

EXHIBIT M



PUBLIC UTILITY AGENCY OF GUAM

Government of Guam

Post Office Box 3010, Agana, Guam 96910

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.

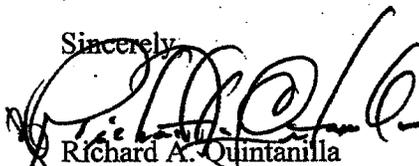
Although, GWA has recently made good faith strides to address all issues surrounding the Administrative Orders and 301 (h) Discharge Permits of its WWTPs, nothing short of constructing the outfall extensions will attest to its steadfast commitment to improving relations with all parties concerned with 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.



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,

A handwritten signature in black ink, appearing to read 'Richard A. Quintanilla', written over the typed name.

Richard A. Quintanilla
General Manager

NORTHERN DISTRICT SEWAGE TREATMENT PLANT

OUTFALL EXTENSION

ACTION PLAN

<u>ACTIVITY</u>	<u>COMPLIANCE DATE</u>
Advertise for A/E Selection	November 3, 1997
Commence Design	February 2, 1998
Complete Design	October 2, 1998
Advertise for Construction Bids	December 14, 1998
Award Construction Contract	February 12, 1999
Commence Construction	April 8, 1999
Complete Construction	December 30, 1999

* Assuming funding is available by October 1, 1997

GOVERNMENT OF GUAM
C O S T E S T I M A T E

PROJECT TITLE: EXTENSION OF NORTHERN DISTRICT SEWAGE TREATMENT PLANT OUTFALL.
 LOCATION: TANGLIKON, DEDEDO

PROJECT NO.: _____ JOB ORDER NO.: _____ SHEET: _____ OF _____
 ESTIMATED BY: RA CHECKED BY: _____

STATUS OF DESIGN: _____

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			2,400	2,400		2,400,000
				DESIGN & C.M.				600,000
					15% CONTINGENCY			3,000,000
								450,000
								3,450,000
NOTE: 1. ESTIMATED COST IS FOR CONVENTIONAL OUTFALL CONSTRUCTION								
2. WHIPSTOCK DRILLED OUTFALL WILL BE CONSIDERED IF FEASIBLE.								

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

Recd. EPA 9/23/99
MF



GUAM WATERWORKS AUTHORITY

Government of Guam

Post Office Box 3010, Agana, Guam 96932

Phone: (671)479-7813 Fax: (671)479-7879

SEP 15 1999

Norman L. Lovelace
Program Manager
Pacific Insular Area Programs
U.S. Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, California 94105-3901

Re: Agana and Northern District STPs - Outfall Extension update
Agat STP - Permit Application

Dear Mr. Lovelace:

Let me begin by first apologizing for the delay in providing this response to your fax of August 11, 1999. There were several points you brought up that required us to make inquiries to entities outside GWA, inadvertently extending our response time beyond the August 31, 1999 deadline.

We are now able to provide an updated schedule with milestone dates for completing the remaining environmental assessments, baseline surveys, basis of design, design, and actual construction for the Agana and Northern District outfall extension projects; they are attachments to this letter. The reasons for the slippage from the previously submitted compliance schedule are also included.

Sediment chemistry will be monitored at least once prior to construction start and annually thereafter until completion of the respective outfall extension. Water chemistry and physical properties, and benthic flora and fauna will be monitored quarterly. Data interpretation will accompany the applicable reports. These monitoring requirements along with their submission dates are now included in the schedule provided.

GWA has decided that it will not build a new secondary sewage treatment plant at Agat. Rather, we will be renovating, expanding and upgrading the existing Agat secondary sewage treatment plant. The renovations along with systematic corrections of the seasonally impacting I/I problems should enable the plant to meet all NPDES permit requirements on a

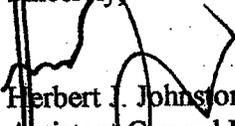
Page 2 - Letter to Norman Lovelace
September 15, 1999

year-round basis. We will be withdrawing our 301(h) waiver and will instead apply for the standard NPDES permit for secondary sewage treatment and discharge. A narrative along with a compliance schedule for the existing Agat STP will be included in the Fourth Quarter Wastewater O&M Report.

The remaining appropriated funds are not sufficient to complete the construction of either outfall. The board and management are working on a strategic plan that incorporates funding alternatives to complete the construction of both outfalls. GWA has set a self-imposed deadline of October 15th to complete the initial process and should be in a better position to identify the funding alternative to be used for the outfall construction. The outfall extension projects have been given high priority on GWA's CIP list. We are optimistic that funding will be secured for the construction phase of the Agana outfall extension before actual construction begins on the Northern District outfall extension.

I can be reached at (671) 479-7805 or at hjohn@ite.net if you have any questions or concerns regarding this matter.

Sincerely,



Herbert J. Johnston, Jr.
Assistant General Manager,
Operations

cc: Director, GEPA



ASSOCIATES, INC.

Engineers / Architects

September 15, 1999

Mr. Richard A. Quintanilla, General Manager
Guam Waterworks Authority
P.O. Box 3010
Hagatna, Guam, 96932

RE: Agana & Northern District STP's - Outfall Extension Update

Dear Mr. Quintanilla:

An explanation of the delays experienced to date and anticipated for the remainder of the project are provided to accompany the revised schedule.

The schedule proposed at the onset of this project had the basis of design completed in 138 calendar days, starting on October 1, 1998 and finishing February 15, 1999. The revised schedule has moved the completion date for the Basis of Design to April 27, 2000.

The explanation for rescheduling is in two parts, Part One addresses the delays in those tasks completed to date, while Part Two examines the impact of rescheduling the baseline and geotechnical surveys and reversing their durations for completion.

PART ONE

Overall, the delay in finalizing the alignment of the two outfalls as completed on June 6th of this year versus a projected early finish of January 6th has resulted in 151 day extension which is the culmination of the following events which follow a critical path.

The mobilization of the oceanographic and hydrographic surveys had a late start of eleven (11) days.

Additional time was requested to determine the required dilution ratios and characterize plant effluent and flow from the projected twenty-four (24) days to an actual seventy-nine (79) days. The additional days were spent in the following:



September 15, 1999
Mr. R. Quintanilla, General Manager
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- a) resolving an erroneous report of the lead concentration in the Northern District plant effluent;
- b) researching data from primary treatment plants in Hawaii to characterize effluent concentration ranges for sulfide, ammonia, phosphorus, fecal coliform, and enterococci which had not been measured at the Guam plants;
- c) analyzing diurnal flow patterns; and,
- d) measuring diurnal salinity profiles in the plant effluent. An additional forty-six (46) days over the projected twenty-one (21) days were needed to complete the hydrographic maps and integrate the shore side surveys. Ocean surge conditions extended the time required to survey the reef edge.

The initial dilution analysis and siting consumed an additional forty-three (43) days over the projected forty-three (43). Mindful of the funding constraints faced by the Guam Waterworks Authority, a number of scenarios were analyzed that compared the cost of using multi-port diffusers to obtain the desired initial dilution at shallower depths versus a simpler turret diffuser in deeper waters. Essentially, the tradeoff is in extending the outfall alignment - versus savings in constructing the diffuser section. This analysis required early development of the cost model which had been initially programmed for the design phase.

