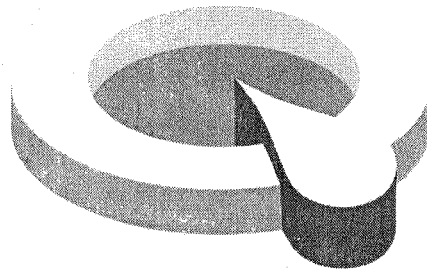


QualServe™ Report of Peer Review

Prepared for

Guam Waterworks Authority

November 21, 2002



QUALSERVE

Disclaimer

This report has been compiled by a team of utility peers under the QualServe Program, which is jointly sponsored by AWWA and WEF. The peer team worked from materials and other information provided by the utility being reviewed. Interviews and visits to facilities and workplaces supplemented this written information. The team followed processes outlined in QualServe program guidance to conduct the review in accordance with the Participating Utility Agreement. The information presented in this report summarizes the findings of the team, and focuses on the topics that the team believes are most appropriate outputs from the review. This information is intended as one assessment that the utility can use to prepare an agenda for improvement. AWWA and WEF make no warrantee relative to the suitability of this report for any other purpose.

Acknowledgments

QualServe is a trademark of the American Water Works Association. AWWA wishes to recognize the valuable contributions made by many volunteers of the Association, including those who served on the Quality Utility Service Ad Hoc Committee and created the framework for QualServe. We are grateful to the American Water Works Association Research Foundation, its volunteer project advisory committee, its staff, and its contractor, Roy F. Weston, Inc., for leadership and support during early development of the QualServe program. More recently, the Water Environment Research Foundation, its volunteer project subcommittee, staff, and contractor, Hagler Bailly, Inc., have led an effort to help expand the QualServe program and make it useful at wastewater and joint water / wastewater utilities by developing and pilot-testing new program materials. The Water Environment Federation (WEF) has joined with AWWA to co-sponsor QualServe. AWWA and WEF have also formed a Joint QualServe Advisory Committee to oversee on-going operations and improvements to QualServe. Many thanks are extended to the utilities and individuals that offered advice during development of the program, support during pilot testing of the self-assessment and peer review processes, and service as peer reviewers. QualServe continues to benefit from these varied contributions, and is now offers a comprehensive program of excellence for water and wastewater utilities throughout North America.

Transmittal Letter

We would like to express our sincere appreciation to the people at the Guam Waterworks Authority who helped us understand the workings and accomplishments of their joint water/wastewater utility. Your cooperation with helping us to prepare for this review and the kindness and energy you have displayed while we visited your facilities made our task enjoyable. We have learned a great deal that will benefit us in our work, and trust that our discussions and this report will help you achieve your goals and contribute to your continued success. The residents of Guam are fortunate to have a knowledgeable and dedicated staff operating their facilities and searching for affordable opportunities to provide superior service.

Thank you for providing us with the documentation we used to prepare for our visit. That background information, coupled with your self-assessment report and the insights we gained through interviews and facilities visits has helped us to shape a broad understanding of your utility and the methodologies you apply in your daily work. We hope that in considering and applying this information, we have not misunderstood, omitted, or misrepresented anything of significance. Our goal has been to understand how you accomplish your work, how decisions are made, and whether practices at Guam Waterworks Authority are consistent with those at other high achieving North American water and wastewater utilities.

We have organized our review around the standard QualServe business process categories. These are the same as those used in the framework for the QualServe self-assessment survey.

We believe it is important that you have this report in hand before we travel home. Once we return to our own utilities, it will be difficult for our team to assemble and continue deliberations with the freshness of information and degree of focus that we have applied in preparation for our visit and over the few days we have spent with you on site. Our comments are necessarily succinct. They highlight observable strengths and areas where we believe you might benefit from additional study and action. If there are specifics that are unclear, or topics that you would like to discuss with a member of the team, we welcome your call.

Sincerely,

Ernest Lau
Manager & Chief Engineer
Dept. of Water, County of Kauai

Bobby Praytor
Manager, Planning Division
Dallas Water Utilities

David Craddick
Director
Maui County Board of Water Supply

Edward H. McCormick
Manager of Support Services
East Bay Municipal Utility District

Jon DeBoer
Peer Team Facilitator

Table of Contents

Disclaimer.....	2
Acknowledgments.....	2
Transmittal Letter.....	3
Introduction.....	5
Utility Expectations for this Peer Review.....	6
Key Findings of the Peer Review Team.....	7
Leadership and Organization.....	9
Human Resources Management.....	11
Continuous Improvement.....	12
Health and Safety Management.....	13
Emergency Planning and Response.....	14
Capital Improvement Program.....	15
Strategic Planning.....	16
Finance and Fiscal Management.....	17
Plant and Property Management.....	18
Purchasing.....	19
Information Management.....	20
Engineering.....	21
Customer Service.....	22
Customer Strategy and Satisfaction.....	23
Customer Accounts Management.....	24
Government, Business and Community Relations.....	25
Watershed Management.....	26
Wastewater Collection Operations and Maintenance.....	27
Wastewater Treatment Operations and Maintenance.....	28
Wastewater Biosolids Management.....	29
Wastewater Permitting / Air and Water Quality.....	30
Water Resources.....	31
Water Treatment Operations and Maintenance.....	32
Water Distribution Operations and Maintenance.....	33
Drinking Water Quality Management.....	34

Introduction

The American Water Works Association (AWWA) and the Water Environment Federation (WEF) offer the QualServe program to assist utility managers with assessing the current state of affairs at their water, wastewater, or joint water / wastewater utilities. The peer review evaluates the same business process categories as those included in the self-assessment process. The perspectives of the two processes differ but they are complementary. The self-assessment organizes views of the utility's staff. The peer review offers the neutral perspective of volunteer utility executives and managers from other, similar, North American utilities. These two processes combine to make QualServe a unique program among those dedicated to excellence in utility service.

