

Responses to Comments and Questions
June, 2010
Agat-Santa Rita Wastewater Treatment Plant
NPDES PERMIT NO. GU0020222

Comments and questions submitted September 18, 2009 from Paul Kemp, Guam Waterworks Authority (GWA) to Douglas Eberhardt, US EPA.

Monitoring and Reporting

COMMENT: Flow limit and corresponding load limits have been reduced from 1.5 MGD to 0.75 MGD. Had these limits been in place over the past two years, the Agat WWTP would have gone from 88% compliant with TSS average loading to 37% compliant, and 96% compliant with BOD max day loading to 20% compliant (see attached graphs following Page 5 below). Clearly reducing these loading limits will force GWA into consistent non-compliance without any added environmental benefit. As EPA is aware, GWA has programmed to replace this plant, however, EPA has prioritized replacement of the Baza Gardens WWTP. Forcing this Agat plant into gross non-compliance will have no benefit, and would disillusion ratepayers, who may well fight future rate increases required to replace the facility. GWA is unable to move up the schedules for replacing the plant, as bond funds are programmed for other priorities (as discussed with and set by the EPA Pacific Islands Office). GWA strongly recommends and requests that the Water Permitting staff discuss these priorities with the Pacific Islands Office. As EPA is aware, GWA is planning to use ARRA funds to replace the aerators at the Agat WWTP and believe this will address any existing non-compliance, but this will not enable the plant to meet the proposed limits. GWA requests that discussions be held between the Pacific Islands Office, Water Division and GWA to discuss these issues. **[Monitoring and Reporting #1]**

RESPONSE: The NPDES permit application completed by GWA indicated a design flow rate of .750 MGD (Form 2A, page 3 of 12). 40 CFR 122.45(b) states, "In the case of POTWs, permit effluent limitations, standards, or prohibitions shall be calculated based on design flow." EPA has assigned all effluent limitations in accordance with the flow rate of .750 submitted by the applicant.

EPA continues to work with GWA under Stipulated Order (SO) (Civil No. 02-0035) in order to prioritize necessary renovations; however each facility is permitted in a manner that is necessary to protect water quality regardless of that facility's likelihood to comply.

COMMENT: Permit requirement of 85% removal for TSS and BOD: This is not achievable due to the extremely low TSS and BOD in the influent, which are frequently below the daily maximum permit limit. The likely cause of the low influent numbers is Inflow and Infiltration, although it is interesting to note that the numbers do not fluctuate considerably with variations in rainfall and flow. USEPA did not respond to GWA's

request to assist with analysis of why influent BOD numbers throughout the island are consistently below industry norms, regardless of I&I levels. GWA is in the process of completing a USEPA-funded sewer replacement project in the Agat WWTP collection area that should address the most critical I&I issues, although the scope had to be reduced to meet available funding. EPA rejected GWA's recommendation that this requirement be waived until GWA has completed the I&I work funded by USEPA based upon BOD levels, which are directly impacted by the inflow. GWA does request to be allowed quarterly averaging, instead of 30 day. **[Monitoring and Reporting #2]**

RESPONSE: The 85% removal requirement for TSS and BOD is a technology-based requirement for all secondary treatment facilities (40 CFR 133.102(a)(3), 133.102(b)(3)).

For a permittee to attain an exemption from this requirement, the permittee must satisfactorily demonstrate: (1) the treatment works is consistently meeting, or will consistently meet, its permit effluent concentration limits but its percent removal requirements cannot be met due to less concentrated influent wastewater, (2) to meet the percent removal requirement, the treatment works would have to achieve significantly more stringent limitations than would otherwise be required by the concentration-based standards, and (3) the less concentrated influent wastewater is not the result of excessive I/I (40 CFR 133.103(d)).

The permittee has failed to complete the proper demonstration required to attain special consideration for less concentrated influent wastewater.

