



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION IX  
75 Hawthorne Street  
San Francisco, CA 94105-3901

OFFICE OF THE  
REGIONAL ADMINISTRATOR

APR - 4 1997

Richard A. Quintanilla  
General Manager  
Guam Waterworks Authority  
P.O. Box 3010  
Agana, Guam 96910

Re: Applications for Modified Permits, Pursuant to Section-  
301(h) of the Clean Water Act for Agana and Northern  
District Sewage Treatment Plants

Dear Mr. Quintanilla:

During our review of the 301(h) waiver applications for the Agana and Northern District Wastewater Treatment Plants (WWTPs) and their monitoring program results, we have made a number of requests for additional information that would convince EPA Region IX that the waivers are warranted. Most recently, March 10, 1995, we requested updated outfall inspection reports and copies of certain specific historical databases which local Guam agencies have maintained over several years in the area of the two outfalls. Again, on November 27, 1995, we wrote requesting completion of water quality and biological data reports from the fourth quarter of 1994 to the present, as required by the 301(h) permits. However, to date these items have not been received.

Therefore, we conclude that the Guam Waterworks Authority, during the extended life of the present 301(h) permits (1) failed to carry out sufficient monitoring, particularly during the last two years when no monitoring of receiving waters was reported, and (2) failed to demonstrate that the discharges will not adversely impact public health or coral reef communities. Consequently, this letter is to inform you of my tentative decision to deny your applications for renewal of the modified NPDES permits for both Agana and Northern District WWTPs pursuant to section 301(h).

**AGA 2647**

Of particular concern is the number of fecal coliform exceedances of Guam water quality standards reported at the offshore and shoreline monitoring stations during the five-year period from 1990 to 1994:

Agana Stations	A	B	C	D	E	F (Control)
No. of exceedances	17	5	3	4	2	0

No. Dist. Stations	A	B	C	D	E (Control)
No. of exceedances	14	4	3	1	0

Furthermore, as exemplified in the attached dissolved oxygen bar graphs, the trends in water quality in the offshore waters at Agana and Northern District are not improving and, in fact, may be deteriorating.

In 1990, E.A. Matson reported, in his routine monitoring reports, significant transport of sewage effluent toward both Agana's and Northern District's shoreline Stations "A". Benthic data in both areas indicated increased coverage of bare substrata near the outfalls. To avoid these problems, Matson recommended extending the outfalls to deeper waters.

Additionally, results of two PUAG-contracted surveys have been published: (1) E.A. Matson's *Fecal Pollution in Guam's Coastal Waters and Sediments* (16 March 1993) and (2) Dames and Moore's *Impact Assessment of Non-chlorinated Effluent from Agana and Northern District Wastewater Treatment Plants* (December 1994). Both of these documents warned that significant fecal coliform contamination can enter coastal waters of Guam from stormwater runoff, point source contaminants (including outfalls) and perhaps resuspension of contaminated sediments.

Neither of the above surveys recommended chlorinating effluents. The detrimental effects of chlorination on marine biota could be more extensive than the bacterial pollution itself.

These wastewater discharge impacts to water quality also have detrimental impacts to the coral reef environment. Coral reefs are considered "distinctive habitats of limited distribution," and 301(h) dischargers must not adversely impact such habitats. Based on the available data and the current design and operation of the WWTPs, it is necessary to deny these

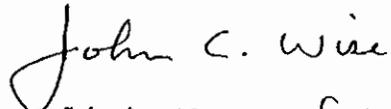
applications. However, one option to improve the chances of obtaining a favorable 301(h) decision in the future is outfall extensions with proper diffuser maintenance. We suggest that you consider extending both outfalls to deeper water farther from reef areas and shoreline beaches, and then filing revised 301(h) applications that take into account the outfall extensions.

Under this tentative decision denial, you have forty-five (45) days from the date of this letter to submit a "letter of intent" to revise your applications for Agana and Northern District WWTPs. If a letter of intent is not submitted within this time frame, you will have no further opportunity to submit a revised application and forfeit any further consideration for a 301(h) waiver under existing law. If you submit a letter of intent, a revision of your applications for these facilities must be submitted within one year of the date of this tentative decision. If the applications are not received within that time frame, this too would be grounds for denying a waiver. As a result, a final decision to deny the application will be made, and Agana and Northern District WWTPs will be required to achieve secondary treatment. The revised applications must address the entire applicant questionnaire in sufficient detail to adequately demonstrate compliance with all 301(h) requirements. A State determination from Guam EPA, in accordance with 40 CFR 125.61(b)(2) and 125.64(b), must be received no more than ninety (90) days following the submission of your revised application.