PART TWO

In the original schedule, it had been optimistically assumed that the geotechnical surveys could proceed after the hydrographic and shoreline surveys were completed and co-currently while finalizing the siting of the diffusers. Also it was thought that hydrographic surveys would identify the most likely site for each diffuser. Unfortunately, these assumptions did not prove to be valid.

As noted in Part One, delays were experienced in finalizing the hydrographic surveys, determining the required dilution rates, and investigating the diffuser sites which were more economical to construct. The decision was made to postpone the baseline and geotechnical surveys until the siting had been finalized. Currently, the respective consultants are mobilizing to begin the field work.



ASSOCIATES, INC.

Engineers/Architects

September 15, 1999

Mr. R. Quintanilla, General Manager

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In rescheduling the baseline and geotechnical surveys, twenty-eight (28) working days have been added to the former survey and ninety-six (96) to the latter. Additional time is added in the former survey to allow for mobilization and the more difficult working conditions at the proposed Agana outfall diffuser.

The latter survey will require a Guam Seashore Protection permit before borings can take place on the reef flat and marine waters. This permit requires application to the Department of Land Management, approval of the application by the Application Review Committee (ARC), notification of adjacent landowners within a 500 ft radius of the borings, a public informational meeting, and final approval by the Guam Seashore Protection Commission. Sixty-two (62) working days have been allocated to this permit process. Co-current activities will be obtaining a Department of Army permit and preparing the offshore drilling platform. The geotechnical investigation for the Tipalao outfall did not require a Seashore Protection permit. The geotechnical survey is the critical path to the Basis of Design.

In the revised schedule, the Horizontal Directional Drilling feasibility study has been reduced by nine (9) working days while the time allotted to prepare construction documents remains unchanged. These documents are scheduled for completion by September 6, 2000.

BASELINE SURVEYS

I have interpreted USEPA instructions to mean that sediment will be sampled and analyzed on an annual basis for the design and construction schedules.

Please do not hesitate to contact our office if you require additional information.

Sincerely,

GMP ASSOCIATES, INC.

Peter B. Melnyk, Ph.D., P.E.
Executive Vice President

Enclosure
PBM/im

a:3250.04.9.15

EXHIBIT N



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

June 12, 2007

John M. Benavente
Interim General Manager
Guam Waterworks Authority
P.O. Box 3010
Hagatna, Guam 96932

Re: Final Water Resources Master Plan

Dear Mr. Benavente:

The Environmental Protection Agency, Region IX ("EPA") has completed its review of the Final Guam Waterworks Authority's (GWA) Water Resources Master Plan (WRMP) Report, adopted by the Consolidated Commission on Utilities on January 29, 2007. GWA also submitted a Preamble and Resolution of Approval (dated March 14, 2007) and Appendix 1N, Response to Comments (dated May 11, 2007), which were incorporated into and made a part of the WRMP Report by GWA.

The GWA's Final WRMP Report lays out a comprehensive financial program, recommended capital improvement projects and schedule to move GWA toward compliance with requirements of the Clean Water Act and the Safe Drinking Water Act. The Final WRMP Report addresses EPA's minimum requirements of developing the key tasks specified in our Stipulated Order (Paragraph 10) including, but not limited to, a financial plan, assessments, hydraulic model, GIS, and identification of recommended improvements.

Pursuant to Paragraph 10, EPA approves of GWA's Final WRMP Report as a comprehensive planning document. However, additional work remains, specifically to further identify and prioritize the critical capital improvement projects identified in the WRMP Report's "Recommended Capital Improvement Program," especially with respect to GWA's drinking water system.

GWA, in consultation with EPA and the Guam Environmental Protection Agency, will identify and prioritize the necessary water and wastewater capital improvement projects recommended in the WRMP Report.

If you have any questions, please contact me at (415) 972-3769 or Barry Pollock at 415-972-3563.

Sincerely,



Michael J. Lee
Guam Water Program Lead
Pacific Islands Office

cc: P. Kemp, GWA
D. Antrobus, GWA
S. Sanchez, CCU
S. Taylor, CCU
L. Crisostomo, GEPA
B. Pollock, EPA WTR-6
J. Jackson, ORC-2

EXHIBIT O



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

January 17, 2007

David Craddick
General Manager
Guam Waterworks Authority
P.O. Box 3010
Hagatna, Guam 96932

Re: EPA Comments on GWA's Draft Water Resources Master Plan

Dear Mr. Craddick:

The Environmental Protection Agency, Region IX ("EPA") has completed its review of the Draft Guam Waterworks Authority's (GWA) Water Resources Master Plan (WRMP) Report, dated October 30, 2006. The GWA Draft WRMP Report lays out a comprehensive financial program, recommended capital improvement projects and schedule to move GWA toward compliance with Clean Water Act and Safe Drinking Water Act requirements. The Draft WRMP Report addresses EPA's minimum requirements of developing the key tasks specified in our Stipulated Order including, but not limited to, a financial plan, assessments, hydraulic model, GIS, and identification of needed improvements, etc.

Although a significant effort has been made to gather, assess and recommend needed improvements, EPA strongly believes that the GIS and hydraulic model are not to a point to clearly recommend and identify critical capital improvement projects, especially with respect to GWA drinking water system. The GIS and the hydraulic model need to be further developed and ground truthed/validated to an acceptable level prior to formalizing recommendations and identifying specific drinking water system capital improvement projects. EPA believes that the recommended drinking water improvement projects need to be more generalized at this time until the GIS and hydraulic model is at a more acceptable level. The capital improvement cost estimates for these projects are still good figures and should be used for financial planning purposes.

Attached are our detailed comments on GWA's Draft WRMP Report. GWA must provide a revised final master plan, which incorporates our comments, for EPA's review and approval. GWA must provide a response to comments with the submittal of a revised final WRMP to ensure that our comments have been adequately addressed.

If you have any questions, please contact me at (415) 972-3769 or Barry Pollock at 415-972-3563.

Sincerely,



Michael J. Lee
Guam Water Program Lead
Pacific Islands Office

Enclosure

cc: Consolidated Commission on Utilities
P. Kemp, GWA
D. Antrobus, GWA
Administrator, GEPA
J. Jocson, GEPA

**Guam Waterworks Authority
Water Resources Master Plan (WRMP)
Draft GWA WRMP Report (October 30, 2006)**

VOLUME 1 - BACKGROUND

General Comments:

1. Chapter 14 – Financial Program, Projected Expenditures and Revenue Findings (14.12.1):

The WRMP proposes two alternatives to the pace of construction which are described as the “Base Case” and “Minimum Pace” CIP. The WRMP recommends that GWA implement the “Minimum Pace” CIP to limit the short-term rate-based revenue requirements to six percent per year and that a higher percentage year rate would be unacceptable to the Guam Community. While it is understandable to keep yearly rates to a minimum, implementing the “Minimum Pace” CIP will significantly delay compliance in certain situations, especially with respect to wastewater treatment plant improvements (Agat and Baza Gardens Sewage Treatment Plants). The CIP budget schedule should be adjusted to accommodate wastewater treatment plant improvements as per the “Base Case” CIP with respect to the Agat and Baza Gardens facilities.