COMMENT: Chlordane: EPA added chlordane limits in the draft 2009 permit. There have been 12 instances of chlordane since 2004. GWA requests that this parameter maintain as monitoring only instead of having limits. **[Monitoring and Reporting #3]**

RESPONSE: Chlordane has shown reasonable potential to exceed the Guam water quality standards (WQS). Therefore, in accordance with 40 CFR 122.44(d)(1)(i), an effluent limitation has been incorporated into the permit.

COMMENT: Oil and Grease: EPA states that they are using "Best Professional Judgment" to develop the oil and grease limits, and states that the limits are based upon those for "Petroleum Marketing Terminals." Please explain the use of limits for Petroleum Terminals and their relationship to domestic wastewater, as the type of oil anticipated from these facilities would be very different from that discharging to a wastewater treatment plant. In particular, how is this applicable to Guam? **[Monitoring and Reporting #4]**

RESPONSE: Where a State or Territory has not established a water quality criterion for a pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State or Territory water quality standard, EPA must establish effluent limits

using a calculated numeric water quality criterion for the pollutant which EPA demonstrates will attain and maintain applicable narrative water quality criteria (40 CFR 122.44(d)(1)(vi)). As stated in a memo dated March 18, 1974, EPA determined that a maximum daily effluent limitation of 15 mg/l and an average monthly limitation of 10 mg/L were an adequate threshold to control visible sheening and other undesirable visible characteristics in the receiving waters caused by oil and grease collection (“Oil and Grease Limitations for Petroleum Marketing Terminals”).

Therefore, the effluent limitations incorporated into the permit are a numerical interpretation of the narrative requirement set forth in the Guam WQS that the concentrations of oil or petroleum products are not detectable as a visible film, or sheen (Guam WQS Section 5103.C.10).

The effluent limits incorporated into the permit are also consistent with other secondary treatment facilities’ permits within the Territory of Guam including Baza Gardens WWTF (GU0020095), Umatac-Merizo STP (GU0020273) and Apra Harbor WWTP (GU0110019).

COMMENT: Enterococci: Limit will not be achievable without disinfection. Rather than providing limits that force GWA into immediate noncompliance, USEPA should coordinate anticipated disinfection requirements with GWA, prioritizing those needs with others from the USEPA approved Water Resources Master Plan and develop a schedule that fits into the goals defined by USEPA. GWA operates under priorities set by USEPA in a Stipulated Order (SO), and further, in coordination with the Pacific Island’s Office. Should EPA decide to prioritize to prioritize disinfection at this facility, it will take resources from other priorities as approved and defined by USEPA in the Water Resources Master Plan and the SO. USEPA’s divisions need to coordinate and work with GWA to best define priorities and targets, including schedules for compliance, instead of issuing a permit that will immediately put GWA into noncompliance. USEPA does have discretion in determining compliance schedules, and can put such schedules into a permit. As with other issues, GWA requests that discussions on this issue take place between the Water Division, Pacific Islands Office and GWA to ensure that the priorities that are being set are concurred with by both EPA divisions. **[Monitoring and Reporting #5]**

RESPONSE: Enterococcus has shown reasonable potential to exceed the Guam WQS. Therefore, in accordance with 40 CFR 122.44(d)(1)(i), an effluent limitation has been incorporated into the permit.

An NPDES may only contain a schedule of compliance when necessary to allow a reasonable opportunity to attain compliance with requirements issued or revised less than three years before the issuance of the permit (40 CFR 122.47). Because the 2001 revision of the Guam WQS includes the numerical effluent limit for enterococcus incorporated into the permit, a schedule of compliance would not be appropriate.

EPA continues to work with GWA under Stipulated Order (SO) (Civil No. 02-0035) in order to prioritize necessary renovations; however each facility is permitted in a manner that is necessary to protect water quality regardless of that facility's likelihood to comply.