If a letter of intent is received within the 45-day period, further EPA proceedings on the tentative decision will be stayed. If no letter of intent is received within the given time period, we will proceed with preparation of a final decision to deny the 301(h) applications for Agana and Northern District WWTPs in accordance with 40 CFR 124. Dischargers who are denied a waiver will be required to achieve secondary treatment.

If you have any questions regarding this matter, please contact Norm Lovelace at 415-744-1599 or David Stuart at 415-744-1937.

Yours,

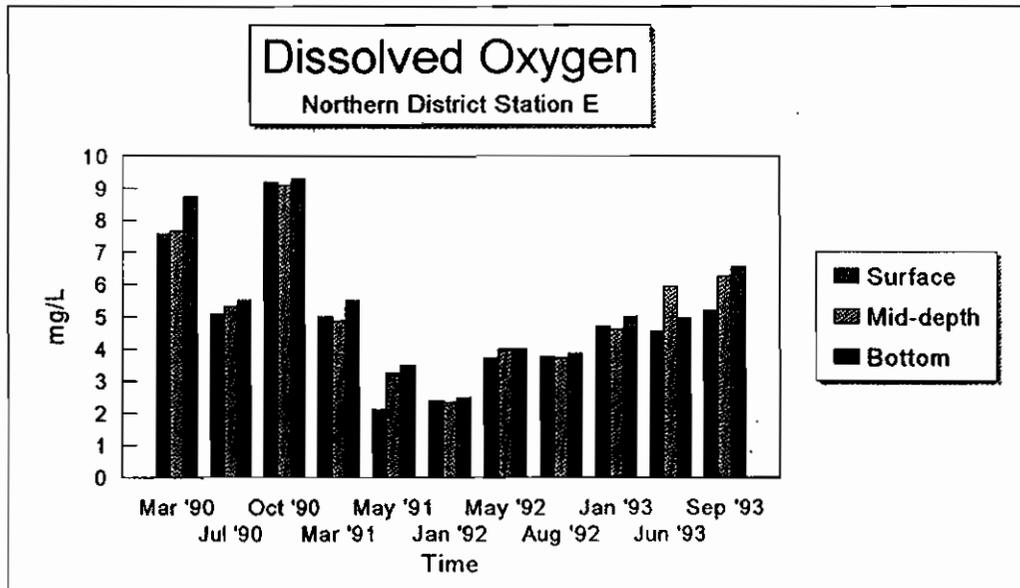
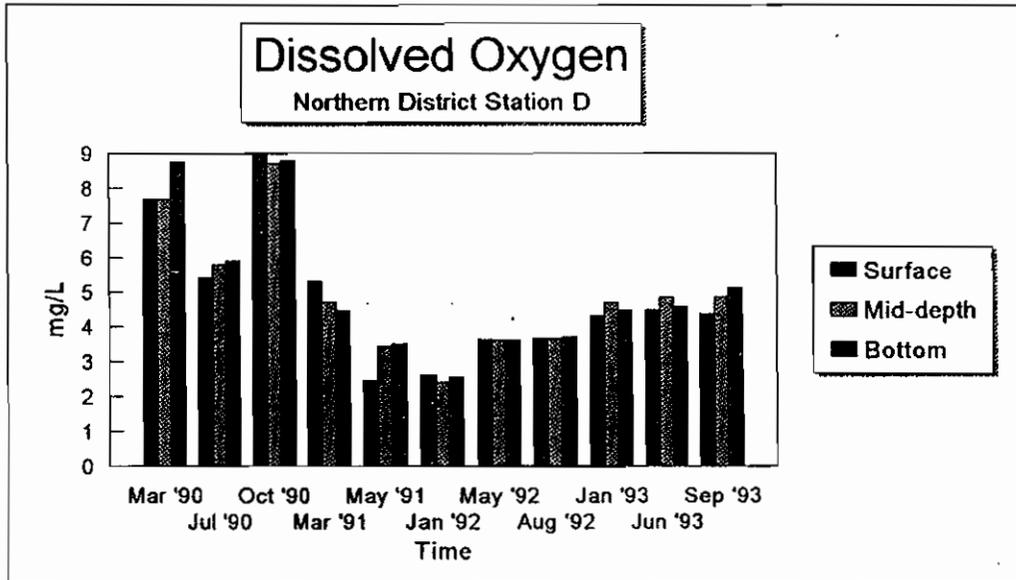
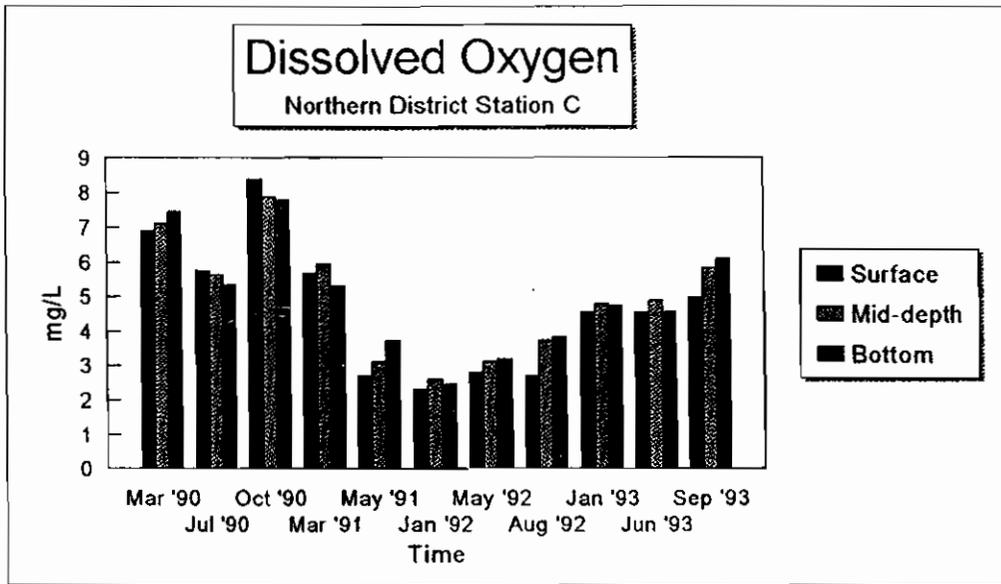
A handwritten signature in cursive script that reads "John C. Wise".