Prioritization of the recommended water system CIP projects should be reassessed given EPA’s concerns regarding the need for the GIS and hydraulic model to be further developed before making specific CIP project recommendations (see Volume 1 – Water System, General Comment 1. below). The GIS and the hydraulic model need to be further developed and ground truthed/validated to an acceptable level to confirm currently recommended or the recommendation of new water system CIPs. This should be a high priority project to be completed within the next year.

2. Annual Debt Service - Please show the calculations for determining the annual debt service for the expected bonds. How does the payment on a 6%, 30 year, \$88M bond equal \$7.1M?

3. Power Costs - Do the power costs reflect increases due to expected upgrades of water and wastewater treatment processes or is a unit rate per gallon always assumed?

4. Production Needs and Navy Water – If overall production needs drop in future years, why are there still purchases from the Navy?

VOLUME 2 - WATER SYSTEM

Note - In some cases, comments made by EPA, on the 4/7/06 Draft WRMP (comments sent to GWA in July 06) have not been completely addressed. Those comments are

referred to using the numbering system provided in the "Response to comments" which was provided by GWA's contractor to EPA, via their November 30, 2006 "Draft GWA WRMP (4/7/06 submittal) USEPA/SAIC/GWA/GEPA Comments" document.

General Comments:

1. It is not clear that the water system GIS and hydraulic model has been sufficiently developed, ground truthed, nor calibrated to make detailed, specific distribution system recommendations. It is not clear that the data in the GIS, which the hydraulic model is based upon, has been sufficiently ground truthed and includes sufficient data to consider the model adequately developed and calibrated at this point to recommend specific water system capital improvement projects as presented in the WRMP.

The water system hydraulic model as currently configured has been used to generate numerous capital improvement projects, in particular, specific water distribution, transmission, storage and pressure system upgrade projects. In general, the model, based on information available and as currently configured, correctly indicates that a significant number of water distribution, transmission, and storage system improvements are necessary, EPA believes it is only sufficient for conceptual planning and project development at this time. Further, EPA believes that until the GIS and the hydraulic model are further ground truthed, calibrated and tested, that it should not be used as a basis for recommending specific CIP improvements and prioritization for the water system.

2. Water System Reservoir (Storage Tanks) – Current status, and current and future needs (locations and capacities) are still not clearly described, and appear to be understated. EPA believes that there are likely more immediate/ critical storage tank issues, needs and CIPs that are not clearly identified, that should be included in the WRMP as proposed CIP projects. The report mentions that there are at least several areas in the distribution system that as currently configured, there are no storage tanks serving those areas (i.e. areas served only by direct pumping from wells or booster pumps), but the CIP projects do not appear to clearly address those areas. There appear to be other parts of the distribution system / pressure zones that are currently underserved by storage, or where existing storage is "out of service" – these areas are also not clearly addressed in the WRMP. A very small number of "Current Need" CIPS for Water Tanks are proposed. In addition, although there is some scattered discussion throughout the document, there is not one location where there is a clear, concise, summary of the long term storage needs in terms of capacity and location of storage tanks

See more detailed comments in the chapter specific comments.

3. The identification and need to replace 2" and 4" water pipelines has still not been clearly addressed. As noted in EPA's comments on previous drafts, we believe that replacement of existing 2" and 4" pipe will likely yield far greater benefits than many of the proposed projects which are incremental upgrades (for example upgrading 6" to 8", 8" to 10") and are designed primarily to meet minimum fireflow standards. Although

meeting fireflow standards is important, we believe that the grossly undersized pipes represent significant fireflow and pressure problems, and that more effort needs to be made in identifying and developing projects to replace the severely undersized water lines, as these are likely higher priority for life and safety. This has not yet been accomplished.

Chapter Specific Comments:

Water System Summary

1. Page 2S-1 – Pump capacities should be stated in GPM, not HP. Last paragraph - “pump capacities range from 50 to 755 hp”. HP is not capacity, HP is motor size. Pump capacity is usually stated in GPM. Restate well capacities range in GPM

2. Page 2S-2 – Areas of the distribution system where there is no reservoir storage provided for are not adequately identified and addressed. “Pressure Control”- This section mentions “...booster stations *where a reservoir does not exist*”. ... This is an important point which is not adequately discussed in the WRMP. There are areas of the water distribution systems that do not have any distribution reservoir/storage tanks. This is not adequately described in greater detail in Ch. 8, the more detailed description of water system facilities.

Areas with no storage should be discussed, as all these areas should be provided with adequate storage. This does not seem to be reflected in the current list of proposed CIP projects. This should be corrected.

3. Page 2S-3 – Number of Reservoirs in/out of Service is not clear (Summary of Reservoirs). This section is unclear - it states “....total of 36 reservoirs.....Seven are out of service.... 1 abandoned”.

Does this mean there are 28, or 29 reservoirs in service, or 43 reservoirs, 35 or 36 of which are in service? This should be clarified and should be in agreement with other summaries of reservoirs in other parts of the WRMP.

EPA notes that this section states that approximately 20% of the tanks are out of service or abandoned, but the report does not address any of the obvious questions - why are these tanks out of service? Does “out of service” imply that they can be rehabilitated and brought back into service, or are they permanently out of service? Do these tanks need to be replaced or rehabilitated, i.e., are they important for the current and future proposed system hydraulics – pressure and flow?

This does not appear to be addressed anywhere in the WRMP. Are these out of service tanks included in the storage summaries included in Tables 6.3(a) through (c)? What are the implications of their being out of service (i.e., do they need to be rehabilitated and/or replaced with new CIP tanks?).

As noted elsewhere in these comments, summary of all the Storage Tank status and issues is not clearly covered in the WRMP in any one place, although there is a lot of information scattered throughout the document. A full and complete discussion of current storage reservoir situation, immediate needs, and long term storage needs should be provided and summarized in one place (could be in Chapter 1.6, or Ch 7). (Note other related comments 4, 10,11, 12, 15, 17 below)

Chapter 1

4. Page 1-1 - GWA Facilities – Storage capacity. It would be helpful to also list the storage capacity (in Millions of Gallons) as a column in this table, in addition to the number of storage tanks. The number of tanks does not provide much information, while the total capacity is the critical parameter. (Note – if this information is presented elsewhere, it could be cross referenced here).

5. Pages 1-7 through 1-19, Section 1.2 - GWA Water Sources - Wells 1.2.1, Page 1-8. No down-the-well assessment was performed and this should be so noted. As per previous comments, (WIP comment #117, 212 and 213), no down-the-well assessment was performed. There may be significant costs associated over the next 20 years due to deteriorating down the-well assets, including casings, drop pipes, screens, etc. It should be stated in the Final WRMP that the down the hole assets were not assessed and that they should be.

6. Table 1-3 GWA Wells. Discussion of “Wellhead buildings” is not complete. This table does not differentiate those well head buildings owned by GPA (generator buildings) vs. those owned by GWA (built only to house chlorinators and associated appurtenances). In some cases, the chlorination set up (gas cylinders, booster pump, etc.) is in a separate facility (wellhead buildings) owned by GWA – typically a separate, small CMU building with just the chlorinator cylinders, booster pumps, etc. In other cases, wellhead buildings are owned by GPA and chlorinators are housed in a separate room in a larger CMU building which also houses a GPA generator in a separate room. Many of the buildings owned by GWA are in serious disrepair and either require complete replacement or major upgrades. Some wellheads do not have buildings at all – i.e., chlorinators, booster pumps and associated appurtenances are outside, posing a safety threat. This may be a significant CIP and the numbers, conditions, and costs of upgrading/rehabilitating should be described. The cost needed to bring all the chlorination systems up to required levels is not discussed.

