

ATTACHMENT A-2

Testimonies

THERESA G. ROJAS, ESQ.
Legal Counsel
Guam Waterworks Authority
Gloria B. Nelson Public Service Building
688 Route 15, Suite 304
Mangilao, Guam 96913
Telephone No: (671) 300-6848
Email: tgrojas@guamwaterworks.org

BEFORE THE GUAM PUBLIC UTILITIES COMMISSION

IN THE MATTER OF:

) GWA DOCKET NO. 24-05

)
)
) **GUAM WATERWORKS**
) **AUTHORITY’S FY 2025 – 2029 RATE**
) **APPLICATION AND**
) **COMPREHENSIVE FINANCIAL**
) **PLAN**

) **TESTIMONY OF ERIC P. ROTHSTEIN**
) **IN SUPPORT OF GWA’S FY 2025 – 2029**
) **FIVE-YEAR FINANCIAL PLAN AND**
) **RATE INCREASE REQUEST**

TABLE OF CONTENTS

INTRODUCTION AND BACKGROUND 2
SCOPE AND PURPOSE OF TESTIMONY 6
FINANCIAL FORECAST FRAMEWORK 9
REVIEW OF RATE FILING SCHEDULES 13
PETITION LOGISTICS 24

1 INTRODUCTION AND BACKGROUND

2 **Q1. *Please state your name, occupation and business address.***

3 A1. My name is Eric Paul Rothstein. I am a Utility Management Consultant. My business
4 address is 301 Assembly Dr. #369, Montreat, NC 28757. I hereby affirm that the
5 testimony provided hereinafter is true and accurate.

6
7 **Q2. *Please describe your educational and professional history.***

8 A2. I have a Bachelor’s Degree from Ripon College, Ripon WI where I majored in Economics
9 and History. I have a Master’s Degree in Economics from the University of California,
10 Davis and completed all coursework and qualifying examinations for a Ph.D. in
11 economics from that institution.

12 I am a Certified Public Accountant licensed by the State of Oregon. I am also a Municipal
13 Advisor registered with the Municipal Securities Rulemaking Board (MSRB) and
14 Securities and Exchange Commission (SEC).

15
16 I worked from 1984 to 1994 for the City of Austin, Texas – for 5 years in its Resource
17 Management Department where I managed the Planning and Evaluation Division
18 responsible for technical evaluations of energy and water conservation programs. In 1989,
19 I became a Financial Manager for the City of Austin’s Water and Wastewater Utility
20 where I had responsibility for managing cost-of service ratemaking, capital financing and
21 other financial analysis and reporting functions.

22 In 1994, I took a position with CH2M HILL – an international project delivery company.
23 For CH2M HILL, I conducted water and wastewater rate studies, prepared engineer’s
24 feasibility studies for utility revenue bond issues and participated in a variety of other
25 utility management consulting engagements. After founding and leading the Utility
26 Management Solutions organization for CH2M HILL’s Water Business Group, in March
27 2007, I left CH2M HILL to form my own utility management consulting firm marketed
28 under a “doing business as” arrangement with Debbie Galardi and Cody Stanger as the

1 “Galardi Rothstein Group.” I have worked and continue to work on a variety of consulting
2 projects independently and with other members of the Galardi Rothstein Group. See (EPR
3 Exhibit 1).

4
5 **Q3. *What professional society and industry research projects enhance your qualifications***
6 ***to offer testimony in this case?***

7 A3. I have been active in the water and wastewater industry’s various professional societies
8 including the American Water Works Association (AWWA), Water Environment
9 Federation (WEF), International Water Association (IWA) and National Association of
10 Clean Water Agencies (NACWA), and I have been involved in a number of Water
11 Research Foundation (WRF – previously American Water Works Association Research
12 Foundation or AwwaRF) projects.

13 I have served on AWWA’s Rates and Charges Sub-Committee, which is responsible for
14 promulgating AWWA’s *Principles of Water Rates, Fees and Charges*, M1 manual of
15 practice, for over 25 years. During my tenure with the Rates and Charges Committee, I
16 chaired task forces that developed the *Water Rates Structures and Pricing* manual of
17 practice, which was a precursor manual to sections of the M1 Manual dealing with rate
18 design issues. I chaired a task force that developed revisions to the M1 Manual chapters
19 dealing with outside-City and wholesale rates, which was published in 2012 in the 6th
20 edition of the AWWA M1 Manual. Also for that publication, I co-authored revisions to
21 Appendix A: “Development of Peaking Factors by Customer Class.” For the 7th Edition
22 of M1 Manual of Practice, published in 2017, I chaired the work group that authored a
23 new chapter on Emerging Trends.

24
25 For WEF’s Utility Management Committee I served as Task Force Chair for development
26 of WEF’s *Financing and Charges for Wastewater Systems* manual of practice (No. 27)
27 (2005), which establishes standard practices for wastewater service rate making. For the
28 update of that manual of practice published in 2018, I contributed to the chapter on wet

1 weather cost allocation and co-wrote a new chapter on Emerging Trends in wastewater
2 rate making.

3 In 2011, for the Halifax Regional Water Commission (HRWC), I developed (in
4 collaboration with G. A Isenor Limited and W. H. Gates Utility Consultants Limited) a
5 Cost-of-Service and Rate Design Methodology Review and Recommendations report that
6 proposed standard practices for the development of cost-of-service based water,
7 wastewater and stormwater rates. This report was required by order of the Nova Scotia
8 Utility and Review Board (NSUARB-W-HRWC-R-11) for its future consideration of
9 HRWC rate applications. HRWC is the first combined and regulated water, wastewater
10 and stormwater utility in Canada.

11 For the Water Research Foundation, I have been on research project teams that have
12 addressed evaluation of public-private partnership (PPP) options, asset management,
13 capital project prioritization, and water conservation program evaluation. For NACWA,
14 I have prepared white papers on Financial Capability Assessment methods used to
15 structure wastewater Consent Decrees.
16

17 In 2017, I was appointed to serve on the U.S. Environmental Protection Agency's
18 Environmental Finance Advisory Board (EFAB) and co-chaired a work group that
19 developed a report on utility regionalization and consolidations.

20 In 2018, I was engaged by AWWA, NACWA and WEF to serve as a Principal Investigator
21 for a project to provide recommendations to USEPA on prospective changes to their
22 guidance on conduct of Financial Capability Assessments used in Consent Decree
23 negotiations. This project led to the release of the report: *Developing a New Framework*
24 *for Household Affordability and Financial Capability Assessment in the Water Sector*
25 *dated April 17, 2019.*

26 In 2021, I was engaged by NACWA to serve as Project Manager for a project titled: *Low-*
27 *Income Water Customer Assistance Program (LIWCAP) Assessment Study* that is an effort
28

1 to provide recommendations to USEPA on implementation of the federal low-income
2 water customer assistance program included in the Infrastructure Investment and Jobs Act
3 (Public Law No: 117-58 signed into law on November 15, 2021).

4
5 **Q4. *What consulting project experience, particularly recent projects, supports your***
6 ***qualifications to offer testimony in this case?***

7 A4. My detailed resume is offered as Attachment EPR-1. This documents more than 35 years
8 of work in water, wastewater and stormwater utility finance during which I have managed
9 a diverse range of projects. Most of these projects have involved the subjects of my
10 testimony and matters at issue in this case. Several others provide unique perspective on
11 the imperatives of the industry's financial challenges. Among these projects was work
12 with several financially distressed communities, including Jefferson County, Alabama and
13 Detroit, Michigan, both of which filed for bankruptcy protection; and Flint, Michigan,
14 which suffered a system-wide water quality crisis leading to lead exposure. My
15 experience, industry engagement, and credentials qualify me to provide expert witness
16 testimony in this matter.

17
18 **Q5. *Have you worked for the Guam Waterworks Authority in other contexts?***

19 A5. Yes. I worked with GWA on its 2018 Water Resources Master Plan, specifically on the
20 development of a strategic financial plan to enable financing of capital projects. I worked
21 on the development of feasibility studies incorporated in offering documents for GWA's
22 Series 2016 and Series 2020 A and B bond offerings, and developed financial projections
23 for its forthcoming Series 2024 bond offering. I worked with GWA on negotiation of its
24 recently entered Partial Consent Decree with USEPA, specifically as it relates to
25 development of project schedules based, in part, on assessments of GWA's financial
26 capabilities.

27 I served as Program Manager for the conduct of the 7 Analytical Studies and development
28 of the enhanced Rate Application Model (RAM) required under the stipulated

1 Comprehensive Review and Update process in Docket 19-08. The studies and RAM were
2 submitted timely by March 31, 2021, and May 1, 2021, respectively. I also worked in
3 collaboration with GWA and the Analytical Studies teams to develop the revised rate
4 application for FY 2022 – FY 2024 submitted timely by May 1, 2021.

5 I have also provided oversight on the Badger Meter Company litigation matter.
6

7 **Q6. *Have you ever testified before the Public Utility Commission of Guam?***

8 A6. Yes. In Docket 19-08, I submitted written and oral testimony in support of GWA’s initial
9 FY 2020 – 2024 rate application filing and again in support of GWA’s modified rate plan
10 submitted in December 2021 in conjunction with the stipulated Comprehensive Review
11 and Update.
12

13 **Q7. *Did anyone assist you with this testimony?***

14 A7. Yes. Cody Stanger, MA, Principal, Galardi Rothstein Group
15

16 **SCOPE AND PURPOSE OF TESTIMONY**

17 **Q8. *What is the purpose of your testimony in this proceeding?***

18 A8. I am testifying in support of the Guam Waterworks Authority’s petition for approval of
19 its proposed *Financial Plan and Capital Improvement Program (FY 2025 – FY 2029)*
20 which includes increases in base charges and non-lifeline volumetric rates for both water
21 and wastewater service in each year of the five-year forecast period, as well as an increase
22 in lifeline rates and charges in FY 2026. GWA’s petition is made recognizing that
23 approved rates and charges will be subject to the PUC’s annual “true-up” process before
24 confirmation and implementation of the applicable rate changes.
25
26
27
28

1 **Q9. *Is GWA’s rate application complete, satisfying all filing requirements under PUC rules***
2 ***for practice and procedure?***¹

3 A9. Yes. In fact, GWA’s rate filing package not only meets all of the PUC’s requirements but
4 also includes additional schedules not included in the PUC’s minimum filing
5 requirements,² information that proved important during the Comprehensive Review and
6 Update process. GWA also provides the PUC with an electronic version of the Rate
7 Application Model, which is the framework used to create the 5-year financial plan and
8 corresponding filing schedules. Submittal of the draft package by March 8, 2024 and final
9 submittal by June 3, 2024 provides five to seven months for the PUC and Intervenors to
10 conduct discovery, hearings, and issue its Rate Order, exceeding the prescribed 120 day
11 rate application adjudication period.³

12
13 **Q10. *When would the proposed rates become effective under GWA’s proposed rate plan?***

14 A10. The rate changes would be applied in each of year of the FY 2025 through FY 2029 rate
15 plan period subject to the PUC’s annual true-up process and confirmation. The applicable
16 rate changes would be put into effect annually, beginning on October 1, 2025 and every
17 year thereafter through FY 2029.

18
19 **Q11. *Would adjustments to rate increases be needed if adjudication of GWA’s request is not***
20 ***completed in time to enable them to take effect by October 1, 2025?***

21 A11. Yes. It is important to recognize that the calculations and schedules supporting GWA’s
22 rate increase request are predicated on implementation of the rate changes on October 1,
23 2025. Accordingly, if circumstances result in delays in issuance of the PUC’s Rate Order,
24 the rate increases approved and implemented in FY 2025 and FY 2026 will need to be
25 adjusted to take account of the fact that the approved rates will be applicable for only a

26
27 ¹ See PUC Docket No. 00-04 Rules For Practice And Procedure Before Commission, specifically Rules 20 and 21.

² Schedule D: Navy Water Purchases; Schedule E: Sources and Uses of Funds, Capital Improvement Program; and
Schedule L: Monthly Bill Impacts by Customer Class.

28 ³ See PUC Docket No. 00-04 Rules For Practice And Procedure Before Commission, specifically Part 7. Hearings,
Rule 24 General Provisions, part (e).

1 portion of FY 2025 (sometimes referred to as “rate compression”). This is not a matter of
2 granting GWA additional or unanticipated rate relief, it is simple math.⁴ If rate relief
3 calculated to be applicable for a full fiscal year is applicable for less than the full fiscal
4 year, GWA will fail to meet its revenue requirements and may violate covenanted debt
5 service coverage requirements. This prospect is particularly disconcerting for the FY 2025
6 – FY 2029 rate application as GWA now (with the PUC’s FY 2024 True-Up Rate Order⁵)
7 has less than \$1M in its Rate Stabilization Fund that previously served to insulate the
8 Authority from financial risks.

9
10 **Q12. *Is GWA requesting approval of rates for all years of the financial plan and capital***
11 ***improvement program (FY 2025 – FY 2029)?***

12 A12. Yes. GWA recognizes that the PUC will conduct annual reviews of GWA’s rates to
13 determine the sufficiency and reasonableness of the rates. However, GWA is seeking
14 PUC’s approval of the full five-year rate plan to support GWA’s effort to sustain and
15 potentially improve its credit ratings through sound financial performance and effective
16 financial management. GWA’s FY 2025 – 2029 financial plan anticipates debt financing
17 (through revenue bond issues and, if legislation is approved, Tax Exempt Commercial
18 Paper) of \$780 million (or 78.2 percent) of its capital program. Interest expenses
19 associated with these debt issues will be determined in part by credit rating agency
20 assessments of GWA’s credit quality which, in turn, is based in part on perceptions of
21 financial performance risks. By securing approval of GWA’s proposed Financial Plan
22 and Capital Improvement Program (FY 2025 – FY 2029), subject to annual review, GWA
23 may enhance its opportunities to issue its municipal bonds and TECP on the most
24 favorable terms practicable.

25
26
27
28 ⁴ An example of this simple math was provided in a letter from GWA to ALJ Alcantara dated August 26, 2021 with
a subject heading: Revised Rates (GWA Docket 19-08)

⁵ PUC Docket: 19-08, Order Re: Annual True-Up for FY 2024 Rates

1 FINANCIAL FORECAST FRAMEWORK

2 **Q13. *What are the major policy considerations that drive GWA’s financial plan and rate***
3 ***increase request?***

4 A13. It is critically important for GWA to continue to restore its financial health and integrity,
5 now several years since the most acute impacts of the COVID-19 pandemic were
6 realized.⁶ Unaudited FY 2023 rate revenues remain below those earned in FY 2018 and
7 FY 2019. Debt service coverage (that in those same years was at 1.83x and 1.50x
8 respectively), has been temporarily allowed to fall below even the prescribed minimum
9 of 1.40x delineated in CCU and PUC policy.⁷ The FY 2024 rate decision did not allow
10 GWA to restore nearly depleted Rate Stabilization Fund reserves⁸, previously held in
11 amounts of up to \$11.4 million (exclusive of ARPA funds) between FY 2020 and FY
12 2024.

13
14 Accordingly, GWA’s financial plan and rate increase request contemplates gradual
15 increases of RSF balances beginning in FY 2026 and debt service coverage to 1.50x. The
16 planned annual \$2.5M transfers to the RSF are expected to yield an additional \$10.0
17 million by the end of FY 2029 but will not even fully restore the balance to that held in
18 prior years. The planned increase in debt service coverage will comply with CCU and
19 PUC policy, support future debt issuances, and enable IFCIP funding of a larger portion
20 of GWA’s capital program - reducing future reliance on debt financing and minimizing
21 interest costs. The forecast also assumes retention of liquidity targets (e.g., Days Cash on
22 Hand, Debt Service Reserve Fund balances) that have well served GWA through periods
23 of expense volatility (and closely scrutinized by credit rating agencies).

24
25 ⁶ As noted by PUC Commissioners in their discussions about the FY 2024 rate increase and their intentions for the
26 FY 2025 – FY 2029 rate application. September 26, 2023 GPUC Meeting, Agenda Item 3: GWA Docket 19-08:
Annual True-Up Submission, Projection, and Request for Fiscal Year 2024 Rates; Georgetown Consulting Group
Report (Response to GWA Rate Submission); ALJ Report; and Proposed Order.

27 ⁷ As noted in GWA CFO Taling Taitano, Response to Q5: “*As part of the stipulation for the FY2020-2024 Financial*
Plan, Ordering Provision 19 of Docket 19-08 FY20 Rate Decision signed on February 27, 2020, set DSR at 1.4x -
1.5x. Similarly, CCU Resolution 17-FY2020⁷ adopted a 1.4x – 1.5x DSC over the FY2020 – FY2024 time frame.””

28 ⁸ As of the beginning of FY 2024, the balance of GWA’s Rate Stabilization Fund was only \$950,000 from proceeds
derived from settlement of litigation with Badger Meter Co.

1 GWA's precarious financial position⁹, only partially remedied by the FY approved 2024
2 rate increase decision, also imposes a requirement to employ conservative forecast
3 assumptions. The most significant of these assumptions relates to prospective debt
4 financing of capital program requirements. Insofar as the Guam legislature has not, as of
5 the preparation of this initial filing, approved GWA's proposed use of Tax-Exempt
6 Commercial Paper (TECP) for construction period financing, GWA's rate application
7 assumes use of traditional revenue bond issues featuring a levelized payment structure.
8 The availability of TECP or similar short term financing instrument could defer and
9 reduce rate increase requirements over the FY 2025 – FY 2029 time period. GWA has
10 also developed its forecast to target achievement of a 1.50x debt service coverage ratio by
11 the close of the rate application period to provide some distance from the razor's edge of
12 compliance and meet minimums previously established by CCU and PUC policy.

13
14 **Q14. *Are there major policy issues that GWA's financial plan and rate increase request does***
15 ***not address?***

16 A14. Yes. GWA will defer consideration of several policy questions to separate petitions. In
17 particular, GWA will:

- 18 • Defer and separately petition for consideration of the implementation of a self-
19 insurance surcharge similar to that approved for the Guam Power Authority.¹⁰
- 20 • Address outcomes of its already filed Rate Design petition¹¹ in its FY 2026 True-
21 Up submittal.¹² Accordingly, proposed rate adjustments contemplate uniform

23 ⁹ As highlighted in PUC Docket No. 19-08: True-Up Projection for FY2024 Report dated June 1, 2023: "*GWA's*
24 *extraordinary rate relief request is the culmination of a sequence of developments that have placed GWA in a*
precarious financial position - without access to emergency reserves and net operating revenues below debt payment
requirements." (Executive Summary, p. 2)

25 ¹⁰ See GPA Docket 11-04: Guam Power Authority's Filing Order Regarding Self Insurance Policy dated May 16,
26 2011

26 ¹¹ See Amended Petition to Approve a New Rate Design Structure for the Guam Waterworks Authority as Proposed
27 in PUC GWA Docket 19-08 dated April 3, 2023

28 ¹² GWA has already filed a petition related to rate design reforms in which GWA proposes to reform several
problematic aspects of GWA's existing customer classifications and rate designs. These reforms could provide for
more consistent pricing of services, eliminate historical anomalies, facilitate future movement to cost-of-service
pricing, and complement implementation of a Customer Assistance Program (CAP), if approved. Insofar as the

1 application of the requested rate relief across existing customer classes and rate
2 and charge components except lifeline rates and charges.

- 3 • Defer and separately petition for approval of utility funding and implementation
4 of a Customer Assistance Program pending approval of authorizing legislation.

5
6 **Q15. *How have the issues addressed in the analytical studies conducted for the***
7 ***comprehensive review and update been addressed in GWA’s Five-Year Financial Plan***
8 ***and Rate Application?***

9 A15. GWA completed seven analytical studies in support of the Comprehensive Review and
10 Update and submitted these reports on March 31, 2021. The Analytical Study (AS) reports
11 provide documentation of these studies. In general, qualitative study findings and
12 recommendations have informed assumptions used to develop GWA’s 5-year financial
13 plan as follows:

- 14 • **Demand forecast AS** – Documented general downward trends in usage per
15 account, especially for residential customers, has informed updated water demand
16 projections. Further, ongoing analysis of monthly billing data and summarized
17 billing statistics have provided supporting documentation for revenue forecast
18 spreadsheets contained within the RAM.¹³
- 19 • **Water Loss Control AS** - District Metering Area implementation and subsequent
20 analysis of resultant data were a key component in the development of GWA’s
21 Five-Year Capital Improvement Program, particularly with regard to identification
22 and scheduling of water line replacement projects.
- 23 • **Cost-of-Service Analysis AS** – GWA acknowledges the inter-class, and inter-
24 utility variances between allocated costs and current rates determined in the
25

26 outcomes of this petition will not be available in time to inform GWA’s FY 2025 – FY 2029 rate application, rate
27 design changes will be addressed in the FY 2026 True-Up proceeding.

28 ¹³ Billing data and summary statistics were drawn directly from GWA billing data for the period FY 2019 to
FY 2023, a five-year period. This data, that serves as supporting workpapers for the summary billing statistics (water
demand, wastewater flows, number of accounts billed by class, etc), is contained in compiled summaries, by month,
for each fiscal year.

1 Analytical Study. GWA has already modified certain rate components, such as the
2 leachate service rate, to better align costs with customer class revenues. Further
3 movements toward cost-of-service alignment are a policy decision (i.e. does the
4 PUC wish to increase residential rates and decrease non-residential rates, as
5 suggested by the analytical study results?) and are deferred pending the PUC's
6 inclination to significantly adjust water and sewer rates and, in part, the
7 adjudication of GWA's separate petitions related to rate design and water
8 affordability.

- 9 • **Affordability / Rate Design AS** - GWA acknowledges that water affordability
10 and constraints on existing rate designs have and will continue to impose water
11 affordability burdens on economically disadvantaged customers. Implementation
12 of rate design reforms and a Customer Assistance Program are deferred pending
13 related legislative approvals and adjudication of separate petitions related to rate
14 design and water affordability.
- 15 • **Capital Financing Alternatives AS** – GWA is working toward securing
16 legislative approval for use of alternative debt instruments including, most
17 notably, Tax-Exempt Commercial Paper (TECP) and Water Infrastructure Finance
18 (WIFIA) loans. Based on analyses of long-term debt structures provided by
19 GWA's underwriter—as well as the fact that the majority of capital projects will
20 be used to upgrade or replace existing infrastructure—it has eschewed
21 consideration of expensive capitalized interest structures on planned long-term
22 debt issuances.
- 23 • **Capitalized Labor AS** – procedures developed through the Analytical Study were
24 referenced to develop Capitalized Labor expense estimates for GWA's FY 2025 –
25 FY 2029 rate application.
- 26 • **Septic Tank Elimination AS** – recommendations of the Analytical Study were
27 referenced in the development of GWA's Five-Year Capital Improvement
28 Program, particularly with regard to identification and scheduling of sewer

1 extension projects. The study has also shaped changes to GWA’s strategy for
2 pricing septage services.

3 The Analytical Studies have provided a strong analytical basis for GWA’s FY 2025 – FY
4 2029 Financial Plan and Rate Increase Request. These PUC-required studies and the
5 development of the Rate Application Model cost in excess of \$2.8 million which has been
6 recorded as a Regulatory Asset.

8 REVIEW OF RATE FILING SCHEDULES

9 **Q16. *How were revenues forecasted?***

10 A16. As summarized in Schedules A1 and A2 and shown in detail in Schedules B1 through B5,
11 H, J1W through J5W, and J1WW through J5WW¹⁴, proposed increases to GWA rates and
12 charges (as well as forecasted Legislative Surcharges, Revenue Adjustments and Other
13 Revenues) are forecast to increase annual Operating Revenues by an estimated \$101.9
14 million or 83.1 percent by FY 2029 relative to the forecasted FY 2024 total of \$122.6
15 million. Historical billing determinant trends from GWA’s billing data—such as customer
16 accounts by class and billed water usage and wastewater flows-- were referenced to
17 forecast revenues. Findings from the previous Water Demand Study also informed
18 development of the revenue forecast.

19
20 Forecasted revenues reflect the application of GWA’s proposed volumetric rates and base
21 charges to the forecasted numbers of meters by size and billable volumes across each of
22 GWA’s customer classes. These billing determinant forecasts reflect extensive analysis
23 of historical billing data, price elasticity factors, and price-independent adjustments for
24 general trends in water usage. Annual increases in rates and charges are proposed to be
25 applied uniformly across base charges and volumetric rates, and across water and
26
27

28

¹⁴ Alphabetical schedule references as identified in the Rate Application Model.

wastewater systems with the exception of the lifeline water rate that is proposed to be increased only in FY 2026 by the same percentage as that applicable to non-lifeline rates.

Water and wastewater accounts for many customer classes, especially those customers with larger meter sizes, have remained relatively constant or declined over the five-year historical period. For such classes and meter sizes, the revenue forecast assumes no growth in customer accounts. Table 1 below presents annual customer growth assumptions for those classes and meter sizes that are projected to increase, and Table 2 summarizes forecasted water and wastewater customer accounts across the rate application period.¹⁵

Table 1 - Water and Wastewater Account Growth Assumptions

	Annual Growth	
Water Customers		
Residential, 3/4 inch meter	0.50%	This meter size represented 99% of residential customers
Residential, 1 inch meter	-1.00%	This meter size represented less than 1% of customers
Commercial-1, 3/4 inch meter	0.34%	Meter size represents about 2/3 of customers in this class
Government, 3/4 inch meter	1.00%	Meter size represents about 1/3 of customers in this class
Wastewater Customers		
Residential, 3/4 inch meter	0.40%	This meter size represented 99% of residential customers
Residential, 1 inch meter	-0.50%	This meter size represented less than 1% of customers
Commercial-1, 3/4 inch meter	0.50%	Meter size represents about 2/3 of customers in this class

Projected residential water and wastewater accounts are assumed to increase between 0.40 and 0.50 percent per annum in the ¾ inch meter size category, which represents the majority of customers within this class. Based on historical trends, Commercial-1 and Government customers with smaller meter sizes are also expected to increase over the rate application period as indicated in the table. Based on the expected growth rates outlined above, system-wide water accounts are expected to increase approximately 0.46% per year and wastewater accounts 0.38% per year, as shown in Table 2.

¹⁵ Historical and forecasted customer accounts and related assumptions are found within the RAM on the *W Accounts* and *WW Accounts* worksheets.

1 **Table 2- Forecasted Water and Wastewater Accounts**

2

	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Water Customers						
Number of Accounts ¹	43,862	44,064	44,268	44,474	44,680	44,887
Annual Change		0.46%	0.46%	0.47%	0.46%	0.46%
Wastewater Customers						
Number of Accounts ²	27,247	27,351	27,455	27,559	27,665	27,771
Annual Change		0.38%	0.38%	0.38%	0.38%	0.38%

3
4
5
6
7
8 *1 - Average monthly accounts billed; excludes GWA non-revenue accounts*

9 *2 - Average monthly accounts billed; excludes GWA non-revenue accounts and multi-family units that receive residential flat rate*

10 Other revenue forecasting inputs include residential and non-residential price elasticity
11 factors (1.0% and 1.5%, respectively), the ratio of lifeline and non-lifeline water demand
12 in the residential class (53.6% lifeline to 46.4% non-lifeline), price-independent changes
13 to water demand per account, and billable wastewater flows as a ratio of water demand.
14 The latter two assumptions are summarized in Table 3.

15
16 **Table 3- Other Revenue Forecasting Assumptions**

17

	Historical ¹ Change in Demand/Acct	Forecasted Change in Demand/Acct	Current Demand per Acct (gals)	Billable ² Wastewater as % of Water
Customer Class				
Residential	-0.5%	-0.5%	6,765	NA
Commercial 1+	-0.9%	-0.3%	21,750	61.9%
Commercial 2-	-16.3%	-3.0%	235,000	79.7%
Commercial 3	-6.1%	0.0%	40,000	77.4%
Hotels ³	-14.1%	5.0%	850,000	65.7%
Government	5.6%	1.5%	122,000	74.8%
Agriculture	-13.0%	0.0%	13,000	NA
Irrigation	-20.5%	0.0%	10,000	NA

18
19
20
21
22
23
24
25
26 *1 - As reported from FY 2019 through FY 2023 in GWA's billing data*

27 *2 - Based on lowest wastewater ratio reported during the five most recent historical years*

28 *3 - Demand per account forecast assumes a modest level of economic recovery for this class*

The combination of assumptions described above results in the projected billed water use and wastewater flows summarized in Table 4.

Table 4 - Forecasted Billed Water Use and Wastewater Flows

	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Water System						
Billed Water Use ¹	5,175	5,095	5,073	5,081	5,088	5,096
Annual Change		-1.55%	-0.43%	0.15%	0.14%	0.17%
Wastewater System						
Billed Wastewater Flow ¹	1,882	1,866	1,884	1,908	1,932	1,957
Annual Change ²		-0.83%	0.93%	1.27%	1.26%	1.30%

1 - In millions of gallons; reflects the price elasticity impacts of proposed rate increases; excludes GWA non-revenue accounts

2 - Much of the growth in wastewater flows can be attributed to the Navy wastewater flows, which are expected to increase by 2% per year over the rate application period.

Total billed water use is expected to decrease 1.5% over the rate application period, or -0.31% per year on a compounded annual basis. This decline can be attributed to both the price elasticity response of GWA's customers to proposed rate adjustments as well as price-independent changes in usage patterns that are consistent with national trends of decreasing per account usage. Total billed wastewater flows are expected to increase 4.0% over the rate application period, or 0.78% per year on a compounded annual basis. Although water demand is decreasing, billed wastewater flows increase over the rate application period because billable flows attributed to the Navy are expected to increase at a rate of 2% per annum.

Q17. How were GWA's proposed increases to rates and charges determined?

A17. GWA's proposed increases to rates and charges were determined through an evaluation of a number of different factors. The increases are proposed to assure GWA's financial integrity and ensure recovery of revenue requirements, comply with targeted debt service coverage levels, partially restore RSF reserves as discussed in response to Question 13, and position GWA to issue both construction period financing and long-term debt on as favorable terms as practicable. The limitation of increases applicable to the lifeline water

1 rate is consistent with 12GCA, §12105(e)¹⁶ that allows adjustments to this rate when the
2 cost of service increases 20 percent which is projected to occur by FY 2026.

3 As shown in Schedule A-2, and more fully described below, annual Operation and
4 Maintenance (O&M) expenses, on a cash basis, are forecast to increase by approximately
5 \$23.6 million or 30.1% from FY 2024 to FY 2029.¹⁷

6 As shown in Schedule E, between FY 2025 and FY 2029 GWA plans to finance capital
7 expenditures of just under \$900 million through a combination of IFCIP financing, grant
8 receipts, and issuance of an additional \$780 million in municipal debt (e.g., revenue bonds
9 and/or, with legislative approval, TECP notes). Annual debt service requirements based
10 on use of revenue bonds are projected to increase roughly 118% from \$38.8 million in FY
11 2024 to \$84.6 million in FY 2029 as shown in Schedule F.

12 O&M expense increases are proposed to improve service levels and bolster GWA
13 operations capacities (as discussed by Miguel Bordallo and Christopher Budasi). GWA's
14 capital improvement program, summarized in Schedules E and G, has been developed to
15 meet Partial Consent Decree obligations, address emerging contaminants, and advance
16 Water Loss Control efforts (as discussed by Miguel Bordallo and Jeanet Owens). GWA's
17 RAM includes detailed listings of GWA's planned capital improvement projects in
18 spreadsheet tabs *Projects-Current*, *CIP-Current*, *Projects-Nominal*, and *CIP-Nominal*.

19 GWA also recognizes that it is critically important for it to be able to access the municipal
20 credit markets on favorable terms not only to support its near-term issuances but also to
21 facilitate financing of over \$800 million¹⁸ in capital spending in the 8 years beyond the
22
23

24 ¹⁶ “The Commission shall establish and modify from time to time, reasonable rates and charges for services, including
25 General Lifeline Rates, which as far as Guam Telephone Authority, the Guam Waterworks Authority, and Guam
26 Power Authority are concerned, when all rates for respective blocks of usage are considered together, shall be at least
27 adequate to cover the full cost of such service or subject to any contractual agreements of the utilities to the holders
28 of any bonds and shall increase rates or charges from time to time as may be necessary pursuant to any contractual
obligations, except that General Lifeline Rates may only be increased when the total actual overall cost of providing
service to all classes of customers, increases by no less than twenty percent (20%).”