Felicia Marcus *for*  
Regional Administrator

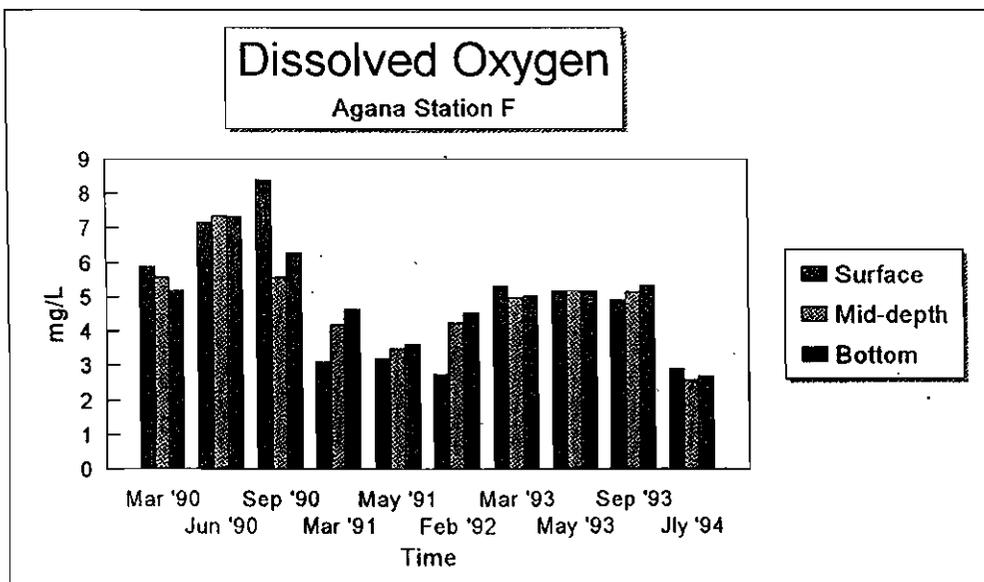
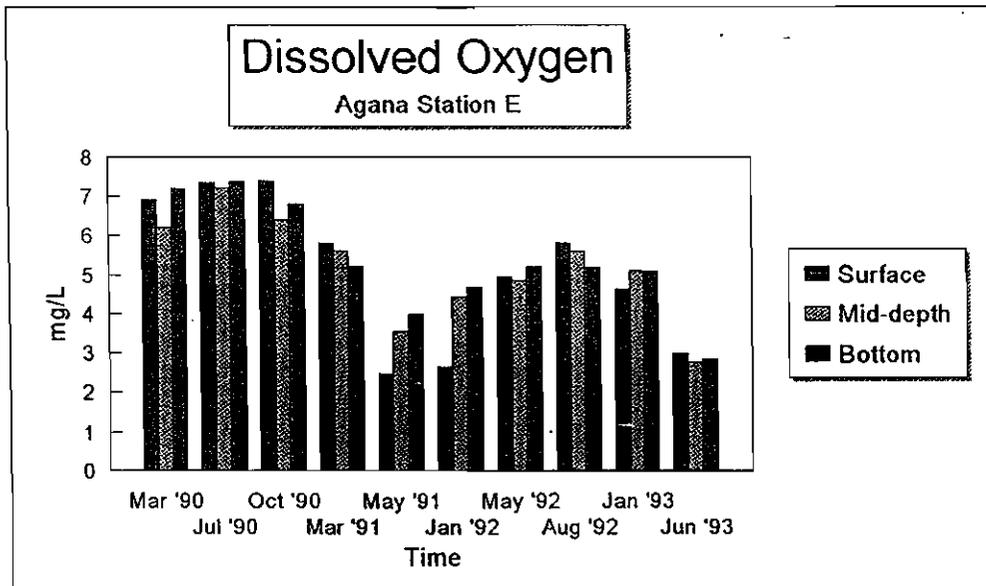
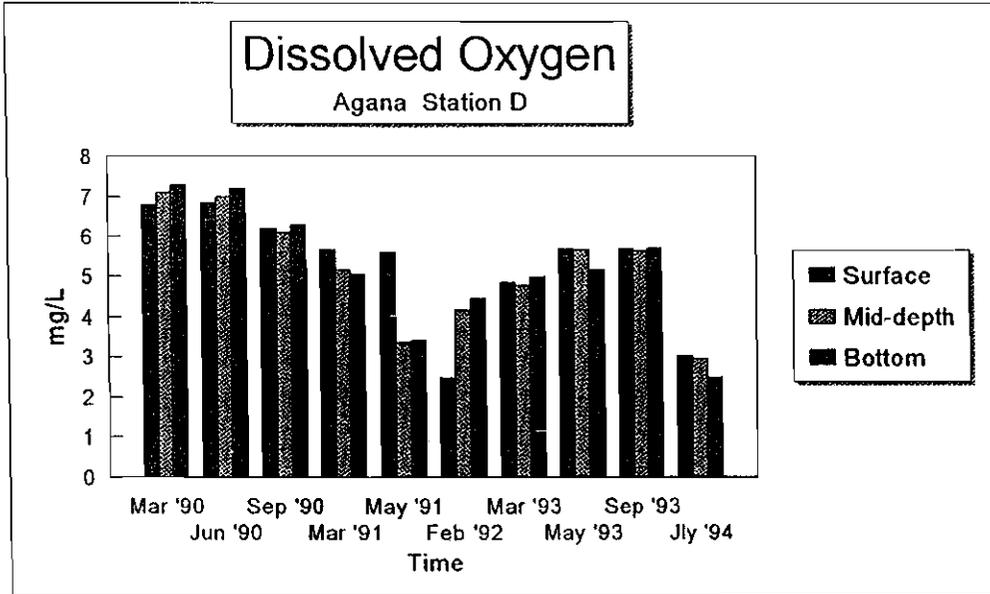
Attachments

cc: Governor Carl T.C. Gutierrez  
Jesus Salas, Guam EPA  
GWA Board of Directors

# Trends of Water Quality in Northern District



# Trend of Water Quality in Agana



**PUBLIC UTILITY AGENCY OF GUAM**

Government of Guam  
Post Office Box 3010, Agana, Guam 98910  
Phone: (671) 647-7811 / 7823  
Fax: (671) 649-0158

MAY 06 1997

Felicia Marcus  
Regional Administrator  
United States Environmental Protection Agency  
Region IX  
75 Hawthorne Street  
San Francisco, CA 94105-3901  
Fax: (415) 744-1604  
Phone: (415) 744-1592

Re: Letter of Intent, per recommendations set forth in letter of notice to deny renewal of the modified NPDES permits for both Agana and Northern District WWTPs pursuant to section 301 (h)

Dear Ms. Marcus:

GWA is in receipt of USEPA Region IX's notice of tentative denial regarding the renewal of both the Agana and Northern District WWTP 301 (h) applications. We have opted to improve our chances of obtaining a favorable 301 (h) decision from your office by deciding to act on your suggestion of extending both subject effluent outfalls and implementing a proper diffuser maintenance program.