COMMENT: There is inconsistency in the permit limits based upon the Guam Water Quality Standards. The limits for copper and nickel are based upon the chronic concentrations, but zinc and aluminum are based on acute concentrations. Please clarify the differences in use of these triggers. **[Monitoring and Reporting #6]**

RESPONSE: Effluent limitations for copper, nickel, zinc and aluminum must be protective of all designated uses of the receiving water body as defined in the Guam WQS. These designated uses include both Criteria Maximum (acute) Concentrations and Criteria Continuous (chronic) Concentrations that are protective of aquatic life. Because all criteria must be satisfied, the concentration that results in the most stringent effluent limitations for each parameter is applied and incorporated into the permit (Technical Support Document for Water Quality-based Toxic Control (TSD) Section 5.4.1.).

COMMENT: Metals limits are not achievable without a zone of mixing. The diffuser on the Tupalao Bay outfall was specifically designed to provide a zone of mixing. It is not feasible to achieve an effluent quality that meets Guam water quality standards at the point of discharge. These standards are not achievable at end-of-pipe using conventional secondary treatment technology. GWA has re-applied to GEPA for a mixing zone for various parameters including aluminum, copper, nickel and zinc. GWA has received no response at this time. GWA has appealed to USEPA for assistance in obtaining a response from GEPA on this issue. This permit should be administratively extended until GEPA makes a determination regarding the mixing zone to ensure that the permit is achievable, or by what means achievability can be obtained such as tertiary treatment or advanced membrane technology, and whether or not it is actually protective of the environment. USEPA states that if GEPA authorizes a mixing zone, the permit can be modified, but the diffuser was clearly designed to be utilized with a mixing zone and therefore issuing the permit without a mixing zone would put GWA into immediate non-compliance without providing any environmental protection justification for doing so. **[Monitoring and Reporting #7]**

RESPONSE: The permittee submitted a request to Guam EPA to allow for a zone of mixing for metals. In a letter dated December 4, 2009, Guam EPA denied the permittee's request. Accordingly, effluent limitations in the permit do not incorporate a mixing zone for metals.

COMMENT: Monitoring for 4,4-DDD; 4,4-DDE; and dieldrin remain monthly. Since GWA began monitoring for these parameters in 2003 there have been no detectable levels of these constituents, except for a single report of 4,4-DDD in January 2008. (Because there was only a single sample, it is not statistically significant and remains

unverified under QA/QC standards.) GWA requests that USEPA eliminate the requirement for 4,4-DDE and dieldrin, which have never been reported (or provide the science for their continuation and explain why EPA anticipates that these pollutants might become present) and either eliminate monitoring of 4,4-DDD or reduce the monitoring frequency to quarterly. **[Monitoring and Reporting #8]**

RESPONSE: As part of Guam EPA's Section 401 Water Quality Certification, the permittee is required to monitor for DDD, DDE and dieldrin, among other chlorinated pesticides. Consequently, the permittee must continue to monitor for the aforementioned parameters.

Taking into consideration the volume of discharge and compliance history, EPA does, however, concur with the commenter that the frequency of monitoring is excessive. EPA has decreased the monitoring requirement from monthly to annually.

COMMENT: Paragraph II(A)(4). This section requires that GWA submit with the DMR's the complete QA/QC procedures involved in the analysis. Each laboratory must comply with QA/QC testing requirements in order to provide reportable analyses for DMR parameters. GWA does not object to this additional reporting, but generating so much paper seems contrary to the spirit of environmental protection. *EPA did not respond to this comment, to explain why this redundant reporting requirement complies with environmental protection.* **[Monitoring and Reporting #9]**

RESPONSE: Electronic submission of DMR's is now available through NetDMR reporting (See part II.A.(4)(h) of the permit).

COMMENT: Reporting: The draft permit requires DMR submittal by the 15th day of the month following the quarterly reporting period. The current permit gives GWA 28 days, and the 2008 draft gave 45 days. 15 days is not practical. If a BOD test has to be taken on the 31st of the final month of the quarter, in a best case scenario the laboratory cannot have the results back before the 5th day of the following month, which leaves only 10 calendar days (potentially as little as 6 business days) for obtaining the data from the lab, reviewing the data, completing and providing quality control on the forms, reviewing and describing any exceedances, and turning in the report. This is frequently difficult to complete by the 28th, and would be virtually impossible by the 15th, particularly with the new QA requirements in the permit. Please consider returning the reporting period back to 28 days. **[Monitoring and Reporting #10]**

RESPONSE: EPA has changed the reporting period to 28 days.