¹⁷ Excludes bad debt expense, depreciation, and capitalized labor adjustments.

¹⁸ In current dollar terms based on preliminary estimates developed for GWA's ongoing Water Resources Master Plan Update.

1 rate forecast period identified in GWA's forthcoming Water Resources Master Plan
2 Update.

3 GWA's rate filing package, particularly the RAM, presents detailed information on
4 GWA's revenue and expense forecasts in the PUC prescribed schedule formats. Policy
5 considerations may be highlighted by a more general review of GWA's forecasted flows
6 of funds, specifically its proposed increases in O&M expenses and basic capital financing
7 strategy.
8

9 **Q18. *Please describe GWA's forecast of operations and maintenance expenses.***

10 A18. As shown in Schedule A-2 (and in detail in Schedules C1 – C3), overall, net of
11 depreciation, bad debt, and capitalized labor expense, GWA O&M expenses are forecast
12 to increase 30.1% from FY 2024 to FY 2029. These is composed of increases in each
13 major O&M expense category except Water Purchases (-2.4%) including Power
14 Purchases (9.3%), Salaries and Benefits (36.5%), Administrative and General Expenses
15 (65.6%), Contractual Expense (43.2%) and Retiree Benefits (34.6%). Explanations of
16 these forecasted expenses are provided in testimony and supporting work papers offered
17 by General Manager Miguel Bordallo, Chief Financial Officer Taling Taitano, Budget
18 Officer Yvonne Cruz, Assistant General Manager of Administration Christopher Budasi,
19 and General Counsel Theresa G. Rojas, Esq.
20

21 **Q19. *Please review GWA fund balances available to fund future capital project spending.***

22 A19. At the beginning of FY 2024, GWA had access to a total of \$259.5 million in construction
23 fund reserves. Prior bond reserves contributed \$145.4 million to this balance, while
24 another \$114.1 million was a result of prior grant funds, ARPA capital contributions, and
25 other construction fund reserves. However, the majority of these cash balances have been
26 encumbered to ongoing projects or will be encumbered to current year (FY 2024) projects.
27 By the end of FY 2024, GWA anticipates that only \$9.9 million of construction fund
28 reserves will be available to help fund projects during the rate application period.

1 **Q20. Please describe GWA's forecast of bond debt service expenses.**

2 A20. As noted above and shown in Schedule F, bond debt service expense is forecast to increase
3 \$45.9 million or 118 percent from \$38.8 million in FY 2024 to \$84.6 million in FY 2029.
4 Forecasted debt service reflects a number of key assumptions regarding the structure and
5 terms of GWA's revenue bond offerings. These bond issues are scheduled in FY 2025,
6 FY 2027 and FY 2029 in par amounts of \$250 million, \$310 million and \$220 million,
7 respectively. Each 30-year, fixed rate issue is structured with levelized debt service
8 payments, assumes coupon rates between 5% and 5.25%, issuance costs of 1.5% of par,
9 and a funded debt service reserve account.¹⁹ The debt service forecast assumes 50 percent
10 of the annual payment that corresponds to each revenue bond will be due in the year of
11 issuance, followed by annual payments thereafter. These assumptions reflect GWA's
12 relatively low credit ratings²⁰ and the assumption that bonds will be issued at a premium.

13 GWA's debt issues are planned to provide more than half the funding of the GWA capital
14 program outlined in the testimony of Miguel Bordallo and Jeanet Owens. Primary other
15 sources of funding include federal grants, System Development Charge revenues, and
16 current revenues (IFCIP). The timing and sizing of the planned issues are designed to
17 employ GWA's requested and planned debt authorizations²¹, advance balancing of
18 GWA's capital structure, and ensure achievement of debt service coverage targets.
19 Because the majority of the CIP will replace or upgrade existing assets that are already in
20 service, none of the proposed debt issues assume capitalized interest.

23 _____
24 ¹⁹ Annual debt service estimates were provided by GWA's Municipal Advisor.

25 ²⁰ Moody's Investors Service, Inc. ("Moody's") and S&P Global Ratings ("S&P") assigned ratings of "Baa2" and
26 "A-," respectively, for GWA's Water and Wastewater System Revenue Refunding Bonds Series 2024 AB. (POS, p.
27 71).

28 ²¹ Issuance of GWA water and wastewater system revenue bonds must be authorized by the Guam Legislature
pursuant to Chapter 14 of Title 12 of the Guam Code Annotated as amended, and issued pursuant to related
indentures. Issuance, sale and delivery of GWA bonds must also be approved by the Board of Directors of the Guam
Economic Development Authority ("GEDA"), by the Consolidated Commission on Utilities (CCU), and by the
Guam Public Utilities Commission (PUC). GWA has submitted legislation seeking additional bond issuance
authorization of \$780 million as well as authorization of short-term capital financing alternatives. See Testimony of
Taling M. Taitano.

1 **Q21. *Please discuss the debt service coverage targets presented in GWA’s Financial Plan and***
2 ***Capital Improvement Program (FY 2025 - FY 2029).***

3 A21. GWA’s bonds are issued subject to a rate covenant that net revenues will exceed aggregate
4 annual debt service requirements by 1.25 times.²² Typically, municipal credit issuers will
5 target debt service coverage in excess of covenanted requirements as reflected in CCU
6 and PUC policy and discussed in the testimony of Taling Taitano. Given that GWA will
7 need to continue to access the municipal credit market, an attribute of GWA’s capital
8 financing strategy is to build the foundation for credit rating upgrades in part by targeting
9 debt service coverage levels consistent with pre-pandemic CCU and PUC policy rather
10 than maintain lower coverage levels authorized on a temporary basis by the PUC’s Orders
11 in Docket 19-08. Targeting higher coverage levels will not only enable higher levels of
12 cash-financed projects and minimize interest expense, but also move GWA’s capital
13 structure toward industry norms. S&P Global Ratings, for example, reported a median
14 All-In Annual Debt Service Coverage ratio of 2.1x across all its rated U.S. water and
15 sewer credits.²³ GWA’s long-term strategic financial planning cash-flow model to be used
16 to develop the forthcoming Water Resources Master Plan Update and support prospective
17 USEPA negotiations employs a 1.50x DSC coverage target.

18
19 **Q22. *Does GWA’s proposed Capital Improvement program (FY 2025 – FY 2029) provide***
20 ***funding for compliance with regulatory requirements including those incorporated into***
21 ***the partial consent decree with USEPA and those anticipated to address emerging***
22 ***contaminants including PFAS and Dieldrin?***

23 A22. GWA’s operating, capital improvement and financial plans are all aligned to ensure
24 compliance with regulatory requirements. They reflect GWA’s commitments established
25
26

27 ²² GWA Water and Wastewater Revenue Refunding Bonds, Series 2024, Preliminary Official Statement, p.44.

28 ²³ S&P Global Ratings, U.S. Municipal Water And Sewer Utility Medians Held Strong In 2022 Amid Rising Costs, September 27, 2023. <https://www.spglobal.com/ratings/en/research/articles/230927-u-s-municipal-water-and-sewer-utility-medians-held-strong-in-2022-amid-rising-costs-12864603> - accessed on February 18, 2023

1 in the Partial Consent Decree negotiated with USEPA²⁴ and its continuing commitment
2 to ensure drinking water quality and address the implications of emerging contaminants.

3 Requirements of the Partial Consent Decree and regulations related to emerging
4 contaminants that impact the FY 2025 – FY 2029 capital program are discussed in the
5 testimony of Miguel Bordallo and Jeanet Owens. Capital improvement projects
6 anticipated beyond this period will be addressed in GWA’s forthcoming Water Resources
7 Management Plan Update. Scheduling of selected later wastewater projects, in particular
8 the upgrading to secondary treatment of GWA’s Hagatna wastewater treatment plant, will
9 be the subject of future negotiations with USEPA.

10
11 **Q23. *Does GWA’s Financial Plan and Capital Improvement Program (FY 2025 – FY 2029)***
12 ***address the pending Department of Defense (DOD) relocation and military build-up on***
13 ***Guam?***

14 **A23.** The prospective impacts of the pending military build-up are quite uncertain and have not
15 been incorporated into the Financial Plan and Capital Improvement Program (FY 2025 -
16 FY 2029) beyond those general planning impacts addressed in the WRMP as well as a
17 limited increase in projected Navy wastewater volumes. GWA anticipates (at least) two,
18 countervailing financial impacts. On one hand, it is reasonable to expect that the military
19 build-up will result in an increase in billed revenues due to increases in numbers of
20 accounts, water usage and billable wastewater flows. As noted, GWA’s revenue forecast
21 does not include such atypical spikes in billing determinants. At the same time, GWA has
22 not modified projections of future capital costs due to build-up induced cost escalation
23 (that is already impacting construction bids). Given the uncertainties related to the timing
24 and extent of the build-up, GWA anticipates working with the PUC in the context of the
25

26
27 ²⁴ On January 30, 2024, the Department of Justice lodged a proposed Partial Consent Decree with the United
28 States District Court for the District of Guam in the lawsuit entitled United States v. Guam Waterworks Authority
and the Government of Guam, Civil Action No. 04–00004. See:
<https://www.federalregister.gov/documents/2024/02/06/2024-02338/notice-of-lodging-of-proposed-partial-consent-decree-under-the-clean-water-act> - accessed on March 3, 2024

1 Commission's annual review of rates and charges to adjust its Financial Plan and Capital
2 Improvement Program (FY 2025 - FY 2029) to address military build-up induced changes
3 in financial conditions.

4
5 **Q24. Does the filed Financial Plan and Capital Improvement Program (FY 2025 - FY 2029)**
6 **address all of GWA's proposed programs and initiatives?**

7 A24. No. GWA would like to supplement its filed *Financial Plan and Capital Improvement*
8 *Program (FY 2025 - FY 2029)* with a proposed water affordability initiative.

9
10 GWA has been and remains acutely aware that water affordability is a challenge faced by
11 many of its low-income customers. The Authority's enhanced customer service and
12 community engagement efforts have reinforced the importance of this issue, and GWA
13 highlighted concerns in the context of its Water Resources Master Plan Update and
14 Consent Decree negotiation. While GWA's lifeline rate design is one of the most effective
15 rate design measures available to address water affordability, GWA has recognized that a
16 more targeted yet holistic approach is warranted.

17
18 GWA has discussed various approaches and reviewed information on the broad array of
19 strategies and programs implemented by other US utilities. Prospectively, GWA would
20 like to analyze relevant customer demographic and billing data, assess options for
21 partnering with community-based organizations and service providers, assess potential
22 complimentary rate adjustments, and develop a program design (and funding requirements
23 estimate) tailored to GWA customer needs and aligned to its administrative support
24 capacity.

25 **Q25. How will GWA's proposed rate increases impact GWA's water and wastewater bills as**
26 **a percent of the Median Household Income (MHI) metric**

27 A25. Based on census data from 2019 that indicates Guam's MHI was \$58,289 and an assumed
28 1.5% increase in MHI year over year, GWA's proposed rates would result in the

1 residential water and wastewater bill for 7 Kgals increasing as a percentage of MHI from
2 2.14 percent in FY 2024 to 3.10 percent by FY 2029. This level would be below the 4 –
3 4.5 percent for combined water and wastewater bills indicative of a High Burden in
4 USEPA’s methodology for Financial Capability Assessments.

5
6 **Q26. *Are you concerned that GWA’s proposed rate increases, on top of its recent increases,***
7 ***will exacerbate water affordability problems for low-income customers?***

8 A26. Actually, I am concerned that if GWA does **not** secure approval of its proposed rate
9 increases, it will ultimately exacerbate water affordability problems. GWA is in a position
10 characteristic of many US utilities, particularly those with substantial prospective capital
11 programs.²⁵ General service rate increases are required to enable financing of critically
12 needed infrastructure investments and resulting bill impacts will impose hardship on
13 economically disadvantaged customers. However, utility decision-makers’ response
14 should not be to continue the very practices and policies that have led to the national water
15 infrastructure funding gap – project and rate increase deferrals. Doing so will only
16 exacerbate the infrastructure funding gap (and ultimately water affordability problems).
17 Rather, GWA (like its peer water and wastewater utilities) should implement policies that
18 demonstrate a long-term commitment to the economic sustainability and well-being of the
19 community. In so doing, it is important for GWA to build a foundation of more
20 substantive community engagement, leverage their unique position as a utility services
21 enterprise, and recognize the evolving landscape related to water affordability. The
22 concern for low-income water affordability does not translate to a narrow strategy of
23 system-wide rate minimization.

24
25 **Q27. *What should be GWA’s greatest concerns if the PUC does not provide adequate rate***
26 ***relief?***

27
28 ²⁵ These programs may or may not be prescribed by regulatory enforcement actions including Consent Decrees. However, such enforcement actions do constrain utilities ability to moderate adverse rate and bill impacts through capital spending deferrals.

1 A27. In short, GWA should be concerned that a short-sighted approach will be poorly received
2 by bond rating agencies, investors and the USEPA and may compromise GWA's ability
3 to raise capital on favorable terms to comply with its Partial Consent Decree obligations.
4 Bond rating agencies and investors – already chastened by pandemic impacts will
5 (appropriately) gauge GWA's credit worthiness based on whether GWA can articulate a
6 cohesive, sensible long-term financing strategy. While GWA has made recent strides in
7 improving its credit standing, as evidenced by credit rating agency reviews and its Series
8 2024 refunding bond offering, PUC denial of adequate rate relief would likely be viewed
9 as backsliding. Inadequate rate relief in the face of lingering pandemic-induced revenue
10 impacts, near-zero rate stabilization reserves, cost escalation, and substantial projected
11 increases in debt service payments runs the disconcerting risk of a bond rating downgrade,
12 as well as complications in securing a line-of-credit to support the planned TECP program
13 (if authorized).

14 PETITION LOGISTICS

15
16 **Q28. *Have there been any changes to the rate plan after it was approved by the Consolidated***
17 ***Commission on Utilities (CCU)?***

18 A28. No

19
20 **Q29. *Are there other matters that could come before the PUC related to implementation of***
21 ***GWA's FY 2025 – 2029 financial plan and rates?***

22 A29. Yes. Implementation of GWA's financial plan will require legislative approval to
23 authorize planned debt issues and potentially the proposed TECP program that, in turn
24 will require PUC approvals for entering into a number of contracts and agreements, and
25 selected notifications and disclosures to key stakeholders. Specifically, a TECP program
26 will require that GWA enter into new contractual arrangements to secure Letters of Credit,
27 and remarketing and paying agent services. The PUC's decisions related to GWA's FY
28

1 2025 – FY2029 rates will be reported to bond holders through standard continuing
2 disclosures.

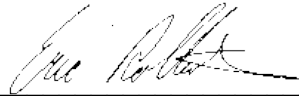
3
4 **Q30. Does this conclude your testimony?**

5 A30. Yes.

6 I, Eric P. Rothstein, do hereby state and aver under penalty of perjury that the Written
7 Testimony above in Support of the Requests for Approvals of the Guam Waterworks Authority
8 Five-Year Financial Plan, Rate Increase Requests, and Capital Improvement Program for FY2025
9 – FY2029 submitted herewith is both truthful and accurate to the best of my knowledge.

10 **RESPECTFULLY** submitted this 8th day of March, 2024.

11
12
13
14 By:



15 **ERIC P. ROTHSTEIN, CPA, MA**
16 Principal, Galardi Rothstein Group
17
18
19
20
21
22
23
24
25
26
27
28



Eric P. Rothstein, CPA Principal

Distinguishing Qualifications

- A leading expert in developing financial strategies to support major water, wastewater and storm water infrastructure programs; securing acceptance of multi-year rate increases in politically charged environments; and addressing water affordability.
- Served as feasibility consultant and municipal advisor for numerous water and sewer utility bond issues with principal amounts totaling in excess of \$4 billion. Related presentations before rating agencies and investors have addressed enterprise fund management and financial policies as well as cash-flow forecasts.
- Experienced in utility management processes, strategic business planning, regionalization, public/private partnership evaluation, and facilitation of complex decisions affecting diverse stakeholder groups.
- Co-authored industry-standard manuals and research publications on water and wastewater ratemaking, affordability, capital planning, financial capability assessments, and public-private partnerships.
- Registered Municipal Advisor; Member, U.S. EPA Environmental Finance Advisory Board (EFAB)

Education

- MA, Economics, University of California-Davis, 1983
- AB, Economics, Ripon College, 1981

Expert Witness Depositions and Testimony

- Expert Report of Eric P. Rothstein in the Matters of City of Rome, GA v. 3M Company et al., Superior Court of Floyd County, GA, Case No.: 19-CV-02405-JFL003 and Jarrod Johnson v. 3M Company et al., US District Court, Northern District of GA, Case No. 4:20-cv-00008-AT filed December 2, 2022.
- Expert Report of Eric P. Rothstein in the Matter of William F. Novar v. City of Novi, MI, Case No: 2020-183155-CS, State of Michigan in the Circuit Court for the County of Oakland, filed April 2022.
- Eric P. Rothstein in the Matter of Joan Greenfield v. City of Farmington Hills, MI, Case No: 18-169707-CZ, State of Michigan in the Circuit Court for the County of Oakland, filed March 2020
- Expert Report of Eric P. Rothstein in the Matter of Daniel Brunet v. City of Rochester Hills, MI, Case No: 18-164764-CZ, State of Michigan in the Circuit Court for the County of Oakland, filed August 2019.
- Direct Testimony In Support of the Requests For Approvals of the Guam Waterworks Authority's Financial Plan and Capital Improvement Program (FY 2020 – FY 2024) and Low Income Customer Assistance Program filed before the Guam Public Utilities Commission, June 2019.
- Direct and rebuttal testimony in support of the Petition of Citizens Water Authority Inc. for (1) Authority to increase rates and charges for wastewater utility service in three phases and approval of new schedules of rates and charges applicable thereto, (2) approval of a low-income customer assistance program, and (3) approval of certain changes

to its general terms and conditions for wastewater service, Cause No. 45151 before the Indiana Utility Regulatory Commission. Direct testimony filed October 2018; rebuttal filed February 2019.

- Expert Report of Eric P. Rothstein in the Matter of Heidi Marie Gumbleton v. Village of Holly, MI, Case No: 17-157734-CZ, State of Michigan in the Circuit Court for the County of Oakland, filed October 2017.
- Expert Report of Eric P. Rothstein in the Matter of Leonard S. Bohn v. City of Taylor, MI, Case No. 15-013727-CZ, State of Michigan in the Circuit Court for the County of Wayne, filed December 2016
- Expert Report of Eric P. Rothstein in the Matter of City of Dallas v. Abney, et al. Cause No. D150045-C, 260th Judicial District, Orange County Texas, filed June 21, 2016
- Expert Report and Written Direct Expert Testimony of Eric P. Rothstein in the Matter of City and County of Honolulu v. Hawaii State Department of Health, Docket 15 – CWB – EMD – 3, filed April 25, 2016.
- Direct Testimony by Declaration (2014) – Superior Court Of California, County of Los Angeles, Central District, Cities of Cerritos, Downey and Signal Hill vs. Water Replenishment District of Southern California, Lead Case No. Bs128136
- Expert Witness Testimony (2013) – Nova Scotia Utility and Review Board: In the Matter of a Joint Application by the Halifax Regional Water Commission and the Halifax-Dartmouth Bridge Commission for a Determination of Appropriate Charges Related to the Use of the Angus L. Macdonald (M06127)
- Expert Report (2013) – San Diego County Water Authority v. Metropolitan Water District of Southern California, Case No: CPF-10-510830 and CPF-12-512466, Superior Court of California, County of San Francisco, regarding rate-setting challenges
- Expert Witness Testimony (2013) – Hawaii Public Utilities Commission, In the Matter of the Application of Hawaiian Beaches Water Company, Inc., for review and approval of rate increases; revised rate schedules, Docket No. 2013-0203
- Deposition And Expert Witness Testimony (2013): United States Bankruptcy Court, Northern District Of Alabama, Southern Division, In Re: Jefferson County, Alabama, a political subdivision of the State Of Alabama, Debtor, Case No.: 11-05736-Tbb, Chapter 9, The Bank Of New York Mellon as Indenture Trustee, et al., Plaintiffs v. Jefferson County, Alabama, Defendant, AP No.: 12-00016-Tbb
- Expert Witness Testimony (2013) – Nova Scotia Utility and Review Board: Application for the Approval of a Schedule of Rates and Charges and Schedule of Rules and Regulations for the Delivery of Water, Wastewater and Storm Water Services, Matter No. M05463
- Expert Witness Testimony (2012) – Public Service Commission of Wisconsin: Application of City of Waukesha Water Utility, Waukesha County, Wisconsin, for Authority to Increase Water Rates, Docket No. 6240-WR-107
- Expert Witness Testimony (2009-2011) – United States District Court, Northern District of Georgia, Atlanta Division, United States of American and the State of Georgia, Plaintiffs v. The City of Atlanta, Defendant, Civil Action File No. 1-98-CV-1956-TWT (various hearings re: Schedule Extension, Service Delivery Strategy)
- Expert Witness Testimony (2012) – Public Service Commission of Wisconsin: Application of Oak Creek Water and Sewer Utility For Authority to Increase Water Rates, Docket No. 4310-WR-104
- Expert Witness Testimony (2011) – Nova Scotia Utility and Review Board: Application of the Halifax Regional Water Commission for approval of a Cost of Service and Rate Design Methodology (NSUARB-W-HRWC-R-11)
- Expert Witness Testimony (2010, 2014) – Public Service Commission of Wisconsin: Application of Milwaukee Water Works, Milwaukee Water Works, Milwaukee County for Authority to Increase Water Rates, Docket No. 3720-WR-107 and Docket No. 3720-WR-108
- Deposition (2010): The Bank of New York v. Jefferson County, Alabama, Civil Action No. CV-2009-02318

- Expert Witness Testimony (2009) – Illinois Commerce Commission, Illinois American Water Company, Proposed general increase in water and sewer rates, Docket No: 07-0507
- Expert Witness Testimony (2009) – In the Court of Appeals of Georgia; Fulton County Georgia et al. v. City of Atlanta, A08A2364

Selected Key Project Experience

For the **American Water Works Association (AWWA), Association of Metropolitan Water Agencies (AMWA), National Association of Clean Water Agencies (NACWA), National Association of Water Companies (NAWC), US Water Alliance (USWA) and Water Environment Federation (WEF)**, Eric is serving as a Project Manager / Principal Contributor for development of a report: *Low-Income Water Customer Assistance Program Assessment* to be released in early 2023. The report assesses options for structuring a permanent, federally funded, program for providing water service bill assistance. The Study addresses fundamental questions related to the extent of household water burdens, how to most effectively and efficiently deliver sustained relief, and roles and responsibilities of low-income assistance providers and utilities.

For Jefferson County, Alabama, Eric is leading development of a Municipal Advisor Report related to the County's anticipated Series 2023 Sewer Revenue Warrant issue to effectuate refinancing of the County's Series 2013 warrants issued to effectuate the County's exit from bankruptcy (see description below). GRG has also been engaged to support updating the department's Strategic Financial Planning model for investor relations initiatives, updating the Department's Financial Capability Assessment, and developing a new low-income Customer Assistance Program.

For the **City of Ann Arbor (MI), Tucson Water (AZ), Northwest Suburban Municipal Joint Action Water Agency (IL), and Guam Waterworks Authority**, Eric is providing senior advising services for ongoing litigation and/or contract negotiation initiatives. The matters generally relate to water, wastewater and stormwater rate setting and financial management practices.

For **Hamilton County, (OH), Terre Haute, (IN) and the Guam Waterworks Authority**, Eric is assisting in conducting financial capability assessments per evolving EPA-prescribed methodologies and in developing alternative approaches to assessment that more appropriately reflect utility capital financing options. These efforts are supporting Consent Decree negotiations that have been complicated by a shifting and uncertain landscape related to financial capability assessments and milestone schedule determination.

For **Four Rivers Sanitation District (IL), Bloomington (IL), Portland Environmental Services Department (OR), Shreveport (LA) and Guam Waterworks Authority**, Eric is providing senior advisory consulting services for these utilities ongoing cost-of-service and strategic financial planning initiatives and development or enhancement of low-income water affordability measures.

For the **American Water Works Association (AWWA), National Association of Clean Water Agencies (NACWA), and Water Environment Federation (WEF)**, Eric served as a principal contributor to the development of the report: *Developing a New Framework for Household Affordability and Financial Capability Assessment in the Water Sector* (April 17, 2019). Eric authored sections offering recommendations for revising USEPA's methodology for conduct of utility Financial Capability Assessments. Eric also co-authored these associations' *"Water Utility Association Consultant Review: Proposed 2022 Clean Water Act Financial Capability Assessment Guidance* issued in April 2022.

For the **Guam Waterworks Authority**, Eric developed testimony in support of the Authority's application for approval of its Financial Plan and Capital Improvement Program (FY 2020 – FY2024) and proposed Low-Income Customer Assistance program, and contributed to the Consulting Engineer's report in support of the Authority's Series 2020 revenue bond issue.

For the **Toledo Regional Chamber of Commerce**, Eric facilitated a decision process leading to the signing of a Memorandum of Understanding for the creation of the Toledo Area Water Authority (TAWA). The Authority would provide regional governance for the development and operation of water supplies to serve communities in Northwest Ohio.

For the **Detroit Water and Sewerage Department**, since 2015, Eric has provided management assistance to the utility's leadership team. His work is currently focused on water affordability and lead risk mitigation initiatives, as well as supporting DWSD's participation in GLWA cost allocation and rate setting processes. He served as Program Manager for DWSD's Drainage Charge Implementation Program and was Chair/Facilitator of its Blue Ribbon Panel on Affordability. Eric is providing management assistance for its Minimizing Lead in Drinking Water program, strategic planning efforts, and evaluation of cost allocation and rate structure options.

For the **Denver Water Distributors**, Eric is leading a negotiation team to address concerns related to various aspects of Denver Water's (DW) rate setting and capital financing practices. Eric has led negotiation sessions, presented before the DW Board, and provided regular update briefings to the Distributor's Technical Advisory Committee.

Eric was appointed in October 2015 by **Michigan Governor Rick Snyder** to serve as one of five members of the independent **Flint Water Advisory Task Force** to conduct a review of the events and decision-making that led to the Flint, Michigan water crisis. The task force developed recommendations to address governmental failures, mitigate impacts on the Flint community, and improve protection from drinking water contaminations for communities in the State of Michigan.

For the **U.S. Bankruptcy Court, Eastern District of Michigan, Southern Division**, in 2014 and 2015, Eric served as an independent utility advisor for mediation related to the creation of the **Great Lakes Water Authority** (GLWA). Following execution of a Memorandum of Understanding and Articles of Incorporation by the Incorporating Municipalities (City of Detroit; Macomb, Oakland and Wayne counties; and the State of Michigan), Eric served as Implementation Planning Program Manager for the successful standup of the GLWA – a regional utility serving approximately 40 percent of the population of the State of Michigan.

For the **Water Replenishment District of Southern California**, Eric was engaged in 2014 to provide an expert report related to the consistency of the District's rate-setting requirements with industry-standard practices contemplating proportionate distribution of cost responsibilities based on cost causation. These practices are consistent with prescripts of State of California law.

For **Jefferson County, Alabama**, Eric served as the County's rate consultant between 2010 and its exit from bankruptcy in 2013. He reviewed cost-of service analyses and alternative rate proposals to address the County's outstanding sewer warrant obligations, developed revisions to its sewer rates that were approved in November 2012 and again in September 2013, and led strategic financial planning related to the County's bankruptcy Plan of Adjustment. Eric was deposed and provided expert witness testimony in various court proceedings stemming from the County's declaration of bankruptcy in 2011, and led development of a Municipal Advisor Report related to its Series 2013 Sewer Warrant issue to effectuate the County's exit from bankruptcy.

For the **Halifax Regional Water Commission**, Eric led development of a Cost of Service and Rate Design report to the Nova Scotia Utility and Accounting Review Board (NSUARB Docket No. NSUARB-W-HRWC-R-11), in response to the Board's Order and Decision to hold separate hearings to determine appropriate ratemaking methodologies for Canada's first regulated water, wastewater and storm water utility. Eric led preparation of the report and the development of cost allocation and rate design models to illustrate the implications of alternative methodological approaches. He supported development of HRWC's subsequent application for water, wastewater and storm water rates filed with the NSUARB in December 2012, and he provided expert witness testimony in support thereof in April 2012. In April 2014, Eric prepared an expert report on HRWC Cost Shares for Use of the Angus L. Macdonald Bridge and provided expert witness testimony in M06127 – Halifax-Dartmouth Bridge Commission/Halifax Regional Water Commission: Waterline on the Angus L. MacDonald Bridge – HDHC-G-14.

For the **City of Atlanta**, since 2004, Eric has provided a broad array of utility management consulting services ranging from support of major multi-year rate increases, to securing funding for low-income affordability programs, to capital improvement project prioritization. He has served as the **Department of Watershed Management's** primary coordinator for its revenue bond issues used to finance its \$3 billion wastewater Consent Decree program. This has included issues in 2004, 2008, 2009 (2), 2013, 2015, 2017, and 2018 and, in 2006, implementation of its Tax-Exempt Commercial Paper program with a shelf registration of \$1.2 billion. Eric led development of the Department's *Financial Capability Based Schedule Extension Request Report* used to secure the City's 13-year extension of its wastewater Consent Decree schedule. He prepared each of the Department's Financial Capability Assessment filings. He has led the development and updating of strategic financial planning tools for water and sewer rate development and policy-level consideration of overall program financing strategies (as well as detailed project expenditure, status, and schedule tracking). GRG's Municipal Advisor Feasibility study report was also used for issuance of the City's Environmental Impact Bond (EIB) in January 2018, the first public offering of an EIB to fund stormwater management projects in the US.

For the **Egyptian Ministry of Housing, through a USAID contract**, Eric developed guidance on tariff setting, capital project prioritization, and strategic planning for the newly established water and wastewater sector regulatory agency. He traveled to utilities across upper Egypt to collect data and hold workshops on utility finance and rate setting practices. The project involved the development of a guidance manual, detailed financial planning and cost-of-service analysis modeling, and testing of financial analysis and prioritization tools with four major Egyptian utilities. He also provided presentations on financial planning and strategic planning principles to USAID staff and Technical Assistance contractors.

For the **Milwaukee Wholesale Customers (MWC)**, through sub-contracts with SHEH, Inc., Eric reviewed the Milwaukee Water Works (MWW) rate increase applications filed in 2010 and 2014, reviewed pre-filed testimony, and offered expert witness testimony related to revenue requirements and appropriate rates of return at hearings before the Wisconsin Public Service Commission (WPSC). The WPSC allowed rate increases that were substantially lower than those requested by MWW in both cases.

For several wastewater permittees facing Consent Decrees including **Akron, Ohio; Atlanta, Georgia; East Bay Municipal Utility District, California; Jackson, Mississippi; Northeast Ohio Regional Sewer District, Ohio; Metropolitan Sewer District of St. Louis, Missouri; and Honolulu, Hawaii**, Eric has assisted in conducting financial capability assessments per EPA-prescribed methodologies and in developing alternative approaches to assessment that more appropriately reflect utility capital financing options. These efforts have successfully supported negotiation positions related to the scope and schedule of potential Consent Decree provisions.

For the **National Association of Clean Water Agencies (NACWA)**, Eric has served as Principal Author for several white papers and publications related to Financial Capability Assessments used to develop wastewater Consent Decree schedules. Examples include NACWA's *Financial Capability and Affordability in Wet Weather Negotiations* (2007) and *The Evolving Landscape for Financial Capability Assessment: Clean Water Act Negotiations and the Opportunities of Integrated Planning* (2013). These papers provide critical reviews of the U.S. Environmental Protection Agency's (EPA's) established policies and guidance on financial capability assessments for wet weather programs and offers practical guidance for negotiations on enforcement policies and practices related to consideration of financial capability.

For the **City of Winnipeg, Manitoba**, Eric served as Project Manager for a comprehensive cost-of-service rate studies for the City's water, wastewater and storm water systems conducted in 1997 and 2012. In 1997, the consulting team facilitated decision-making through an extensive public involvement process that featured monthly meetings of a Citizen's Advisory Committee comprised of a diverse set of stakeholder representatives. For both studies, detailed cost allocation analyses were conducted and customized computer rate analysis models developed to facilitate rate updating for budgetary changes, revision to cost allocations, and rate design modifications.