Although, GWA has recently made good faith strides to address all issues surrounding the Administrative Orders and 301 (h) Discharge Permits of its WWTPs, nothing short of constructing the outfall extensions will attest to its steadfast commitment to improving relations with all parties concerned with the environmental consequences of discharging wastewater effluent into island waters. The proposed Action Plan and Costs Estimations are attached.

GWA is aware of the need to fill out revised 301 (h) permit applications that take into account the outfall extensions and will make certain that the entire applicant questionnaire is filled with sufficient detail to adequately demonstrate compliance with all 301 (h) requirements. GWA is also aware of the noted timeline requirements and will respond accordingly.

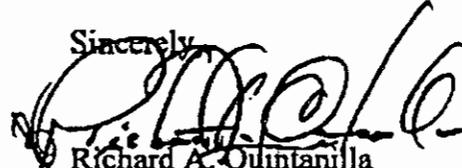
AGA 2653



Commonwealth Now!

This Authority, under my guidance, is committed to becoming a participative advocate of protecting the island environment. If you should have any questions or may have additional suggestions regarding the matter at hand, please contact Mr. Herbert J. Johnston at 671-479-7805.

Sincerely,



Richard A. Quintanilla  
General Manager

**AGANA SEWAGE TREATMENT PLANT  
OUTFALL EXTENSION**

**ACTION PLAN**

<u>ACTIVITY</u>	<u>COMPLIANCE DATE</u>
Advertise for A/E Selection	November 3, 1998
Commence Design	February 2, 1999
Complete Design	October 1, 1999
Advertise for Construction Bids	December 14, 1999
Award Construction Contract	February 11, 2000
Commence Construction	April 8, 2000
Complete Construction	December 30, 2000

\* Assuming funding is available by October 1, 1998

C O S T E S T I M A T E

PROJECT TITLE: EXTENSION OF AGANA  
SEWAGE TREATMENT PLANT  
OUTFALL

STATION: AGANA

PROJECT NO.:  
ESTIMATED BY: JKH  
STATUS OF DESIGN:  
JOB ORDER NO.:  
CHECKED BY:  
SHEET: 1 OF 1

P.7

ITEM DESCRIPTION	QUANTITY		UNIT COST	TOTAL	UNIT COST	TOTAL	ENGINEERING ESTIMATE	
	NUMBER	UNIT					UNIT COST	TOTAL
36" DIA HDPE OR RCP OUTFALL	1,000	Lf.					2,600	2,600,000
				DESIGN & O.M.				650,000
					15% CONTINGENCY			3,250,000
								\$ 3,737,500
NOTE: 1. ESTIMATED COST IS FOR CONVENTIONAL OUTFALL CONSTRUCTION. 2. HIGH STOCK DRILLED OUTFALL WILL BE CONSIDERED IF FEASIBLE.								



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street  
San Francisco, CA 94105-3901

JUN 18 1997

Richard A. Quintanilla  
General Manager  
Guam Waterworks Authority  
P.O. Box 3010  
Agana, Guam 96910

Re: Receipt of Letter of Intent to Submit Revised 301(h) Applications for Agana and Northern District WWTPs, pursuant to 40 CFR 125.59(d)(1) and 125.59(f)(2)(i)

Dear Mr. Quintanilla:

This is to confirm receipt on May 8, 1997 of your Letter of Intent to submit revised Clean Water Act Section 301(h) applications for the Agana and Northern District WWTPs. Your Letter of Intent allows you until **April 4, 1998** to submit revised applications for these two treatment facilities. This is one year from the date of our tentative decision to deny your waivers. This is a firm deadline and it is critical that revised applications be submitted within this time period.

Your Letter of Intent indicated that Guam Waterworks Authority (GWA) would be pursuing the extension of both ocean outfalls in an effort to seek approval of the revised applications. We recommend that GWA gather all necessary information and fully assess environmental conditions in the placement of the ocean outfalls. We encourage you to perform some hydrodynamic studies at the proposed outfall sites, in the nearfields and in the farfields to determine current and wind regimes, as well as stratification depths at each location. These studies should include current meter mooring, dye or drogoue releases, and continuous temperature-salinity-dissolved oxygen profiles to help determine the transport and fate of effluents.