Special Conditions

COMMENT: Paragraph A(1)(A) Toxic Pollutant Minimization Program: GWA does not understand the response to this comment. If GWA has to sample for heavy metals and pesticides twice during the permit term, in the first and the fourth year of the permit, why doesn't the DMR table simply say so, instead of stating only once per term? Such obfuscation can easily lead to unintentional noncompliance. [**Special Condition #1**]

RESPONSE: The permittee must monitor for heavy metals and pesticides twice during the permit term: once in the first year of the term as part of developing and implementing a toxic pollutant minimization program and once in the fourth year of the term as part of the Priority Toxic Pollutant Scan. The language in the permit has been clarified to state monitoring for heavy metals and pesticides to be "twice per permit term."

COMMENT: Receiving Water Monitoring: Heavy metals are required to be analyzed once during the permit year in the effluent, yet quarterly in the receiving water. The response said that they are, but did not clarify the need for quarterly analysis in the receiving water, except that it's that way in the current permit. Off-shore monitoring data does not show any impacts to receiving water. In fact, the metals requirements were removed from the Apra Harbor draft permit. Why, since GWA and NavFacMarianas (NFM) use the same results, have so many parameters (metals, nutrients, etc.) been removed from the NFM offshore requirements but not the GWA permit? Clearly EPA concurs that these parameters are unnecessary, so the reasons for the inconsistencies are unclear. [**Special Condition #2**]

RESPONSE: EPA concurs that the inconsistency in monitoring requirements is unjustified. EPA has adjusted the receiving water monitoring requirements to parallel those of NFM.

EPA re-public noticed the revised receiving water monitoring portion of the permit on April 29th, 2010 and received comments from the permittee on May 28th. Upon review, EPA determined that because none of the comments addressed the revised portion of the permit that EPA was soliciting comments for, EPA has no additional response to comments.

Sludge/Biosolids

COMMENT: Explain the requirement to screen biosolids for material with a diameter greater than 3/8", since this material is being disposed of at a municipal solid waste landfill. EPA noted in the response to comments that this requirement would be removed, but it remains in the draft permit. **[Sludge/Biosolids #1]**

RESPONSE: EPA has removed the requirement to screen biosolids for material with a diameter greater than 3/8". The permittee must, however, notify EPA of any changes to its biosolids waste disposal and handling.

COMMENT: The current permit requires only testing using the Paint Filter Test for biosolids placed on a municipal solid waste landfill. Please clarify the need to include testing of arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, zinc, organic nitrogen, ammonia-nitrogen and total solids (which follows the requirements of a surface disposal site). The response to comments isn't clear. NFM requested similar clarification and the additional sampling for landfill discharges was removed from the Apra Harbor draft permit. **[Sludge/Biosolids #2]**

RESPONSE: The Paint Filter Test requirements are consistent with the Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846). This technique is used to determine the presence of free liquid from a collected solids sample, such as sludge. Despite its application to a surface disposal site, EPA believes that this is a necessary monitoring requirement due to the permittee's history of metals exceedances.

The Apra Harbor WWTP NPDES permit requires similar monitoring.

Fact Sheet

COMMENT: Please provide the permit calculations for chronic toxicity, as the genesis of the 69 TUc limit is very unclear from the Fact Sheet. [Fact Sheet #1]

RESPONSE: The method for calculating chronic toxicity limitations is consistent with the calculations for other parameters and the TSD. A summary of the calculations are shown below:

	Criterion¹
Toxicity Allowance, TU _c	1
Dilution Credit Authorized	82
Background Concentration, TU _c	0
WLA, TU _c	82
WLA Multiplier (99 th %)	0.527
LTA, TU _c	43
LTA _{MDEL} Multiplier (99 th %)	3.11
MDEL, TU _c	134
LTA _{AML} Multiplier (95 th %) ²	1.55
AML, TU _c	67

¹Derivation of permit limit based on Section 5.4.1 of EPA's TSD

²LTA multiplier based on sampling frequency of four times per month

The revised limitations of 67 TUc and 134 TUc are a result of a recalculation based on the approved dilution factor of 82:1, not 83:1 as previously calculated.