For **Augusta-Richmond County, Georgia**, Eric has provided strategic financial planning, bond feasibility and comprehensive cost-of-service rate assistance since 2000. Strategic financial planning facilitated the City's

adoption of a 7-year, 11 percent per annum rate increase schedule to support infrastructure reinvestment in excess of \$400 million. Eric managed three bond feasibility studies over the course of the program implementation, helping the County secure strong credit ratings and favorable financing terms. A cost-of-service study in 2004 involved special queries of a new billing system for development of user characteristic data and consideration of specific cost assignments for previously unsewered portions of the County's wastewater system. Cost-of-service rate study updates were commissioned in 2012 and address water conservation and water affordability issues.

Previous to his work as a utility management consultant, Eric served in several financial management positions for the **City of Austin, Texas**. In this capacity, he directed staff of up to 22 people in utility ratemaking, evaluation of regionalization alternatives and proposed utility investments, analysis of capital financing options, internal control evaluation, and revenue forecasting.

Boards / Certifications / Professional Licenses

Member, U.S. EPA Environmental Financial Advisory Board (EFAB)

- Appointed September 2017
- Co-Chair: "Financing Strategies To Promote System Regionalization," issued April 2019

Registered Municipal Advisor

- MSRB Registration No. (MSRB ID): K0764

Certified Public Accountant

- Oregon License No. 7998, June 1995 - 2018

Membership in Professional Organizations

American Water Works Association

- Strategic Management Practices Committee
- Rates and Charges Sub-Committee
 - Chair, *Water Rate Structures and Pricing* (M34)
 - Member, *Water Rates, Fees and Related Charges* (M1), 4th – 7th Editions

International Water Association

- Economics and Statistics Specialist Group
- Editorial Board, *Utility Management International*, 2008-2012

National Association of Clean Water Agencies

- Utility Management Committee

Water Environment Federation

- Technical Practice Committee – Chair, 2014-2017
- Utility Management Committee
 - Chair, Finance and Administration Sub-Committee, 2011 -2014
 - Chair, *Financing and Charges for Wastewater Systems* (M27), Manual of Practice Task Force, 2005
 - Coordinator, Asset Management Hot Topics Workshops, 2005-2007

Selected Publications

"Affordability and Equity Considerations for Rate Setting" with Stacey Isaac Berahzer, Joe Crea, and Michael Matichich, *Journal AWWA*, September 2021, pp 33-43,

“Funding and Financing Strategies to Address Coronavirus Impact” with Jim A. Beard, NACWA White Paper, May 2020.

“Developing a New Framework for Household Affordability and Financial Capability Assessment in the Water Sector”, Project report: AWWA/NACWA/WEF (April 17, 2019).

“Model Water Utility Affordability Programs,” with Bradford L. Blake and Gary Brown, *Journal of the American Water Works Association (AWWA)*, August 2017, vol. 109, issue 8, pp. 30-36

“Why Flint Matters,” *Journal of the American Water Works Association (AWWA)*, July 2016, pp. 38-42

“The Birth of the Great Lakes Water Authority,” Program Management Office Close-Out Report, Great Lakes Water Authority and Detroit Water and Sewerage Department, June 2016

Flint Water Advisory Task Force – *Final Report*, State of Michigan, March 2016

Blue Ribbon Panel on Affordability – *Final Report*, City of Detroit, February 2016

Sustainability Reporting Statements for Wastewater Systems, Water Environment Federation (WEF) Special Publication, October 2012 (Task Force Chair, Chapter 1 Author)

“The Business Case for Low Income Affordability Programs,” *Proceedings of the Utility Management Conference*, Miami, FL, February 2012

“Strategic Planning: A Portfolio Management Approach to Effective Utility Management,” with Tom Sigmund, *Proceedings of the Utility Management Conference*, Miami, FL, February 2012

“Financial Sustainability in an Uncertain World,” with Debbie Galardi, *Water Utility Management International*, vol. 6, issue 4 (December 2011), pp. 23-27.

“Developing A Financially Sustainable Capital Program to Meet Consent Decree Requirements,” *Proceedings of the Water Environment Federation Technology Exposition and Conference (WEFTEC)*, October 2009

“Regionalization of Water Service in Central Florida: Capacity Rights Contracting for the Yankee Lake WTF,” *Proceedings of the American Water Works Association (AWWA) Annual Conference and Exposition*, June 2007 and the *Florida Water Resources Conference*, April 2007

“Affordability Tools,” Section 8: *Affordability Special Publication*, Water Environment Federation, 2007 – updated 2022.

“Tough Choices in Paradise: Capital Project Prioritization on Oahu,” with Ross Kaneko, Barry Usagawa, Scott Muraoka and Jason Takaki, *Proceedings of the AWWA-WEF Joint Management Conference*, February 2007 and *Proceedings of the AWWA Annual Conference and Exposition*, June 2007

“Financial Sustainability as a Foundation for Infrastructure Development and Management: Best Practices,” with Debbie Galardi, *Water Utility Management International*, vol. 2, issue 1 (March 2007), pp. 10-13

Selected Presentations / Seminars

“Flint and its Implications for the Nation,” Panel Discussion with James A. Beard, CFO, City of Atlanta, One Water Summit conference, Atlanta, GA, June 2016

“Exit from Bankruptcy: Jefferson County, Alabama’s Historic Plan of Adjustment and \$1.7 Billion Sewer Warrant Issue Sustainability Reporting Statements for Wastewater Systems,” presented at the Utility Management Conference, Austin, TX, February 2015

“The Business Case for Sustainability Reporting,” presented at the Sustainability Reporting Statements for Wastewater Systems Special Publication Workshop, WEFTEC 2013, October 2013

“Building Support for Rate Increases,” presented at the Central States Water Environment Association (CSWEA) Annual Conference, May 17, 2013

“Which Direction is Your Utility Heading,” presented at the Illinois City Managers Association Conference, Galena, Illinois, June 28, 2012

“Financial Sustainability in an Uncertain World,” presented at the Illinois Section American Water Works Association (AWWA) Annual Conference, March 2012

“Doing More With Less: Financial Planning and Management in Stressful Times,” presented at the Central States Water Environment Federation (WEF) Wisconsin Government Affairs Seminar, February 23, 2012

1 INTRODUCTION AND BACKGROUND

2 **Q1. *Please state your name, occupation and business address.***

3 A1. My name is Miguel C. Bordallo. I am a registered professional mechanical engineer on
4 Guam, and I am the General Manager of the Guam Waterworks Authority, located at the
5 Gloria B. Nelson Public Service Building, Route 15, Fadian, Mangilao, Guam.

6
7 **Q2. *Please describe your educational and professional history.***

8 A2. I have a Bachelor of Science Degree in Mechanical Engineering from the College of
9 Engineering, Marquette University, Milwaukee, Wisconsin. I am a registered and
10 licensed Professional Engineer on Guam (Mech Lic. No. 1124), and have held registration
11 as a Professional Engineer previously in the state of Missouri.

12 I have over 30 years of experience in the environmental and engineering fields. I began
13 my career working on environmental investigation and restoration projects, and the design
14 of treatment systems for soil and groundwater remediation for various commercial,
15 industrial, military and petroleum related facilities throughout California and in Canada.
16 I returned to Guam in 1995, obtained my license as a Professional Engineering in 1997
17 and worked in private practice, becoming a partner in the consulting firm in which I had
18 been employed in 1998. I eventually started my own practice and successfully completed
19 multiple design, design-build, and design-build-finance projects for water and wastewater
20 infrastructure, commercial, educational and other facilities.

21 I have been the General Manager of the Guam Waterworks Authority since January of
22 2016. I am an active member of the American Water Works Association (AWWA)
23 Western Pacific Subsection, the Water Environment Federation, and have been a member
24 of and held leadership positions in the Guam Society of Professional Engineers, the Guam
25 Board of Registration for Professional Engineers, Architects and Land Surveyors
26 (PEALS).
27
28

1 SCOPE AND PURPOSE OF TESTIMONY

2 **Q3. *What is the purpose of your testimony in this proceeding?***

3 A3. I am testifying in support of the Authority’s FY2025 – FY2029 5-Year Financial Plan and
4 Capital Improvement Program (CIP). As General Manager¹, I am charged with the
5 construction of the works of the Authority, their operation and maintenance in compliance
6 with applicable laws and regulations, and for the administration and business affairs of
7 the Authority. It is my testimony that the 5-Year Financial Plan provides reasonable and
8 just basis for the proper operation and maintenance of the water and wastewater systems,
9 and that the 5-Year CIP reflects well-developed plans to construct the works of the
10 Authority in order to comply with regulatory requirements², address public health and
11 safety concerns regarding emerging contaminants³, and address historic under-investment
12 in system renewals⁴ which contribute to service issues such as pressures and high water
13 loss.

14
15 **Q4. *What are the underlying objectives of the 5-Year Financial Plan and CIP?***

16 A4. As stated previously, the 5-Year Financial Plan and CIP provide for the proper operation
17 and maintenance of the water and wastewater systems, and provide a well-defined
18 program for necessary capital improvements to support such systems. The underlying
19 objectives of the Financial Plan and CIP are to:

- 20 • provide for the adequate operation and maintenance of Guam’s water and wastewater
21 systems;

22
23
24 ¹ See 12GCA Chapter 14, Section 14106(d)(1)

25 ² Includes requirements of November 10, 2011 U.S. District Court Order in Civil Case No. 02-00035, Partial
26 Consent Decree filed in U.S. District Court in Civil No. 04-00004, and federal regulations under the Clean Water
27 Act and Safe Drinking Water Act.

28 ³ See EPA information on PFAS (<https://www.epa.gov/newsreleases/biden-harris-administration-proposes-first-ever-national-standard-protect-communities>) and information on Dieldrin (https://www.postguam.com/news/local/guam-epa-developing-interim-action-levels-for-banned-insecticide/article_a642b842-a0b3-11ee-8ace-9b205b838f19.html).

⁴ The overwhelming majority of CIP expenditures at GWA to date have been to address EPA compliance actions in the U.S. District Court, which have addressed wastewater treatment plants, water production wells, and water reservoirs, but have not included water distribution system (piping)asset renewals.

- support recruitment and retention of qualified, well-trained staff for GWA operations, administration, compliance, safety, engineering and other utility functions in adequate numbers given the Authority’s operating parameters;
- allow for capital maintenance and capital improvement program to meet near term regulatory compliance requirements, address emerging contaminants, and invest in long-deferred asset renewal to reduce water losses;
- support improvement in GWA’s levels-of-service (LOS) to its customers and attainment of published LOS goals⁵ as stated and GWA’s adopted 20-year Water Resources Master Plan;
- position GWA to recover from its current precarious financial position resulting from post-pandemic recovery, global economic conditions, and delayed/inadequate rate relief to meet GWA’s financial obligations (see MCB Exhibit 1); and
- to improve the Authority’s ability to finance its capital program at the most favorable terms by enhancing its fiscal management, improving its credit-worthiness, and proactively achieving regulatory compliance.

Q5. *Is the 5-Year Financial Plan properly supported by just and reasonable operation and maintenance expense projections?*

A5. Yes. The Authority, under the guidance of its Chief Financial Officer (see Testimony of Taling M. Taitano, Chief Financial Officer) and in consultation with its Utility Management Consultant (see Testimony of Eric Rothstein of the Galardi Rothstein Group), has taken considerable care to develop well supported operation & maintenance (O&M) expenses that address, among other things, the following (see Testimony of Yvonne M. Cruz, Chief Budget Officer):

- Salaries and benefits that reflect projected needs for the operation of the water and wastewater systems over the next five years. This includes positions needed to

⁵ 2018 Water Resources Master Plan, Vol. 1, Section 3

1 adequately staff water loss control activities, including proactive leak detection and
2 repair, in-house construction capabilities, and projected resources needed to retain
3 certified operators in whom the Authority has already invested resources amidst
4 increasing pressure from competing utility organizations. The projected expenses also
5 include the changing cost of benefits resulting from the Government of Guam self-
6 insurance program.

- 7 • Administrative and general expenses which reflect inflationary pressures on costs for
8 chemicals, materials and supplies, transportation and fuel costs, communications,
9 insurance and other costs. For the majority of the last 5-year rate plan, the Authority
10 was in cost-containment mode while the global supply markets were increasing prices
11 significantly because of world-wide inflationary pressures (see MCB Exhibit 2
12 through MCB Exhibit 4). The projections in this 5-Year Financial Plan address these
13 cost increases and provide for reasonable and necessary expense projections.
- 14 • Water and power purchases which take into account projected reductions in Navy
15 water through expansion of GWA's own sources in certain areas, as well as
16 conservative estimates of reduced power costs once the Guam Power Authority (GPA)
17 brings its new Ukkudu Power Plant on-line in FY2026 (see Testimony of Yvonne M.
18 Cruz, Chief Budget Officer and supporting work papers).
- 19 • Contractual expenses that include increased network, software and cybersecurity
20 costs, expanded laboratory testing and analytical services for additional regulatory
21 requirements for emerging contaminants. In addition, these expenses include
22 equipment rental and contractual service expenses to support work needed to comply
23 with Partial Consent Decree compliance requirements, and increased costs for
24 contracted permanent road repairs.

1 **Q6. *Is the 5-Year Financial Plan properly supported by a competently developed capital***
2 ***improvement program?***

3 A6. Yes. The CIP in this docket has been developed based on GWA’s adopted 20-year WRMP
4 and the interim WRMP update process that is currently being undertaken. The 2018 Water
5 Resource Master Plan called for periodic reviews (3-years) and updates (5-years), and
6 GWA commissioned the five-year update to be completed by the end of 2023. This update
7 process has been delayed, and the update is expected to be completed in early 2024. The
8 work to update the WRMP capital improvement program has been completed and has
9 been used to develop the FY2025-FY2029 Capital Improvement Program accompanying
10 the 5-Year Financial Plan (see testimony of Jeanet Babauta Owens). The work builds on
11 the prior 5-year CIP and includes the integration of 2024 Partial Consent Decree
12 compliance project requirements,⁶ new capital projects required for treatment for
13 emerging contaminants under impending US EPA and Guam EPA final regulations,
14 prioritization of waterline replacement projects to meet water loss control objectives, and
15 continued implementation of SCADA projects.

16
17 [2024 PARTIAL CONSENT DECREE](#)

18 **Q7. *What is the purpose and scope of the 2024 Partial Consent Decree that has been***
19 ***negotiated with the U.S. Department of Justice and the U.S. Environmental Protection***
20 ***Agency?***

21 A7. The Partial Consent Decree represents a settlement agreement to avoid litigation in U.S.
22 District Court for complaints against GWA for alleged violations of the Clean Water Act.
23 The purpose of the Partial Consent Decree is to enforce GWA’s execution and completion
24 of required compliance projects with the goal of improving its wastewater collection
25 system and complying with the federal Clean Water Act (CWA). In general, the scope of
26 the Partial CD includes:

27
28 ⁶ See: <https://www.federalregister.gov/documents/2024/02/06/2024-02338/notice-of-lodging-of-proposed-partial-consent-decree-under-the-clean-water-act> - accessed on March 3, 2024

- 1 • complete inspection/assessment/capacity evaluation of gravity sewer mains, and a
2 schedule of upgrades/replacements/rehabilitations (to include design and
3 construction) where required;
- 4 • inventory, assessment/evaluation of sewer force mains and design/construction of
5 upgrades/replacements/rehabilitations of 25% of total length of force mains within
6 the system;
- 7 • inspection/assessment/evaluation of sewer pump stations by a prioritized set of
8 four tiers and design/construction of upgrades/rehabilitations/replacements for
9 Tier 1 and 50% of Tier 2 pump stations;
- 10 • completion of a feasibility study and plan for upgrading the Hagatna WWTP to
11 meet secondary treatment requirements;
- 12 • formalization and adoption of several programs relating to wastewater source
13 control, industrial wastewater pretreatment, and asset management; and
- 14 • regular periodic reporting on the progress of all compliance items.

15 All compliance items within the Partial Consent Decree have interim or compliance
16 milestones which must be completed within the 10-year period covered by the Partial
17 Consent Decree.⁷

18
19 **Q8. *Can GWA elect not to conduct the compliance items in the 2024 partial consent decree?***

20 **A8.** No. Non-compliance with the requirements of the 2024 Partial Consent Decree will result
21 in the imposition of significant monetary penalties, potential termination of the negotiated
22 settlement and risk EPA demanding additional compliance requirements on an expedited
23 schedule that would impose an oppressive financial burden on the Authority and its rate
24 payers.

25
26
27
28 ⁷ See: <https://www.federalregister.gov/documents/2024/02/06/2024-02338/notice-of-lodging-of-proposed-partial-consent-decree-under-the-clean-water-act> - accessed on March 3, 2024

1 **Q9. Do you believe the 2024 partial consent decree is the best possible outcome of the**
2 **negotiations between the U.S. DOJ, U.S. EPA and GWA?**

3 A9. Yes. GWA negotiated in good faith starting in 2017 to reach a settlement that would allow
4 GWA to complete required compliance projects with the goal of improving its wastewater
5 collection system and complying with the CWA. The negotiated scope and schedule,
6 while extremely challenging, reflects the maximum amount of work GWA believes it can
7 accomplish within the 10-year period if it is provided with the necessary resources and
8 there are no external impacts that would delay GWA's progress. While GWA argued
9 vigorously for schedule concessions and more reasonable terms for schedule modification
10 to address such external impacts, not all requested concessions and terms were agreeable
11 to U.S. EPA and U.S. DOJ. In evaluating the final proffered settlement agreement, GWA,
12 the CCU and the Government of Guam considered the risk and expense of litigation, and
13 the potential increase in the scope of compliance that would be demanded by U.S. EPA
14 and U.S. DOJ. The terms of the 2024 Partial Consent Decree represent the best possible
15 outcome of the negotiations.

16
17 **Q10. Are the required compliance items in the 2024 Partial Consent Decree included in**
18 **GWA's 5-Year Capital Improvement Program?**

19 A10. Yes. One of the Authority's goals during the negotiations was to align the compliance
20 items as much as possible with GWA's 20-year Water Resource Master Plan and its
21 associated capital improvement program. Accordingly, the 5-Year Capital Improvement
22 Program includes projects already identified in the 20-year master plan with schedule
23 adjustments to align with the 2024 Partial Consent Decree and additional projects
24 resulting from consent decree negotiations. The 5-Year CIP includes projected funding
25 required to execute compliance projects for the first half of the 10-year period covered by
26 the 2024 Partial Consent Decree.

1 REGULATORY REQUIREMENTS FOR EMERGING CONTAMINANTS

2 **Q11. *Please discuss the regulatory requirements for emerging contaminants that will impact***
3 ***the authority’s operations over the next 5-years.***

4 A11. It is anticipated that in early 2024, the U.S. EPA will announce its final rule for the
5 regulation of per- and polyfluoroalkyl substances – known as PFAS and commonly
6 referred to as “forever chemicals” – under the Safe Drinking Water Act. The proposed
7 regulations would require that public water systems treat source water with concentrations
8 of these substances above a Maximum Contaminant Level or MCL to remove the
9 contaminants prior to entry into the distribution system. These substances are present in
10 certain areas within the Northern Guam Lens Aquifer on which GWA relies for source
11 water supplied through over 100 production deep wells. Therefore, the promulgation of
12 the proposed regulations on PFAS compounds will require the Authority to design and
13 construct new treatment systems that have not before been needed for Safe Drinking
14 Water Act compliance.

15 Additionally, the Guam EPA has advised that they will be promulgating local drinking
16 water regulations for a pesticide compound known as dieldrin which is currently
17 unregulated at the federal level. Although the substance has not been manufactured for
18 decades, it has been detected in groundwater sources for a few GWA deep wells in
19 concentrations that would require action based on proposed regulatory limits. Such action
20 would require the design and construction of treatment systems to remove the
21 contaminants at the affected well sites.

22
23 **Q12. *Will the new regulations require new capital expenditures and operation &***
24 ***maintenance expenses within the period covered by the 5-Year Financial Plan?***

25 A12. Yes. As detailed above and in testimony from Jeanet Babauta Owens, Assistant General
26 Manager for Engineering, water production and treatment capital improvement projects
27 will include the design and construction of centralized treatment systems for PFAS, and
28 individual treatment systems for dieldrin impacted deep well facilities. It is anticipated

1 that the compliance period for PFAS will be within three years following the promulgation
2 of the Final Rule and associated MCLs.

3
4 Guam EPA has indicated the compliance requirement for new regulations on dieldrin will
5 be immediate upon effective date of the regulation. Once these systems are constructed,
6 operation and maintenance costs will be incurred for the replacement of filter media,
7 disposal of contaminated/spent media, chemical additives that may be required to enhance
8 treatment, power for treatment system equipment and other maintenance costs. GWA has
9 factored these capital and O&M costs into the CIP and expense projections as appropriate.

10 **Q13. *Can GWA elect not to comply with these regulations?***

11 A13. No. The implementation of treatment systems required for contaminant removal and their
12 continual operation will be required to protect public health and safety and provide safe
13 drinking water to GWA ratepayers. In regard to PFAS, utilities across the nation are faced
14 with similar circumstances and will also be required to comply with the requirements of
15 the Final Rule from the U.S. EPA.

16
17 **WATER LOSS CONTROL PROGRAM**

18 **Q14. *Please explain in general terms GWA's water loss control program.***

19 A14. In 2021, GWA completed its Water Loss Control Analytical Study which outlined the
20 water loss control program (WLCP) and its components. Central to the WLCP is
21 implementation of district metered areas or DMAs within the entire water distribution
22 network. Within each DMA, water flow entering and leaving the DMA can be measured
23 through flow meters and customer meters, and using this flow data, real losses can be
24 determined. For GWA's water distribution network, 36 DMAs were recommended.

25
26 GWA's WLCP includes the use of a dedicated web-based software tool for handling,
27 monitoring and reporting on data collected within each DMA. Leak detection campaigns
28 provide the basis to identify and repair leaks on distribution piping within each DMA, and

1 the flow/customer meter data are used to prioritize DMAs for leak detection efforts and
2 validate results in terms of loss reduction.

3 The WLCP also includes a proactive leak detection program which, when fully staffed,
4 will provide complete coverage of the entire distribution network multiple times (3 to 4)
5 each year. The proactive leak detection campaigns focus on discrete DMAs and are
6 guided by monitoring of flow data within each DMA. GWA currently has deployed two
7 leak detection teams, with two persons per team. The recommendation for full staffing is
8 a minimum of three leak detection teams, with three people per team.

9
10 GWA also utilizes a water loss control specialist consultant to assist with DMA
11 implementation, leak detection training and management, and DMA monitoring during
12 the implementation phase. The Authority is currently in year three of its planned 3-year
13 DMA development and implementation period. As of the end of year two, 21 of 36 DMAs
14 had been established. The remaining 15 DMAs will require some level of capital
15 improvement to configure piping and valving, and provide necessary infrastructure for
16 flow metering, instrumentation, and ancillary equipment.

17 Other components of the WLCP include pressure management and targeted line
18 replacement programs to manage background leakage due to pressures within defined
19 service levels, and to replace lines beyond their useful service life, respectively.

20
21 Finally, the WLCP also includes improvement of annual water audits conducted in
22 accordance with AWWA manual M36.

23
24 **Q15. *What progress has GWA achieved with the water loss control program?***

25 A15. GWA has established 21 of 36 planned DMAs for the entire distribution network. When
26 a DMA is established, active monitoring has been performed for each DMA using data
27 from designated system flow meters and customer meter data on a monthly basis. The
28 data is uploaded regularly to the web-based water loss management software, which is

1 used to analyze loss patterns and trends, and assess performance of leak detection and
2 repair efforts. Leak detection campaigns are being continuously performed to identify
3 and repair leaks that otherwise would not have been reported. The data and monitoring
4 conducted to date indicate that the vast majority of leaks detected occur on service laterals
5 less than 4 inches in diameter, and although reductions in losses have been achieved after
6 detected leaks are repaired, they are not sustained as new leaks in other sections of the
7 piping subsequently appear. These data and trends indicate that the piping is beyond its
8 useful service life, and therefore sustained reductions in water loss will require line
9 replacements on a larger scale than previously thought.

10 GWA has also acquired additional leak detection equipment and conducted training for
11 leak detection staff. However, as with other divisions and sections within the Authority,
12 staff turnover has affected the leak detection section. On-boarding and training
13 replacement staff has stymied progress in this regard.

14
15 **Q16. *What components of the water loss control program are incorporated into GWA's 5-***
16 ***year financial plan and CIP?***

17 A16. The 5-Year Capital Improvement Program includes several projects which will advance
18 the Water Loss Control Program. These include additional phases of the Pressure Zone
19 Realignment project, valve and piping projects, and several water line replacement
20 projects. Additional leak detection staff have been included in projections for salaries and
21 benefits expenses. Special consulting services for DMA implementation are addressed in
22 projections for contractual expenses.

23
24 **Q17. *Are there any customer metering enhancements that will be implemented as part of the***
25 ***5-Year CIP that will affect water loss control efforts?***

26 A17. Yes. GWA has been using Automated Meter Reading (AMR) meters for over 15 years.
27 While this metering system has improved GWA's ability to accurately bill and collect
28 revenue to support operations and improve fiscal performance, customer consumption

1 data is obtained once per month and still requires significant human interaction to collect
2 meter data via radio-frequency transmission/collection equipment from each meter
3 through a system of collection routes, validate and upload that data to data servers through
4 a proprietary meter software system, and migrate that data into a separate customer billing
5 application. Only after all this data handling is conducted can the data be further migrated
6 into the web-based water loss control monitoring and analysis software.

7 The Authority intends to implement Advance Metering Infrastructure (AMI) meters as
8 part of the 5-Year CIP. The AMI metering equipment will eliminate the need for much of
9 the current human interaction and automatically upload consumption data daily to a web-
10 based server, which will integrate more directly to the Authority's customer billing
11 system. Similarly, that consumption data can be directed daily to the web-based water
12 loss monitoring and analysis software, providing more "real-time" access to water loss
13 data.

14 The total cost of ownership (TCO) for migrating more than 44,000 water meters to AMI
15 can vary significantly depending on design, technology and features included in the
16 solution. GWA has reviewed a Network-as-a-Service (NaaS) and a Radio Frequency
17 Mesh network (RF Mesh) solution and determined that over a 20-year period, the RF
18 Mesh network solution is cheaper by approximately 32.5% using conservative or the
19 costliest pricing estimates.

20 GWA plans to use the Guam Power Authority's Tier 3 communication network which
21 connects individual endpoints to broader communication infrastructure consisting of Tier
22 1 (fiber) and Tier 2 (wireless) networks. GPA's mesh network enables data to be relayed
23 from one meter to another until it reaches a gateway on the Tier 1 or Tier 2 network which
24 carries the information back to a central database called "Command Center." The database
25 serves as the central hub for managing and monitoring the entire water metering
26 infrastructure and is also used to automatically transmit data into the GPA and GWA
27 billing systems and water loss control monitoring and analysis software.
28

1 **Q18. *Can sustained reductions in water loss or reductions in production levels be achieved***
2 ***without the funding for these capital improvements or operational expenses?***

3 A18. No. Based on the collected data and analyses conducted by GWA staff and our specialty
4 consultants on water loss, without replacement of piping that is beyond its useful service
5 life, reductions in real water losses will not be sustained and leak detection and repair
6 alone will not produce the desired results. Consequently, production rates cannot be
7 adjusted downward to effect desired savings in operational costs without adversely
8 impacting reservoir levels, system pressures and, therefore, customer levels of service.
9 Until such capital improvements are sufficiently underway, conducting proactive leak
10 detection and repair to the required coverage level (entire distribution system 3 or 4 times
11 per year) will remain difficult with current staffing levels. Recruitment and retention of
12 dedicated leak detection staff is necessary.

13
14 **OTHER OBJECTIVES AND PRIORITIES ADDRESSED IN GWA’S 5-YEAR FINANCIAL**
15 **PLAN**

16 **Q19. *What other priorities or objectives are reflected in the 5-Year Financial Plan?***

17 A19. Improvement of GWA’s Levels of Service (LOS) as set out in the adopted 2018 Water
18 Resource Master Plan is a priority for GWA. LOS goals and performance are presented
19 to the public in GWA’s Annual Reports. GWA’s ability to meet or achieve several of
20 these LOS goals depends on capital improvements identified in the 5-Year CIP, and
21 projected O&M expenses. Examples of these LOS targets include service pressures, water
22 loss metrics and regulatory compliance.

23 Restoring maintenance levels and asset management are also priorities reflected in the 5-
24 Year Financial Plan. GWA has faced public scrutiny for deferred maintenance which was
25 required due to prolonged cost containment measures necessitated by the impacts of
26 COVID and post-pandemic recovery.

1 These priorities are reflected in O&M expense projections for personnel for adequate leak
2 detection staff for water loss control, compliance personnel for inspections and required
3 source control and industrial pretreatment programs, operations and maintenance staff for
4 asset management and facility maintenance. They are further reflected in projections for
5 contractual expenses for increased laboratory testing, sewer cleaning and inspection
6 support services, and permanent roadway restoration services (see testimony of Yvonne
7 M. Cruz).


8 **Q20. Does this conclude your testimony?**

9 A20. Yes.

10
11 I, Miguel C. Bordallo, do hereby state and aver under penalty of perjury that the Written
12 Testimony above in Support of the Requests for Approvals of the Guam Waterworks Authority
13 Five-Year Financial Plan, Rate Increase Requests, and Capital Improvement Program for FY2025
14 – FY2029 submitted herewith is both truthful and accurate to the best of my knowledge.

15 **RESPECTFULLY** submitted this 8th day of March, 2024.

16
17
18 By:



19 **MIGUEL C. BORDALLO, P.E.,**
20 General Manager, GWA
21
22
23
24
25
26
27
28

RatingsDirect®

Summary:

Guam Waterworks Authority; Water/Sewer

Primary Credit Analyst:

Jenny Poree, San Francisco + 1 (415) 371 5044; jenny.poree@spglobal.com

Secondary Contact:

Chloe S Weil, San Francisco + 1 (415) 371 5026; chloe.weil@spglobal.com

Table Of Contents

Credit Highlights

Outlook

Credit Opinion

Related Research

Summary:

Guam Waterworks Authority; Water/Sewer

Credit Profile

Guam Waterworks Auth WTRSWR		
<i>Long Term Rating</i>	A-/Negative	Outlook Revised
Guam Wtrwrks Auth wtr and wastewtr rev rfdg bnds		
<i>Long Term Rating</i>	A-/Negative	Outlook Revised

Credit Highlights

- S&P Global Ratings revised its outlook to negative from stable and affirmed its 'A-' rating on the Guam Waterworks Authority's (GWA) outstanding bonds.
- The negative outlook reflects our view of GWA's narrow coverage, use of one-time revenue to meet the rate covenant, and lack of an approved rate plan.

Security

The GWA pledge is on net revenues of the system and the revenue base derived solely from user charges, which are collected by and flow directly to the authority. There is no financial interplay between GWA and the Government of Guam (GovGuam) save for common fiduciary commitments such as pension and post-employment obligations, and GWA's governing board is independently elected, not appointed, so we do not view it to be a government-related entity. This, coupled with operating expense flexibility, limits exposure to GovGuam and in our view distinguishes GWA's credit quality from GovGuam or its general obligation rating.

Credit overview

The rating reflects the substantial capital needs of the system and recently narrowing coverage and use of rate stabilization funds (RSF) and American Rescue Plan Act funds for sufficiency. Management implemented several positive improvements in operations and continues to invest in the system, which we expect will improve resiliency and efficiency. However, the remaining near-term capital plan is complex and largely mandated. Management has experience with projects that have unique climate and regulatory sensitivities which we expect will support execution. Further, balancing necessary asset investments with rate affordability may pressure financial performance in our view. Given the tempered economic recovery and current market position, implementing the rate increases needed to maintain healthy financial performance may be difficult. The current rating assumes management and the Public Utility Commission (PUC) will take the steps necessary to increase rates to meet internal debt service and liquidity targets and replenish RSFs. The negative outlook reflects a one in three chance that the rating could be lowered, given the uncertainty around future financial performance.

The rating further reflects our view of:

- The territory's strategic value to the U.S. Department of Defense (DOD), which has the potential to stabilize any volatility associated with the tourist sector;

- A supportive relationship with the territory's PUC and a history of pre-approved rate adjustments;
- Management's commitment to improving system reliability and resiliency;
- GWA's adequate financial profile, including healthy total available reserves and narrow coverage when not accounting for rate stabilization funds; and
- A large and complex capital improvement program (CIP) through 2028 somewhat mitigated by experience with similar capital projects and resolution regarding the pending consent decree.