This comment is similar to comments #120 and #121 from EPA comments on the 4/7/06 submittal, and has not been adequately addressed in the latest Draft. The response says “information about the general condition of the buildings is provided in the condition assessment in the appendix”, and “additional information about chlorination systems is in the asset inventory”. Referencing the asset inventory does not provide sufficient information on the asset condition, need for replacement or repair, nor costs associated with any CIPs needed to upgrade/rehabilitate the chlorination facilities. Summaries of the assessment and costs should be included in the main text of the Report. If there are

already projects in place to address these concerns (chlorination systems and chlorination equipment buildings), they should be described.

7. Page 1-20 – Chloride levels – balancing water quantity needs with chloride levels - discussion should be clarified. Discussion of chloride levels. The 250 mg/ chloride MCL is a secondary (“aesthetic”) drinking water standard, not a primary (“health-based:”) standard, is based on taste concerns, not health, is not an enforceable standard. Although rising chlorides is an important concern and ideally the water system should be operated to minimize excessive or rising chloride levels, it should also be noted in the text that the need for adequate water supply must also be considered when balancing pumping rates vs. the desire to minimize rising chloride levels.

8. Pages 1-25 through 1-30 - Discussion of Ugum WTP solids processing and disposal not included.

As per EPA’s previously submitted comment #125 on the 4/7/06 draft WRMP, there is still no discussion of solids processing and backwash water CIP’s needed for Ugum WTP. This should be included as it may be a significant cost. If it is already covered under an existing or proposed project, that should be included.

9. Page 1-31 - Transmission and Distribution – Inadequate/unclear description of, and conclusions on 2” and 4” water line – current situation and needs to replace.

The paragraph describing the estimated number of feet of pipe less than six inches is confusing. It is stated that one inventory indicated there was approximately 55,000 feet of pipe of less than six inches; while another survey stated that there is approximately 540,000 feet of pipe less than six inches, with 400,000 of two-inch diameter.

This is an order of magnitude difference and needs to be clarified. If there is 400,000 feet of two-inch pipe, or close to it, ultimate replacement of this pipe (as would presumably be required for minimum flows) will be a very large, significant additional CIP cost. Even replacement of 55,000 feet will be a significant cost, and is not currently listed as a priority CIP project.

GWA must provide its best estimate of the true footage of inadequately sized (sub 6”) pipe in the system and replacement costs, and add as appropriate to list of CIP projects.

EPA continues to believe that 2” and 4” pipe replacement may be a significant and critical project, is likely a higher priority in some areas than replacement of larger size pipe just to meet fireflow, and has not been adequately addressed nor prioritized high enough in the draft WRMP.

10. Page 1-58 - Reservoirs. Storage status and needs (immediate and long term) need to be clearly described Table 1-14. Reservoirs. This is similar to previous Comment #130 and related to General Comment #2 above. Comment #130 is still not adequately addressed. The WRMP still does not clearly explain and define existing and future needs for storage, including locations (by pressure zone) and tank sizes (capacity) required.

This section would be a good place to clearly indicate the conclusions as to where there are current storage needs, by pressure zones, and long term storage needs.

The large number of currently out of service storage tanks, as indicated in this table, seems to imply that there may be an existing, serious, storage deficit for all three water systems.

11. Page 1-60 – Conclusions on Storage Reservoirs incomplete. Section 1.8 Conclusions. There is no conclusion drawn related to the adequacy of the existing storage reservoirs, there is only a conclusion that “reservoirs show significant corrosion”.

As per previous comments and based on our review of the Draft WRMP, EPA believes that due to current system design concerns (including capacities, condition and locations of tanks, tanks currently out of service and/or abandoned, etc.) that there are likely additional, significant, immediate (2005) water storage needs. This should be clarified in the Final WRMP. In addition, the long term storage needs should be clearly laid out in one place.

12. Page 1-61 - 1.10 - CIP Projects –Storage tanks and Distribution lines left out. Two major areas are left out – need to add bullets for **Distribution System Storage Tank needs** and **Distribution system line replacements or additions**, as these both are significant parts of the proposed CIPs.

Chapter 2- Regulatory Issues

13. DBP compliance issues not correctly characterized. Section 2.5.4, Page 2-21 - Discussion of DBP’s. Previous comment #160 - Regarding DBP compliance. In the latest draft WRMP it is stated that “*The Ugum WTP’s planned upgrade to membrane..... will ...improve the removal of precursors that can lead to DBP formation*”. In fact, the opposite is likely the case - membrane (micro) filtration is typically less effective at DBP precursor removal than conventional treatment (which it will be replacing) which includes enhanced coagulation, flocculation, sedimentation and filtration. The pilot studies for the proposed membrane plant at Ugum indicated the potential for future problems with increased DBP formation, potentially resulting in exceedances in the distribution system. That study should be referenced.

At this time, there may not be sufficient information and data to indicate whether S2 standards will be exceeded and what sort of additional treatment would be necessary if S2DBP standards are exceeded. However it should be mentioned that this is a possibility and that additional treatment may be necessary in the future. This should also be clearly reflected in Section 2.7, Recommendations.

Chapter 6 – Water System Hydraulic Model

14. Conceptual Hydraulic Model - Section 6.8, Conceptual Model Calibration, notes the model is not the typical or standard method of calibrating a hydraulic model and results are surprisingly encouraging given limitations of GIS data which it is based on. Section 6.8.2 (Preliminary Calibration) and Table 6-5 (Preliminary Pressure Calibration Data from Key Locations) notes +/- 20% of field measurement okay but overall 6/14 of field sites had anomalies. What does this mean or how does this impact the model, its assumptions and the specific CIP recommendations derived from it? How accurate are the pressure zone boundaries given the model limitations?

Chapter 7 - Water System Assessment

15. Storage Tanks not adequately assessed - As previously noted, this chapter (and Chapters 1 and 8), do not adequately describe or assess Storage Tanks - number of tanks, capacity, issues associated with pressure zone areas not provided with adequate storage. This is a significant gap in the draft WRMP. Storage tanks are a significant capital asset for GWA. It is known that many of the tanks which are still in service are in very poor condition - for example, there are several tanks which were built at the same time, with a similar or same design, and likely in similar condition as the Barrigada tank that failed catastrophically in 2005. Even if these tanks have not yet been thoroughly inspected and assessed, it can be reasonably assumed that most of these tanks will require replacement at some point over the next 20 years.

16. Wells, booster stations, chlorine treatment plant assessments not adequately summarized in assessment chapter. This chapter only provides very general summaries of those assets that were "assessed". It does not specify estimated repair and replacement dollar amounts for these assets (wells, booster stations, chlorine treatment plants, etc.). If there are significant CIP costs associated with this assessment, they should be listed. If they are found in other parts of the document, including appendices, they should be summarized /listed here, not just refer to appendices (especially as some of the appendices are included as CD's and not hard copy text and are difficult to access).