COMMENT: The Fact Sheet states that EPA assumed a current of zero for ambient receiving water, however, GWA provided current data with the application and does not believe that zero is appropriate. [Fact Sheet #2]

RESPONSE: The current value of the ambient receiving water is not relevant in this analysis since the maximum allowable dilution has been established by Guam EPA at 82:1.

COMMENT: A laboratory on Guam is working with USEPA's toxicity staff to obtain certification to do toxicity testing using fertilization of the sea urchin species *Tripneutes gratilla*, a species already approved by USEPA. GWA experiences significant problems with holding times for toxicity testing due to the need to ship samples to California. This would eliminate that problem. GWA requests that EPA consider adding *T. gratilla* as an

alternative option for toxicity testing to enable use of the local analysis if and when the lab becomes certified. **[Fact Sheet #3]**

RESPONSE: EPA has included *T. gratilla* as an alternative option for toxicity testing should the local laboratory receive EPA certification.

COMMENT: Attachment C: Calculations for Water Quality-Based Effluent Limitations: Please provide the WQBEL calculations for copper, nickel, zinc and aluminum, in particular showing how the background concentrations were taken into account. Can a permittee obtain a copy of the RPCalc software that was used, or can explanations such as the one provided for chlordane be done for each parameter? **[Fact Sheet #4]**

RESPONSE: EPA did not take into account background concentrations for copper, nickel, zinc and aluminum. Effluent limitations for all four of these metals must meet water quality standards end of pipe since no dilution credit has been approved by Guam EPA.

COMMENT: Clarify the reference to the “Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms” (EPA/821/R-02-014). This document specifically states that “These rules do not apply to discharges into marine waters of the Pacific Ocean.” Please clarify, as the response seems to indicate that EPA anticipates that GWA would use this non-applicable reference for guidance. **[Fact Sheet #5]**

RESPONSE: EPA has noted that the literature does not directly apply to discharges into marine waters of the Pacific Ocean. EPA has removed the reference and has incorporated flexibility into the permit to allow the permittee to conduct toxicity tests on either the purple sea urchin (*S. purpuratus*) or the tropical collector sea urchin (*T. gratilla*).

COMMENT: The permit states that the maximum value is 69 TUc but the median cannot exceed 138 TUc. Please clarify this. **[Fact Sheet #6]**

RESPONSE: The permit limitations were listed incorrectly. EPA has clarified the toxicity limitations listed in both the permit and fact sheet to state a maximum value of 134 TUc with a median not to exceed 67 TUc (See response to comment “Fact Sheet #1”).

Comments and questions submitted September 18, 2009 from Alan Everson, NOAA NMFS to Richard Remigio, US EPA.

COMMENT: We have some concerns however that we wish to highlight. While we consider that EFH will not be directly impacted by reduced water quality from the discharge at the outfall as standards will be met, we are concerned about the indirect effects to EFH through trophic links by impact to fisheries. It has not been clearly determined whether fish aggregate to the outfall, and whether these as a result are targeted for harvest. If harvested, there may pose a risk to human health through consumption of fish feeding on sewage discharge, and a risk to the ecosystem through a reduction in the functions and services that the fishes provide. As it seems that there are no studies so far that address this issue at the outfall in Tupalao Bay, we suggest if possible, that fish and fisheries surveys be conducted alongside water quality monitoring to shed some light on the matter.

RESPONSE: Water quality-based effluent limits are derived using the most stringent available numeric criteria designed to satisfy designated uses in a waterbody, such as human health and aquatic life. Thus, EPA believes that the derived limit will be protective of both human health and aquatic life.

To determine outfall impact to ecosystem, EPA suggests collaboration with Guam EPA to perform ambient water monitoring. EPA also recommends initiating coordination with Guam EPA and GWA to determine if such biological data and/or information are available.