This report contains the findings of the team that prepared for its visit Guam Waterworks Authority during September to November and visited the utility from 17-21, 2002. Comments are purposefully succinct. They are presented using a model that clusters relative strengths and weaknesses, and that provides the team with a way to identify opportunities for improvement and barriers which they believe might impede progress toward those improvements. Most of the comments assess the current situation, and only a few offer specific suggestions for change. This is by design and appropriately leaves the final decisions with utility management. The report is best used to supplement other sources of information, such as the QualServe self-assessment, current planning documents and consultant reports, as the utility's specific agenda for improvement is constructed.

Each of the QualServe 26 business process categories at water and wastewater utilities was addressed during this review. In addition, the team has considered all they have learned from a broader perspective, and identified a few of the most important utility strengths and key opportunities for improvement. The team believes that these latter topics should receive attention early as the utility plans its agenda for improvement.

Every QualServe peer is a volunteer utility executive, manager, or key staff person. Each team is comprised of a number of peers with different educational and professional backgrounds that allow them to quickly form impressions of relative effectiveness of utility processes. QualServe does not prescribe a set of rigid benchmarks or checklists from which the peers define success. Rather, it considers success in a relative sense. In progressing toward excellence, every utility will have both strengths and opportunities for improvement each step along the way.

Each peer has attended a comprehensive three-day training program designed to assure that every review is consistent in process and rigorous in content. The training covers a variety of topics to help each peer understand QualServe and its relationship to complementary quality programs. Each peer team has the collective skills to carry out an effective review, and each peer fully understands his or her role with identifying topics and preparing a report that is accurate, insightful and useful.

The QualServe "college of peers" also offers an important forum for utility managers to share their experiences outside the formal peer review process. Relationships established during reviews can lead to later opportunities for collaboration and benchmarking. Currently nearly 200 major utilities have been involved with designing and implementing QualServe. And, since each participating utility is requested to support one or two of its staff as peers, these numbers and the opportunities to network with others continue to grow.

AWWA and WEF appreciate your participation in QualServe. We hope you have found the self-assessment and this peer review useful, that you will tell others about those things you liked, and tell us about those needing improvement. We welcome your comments in any form. Simply direct them to Bill Lauer, Manager of Utility Quality Programs, AWWA, 6666 West Quincy Avenue, Denver, Colorado, 80235.

Utility Expectations for this Peer Review

During the in briefing, utility staff was asked to identify their expectations from this review. The peer team considered these as they performed the review and believes that those shown in boldface type were addressed in some way during the review.

- **Review Organization and assess effectiveness of organizational structure.**
- Comment on the appropriate roles and responsibilities of each section.
- **Provide information on benchmarking with other organizations.**
- Review and comment on decision process flow charts of the organization.
- **Identify areas for improvement.**
- **Provide ideas and suggestions on developing independent policies and procedures for GWA.**
- **Help us determine what we are doing right and where we are doing things wrong.**
- **Look at interdependencies with other Guam agencies and provide suggestions for improving relationships.**
- Examine and comment on individual position roles and responsibilities.
- **Comment on maintenance management programs.**
- **Comment on appropriate SCADA software and hardware.**
- **Look at the impact of the organizational culture on employee morale.**
- **Review and comment on the training and development programs of the organization.**
- **Review computerized data management and determine if it is serving the utility needs.**
- **Comment on techniques for increasing the quality of service provided to customers.**
- **Provide team insights to the areas of the organization where processes and procedures are right, and where they are wrong.**
- **Would like to see the report focused on the future, including the new commissioner.**

Key Findings of the Peer Review Team

Strengths

- Guam has an abundant supply of fresh water.
- There are dedicated employees who are committed to serving the public.
- Employees embrace the need for training and operator certification.
- Employees demonstrate great resourcefulness and commitment to getting the job done in spite of limitations on resources.
- There are excellent employee benefits.
- The newly created Consolidated Commission on Utilities offers the opportunity for greater cooperation between GWA and GPA.
- GWA has a track record of excellent response to natural disasters.

Opportunities for Improvement

- Leadership
 - Provide direction to accomplish its mission.
 - Put the right people in the right job.
 - Improve internal and external communication.
 - Ensure fair treatment in hiring, promoting, and contracting *without pare pare*.
 - Continuously improve.
 - Work together as a team.
 - Develop Standard Operating Procedures for all business units.
 - Empower people by involving them in decisions.
- Restore Customer Confidence and Trust
 - Consistently provide safe and reliable water and wastewater services.
 - Re-build the infrastructure.
 - Improve customer service.
 - Treat all customers equally and with respect.
- Achieve Financial Self-Sufficiency
 - Implement adequate water and wastewater rates.
 - Develop alternative funding sources.
 - Use finances and resources wisely.
- Demonstrate Environmental Stewardship
 - Preserve and protect Guam's precious environmental resources.
 - Comply with federal environmental regulations.
 - Ensure the future well being of Guam and its population.