In an effort to submit more complete revised permit applications, GWA needs to provide sufficient information to support the proposed extension and placement of the ocean outfalls. Baseline monitoring is essential for obtaining the necessary information at the proposed locations of the new diffusers starting now and continuing until the outfall is online in the year 2000. This information will be needed to support your revised 301(h) application, as well as establish the groundwork for your NPDES monitoring program. Monitoring should include, not only effluent and water quality data, but quantitative information on the benthic fauna and any sediment quality in the area of the proposed discharge. Quarterly data should be collected in the receiving water for at least four locations equally spaced around each of the proposed diffuser sites. These quarterly surveys must include samples for the following Guam water quality standards parameters: microbiology, pH, orthophosphate, nitrate-nitrogen, dissolved oxygen, salinity, total filterable suspended solids, turbidity, temperature, and oil or petroleum products. In addition, priority pollutant scans and chronic toxicity studies should be performed on 24-hour flow-weighted effluent samples every year (see *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms*,

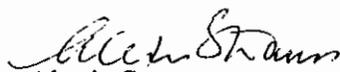
EPA/600/R-95/136, August 1995 or most recent edition). We expect only one priority pollutant scan and chronic toxicity test to be submitted by April 4, 1998. However, the annual sampling of these parameters should continue because EPA needs this information to calculate the impacts of the proposed 301(h) modified discharges.

Annual sediment samples should be obtained for analysis of grain size, total organic carbon, total Kjeldahl nitrogen, total phosphorus, total sulfide, priority pollutants and infauna (see *Procedures for Handling and Chemical Analysis of Sediment and Water Samples*, EPA/CE-81-1). Uniform, replicate grabs at four sites equally spaced surrounding each of the proposed diffuser sites should be obtained for analysis of the sediment chemistry and infauna [see protocol in EPA's guidance document *Quality Assurance and Quality Control (QA/QC) for 301(h) Monitoring Programs: Guidance on Field and Laboratory Methods*]. Coral communities, other macroinvertebrates and fish should always be quantified as required in the existing permits.

We suggest that you refer to the 301(h) questionnaire and list of EPA guidance documents contained in the *1994 Amended Section 301(h) Technical Support Document* sent to you some months ago. In responding to the 301(h) questionnaire, careful attention should be paid to your requested effluent limits in terms of the current and projected (in five-year increments) flow volume, concentrations and mass loadings. Previously submitted projections indicated that both Agana and Northern District WWTPs would be discharging average dry weather flows of 5 MGD or more each by 1997. As a result, they would now, or at least by the end of the new permit term, be considered "large dischargers" as defined in section 40 CFR 125.58(c). Consequently, you should now respond to sections in the questionnaire that relate to large dischargers. Careful attention should also be given to the service area populations projected for the end of permit term. Service area populations of 50,000 or more that have one or more toxic pollutants (substances listed in 40 CFR 401.15) introduced into the POTW by one or more industrial dischargers must respond to questionnaire section H.5, "Urban Area Pretreatment Requirements". In any case, you will need to perform an industrial users survey of any industrial contributors to either facility and report the results in the revised applications.

We look forward to working further with you in your effort to gather all necessary information for the submittal of your revised applications. We would like to schedule a conference call with you in the near future to go over any questions you may have regarding the submittal of the revised applications. If you have any questions, please contact Lily Lee at 415-744-1592, David Stuart at 415-744-1937 or Janet Hashimoto at 415-744-1933.

Sincerely yours,



Alexis Strauss

Acting Director, Water Division

cc: Governor Carl T.C. Gutierrez  
Jesus Salas, Guam EPA  
GWA Board of Directors



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street  
San Francisco, CA 94105-3901

APR 21 1998

Richard A. Quintanilla, General Manager  
Guam Waterworks Authority  
Government of Guam  
Post Office Box 3010  
Agana, Guam 96932

Dear Mr. Quintanilla:

On April 1, 1998, our office received Guam Waterworks Authority's (GWA) 301(h) Modified Permit Applications for the Northern District and Agana Sewage Treatment Plants (STP). Although we have not fully completed our review of the two modified permit applications, our initial review finds that the modified applications are significantly deficient in providing sufficient information to support the proposed extensions and placement of the ocean outfalls as stated in your Letter of Intent dated May 6, 1997 and as discussed in our letter of June 18, 1997.

It does not appear that GWA has made the good faith efforts committed to in its May 6, 1997 letter, where GWA indicated its awareness that the revised (modified) applications shall account for the outfall extensions and ensure that the modified applications will sufficiently and adequately demonstrate compliance with all 301(h) requirements. Information contained in the submitted modified applications for both facilities indicate that GWA has only recently (March 1998) initiated some efforts to perform necessary baseline studies and outfall extension designs; GWA understood that these two requirements would be critical in supporting proposed outfall extensions and demonstrating compliance with 301(h) requirements.