Chapter 8 - Water System Facilities

17. Overall water system Storage/Reservoir needs are still not clearly summarized, described, and assessed; and CIP needs may be seriously understated (Chapters 8 and 9). In Chapter 8 there is no Section titled "Reservoirs", which in text, clearly and succinctly summarizes all aspects of the current status of distribution system storage reservoirs - including the total # of reservoirs and storage capacity by pressure zone; a general summary of their condition (and how that may impact CIP's), and a clear summary of the adequacy of storage tanks in terms of storage capacity (taking into consideration all the criteria listed in 8.3.1.3, which lists the criteria for sizing reservoirs, but does not summarize nor make conclusions about the current reservoir size and capacities).

There is a Table (8-9) with 2005 CPM Recommended reservoirs, but there is no text in this chapter, clearly describing how this table (i.e. how these particular projects, of all

storage tank needs) were selected. This table implies that there is only a current (2005) need for **0.3 MG** of additional storage at this time (not including the replacement of the 2.0 MG Barrigada tank which failed catastrophically, and is also listed as an immediate 2005 need). This seems to be in conflict with other parts of the WRMP. For example Vol. 2, Chapter 6, Hydraulic Model, Tables 6.3 a. through c., which list water supply parameters (including existing storage) by pressure zone for the 3 systems, list **3 existing pressure zones and 2 proposed pressure zones (i.e., 5 pressure zones)**, which currently have 0 Storage Capacity. Based on these tables, the combined demand of the areas served by these areas is approximately 2 MGD. This would seem to imply that at a minimum, there is a current need for at least an additional **2 MG** of storage (assuming a de minimus one day storage capacity, which is similar to the rest of the system). This would be far greater than the 0.3 MG of storage laid out in the WRMP CIP and would increase the current, immediate CIP needs by an estimate \$5-\$10 Million dollars, based on the other cost estimates in the WRMP. Why is storage for these areas not included in the immediate (2005 CMP) needs?

Chapter 9 – Recommended Water System CIP

18. The Northern System Water Distribution System 2005 Improvements (Table 9-11) lists 43 separate CIP projects. Are these projects priority ranked? If not, what are the highest priority projects? Or should the No. Dist System CIP's be broken into 2 or 3 parts based on priorities? Or should this be dealt with after the finalization of the WRMP?

19. Southern and Central Recommended CIP - Does the Central Distribution System cover/impact more customers than the Southern Distribution System? If so, should the Central be a higher priority because it will have the most impact customer wise and cost less to complete? Which is the higher priority and the most impact? The Southern Distribution system's estimated costs is \$23 million and Central is \$6 million.

20. Northern Water Trans Lines (raw water) CIP – Targeted budget period is in 2011 but distribution improvements (2025) don't start until 2021. Wouldn't the WTL and Distribution projects need to be schedule closer together so that as the transmission lines come on line they will not adversely impact the distribution system or will the 2005 distribution improvement CIPs mitigate the affects of the transmission line improvements?

VOLUME 3 – WASTEWATER SYSTEM

Chapter 9 - Recommended Wastewater System CIP

1. Table 9-10 Hagatna STP Pump Station Improvements: The Hagatna STP Pump Station Improvement CIP project covers improvements to the Hagatna Main, Asan and Tegungan Sewer Pump Stations. Recommend that the CIP heading be changed to Central District Pump Station Improvements to more clearly describe project area. EPA recommends that the Asan and Tegungan SPS improvements be moved forward in the

budget year schedule if the pump station deficiencies are currently causing sewer system overflows.

2. Table 9-16 NDSTP and Hagatna STP Unsewered Properties – Sewer Hookups:

The schedule for this CIP project should be scaled back or delayed further in the budget schedule for few years. As an interim measure GWA should implement the Sewer Hookup SRF program. Deferring implementation of this project would help allow for funding of other projects such as the Agat and Baza Gardens treatment plant facility planning/designs and replacements.

3. Table 9-17 NDSTP and Hagatna STP Unsewered Properties – New Sewers:

These projects should be pushed back further on the budget schedule for several years to allow other project to be completed sooner such as the Agat and Baza Gardens treatment plant facility planning/designs and replacements.

4. Table 9-18 NDSTP and Hagatna STP - Additional Sewer Hookups: See comments No. 2 and 3 above.

5. Table 9-24 Agat STP Fac Plan and Table 9-25 Agat STP Replacement:

Move budget schedule up as per Base Case CIP schedule. Under the “Minimum Case” CIP schedule compliance would not take place until after 2015. Under the “Base Case” CIP schedule compliance is already delayed to sometime after 2012. The Agat STP has been in chronic non-compliance for many years already and needs to be addressed in a more reasonable time frame.

6. Table 9-26 Baza Gardens STP Fac Plan/Design and Table 9-27 Baza Gardens

STP Replacement: Move budget schedule up as per “Base Case” CIP schedule. Under the “Minimum Case” CIP schedule compliance would not take place until after 2013. Under the “Base Case” CIP schedule compliance is delayed to sometime after 2011. The Baza Gardens STP has been in chronic non-compliance for many years already and needs to be addressed in a more reasonable time frame.

EXHIBIT P

MEMORANDUM

To: Barry Pollack, EPA Region 9
Ben Machol, EPA Region 9
Michael Lee, EPA Region 9
Andrew Stewart, EPA Hq

From: Bill Hahn, SAIC

Date: May 15, 2006

Subject: Guam Waterworks Authority draft Guam Water Resources Master Plan (draft WRMP) Review

Introduction

Under Work Assignment ETS-0-20(RE), Technical Directive 5, SAIC was directed to provide technical assistance to EPA Region 9 in reviewing the draft Guam Water Resources Master Plan submission provided by the Guam Waterworks Authority (GWA) as required by a June 5, 2003 USEPA Stipulated Order (the Order). This memorandum contains SAIC's comments on the draft WRMP dated April 7, 2006 submitted as a requirement of the Order. SAIC also was provided with comments EPA Region 9 submitted on an earlier draft WRMP Work-in-Progress Report, dated October 27, 2005.

The Stipulated Order, in Paragraph 10, requires the Guam Waterworks Authority to prepare a Master Plan. The Master Plan is specifically required to address the following requirements:

- A comprehensive analysis, using as a guideline the '10 States Standards' as they apply to wastewater, of wastewater treatment, collection, and conveyance systems, improvement alternatives, and needs for the next twenty years. Required items for the Master Plan include:
 - an infiltration and inflow assessment sufficient to identify and prioritize problem areas
 - septic system hookup needs and alternatives
 - decentralized treatment systems
 - consolidation with the military's wastewater systems
 - biosolids management and re-use, and
 - an analysis of costs and other impacts
- A comprehensive analysis ... of public water system improvement alternatives and needs for the next 20 years.
- A comprehensive analysis of the costs and benefits of water conservation on Guam.
- An evaluation of necessary process control system improvements, including a SCADA system, information management systems, telemetry, and other applicable types of automation.
- A financial plan that details how revenue will be generated.
- A detailed 5-year plan for financing the continued operation, maintenance, and repair of

the POTW and three public water systems.

A draft Master Plan was to have been submitted to EPA within 540 days after the Commencement Date (May 6, 2004). The final Master Plan was to be submitted to EPA within 630 days of the Commencement Date (May 6, 2004).