In order to accomplish the opportunities for improvement listed above, it will take collective cooperation and action, starting with the Consolidated Commission on Utilities, filtering down through the management to the front line employees, and must become imbedded in the culture of the entire organization.

Barriers

We observed the following barriers or obstacles that could inhibit successful improvement efforts.

- Frequent changes in laws affecting GWA.
- Hiring freeze that has resulted in numerous critical positions being filled on an acting basis or left vacant.
- GWA's dependence on outside agencies for critical services, such as purchasing and civil service.
- Past mismanagement of financial resources.
- Top down management style.
- Micromanagement by outside agencies.
- Remote geographic location.
- Requirement that purchases be made from local sources.
- The pare-pare system.
- Freeze on rate increases.

Leadership and Organization

Guam Waterworks Authority

Strengths	Opportunities for Improvement
<ul style="list-style-type: none">+ A newly elected Consolidated Commission of Utilities (CCU) with greater autonomy for oversight of GWA and Guam Power Authority (GPA).+ A significant number of GWA staff are committed to improving the organization.+ A Public Utilities Commission who is supportive of GWA achieving financial self-sufficiency.+ GWA is well positioned to apply for and receive federal assistance to mitigate violations of the Safe Drinking Water and Clean Water Acts.+ The urgency created by the real potential for limited or full privatization of GWA can provide an opportunity to rapidly implement needed changes in GWA.	<ul style="list-style-type: none">○ Immediately recruit to fill the General Manager with a qualified person experienced in Utility management to fill the void in leadership needed to address the serious internal and external issues facing the GWA.○ Immediately act to correct the public health and level-of-service problems with providing safe drinking water to the people of Guam.○ Immediately act to correct the public health and environmental problems with existing wastewater collection and treatment systems. Reduce and ultimately eliminate violations. The wastewater problems, if left uncorrected, could impact Guam's economy, which is heavily dependent upon tourism.○ Immediately comply with the USEPA Consent Order (Docket CWA-402-9-01-19) by implementing the actions specified in GWA's Financial Plan and Compliance Schedules dated January 31, 2002. Lobby the newly elected Legislature and Governor to implement the recommendations described therein.○ Immediately evaluate the qualifications and performance of staff in critical supervisory and non-supervisory positions across GWA that impact its ability to provide safe drinking water, reliable water service, and the elimination of wastewater violations.○ Implement changes wherever necessary to ensure that the "right person is in the right job" based on their ability to perform that job successfully. Focus especially on critical management positions. De-politicize all decision-making in GWA, including hiring and promotions. Compensate acting employees at the position level at which they are acting○ Eliminate "hiring freeze", and delegate the authority to fill key vacant positions to the General Manager when needed to comply with environmental regulations/NPDES permit requirements.○ Encourage every person in GWA to take personal responsibility for GWA's success or failure. Don't just blame it on others, a lack of something, or someone else's "screw-up".

Leadership and Organization Continued

Guam Waterworks Authority

	<ul style="list-style-type: none">O The existing physical offices in Tijan create a serious impediment to creating efficient managed organization, improved internal communication, better customer services, improved staff morale, and implementation organization-wide information management technologies due to “fragmentation”.O Consider developing a more compact or consolidated organization with less managerial layers that encourages optimal use of resources, improved information management, and excellent internal and external communication.O Consider development of formal policies (e.g., Code of Conduct, Ethics, and Conflict of Interest), and updates of its Rules and Regulations by the newly elected CCU.O Evaluate the impact of outside agencies or entities on ability to fulfill its mission and Critical Success Factors. Mitigate “bottlenecks” wherever possible.O Consider ways to increase the autonomy of GWA to allow it to do its job without outside efforts to influence its operation. This may require the legislature to repeal numerous existing laws.O Organizational groups need to develop goals and objectives that align with GWA’s mission statement.O Establish and/or update standard operating procedures for all business units in the utility.
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Human Resources Management

Guam Waterworks Authority

Strengths	Opportunities for Improvement
<ul style="list-style-type: none">+ Dedicated, committed workforce+ A significant number of long-term employees provide historical memory.+ The utility supports employee continuing education efforts, such as assisting in the acquisition of a GED.+ The “increment system” provides for career growth within a position, while giving the supervisor the flexibility not to approve an increment step increase if performance is not satisfactory.+ Personnel that put in a full days work are carrying more than their share of the load.	<ul style="list-style-type: none">O Ensure that hiring decisions are objectively made based on selection of the “best candidate” for the position.O Provide hiring selection responsibility and authority to hiring supervisors.O Consider creating or updating minimum qualifications, position descriptions.O Partner with University of Guam (UOG) on Operator Training and Certification programs.O Need additional training for employees and operator certifications, perhaps a “water/wastewater academy”.O Seek employee input on key decision areas.O Better utilize certified and long-term employees.O Recognize contributors through employee recognition programs.O Improve communication with employees at all levels.O Develop and implement consistent performance reviews for all employees, and re-implement pay for performance.O Eliminate need for acting positions by promoting incumbents, or replacing them with qualified hires.O Develop confidence from Legislature and new Commission to eliminate political influence on hiring, pay scale and starting salaries.O More effectively utilize staff capabilities by redirecting and reassigning the workforce.O Require new operators to achieve certification by end of 1st year of employment in order to pass probation.O Provide management training in coaching, hiring, discipline, and performance improvement.