Environmental, social, and governance

GWA has elevated environmental risk stemming from both exposure to physical risks, such as severe storms, and regulatory pressures associated with compliance mandates. Most recently, Typhoon Mawar struck Guam and primarily affected electrical control equipment and generators. GWA fully restored water service restoration to all 19 municipalities in just under a month. Joint resiliency and mitigation initiatives are being pursued with Guam Power Authority, which we view as prudent risk management. GWA has also greatly improved its environmental stewardship. However, there are still opportunities to invest further. GWA recently finalized a consent decree that will primarily address collection system projects within the sewer system. Non-revenue water remains high, caused by both distribution and storage leaks as well as meters that need to be replaced. There are also several projects designed to further improve these metrics. These, in our view, are relevant to credit quality because corrective measures have the potential to not only influence the size of the long-term capital improvement plan (CIP) but also affect market position. We expect the capital plan to drive the need for future rate adjustments, which could increase GWA's social risks related to rate affordability, given the island's below-average income indicators. We view GWA's governance practices as neutral.

Outlook

The negative outlook reflects our view of GWA's narrow debt service coverage, use of one-time revenue to meet the rate covenant, and lack of an approved rate plan.

Downside scenario

Should GWA fail to meet forecasted coverage and replenish reserves, due to a slower than anticipated economic recovery, delayed approval of GWA's anticipated rate package, or unrealized expense reductions, we could lower the rating. If we believe rate-setting flexibility is becoming pressured or is diminished, we could also lower the rating.

Upside scenario

If GWA has a rate package approved that returns coverage margins to past levels, consistent with projections and will be sufficient to replenish reserves, we could return the outlook to stable. GWA still faces substantial capital requirements related to further regulatory mandates and the economy has not yet fully recovered from the pandemic related stress to the tourism market. This heightens the potential downside during the two-year outlook horizon.

Credit Opinion

Enterprise risk

The GWA serves about 44,000 water and 31,000 sewer customers in the western Pacific about 3,800 miles southwest of Honolulu and 1,500 miles southeast of Tokyo. About 30% of the island is used by the U.S. military, including Andersen Air Force Base and Naval Base Guam. Tourist-driven visits are slowly recovering but international travel restrictions have been more enduring, resulting in hotel revenue remaining soft. Fiscal 2023 visitor arrivals through August were 551,876, 192% higher than fiscal 2022, but still below pre-pandemic levels. The military is a substantial stabilizing presence for Guam, with direct and indirect benefits to income and employment levels. The most recent appropriations bill included \$1.7 billion for the buildup on Guam. In addition, it included extending the Pacific Deterrence Initiative (PDI) through fiscal 2023, which included an additional \$11.5 billion in investments to support PDI objectives. In addition, there was an authorized \$1.0 billion to address unfunded military requirements. Median household effective buying income (MHHEBI) for Guam is significantly below the U.S. levels based on the latest available data (from 2019). Unemployment is low, likely due to the area's military activity, which boosts jobs in the construction sector. The authority does not depend on any one of its principal customers for operating revenue, but both the island's employment base and GWA's operating revenue remain exposed collectively to downturns in hotel occupancy and tourism.

Most of the customer base is residential but a significant portion of its revenue are from hotels and the military (just more than 20%). Income levels have improved but the poverty rate remains elevated, and we expect GWA to implement substantial rate increases to support the consent decree, operations and existing debt service. While current rates are considered relatively affordable, they could pressure those at lower income levels. We expect rate-setting to be an ongoing challenge, given its current rates and demographic factors. Adopting adequate rates to maintain all-in sum sufficient coverage with operating revenue will be critical to maintaining the rating.

GWA's operational management assessment reflects the challenges regarding its key assets and risk exposure, as well as the supportive policies and practices management has put in place to improve system compliance and resilience:

- GWA's capital plan is largely mandated and relatively complex in nature. With respect to the water system, nonrevenue water (NRW) is extremely high at more than 60%. Management plans to reduce loss through leak repairs, pressure zone realignment, and improved monitoring, which we view favorably as reducing water loss is expected to reduce expenditures. These NRW mitigation efforts will compete with regulatory driven capital needs. As such, we believe NRW will remain elevated in the near-term as management balances its systems needs with rate affordability. With respect to the wastewater system, GWA recently finalized negotiations for the wastewater system consent decree. The consent decree is subject to approval by the Guam district court and will primarily address collection system needs, including pipelines, pump stations, and secondary wastewater treatment projects for the next 10 years. GWA's largest wastewater treatment plant was recently upgraded to secondary treatment. Recently completed projects and future capital plans are expected to improve reliability and compliance. While labor and supply chain challenges may present obstacles, we believe management has demonstrated the ability to execute these projects and the willingness to request rate increases to associated debt service. In the longer term, we expect per-and polyfluoroalkyl substances (PFAS) exposure and treatment to be a potential risk to the system, especially given several unique treatment and disposal limitations associated with GWA's geography.

Climate-resilience projects are also expected to be critical to address sea level rise and physical risks associated with severe storms.

- Other organizational risks include cyber, labor, and elevated exposure to physical risks. Guam has standard cyber practices in place and is bolstering its cyber efforts through procurement of insurance and partnerships with the military and government. While there are some labor challenges, they are not dissimilar to the sector as a whole. Management reports that its senior management contracts are in place and stable.
- After years of uneven results, financial performance has been sound since the creation of the Consolidated Commission on Utilities (CCU), the authority's governing board. The authority also has a strong relationship with the Guam PUC, with several pre-approved rate increases passed since 2013, including 5% increases in 2020 and 2021, a 5.5% increase in 2023 and a 16.7% increase planned for 2024. At the Guam PUC's request, GWA has already filed a petition for a new rate design structure based on the 2021 rate study. The next rate plan will be filed in April of 2024 and will be critical to meeting financial performance and credit quality, given GWA's escalating debt service and expectation of a new rate design.

Financial risk

As part of the 2020 rate order, the CCU refined GWA's internal DSC target to 1.40x for each of the two pre-approved rate increases in 2020 and 2021, and 1.50x thereafter. While the internal DSC targets afford GWA a measure of cushion above its 1.25x annual DSC rate covenant, actual coverage in 2022 and 2023 is below sum sufficiency without the use of rate stabilization funds, which is a credit risk. The 2024 forecast projects a lesser reliance on RSFs given the substantial rate increase. Management reports a commitment to restoring its RSFs beginning in 2025. We consider management achieving sum sufficient coverage without the use of reserves important to maintaining the rating.

GWA's established an operating and maintenance working capital reserve equivalent to 120 days of operating expenses. This is in addition to the 2005 master indenture requirement of an operating reserve equivalent to at least 90 days of budgeted operating expenses. As of July 2020, both of those designated but lawfully available reserves were funded above the minimum requirements, and combined reach just over one year of budgeted operating expenses. Our projections assume GWA will draw down its cash to fund capital projects.

The capital plan through 2028 incorporates \$751 million in total commitments and assumes that 70% of it will be financed with debt. GWA been successful in sharing costs for certain of its current and recently completed projects with the DOD for any impact that troop relocations have on the utility system, although we expect that future projects will be borne solely by GWA. We expect the pending consent decree will increase the capital plan's cost, but many collection projects associated with the consent decree are already included in the existing plan.

The authority's financial management assessment is sound with policies and internal targets that lend themselves to predictability, continuity, and transparency toward historical and projected future financial information. GWA produces monthly unaudited financial statements that are available on its website. In addition to periodic updates to its utility system master plan, management also regularly updates its rate model to correlate it with the revenue requirements in its long-term financial plan and uses conservative assumptions when establishing its annual budget.

Related Research

Through The ESG Lens 3.0: The Intersection Of ESG Credit Factors And U.S. Public Finance Credit Factors, March 2, 2022

Ratings Detail (As Of November 17, 2023)		
Guam Waterworks Auth wtr and wastewtr ser 2013 due 07/01/2043		
<i>Unenhanced Rating</i>	A-(SPUR)/Negative	Outlook Revised
Guam Waterworks Auth wtr/wastewtr (NPPG)		
<i>Unenhanced Rating</i>	A-(SPUR)/Negative	Outlook Revised
Guam Waterworks Auth WTRSWR		
<i>Long Term Rating</i>	A-/Negative	Outlook Revised
Guam Waterworks Auth WTRSWR		
<i>Long Term Rating</i>	A-/Negative	Outlook Revised

Many issues are enhanced by bond insurance.

Certain terms used in this report, particularly certain adjectives used to express our view on rating relevant factors, have specific meanings ascribed to them in our criteria, and should therefore be read in conjunction with such criteria. Please see Ratings Criteria at www.spglobal.com/ratings for further information. Complete ratings information is available to RatingsDirect subscribers at www.capitaliq.com. All ratings affected by this rating action can be found on S&P Global Ratings' public website at www.spglobal.com/ratings.

Copyright © 2023 by Standard & Poor's Financial Services LLC. All rights reserved.

No content (including ratings, credit-related analyses and data, valuations, model, software or other application or output therefrom) or any part thereof (Content) may be modified, reverse engineered, reproduced or distributed in any form by any means, or stored in a database or retrieval system, without the prior written permission of Standard & Poor's Financial Services LLC or its affiliates (collectively, S&P). The Content shall not be used for any unlawful or unauthorized purposes. S&P and any third-party providers, as well as their directors, officers, shareholders, employees or agents (collectively S&P Parties) do not guarantee the accuracy, completeness, timeliness or availability of the Content. S&P Parties are not responsible for any errors or omissions (negligent or otherwise), regardless of the cause, for the results obtained from the use of the Content, or for the security or maintenance of any data input by the user. The Content is provided on an "as is" basis. S&P PARTIES DISCLAIM ANY AND ALL EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, FREEDOM FROM BUGS, SOFTWARE ERRORS OR DEFECTS, THAT THE CONTENT'S FUNCTIONING WILL BE UNINTERRUPTED OR THAT THE CONTENT WILL OPERATE WITH ANY SOFTWARE OR HARDWARE CONFIGURATION. In no event shall S&P Parties be liable to any party for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including, without limitation, lost income or lost profits and opportunity costs or losses caused by negligence) in connection with any use of the Content even if advised of the possibility of such damages.

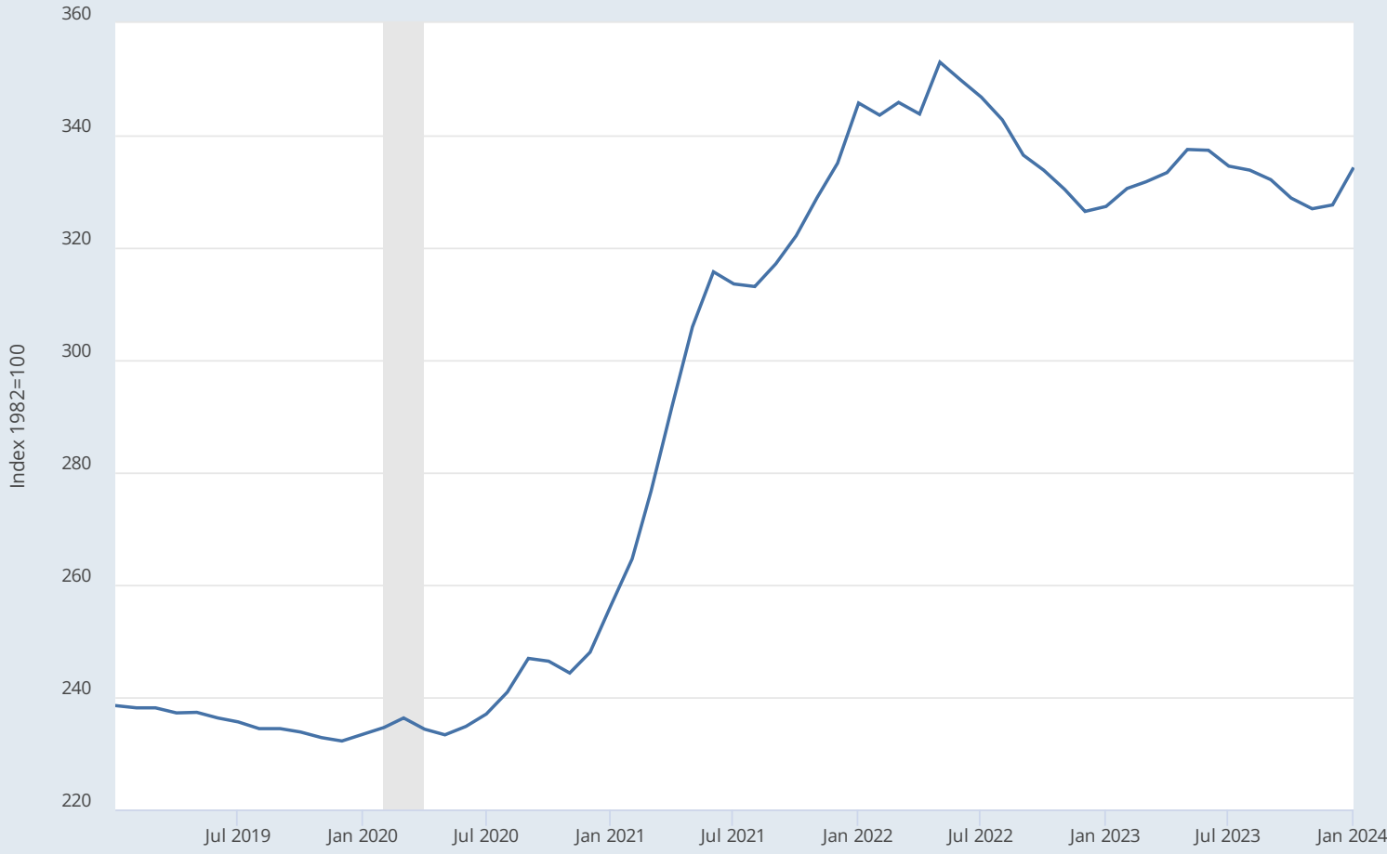
Credit-related and other analyses, including ratings, and statements in the Content are statements of opinion as of the date they are expressed and not statements of fact. S&P's opinions, analyses and rating acknowledgment decisions (described below) are not recommendations to purchase, hold, or sell any securities or to make any investment decisions, and do not address the suitability of any security. S&P assumes no obligation to update the Content following publication in any form or format. The Content should not be relied on and is not a substitute for the skill, judgment and experience of the user, its management, employees, advisors and/or clients when making investment and other business decisions. S&P does not act as a fiduciary or an investment advisor except where registered as such. While S&P has obtained information from sources it believes to be reliable, S&P does not perform an audit and undertakes no duty of due diligence or independent verification of any information it receives. Rating-related publications may be published for a variety of reasons that are not necessarily dependent on action by rating committees, including, but not limited to, the publication of a periodic update on a credit rating and related analyses.

To the extent that regulatory authorities allow a rating agency to acknowledge in one jurisdiction a rating issued in another jurisdiction for certain regulatory purposes, S&P reserves the right to assign, withdraw or suspend such acknowledgment at any time and in its sole discretion. S&P Parties disclaim any duty whatsoever arising out of the assignment, withdrawal or suspension of an acknowledgment as well as any liability for any damage alleged to have been suffered on account thereof.

S&P keeps certain activities of its business units separate from each other in order to preserve the independence and objectivity of their respective activities. As a result, certain business units of S&P may have information that is not available to other S&P business units. S&P has established policies and procedures to maintain the confidentiality of certain non-public information received in connection with each analytical process.

S&P may receive compensation for its ratings and certain analyses, normally from issuers or underwriters of securities or from obligors. S&P reserves the right to disseminate its opinions and analyses. S&P's public ratings and analyses are made available on its Web sites, www.spglobal.com/ratings (free of charge), and www.ratingsdirect.com (subscription), and may be distributed through other means, including via S&P publications and third-party redistributors. Additional information about our ratings fees is available at www.spglobal.com/usratingsfees.

STANDARD & POOR'S, S&P and RATINGSDIRECT are registered trademarks of Standard & Poor's Financial Services LLC.



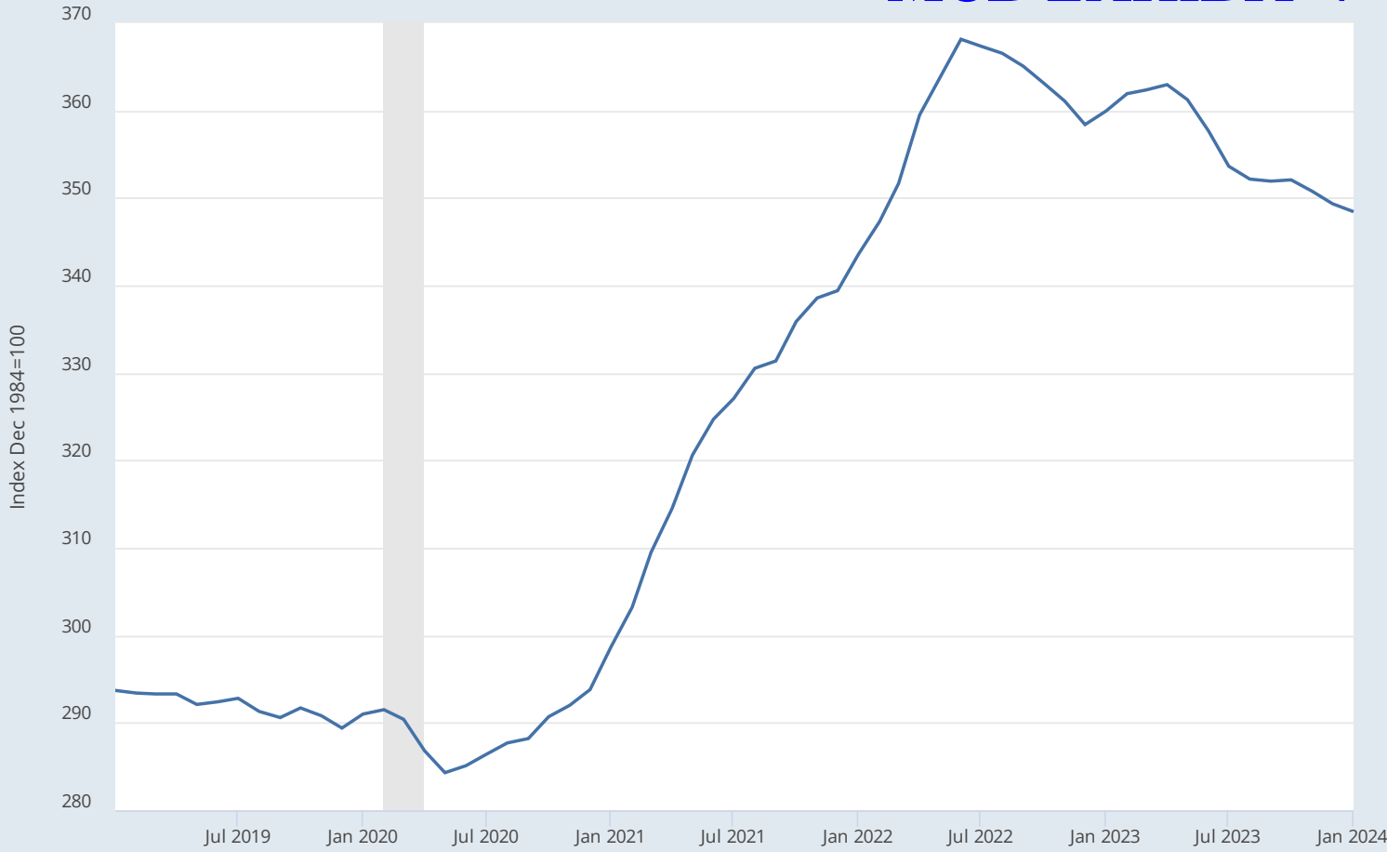
Source: U.S. Bureau of Labor Statistics

fred.stlouisfed.org



Source: U.S. Bureau of Labor Statistics

fred.stlouisfed.org



Source: U.S. Bureau of Labor Statistics

fred.stlouisfed.org

1 INTRODUCTION AND BACKGROUND

2 **Q1. *Please state your name, occupation and business address.***

3 A1. My name is Taling M Taitano. I am a Certified Public Accountant, a Certified Government
4 Financial Manager, and a Chartered Global Management Accountant. I am the Chief
5 Financial Officer of the Guam Waterworks Authority located at the Gloria B Nelson Public
6 Service Building, Route 15, Fadian, Mangilao, Guam.

7
8 **Q2. *Please describe your education and professional history.***

9 A2. I have a Bachelor of Business Administration in Accounting from the University of
10 Hawaii, Manoa. Prior to joining the Guam Waterworks Authority (GWA), I held various
11 positions in both the government and private sector including Deputy Director of the
12 Guam Department of Commerce, Partner with Deloitte & Touche, Guam Housing &
13 Urban Renewal Authority Executive Director, Chief Financial Officer of the Bank of
14 Guam and Staywell Insurance, and Guam Department of Education Deputy
15 Superintendent, Finance and Administrative Services. I joined the Guam Waterworks
16 Authority as the Chief Financial Officer in September 2019.

17
18 I have been active with professional organizations throughout my career. I am a former
19 Chair and current Vice-Chair of the Guam Board of Accountancy, former President and
20 current Secretary of the Guam Society of CPAs, former Council Member and current
21 Member of the American Institute of CPAs, former President and current Board Member
22 of the Guam Association of Government Accountants. I have also been active with a
23 number of civic and religious groups including the Santa Teresita and Santa Lourdes
24 Finance Councils, the Soroptimists of the Marianas, and the Guam Council of Women’s
25 Clubs.

1 SCOPE AND PURPOSE OF TESTIMONY

2 **Q3. *What is the purpose of your testimony in this proceeding?***

3 A3. I am testifying in support of the Guam Waterworks Authority’s Five-Year Financial Plan
4 and Capital Improvement Program (FY2025-FY2029) and the associated rate relief
5 required to support the plans. I will cover certain financial topics germane to the financial
6 plan.

7
8 DEBT SERVICE COVERAGE

9 **Q4. *Please discuss GWA’s current debt service coverage.***

10 A4. Debt Service Coverage (DSC) is a crucial financial metric that reflects GWA’s ability to
11 meet its debt obligations with operating income. Section 6.12 Rate Covenant (A) of
12 GWA’s Bond Indenture¹ requires a minimum 1.25x debt coverage:

13 *SECTION 6.12 Rate Covenant.*

14 *(A) The Authority shall at all times fix, prescribe and collect rates, fees*
15 *and charges in connection with the services furnished by the System*
16 *which will be sufficient to yield the sum of Net Revenues during each*
17 *Fiscal Year equal to at least 1.25 times the Aggregate Annual Debt*
18 *Service for such Fiscal Year and to yield Revenues during each Fiscal*
19 *Year equal to at least the aggregate amount of all transfers required*
20 *by Section 5.02(A) through (E) for such Fiscal Year.*

21 Going below this requirement would cause a technical default and will likely result in a
22 downgrade in ratings. A downgrade in ratings would make it more expensive for GWA to
23 borrow money, either through bonds or loans, which would translate into higher debt
24 service payments, higher debt service coverage and increased water and wastewater rates
25 in order to support the debt service.

26
27
28

¹ See TMT Exhibit 1 Bond Indenture, page 40

1 A healthy DSC ratio (DSCR) will improve the creditworthiness of the authority and result
2 in higher investor confidence in GWA debt.

3 Factors that contribute to a financially viable DSCR include revenue stability, cost
4 management, capital improvement planning, and risk mitigation.

5
6 **Q5. What are the current CCU and PUC debt service coverage targets?**

7 A5. In Ordering Provision 10 of Docket 04-01², *FY05 Rate Order*, signed October 14, 2004,
8 the PUC adopted a minimum 1.75x DSCR *for the purpose of setting just and reasonable*
9 *rates.*

10 As part of the stipulation for the FY2020-2024 Financial Plan, Ordering Provision 19 of
11 Docket 19-08, *FY20 Rate Decision*³ signed on February 27, 2020, set the DSCR at 1.4x -
12 1.5x. Similarly, CCU Resolution 17-FY2020⁴ *Relative to Adopting a Debt Service*
13 *Coverage Target of 1.50 and a Working Capital Reserve of 120 Days of Operating and*
14 *Maintenance Expense* adopted a 1.4x – 1.5x DSCR over the FY2020 – FY2024 period.

15
16 During the last two years of the current five-year plan, FY2023-FY2024, the PUC in
17 Ordering Provision 5 of Docket 19-08 *Rate Decision*⁵, signed on September 22, 2022,
18 reduced the targeted DSCR to 1.3x because the level of operating income projected was
19 not sufficient to meet the previous 1.4x-1.5x DSCR ordered.

20 Clearly both the PUC and the CCU understand the need to improve DSC levels, but this
21 would require adequate rates to reach this goal.
22
23
24
25
26

27 ² See TMT Exhibit 2 FY05 Rate Order signed October 14, 2004, page 5

28 ³ See TMT Exhibit 3 FY20 Rate Decision, signed February 27, 2020, page 9

⁴ See TMT Exhibit 4 Resolution 17-FY2020-signed March 24, 2020, page 3

⁵ See TMT Exhibit 5 Rate Decision signed September 22, 2022, page 36

1 **Q6. *What are your recommendations with regard to debt service coverage over this five-year***
2 ***plan?***

3 A6. The Guam Waterworks Authority proposes a gradual increase in the DSCR over the next
4 five years, from the current target of 1.3x to 1.5x with annual increments that align with
5 anticipated revenue growth, cost management strategies, and planned capital projects.

6 GWA is committed to maintaining a strong financial position by gradually increasing the
7 DSCR to a target range of 1.4x-1.5x over the next five years.

8 This recommendation is based on prudent financial management, risk mitigation, and
9 strategic alignment of debt obligations with the Authority's growth and capital plans. This
10 phased approach allows for a balanced and sustainable trajectory towards the desired
11 range.

12
13 **Q7. *Have the rating agencies provided an opinion related to debt service coverage ratios or***
14 ***reserves in the recent past?***

15 A7. In the February 2, 2024, Rating Letter, Standard & Poors Rating Letter ⁶states:

16 *Outlook*

17 *The negative outlook reflects our view of GWA's narrow debt service*
18 *coverage, use of one-time revenues to meet the rate covenant, and lack of an*
approved rate plan.

19 *Downside scenario*

20 *Should GWA fail to meet forecasted coverage and replenish reserves, due to*
21 *a slower than anticipated economic recovery, delayed approval of GWA's*
22 *anticipated rate package, or unrealized expense reductions, we could lower*
23 *the rating. If we believe rate-setting flexibility is becoming pressured or is*
diminished, we could also lower the rating.

24 In its February 4, 2024, Rating Action⁷, Moody's states:

25 *FACTORS THAT COULD LEAD TO A DOWN GRADE OF THE RATINGS*
26 *-Operating deficits leading to lower debt service coverage and liquidity*

27
28 ⁶ See TMT Exhibit 6 Standard & Poors Rating Letter dated February 2, 2024,
page 3

⁷ See TMT Exhibit 7 Moody's Rating Action dated February 4, 2024, page 2

1 **Q8. *Have bondholders, credit analysts or institutional investors expressed concerns about***
2 ***GWA's narrowing DSC?***

3 A8. During investor calls in February, prior to the Authority's 2024 bond tender and refunding,
4 a number of analysts raised concerns about GWA's coverage ratios and use of ARPA
5 (American Rescue Plan Act) and RSF (Rate Stabilization Fund) to shore up the DSC.
6 Several analysts also questioned whether the Authority would continue to rely on
7 infusions from such funds to meet DSC for the current and future years.

8
9 **Q9. *What are the implications of a lowered credit rating?***

10 A9. As discussed above, if the credit rating agencies lower GWA's credit rating it will lead to
11 increased borrowing costs and difficulty in accessing credit. Higher risk is associated with
12 lower credit ratings and investors will demand higher interest rates to compensate for that
13 risk.

14 Lower credit ratings will make it more difficult to access credit or favorable terms and can
15 deter potential investors from investing in GWA bonds. Should GWA be authorized,
16 obtaining alternative debt instruments, like Tax Exempt Commercial Paper⁸, may be more
17 difficult and more expensive given a low DSCR.

18
19 GWA will have to pay more to access the financial markets and these increased costs will
20 translate into higher rates for GWA customers.

21
22 **CASH RESERVES**

23 **Q10. *Why are cash reserves important?***

24 A10. As a water and wastewater utility, cash reserves are essential for ensuring operational
25 reliability, regulatory compliance, financial stability, and long-term sustainability. Cash
26 reserves are particularly crucial for the following reasons:

27
28 ⁸ The PUC ordered study, *Capital Financing Alternatives*, discusses short term financing instruments.

1 *Infrastructure Maintenance and Upgrades.* Cash reserves are vital for funding ongoing
2 maintenance, repairs, and infrastructure upgrades to ensure the continued operation and
3 reliability of GWA's essential water and wastewater systems. Regular investment in
4 infrastructure maintenance helps prevent costly breakdowns, service disruptions, and
5 regulatory penalties.

6 *Emergency Response and Resilience.* GWA must be prepared to respond swiftly to
7 emergencies such as pipe breaks, contamination incidents, or natural disasters. Cash
8 reserves provide the financial resources needed to implement emergency response plans,
9 repair damaged infrastructure, and restore service to affected customers promptly.
10 Investing in resilience measures enhances GWA's ability to withstand disruptions and
11 maintain service continuity during crises.

12 *Regulatory Compliance.* Water and wastewater utilities operate within a highly regulated
13 environment, subject to strict quality standards, environmental regulations, and public
14 health requirements. Cash reserves are essential for meeting regulatory compliance
15 obligations, including investing in equipment upgrades, adopting advanced treatment
16 technologies, and funding environmental remediation efforts. Maintaining adequate
17 reserves ensures GWA can address compliance issues promptly, avoid regulatory fines,
18 and uphold commitments to protecting public health and the environment.

19 *Revenue Stability and Rate Stabilization.* Cash reserves help mitigate revenue fluctuations
20 and stabilize utility rates for customers. During periods of economic downturn or
21 unforeseen revenue shortfalls, reserves can bridge funding gaps and offset revenue losses,
22 reducing the need for abrupt rate increases or service cutbacks. By maintaining stable
23 rates, GWA can enhance customer satisfaction, promote affordability, and foster long-term
24 financial sustainability.

25 *Capital Projects and Expansion.* Cash reserves provide GWA with the financial flexibility
26 to undertake capital projects and strategic investments in response to changing community
27
28

1 needs, population growth or regulatory requirements. Whether expanding capacity to
2 accommodate growing demand, upgrading aging infrastructure to improve efficiency, or
3 investing in sustainable water management practices, reserves play a crucial role in
4 funding these long-term initiatives without overreliance on debt financing or rate hikes.

5 *Creditworthiness and Investor Confidence.* Strong cash reserves bolster the
6 creditworthiness of GWA, instilling confidence in bondholders and investors. Utilities
7 with healthy reserves are better positioned to access capital markets on favorable terms,
8 secure financing for infrastructure projects, and maintain lower borrowing costs. Investor
9 confidence in GWA's financial stability and ability to meet debt obligations is essential
10 for attracting investment and ensuring continued access to capital for future growth and
11 development.

12
13 **Q11. *What are the levels of reserves proposed in the five-year plan?***

14 A11. The levels of reserve proposed in the 5-year plan include maintenance of the CCU
15 prescribed liquidity target of 120 days ⁹of Cash on Hand in the Operating Fund, required
16 Debt Service Reserve Funds, and perhaps most importantly, partial restoration (to a \$10M
17 balance by FY 2029) of Rate Stabilization Reserve Funds (RSF) that were near depleted
18 through the FY 2022 – FY 2024 Comprehensive Review and Update rate period.
19

20 **CAPITAL IMPROVEMENT PROGRAM FUNDING**

21 **Q12. *How does GWA plan to fund its capital improvement program?***

22 A12. As noted in the testimony by Assistant General Manager, Engineering, Jeanet B. Owens,
23 GWA plans \$898 million in capital project delivery over the period of FY2025 through
24 FY2029. The testimony of Financial Advisor Eric Rothstein notes that GWA plans to use
25 bonds, grants, system development charges and revenues (IFCIP) to fund its investment
26 in infrastructure. Schedule E *Sources and Uses of Funds, Capital Improvement Program*
27

28

⁹ See TMT Exhibit 4 Resolution 17-FY2020-signed March 24, 2020, page 3

1 in the Rate Application Schedules summarizes the funding sources used for the 5-Year
2 CIP.