SAIC initially provides overview comments that pertain to all three volumes of the draft WRMP. These are followed by more specific comments on each of the three volumes. These more specific comments reference the volume and numbered section of the draft WRMP that the comment pertains to. Comments have been arranged by Report Volume, and numbered to make cross-referencing easier.

Overview Comments

1. The document reviewed by SAIC and dated April 7, 2006 appears to be the draft version. The draft version was to be submitted by November 1, 2005. The document reviewed still contained blank values, and incomplete sections indicating the section would be completed in the final Master Plan.
2. Based on a Commencement Date of May 6, 2004 the final Master Plan should have been submitted to EPA no later than February 1, 2006
3. The Stipulated Order calls for a 20-year improvement plan. The plans put forth in the WRMP are primarily 5-year plans. No details of projects planned following 2011 are provided.
4. The WRMP fails to provide start dates, completion dates or interim milestone dates for projects proposed. While it often suggests studies that are to be done, no schedule is provided for the completion of these studies.
5. The WRMP frequently makes subjective statements such as "frequency of notices has decreased considerably" or "the number of overflows has decreased dramatically". The WRMP should be fact based. These comments should either be removed, or a quantitative basis for their inclusion should be documented in the WRMP.
6. Although the wastewater system was to be addressed in the context of the 10 State Standards, there is no reference in the document to these standards.
7. Some sections appear to lack an affirmative commitment on the part of GWA to implement the action items presented in the WRMP. For example, the corrosion study included as part of the WRMP contains recommendations from the contractor. There is no specific statement that GWA will actually implement the recommendations, or a schedule for doing so.

Volume 1 Background

Chapter 1 Executive Summary

Section ES.2

8. Comment - Table ES-7 presents CIP projects for budget years 2007 through 2011, 2015, 2020, and 2025. Budgets are not shown for the intervening years. The remainder of the WRMP contains no detailed descriptions of the projects after 2011. The planning for these out years seems tentative at best. (See also Comment 4)
9. Comment - Although Table ES-7 shows specific projects for each year from 2007 through 2011, the text says that some projects during this period will have to be moved to later years. The stated reason is that "those amounts could not be completed in that short time". No explanation is included for this statement (e.g., not enough contractors are available, funding would not be available, other limitations). This statement seems to call into question all of the subsequent CIP plans presented in the remainder of the document.

Chapter 2 Planning Requirements

Section 2.4 Preliminary Assessment of Affordability

10. Comment - The section discusses the issue of affordability, but contains no discussion of the public health impacts of failing to address the water and wastewater issues. While the 2% of median household income reference is contained in the EPA CSO Control Policy, it has never been used to represent anything more than a guideline number. It is estimated that 5 per cent of U.S. utilities have rates that exceed 1.8% of median household income.

Section 2.4.2 Affordability and Rate Increases

11. Comment - It is not clear in what "the distributional aspects of water rating" means.

Chapter 3 Organizational Assessment

Section 3.3 Organization Improvement Opportunities

12. Comment- This section appears to be a philosophical discussion of the means and benefits of an empowered staff. The section does not make clear how the utility intends to implement the philosophy, and the quantitative milestones that can be used to measure its success.

Section 3.9, 2nd to last paragraph

13. Comment - The paragraph contains recommendations to GWA. There should be an affirmative statement regarding GWA's intent to implement the recommendations.

Chapter 4 Levels of Service

Section 4.3.1 Drinking Water Quality

14. Comment - The Service Level is stated as "Compliance with Drinking Water Quality Standards". However, the measurement criteria seems to be boil water notices. Boil water notices are a result of measured water quality, not a measure of drinking water quality itself. This level of service should be measured by quantitative compliance with EPA drinking water quality standards themselves.

Section 4.3.4 Wastewater System Spills

15. Comment - The reported number of spills reported for 2002 seems questionable, given the incidence of system surcharge documented in Volume 3.
16. Comment - The statement that "the situation has improved further since then" is vague in that it does not quantify the actual number of subsequent spills. (See also Comment 5)
17. Comment - There is a discussion regarding the spill performance numbers achieved by other municipal wastewater systems. GWA should bear in mind that other systems may not have the same problems with drinking water well contamination that appear to exist on Guam. Given the rapid ability of sanitary sewer overflows (SSOs) to impact drinking water quality, Guam may need to achieve higher performance levels in SSO control than other systems.

Section 4.4 Process for Going Forward (Step 4: Gain approval for the service levels)

18. Comment - The section states that GWA will present service levels to the CCU with an implementation plan for approval. To the extent that service levels relate to achieving compliance with Safe Drinking Water Act (SDWA) and National Pollutant Discharge Elimination System (NPDES) requirements GWA must comply with these requirements irrespective of what the CCU decides.

Chapter 5 Strategic Communication Plan

Section 5.8 Key Messages

19. Comment - Public confidence will be enhanced if GWA sends a strong message that it intends to comply with all GEPA requirements, and provides periodic updates on its progress in doing so.
20. Comment - Messages should address all GWA activities, not simply the WRMP.

Section 5.1.1 Timeline

21. Comment - SAIC would note that this is one of the few sections of the MWRP that contains an implementation schedule.

Chapter 6 Population and Land Use Forecast

Section 6.4.10 Year 2050 and 2100

22. Comment - The section indicates that by 2100 the ability to provide water may be a limiting constraint of population growth. Little explanation is provided for this assumption. The population projected is less than double the service population today. Guam is currently producing about twice the water that the current population requires (with roughly half being unaccounted water). It is not clear to what extent this unaccounted water is being returned to ground water aquifers.

Chapter 7 Asset Inventory Program

Section 7.2 Overview

23. Comment - In its comments on the Work-in-Progress WRMP, EPA asked that the database program used to collect asset information be identified to ensure that the information collected would be compatible with a computerized maintenance management system (CMMS). This section identifies the program used for the asset inventory as InfoCollect. At the same time it suggests that information regarding water and wastewater pipes has been assemble in the GIS database. GWA should confirm how the information included in these two databases will be integrated into the J D Edwards CMMS identified in Section 8.5.1.

Chapter 8 Asset Management

24. Comment - This section describes a process for moving toward an asset management plan, but suggests (in Section 8.5) that an asset management plan is not yet established. The process described is a "forward looking" process to evaluate future projects. The section fails to address the current deteriorated state of GWA assets. It offers no insight into how GWA intends to halt the further deterioration of these assets, and seems to imply that ultimate replacement may be the only means to address these assets.

Chapter 9 GIS Program

25. Comment - The chapter indicates a reasonable approach for GIS development, but clearly additional work will be needed to fully develop the system. It would appear that a great deal of additional work needs to be done to populate the system.

Section 9.9 GIS Program Recommendations

26. Comment - The subsections under section 9.9 make recommendations for additional staffing, software, and hardware. There is no affirmative commitment on the part of GWA to implement these recommendations, or a schedule for full implementation of the GIS system. (See also Comment 7)
27. Comment - It is not clear if the additional staffing, software, or hardware costs are included in the financial projections presented later in the WRMP.

Appendix 1J GIS Assessment Toolbox and Databases Implementation

28. Comment - This Appendix provides detailed information on the information collected for the wastewater assets, but provides little detail on the information collected for water system assets.

