities to comply with the statutory and regulatory requirements of section 301(h). Only one of these considerations was the ability of the treatment systems to meet water quality standards at the edge of the zone of dilution, and EPA has concluded that the outfall extensions alone would not be sufficient to grant a 301(h) waiver.

EPA believes that both the protection of the sole source aquifer and the protection of the marine surface waters are both environmental priorities. Regarding the need to achieve secondary treatment, EPA can only grant the waiver from secondary treatment based on the decision criteria established in Section 301(h) of the Clean Water Act. As documented in the FDD, EPA has fully evaluated all decision criteria and has concluded that the GWA facilities do not quality for the waiver.

EPA believes sufficient time has been allocated for GWA to submit the studies, data, and monitoring information necessary to apply for the 301(h) waiver. EPA does not believe that a delay in its action at this time is merited.

EPA is committed to work with GWA to establish a schedule of compliance to achieve secondary treatment that takes into account the cost of secondary treatment, other drinking water and wastewater infrastructure priorities, and the ability of Guam to pay for drinking water and wastewater projects.

COMMENT 28: Mr. John Stein, Public Testimony

"I think I wrote on my sheet, you know, that I want to say, thanks and keep up the good work. And basically I think we're all in agreement, we want to try and maximize the resources we have now.

And this secondary treatment, does that mean we need to add different chemicals to it, or we have to build another building, or what do you think is a secondary treatment we're talking about?"

RESPONSE: The existing treatment plants rely primarily on physical processes to treat the sewage; whatever floats or sinks is removed. Secondary treatment will likely be based on a biological process where micro organisms, such as bacteria, are mixed with the sewage to help break it down. The microorganisms are then removed prior to discharge. In addition, chemicals may be added to promote flocculation and settling. New treatment units and equipment will be necessary.

COMMENT 29: Mr. Jack Sablan, Public Testimony.

"When it rains a lot, we get exploding manhole covers, we get sewage all over the roads, all over our tourist sections. We get outfalls on -- around our main capital, around the beach area. Just today, just a trickle of water, of drain, I stopped by during my during my lunch hour, just went down to the beach and, you know, you got raw sewage coming out -- not raw sewage, but you have overflows from the drain pipes, and it makes you wonder, if this small rainfall can trigger the -- can start these outflows to come out on the beach area, and I have pictures of it, just of today, and of kids too, just playing around the outfall areas. And it's just, it's disturbing. And I think it's about time that we do something about it. And if there's anything, I was hoping that EPA would mandate, or at least deny the waivers, until we could get our house in order.

Money is an issue. With the buildup, I think it's -- it really becomes a problem. On one area, on one side, we say that we don't need the secondary treatment; on the other side, if the buildup does come, we do need it. So, you know, it's like we're talking from both sides of our mouths here. And it makes it kind of hard to make a discernible conclusion or a discernible solution from all of this mess.

But one thing is really, really pertinent, and I hope that you would take this in consideration, is that, yes, we do need a secondary treatment, just based on water being a source. ..... And to just to extend the outflow rather than treating the problem, I think, well, in a long run, be a detriment to the environment."

RESPONSE: Guam has separate sewer systems for storm water and for sewage. The discharge to the beach noted in the comment was likely a discharge from a storm drain. The 301(h) waiver does not apply to the storm drain system.

The commenter also notes overflows of sewage. Although improvements to the sewage collection system are separate from the question of the 301(h) waivers, EPA notes that GWA has been improving its sewage collection system to minimize spills and overflows. EPA commends GWA for reducing overflows by over 90% in recent years.

COMMENT 30: Mr. Stephen Vold, Public Testimony

"I've been a wastewater operator for many years. These are my -- received my first class board certification in 1986, so I know a little something about wastewater treatment and the problems that Guam is facing.

There are two issues here. One is, we have a lot of overflows in the sewer collection system that need to be addressed, and that costs money. The other issue is that EPA wants to go to secondary treatment, and I have not seen the test that back up that requirement.