3
4 **Q13. *Does GWA have the borrowing authority to obtain new revenue bonds?***

5 A13. GWA has exhausted its available bond borrowing authority and has worked with bond
6 counsel to draft legislation to increase GWA's borrowing authority. Since 2021, GWA has
7 attempted to advance legislation to authorize needed debt-financing, and most recently
8 has resubmitted revised draft legislation for the proposed water and wastewater revenue
9 bonds included in the FY2025 – FY2029 Financial Plan. This draft legislation¹⁰ has been
10 provided to GWA's oversight chair in the Guam Legislature as well as the Chair of the
11 General Government Operations and Appropriations Committee. GWA is working to have
12 the legislation introduced and passed by the second quarter of calendar year 2024.

13
14 **Q14. *Is bond funding the only debt instrument that GWA will use to raise funding for its CIP?***

15 A14. The draft legislation also includes provisions that will allow GWA to set up a Tax-Exempt
16 Commercial Paper (TECP) program or similar short term financing vehicle and apply for
17 and secure Water Infrastructure Finance and Innovation Act (WIFIA) Loans through the
18 U.S. Environmental Protection Agency. The short-term financing instrument will allow
19 GWA to draw funds only in the amounts needed to pay its contractors on multi-year
20 construction contracts and thereby only pay interest on the amounts drawn down. When
21 sufficient construction funding draws have accumulated, long-term revenue bonds will be
22 used to pay off the short-term financing instrument and restore the encumbrance capacity
23 of the short-term financing instrument. The WIFIA loan can similarly offer favorable
24 interest rates as well as allow GWA to draw funds on an as needed basis.

25 Both the short-term financing instruments and the WIFIA loan will decrease debt service
26 as GWA will be paying interest only on funds it draws as needed.

27
28

¹⁰ See TMT Exhibit 8 Draft Legislation

1 **Q15. *What grants will GWA use to pay towards infrastructure investments?***

2 A15. The Bipartisan Infrastructure Law (BIL) or Infrastructure Investment and Jobs Act (IIJA)
3 increased the annual amounts that GWA will be receiving from US EPA in Safe Drinking
4 Water Act (SDWA) and Clean Water Act (CWA) grant program funding to \$27 million
5 annually for FY2025 – FY2027 of the financial plan. It is anticipated that in the last two
6 years of the financial plan, the EPA grant funding will be \$4 million annually. This
7 reduction is due to a contraction of the amount of EPA grant funding available for the US
8 Territories because of Congressional earmarks incorporated into authorizing legislation
9 for special projects within various Congressional districts.

10 GWA continues to explore other grant opportunities from other federal sources such as
11 FEMA mitigation grant programs or the Bureau of Reclamation. Should GWA be
12 successful in obtaining any additional grant funds, this may reduce the amount of debt-
13 financing required, which would be reflected in future true ups.

14
15 **Q16. *Does this conclude your testimony?***

16 A16. Yes.

17
18 I, Taling M. Taitano, do hereby state and aver under penalty of perjury that the Written
19 Testimony above in Support of the Requests for Approvals of the Guam Waterworks Authority
20 Five-Year Financial Plan, Rate Increase Requests, and Capital Improvement Program for FY2025
21 – FY2029 submitted herewith is both truthful and accurate to the best of my knowledge.

22 **RESPECTFULLY** submitted this 8th day of March, 2024.

23
24
25 By: 
26 **TALING M. TAITANO, CPA, CGFM, CGMA**
27 Chief Financial Office
28

TMT EXHIBIT 1

\$166,075,000
GUAM WATERWORKS AUTHORITY
WATER AND WASTEWATER SYSTEM
REVENUE REFUNDING BONDS
SERIES 2020B (FEDERALLY TAXABLE)

CERTIFICATE OF THE AUTHORITY AS TO INDENTURE

August 26, 2020

I, Miguel C. Bordallo, hereby certify that I am the General Manager of the Guam Waterworks Authority (“Authority”) and that attached hereto are true and correct copies of the Indenture, dated as of December 1, 2005, the Supplemental Indenture, dated as of December 1, 2005, the Supplemental Indenture, dated as of November 1, 2010, the Third Supplemental Indenture, dated as of December 1, 2013, the Fourth Supplemental Indenture, dated as of August 1, 2014, the Fifth Supplemental Indenture, dated as of February 1, 2016, the Sixth Supplemental Indenture, dated as of December 1, 2017 and the Seventh Supplemental Indenture, dated as of June 1, 2020 (collectively, the “Existing Indenture”), each among the Authority, the Bank of Guam, as Trustee and Depository (the “Trustee”) and U.S. Bank National Association, as Co-Trustee and Paying Agent (the “Co-Trustee”).

I further certify that said copies are full, true and correct copies of said Existing Indenture executed by the Authority; and that, except as supplemented by the Eighth Supplemental Indenture, dated as of August 1, 2020, among the Authority, the Trustee and the Co-Trustee relating to the above-captioned Series 2020B Bonds, said Existing Indenture has not been amended, modified or rescinded in any manner, and is now in full force and effect.

CERTIFICATE OF THE AUTHORITY AS TO INDENTURE

Page 2

IN WITNESS WHEREOF, I have executed this certificate as of the first date written above.



Miguel C. Bordallo
General Manager

GUAM WATERWORKS AUTHORITY

and

BANK OF GUAM,
as Trustee,

and

U.S. BANK NATIONAL ASSOCIATION,
as Co-Trustee

INDENTURE

Dated as of December 1, 2005

Relating to

Guam Waterworks Authority Water and Wastewater System Revenue Bonds

TABLE OF CONTENTS

		Page
ARTICLE I	DEFINITIONS; EFFECT OF INDENTURE	1
SECTION 1.01	Definitions.....	1
SECTION 1.02	Equal Security	17
SECTION 1.03	Content of Certificates and Opinions	17
ARTICLE II	THE BONDS	18
SECTION 2.01	Authorization of Bonds	18
SECTION 2.02	Execution of Bonds	18
SECTION 2.03	Transfer of Bonds.....	18
SECTION 2.04	Exchange of Bonds	19
SECTION 2.05	Bond Register; Right of Inspection.....	19
SECTION 2.06	Temporary Bonds.....	19
SECTION 2.07	Bonds Mutilated, Lost, Destroyed or Stolen.....	19
SECTION 2.08	Book-Entry Registration of Exchanges.....	20
ARTICLE III	ISSUANCE OF BONDS; ISSUANCE OF A SERIES OF BONDS; PARITY PAYMENT AGREEMENTS	20
SECTION 3.01	Issuance of Bonds	20
SECTION 3.02	Application of Proceeds of Bonds.....	21
SECTION 3.03	Establishment and Application of Construction Accounts; Modification of Projects.....	21
SECTION 3.04	Issuance of Additional Series of Bonds; Additional Parity Payment Agreements; Other Payment Agreements	21
SECTION 3.05	Proceedings for the Issuance of a Series of Bonds; Parity Payment Agreements	23
SECTION 3.06	Validity of Bonds	26
ARTICLE IV	REDEMPTION OF BONDS	26
SECTION 4.01	Terms of Redemption.....	26
SECTION 4.02	Selection of Bonds for Redemption	26
SECTION 4.03	Notice of Redemption	27
SECTION 4.04	Partial Redemption.....	28
SECTION 4.05	Effect of Redemption	28
SECTION 4.06	Rescission of Notice of Redemption.....	28
ARTICLE V	REVENUES AND FUNDS.....	28
SECTION 5.01	Pledge and Assignment of Revenues; Revenue Fund.....	28

TABLE OF CONTENTS
(continued)

	Page
SECTION 5.02	Allocation of Revenues 29
SECTION 5.03	Application of Operation and Maintenance Fund 31
SECTION 5.04	Rebate Fund 31
SECTION 5.05	Application of Debt Service Fund..... 32
SECTION 5.06	Application of Bond Reserve Fund..... 32
SECTION 5.07	Application of Subordinate Securities Fund 33
SECTION 5.08	Application of Operation, Maintenance, Renewal and Replacement Reserve Fund..... 33
SECTION 5.09	Application of Rate Stabilization Fund..... 33
SECTION 5.10	Application of Capital Improvement Fund 33
SECTION 5.11	Deficiencies in Funds or Accounts 33
SECTION 5.12	Investment of Moneys in Funds 33
ARTICLE VI	CERTAIN COVENANTS 34
SECTION 6.01	Payment of Principal and Interest 34
SECTION 6.02	Against Encumbrances..... 35
SECTION 6.03	Sale or Other Disposition of Property 35
SECTION 6.04	Operation and Maintenance of the System 35
SECTION 6.05	Liens and Claims..... 35
SECTION 6.06	Insurance 36
SECTION 6.07	Books and Accounts; Financial Statements 37
SECTION 6.08	Authority Budgets 37
SECTION 6.09	Payment of Taxes, Etc..... 38
SECTION 6.10	Acquisition and Construction of Improvements 38
SECTION 6.11	Eminent Domain Proceeds..... 38
SECTION 6.12	Rate Covenant 39
SECTION 6.13	Compliance with Indenture 39
SECTION 6.14	Observance of Laws and Regulations 39
SECTION 6.15	Prosecution and Defense of Suits..... 40
SECTION 6.16	Further Assurances..... 41
SECTION 6.17	Pledge of the Government..... 41
ARTICLE VII	EVENTS OF DEFAULT AND REMEDIES OF BONDOWNERS 42
SECTION 7.01	Events of Default; Remedies..... 42

TABLE OF CONTENTS
(continued)

	Page
SECTION 7.02 Application of Funds Upon Default.....	43
SECTION 7.03 Representation of Bondowners by Trustee	43
SECTION 7.04 Nonwaiver	44
SECTION 7.05 Actions by Trustee as Attorney-in-Fact	44
SECTION 7.06 Remedies Not Exclusive	45
ARTICLE VIII THE FIDUCIARIES.....	45
SECTION 8.01 Appointment of Trustee	45
SECTION 8.02 Appointment of Co-Trustees.....	45
SECTION 8.03 Duties, Immunities and Liabilities of Fiduciaries	45
SECTION 8.04 Compensation.....	47
SECTION 8.05 Liability of Fiduciaries.....	48
SECTION 8.06 Right of Fiduciaries to Rely on Documents.....	48
SECTION 8.07 Preservation and Inspection of Documents.....	48
ARTICLE IX MODIFICATION OR AMENDMENT OF THE INDENTURE.....	49
SECTION 9.01 Amendments Permitted.....	49
SECTION 9.02 Procedure for Amendment with Consent of Bondowners.....	50
SECTION 9.03 Disqualified Bonds.....	50
SECTION 9.04 Effect of Supplemental Indenture	50
SECTION 9.05 Endorsement or Replacement of Bonds Issued Before Amendments	51
SECTION 9.06 Amendatory Endorsement of Bonds	51
SECTION 9.07 Credit Provider Consent.....	51
ARTICLE X DEFEASANCE	51
SECTION 10.01 Discharge of Indenture.....	51
SECTION 10.02 Discharge of Liability on Bonds	52
SECTION 10.03 Payment of Bonds after Discharge of Indenture	52
ARTICLE XI MISCELLANEOUS	53
SECTION 11.01 Liability of Authority Limited to Revenues.....	53
SECTION 11.02 Successor Is Deemed Included in All References to Predecessor.....	53
SECTION 11.03 Limitation of Rights to Parties and Bondowners	53
SECTION 11.04 Waiver of Notice.....	53
SECTION 11.05 Destruction of Bonds.....	53

TABLE OF CONTENTS
(continued)

	Page
SECTION 11.06	Severability of Invalid Provisions..... 53
SECTION 11.07	Notice to Authority and Trustee..... 54
SECTION 11.08	Evidence of Rights of Bondowners..... 54
SECTION 11.09	Article and Section Headings and References 54
SECTION 11.10	Funds and Accounts 55
SECTION 11.11	Saturdays, Sundays and Legal Holidays 55
SECTION 11.12	Waiver of Personal Liability 55
SECTION 11.13	Governing Law 55
SECTION 11.14	Execution in Several Counterparts..... 55
SECTION 11.15	Credit Agreements and Credit Providers 55

THIS INDENTURE, made and entered into as of December 1, 2005, by and between the GUAM WATERWORKS AUTHORITY, a duly organized public corporation of the government of Guam (the "Authority"), BANK OF GUAM, a domestic banking corporation duly organized and existing under and by virtue of the laws of Guam, having a corporate trust office in Guam, and being qualified to accept and administer the trusts hereby created and to do business within Guam, as trustee (the "Trustee"), and U.S. BANK NATIONAL ASSOCIATION, a national banking association organized under the laws of the United States of America and qualified to accept and administer the trusts hereby created, as co-trustee (the "Co-Trustee")

WITNESSETH:

WHEREAS, the Authority owns certain water and sewer system facilities;

WHEREAS, pursuant to Chapter 14 of Title 12 of the Guam Code Annotated, as amended (the "Act"), the Authority is authorized from time to time by statutory legislation authority, to incur indebtedness, and issue bonds, secured by a pledge on all or any portion of the revenues of the Authority to raise funds for the purpose of establishing the System (as hereinafter defined), or acquiring lands for the System, or acquiring, constructing, improving, equipping, maintaining, repairing, renewing, replacing, reconstructing or insuring the System, or any part thereof, or for the purpose of the refunding any such indebtedness, or for any combination of such purposes;

WHEREAS, the Authority has determined to issue revenue bonds for such purposes and to that end has duly authorized the execution and delivery of this Indenture to secure the payment of the principal thereof and the interest and premium, if any, thereon, and the observance of the covenants and conditions herein contained;

WHEREAS, said revenue bonds issued hereunder are to be designated as the "Guam Waterworks Authority Water and Wastewater System Revenue Bonds" (the "Bonds") and are to be issued from time to time in an aggregate principal amount not limited except as hereinafter provided; and

WHEREAS, the forms of each series of Bonds and various other matters relating to such series shall be prescribed in indentures supplemental hereto;

NOW, THEREFORE, THIS INDENTURE WITNESSETH, that in order to secure the payment of the principal of, and the premium, if any, and interest on, all Bonds at any time issued and outstanding under this Indenture, according to their tenor, and to secure the performance and observance of all the covenants and conditions therein and herein set forth, and to declare the terms and conditions upon and subject to which the Bonds are to be issued and received, and in consideration of the premises and of the mutual covenants herein contained and of the purchase and acceptance of the Bonds by the owners thereof, and for other valuable considerations, the receipt whereof is hereby acknowledged, the Authority does hereby covenant and agree with the Trustee and the Co-Trustee for the benefit of the respective owners from time to time of the Bonds, as follows:

ARTICLE I

DEFINITIONS; EFFECT OF INDENTURE

SECTION 1.01 Definitions. Unless the context otherwise requires, the terms defined in this Section shall, for all purposes of this Indenture and of any Supplemental Indenture and of any certificate, opinion or other document herein mentioned, have the meanings herein specified. Unless

otherwise defined in this Indenture, all terms used herein shall have the meanings assigned to such terms in the Act.

Account

“Account” means each account established and given a designation pursuant to this Indenture or any Supplemental Indenture.

Accreted Value

“Accreted Value” means, with respect to any particular Bonds as of any given date of calculation, an amount equal to the sum of the principal amount of such Bonds plus accrued and unpaid interest on such Bonds as of such date, but not including interest payable on a current basis at least annually.

Act

“Act” means Chapter 14 of Title 12 of the Guam Code Annotated, as amended, and as it may from time to time hereafter be amended or supplemented.

Additional Bonds

“Additional Bonds” means bonds, notes or other obligations of the Authority payable from Revenues and ranking on a parity with the Bonds then outstanding and authorized to be issued under and pursuant to Sections 3.04 and 3.05.

Aggregate Annual Debt Service

“Aggregate Annual Debt Service” means, for any year, Annual Debt Service for such year on all Bonds.

Annual Debt Service

“Annual Debt Service” means, for any year, and with respect to any Bonds (A) the sum of (1) the interest falling due on such Bonds then Outstanding (assuming that all then Outstanding Serial Bonds are retired on their respective maturity dates and that all then Outstanding Term Bonds are retired at the times of and in amounts provided for by the Mandatory Sinking Account Payments applicable to such Term Bonds), but not including Capitalized Interest, plus (2) the principal amount of such Bonds then Outstanding that are Serial Bonds falling due by their terms, plus (3) the aggregate amount of all Mandatory Sinking Account Payments falling due with respect to such Bonds then Outstanding that are Term Bonds, plus (4) the aggregate amount of Payment Agreement Payments under Related Parity Payment Agreements then Outstanding falling due, minus (B) the aggregate amount of Payment Agreement Receipts under Related Payment Agreements then Outstanding falling due; all as calculated for said year and provided that for purposes of determining the interest payable on Variable Rate Bonds, any obligation of the Authority to make Payment Agreement Payments based on a variable rate under Parity Payment Agreements and any obligation of a Qualified Counterparty to make payments under a Payment Agreement to the Authority based on a variable rate, the following assumptions shall be made:

- (i) for purposes of determining the interest payable on Variable Rate Bonds, the interest rate used in making such determination shall be (a) for periods for which such rate has been determined, the actual interest rate on such Bonds; (b) for purposes of Section

3.05(B)(1)(c)(i)(D) for any other period, a rate equal to 1.1 times the highest rate of interest borne by such Bonds, or if such Bonds were not Outstanding during any portion of any such period bonds with similar ratings and terms, during the next preceding twelve months; or (c) for any other period or purpose, the prevailing interest rate on such Bonds as of the date of such determination;

(ii) for purposes of determining the amount of Payment Agreement Payments based on a variable rate under Parity Payment Agreements, the rate used in making such determination shall be assumed to be (a) for periods for which such rate has been determined, the actual rate used to calculate such payments, (b) for purposes of Section 3.05(B)(1)(c)(i)(D) for any other period, a rate equal to 1.1 times the highest such rate during the next preceding twelve months, and (c) for any other period or purpose, the prevailing rate being used to determine such payment obligation as of the date of such determination; in each such case without regard to the occurrence of any event that, under the provisions of such Payment Agreement, would permit or require the Authority to make payments on any basis other than such rates;

(iii) for purposes of determining the amount of payments by a Qualified Counterparty under a Payment Agreement to the Authority based on a variable rate, the rate used in making such determination shall be (a) if such Payment Agreement obligates a Qualified Counterparty to make payments to the Authority based on a variable rate that is equal to the actual rate on the Related Bonds, the actual rate on such Bonds; and (b) if such Payment Agreement obligates a Qualified Counterparty to make payments to the Authority based on a variable rate other than the actual rate on the Related Bonds (1) for periods for which such rate has been determined, the actual rate used to calculate such payments, (2) for purposes of Section 3.05(B)(1)(c)(i)(D) for any other period, a rate equal to 1.1 times the highest such rate during the next preceding twelve months, and (3) for any other period or purpose, the prevailing rate being used to determine such payment obligation as of the date of such determination; in each such case without regard to the occurrence of any event that, under the provisions of such Payment Agreement, would permit or require the Qualified Counterparty to make payments on any basis other than such rates.

Authority

“Authority” means the Guam Waterworks Authority, a public corporation of the Government of Guam, or any successor to the rights, powers, functions and duties with respect to the management, administration and control of the System which are now or hereafter vested in the Authority.

Authorized Officer

“Authorized Officer” of the Trustee means and includes the chairperson of the board of directors, the president, every vice president, every assistant vice president, every trust officer and any other officer or assistant officer of the Trustee, other than those specifically above mentioned, designated by a certificate of an Authorized Officer of the Trustee as an Authorized Officer for purposes of this Indenture.

Board

“Board” means the Consolidated Commission on Utilities established in Chapter 79 of Title 12 of the Guam Code Annotated or any other governing board of the Authority hereinafter provided for pursuant to law.

Bond Counsel

“Bond Counsel” means an attorney or firm of attorneys designated by the Authority and having a national reputation for expertise in matters relating to governmental obligations the interest on which is excluded from gross income for federal income tax purposes under Section 103 of the Code.

Bond Reserve Fund Requirement

“Bond Reserve Fund Requirement” means, as of any particular date of calculation, an amount equal to the Maximum Annual Debt Service for the then current or any future Fiscal Year on all Outstanding Bonds; provided, however, that if upon issuance of a Series of Bonds, such amount would require moneys to be credited to the Bond Reserve Fund from such Bond proceeds in an amount in excess of the maximum amount permitted from tax-exempt bond proceeds under the Code, the Bond Reserve Fund Requirement shall mean an amount equal to the sum of the Bond Reserve Fund Requirement immediately preceding issuance of such Bonds plus the maximum amount permitted under the Code to be deposited therein from the proceeds of such Bonds, as specified by Certificate of the Authority.

Bond Reserve Fund

“Bond Reserve Fund” means the fund by that name established pursuant to Section 5.01.

Bond Year

“Bond Year” means, with respect to any Series, the period of twelve consecutive months ending on the day in each year specified in the Supplemental Indenture authorizing the issuance of such Series if Bonds are or will be Outstanding in such twelve-month period.

Bondowner, Owner, Holder

“Bondowner” or “Owner” or “Holder” means any person who shall be the registered owner of any Outstanding Bond, or, if such Outstanding Bond shall have a maturity of one year or less and shall have been issued in bearer form, shall mean the bearer of such Bond.

Bonds, Serial Bonds, Term Bonds, Variable Rate Bonds

“Bonds” means the Guam Waterworks Authority Water and Wastewater System Revenue Bonds authorized by, and at any time Outstanding pursuant to, this Indenture and a Supplemental Indenture, including any Additional Bonds authorized by, and at any time Outstanding pursuant to, this Indenture and any Supplemental Indenture.

“Serial Bonds” means Bonds designated as Serial Bonds in the Supplemental Indenture providing for the issuance of such Series and for which no Mandatory Sinking Account Payments are provided.

“Term Bonds” means Bonds designated as Term Bonds in the Supplemental Indenture providing for the issuance of such Series and which are payable at or before their specified maturity date or dates from Mandatory Sinking Account Payments established for that purpose and calculated to retire such Bonds on or before their specified maturity date or dates.

“Variable Rate Bonds” means Bonds which bear interest at a variable rate of interest.

Business Day

“Business Day” means any day other than a Saturday, Sunday or other day upon which banks in the cities in which the Principal Offices of the Trustee, the Co-Trustee, each Depository, each Paying Agent and each Credit Provider are located are authorized or required to be closed.

Capital Improvement

“Capital Improvement” means any addition, betterment, improvement or extension of the System having costs in excess of \$100,000 and a useful life in excess of five (5) years.

Capital Improvement Fund

“Capital Improvement Fund” means the fund by that name established pursuant to Section 5.01 for the purposes provided in Section 5.10.

Capitalized Interest

“Capitalized Interest” means interest to be paid from the original proceeds of Bonds (including proceeds constituting accrued interest on the Bonds) and from income derived from the investment of such proceeds.

Certificate of the Authority

“Certificate of the Authority” means an instrument in writing signed by the Chairperson or by the General Manager or by any other officer of the Authority duly authorized by resolution of the Board for that purpose. Any such instrument and supporting opinions or representations, if any, may, but need not, be combined in a single instrument with any other instrument, opinion or representation, and the two or more so combined shall be read and construed as a single instrument. If and to the extent required by the provisions of Section 1.03, each Certificate of the Authority shall include the statements provided for in Section 1.03.

Certified Public Accountant

“Certified Public Accountant” means (i) any nationally recognized U.S. certified public accountant or accounting firm or (ii) any other U.S. certified public accountant or accounting firm approved by each Credit Provider, if any, not then in default of its obligations under a Credit Facility.

Chairperson

“Chairperson” means the chairperson of the Board.

Chief Financial Officer

“Chief Financial Officer” means the Chief Financial Officer of the Authority.

Code

“Code” means the Internal Revenue Code of 1986 or any similar or successor federal law.

Construction Account

“Construction Account” means an account by that name established pursuant to Section 3.03.

Construction Fund

“Construction Fund” means the Guam Waterworks Authority Construction Fund established pursuant to the Act.

Consulting Engineer

“Consulting Engineer” means an Independent architect, engineer, consultant, or architectural, engineering, or consulting firm experienced in water and sewer system design, construction, or operation, having a favorable reputation with respect thereto and retained by the Authority to perform the acts and carry out the duties of a Consulting Engineer under this Indenture and, in any case, nationally recognized as being experienced in the preparation of feasibility studies for use in connection with the financing of water and sewer systems.

Costs of Issuance

“Costs of Issuance” means all items of expense directly or indirectly payable by or reimbursable to the Authority and related to the authorization, issuance, sale and delivery of the Bonds, including but not limited to advertising costs, Bond and official statement printing costs, costs of preparation and reproduction of documents, filing and recording fees, initial fees and charges of the Trustee, the Co-Trustee, and any Depositary, Paying Agent or Registrar, legal fees and charges, fees and disbursements of consultants and professionals, fees and expenses of any Credit Provider, rating agency fees, fees and charges for preparation, execution, transportation and safekeeping of Bonds and any other cost, charge or fee in connection with the original issuance of Bonds.

Co-Trustee

“Co-Trustee” means U.S. Bank National Association, appointed by the Authority as Co-Trustee in Section 8.02 and acting as an independent trustee with the duties and powers herein provided, its successors and assigns, and any other corporation or association which may at any time be substituted in its place as provided in Section 8.03.

Credit Agreement

“Credit Agreement” means any agreement between the Authority and a Credit Provider pursuant to which such Credit Provider agrees to provide a Credit Facility or pursuant to which the Authority agrees to reimburse a Credit Provider for draws or advances under or claims made against a Credit Facility.

Credit Agreement Payments

“Credit Agreement Payments” means Credit Agreement Reimbursement Payments and Other Credit Agreement Payments.

Credit Agreement Reimbursement Payments

“Credit Agreement Reimbursement Payments” means any payment obligation of the Authority pursuant to a Credit Agreement designated as such in a Supplemental Indenture.

Credit Facility

“Credit Facility” means any letter of credit, insurance policy, surety bond or other instrument designated by a Supplemental Indenture as providing supplemental credit support for a Series of Bonds (including by substituting for a deposit in a Bond Reserve Fund).

Credit Provider

“Credit Provider” means any person, firm or entity designated in a Supplemental Indenture as providing a Credit Facility for a Series of Bonds, and any successor thereto.

Date of Completion

“Date of Completion” means, for any particular Project, the date on which such Project is projected to be available for use by the Authority for the purposes for which it is intended to be used.

Debt Service Fund

“Debt Service Fund” means the fund by that name established pursuant to Section 5.01.

Depository

“Depository” means, with respect to any particular fund or account, the bank or trust company or other financial institution with similar powers designated by a Supplemental Indenture or a Statement of the Authority to act as the Depository hereunder for such fund or account, its successors and assigns, and any other bank or trust company or financial institution which may at any time be substituted in its place, as provided in Section 8.03.

Event of Default

“Event of Default” means an event of that name described in Section 7.01.

Federal Securities

“Federal Securities” means (1) direct obligations of the United States of America for which the full faith and credit of the United States of America are pledged for the payment of principal and interest (including obligations issued or held in book-entry form on the books of the Department of the Treasury of the United States of America); (2) obligations for which the payment of principal and interest is guaranteed directly by the full faith and credit of the United States of America of the following types issued by the following agencies: U.S. Export-Import Bank (direct obligations or fully guaranteed certificates of beneficial ownership), Farmers Home Administration (certificates of beneficial ownership), Federal Financing Bank, General Services Administration (participation certificates), U.S. Maritime Administration (guaranteed Title XI financing), U.S. Department of Housing and Urban Development (project notes, local authority bonds, new communities debentures--U.S. government guaranteed debentures, or U.S. public housing notes and bonds--U.S. government guaranteed public housing notes and bonds); (3) obligations of any state of the United States of America or of any agency, instrumentality

or local governmental unit of any such state (collectively, "Municipal Obligations") (a) which are fully secured as to principal and interest and redemption premium, if any, by an escrow or trust fund consisting only of cash or obligations of the character described in clauses (1) or (2) of this definition ("Government Obligations"), which fund may be applied only to the payment of interest on such municipal obligations when due and principal of and redemption premium, if any, on such municipal obligations on the maturity date or dates thereof or the redemption date or dates specified in an irrevocable notice, as appropriate, (b) as to which the cash and the principal of and interest on the Government Obligations in such escrow or trust fund will be sufficient to pay such interest, principal and redemption premium on such date or dates, and (c) which at the time of purchase are rated in the highest rating category by each Rating Agency; (4) certificates which evidence ownership of the right to the payment of any specified portion of the principal of and interest on obligations described in clause (1) of this definition, provided that such obligations have been stripped by the Treasury of the United States of America; and (5) the interest component of Resolution Funding Corp. stripped securities, which have been stripped by request to the Federal Reserve Bank of New York, in book entry form.

Fiduciaries

"Fiduciaries" means the Trustee, the Co-Trustee, each Depository, each Registrar and each Paying Agent.

Financial Newspaper or Journal

"Financial Newspaper or Journal" means, collectively, The Wall Street Journal, The Bond Buyer or any one or more other newspapers or journals publishing financial news and selected by the Trustee, whose decision shall be final and conclusive, printed in the English language, customarily published on each business day and circulated in New York, New York, San Francisco, California, and Hågatña, Guam.

Fiscal Year

"Fiscal Year" means the period beginning on October 1 of each year and ending on the next succeeding September 30, or such other fiscal year as may be adopted by the Authority.

Fund

"Fund" means each fund established and given a designation pursuant to this Indenture or any Supplemental Indenture.

General Manager

"General Manager" means the person appointed by the Board under the Act to supervise the administration of the Authority as its chief executive officer.

Government

"Government" means the Government of Guam or any successor to the rights, powers and obligations thereof under the Act with respect to the Bonds.

Indenture

“Indenture” means this Indenture, as originally executed or as it may from time to time be supplemented, modified or amended by any Supplemental Indenture.

Independent

“Independent” means, when used with respect to any given person, that such person (who may be selected and paid by the Authority or the Government) (1) is in fact independent and not under domination of the Authority or the Government; (2) does not have any substantial interest, direct or indirect, with the Authority or the Government; and (3) is not connected with the Authority or the Government as an officer or employee of the Authority or the Government, but who may be regularly retained to provide services to the Authority or the Government.

Interest Accrual Period

“Interest Accrual Period” means, for any particular Bond, each period between successive Interest Payment Dates for such Bond, including in each case in such period the concluding Interest Payment Date but not the beginning Interest Payment Date, and treating the day prior to the date of original issuance of such Bond as if it were an Interest Payment Date for such Bond for this purpose.

Interest Payment Date

“Interest Payment Date” means, for any particular Bond, each date specified as an Interest Payment Date for such Bond by the Supplemental Indenture authorizing the issuance of such Bond and, for all Bonds, all such dates.

Investment Securities

“Investment Securities” means any of the following which at the time are legal investments under the laws of Guam for moneys held hereunder and then proposed to be invested therein (the Trustee and the Co-Trustee shall be entitled to rely upon a Request of the Authority directing investments hereunder as a determination that such investment constitutes a legal investment):

- (1) Federal Securities;
- (2) obligations, debentures, notes or other evidence of indebtedness issued or guaranteed by any of the following: Federal Home Loan Banks, Federal National Mortgage Association, Government National Mortgage Association, Federal Housing Administration or Federal Home Loan Mortgage Corporation;
- (3) interest-bearing demand or time deposits (including certificates of deposit) which are continuously and fully insured by the Bank Insurance Fund or the Savings Association Insurance Fund;
- (4) obligations, including deposits, federal funds borrowings and banker’s acceptances, of any bank, or of the subsidiary lead bank of any bank holding company, which has an unsecured, uninsured and unguaranteed obligation of equivalent maturity rated at least the second highest major rating category by each Rating Agency;
- (5) commercial paper rated at least the second highest rating category by each Rating Agency;

(6) money market funds which are (a) restricted to Federal Securities or (b) registered under the Investment Company Act of 1940 and the shares of which are registered under the Securities Act of 1933, and have a rating by S&P of AAAM-G; AAA-m; or AA-m and Moody's of Aaa, Aa1 or Aa2;

(7) repurchase agreements, the underlying securities of which are specifically designated and are obligations described in clause (1) or (2) of this definition, provided that, (a) the agreement is between the municipal entity and a dealer bank or securities firm; (b) such dealer bank or securities firm is either a primary dealers on the Federal Reserve reporting dealer list rated "A" or better by Standard & Poor's and Moody's, or a bank rated "A" or better by Standard & Poor's and Moody's; (c) the agreement provides that the securities be delivered to the Authority, the Trustee, the Co-Trustee or third party acting as agent for either (if the Trustee or Co-Trustee is supplying the collateral) before payment or on a delivery versus payment basis; (d) the securities must be valued weekly, marked-to-market at current market price plus accrued interest; (e) the value of collateral must be equal to 104% (or 105% if the collateral is comprised of obligations of Federal National Mortgage Association or Federal Home Loan Mortgage Corporation) of the amount of cash transferred to the dealer bank or security firm plus accrued interest; and (e) the Authority receives a legal opinion that the agreement is a legal investment under the laws of Guam;

(8) subject to the provisions of any Supplemental Indenture, investment agreements (a) with corporations, associations or financial institutions which have general obligations, or whose holding companies have general obligations, rated at least the second highest rating category by each Rating Agency, or (b) which agreements are continuously secured by obligations described in clause (1) or (2) of this definition which have a market value (valued at least weekly) not less than 103% of the amount so invested; and

(9) any other investment approved in writing by each Credit Provider then providing a Credit Facility for Bonds not then in default of its obligations thereunder.