Continuous Improvement

Guam Waterworks Authority

Strengths	Opportunities for Improvement
<ul style="list-style-type: none">+ Employees are very interested in improving efficiency and effectiveness.+ Implementing the QualServe process has focused the organization on continuous improvement, that involves input from all levels.+ GWA is fortunate to have many competent and committed employees, who, with mentoring, can become future managers.	<ul style="list-style-type: none">○ Develop an integrated, unified approach to continuous improvement, including designating a senior manager or team to champion the effort to establish organizational alignment.○ Establish a vision and revisit mission statement through an organization-wide collaborative process.○ Establish an effective internal communication and orientation program and ensure all staff understand the vision and mission of GWA.○ Identify long-term organizational goals and track key performance measures toward attainment of the long-term goals (e.g. number of permit violations per year, cost/MG to treat wastewater, etc.)○ Establish benchmark performance measures to be used to monitor how the utility is doing.

Health and Safety Management

Guam Waterworks Authority

Strengths	Opportunities for Improvement
<ul style="list-style-type: none">+ A formal health and safety program is in place, with an assigned Safety Officer.+ GWA has a bi-weekly safety newsletter that focuses employees on general safety and HazMat issues.+ An effective program for dealing with chlorine is in place, with much less frequent chlorine leaks than in the past.+ GWA has converted wastewater systems to sodium hypochlorite from chlorine gas, for disinfection. This non-hazardous chemical is much less harmful to employees in the event of a spill or leak event.+ Training is in place for protective personal equipment, general eye safety, asbestos awareness, traffic control, forklift, excavation and lock-out/tag-out.	<ul style="list-style-type: none">○ Significant safety violations exist at several facilities, requiring immediate correction (e.g. lack of handrails around wastewater channels, working in un-shored trenches, chlorine gas system without operational detection/alarm systems, etc) .○ Consider redirecting staff to Health and Safety (currently 1 FTE to support staff of 326) as well as an increased annual budget for Health and Safety training and equipment (gas monitoring/detection, safety shoes, etc.).○ Consider relocating Health and Safety from Administration to a centralized Regulatory Compliance group that reports directly to the General Manager, to increase organizational priority and independence on safety decisions.○ Implement comprehensive training programs related to job requirements for health and safety.○ Establish safety practices for working with asbestos cement pipe, working in confined spaces, waterborne pathogens, trenching and shoring, etc.○ Need to ensure that supervisors obtain the same (or summary of the) training provided to their staff.○ All motor safety equipment must be in place before pumps are put back online.

Emergency Planning and Response

Guam Waterworks Authority

Strengths	Opportunities for Improvement
<ul style="list-style-type: none">+ Utility has a chlorine response plan.+ GWA has a comprehensive emergency plan.+ Government of Guam has an emergency operating center (EOC) that GWA participates in.	<ul style="list-style-type: none">O Develop an emergency response plan to include addressing security issues, training staff, and conducting annual field exercises.O Conduct a vulnerability assessment to address security issues. Implement the assessment through planned and budgeted security and operational enhancements, using federal funding if available.O Develop additional standby well source capacity to mitigate emergencies due to unforeseen equipment failures and peak consumer usage.

Capital Improvement Program

Guam Waterworks Authority

Strengths	Opportunities for Improvement
<ul style="list-style-type: none">+ There are facility master plans for both water and wastewater that identify projects that are needed.+ Water and wastewater projects are prioritized on a systematic manner.+ USEPA Consent Order (Docket CWA-402-9-01-19, January 31, 2002) identifies high priority projects needed to ensure compliance with federal laws.+ GWA has obtained federal grants for CIP projects and appears well positioned to obtain more grants.+ GWA has engineering staff to work on CIP water and wastewater projects.	<ul style="list-style-type: none">○ Implement CIP projects specified in USEPA Consent Order (CWA-402-9-01-19, January 31, 2002). If funds are presently unavailable, proceed to develop Scope of Work for each project anyway.○ Expedite implementation of projects already funded by USEPA.○ Establish reliable funding sources to ensure implementation of the capital programs.○ Consolidate and update water and wastewater facility plans into a single 20-year plan that also identifies projects that address CIP (capacity of growth), capital replacement (aging infrastructure), and repair and maintenance.○ Involve early on both water and wastewater operations staff in the identification of CIP projects and scope of work definition.○ Evaluate system rehabilitation/replacement needs in the long term program. Involve both water and wastewater operations.○ Evaluate the utility's internal staff capacity to deliver the capital program, on-time and on-budget.○ Nearing design capacity of several plants, so GWA needs to begin planning for wastewater plant capacity upgrades.