The submitted outfall extension schedules appear inconsistent with supporting documentation. For example, the request to Guam Department of Public Works (March 13, 1998) for baseline studies and scope of work from GMP Associates, Inc. (March 25, 1998) for design work are not complementary. The timeline for baseline studies and design work commencement and implementation is extremely unclear. Although GWA states that it is committed to extending the outfalls, recent actions or lack thereof cast uncertainty over that commitment.

Our June 18, 1997 letter to you regarding receipt of your Letter of Intent to submit revised 301(h) applications provided an April 4, 1998 deadline to submit the revised applications. GWA has only minimally complied with the submittal of the modified renewal applications because the applications were significantly deficient in providing essential information supporting the outfall extensions.

GWA needs to clearly demonstrate its commitment to providing the requested information that will support revised applications for 301(h) variances. Furthermore, GWA needs to demonstrate its commitment by providing a firm schedule for commencing, implementing and completing the

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AGA 2664

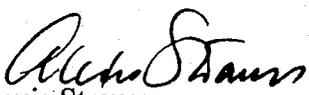
baseline studies and outfall extension designs by October 31, 1998. Finally, GWA needs to revise its outfall extension compliance schedules, as necessary, and identify secured funding sources for both outfall extensions. GWA shall submit the requested schedules and identify secured funding sources by May 31, 1998. Failure to supply the necessary information can result in a final waiver denial, based on the grounds that a satisfactory demonstration of compliance with all 301(h) requirements was not met (40 CFR 125.59(b)(1)), and GWA will be required to comply with secondary treatment requirements.

The proposed scope of work for the baseline survey is adequate, but a more detailed description of the methods, locations and time of sampling must be included. If the extended outfall locations have been established, then a minimum of four water quality monitoring stations equally spaced around each of the proposed diffuser sites may be appropriate (further discussion with our office would be helpful). If, however, the extended outfall locations have not been determined, then a suitable baseline design of the potentially impacted area must be established and we strongly encourage you to consult with us about an adequate monitoring design. In order for EPA Region IX to adequately assess the potential impact of the extended outfalls, it is necessary to provide this baseline monitoring data.

At this point, we have not completely reviewed the two modified permit applications. Since we are still continuing to evaluate both applications, we may be requesting further information to support compliance of the permit applications with our 301(h) requirements. One item which was not provided earlier, but which you will need to complete as part of your modified renewal applications, is a "Sewage Sludge Permit Application Form" (enclosed) for each facility. Please follow the form instructions as you may not be required to fill out all parts of the form depending on how you treat and dispose of your sewage sludge.

As always, we are prepared to work with you and your staff to implement an adequate baseline monitoring program to support renewal of your 301(h) applications. If you have any questions, please feel free to contact Mike Lee, Pacific Insular Area Program, at (415) 744-1484 or Janet Hashimoto, Chief of Monitoring and Assessment, at (415) 744-1933.

Sincerely,

  
Alexis Strauss  
Director, Water Division (acting)

enclosure: Sewage Sludge Permit Application Form

cc: B. Johnston, GWA  
R. Quinata, GWA Board  
J. Salas, GEPA



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street  
San Francisco, CA 94105-3901

March 24, 2008

Lorilee Crisostomo  
Administrator  
Guam Environmental Protection Agency  
P.O. Box 22439  
Barrigada, Guam 96921

Dear Ms. Crisostomo:

Our agencies recently had a conference call to discuss mixing zones related to discharges from the Guam Water Authority's (GWA's) Northern District and Agana wastewater treatment facilities. During the conference call, your staff indicated that they have concerns with the ability of the discharges to meet water quality standards and that additional treatment may be necessary at these facilities. We then discussed the requirements for state certifications related to 301(h) applications. I agreed to provide additional explanation of the certification procedures and to share EPA Region 9's current understanding on whether the proposed discharges from these facilities are likely to meet Guam's water quality standards for enterococcus bacteria. This letter contains the information we agreed to provide and requests your decisions on certification.

The Clean Water Act generally requires that publicly owned treatment works provide secondary treatment to wastewater that is discharged to waters of the United States. Section 301(h) of the Clean Water Act provides for an exception to this general requirement, if the discharger demonstrates to the satisfaction of EPA, with the concurrence of the state, that certain requirements are met. EPA Region 9 has received applications for variances in accordance with Section 301(h) from GWA for the Northern District and Agana facilities.