None of the Trustee, the Co-Trustee nor any Depositary shall be deemed, by entering into this Indenture, to have agreed to make the valuation required by clauses (7) and (8) above, but such agreement by or on behalf of the Trustee, the Co-Trustee or a Depositary shall be a condition precedent to investment in obligations of the type described in such clauses.

Legislature

"Legislature" means the Legislature of Guam or any successor to the rights, powers and obligations thereof under the Act with respect to the Bonds.

Mandatory Sinking Account Payment

"Mandatory Sinking Account Payment" means, as of any date of calculation with respect to any Series of Bonds, the amount required by this Indenture and any Supplemental Indenture to be paid by the Authority on a given date for the retirement of Term Bonds of such Series.

Maximum Annual Debt Service

"Maximum Annual Debt Service" means, for any particular Bonds as of any particular date of calculation, Annual Debt Service on such Bonds for the Bond Year including or commencing on or after such date for which such sum shall be largest.

Navy/GPA Surcharge

“Navy/GPA Surcharge” means that certain surcharge established by order of the Guam Public Utilities Commission on September 13, 2001, as amended on June 23, 2003 and October 27, 2005, for the purpose of collecting revenues for the payment of amounts due to the United States Treasury, the Guam Power Authority and the Guam Public Utilities Commission and any successor surcharge to the extent provided for the same purpose or purposes.

Net Revenues

“Net Revenues” means, for any particular period, (a) the sum of (i) all of the Revenues (other than Payment Agreement Receipts) received during such period plus (ii) the aggregate amount of all transfers from the Rate Stabilization Fund to the Revenue Fund during such period, less (b) the sum of (x) all Operation and Maintenance Expenses incurred during such period plus (y) the amount of all transfers from the Revenue Fund to the Rate Stabilization Fund during such period.

Operation and Maintenance Expenses

“Operation and Maintenance Expenses” means such reasonable and necessary current expenses of the Authority, paid or accrued, for operation, maintenance and repair of the System as may be determined by the Board, and the term may include at the Board’s option, except as limited by contract or otherwise limited by law, without limiting the generality of the foregoing:

- (a) Legal and overhead expenses of the Authority directly related and reasonably allocable to the administration of the System;
- (b) Fidelity bond and insurance premiums appertaining to the System or a reasonably allocable share of a premium of any blanket bond or policy pertaining to the System;
- (c) Contractual services, professional services, salaries, administrative expenses, and costs of labor appertaining to System, including fees and expenses of the Trustee;
- (d) The costs incurred in the collection of all or any part of the Revenues; and
- (e) Any costs of utility services furnished to the System by the Authority or otherwise.

However, the term “Operation and Maintenance Expenses” as used herein does not include:

- (i) Any allowance for depreciation;
- (ii) Any costs of System capital renewals, replacements, major repairs, reconstruction, improvements, extensions or betterments;
- (iii) Any accumulation of reserves for System capital renewals, replacements, major repairs or reconstruction;
- (iv) Any reserves for operation, maintenance or repair of the System;
- (v) Any liabilities incurred in the acquisition or improvement of any properties comprising the System or any combination thereof;

(vi) Any other legal liability not based on contract;

(vii) Payments made by the Authority to the United States Treasury, the Guam Power Authority or the Guam Public Utilities Commission from revenues derived from the Navy/GPA Surcharge; and

(vii) Payments made by the Authority to Guam Power Authority for power delivered prior to the Fiscal Year commencing October 1, 2003.

Operation and Maintenance Fund

"Operation and Maintenance Fund" means the fund by that name established pursuant to Section 5.01.

Operation, Maintenance, Renewal and Replacement Reserve Fund

"Operation, Maintenance, Renewal and Replacement Reserve Fund" means the fund by that name established pursuant to Section 5.01.

Opinion of Counsel

"Opinion of Counsel" means a written opinion of counsel (who may be counsel for the Authority) retained by the Authority. If and to the extent required by the provisions of Section 1.03, each Opinion of Counsel shall include the statements provided for in Section 1.03.

Order, Request, Requisition or Statement of the Authority

"Order of the Authority", "Request of the Authority", "Requisition of the Authority", or "Statement of the Authority" mean, respectively, a written order, request, requisition or statement signed by or on behalf of the Authority by the Chairperson or the General Manager or by any person (whether or not an officer of the Authority) who is specifically authorized by resolution of the Board to sign or execute such a document on behalf of the Authority.

Other Credit Agreement Payments

"Other Credit Agreement Payments" means any payment obligation of the Authority pursuant to a Credit Agreement designated as such in a Supplemental Indenture.

Outstanding

"Outstanding," when used as of any particular time with reference to

(A) Bonds, means (subject to the provisions of Section 9.03) all Bonds theretofore executed, issued and delivered by the Authority under this Indenture except --

(1) Bonds theretofore cancelled by the Trustee or surrendered to the Trustee for cancellation;

(2) Bonds for the payment or redemption of which funds or securities in the necessary amount (as set forth in Section 10.01) shall have theretofore been deposited with the Trustee (whether upon or prior to the maturity or redemption date of such Bonds); provided that, if such Bonds are to be redeemed prior to the maturity thereof, notice of such redemption shall

have been given as in Article IV provided or provision satisfactory to the Trustee shall have been made for the giving of such notice; and

(3) Bonds in lieu of or in substitution for which other Bonds shall have been executed, issued and delivered by the Authority pursuant to Section 2.08;

(B) Payment Agreements, means all Payment Agreements which have not been paid or otherwise satisfied as provided in the proceedings and instruments pursuant to which such Payment Agreements have been incurred; provided that Payment Agreements shall not be Outstanding if the Authority or the Qualified Counterparty with respect thereto is in default thereunder; and

(C) Credit Agreements, means all Credit Agreements which have not been paid or otherwise satisfied as provided in the proceedings and instruments pursuant to which such Credit Agreements have been incurred; provided that a Credit Agreement shall not be Outstanding during any period in which the Credit Provider with respect thereto is in default on its payment obligations thereunder.

Parity Payment Agreement

“Parity Payment Agreement” means a Payment Agreement which is designated as such in a Supplemental Indenture, the payment of which constitutes a charge and lien on Revenues equal to and on a parity with the charge and lien upon the Revenues for the payment of the Bonds.

Parity Payment Agreement Payments

“Parity Payment Agreement Payments” means Payment Agreement Payments under a Parity Payment Agreement.

Paying Agent

“Paying Agent” means any paying agent appointed pursuant to a Supplemental Indenture, and its successors and assigns as provided in Section 8.03.

Payment Agreement

“Payment Agreement” means any contract entered into by the Authority with a Qualified Counterparty in connection with, or incidental to, the issuance of Bonds, or the carrying of any investment or program of investment or entering into or maintaining any agreement which secures Bonds, which the Authority determines to be necessary or appropriate to place the obligation or investment of the Authority, as represented by such Bonds, investment, program of investment or agreement and the contract or contracts, in whole or in part, on the interest rate, currency, cash-flow, or other basis desired by the Authority, including, without limitation, contracts commonly known as interest rate swap agreements or contracts providing for payments based on levels of, or changes in, interest rates, or contracts to exchange cash flows or a series of payments, or contracts, including, without limitation, interest rate floors or caps, options, put or call to hedge payment, rate, spread, or similar exposure and which is designated as such and as Related to particular Bonds in a Supplemental Indenture.

Payment Agreement Payment Accrual Period

“Payment Agreement Payment Accrual Period” means, for any Payment Agreement, each period between successive Payment Agreement Payment Dates for such Payment Agreement,

including in each case in such period the concluding Payment Agreement Payment Date but not the beginning Payment Agreement Payment Date, and treating the day prior to the effective date of such Payment Agreement as if it were a Payment Agreement Payment Date for such Payment Agreement for this purpose.

Payment Agreement Payment Date

“Payment Agreement Payment Date” means, for any particular Payment Agreement, each date specified as a payment date in such Payment Agreement.

Payment Agreement Payments

“Payment Agreement Payments” means amounts required to be paid periodically by the Authority to any Qualified Counterparty pursuant to a Payment Agreement, but not including (i) Termination Payments or (ii) such other payments as may be specified in a Supplemental Indenture.

Payment Agreement Receipts

“Payment Agreement Receipts” means amounts required to be paid periodically by a Qualified Counterparty to the Authority pursuant to a Payment Agreement, but not including Termination Payments.

Principal Office

“Principal Office” means, with respect to the Trustee, the Co-Trustee and any other Fiduciary, the office at the respective address set forth in Section 12.07 hereof or at such other address as the respective party may have designated for such purpose. The Principal Office of any Credit Provider shall be as specified by such Credit Provider pursuant to its Credit Facility or Credit Agreement.

Principal Payment Period

“Principal Payment Period” means, for any particular Bond, each period so designated by the Supplemental Indenture authorizing the issuance of such Bond.

Project

“Project” means any particular additions, enlargements, betterments, extensions and other improvements to or related to, and the equipping of, the System, including, without limitation, the acquisition of land and furnishings therefor or the payment of any claims or judgments relating thereto, as specified and described by the Supplemental Indenture authorizing issuance of the first Series of Bonds for such Project, and as such specification and description may be modified in accordance with Section 3.03.

Project Costs

“Project Costs” means, with respect to any given Project, all costs which are chargeable to the capital account of such Project, including, but not limited to, the following:

(1) costs of the Authority and all contractors for land (including franchises, licenses or other interests in land), labor, materials, machinery, equipment and furnishings in connection with the

acquisition, construction, reconstruction, installation and equipping of the Project or otherwise attributable to the Project;

(2) the cost of relocation and installation of utilities, environmental cleanup and noise abatement;

(3) the cost of contract bonds and insurance of all kinds that may be required or necessary during the construction of the Project;

(4) all costs of architectural and engineering services, including the costs of test borings, surveys, estimates, plans and specifications and preliminary investigation therefor, and for inspecting and supervising construction, as well as for the performance of all other duties required by or consequent upon the proper construction of the Project;

(5) relocation costs and any claims, awards or judgments relating to the Project;

(6) Capitalized Interest; and

(7) all amounts required to reimburse the Authority for advances made by it for any of the above items or for any other costs incurred and for work done, whether before or after the date of this Indenture, which are properly chargeable to the Project.

Qualified Counterparty

“Qualified Counterparty” means the party, other than the Authority, to a Payment Agreement; provided that any such party must satisfy the following requirements: (1) either (a) the obligations of such party under the Payment Agreement (or obligations of such type) must be rated in one of the three (3) highest rating categories of each of the Rating Agencies then rating the Bonds (without regard to any gradations within a rating category), or (b) the obligations of such party under the Payment Agreement are guaranteed by a bond insurer or other institution, in each case the obligations of such type of which must be rated in one of the three (3) highest rating categories of each of the Rating Agencies then rating the Bonds (without regard to any gradations within a rating category); and (2) such party must be otherwise qualified to act as the other party to a Payment Agreement with the Authority under any applicable laws.

Rate Stabilization Fund

“Rate Stabilization Fund” means the fund by that name established pursuant to Section 5.01.

Rating Agency

“Rating Agency” means, as of any given date, each nationally recognized securities rating agency designated by this Indenture or any Supplemental Indenture as a Rating Agency hereunder and then rating any Series of Bonds.

Rebate Fund

“Rebate Fund” means the fund by that name established pursuant to Section 5.01.

Record Date

“Record Date” means, for any particular payment of principal of or interest or premium on particular Bonds, each date specified as a Record Date for such Bonds by the Supplemental Indenture authorizing the issuance of such Bonds.

Redemption Price

“Redemption Price” means, with respect to any Bond (or portion thereof if less than all of a Bond is to be redeemed) the principal amount of such Bond (or portion) plus the applicable premium, if any, payable upon redemption thereof pursuant to the provisions of such Bond and this Indenture.

Registrar

“Registrar” means any registrar appointed pursuant to a Supplemental Indenture, and its successors and assigns as provided in Section 8.02.

Related

“Related” means, with respect to any particular Payment Agreement, having been designated as such with respect to any particular Bonds pursuant to a Supplemental Indenture.

Renewal and Replacement Costs

“Renewal and Replacement Costs” means the costs of System capital renewals, replacements, major repairs or reconstruction.

Revenue Fund

“Revenue Fund” means the Guam Waterworks Authority Revenue Fund established pursuant to the Act.

Revenues

“Revenues” means all gross income and other amounts received or receivable by the Authority as revenues of any kind from the ownership or operation of any part of the System, including all rates, fees and charges (including ground water, surface water and treated water charges and all sewer and wastewater service charges), received by the Authority for providing water and sewer services (but excluding development charges and assessments and hook-up fees and other special charges such as penalties and fines), all Payment Agreement Receipts, and all proceeds of insurance or grants covering business interruption loss (and related losses and expenses) relating to the System, and all other income and revenue howsoever derived by the Authority from the ownership or operation of, or arising from, the System, together with all interest, profits or other income derived from the investment of amounts in the Revenue Fund, but not including:

- (1) amounts received as insurance proceeds (except as hereinabove provided) or from the sale, transfer or other disposition of, or upon the taking by or under the threat of eminent domain of, all or any part of the System (which moneys shall be received and disposed of pursuant to Sections 6.03, 6.06 and 6.11, as the case may be),

- (2) proceeds from any securities issued by the Authority or proceeds from loans obtained by the Authority,
- (3) the proceeds of any court or arbitration award or settlement in lieu thereof received by the Authority,
- (4) amounts received by the Authority as gifts or as grants (except as hereinabove provided), whether restricted or unrestricted,
- (5) amounts received by the Authority as revenues from the Navy/GPA Surcharge;
- (6) other amounts (except as hereinabove provided), the use of which is restricted by the donor or grantor.

Series

“Series” or “Series of Bonds” means and refers to all Bonds of like designation and described as such in a Supplemental Indenture authenticated and delivered on original issuance at the same time pursuant to this Indenture, and any Bonds thereafter delivered in lieu of or substitution for any of such Bonds pursuant to this Indenture.

Series 2005 Certificates

“Series 2005 Certificates” means the Certificates of Participation, Series 2005, evidencing an assignment of a proportionate interest in rights to receive certain Net Pledged Revenues pursuant to the Purchase Agreement between Guam Waterworks Facilities Corporation and the Authority.

Sinking Accounts

“Sinking Accounts” means any special account or accounts established by any Supplemental Indenture or Indentures in the Debt Service Fund for the payment of Term Bonds.

Subordinate Securities

“Subordinate Securities” means any obligations of the Authority payable from the Subordinate Securities Fund and having a lien, if any, on Revenues subordinate to the pledge and lien of this Indenture securing the payment of the Bonds.

Subordinate Securities Fund

“Subordinate Securities Fund” means the fund by that name established pursuant to Section 5.01 for the purposes provided in Section 5.07.

Supplemental Indenture

“Supplemental Indenture” means any indenture hereafter duly authorized under and in compliance with the Act, entered into by and between the Authority, the Trustee and the Co-Trustee and accepted by each Depository, Paying Agent and Registrar the duties of which are affected thereby, supplementing, modifying or amending this Indenture; but only if and to the extent that such Supplemental Indenture is specifically authorized hereunder.

System

“System” means the water and sewer systems, now or hereafter existing, owned and/or operated by the Authority or its contractors, agents or subcontractors.

Tax Certificate

“Tax Certificate” means a Certificate of the Authority concerning the calculation of any amount to be paid to the United States of America pursuant to Section 148(f) of the Code and any other matters relating to the exclusion of interest on Bonds from gross income for federal income tax purposes.

Termination Payments

“Termination Payments” means amounts required to be paid by the Authority or a Qualified Counterparty pursuant to a Payment Agreement in connection with a termination of all or any portion thereof.

Trustee

“Trustee” means Bank of Guam, appointed by the Authority as Trustee in Section 8.01 and acting as an independent trustee with the duties and powers herein provided, its successors and assigns, and any other corporation or association which may at any time be substituted in its place as provided in Section 8.03.

SECTION 1.02 Equal Security. In consideration of the acceptance of the Bonds by those who shall hold the same from time to time, this Indenture shall be deemed to be and shall constitute a contract between the Authority and the Owners from time to time of the Bonds; and the covenants and agreements herein set forth to be performed on behalf of the Authority shall be for the equal and proportionate benefit, security and protection of all Owners of the Bonds without preference, priority or distinction as to security or otherwise of any of the Bonds over any of the others by reason of the Series, number or date thereof or the time of issue, sale, execution or delivery thereof, or otherwise for any cause whatsoever, except as expressly provided therein or herein.

SECTION 1.03 Content of Certificates and Opinions. Every certificate or opinion with respect to compliance with a condition or covenant provided for in this Indenture, including each Certificate of the Authority, shall include (A) a statement that the person or persons making or giving such certificate or opinion have read such covenant or condition and the definitions herein relating thereto; (B) a brief statement as to the nature and scope of the examination or investigation upon which the statements or opinions contained in such certificate or opinion are based; (C) a statement that, in the opinion of the signers, they have made or caused to be made such examination or investigation as is necessary to enable them to express an informed opinion as to whether or not such covenant or condition has been complied with; and (D) a statement as to whether, in the opinion of the signers, such condition or covenant has been complied with.

Any such certificate or opinion made or given by an officer of the Authority may be based, insofar as it relates to legal, accounting or System matters, upon a certificate or opinion of or representations by counsel, accountants or consultants, respectively, unless such officer knows, or in the exercise of reasonable care should have known, that the certificate or opinion or representations with respect to the matters upon which his certificate or opinion may be based, as aforesaid, are erroneous. Any such certificate or opinion made or given by counsel, accountants or consultants may be based, insofar as it relates to factual matters, information with respect to which is in the possession of the

Authority, upon the certificate or opinion of or representations by an officer or officers of the Authority, unless such counsel, accountant or consultant knows, or in the exercise of reasonable care should have known, that the certificate or opinion or representations with respect to the matters upon which his opinion may be based as aforesaid are erroneous.

ARTICLE II

THE BONDS

SECTION 2.01 Authorization of Bonds. Bonds may be issued hereunder from time to time in order to obtain funds for the purposes authorized herein. The Bonds shall be issued under the Act for the purpose of financing or refinancing the acquisition, construction, reconstruction, improvement, betterment, extension, financing and refinancing of the System. The aggregate principal amount of Bonds which may be issued hereunder is not limited (subject, however, to the right of the Authority, which is hereby reserved, to limit or restrict the aggregate principal amount of Bonds which may at any time be issued and Outstanding hereunder) and consists or may consist of one or more Series of varying denominations, dates, maturities, interest rates and other provisions, all issued and to be issued pursuant to this Indenture and the Act, subject to the limitations contained in Sections 3.04 and 3.05. The Bonds are designated as the "Guam Waterworks Authority Water and Wastewater System Revenue Bonds." The Bonds may be issued in such Series as from time to time shall be established and authorized by the Authority by Supplemental Indenture, subject to the provisions and conditions herein contained.

SECTION 2.02 Execution of Bonds. The Bonds shall be executed on behalf of the Authority by the manual or facsimile signature of the Chairperson and countersigned by the manual or facsimile signature of the Chief Financial Officer of the Authority. The Bonds shall then be delivered to the applicable Registrar for authentication by it. In case any of the officers who shall have signed or countersigned any of the Bonds shall cease to be such officer or officers before the Bonds so signed or countersigned shall have been authenticated or delivered by the Registrar or issued by the Authority, such Bonds may nevertheless be authenticated, delivered and issued and, upon such authentication, delivery and issue, shall be as binding upon the Authority as though those who signed and countersigned the same had continued to be such officers of the Authority, and also any Bond may be signed and countersigned on behalf of the Authority by such persons as on the actual date of the execution of such Bond shall be the proper officers of the Authority although at the nominal date of such Bond any such person shall not have been such officer of the Authority.

Except as may be provided in any Supplemental Indenture, only such of the Bonds as shall bear thereon a certificate of authentication in the form hereinbefore recited, manually executed by the applicable Registrar, shall be valid or obligatory for any purpose or entitled to the benefits of this Indenture, and such certificate of the Registrar shall be conclusive evidence that the Bonds so authenticated have been duly authenticated and delivered hereunder and are entitled to the benefits of this Indenture.

SECTION 2.03 Transfer of Bonds. Any Bond may, in accordance with its terms, be transferred, upon the books required to be kept pursuant to the provisions of Section 2.05, by the person in whose name it is registered, in person or by its duly authorized attorney, upon surrender of such Bond for cancellation, accompanied by delivery of a duly executed written instrument of transfer in a form approved by the applicable Registrar.

Whenever any Bond or Bonds shall be surrendered for transfer, the Authority shall execute and the applicable Registrar shall authenticate and deliver a new Bond or Bonds of the same Series and maturity, for a like aggregate principal amount of authorized denominations. The Registrar

shall require the payment by any Bondowner requesting any such transfer of any tax or other governmental charge required to be paid with respect to such transfer.

No transfer or exchange of any Bond of any Series shall be required during the period established by the applicable Registrar for the selection of Bonds of such Series for redemption or at any time after selection of such Bond for redemption.

SECTION 2.04 Exchange of Bonds. Bonds may be exchanged at the Principal Office of the applicable Registrar, for a like aggregate principal amount of Bonds of other authorized denominations of the same Series and maturity. The Registrar shall require the payment by the Bondowner requesting such exchange of any tax or other governmental charge required to be paid with respect to such exchange.

SECTION 2.05 Bond Register; Right of Inspection. Each Registrar will keep or cause to be kept, at the Principal Office of the Registrar, sufficient books for the registration and transfer of the Bonds of the applicable Series, which shall at all times be open to inspection during regular business hours by the Authority, the Co-Trustee or the Trustee; and, upon presentation for such purpose, the Registrar shall, under such reasonable regulations as the Registrar may prescribe, register or transfer or cause to be registered or transferred, on said books, Bonds as hereinbefore provided.

SECTION 2.06 Temporary Bonds. The Bonds may be initially issued in temporary form exchangeable for definitive Bonds when ready for delivery. The temporary Bonds may be printed, lithographed or typewritten, shall be of such denominations as may be determined by the Authority, shall be in registered form without coupons and may contain such reference to any of the provisions of this Indenture as may be appropriate. Every temporary Bond shall be executed by the Authority and be authenticated by the applicable Registrar upon the same conditions and in substantially the same manner as the definitive fully registered Bonds. If the Authority issues temporary Bonds, it may execute and furnish definitive Bonds without delay, and thereupon the temporary Bonds may be surrendered, for cancellation, in exchange therefor at the Principal Office of the applicable Registrar, and the Registrar shall deliver in exchange for such temporary Bonds an equal aggregate principal amount of definitive Bonds of the same Series and maturity or maturities in authorized denominations. Until so exchanged, the temporary Bonds shall be entitled to the same benefits under this Indenture as definitive Bonds executed and delivered hereunder.

SECTION 2.07 Bonds Mutilated, Lost, Destroyed or Stolen. If any Bond shall become mutilated, the Authority, at the expense of the Owner of said Bond, shall execute, and the applicable Registrar shall thereupon authenticate and deliver a new Bond of like tenor in exchange and substitution for the Bond so mutilated (except that such number may be preceded by a distinguishing prefix), but only upon surrender to the Registrar of the Bond so mutilated. Every mutilated Bond so surrendered to the Registrar shall be cancelled by it and delivered to, or upon the order of, the Authority. If any Bond shall be lost, destroyed or stolen, evidence of such loss, destruction or theft may be submitted to the Authority and the Registrar and, if such evidence be satisfactory to both and indemnity satisfactory to them shall be given, the Authority, at the expense of the Owner, shall execute, and the Registrar shall thereupon authenticate and deliver a new Bond in lieu of and in substitution for the Bond so lost, destroyed or stolen (except that such number may be preceded by a distinguishing prefix). The Authority may require payment of a sum not exceeding the actual cost of preparing each new Bond issued under this Section and of the expenses which may be incurred by the Authority and the Registrar in the premises. Any Bond issued under the provisions of this Section in exchange for any Bond mutilated or in lieu of any Bond alleged to be lost, destroyed or stolen shall constitute an original additional contractual obligation on the part of the Authority, whether or not the Bond so mutilated or so alleged to be lost, destroyed or stolen be at any time enforceable by anyone, and shall be equally and proportionately

entitled to the benefits of this Indenture with all other Bonds secured by this Indenture. Neither the Authority, the Trustee nor the Co-Trustee shall be required to treat both the original Bond and any replacement Bond as being Outstanding for the purpose of determining the Accreted Value of Bonds which may be issued hereunder or for the purpose of determining any percentage of Bonds Outstanding hereunder, but both the original and duplicate Bond shall be treated as one and the same.

SECTION 2.08 Book-Entry Registration of Exchanges. (A) Notwithstanding any of the provisions of Sections 2.02 through 2.07 to the contrary, the Supplemental Indenture providing for the issuance of a Series of Bonds may provide: (1) that one or more Bonds of such Series shall be delivered upon initial issuance to, and registered in the name of, or in the name of one or more nominees of, one or more bond depositories, (2) that such Bonds may not be exchanged, transferred or replaced on the registration books maintained pursuant to Section 2.05, subject to such exceptions as may be provided by such Supplemental Indenture, (3) that, while any such Bond is held by such a bond depository, the Authority, the Trustee, the Co-Trustee, any Paying Agent and any Registrar for such Bond may treat the bond depository as the absolute owner of such Bond for all purposes and shall have no liability with respect to (a) the accuracy of the records of such bond depository or any participant with respect to any ownership interest in such Bond, (b) the delivery to any participant, any beneficial owner or any other person, other than such bond depository, of any notice with respect to such Bond, including any notice of redemption, or (c) the payment to any participant, any beneficial owner or any other person, other than such bond depository, of any amount with respect to the principal or Redemption Price of or interest on such Bond.

(B) In the alternative, notwithstanding any of the provisions of Sections 2.02 through 2.07 to the contrary, the Supplemental Indenture providing for the issuance of a Series of Bonds may provide: (1) that one or more Bonds shall be delivered upon initial issuance to, and registered in the name of, or in the name of one or more nominees of, the Trustee, the Co-Trustee or any other Registrar for such Series of Bonds, in order to set forth the terms of such Bonds in the same manner as for Bonds that are subject to exchange, transfer and replacement in written certificated form, (2) that no person other than the Trustee, the Co-Trustee or such other Registrar may receive an authenticated Bond, subject to such exceptions as may be provided by such Supplemental Indenture, (3) that the ownership of such Bonds shall be evidenced solely by the bond registration books of the Trustee, the Co-Trustee or such other Registrar, and (4) that the transfer of the ownership of such Bonds shall take place subject to such regulations as may be provided by such Supplemental Indenture.

ARTICLE III

ISSUANCE OF BONDS; ISSUANCE OF A SERIES OF BONDS; PARITY PAYMENT AGREEMENTS

SECTION 3.01 Issuance of Bonds. At any time after the execution of this Indenture and one or more appropriate Supplemental Indentures, the Authority may sell and execute one or more Series of Bonds and the Registrar for each such Series of Bonds shall authenticate and, upon the Order of the Authority, deliver such Series of Bonds.

SECTION 3.02 Application of Proceeds of Bonds. The proceeds received by the Authority from the sale of each Series of Bonds shall be deposited with the Trustee or the Co-Trustee, who shall forthwith set aside such proceeds in such respective funds and accounts as are directed by a Request of the Authority, subject to the requirements of this Indenture.

SECTION 3.03 Establishment and Application of Construction Accounts; Modification of Projects. (A) With respect to each Project or Series, as determined by the Authority, the

Depository for the Construction Account for such Project or Series shall establish within the Construction Fund and maintain and hold in trust hereunder a separate account designated as the "_____ Construction Account" (inserting therein the Project or Series designation). Amounts in each Construction Account shall be used and withdrawn, as provided in this Section, solely for the payment of Project Costs of such Project (or of the Project or Projects for which such Series is being issued), including by (1) direct payment, (2) payment of any debt obligations issued by the Authority, or repayment of any advances made from any source, to finance temporarily such Project Costs, (3) payment of Capitalized Interest accruing on Bonds issued for such Project as specified in the Supplemental Indenture relating thereto, and (4) payment of Costs of Issuance of such Bonds. A Depository shall disburse moneys in a Construction Account only upon Requisition of the Authority stating the person to whom payment is to be made, the amount to be paid, the purpose for which the obligation was incurred and that such payment is a proper and lawful charge against such account.

The Authority may modify the specifications or description of any Project or Projects by filing with the Trustee and each Depository for each Construction Account for such Project or Projects a Certificate of the Authority describing such modification, together with a written report of an Consulting Engineer to the effect that such modification will have no material adverse effect on the Authority's ability to comply with Section 6.12 and an opinion of Bond Counsel to the effect that such modification and the use of amounts in such Construction Accounts for such modified Project or Projects will not adversely effect the exclusion, if any, of interest on any Bonds from gross income for federal income tax purposes.

Upon receipt of a Certificate of the Authority that amounts in any Construction Account are no longer required for the purpose of such account, said amounts shall be transferred to the Capital Improvement Fund or any other fund or account designated by the Authority in such Certificate; provided, however, that any such transfer shall be subject to receipt by the Trustee of an opinion of Bond Counsel to the effect that such transfer and the use of such amounts for the purposes intended by the Authority after such transfer will not adversely affect the exclusion, if any, of interest on any Bonds from gross income for federal income tax purposes.

(B) All interest and other profits derived from the investment of moneys in each Construction Account shall be retained therein.

(C) The Authority may provide in the Supplemental Indenture providing for the issuance of Additional Bonds that the proceeds of such Additional Bonds shall otherwise be limited as to use or application.

SECTION 3.04 Issuance of Additional Series of Bonds; Additional Parity Payment Agreements; Other Payment Agreements. (A) In addition to the initial Series of Bonds, the Authority may by Supplemental Indenture establish one or more other Series of Bonds payable from Revenues on a parity with the initial Series of Bonds and Parity Payment Agreements and secured by a lien upon and pledge of Revenues equal to the lien and pledge securing the initial Series of Bonds and Parity Payment Agreements, and the Authority may issue Bonds of any Series so established, in such principal amount and for such lawful purpose or purposes (including refunding of any Bonds issued hereunder and then Outstanding) as shall be specified by the Authority in said Supplemental Indenture, but only upon compliance by the Authority with the provisions of Section 3.05 and any applicable provisions of any Supplemental Indenture, and subject to the following specific conditions, which are hereby made conditions precedent to the issuance of any such additional Series of Bonds:

(1) No Event of Default shall have occurred and then be continuing.

(2) The Supplemental Indenture providing for the issuance of such additional Series of Bonds shall specify the purposes for which such Series is being issued, which shall be one or more of the following (1) to provide moneys for deposit into a Construction Account and withdrawal therefrom in accordance with law for purposes other than the refunding of Bonds, or (2) to refund all or part of the Bonds of any one or more Series then Outstanding, by depositing with the Trustee, in trust, moneys or noncallable Federal Securities in the necessary amount to discharge all liability of the Authority with respect to the Bonds to be refunded as provided in Section 10.02 and to make any payment necessary or desirable in connection with the termination of any Related Payment Agreement in connection with such refunding.