I understand that EPA says GWA has not conducted the test that they were required to do. Hopefully they have produced some data that will support their claim that secondary treatment or more advance treatment methods other than primary are necessary."

RESPONSE: The issue of overflows from the sewage collection system is not related to the review of the 301(h) applications, but EPA notes that GWA has made commendable progress in eliminating overflows (see also response to comment 29).

EPA has concluded that GWA has not conducted the tests or supplied adequate information to demonstrate that the criteria for renewal of the 301(h) waivers have been met. For a detailed discussion, see response to comments from GWA.

COMMENT 31: Mr. Stephen Vold, Public Testimony

"The main thing we got to look at is what's best for the environment. If we know our beaches are safe with the extended outfalls, don't waste the money going to secondary treatment. If our beaches are being contaminated by only having primary treatment, then we need to do something despite the politics involved."

RESPONSE: EPA does not believe that the extended outfalls are sufficient to ensure that areas designated for water contact recreation are not being contaminated, specifically for bacterial contamination. For more information, see EPA's analysis of the "Impacts of discharge on recreational activities" (Agana FDD page 53; Northern District FDD page 55) and EPA's conclusion regarding bacteria exceedances (Agana FDD page 42; Northern District FDD page 4) for the Northern District STP.

COMMENT 32: Mr. Stephen Vold, Public Testimony

"It sounds like EPA misled GWA on what they expected of them. So they spent money doing what they were supposed to do and then it sounds that the game changed. The game should only change based on scientific data. And I don't know if anybody has scientific data. If so, please provide it to me, so we can review things intelligently. We all want to do the best for the environment but there's only so much money to go around. And, again, we want to use it most appropriately, the best bang for the buck."

RESPONSE: EPA has made its final decision on the waivers based on the scientific data available and the CWA Section 301(h) decision criteria. The available data was presented in the TDDs which were available for public comment. Please see also the responses to comments from GWA.

COMMENT 33: Mr. Joe Payne

"Thank you for your courageous stance, recently announced, with The Guam Waterworks Authority. During the years in which The Authority has held a waiver from compliance with "The Clean Water Act", precisely no progress has been made toward achieving the higher standard of wastewater treatment, which The Authority knew, would eventually be required. It will only be through painful coersion by E.P.A. that residents

and tourists of Guam will regain the clean water and beaches they once had. It took the courage of a lone Judge to bring Guam Officials of Government into accountability over the Landfill issue. Finally, Sir, don't buy the mantra of: "we can't afford it". Sixteen Senators and a dozen Mayors of Guam earn a huge amount of money each year.

There's an old saying about Guam: "...things run just the way they want it to run..."

RESPONSE: EPA thanks the commenter for his support.

COMMENT 34: Mr. Paul Tobiason

"As a Guam resident, I feel that whatever our population injects into the environment should be as benign as possible. Therefore, secondary treatment should be done. As I understand it, solids would be produced as well as methane gas. Both of these products could be used in beneficial ways. Provided the solids do not contain heavy metals or other toxic compounds this could be composted on a commercial scale with the green waste which is currently prohibited from our dump/landfill. This could be put on the barren wastelands in the south to help the growth of vegetation to prevent soil erosion.

At the Northern/Tanguisson facility, the methane gas could be injected into the power plant boiler to augment the fuel oil presently being used. Alternatively, this gas could be used to generate electrical power for the treatment facility.

Many years ago, I remember visiting the Northern facility which was producing methane gas at that time. It was being flared off and not being used. However, there was at least one yellow Caterpillar generator which was supposed to be able to run on this methane. For whatever reason, it was idle.

Finally, I would like to see if there might be any private companies that would be willing to take over the wastewater treatment operation from the Government of Guam. It may be that such a company could operate and maintain the entire system at a lower annual cost than what taxpayers currently fund Guam Water Works."