Strategic Planning

Guam Waterworks Authority

Strengths	Opportunities for Improvement
<p>+ There is a comprehensive Strategic Initiatives Plan (May 2000) in place.</p>	<ul style="list-style-type: none">O Update the GWA 2000 Strategic Initiatives Plan (SIP) to address the urgent issues facing GWA (e.g., drinking water and wastewater problems, lack of finances) through a process that involves the CCU and GWA employees.O Include a communications strategy section in the SIP that addresses internal and external communications (i.e., communications with the political decision makers, USEPA, Guam EPA, Public Utilities Commission, the media, customers, businesses, etc.).O Evaluate the potential benefits of working closely with GPA to share resources since the CCU will have oversight of both utilities.O Develop a short brochure for distribution to all employees that succinctly describes the organization's strategic plan.

Finance and Fiscal Management

Guam Waterworks Authority

Strengths	Opportunities for Improvement
<ul style="list-style-type: none">+ A cost of service study was completed in 2001.+ Two collection agencies are under contract to recover overdue billings.+ An outside agency conducts an annual audit of GWA.	<ul style="list-style-type: none">○ Aggressively pursue federal, regional and local grant and low-interest loan funding opportunities for capital improvement (including FDA's Rural Development Fund).○ Encourage water conservation through a conservation oriented rate structure.○ Establish formal financial criteria/targets.○ Develop 3 to 5 year forecasts of revenues and expenditures in order to determine the level and need for future rate adjustments.○ Address long-term financial problems and move toward a self-supporting enterprise fund.○ Include funding for capital projects in the water and wastewater rate schedules.○ Tie in wastewater customers to the system to reduce aquifer pollution and increase revenues.○ Reduce the number of non-paying customers to improve financial picture and increase available revenues.○ Residential sewer connection fees of \$50 appear to be well below the industry standard, and do not compensate the agency for the work involved. This is a potential revenue enhancement opportunity.○ Ensure adequate funding is in place for the timely implementation of needed maintenance and capital improvements.○ One-half cent per gallon to treat septage at the wastewater plant appears to be well below what comparable agencies charge; this is a revenue enhancement opportunity.○ Need available cash reserves to meet both emergencies and on-going payments.○ Work with other government agencies to develop a plan to reduce outstanding/overdue debts.○ Need dedicated system expansion charge separate from water rates, and including source through transmission and storage costs.○ Develop internal controls to prevent overpayments or payment of goods and services not provided or performed.

Plant and Property Management

Guam Waterworks Authority

Strengths	Opportunities for Improvement
<ul style="list-style-type: none">+ Facilities are hardened to withstand natural disasters.+ GWA has a centralized location for property documents.	<ul style="list-style-type: none">○ Need additional funding for capital program.○ Address unaccounted for water to improve system production.○ Need to increase protection of system infrastructure.○ Facilities not adequate to meet customer demands.○ Lack of preventive maintenance program.

Purchasing

Guam Waterworks Authority

Strengths	Opportunities for Improvement
<ul style="list-style-type: none">+ Automated purchasing system.+ New computer system on-hand with inventory capability.+ Standardized procedures are utilized in the purchasing process.	<ul style="list-style-type: none">○ Inadequate material and supply inventory to meet system needs.○ Need to better utilize computerized inventory system in order to improve inventory management.○ Eliminate short-term leases of major capital equipment by developing long-term leasing program, lease purchase, or outright purchase.○ Put performance requirements into contracts and hold contractors accountable for performance of contract prior to accepting completed jobs.○ Delegate approval for procurement for purchases, construction contract change order and progress payments, and consultant, selection from the Governor/GSA to GWA staff, at lowest appropriate level. Currently 6-7 signatures are required, plus GSA approval on some categories.○ Provide purchase cards to key employees, particularly maintenance supervisors required to keep critical equipment operational.○ Strive to standardize on pump manufacturer/models for ease in maintenance, and to keep spare parts costs down.

Information Management

Guam Waterworks Authority

Strengths	Opportunities for Improvement
<ul style="list-style-type: none">+ Have an automated accounting system (JD Edwards)+ GWA has dedicated data processing staff.	<ul style="list-style-type: none">○ Develop a strategic information management plan for GWA that addresses need for information in the organization through the use of computer technology.○ As a part of the information management plan, define the business processes throughout the organization.○ Consider implementation of a computerized maintenance management program, a dispatch system, and a laboratory information management system.○ Implement a SCADA system for both water and wastewater facilities. Ensure that the system has adequate field technical staff needed to properly maintain the system. This will help to avoid the system experiencing the same fate of the old Motorola SCADA system.○ Conduct a lease versus purchase analysis for computer hardware systems.○ Need to fully implement and utilize the JD Edwards computer program, and provide additional training to utility staff while paying for it.