(3) The Supplemental Indenture providing for the issuance of such additional Series of Bonds shall require that the amount in the Bond Reserve Fund be increased, if and to the extent necessary, to an amount at least equal to the Bond Reserve Fund Requirement for such Series. Said deposit may be made from such proceeds or any other source, as provided in Sections 5.02 and 5.06 and said Supplemental Indenture.

(4) The aggregate principal amount of Bonds issued hereunder shall not exceed any limitation imposed by law or by any Supplemental Indenture.

(5) The representations and estimates set forth in the certificates and written reports required by Section 3.05 for such Series shall have been made by the parties required to give such certificates and written reports.

(B) The Authority may enter into Parity Payment Agreements payable from Revenues on a parity with the Bonds and other Parity Payment Agreements and secured by a lien upon and pledge of Revenues equal to the lien and pledge securing the Bonds and other Parity Payment Agreements, but only upon compliance by the Authority with the provisions of Section 3.05 and any applicable provisions of any Supplemental Indenture, and subject to the following specific conditions, which are hereby made conditions precedent to the entering into by the Authority of any Parity Payment Agreement:

(1) No Event of Default shall have occurred and then be continuing.

(2) The representations and estimates set forth in the certificates and written reports required by Section 3.05 shall have been made by the parties required to give such certificates and written reports.

(3) The Authority, the Trustee and the Co-Trustee shall have executed and delivered a Supplemental Indenture designating such agreement as a Parity Payment Agreement and the Bonds to which such Parity Payment Agreement is Related.

(C) In addition to Parity Payment Agreements, the Authority may enter into Payment Agreements payable from Revenues after and subordinate to the payment from Revenues of payments with respect to the Bonds and Parity Payment Agreements, but only upon compliance by the Authority with any applicable provisions of any Supplemental Indenture and any such agreement shall constitute a Payment Agreement upon execution and delivery by the Authority, the Trustee and the Co-Trustee of a Supplemental Indenture designating such agreement as a Payment Agreement and the Bonds to which such Payment Agreement is Related.

SECTION 3.05 Proceedings for the Issuance of a Series of Bonds; Parity Payment Agreements. The requirements of this Section 3.05 are in addition to the other applicable conditions precedent set forth in Section 3.04.

(A) Whenever the Authority shall determine to issue a Series of Bonds, the Authority shall execute and deliver a Supplemental Indenture providing for the issuance of such Series of Bonds and specifying the terms and conditions of such Series of Bonds, including the following:

- (1) the authorized principal amount of such Series;
- (2) the purpose or purposes for which such Series is being issued and, if such purpose is the deposit of moneys in a Construction Account, the Project or Projects for which such Series is being issued (including any appropriate modifications to any previously specified or described Project or Projects);
- (3) the amount of the Bond Reserve Fund Requirement upon the issuance of such Series;
- (4) the amount to be deposited (or otherwise available) in the Bond Reserve Fund upon the issuance of such Series, the source or sources of such amount (which may be proceeds of such Series, a Credit Facility or other amounts available for such purpose);
- (5) the amount, if any, to be deposited in the applicable Construction Account, if any, upon the issuance of such Series, and the source or sources of such deposit (which may be the proceeds of such Series or other amounts available for such purpose);
- (6) the amounts, if any, to be reserved within the applicable Construction Account to pay Costs of Issuance and Capitalized Interest of such Series and the source or sources of such amounts (which may be the proceeds of such Series or other amounts available for such purpose);
- (7) the amount, if any, to be deposited in the Debt Service Fund as accrued interest upon the issuance of such Series;
- (8) the Credit Facility and Credit Provider, if any, for such Series and any special provisions not inconsistent with the terms of this Indenture relating to such Credit Facility and designating any Credit Agreement Payments with respect thereto;
- (9) the Related Payment Agreement, if any, and Qualified Counterparty with respect thereto and any provisions not inconsistent with the terms of this Indenture relating to such Payment Agreement;
- (10) the appointment of the Registrar and any Paying Agents for such Series and, if necessary, any Depositary for any Funds or Accounts relating to such Series;
- (11) the form, title and designation of, and the manner of numbering and lettering, Bonds of such Series;
- (12) the denomination or denominations of Bonds of such Series;

(13) the date or dates of maturity and Principal Payment Periods of Bonds of such Series and the manner of payment of principal of such Bonds;

(14) the rate or rates of interest or the manner of determining such rate or rates borne by the Bonds of such Series and the Record Dates and Interest Payment Dates for such Bonds;

(15) the Bonds of such Series which are Serial Bonds (if any) and the Bonds of such Series which are Term Bonds (if any);

(16) the terms of redemption, if any, of Bonds of such Series;

(17) the date and amount of each Mandatory Sinking Account Payment (if any) required to be paid by the Authority for the retirement of Term Bonds of such Series;

(18) the designation of any accounts to be established pursuant to this Indenture and any other accounts deemed advisable by the Authority;

(19) any tax or other covenants which, in the judgment of the Authority, are designed to insure that interest on such Series of Bonds will be excludable from gross income for federal income tax purposes and which are not inconsistent with the provisions of this Indenture; provided, however, that the Authority may, in its sole and absolute discretion, determine in connection with the authorization of a Series of Bonds that it will not make any such covenants because interest on such Series is not intended to be excludable from gross income for federal income tax purposes; and

(20) any other provisions deemed advisable by the Authority, not in conflict with or in substitution for the provisions of this Indenture (except as expressly permitted in this Indenture).

(B) (1) Before any Series of Bonds other than the initial Series shall be issued and delivered and before any Parity Payment Agreements are entered into, the Authority shall file the following documents with the Trustee:

(a) If and to the extent that an additional Series of Bonds is being issued, an Opinion of Counsel setting forth (i) that such counsel has examined the Supplemental Indenture; (ii) that the execution and delivery of the additional Series of Bonds have been duly authorized by the Authority; and (iii) that said additional Series of Bonds, when duly executed by the Authority and, if required, authenticated and delivered by the Registrar for such Bonds, will be valid and binding special obligations of the Authority, payable from Revenues as provided herein.

(b) A Certificate of the Authority that the requirement of Section 3.04(A)(1) has been met.

(c) (i) If and to the extent that an additional Series of Bonds is being issued for the purpose of providing moneys for deposit in a Construction Account, the following certificates:

(A) A certificate of a Consulting Engineer setting forth (I) the projected Date of Completion for the Project or Projects for which such Series of Bonds is being issued and for any other uncompleted Projects, and (II) an estimate of the cost of construction of such Projects;

(B) A written report of a Consulting Engineer setting forth for each Fiscal Year from the then current Fiscal Year through the later of (I) the first Fiscal Year commencing at least five years after the date of original issuance of such additional Series, or (II) the first Fiscal Year commencing at least three years after the Date of Completion projected by the Consulting Engineer pursuant to subparagraph (A) above, estimates of Revenues, Operation and Maintenance Expenses and Net Revenues; and

(C) A Certificate of the Authority (I) setting forth (a) the estimates of Revenues, Operation and Maintenance Expenses and Net Revenues, as set forth in the written report of a Consulting Engineer pursuant to subparagraph (B) above, for each of the Fiscal Years covered by such report, and (b) the Aggregate Annual Debt Service and Capitalized Interest for each of such Fiscal Years, including Annual Debt Service and Capitalized Interest on all future Series of Bonds, if any, which such Certificate of the Authority shall estimate (based on the estimate of the Consulting Engineer of the cost of construction of such Projects) are required to complete payment of the cost of construction of such Projects, and (II) demonstrating that for each of such Fiscal Years (a) Revenues are projected to be at least equal to the aggregate amount of all transfers required to be made pursuant to Section 5.02(A) through (E) and, to the extent applicable, otherwise required to provide for the payment of all obligations of the Authority to be paid from Revenues, and (b) Net Revenues are projected to be at least equal to 1.25 times Aggregate Annual Debt Service.

(ii) In lieu of the certificates and reports required by subparagraphs (i)(A), (B) and (C) above, the Authority may deliver to the Trustee a Certificate of the Authority to the effect that for the last complete Fiscal Year or any period of 12 consecutive calendar months out of the 18 calendar months next preceding the original issuance of such Series of Bonds, Net Revenues for such Fiscal Year or 12-month period equaled at least 1.25 times the Maximum Annual Debt Service on all Bonds then Outstanding plus the Series of Bonds being issued.

(iii) In addition, a Series of Bonds may be issued for the sole purpose of depositing in a Construction Account the amounts necessary to complete any one or more Projects without filing with the Trustee of the certificates and reports required by subparagraphs (i)(B) and (C), if such certificates and reports demonstrating compliance with such subparagraphs were filed in connection with the issuance of the prior Series of Bonds for each of such Projects and if the principal amount of such Bonds to be issued for completion purposes does not exceed ten percent (10%) of the principal amount of Bonds previously issued for and allocable to such Projects.

(d) If and to the extent that an additional Series of Bonds is being issued for the purpose of refunding Bonds, either (i) a certificate of an Independent Certified Public Accountant that Aggregate Annual Debt Service for each Fiscal Year thereafter will be less than or equal to Aggregate Annual Debt Service for each such Fiscal Year in the absence of such refunding, or (ii) the certificates and reports required by subsection (B)(1)(c)(i)(A) (if any one or more of the Projects for which the Bonds being refunded is not then completed), (B) and (C) of this Section; provided that in lieu of the certificates and reports required by subparagraphs (A), (B) and (C) of said subsection (B)(1)(c)(i), the Authority may deliver to the Trustee the certificate required by subsection (B)(1)(c)(ii).

(e) If and to the extent that a Parity Payment Agreement, other than a Parity Payment Agreement all payments pursuant to which have been taken into account for purposes of determining that the requirements of this subsection (B) have been satisfied with respect to the issuance of the Related Bonds, is being entered into; either (i) a certificate of an Independent Certified Public Accountant that Aggregate Annual Debt Service for each Fiscal Year thereafter will be less than or equal to Aggregate Annual Debt Service for each such Fiscal Year in the absence of such Parity Payment Agreement, or (ii) the certificates and reports required by subsection (B)(1)(c)(i)(B) and (C) of this

Section, in each case treating such Payment Agreement as in effect for purposes of any calculations; provided that in lieu of the certificates and reports required by subparagraphs (B) and (C) of said subsection (B)(1)(c)(i), the Authority may deliver to the Trustee the certificate required by subsection (B)(1)(c)(ii), treating such Payment Agreement as in effect for purposes of any calculations.

(2) In connection with the issuance of an additional Series of Bonds, upon the delivery to the Trustee of the foregoing instruments, the applicable Registrar shall authenticate and deliver said additional Series of Bonds, in the aggregate principal amount specified in such Supplemental Indenture, to, or upon the Order of, the Authority, when such additional Series of Bonds shall have been presented to it for that purpose.

SECTION 3.06 Validity of Bonds. The validity of the authorization and issuance of the Bonds shall not be dependent on or affected in any way by any proceedings taken by the Authority for the improvement of the System, or by any contracts made by the Authority in connection therewith, or the failure to construct the System or any part thereof. The recital contained in the Bonds that the same are regularly issued pursuant to the Act shall be conclusive evidence of their validity and of compliance with the provisions of law in their issuance.

ARTICLE IV

REDEMPTION OF BONDS.

SECTION 4.01 Terms of Redemption. Any Series of Bonds may be made subject to redemption prior to maturity, as a whole or in part, at such time or times, and upon payment of the principal amount thereof plus such premium or premiums, if any, as may be determined by the Authority at the time such Series is authorized and as shall be set forth in the Supplemental Indenture authorizing such Series; provided, however, that such Supplemental Indenture shall provide that the Authority shall have the right, on any date, to redeem the Bonds of any such Series, as a whole, or in part so that the reduction in Annual Debt Service for the Bonds of such Series for each Bond Year after such redemption shall be as nearly proportional as practicable, from and to the extent of proceeds received by the Authority due to a governmental taking of the System or portions thereof by eminent domain proceedings, if such amounts are not used for additions, improvements or extensions to the System, under the circumstances and upon the conditions and terms set forth in Section 6.11, at the principal amount thereof plus interest accrued thereon, without premium.

SECTION 4.02 Selection of Bonds for Redemption. For purposes of selecting Bonds for redemption, Bonds shall be deemed to be composed of portions equal to their respective minimum authorized denomination, and any such portion may be separately redeemed. The applicable Registrar shall promptly notify the Authority, the Trustee and the Co-Trustee in writing of the Bonds or portions thereof selected for redemption. In the event that less than all of the Bonds of any Series and maturity are to be redeemed, the Bonds (or portions thereof) to be redeemed shall be selected by the Authority or, in the absence of such a selection by the Authority, by the applicable Registrar by lot within such maturity in such manner as the Registrar may determine. The amount of each Series and maturity of the Bonds to be redeemed shall be determined by Section 4.01 or the applicable Supplemental Indenture or, if permitted, by Request of the Authority.

In addition, a Supplemental Indenture providing for the issuance of Additional Bonds may specify any other method or order of selection of such Additional Bonds for redemption, subject to Section 4.01.

SECTION 4.03 Notice of Redemption. Notice of redemption (except as provided below) shall be given, not less than thirty (30) nor more than sixty (60) days before the date fixed for redemption, by first class mail to each of the registered owners of Bonds designated for redemption at their addresses appearing on the Bond registration books of the applicable Registrar on the date the Bonds to be redeemed are selected. Each notice of redemption shall state the redemption date, the place or places of redemption, the Series and maturities to be redeemed, and, if less than all of any such maturity, the numbers of the Bonds of such maturity to be redeemed and, in the case of Bonds to be redeemed in part only, the respective portions of the principal amount thereof to be redeemed, and shall also state that on said date there will become due and payable on each of said Bonds the Redemption Price thereof or of said specified portion of the principal thereof in the case of a Bond to be redeemed in part only, together with interest accrued thereon to the redemption date, and that from and after such redemption date interest thereon shall cease to accrue, and shall require that such Bonds be then surrendered, with a written instrument of transfer duly executed by the registered owner thereof or by such registered owner's attorney duly authorized in writing. No defect in or failure to give such mailed notice of redemption shall affect the validity of proceedings for the redemption of such Bonds. Each notice of redemption shall also state the CUSIP number, date of issue and interest rate on each Bond, or portion thereof, to be redeemed, and shall include the redemption agent name and address; provided, however, that failure to include any of such information in any redemption notice, or any inaccuracy in any such information, shall not affect the sufficiency of the proceedings for redemption of any Bonds.

A copy of any notice of redemption given pursuant to the foregoing paragraph shall also be sent by first class mail to each Owner of \$1,000,000 or more in aggregate principal amount of Bonds to be redeemed and to each of the Fiduciaries, each of the Credit Providers, the Securities Depositories (as defined below) and two or more Information Services (as defined below); provided, however, that failure to give notice pursuant to this sentence by certified mail to any Bondowners, to any Fiduciaries, to any Credit Providers or to any Securities Depositories or Information Services, or the insufficiency of any such notices, shall not affect the sufficiency of the proceedings for redemption of any Bonds. A second notice shall be sent by first class mail to the registered owner of any Bond which has been called for redemption in whole or in part, and is not surrendered for payment within sixty (60) days after the date fixed for redemption; provided, however, that failure to send any such second notice, or any deficiency of any such notice, shall not affect the sufficiency of the proceedings for redemption of any Bonds. As used in this paragraph, the term "Information Services" means Financial Information, Inc.'s "Daily Called Bond Service," 30 Montgomery Street, 10th Floor, Jersey City, New Jersey 07302, Attention: Editor; Kenny Information Services' "Called Bond Service," 55 Broad Street, 28th Floor, New York, New York 10004; Moody's "Municipal and Government," 99 Church Street, 8th Floor, New York, New York 10007, Attention: Municipal News Reports; and Standard and Poor's "Called Bond Record," 25 Broadway, 3rd Floor, New York, New York 10004; or, in accordance with then-current guidelines of the Securities and Exchange Commission, and/or such other services providing information with respect to called bonds, or no such services, as the Authority may designate in a Certificate delivered to the Trustee; and the term "Securities Depositories" means: The Depository Trust Company, 711 Stewart Avenue, Garden City, New York 11530, Fax-(516) 227-4039 or 4190; and/or, in accordance with then-current guidelines of the Securities and Exchange Commission, such other securities depositories, or no such depositories, as the Authority may designate in a Certificate delivered to the Trustee.

Notice of redemption of Bonds shall be given by the applicable Registrar for and on behalf of the Authority.

A Supplemental Indenture providing for the issuance of Bonds may provide that notice of the redemption of such Bonds shall be given at times and in a manner different from that specified above.

SECTION 4.04 Partial Redemption. Upon surrender of any Bond redeemed in part only, the Authority shall execute and the applicable Registrar shall authenticate and deliver to the registered owner thereof, at the expense of the Authority, a new Bond or Bonds of authorized denominations, and of the same Series, maturity and tenor, equal in aggregate principal amount to the unredeemed portion of the Bond surrendered.

SECTION 4.05 Effect of Redemption. Notice of redemption having been duly given as aforesaid, and moneys being held by the Trustee, the Co-Trustee or Paying Agents for payment of the Redemption Price of, and interest accrued to the redemption date on, the Bonds (or portions thereof) so called for redemption on the redemption date designated in such notice, such Bonds (or such portions) shall become due and payable at the Redemption Price specified in such notice plus interest accrued thereon to the date fixed for redemption, interest on the Bonds so called for redemption shall cease to accrue, said Bonds (or portions thereof) shall cease to be entitled to any benefit or security under this Indenture, and the Owners of said Bonds shall have no rights in respect thereof except to receive payment of said Redemption Price and accrued interest.

All Bonds purchased or redeemed pursuant to the provisions of this Indenture shall be cancelled upon surrender thereof and delivered to or upon the Order of the Authority.

SECTION 4.06 Rescission of Notice of Redemption. The Authority may, at its option and expense, prior to the date fixed for redemption in any notice of redemption rescind and cancel such notice of redemption.

ARTICLE V

REVENUES AND FUNDS

SECTION 5.01 Pledge and Assignment of Revenues; Revenue Fund. (A) Subject only to the provisions of this Indenture permitting the application thereof for or to the purposes and on the terms and conditions set forth herein and to the provisions of that certain Consent Decree dated April 24, 2003 and the related Order dated May 9, 2003, relating to *United States of America v. Government of Guam* (settling a lawsuit filed on behalf of the U.S. Navy against the Government and the Authority), there are hereby pledged to secure the payment of the principal of, premium, if any, and interest on the Bonds in accordance with their terms and the provisions of this Indenture and the payment of Credit Agreement Payments and Parity Payment Agreement Payments in accordance with their terms, all of the Revenues. Said pledge shall constitute a lien on and security interest in such Revenues and shall attach, be perfected and be valid and binding from and after delivery by the applicable Registrar of the first Series of Bonds hereunder, without any physical delivery of such Revenues or further act.

(B) The Depository for the Revenue Fund shall maintain and hold in trust the Revenue Fund so long as any Bonds, Credit Agreement Payments, or Parity Payment Agreement Payments remain Outstanding. The Authority shall deposit all Revenues upon the receipt thereof in the Revenue Fund. Subject only to the provisions of this Indenture permitting the application thereof for or to the purposes and on the terms and conditions set forth herein and therein, the Trustee and the Depository shall be entitled to and shall collect and receive all of the Revenues, and any Revenues collected or received by the Authority shall be deemed to be held, and to have been collected or received, by the Authority as the agent of the Trustee, the Co-Trustee and the Depository for the Revenue Fund and shall forthwith be paid by the Authority to such Depository.

(C) (1) In addition to the Revenue Fund, the Depository for the Revenue Fund shall establish within the Revenue Fund and maintain and hold in trust hereunder additional separate funds designated as follows:

- (a) The "Operation and Maintenance Fund";
- (b) The "Subordinate Securities Fund" (which may be held by the applicable trustee or depository for any Subordinate Securities);
- (c) the "Operation, Maintenance, Renewal and Replacement Reserve Fund";
- (d) the "Rate Stabilization Fund";
- (e) the "Capital Improvement Fund"; and
- (f) the "Rebate Fund".

The Operation, Maintenance, Renewal and Replacement Reserve Fund, the Rate Stabilization Fund and the Capital Improvement Fund may also be held by any one or more Depositories other than the Depository for the Revenue Fund.

(2) The Co-Trustee shall establish, maintain and hold in trust the following additional fund and accounts:

- (a) the Debt Service Fund (within the Revenue Fund); and
- (b) the Bond Reserve Fund (within the Revenue Fund).

(D) All moneys at any time deposited with the Trustee, the Co-Trustee or any Depository, as the case may be, shall be held by the Trustee, the Co-Trustee or such Depository, as the case may be, in trust for the benefit of the Owners at any time of the Bonds (and, to the extent any Credit Agreement Payment is due and payable, for the benefit of the applicable Credit Provider), and the Authority shall have no beneficial right or interest in any of such moneys, except as provided in this Indenture. All Revenues and other moneys so deposited shall be held, disbursed, allocated and applied only as provided in this Indenture.

SECTION 5.02 Allocation of Revenues. On or before the fifth day of each calendar month, after providing for any amounts due under the Consent Decree described in Section 5.01 for which revenues from the Navy/GPA Surcharge are not available to pay, the Depository for the Revenue Fund shall transfer from the Revenue Fund (to the Trustee as necessary) for deposit into one or more of the following respective separate funds, the following amounts in the following order of priority, the requirements of each such fund or account (including the making up of any deficiencies in any such fund or account resulting from lack of Revenues sufficient to make any earlier required deposit) at the time of deposit to be satisfied, and the results of such satisfaction being taken into account, before any transfer is made to any fund subordinate in priority:

(A) into the Operation and Maintenance Fund, an amount equal to the amount of Operation and Maintenance Expenses budgeted by the Authority, pursuant to the budget, as revised, filed in accordance with Section 6.08, to be paid from Revenues during the next succeeding calendar month

(including any amount to be held as a reserve for transfer to the Rebate Fund) plus the amount of any Other Credit Agreement Payments then due and payable or to become due and payable during such month not otherwise included in such amount;

(B) into the Debt Service Fund held by the Co-Trustee, an amount equal to the amount necessary to increase the amount in the Debt Service Fund to the aggregate amount for all Outstanding Bonds of all unpaid interest, principal and Mandatory Sinking Account Payments and for all Outstanding Parity Payment Agreements of all Parity Payment Agreement Payments with respect thereto and for all Outstanding Credit Agreements of all Credit Agreement Reimbursement Payments due and payable to the extent not otherwise included in such amount which shall be required to have been transferred to the Debt Service Fund on the basis of the following transfer requirement rules (after taking into account amounts transferred and to be transferred from any Construction Account to pay Capitalized Interest):

(1) an amount equal to the amount of interest payable on each Bond on a current uncompounded basis on any Interest Payment Date shall be transferred in equal monthly amounts over the Interest Accrual Period for such Bond ending on such Interest Payment Date (or in the case of Variable Rate Bonds 110% of the amount of interest accrued during the next preceding calendar month less any excess deposited for the next preceding calendar month); provided that to the extent that a Qualified Counterparty is obligated to make payments to the Authority on or prior to such Interest Payment Date pursuant to an Outstanding Payment Agreement Related to any Bonds, an amount equal to the amount of any such payment obligation shall be transferred from the Revenue Fund to the Debt Service Fund on the date such payment is due and the amount of each monthly transfer with respect to such Bonds required by this subparagraph (1) during the Interest Accrual Period (or portion thereof) over which such payment obligation accrues shall be reduced by an amount equal to the amount of such Qualified Counterparty's payment obligation accruing during the next preceding calendar month;

(2) the amount of interest payable on each Bond on a deferred compounded basis on any Interest Payment Date shall be transferred in substantially equal monthly amounts over the period during which such interest accrues on such basis;

(3) the amount of the principal of each Bond shall be transferred in equal monthly amounts over the Principal Payment Period for such Bond ending on the maturity date for such Bond;

(4) the amount of each Mandatory Sinking Account Payment for Bonds shall be transferred in equal monthly amounts over the Principal Payment Period for such Bonds ending on the date such Mandatory Sinking Account Payment is due;

(5) the amount of any Parity Payment Agreement Payment payable on any Payment Agreement Payment Date shall be transferred (a) in the case of such payments calculated based on a fixed rate, in equal monthly installments over the Payment Agreement Payment Accrual Period for such Payment Agreement Payment ending on such Payment Agreement Payment Date and (b) in the case of such payments calculated based on a variable rate, in monthly installments equal to 110% of the amount of such obligation accrued during the next preceding calendar month less any excess deposited for the next preceding calendar month; and

(6) to the extent not otherwise included in amounts described in subparagraphs (1) through (5) above, the amount of any Credit Agreement Reimbursement Payment due and payable shall be transferred.

(C) into the Bond Reserve Fund held by the Co-Trustee, the amount, if any, needed to increase the amount in the Bond Reserve Fund to the Bond Reserve Fund Requirement as of the date of such transfer;

(D) into the Subordinate Securities Fund (and any accounts therein), the amount, if any, needed to increase the amount in such Fund and each such account to its requirement (including any requirements for reasonable debt service reserves and requirements related to Payment Agreements that constitute Subordinate Securities (including Termination Payments)) established by each resolution, indenture or other instrument pursuant to which Subordinate Securities are issued and outstanding;

(E) into the Operation, Maintenance, Renewal and Replacement Reserve Fund, the amount, if any, needed to increase the amount in the Operation, Maintenance, Renewal and Replacement Reserve Fund to a requirement equal to one-fourth (1/4) of the sum of the amounts of Operation and Maintenance Expenses and Renewal and Replacement Costs budgeted by the Authority, pursuant to the budget, as revised, filed in accordance with Section 6.08, for the then current Fiscal Year; *provided, however,* that prior to the Fiscal Year beginning October 1, 2010, the deposit into such fund each month shall not be required to be greater than one-sixtieth (1/60) of such requirement for the then current Fiscal Year;

(F) into the Rate Stabilization Fund, the amount specified for such month in a Certificate of the Authority which also certifies that such amount is consistent with the annual budget established by the Authority pursuant to Section 6.08; and

(G) into the Capital Improvement Fund, the balance remaining in the Revenue Fund after the foregoing deposits.

SECTION 5.03 Application of Operation and Maintenance Fund. All amounts in the Operation and Maintenance Fund shall be used and withdrawn by the Authority upon Requisition solely for the purpose of paying Operation and Maintenance Expenses; provided that any amounts deposited in the Operation and Maintenance Fund for the purpose of paying Other Credit Agreement Payments shall be used and withdrawn only for the purpose for which they were deposited. For purposes of this Section, any check, draft, warrant or purchase order of the Authority executed by an officer or employee of the Authority duly authorized by resolution of the Board of Directors of the Authority to execute such instruments shall be treated as a Requisition.

SECTION 5.04 Rebate Fund.

(A) If and to the extent required by the Supplemental Indenture providing for the issuance of a Series of Bonds, the Trustee shall establish and maintain within the Rebate Fund a separate Rebate Account for such Series. There shall be deposited in such Rebate Account from amounts in the Operation and Maintenance Fund or other lawfully available moneys such amounts as are required to be deposited therein pursuant to the Tax Certificate with respect to such Series of Bonds. All money at any time deposited in a Rebate Account shall be held by the Trustee in trust, and shall be governed exclusively by this Section and by the Tax Certificate with respect to such Series of Bonds.

(B) Notwithstanding any provisions of this Section, if the Authority shall provide to the Trustee an opinion of Bond Counsel that any specified action required under this Section is no longer required or that some further or different action is required to maintain the exclusion, if any, from gross income for federal income tax purposes of interest on any Series of Bonds, the Trustee and the Authority may conclusively rely on such opinion in complying with the requirements of this Section, and,

notwithstanding Article IX of this Indenture, the covenants hereunder shall be deemed to be modified to that extent.

SECTION 5.05 Application of Debt Service Fund. (A) Subject to subsection (C) of this Section, all amounts in the Debt Service Fund shall be used and withdrawn by the Co-Trustee solely for the purpose of (1) paying interest on Bonds as it shall become due and payable (including accrued interest on any Bonds purchased or redeemed prior to maturity pursuant to this Indenture), (2) paying the principal of Serial Bonds when due and payable, (3) purchasing or redeeming or paying at maturity Term Bonds as provided in this Section, (4) paying Parity Payment Agreement Payments due and payable, and (5) paying Credit Agreement Reimbursement Payments due and payable.

(B) Subject to subsection (C) of this Section, on each Mandatory Sinking Account Payment date, the Co-Trustee shall apply the Mandatory Sinking Account Payment or Payments required on that date to the redemption (or payment at maturity, as the case may be) of the applicable Term Bonds upon the notice and in the manner provided in Article IV. At any time prior to giving such notice of such redemption, the Co-Trustee, upon the Request of the Authority, shall apply moneys in the Debt Service Fund, in an amount not in excess of such Mandatory Sinking Account Payment, to the purchase of the applicable Term Bonds at public or private sale, as and when and at such prices (including brokerage and other charges) as are specified in such Request, except that the purchase price (excluding accrued interest) shall not exceed the price that would be payable for such Bonds upon redemption by application of such Mandatory Sinking Account Payment.

(C) If (1) during the twelve-month period immediately preceding a Mandatory Sinking Account Payment date the Co-Trustee purchases the applicable Term Bonds with moneys in the Debt Service Fund, or (2) during said period and prior to giving notice of redemption the Authority otherwise deposits the applicable Term Bonds with the Co-Trustee (together with a Request of the Authority to apply such Bonds so deposited to the Mandatory Sinking Account Payment due on said date), the amount of Bonds so purchased or deposited shall be credited at the time of such purchase or deposit, to the extent of the full principal amount thereof, to reduce such Mandatory Sinking Account Payment. All Bonds purchased or deposited pursuant to this subsection shall be cancelled and destroyed by the Co-Trustee.

(D) With respect to each series of Bonds for which proceeds of the sale thereof are required to be set aside to pay interest on the Bonds, the Co-Trustee (if so instructed by the Supplemental Indenture providing for the issuance of such series) shall transfer from the Construction Fund and deposit in the Debt Service Fund the amounts at the times specified in the Supplemental Indenture providing for the issuance of such Series.

SECTION 5.06 Application of Bond Reserve Fund. All amounts in the Bond Reserve Fund shall be used and withdrawn by the Co-Trustee solely for the purpose of paying debt service on Bonds (including Payment Agreement Payments to the extent provided in any Supplemental Indenture) in the event of a deficiency in the Debt Service Fund, in the manner and to the extent set forth in Section 5.12. So long as the Authority is not in default hereunder, any amount in the Bond Reserve Fund in excess of the Bond Reserve Fund Requirement shall be transferred to the Revenue Fund. A Supplemental Indenture providing for the issuance of a Series of Bonds may provide that income derived from the investment of the proceeds of such Series in the Bond Reserve Fund prior to the completion of each Project for which such Bonds were issued shall be deposited in the Construction Account for such Project. Otherwise, such income shall be deposited in the Revenue Fund.

If and to the extent provided by Supplemental Indenture, the Bond Reserve Fund Requirement may be wholly or partially satisfied by a Credit Facility. Notwithstanding anything to the contrary contained hereinbefore in this Section or in Article IV, such Supplemental Indenture may also

provide that a draw on such Credit Facility shall be made only after all cash in the Bond Reserve Fund has been withdrawn, and that if a drawing or other claim on such Credit Facility is honored, amounts available under Section 5.02(C) for deposit in the Bond Reserve Fund shall be applied by the Co-Trustee to reimburse, as soon as practicable, the amount of each payment honoring such drawing or other claim, and the Trustee shall give any notice of such reimbursement required by the applicable Credit Agreement. No such Credit Facility shall be given any priority over any other such Credit Facility as to draws or repayments.

SECTION 5.07 Application of Subordinate Securities Fund. All amounts in the Subordinate Securities Fund may be used and withdrawn, as directed by a Request of the Authority, for the purpose of paying debt service due on Subordinate Securities, amounts due pursuant to Payment Agreements (including Termination Payments), funding or replenishing reasonable reserves and meeting other requirements of the instrument pursuant to which such Subordinate Securities are issued.