Chapter 10 CAPE

29. Comment - No information is provided in this section. It is indicated that this information will be provided in the final WRMP. (See also Comment 1)

Chapter 11 Corrosion Assessment

30. Comment - This chapter seems to be based almost entirely on a 4 day field assessment conducted by Hunter Water Australia during June 2005. The section contains numerous recommendations. There is no affirmative commitment on the part of GWA to implement these recommendations, or a schedule for implementation of the recommendations. (See also Comment 7)(See also Comment 4)

Section 11.3.1.3 Immersion

31. Comment - This section discusses only the impact of liquids within the pipes of the water and wastewater system. Because a portion of the water and wastewater system pipes that serve coastal development may be continuously or intermittently submerged in brackish water or seawater the corrosion potential of this external immersion should also be addressed.

Chapter 12 Electrical Assessment

Section 12.5 Electrical Assessment

32. Comment - The section states that the detailed electrical assessment sheets are found in Appendix 1J. In fact the CD with this data is found in Appendix 1K.

Section 12.6.5 GWA Operational and Maintenance Issues

33. Comment- The various subsections of this section contain recommendations for actions by both GWA and the Guam Power Authority (GPA). There is no affirmative commitment on the part of GWA or GPA to implement these recommendations, or a schedule for implementation of the recommendations. (See also Comment 4)(See also Comment 7)

Chapter 13 SCADA and Control Assessment

Section 13.1 Introduction

34. Comment - This section indicates that the SCADA system is currently non-functional, and that only a portion of the previously installed SCADA system is useable. It recommends a three Phase approach to make the system fully functional and accessible. There is no affirmative commitment on the part of GWA or GPA to implement these recommendations, or a schedule for implementation of the recommendations. (See also Comment 4)(See also Comment 7) The remaining sections further explain the activities to be accomplished in the various phases, and the benefits that GWA would realize from such a program.

Chapter 14 Financial Program

Section 14.1.1 Background

35. Comment - Comment - No information is provided in this section. It is indicated that this information will be provided in the final WRMP. (See also Comment 1)

Section 14.2.1 Utility Service Levels, Customer Growth & Inflation

36. Comment - This section is missing the projected customer data for 2011. Also missing is an estimate of the reduction in water loss expected and average family usage. (See also Comment 1)

Section 14.3 Customer Characteristics

37. Comment - Comment - No information is provided in this section. It is indicated that this information will be provided in the final WRMP. (See also Comment 1)

Section 14.4 Cost of Services Analysis

38. Comment - Comment - No information is provided in this section. It is indicated that this information will be provided in the final WRMP. (See also Comment 1)

Section 14.5 User Charge System

39. Comment - Comment - No information is provided in this section. It is indicated that this information will be provided in the final WRMP. (See also Comment 1)

Section 14.6 Rate Financial Planning Model

40. Comment - Comment - No information is provided in this section. It is indicated that this information will be provided in the final WRMP. (See also Comment 1)

Chapter 15 CIP Program

Section 15.1 Introduction

41. Comment - The introduction states the WRMP will define required capital expenditures over the next 20 years. The attached table only includes projects for the next 5 years.(See also Comment 4)

Chapter 16 Privatization/Consolidation Opportunities

42. Comment - SAIC has reviewed this section, but offers no comments on its content or conclusions.

Volume 2 Water System

Chapter 1 Water System Description

Section 1.4 Water Booster Pumping Stations

43. Comment - The report states "many of the booster stations have diesel-powered emergency generators on-site." This is an important characteristic regarding the reliability of the stations. The Table of booster pump stations should include which stations have generators.

Chapter 2 Water Regulatory Issues

44. Comment - While the text of this chapter indicates a generally improving system, there is no specific indication as to when GWA believes it will be in compliance with applicable GEPA and EPA drinking water requirements. A statement should be provided following the discussion of each applicable regulation assessing in a quantitative way the current compliance status, and where not in current compliance, when full compliance is expected to occur.

Section 2.4 Ground Water Under the Direct Influence of Surface Water

45. Comment - The discussion would make it appear likely that the Northern System will be

determined to be Ground Water Under the Direct Influence of Surface Water. In developing the WRMP it should be assumed for planning purposes that this will occur.

Chapter 3 Water Budget

Section 3.3 and 3.4

46. Comment - These sections provide a detailed discussion of the hydrology of Guam. The time allowed for this review of the WRMP did not allow SAIC to find an expert sufficiently familiar with Guam hydrology to review these sections. As a result, SAIC offers no comments on these sections at the present time.

Chapter 4 Water Loss Control

Section 4.1 Introduction

47. Comment - This section suggests that lost water in the amount of 22.4 MGD is resulting in a revenue loss of \$4.088 million per year. The basis of this estimate is not clear. The chapter seems to suggest that much of the loss is the result of leakage, that is water lost to the ground and not delivered to customers. This is different than water delivered to customers but not correctly metered. Water lost through leakage does not reflect a revenue loss since it is not actually used. It does reflect an operating expense to pump, treat, and transport it. It is not clear if the \$4 million refers to un-necessary operating costs, or uncollected revenue.

Section 4.2.2 Leak Detection Study Results

48. Comment - In this section estimates approximately \$1,000 per day of lost revenue. This would be \$3.65 million per year, a different number than section 4.1. (See also Comment 47)
49. Comment - It would seem to be critical for GWA to reduce the unaccounted for water through the implementation of a leak reduction program and a program to accurately meter consumption by customers. There is no clear affirmative statement that GWA intends to implement such programs, or a schedule presented for the implementation of such programs. (See also Comment 4)

Section on Future GWA Activities

50. Comment - All sections following this heading appear to be incomplete and under development. (See also Comment 1)

Chapter 5 Water Conservation

Section 5.3.6

51. Comment - This section is incomplete in that demographic information is not provided. It is indicated that this information will be provided in the final WRMP. (See also Comment 1)

Section 5.3.7 Annual Account Water Use

52. Comment - This section is incomplete in that customer use information is not provided. It is indicated that this information will be provided in the final WRMP. (See also Comment 1)

Section 5.4 Recommended Next Steps

Comment - The section contains recommendations. There is no affirmative commitment on the part of GWA to implement these recommendations, or a schedule for implementation of the recommendations. (See also Comment 4)(See also Comment 7)

Chapter 6 Water System Hydraulic Modeling

53. Comment - Water System Hydraulic Modeling was impacted by the same data limitations that were found in the GIS system development. Steps were taken to overcome these data deficiencies in order to develop a planning model. While probably adequate for planning purposes, the model should continue to be improved as a planning tool as additional data becomes available.
54. Comment - It appears that the current per capita demand (including unaccounted for water) was used for the modeling effort. If this unaccounted for flow is addressed, it is not clear how this would impact the CIP projects recommended based on the modeling results.

Chapter 7 Water System Condition Assessment

55. Comment - The condition assessment seems to include wells, booster stations, generators, and the Ugam Treatment Plant. This indicates other components such as pipes and storage tanks were not addressed. No explanation for not including these components is provided.

Section 7.5 Wells

56. Comment - It is not clear what was assessed. Tables 7-3 and 7-4 only seem to address well pumps. A general comment is made that chlorination pumps are in fair to poor condition, but it is not clear if this is included in these two tables.