Engineering

Guam Waterworks Authority

Strengths	Opportunities for Improvement
<ul style="list-style-type: none">+ There are water and wastewater facilities plans.+ There is a dedicated engineering project management staff (including consulting, design and construction management).+ Engineering has a well-defined process to select firms for professional services design contracts, and for bidding construction projects.+ The utility perceived Engineering as a strength in the organization.+ The GWA engineering group has an effective practice in place for selecting separate A/E firms to provide design and construction management on projects.	<ul style="list-style-type: none">○ Seek grant funding for capital improvement projects.○ Evaluate the performance of consulting and construction management firms, and implement a process to procure professional services from the best qualified firm.○ Fill critical leadership positions in Engineering, particularly the Chief Engineer position.○ Scan as-built plans for long-term storage, and provide a fireproof vault/file location for all of the utility's original full-size records.○ Assess the capacity of Engineering to deliver the capital programs of the utility (knowledge, skills, abilities, workload, etc.) in a timely manner.○ Expedite the implementation of the water and wastewater projects that already have federal funding (i.e., USEPA and FEMA).○ Update the design and construction standards for water and wastewater projects.○ Conduct an immediate hydraulic evaluation of the water systems around the island currently experiencing level-of-service problems.○ Update or develop detailed set of water and wastewater system maps for all systems that can be provided to all operations groups and to Planning. Consider using the current geographic information system (GIS) or a computerized mapping system.○ Develop a closer working relationship between both CIP Water and CIP Wastewater, and the operations groups by involving them early in the design process. This will help to develop designs that are easier to operate and maintain.○ Require engineering design consultants to also submit their construction plans in digital format as well as tracings.○ Maintain and retain full control of As-Built plans and tracings. The objective is to maintain a complete set of all GWA infrastructure.○ Assess the water and wastewater infrastructure and replace/rehabilitate before facilities reach the end of their useful life.○ Provide startup support to O & M in optimizing performance after construction is complete.

Customer Service

Guam Waterworks Authority

Strengths	Opportunities for Improvement
<ul style="list-style-type: none">+ Assigned personnel understand the need to provide excellent service to customers.+ Staff are trained to handle a variety of duties and responsibilities.+ Temporary staff has been assigned, which increases the resources available for customer service.	<ul style="list-style-type: none">○ Need to improve commitment to customer service at all levels of the organization.○ Ongoing water and wastewater system problems negatively impact customer confidence in the utility's ability to meet demands.○ Add after-hours capabilities to allow customers to leave messages.○ Improve the technology of the telephone system, and train all staff in effective and efficient use of the technology.○ Review manpower requirements and organization.○ Establish goal for (and track) average customer call "pickup" time.

Customer Strategy and Satisfaction

Guam Waterworks Authority

Strengths	Opportunities for Improvement
<p>+ The utility values information and opinions offered by its customers.</p>	<ul style="list-style-type: none">○ Provide methods for customer feedback such as outreach materials or customer satisfaction cards in lobby.○ Implement customer service team to address customer needs and complaints.○ Survey customer satisfaction to get baseline for customer input.○ Implement innovative methods for customers to pay bills, such as accepting credit cards or automatic bill payment.

Customer Accounts Management

Guam Waterworks Authority

Strengths	Opportunities for Improvement
<ul style="list-style-type: none">+ Automated customer information and billing system is in place.+ Information on each customer account is readily available.	<ul style="list-style-type: none">O Need to reduce the high level of unaccounted for water.O Need to replace non-functioning meters currently in system and develop and implement an effective large meter testing, repair, and replacement program.O Need to review meter reading and billing practices in order to improve accuracy and reduce customer complaints. Need an AMR system to effectively read all customer meters.O Reduce the amount of time from meter reading to billing date.O Improve the collection process, reducing the number, age, and dollar amount of uncollectible accounts.O Redirect staff to disconnect non-paying customers.O Reduce estimated billings and the number of exceptions in the billing process.O Need to increase communications within GWA, as well as between GWA & GPA.

Government, Business and Community Relations

Guam Waterworks Authority

Strengths	Opportunities for Improvement
<ul style="list-style-type: none">+ GWA has a designated Public Information Officer.+ GWA communicates with the media routinely and openly.	<ul style="list-style-type: none">○ Expand the public affairs efforts by GWA; to increase community support for rate increases to support needed infrastructure improvements.○ Develop a water conservation education program that address residential, commercial, and government customers.○ CCU should develop an active legislative relations program with the general manager.○ Expand efforts to improve both internal and external communications.○ Improve the telephone systems to provide better service to GWA staff and the public.○ Developing a centralized office and base yard will improve communications within the organization.

Watershed Management

Guam Waterworks Authority

Strengths	Opportunities for Improvement
<ul style="list-style-type: none">+ GWA has established partnerships for managing watersheds+ GWA supports the use of detention basins for stormwater and wet weather flow issues.+ Support s available for more sampling during high flows	<ul style="list-style-type: none">○ Eliminate wastewater pumping station leaks and overflows into drinking water aquifers.○ Prepare and implement a wet weather master plan to address southern district I&I overflow problems.