EPA has promulgated regulations that govern the review of Section 301(h) applications, several of which pertain to the requirement for state concurrence:

- 40 CFR 124.54(a) provides that when an application for a permit incorporating a Section 301(h) variance is submitted to a state, the appropriate state official shall either deny the request for the 301(h) variance (and so notify the applicant and EPA) or forward a certification in accordance with 40 CFR 124.53 and section 401 of the Clean Water Act and 40 CFR 124.53. For the proposed Guam discharges, this certification pertains to whether the proposed discharge will meet requirements related to total suspended solids and biochemical oxygen demand.

*Prir.*

AGA 2730

- 40 CFR 125.59(b)(3) provides that no Section 301(h) variance can be issued where issuance would conflict with applicable provisions of state, local or other Federal laws.
- 40 CFR 125.61(b)(2) provides that the Section 301(h) applicant must provide a determination signed by the state that the proposed discharge will comply with applicable provisions of state law, including water quality standards (this determination shall include a discussion of the basis for the conclusion reached).
- 40 CFR 125.64(b) provides that the applicant must obtain a determination from the state indicating whether the applicant's discharge will result in an additional treatment pollution control, or other requirement on any other point or nonpoint sources (the state determination shall include a discussion of the basis for its conclusions).

Thus, there are multiple opportunities for the Guam Environmental Protection Agency to provide certification or approval associated with the Section 301(h) application process. As your staff expressed concern about the likelihood that the proposed discharges would meet water quality standards, our discussion focused on the certification required by 40 CFR 125.61(b)(2). This certification is separate from state approval of a request for a mixing zone under state water quality standards, in this case 22 Guam Administrative Rules (GAR) Section 5104.

EPA Region 9 is reviewing the two GWA applications. Both applications are for facilities with primary treatment and extended ocean outfalls, without disinfection. Although we are in the initial phases of our review, our assessment at this time is that it is unlikely either of the proposed discharges would be able to meet Guam's water quality standards for enterococcus bacteria. This assessment is based on studies conducted and/or data compiled by GWA, as described in their application, and as described in the engineering and technical references on the performance of primary treatment plants.

The proposed discharges are into waters designated as M-2 in Guam's water quality standards. GAR Section 5102 identifies propagation and survival of marine animals and primary recreation as designated uses for these waters. GAR Section 5103(C)(1) specifies that the following criteria apply:

“Concentrations of enterococci bacteria shall not exceed 35 enterococci /100ml based upon the geometric mean of five (5) sequential samples taken over a period of thirty (30) days. No instantaneous reading shall exceed 104 enterococci /100ml.”

GWA states, in the basis of design reports for both ocean outfall extensions, a dilution of up to 8000 would be required to meet the enterococcus criteria. However, the outfall for the Northern District facility is only designed to attain an initial dilution of 200 and the outfall for the Agana facility is only designed to attain a dilution of 100. Thus, the anticipated dilution for both outfalls is not sufficient to meet the water quality standard.

This analysis is also supported by technical literature on wastewater treatment. Miescier and Cabelli found that primary treatment decreased enterococci densities by about 25% (Miescier, J.J. and Cabelli, V.J. 1982. Enterococci and other microbial indicators in municipal wastewater effluents. Journal of Water Pollution Control Federation, 54:1599-1606). Primary treatment alone, therefore, does not reduce bacteria levels to the extent required by Guam's water quality standards. GWA's basis of design reports for the two outfalls project an effluent value of 830,000 enterococci/100ml after primary treatment, which is significantly higher than the 104 enterococci/100 ml standard, even when accounting for initial dilution.

Given the requirements for state concurrence and our initial analysis of the 301(h) applications, we would like to request your determination under 40 CFR 125.61(b)(2) for the Northern District and Agana facilities. Your determination should be submitted to EPA via letter to Ms. Alexis Strauss, Director of the Water Division. The letter must include the specific grounds for granting or denying the certification, including the specific statutory or regulatory provisions at issue (e.g., GAR Section 5104(A)(9)). If you grant certification, we will continue with our analysis of the application and prepare a Tentative Decision Document. If you deny certification, we will request that GWA submit applications for a permit for secondary treatment. We would appreciate receiving your determinations as soon as possible, so we know which path to pursue, as we are committed to completing the tentative decisions on the 301(h) applications this summer. We understand that this is a complicated process and would gladly discuss it with your staff as needed.

If you have any questions regarding the requirements of Section 301(h) or our preliminary assessment, please contact me at 415-972-3420 or Michael Lee, Pacific Islands Office, at 415-972-3769.

Sincerely,



Douglas E. Eberhardt  
Chief, NPDES Permits Office

cc: M. Gawel, GEPA  
M. Minas, GEPA  
B. Cruz, GEPA  
J. Benavente, GWA  
D. Antrobus, GWA