RESPONSE: EPA thanks the commenter for his support. EPA agrees that the use of biosolids as a soil amendment and methane gas collection may have beneficial environmental impacts. Please see also response to GWA comments on "negative environmental impacts".

COMMENT 35: Mr.Berrie Straatman

"I agree with Mr. Paul Tobiason. We should not allow our oceans to be polluted. Here is just another example of non-compliance from Gov. Guam. Maybe it is time for GWA to also go into receivership just like the Solid Waste Division in order to get results".

RESPONSE: EPA thanks the commenter for his support.

COMMENT 36: Mr. Michael Park

"Regarding the U.S. EPA's decision to deny variance on the sewage treatment plant, I will support it only if sufficient monitoring has been done and the data justifies the action. However, it is clearly evident that Guam Waterworks Authority (GWA) has not done a competent job monitoring their STP's discharge. I am also aware that GWA has extended the discharge point deeper and farther out into the ocean, making it difficult to monitor effectively now.

Before requiring that GWA commit enormous funds for upgrading to secondary treatment, an effective monitoring program must first be created. Guam has a population of less than 200,000; to require secondary treatment would possibly cost in the hundreds of millions of dollars. Before we commit to such an extreme, the scientific data should justify it. If there is a lack of such data, then the implementation of an effective monitoring program, whether by U.S. EPA or through a third party company, should be the first course of action."

RESPONSE: Given that the permits that the treatment plants are operating under were issued in 1986, EPA concludes that further delay to collect additional information is not warranted. As documented in the FDDs, EPA has conducted the analysis based on all available data and the decision criteria of section 301(h) of the CWA to make its final decisions.

COMMENT 37: Mr.Ken Rekdahl

Comment to Agana 301(h) Variance

• As presented in the Public Workshop documents, the new outfalls have been installed at both the Agana and Northern District Treatment Plants, which ought to improve the 301(h) criteria to attain water quality for recreational activities as well as the protection and propagation of marine life. I suggest, as is and was required, having GWA monitor the area around the discharge to determine what improvements, if any, have materialized. Further, it was recently published in Guam's media that the Agana Bay is still positive for contaminants allegedly from the ASTP. If the Agana Bay is indeed positive for contaminants then the source of these contaminants should be investigated, particularly since the outfall has been replaced and is now longer and deeper. There are other known points that could be candidates for pollution in the Agana Bay namely the Agana River, Bayside collection system (that runs along the Agana Bay), Marine Drive Sewage

collection line and stormwater discharges. These locations should be ruled out prior to requiring GWA to upgrade to secondary treatment.

Comments to Agana and Northern District 301(h) Variance

• I agree that enhanced treatment (secondary being one form of enhanced treatment) will benefit our local environment. That said, consideration to pretreatment, advanced primary treatment and disinfection should be given. All or part of which will improve the effluent quality of the wastewater. A phased requirement for Pre-treatment/Disinfection, then advanced primary treatment should be considered and evaluated over a 5-10 year period. Secondary treatment, if warranted, may then be considered.

RESPONSE: See responses to comments provided to GWA regarding EPA's analysis of the pollutant concentrations at the ZID, and the rationale for EPA's conclusion.

Regarding the suggestion that EPA consider a phased approach to implementation of secondary treatment, EPA has committed to work with GWA to produce an appropriate schedule of compliance to achieve full secondary treatment at both treatment plants. The interim improvements and schedules that will be required at the two treatment plants will be negotiated with GWA.

As noted by the commenter, both Agana Bay and Tanguisson Bay are listed as impaired for bacteria. EPA acknowledges that there may be sources of bacteria to these waters other than the two treatment plants, but EPA has concluded that both treatment plants will contribute to the levels of bacteria. Thus, EPA has concluded that the two treatment plants will not meet the section 301(h) requirement that the discharges alone or in combination with pollutants from other sources will allow recreational activities in and on the water.