Wastewater Collection Operations and Maintenance

Guam Waterworks Authority

Strengths	Opportunities for Improvement
<ul style="list-style-type: none">+ The vast majority of the pump stations do not have odor issues impacting the communities/villages.+ The majority of pump stations have standby emergency generators.+ Wastewater collection system sections have many highly competent O & M staff.+ Top wastewater management is perceived across the board to have made several significant improvements to performance and morale in the area of collection system O & M – including providing recognition and acknowledgement for excellent work, and in supporting staff in getting essential work completed.	<ul style="list-style-type: none">○ Implement capital improvements and preventative maintenance to ensure that each pumping station has the capability to pump peak flow, with one standby pump also operational for redundancy. This will help eliminate wastewater overflows, one of the most pressing organizational issues.○ Encourage the appropriate agencies to enforce requirements that all septic tanks be eliminated, and connections to available sewers be made.○ Prepare and implement a pump station master plan, to ensure reliability/redundancy to eliminate wastewater overflows due to pump failure, some of which are currently polluting drinking water aquifers.○ Provide direct engineering support for wastewater collections, perhaps by retraining and relocating a pump station engineer to wastewater.○ Ensure that operators become certified. Providing training to operators on how to troubleshoot maintenance problems at remote locations.○ Provide standby generators for all collection system pump stations, or connections for portable generator that can arrive in time to avoid overflows in the event of power outages.○ Consider creating a centrally located storage building /maintenance yard for trunk interceptor group for pump station/sewer repair parts and supplies.○ Implement a sewer/interceptor video maintenance program to identify the condition of the entire system, replacing piping before it reaches the end of its useful service life.○ O & M should strive to provide input to engineering during the design of capital improvements.○ Ensure that collection/trunk system O & M staff are provided with the tools necessary to perform their job functions – vehicles, hand and power tools, supplies, etc.

Wastewater Treatment Operations and Maintenance

Guam Waterworks Authority

Strengths	Opportunities for Improvement
<ul style="list-style-type: none">+ Talented and committed employees with desire to provide excellent service, who enjoy helping to keep the environment clean, and serving the customers.+ Have established a prioritized plan of capital improvements necessary to comply with regulations and EPA orders.+ Agana treatment tanks are covered, providing effective odor control.+ Wastewater management has done an <i>outstanding</i> job of improving communication and morale, working conditions, performance, and housekeeping within wastewater. A bi-weekly newsletter to GWA employees typically includes wastewater items, weekly staff meetings have been initiated, and accountability improved.+ There are pockets of significant strength throughout the wastewater group, for example; in the Southern District, in maintenance at Agana plant, etc. Operation, maintenance and housekeeping at the Umatac and Beza Gardens have been greatly improved during the past year, despite the lack of available funds, due to the resourcefulness, dedication and teamwork.+ Wastewater management frequently goes out to the facilities, and acknowledges staff for their positive efforts.	<ul style="list-style-type: none">○ Noncompliance with environmental regulations is a very serious public health issue requiring significant financial resources, leadership and political will to correct. Much of existing plant equipment and system need to be replaced/rehabilitated to ensure plant reliability and sufficient level of equipment redundancy to meet NPDES requirements at all times.○ Establish formal operator certification program, particularly for new employees..○ Enhance performance appraisal system and provide reward system tied to environmental compliance to promote plant performance accountability.○ Assign dedicated electrical maintenance support staff to wastewater.○ Seek to utilize recycled water on island for landscape irrigation (particularly golf courses) in areas not affecting the ground water aquifers, to help alleviate water shortages.○ A wet weather study is needed in the Umatac service area, as there are significant overflow problems during storm periods.○ The agency should provide necessary tools for employees, who currently often must provide their own, or use personal items such as lawn mowers for grounds keeping.○ Strive to increase the percent of preventative vs. reactive maintenance.○ Implement a maintenance work management system with the goal of shifting to preventative maintenance from reactive maintenance, including work-order and inventory modules.○ Implement a coating/painting program to protect infrastructure from corrosion and shortened life cycle.○ Consider re-allocation of O & M staff between districts as needed to equitably cover workload.○ The road alongside the pond at Umatac should be paved, in order to allow for maintenance access to the nutrient removal system.

Wastewater Biosolids Management

Guam Waterworks Authority

Strengths	Opportunities for Improvement
<p>+ Currently possess a cost effective approach for biosolids disposal, at the landfill.</p>	<ul style="list-style-type: none">O Prepare a long-term biosolids management plan, strongly considering biosolids reuse options such as land application, with focus on low costs, reuse benefits, and product quality.O Amount of biosolids off-hauled from the treatment plants should be routinely tracked and documented.O Dewatering equipment (centrifuges) at large plants needs to be replaced, to help reduce overall biosolids management costs.O Look at utilizing methane from anaerobic digestion for energy production, given the high energy costs in the operating budget.O Consider land purchase for sludge drying beds at the large plants to reduce sludge hauling costs.O Pond “redundancy” /expansion needed at Umatac to allow for solids removal without disruption of secondary treatment process.

Wastewater Permitting / Air and Water Quality

Guam Waterworks Authority

Strengths	Opportunities for Improvement
<ul style="list-style-type: none">+ Close communication and working relationships have been developed with Guam EPA and EPA Region 9. This includes a weekly teleconference to discuss progress on permit issues.+ Wastewater and Laboratory Managers have expertise with NPDES permitting issues.	<ul style="list-style-type: none">O Establish environmental compliance as the highest priority for the wastewater group. The majority of treatment facilities are in noncompliance with NPDES permit requirements apparently since the 1980's.O Following violations, debrief through a "lessons learned program" to establish actions necessary to avoid similar future violations.O Evaluate laboratory staffing needs, with strong consideration to using GWA vacant positions to hire a chemist and biologist/microbiologist.O Prepare an Odor Control Master Plan, identifying and prioritizing all key major sources and establishing operational and capital improvements to reduce odor impacts to an acceptable level.O There are opportunities to improve communication between plant operators and laboratory staff regarding coordination on sampling issues.O Development of a pretreatment program should be planned, in order to reduce commercial loading to the wastewater plants.O Consider partnering with Guam EPA laboratory for assistance in sampling and testing.