Chapter 8 Water Distribution System

57. Comment - This chapter suggests system improvements primarily to increase line size for fire flow purposes. The total suggested line improvement would replace more than 100,000 liner feet of pipe. It is unlikely that this could be accomplished in a single year. Some level of prioritization should be provided for planning purposes.(See also Comment 4)

Chapter 9 Water Systems Facilities

58. Comment - This chapter contains recommendations for 7 water transmission lines, 3 booster pump stations, 5 reservoirs, and improvements to the Ugam Treatment Plant. There is no clear affirmative statement that GWA intends to implement these recommendations, or a schedule presented for the implementation of the recommendations.(See also Comment 4)

Chapter 10 Recommended Water Systems CIP

59. Comment - Table 10-1 presents CIP projects for budget years 2007 through 2011, 2015, 2020, and 2025. Budgets are not shown for the intervening years. The remainder of the chapter contains no detailed descriptions of the projects after 2011. The planning for these out years seems tentative at best.(See also Comment 4)

Volume 3 Wastewater System

Chapter 1 Wastewater System Description

Section 1.1 Introduction

60. Comment - The Introduction says there are seven treatment plants, but descriptions are only provided for six. No information is provided for the Pago-Socio treatment facility.

Section 1.2 Wastewater Treatment Plants

61. Comment - Each subsection contains a discussion of the mechanical condition of the specific plant. These discussions would better be included in the condition assessment chapter.

Chapter 2 Wastewater Regulatory Issues

Section 2.9 Potential Future Regulatory Issues

62. Comment - There should be additional discussion regarding the interaction of the wastewater and drinking water systems, specifically with regard to wastewater spills

impacting northern wells. It is mentioned without elaboration in two bullets in this section.

63. Comment - Experience would seem to indicate that the interaction between the wastewater collection system and the well system is not a "future issue" but one that is already occurring.

Chapter 3 Wastewater Facilities Condition Assessment

Section 3.4

64. Comment - The subsequent sections discuss the condition assessments of the six treatment plants. The Pago-Socio treatment plant is not included. There is no discussion or assessment of standby generator for these facilities. Standby generators are an important component of system reliability.

Section 3.4.7 Wastewater Pump Stations

65. Comment - There is no assessment of the condition of the 77 force mains that are associated with the pump stations. Factor such as age, material of construction, cathodic protection, and length should be provided.

Chapter 4 Wastewater Collection System

Section 4.2.5 Laterals

66. Comment - The condition assessment does not address laterals. If GWA owns a portion of the lateral pipe (e.g., from the property line to the street) the GWA owned portion of the laterals should be included in the condition assessment.

Section 4.3

67. Comment - Several subsections in this section are incomplete. It is indicated that this information will be provided in the final WRMP. (See also Comment 1)
68. Comment - Section 4.4.2.1 identifies potable water supplies as areas having "a major consideration in weighting the consequence of failure". However, the ranking methodology presented in Table 4-1 gives no weight to the consequence of failure of a pipe that would impact a well. The potable water supply consideration in Section 4.4.2.1 is dropped completely in Section 4.5.3.2.

Section 4.5.3.2 Spill Impacts

69. Comment - Spills near drinking water wells can have a direct impact on public health, but

are not considered in Spill Impacts. (See also Comment 68)

Section 4.5.5 Results of Critical Assessment

70. Comment - A detailed basis should be presented explaining how the point values for the three categories of priority were determined. Why 20 and 30, rather than other values?

Section 4.6.1 Manhole Inspections

71. Comment - The WRMP should state why only manholes on lines 10-inches and larger were considered representative of the system as a whole.

Section 4.7.3.4 Wet Weather Flows

72. Comment - Additional data should be provided on the design storm used for modeling efforts. The text seems to indicate that an August, 2005 storm was used, but that flows in the north were increased by 25% and flows in the south were decreased by 25%. Additional information should be provided on why these adjustments were made, and how the percentage corrections were determined.

Section 4.8 Findings and Recommendations

73. Comment - This section is incomplete. It is indicated that this information will be provided in the final WRMP. (See also Comment 1)

Section 4.8.2 Preventive Maintenance

74. Comment - The section suggests a number of lines be included in a preventive maintenance program. It does not recommend a cleaning frequency for the lines.

Section 4.8.3 Prioritized Inspection/Ongoing Data Collection

75. Comment - SAIC would suggest that all high and medium priority lines be CCTVed in the next 5 years. (See also Comment 70)

Chapter 5 Wastewater Treatment Facilities

76. Comment - No reference is made in this Chapter to the 10 State Standards as required by the Stipulated Order.
77. Comment - In presenting the capacity for the treatment plants the need for redundancy is not considered. In the case of the Northern Plant, capacity is 6.0 MGD if one clarifier is out of service. Thus, Permitted maximum flow is 6.0 MGD. The need for redundancy is not reflected in capacity discussions.

Section 5.2 Approach

78. Comment - Given the previously identified problems with system surcharging, Table 5-1 should also include information on peak flow occurrences at the treatment plants.

Section 5.4.3 Capacity Assessment

79. Comment - The section states flows are less than the capacity assessment. Figure 5-15 shows actual maximum flow exceeds Permitted Maximum Daily Flow. Flow discussions should reflect both average and Permitted Maximum flow.

Section 5.7.3 Capacity Assessment

80. Comment - (See also Comment 77)

Section 5.10 Conclusions

81. Comment - The text states that substantial progress in repairs and operation and maintenance of the wastewater treatment facilities. While this may be true, the Chapter indicates that 5 of the 7 treatment plants are not treating wastewater to meet existing standards.

Section 5.5.3 Capacity Assessment

Chapter 6 Septic Systems

82. Comment - If GEPA adopts the 1,000 foot WHP requirements it will likely be many years before GWA has the ability to address the septic systems that would fail to meet this requirement.

Chapter 7 Water Reuse

83. Comment - The chapter reasonable addresses the current practices of water reuse in Hawaii and California. SAIC would agree with the conclusion of the chapter that water reuse will only occur in a significant way if it is regulation driven.

Chapter 8 Biosolids Management

Section 8.1 Introduction

84. Comment - The text states the practice of land application has stopped and measures have been taken to ensure compliance. More information should be provided on how this has been accomplished.

Section 8.4 Current Biosolid Production, Treatment and Disposal on Guam

85. Comment- The section indicates that essentially all biosolids produced are transported to the Northern Plant. Since the digesters are out of service, the solids are dewatered and stockpiled. Thus there is no treatment or disposal.

Section 8.6 Conclusions and Recommendations

86. Comment - The section concludes that GWA construct one or two centralized Biosolids treatment facilities. No schedule is provided as to when such facilities could be in operation.

Chapter 9 Recommended Wastewater CIP

87. Comment - Table 9-1 presents CIP projects for budget years 2007 through 2011, 2015, 2020, and 2025. Budgets are not shown for the intervening years. The remainder of the chapter contains no detailed descriptions of the projects after 2011. The planning for these out years seems tentative at best.(See also Comment 4)
88. Comment - Four of the seven wastewater treatment plants, including the largest ones, are not meeting discharge requirements. No indication is provided as to when these plants are likely to achieve compliance.