Water Resources

Guam Waterworks Authority

Strengths	Opportunities for Improvement
<ul style="list-style-type: none">+ GWA understands current source water shortfall situation in relation to future economic plans.+ GWA participates in regional planning matters.+ GWA employs conjunctive use of surface and ground water to take advantage of all available resources.	<ul style="list-style-type: none">○ The water authority must make the community aware of the highly interactive sole source aquifer that is being polluted by overflowing wastewater pumping stations and/or septic systems. Currently over 60 metric tons per year of nitrates flow into the Tumon Bay area. Total nitrate loading exceeds 200 metric ton per year from northern villages. Should this matter not be addressed in a timely manner it has the potential of impacting the entire economy due to the necessity to treat all groundwater.○ Consider a water and sewer service moratorium in all areas over critical groundwater aquifer recharge areas, until all homes and businesses are connected to the wastewater system.○ Expansion service is allowed only when it is provided without detriment to existing consumers.○ Other activity that will inevitably harm the aquifer, such as metal scrap yards which involve car stripping need to be moved to areas that have less potential for polluting the aquifer.○ Additional source needs to be added before demand increases.

Water Treatment Operations and Maintenance

Guam Waterworks Authority

Strengths	Opportunities for Improvement
<ul style="list-style-type: none">+ Treatment facility crews are receiving training to improve operating procedures+ Ugum Water Treatment plant is staffed 24/7.	<ul style="list-style-type: none">○ Need to consistently meet all Surface Water Treatment Rule requirements.○ Immediate effort to implement a preventative maintenance program is needed to prevent corrosion problems.○ Automation equipment needs to be brought back online to reduce operating costs.○ Production levels need to be available to other groups within GWA.

Water Distribution Operations and Maintenance

Guam Waterworks Authority

Strengths	Opportunities for Improvement
<ul style="list-style-type: none">+ Field crews are dedicated to bringing about immediate improvement of service quality and quantity.+ The utility understands a need for an effective SCADA system.+ They have a 16/7 dispatch center that handles all customer calls for leaks and other problems.	<ul style="list-style-type: none">O A transmission line system separate from the distribution system needs to be constructed to eliminate low pressure within the service areas.O The GPA power transmission system is being squandered with distribution taps that are causing overloaded circuit phases resulting in pump motor damage from trying to put the pumps online with reduced phase protection.O Immediate improvement in the ability to meet peak day demand with a reasonable number of pumps out of service is required. 25 % is not an unreasonable number of wells to be out of service.O Before pumps are ordered and reinstalled, operating conditions that caused failure must be reviewed to prevent new pumps from being overloaded and placed in a situation to be burned out again.O Leak reduction can produce immediate benefits, beginning with current backlog of existing, known leaks.O Adequate distribution system maps need to be prepared expeditiously and made available to field crews.O Need closer inspection after road paving to raise valve box covers to improve repair response time.O Certified operators need to be utilized in an efficient manner.O Records must be kept of line breaks for prioritization of line repair, rehabilitation and replacement.O Reprioritization of crews is needed to more effectively utilize in house talent.O SCADA system needs to be modernized.

Drinking Water Quality Management

Guam Waterworks Authority

Strengths	Opportunities for Improvement
<ul style="list-style-type: none">+ Utility personnel take disinfection seriously, and consequences of failure in this area are well understood.+ There are very knowledgeable community resources that are ready and willing to assist the utility with water quality concerns.	<ul style="list-style-type: none">○ Eliminate violations of the Safe Drinking Water Act, and prevent future boil-water orders.○ A separate transmission line is needed to direct water to storage for adequate disinfection contact time before distribution to the community.○ Water quality management is a community-wide responsibility that must be taken very seriously as the entire economy is dependant upon keeping water quality up to par in the least expensive manner.○ Aquifer nitrate loading from untreated wastewater disposal over the high transmissivity sole source aquifer will in time render all wells unusable without extensive treatment.

**Guam Waterworks Authority
Peer Review Team**

Ernest Lau
Manager & Chief Engineer
Dept. of Water, County of Kauai
4398 Pua Loke St. (96766)
P.O. Box 1706
Lihue, HI 96766-5106
Phone: 808-245-5408
Fax: 808-246-8628
Email: elau@kauaiwater.org

Bobby Praytor
Manager, Planning Division
Dallas Water Utilities
1500 Marilla, Room 4AS
Dallas, TX 75201
Phone: 214-670-5209
Fax: 214-670-1241
Email: bpraytor@dwu.ci.dallas.tx.us

David Craddick
Director
Maui County Board of Water Supply
200 S. High St.
P.O. Box 1109
Wailuku, HI 96793
Phone: 808-270-7816
Fax: 808-270-7951
Email: david.craddick@co.maui.hi.us

Edward H. McCormick
Manager of Support Services
East Bay Municipal Utility District
1010 Franklin Street (94607)
P.O. Box 24055
Oakland, CA 94623-1055
Phone: 510-287-1657
Fax: 510-287-1530
Email: emccormi@ebmud.com

Jon DeBoer
Management and Facilitation Consulting
2109 W. Fox Fire Street
Highlands Ranch, CO 80129
Phone: 303-346-1365
Email: jolodebo@att.net