SECTION 5.08 Application of Operation, Maintenance, Renewal and Replacement Reserve Fund. All amounts in the Operation, Maintenance, Renewal and Replacement Reserve Fund shall be used and withdrawn upon Requisition of the Authority solely for the purposes of (A) paying Operation and Maintenance Expenses if and to the extent that amounts on deposit in the Operation and Maintenance Fund are insufficient for such purpose, (B) paying Renewal and Replacement Costs budgeted by the Authority, pursuant to the budget, as revised, filed in accordance with Section 6.08, for the then current Fiscal Year, and (C) paying the costs of repair or replacement of loss or damage caused by or resulting from fire or from action of the elements (including loss from typhoons, earthquakes, floods and tidal waves), whether or not such costs are Operation and Maintenance Expenses or Renewal and Replacement Costs. For purposes of this Section, any check, draft, warrant or purchase order of the Authority executed by an officer or employee of the Authority duly authorized by resolution of the Board of Directors of the Authority to execute such instruments shall be treated as a Requisition.

SECTION 5.09 Application of Rate Stabilization Fund. All amounts in the Rate Stabilization Fund shall be transferred by the Authority from time to time to the Revenue Fund in the amounts specified by a Certificate of the Authority which also certifies that such amount is consistent with the annual budget established by the Authority pursuant to Section 6.08.

SECTION 5.10 Application of Capital Improvement Fund. Except as may be otherwise set forth in a Supplemental Indenture, all amounts in the Capital Improvement Fund may be used and withdrawn by the Authority for any lawful purpose of the Authority or may be transferred to the Revenue Fund, in each case upon Request of the Authority. The Authority may direct the appropriate Depository to establish accounts within the Capital Improvement Fund for appropriate purposes, and may restrict the purposes for which amounts in any such account may be used and withdrawn so long as such purposes are lawful purposes.

SECTION 5.11 Deficiencies in Funds or Accounts. In the event that the amount in any Fund or Account is insufficient for the purposes for which such Fund or Account was established, the Co-Trustee, or the Trustee or the Depository upon the direction of the Co-Trustee, shall transfer to such Fund or Account the amount of such deficiency by withdrawing said amount from subordinate Funds and Accounts in reverse order of the priority set forth in Section 5.02 and prior to any other claims upon such Funds and Accounts, subject only to the limitation that amounts in the Bond Reserve Fund shall only be used as provided in Section 5.06. If after making all such transfers, the amount in the Debt Service Fund is insufficient, the Co-Trustee shall promptly notify each Credit Provider of the amount of such insufficiency.

SECTION 5.12 Investment of Moneys in Funds. All Investment Securities and any other investments acquired with moneys held hereunder shall be acquired subject to the limitations of any covenant relating to the exclusion of interest on Bonds from gross income for federal income tax purposes, to the limitations as to maturities hereinafter in this Section set forth and to such additional limitations or requirements consistent with the foregoing as may be established by Request of the Authority. No Investment Security which is subject to redemption at the option of the issuer may be purchased at a premium above the amount of the premium payable upon any such redemption.

Moneys in the Construction Accounts, the Rebate Fund, the Debt Service Fund and the Bond Reserve Fund shall be invested solely in Investment Securities to maximize investment income, with proper regard for the preservation of principal, pursuant to a Request of the Authority as to such investment. In the absence of any different instruction, such moneys shall be invested in Investment Securities described in clause (6) of the definition thereof.

Moneys in the Revenue Fund, the Operation and Maintenance Fund, the Subordinate Securities Fund, the Operation, Maintenance, Renewal and Replacement Reserve Fund and the Capital Improvement Fund may be invested in any investment designated by Request of the Authority.

Notwithstanding any other provision hereof, moneys in the Revenue Fund and the Bond Reserve Fund shall be invested only in Investment Securities having at least an investment grade rating from the Rating Agency.

Subject to the provisions of any Supplemental Indenture, moneys in all Funds and Accounts established under this Indenture shall be invested in investments paying interest and maturing not later than the dates on which it is estimated that such moneys will be required by the Trustee, the Co-Trustee, the applicable Depository or the Authority.

All interest and other profit derived from such investments shall be deposited in the Revenue Fund when received, except that interest and other profit derived from the investment of moneys in the Construction Accounts, the Capital Improvement Fund and the Rebate Fund shall be retained in such respective Fund or Account, and except that interest and other profit derived from the investment of moneys in the Bond Reserve Fund shall be deposited as provided in Section 5.06. Investments acquired as an investment of moneys in any Fund or Account established under this Indenture shall be credited to such Fund or Account.

Subject to the provisions of any Supplemental Indenture, for the purpose of determining the amount in any Fund or Account, except the Rebate Fund, the amount of any obligation allocable to such Fund or Account shall be equal to the purchase price of such obligation (not including accrued interest, if any, paid on the purchase of such obligation) plus the amount of any discount below par accounting for any such discount ratably each year over the term of such obligation (i.e., by dividing the amount of such discount by the number of interest payments remaining to maturity and by multiplying the amount so calculated by the number of interest payment dates having passed since the date of purchase) (in this Section called "amortized value"); provided, however, that the amount of any accrued interest on any obligation may be credited to the Revenue Fund or to any Fund or Account to which such amount or any portion thereof may have been transferred from the Revenue Fund.

The Trustee, the Co-Trustee or the applicable Depository may sell at the best price obtainable, or present for redemption, any security purchased hereunder whenever it shall be necessary in order to provide moneys to meet any required payment, transfer, withdrawal or disbursement from the Fund or Account to which such security is credited, and the Trustee, the Co-Trustee and such Depository shall not be liable or responsible for any loss resulting from such investment.

ARTICLE VI

CERTAIN COVENANTS

SECTION 6.01 Payment of Principal and Interest. The Authority will punctually pay or cause to be paid the principal and interest (and premium, if any) to become due in respect of every Bond issued hereunder at the times and places and in the manner provided herein and in the Bonds, in strict conformity with the terms of the Bonds and of this Indenture, but solely from Revenues and other moneys held in trust hereunder, as provided herein.

SECTION 6.02 Against Encumbrances. Subject to any rights of the United States of America or as otherwise set forth herein, the Authority will not mortgage or otherwise encumber, pledge or place any charge upon the System or any part thereof, or upon any of the Revenues, prior to or on a parity with the Bonds, the Parity Payment Agreements and Credit Agreement Payments.

So long as any Bonds are Outstanding, the Authority will not issue any bonds or obligations payable from Revenues or secured by a pledge, lien or charge upon Revenues prior to or on a parity with the Bonds, the Parity Payment Agreements and the Credit Agreement Payments, other than the Bonds, the Parity Payment Agreements and the Credit Agreement Payments.

Except as may be otherwise set forth in a Supplemental Indenture, nothing in this Indenture, and particularly nothing in the preceding two paragraphs, shall prevent the Authority from authorizing and issuing bonds, notes, warrants, certificates or other obligations or evidences of indebtedness which as to principal or interest, or both, (1) are payable from Revenues after and subordinate to the payment from Revenues of the principal of and interest on the Bonds, the Parity Payment Agreement Payments and Credit Agreement Payments, or (2) are payable from moneys which are not Revenues as such term is defined in this Indenture.

SECTION 6.03 Sale or Other Disposition of Property. (A) The Authority and the Government will not sell or otherwise dispose of the System or any part thereof, or permit others to sell or otherwise dispose of the System or any part thereof, essential to the proper operation of the System or to the collection of Revenues sufficient to pay debt service on the Bonds, Parity Payment Agreement Payments and Credit Agreement Payments and otherwise comply with Section 6.12. The Authority will not enter into any agreement which impairs the operation of the System or impedes the collection of Revenues sufficient to pay debt service on the Bonds, Parity Payment Agreement Payments and Credit Agreement Payments and otherwise comply with Section 6.12.

(B) Any real or personal property which has become nonoperative or which is not needed for the efficient and proper operation of the System, or any material or equipment which has worn out, may be sold at a price not less than the fair market value thereof if such sale will not reduce Net Revenues and if the net proceeds of such sale are deposited in the Revenue Fund.

SECTION 6.04 Operation and Maintenance of the System. The Authority will maintain and preserve the System in good repair and working order at all times from the Revenues available for such purposes, in conformity with prudent management and standards customarily followed in the industry for systems of like size and character. The Authority will from time to time make all necessary and proper repairs, renewals, replacements and substitutions to the properties of the System, so that at all times business carried on in connection with the System shall and can be properly and advantageously conducted in an efficient manner and at reasonable cost. The Authority will operate the System in an efficient and economical manner, consistent with the protection of the Owners of the Bonds and so as to assure that the System shall be financially self-sufficient and self-sustaining. The Authority

shall not commit or allow any waste with respect to the System. Nothing herein shall prohibit the Authority from subcontracting any part of the maintenance and operation of the System.

SECTION 6.05 Liens and Claims. Subject to any rights of the United States of America, the Authority shall keep the System and all parts thereof free from judgments, from mechanics' and materialmen's liens and from all liens and claims of whatsoever nature or character, to the end that the security provided pursuant to this Indenture may at all times be maintained and preserved, and the Authority shall keep the System and the Revenues free from any liability which might hamper the Authority in conducting its business or operating the System. The Trustee or and Co-Trustee at its option (after first giving the Authority ten days written notice to comply therewith and failure of the Authority to so comply within said ten-day period) may defend against any and all actions or proceedings in which the validity of this Indenture is or might be questioned, or may pay or compromise any claim or demand asserted in any such actions or proceedings; provided, however, that, in defending against such actions or proceedings or in paying or compromising such claims or demands, the Trustee or the Co-Trustee shall not in any event be deemed to have waived or released the Authority from liability for or on account of any of its covenants and warranties contained herein, or from its liability hereunder to defend the validity of this Indenture and the pledge herein made and to perform such covenants and warranties.

SECTION 6.06 Insurance.

(A) The Authority will maintain or cause to be maintained insurance on the System with responsible insurers in such amounts and against such risks (including accident to or destruction of the System) as are usually maintained by prudent operators of systems similar and similarly situated to the System and which it shall deem advisable or necessary to protect its interests and the interests of the Bondowners so long as such insurance is available to the Authority on the open market from responsible insurers at reasonable cost. In the event of any damage to or destruction of the System caused by the perils covered by such insurance, the proceeds of such insurance shall be applied to the repair, reconstruction or replacement of the damaged or destroyed portion of the System; and the Authority shall cause such repair, reconstruction or replacement to begin promptly after such damage or destruction shall occur and to continue and to be properly completed as expeditiously as possible. If the proceeds received by reason of any such loss shall exceed the costs of such repair, reconstruction or replacement, the Authority shall deposit such excess in the Capital Improvement Fund. Notwithstanding the foregoing, if the proceeds of such insurance, together with other moneys available for such purpose, are sufficient to enable the Authority to retire all Outstanding Bonds, whether at maturity or on redemption prior to maturity or any combination thereof, and to pay the Parity Payment Agreement Payments and any Termination Amount payable by the Authority pursuant to Parity Payment Agreements in connection with a termination thereof, and to pay any Credit Agreement Payments then due and payable the Authority may elect not to repair, reconstruct or replace the damaged or destroyed portion of the System, and thereupon, the proceeds of such insurance shall be applied by the Authority and the Trustee to the payment when due of the interest to become due on all Outstanding Bonds on and prior to the maturity date or redemption date thereof, as the case may be, to the payment of the principal of and redemption premiums, if any, on all Outstanding Bonds at maturity or on redemption prior to maturity, as the case may be, and to the payment of such Parity Payment Agreement Payments and any such Termination Amounts, as the case may be, when due and to pay any Credit Agreement Payments then due and payable.

(B) The Authority will maintain such other insurance which it shall deem advisable or necessary to protect its interests and the interests of the Bondowners, which insurance shall afford protection in such amounts and against such risks as are usually maintained by prudent operators of systems similar to the System.

(C) Any insurance required under this Section may be maintained under a self-insurance program so long as such self-insurance is maintained in the amounts and manner customarily maintained by prudent operators of systems similar to the System. The Authority shall, every third year, engage an insurance consultant to review the Authority's self-insurance program and to make recommendations for any necessary modifications, including, but not limited to, any modifications necessary to comply with this Section. Each such report shall be filed with the Trustee.

SECTION 6.07 Books and Accounts; Financial Statements. (A) The Authority will keep proper books of record and accounts, separate from all other records and accounts, in which complete and correct entries shall be made of all transactions relating to the System. Such books of record and accounts shall at all times during business hours be subject to the inspection of the Trustee, the Co-Trustee or any Owner of Bonds then Outstanding or their representatives authorized in writing, at reasonable hours and under reasonable conditions.

(B) The Authority will prepare and file with the Trustee and the Co-Trustee annually within nine months after the close of each Fiscal Year so long as any of the Bonds are Outstanding --

(1) financial statements for the preceding Fiscal Year, prepared in accordance with (i) the accounting requirements of this Indenture and (ii) generally accepted accounting principles applied on a consistent basis from year to year, including a balance sheet, statement of income, statement of retained earnings, and statement of changes in financial position (including a statement of revenue, expenditures and fund balances for each of the Funds and Accounts established pursuant to this Indenture), and including a reconciliation between the bases of accounting required under clauses (i) and (ii) above, which financial statements shall be examined by and include the certificate or opinion of an Independent Certified Public Accountant, such certificate or opinion to include a statement as to the manner and extent to which the Authority has complied with the provisions of this Indenture as it relates to said financial statements; and

(2) a statement as to all insurance carried by the Authority as of the end of such Fiscal Year, including a brief description of the amount and coverage of each insurance policy and the name of the insuring company.

The Authority will furnish a copy of the aforesaid statements to any Credit Provider and to any Bondowner upon request, and will furnish to the Trustee such reasonable number of copies thereof (not exceeding 100 copies) as may be required by the Trustee for distribution to investment bankers, securities dealers and others interested in the Bonds and to the Owners of Bonds requesting copies thereof. The Trustee shall not be required to incur any nonreimbursable expenses in making such distribution.

SECTION 6.08 Authority Budgets. Prior to the commencement of each Fiscal Year, the Authority shall prepare and adopt an annual budget for such Fiscal Year. Such budget shall set forth in reasonable detail the Revenues anticipated to be derived in such Fiscal Year and the expenditures anticipated to be paid or provided for therefrom in such Fiscal Year including, without limitation, the amounts required to provide for the payment of the principal of, interest and redemption premium, if any, on the Bonds during such Fiscal Year, to pay or provide for Operation and Maintenance Expenses for such Fiscal Year, to pay or provide for Renewal and Replacement Costs for such Fiscal Year, to make up any deficiencies in any Fund or Account anticipated for the then current Fiscal Year, to transfer to or from the Rate Stabilization Fund each month, and to pay or provide for the payment of all other claims or obligations required to be paid from Revenues in such Fiscal Year, and shall show that Net Revenues shall be at least adequate to satisfy the requirements of Section 6.12. The Authority shall supply to the Trustee, the Co-Trustee, the Revenue Fund Depositary, any Credit Provider and any Bondowners who

shall so request in writing a copy of the annual budget for the then current Fiscal Year. Such budget shall also be open for inspection by any Owner during normal business hours. The Authority may at any time adopt a revised annual budget and shall supply copies as aforesaid.

SECTION 6.09 Payment of Taxes, Etc. The Authority will pay and discharge, or cause to be paid and discharged, all taxes, assessments and other governmental charges which may hereafter be lawfully imposed upon the Authority on account of the System or any portion thereof or upon any Revenues and which, if unpaid, might impair the security of the Bonds, when the same shall become due, but nothing herein contained shall require the Authority to pay any such tax, assessment or charge so long as it shall in good faith contest the validity thereof. The Authority will duly observe and conform with all valid requirements of any governmental authority having jurisdiction over the Authority or the System or any part thereof.

SECTION 6.10 Acquisition and Construction of Improvements. The Authority will commence and will continue to completion the acquisition and construction of the improvements to the System proposed to be financed from any Series of Bonds, and said improvements will be acquired, constructed and completed in a sound and economical manner and in conformity with law.

SECTION 6.11 Eminent Domain Proceeds. If all or any part of the System shall be taken by or under threat of eminent domain proceedings, the net proceeds realized by the Authority therefrom (excluding any portion thereof payable to the United States of America or required by the United States of America to be deposited in a restricted fund) shall be deposited by the Chief Financial Officer in a special fund in trust and applied and disbursed by the Chief Financial Officer subject to the following conditions:

(A) If such proceeds are sufficient to provide for the payment of the entire amount of principal due or to become due upon all of the Bonds, together with all of the interest due or to become due thereon and any redemption premiums, and all amounts payable under Parity Payment Agreements (including Termination Amounts) and all Credit Agreement Payments then due and payable so as to enable the Authority to retire all of the Bonds, either by redemption at the then current redemption prices or by payment at maturity or partly by redemption prior to maturity and partly by payment at maturity, and terminate such Parity Payment Agreements and discharge such obligations with respect to such Credit Agreement Payments, the Chief Financial Officer shall transfer such moneys to the Trustee who shall apply such moneys to such retirement and to the payment of such amounts. The balance of such moneys, if any, shall be transferred back to the Authority and shall be deposited in the Capital Improvement Fund.

(B) If such proceeds are insufficient to provide the moneys required for the purposes set forth in the foregoing subsection (A), the Authority shall by resolution determine to apply such proceeds for one of the following purposes, subject to the conditions hereinafter in this subsection (B) set forth:

(1) The Authority may determine to apply such proceeds to the purchase or redemption of Bonds then Outstanding and to the payment of Credit Agreement Payments then due and payable. In that event, the Chief Financial Officer shall transfer such proceeds to the Trustee, who shall apply such proceeds pro rata to the redemption or purchase of Bonds of each Series then Outstanding in the proportion which the principal amount of outstanding Bonds of each Series bears to the aggregate principal amount of all Bonds then Outstanding.

(2) The Authority may determine to apply such proceeds to the cost of additions or improvements to or extensions of the System if the Authority first secures and files with the Trustee a report of an Independent Consulting Engineer (a) showing (i) the loss in annual Revenues, if any, suffered or to be suffered, by the Authority by reason of such eminent domain proceedings, (ii) a general

description of the additions, improvements or extensions then proposed to be acquired by the Authority from such proceeds, and (iii) an estimate of the additional Revenues to be derived from such additions, improvements or extensions; and (b) determining that such eminent domain proceedings will not substantially impair the ability of the Authority to meet its obligations under Section 6.12. The Authority shall then promptly proceed with the construction of the additions, improvements or extensions substantially in accordance with such report. Payments for such construction shall be made by the Authority from such proceeds. Any balance of such proceeds not required by the Authority for the purposes aforesaid shall be deposited in the Capital Improvement Fund.

SECTION 6.12 Rate Covenant.

(A) The Authority shall at all times fix, prescribe and collect rates, fees and charges in connection with the services furnished by the System which will be sufficient to yield the sum of Net Revenues during each Fiscal Year equal to at least 1.25 times the Aggregate Annual Debt Service for such Fiscal Year and to yield Revenues during each Fiscal Year equal to at least the aggregate amount of all transfers required by Section 5.02(A) through (E) for such Fiscal Year.

The debt service coverage ratio specified in this Section shall be the debt service coverage ratio used by the PUC, together with other appropriate factors, in setting rates.

If the financial statements prepared pursuant to Section 6.07(B)(1) reflect that (or if the Authority's other books and records at the time such statements are due hereunder reflect that) at the end of a Fiscal Year the sum of Net Revenues shall have been less than 1.25 times Aggregate Annual Debt Service for such Fiscal Year, or if Revenues shall have been less than the aggregate amount of all transfers required by Sections 5.02(A) through (E) for such Fiscal Year, the Authority shall promptly employ a Consulting Engineer to make recommendations as to a revision of such rates, fees and charges or the methods of operation of the System. The Authority shall, promptly upon its receipt of such recommendations, subject to applicable requirements or restrictions imposed by law and subject to a good faith determination of the Board that such recommendations, in whole or in part, are in the best interests of the Authority, the Owners and each Credit Provider, revise such rates, fees and charges or methods of operation and will take such other actions as shall be in conformity with such recommendations.

If the Authority complies in all material respects with the reasonable recommendations of the Consulting Engineer with respect to said rates, fees, charges and methods of operation or collection, or makes a good faith determination that such recommendations are not in the best interests of the Authority, the Authority will be deemed to have complied with this Section for such Fiscal Year; provided, that Net Revenues shall in no event have been less than Aggregate Annual Debt Service for such Fiscal Year.

(B) The Authority may make adjustments from time to time in its rates, fees and charges and may make such classification thereof as it deems necessary, but shall not reduce such rates, fees and charges below those then in effect unless the Revenues from such reduced rates, fees and charges will at all times be sufficient to meet the requirements of this Section.

SECTION 6.13 Compliance with Indenture. The Authority (and the Government as to Section 6.17) will faithfully observe and perform all the covenants, conditions and requirements of this Indenture, and will not suffer or permit any default to occur hereunder, or do or permit to be done, in, upon or about the System, or any part thereof, anything that might in any way weaken, diminish or impair the security intended to be given pursuant to this Indenture.

SECTION 6.14 Observance of Laws and Regulations. The Authority shall comply promptly, fully and faithfully with and abide by any contract relating to or affecting the availability of any grant or other similar assistance and any statute, law, ordinance, order, rule, regulation, judgment, decree, direction or requirement now in force or hereafter enacted, adopted or entered by any competent governmental authority or agency applicable or with respect to or affecting the acquisition, construction or reconstruction of the System or any part thereof or applicable or with respect to or affecting the operation, manner, use or condition of the System or any part or parcel thereof or adjoining public ways or relating to the imposition of charges or collection of Revenues; provided that the Authority need not comply with any such contract, statute, law, ordinance, rule, regulation, judgment, decree, direction or requirement if and so long as the Authority in good faith shall be contesting or permitting or causing to be contested the applicability or validity thereof by appropriate proceedings diligently prosecuted, even though such contest may result in the imposition of a lien or charge against the System or the Revenues, if (1) the Authority shall effectively prevent foreclosure or enforcement of any such lien or charge and (2) the foreclosure or enforcement of any such lien or charge shall be stayed, and if said stay thereafter expires, the Authority shall forthwith discharge such lien or charge or cause the same to be discharged, so that pending such proceedings the System and the Revenues thereof shall not be affected thereby, and the security of the Bonds shall not be impaired.

SECTION 6.15 Prosecution and Defense of Suits. The Authority shall promptly from time to time take such action as may be necessary or proper to remedy or cure any defect in or cloud upon the title to the System hereafter developing, and shall prosecute all such suits, actions and other proceedings as may be appropriate for such purposes and, to the extent permitted by law, shall indemnify and save the Trustee and every Bondowner harmless from all loss, cost, damage and expense, including attorneys' fees, which they or any of them may incur by reason of any such defect, cloud, suit, action or proceeding.

The Authority shall defend against every suit, action or proceeding at any time brought against the Trustee or any Bondowner upon any claim arising out of the receipt, application or disbursement of any of the Revenues or involving the rights of the Trustee or any Bondowner under this Indenture; provided, that the Trustee or any Bondowner at its or his election may appear in and defend any such suit, action or proceeding. To the extent permitted by law, the Authority shall indemnify and hold harmless the Trustee and the Bondowners against any and all liability claimed or asserted by any person arising out of such receipt, application or disbursement, and shall indemnify and hold harmless the Bondowners against any attorneys' fees or other expenses which any of them may incur in connection with any litigation to which any of them may become a defendant by reason of its ownership of Bonds. To the extent permitted by law, the Authority shall promptly reimburse any Bondowner in the full amount of any attorneys' fees or other expenses which such Bondowner may incur in litigation or otherwise in order to enforce its rights under this Indenture or the Bonds, if such litigation is concluded favorably to such Bondowner's contentions therein. Notwithstanding any contrary provision hereof, this Section shall remain in full force and effect, even though all indebtedness and obligations issued hereunder may have been fully paid and satisfied, until the Authority shall have been dissolved.

SECTION 6.16 Further Assurances. Whenever and so often as requested so to do by the Trustee or any Bondowner, the Authority will promptly execute and deliver or cause to be executed and delivered all such other and further instruments, documents or assurances, and promptly do or cause to be done all such other and further things, as may be necessary or reasonably required in order to further and more fully vest in the Trustee and the Bondowners all rights, interest, powers, benefits, privileges and advantages conferred or intended to be conferred upon them by this Indenture.

SECTION 6.17 Pledge of the Government. The Government hereby pledges to the holders of all Bonds the following: while any Bonds remain outstanding and not fully performed or

discharged (A) to maintain the rights, powers and duties of the Board and the Guam Public Utilities Commission, or their respective successors in accordance with law, to fulfill the terms of Bonds and this Indenture, (B) to maintain the rights and remedies of Bondholders provided in the Act and this Indenture, (C) to protect the exclusive right of the Authority to operate or maintain within Guam any water or wastewater system operated by the government or its designees by preventing the acquisition, operation, maintenance or permitting of any instrumentality of the Government or any other public or private agency, entity or person to operate a separate and competitive water and/or wastewater system, and (D) not to transfer any additional non-system operating responsibilities or other unfunded mandates to the Authority without providing for the payment of the costs of such additional responsibilities, with the exception of annual supplemental annuity and COLA contributions paid by the Authority on behalf of retired employees of the Authority (or its lawful predecessors) as may be required by other laws of Guam. The Authority includes this pledge and agreement of the Government in this Indenture as authorized by Section 14229 of the Act.

ARTICLE VII

EVENTS OF DEFAULT AND REMEDIES OF BONDOWNERS

SECTION 7.01 Events of Default; Remedies. (A) Any one or more of the following events shall be an "Event of Default" hereunder:

(1) if default shall be made in the due and punctual payment of the principal of, or the premium (if any) on, any Bond when and as the same shall become due and payable, whether at maturity as therein expressed, by proceedings for redemption, or otherwise, or if default shall be made in the redemption or payment at maturity from any Sinking Account of any Term Bonds in the amounts and at the times provided therefor;

(2) if default shall be made in the due and punctual payment of any installment of interest on any Bond or any Parity Payment Agreement Payment when and as such interest installment or Parity Payment Agreement Payment shall become due and payable;

(3) if default shall be made by the Authority in the observance of any of the other covenants, agreements or conditions on its part in this Indenture or in the Bonds contained or by the Government in the observance of its covenant in Section 6.17, and such default shall have continued for a period of thirty (30) days after notice thereof, specifying such default and requiring the same to be remedied, shall have been given to the Authority by the Trustee, the Co-Trustee or a Credit Provider, or to the Authority, the Trustee and the Co-Trustee by the Owners of not less than twenty-five percent (25%) in aggregate principal amount of the Bonds at the time Outstanding; or

(4) if the Authority shall file a petition or answer seeking reorganization or arrangement under the federal bankruptcy laws or any other applicable law of the United States of America, or if a court of competent jurisdiction shall approve a petition, filed with or without the consent of the Authority, seeking reorganization under the federal bankruptcy laws or any other applicable law of the United States of America, or if, under the provisions of any other law for the relief or aid of debtors, any court of competent jurisdiction shall assume custody or control of the Authority or of the whole or any substantial part of its property.

(B) In each and every case during the continuance of an Event of Default, the Trustee in its own name and as Trustee of an express trust, on behalf and for the benefit and protection of the Bondowners, after notice to the Authority, and upon the request of the Owners of a majority in Accreted Value of the Bonds then Outstanding, shall proceed to protect and enforce any rights of the Trustee and,

to the full extent that the Bondowners themselves might do, the rights of such Bondowners under this Indenture and under the laws of the Government by such of the following remedies as such majority shall deem most effectual to protect and enforce such rights:

- (1) by mandamus or other suit, action or proceeding at law or in equity, to enforce all rights of the Bondowners, including the right to require the Authority to charge, prescribe and collect Revenues adequate to comply with the covenants and agreements made herein, and to require the Authority to carry out any other covenant or agreement with the Bondowners and to perform its duties under the Act;
- (2) by bringing suit upon the Bonds;
- (3) by action or suit in equity, to require the Authority to account as if it were the trustee of an expressed trust for the Bondowners;
- (4) by realizing or causing to be realized through sale or otherwise upon the moneys, securities and other assets pledged hereunder;
- (5) by action or suit in equity, to enjoin any acts or things which may be unlawful or in violation of the rights of the Bondowners;
- (6) by requiring the Authority to endorse all checks and other negotiable instruments representing Revenues to the order of the Trustee immediately upon the receipt thereof and to deliver such endorsed instruments daily to the Trustee;
- (7) by notifying any or all account debtors of the Authority to pay any amounts representing Revenues, when due, directly to the Trustee as Trustee; and
- (8) by commencing proceedings for the appointment of a receiver or receivers of the System and of the Revenues, with such powers as the court making such appointment confers.

SECTION 7.02 Application of Funds Upon Default. All of the Revenues, all amounts in all of the Funds and Accounts provided for in Sections 3.02 (except any escrow fund established for the payment of any refunded obligations), 3.03, 5.01 and 5.02 upon the date of the declaration of an Event of Default as provided in Section 7.01 and all Revenues thereafter received by the Authority, the Trustee, the Co-Trustee or any Depository hereunder, shall be transmitted to the Trustee and be applied by the Trustee as and in the order of priority provided in Sections 5.01, 5.02 and 5.06; provided, however, that (A) if amounts in the Debt Service Fund are insufficient to pay, when due, all interest on, principal of, and Mandatory Sinking Account Payments on all Bonds then Outstanding, all Parity Payment Agreement Payments pursuant to Parity Payment Agreements then Outstanding and all Credit Agreement Reimbursement Payments due and payable pursuant to Credit Agreements then Outstanding, then such amounts in the Debt Service Fund shall be used first to pay all installments of interest then due and owing without preference or priority of any such installment of interest over any other installment of interest, then to pay installments of principal and Mandatory Sinking Account Payments then due and owing, without preference or priority of any installment of principal or Mandatory Sinking Account Payments over any other such installment, then to pay all Credit Agreement Reimbursement Payments then due and payable, and then to pay Parity Payment Agreement Payments then due and owing, without preference or priority of any Parity Payment Agreement Payment over any other such Parity Payment Agreement Payment; and (B) amounts in Construction Accounts may be used for the purposes for which such Construction Accounts were created and funded if the Trustee

determines, in accordance with Section 8.03(A), that such use is in the best interests of the Bondholders and the Credit Providers.

If any installment of interest, principal or Redemption Price is only partially paid, such payment shall occur only upon presentation of the several Bonds and the recording thereon of a record of such partial payment.

SECTION 7.03 Representation of Bondowners by Trustee. In case one or more of the Events of Default shall happen, then and in every such case the Owner of any Bond at the time Outstanding shall be entitled to proceed to protect and enforce the rights vested in such Owner by this Indenture by such appropriate judicial proceeding as such Owner shall deem most effectual to protect and enforce any such right, either by suit in equity or by action at law, whether for the specific performance of any covenant or agreement contained in this Indenture, or in aid of the exercise of any power granted in this Indenture, or to enforce any other legal or equitable right vested in the Owners of Bonds by this Indenture or by law; provided, however, that no such Bondowner shall have the right to institute any such judicial proceeding pursuant to this Section unless (A) such Owner shall have previously given to the Trustee notice of the occurrence of an Event of Default hereunder; (B) the Owners of at least a majority in Accreted Value of the Bonds then Outstanding shall have made request to the Trustee to exercise the powers herein granted or to institute such action, suit or proceeding in its own name; (C) such Owner or said Owners shall have tendered to the Trustee reasonable indemnity against the costs, expenses and liabilities to be incurred in compliance with such request; and (D) the Trustee shall have refused or omitted to comply with such request for a period of sixty days after such request shall have been received by, and said tender of indemnity shall have been made to, the Trustee. The provisions of this Indenture shall constitute a contract with the Owners of the Bonds, and such contract and duties of the Authority and of the Authority members, officers and employees thereof shall be enforceable by any Bondowner by mandamus or other appropriate suit, action or proceeding in any court of competent jurisdiction.

Nothing in this Section shall affect or impair the right of any Owner to enforce the payment of principal of and interest on such Owner's Bonds or the obligation of the Authority to pay the principal of and interest on each such Bond at the time and place specified in such Bond.

SECTION 7.04 Nonwaiver. Nothing in this Article or in any other provision of this Indenture, or in the Bonds, shall affect or impair the obligation of the Authority, which is absolute and unconditional, to pay the principal of and the interest (and premium, if any) on the Bonds to the respective Owners of the Bonds at the respective dates of maturity, or upon call for redemption, as herein provided, but only out of the Revenues herein pledged for such payments, or affect or impair the right of action, which is also absolute and unconditional, of such Owners to institute suit to enforce such payment by virtue of the contract embodied in the Bonds.

A waiver of any default or breach of duty or contract by any Bondowner shall not affect any subsequent default or breach of duty or contract, or impair any rights or remedies on the subsequent default or breach. No delay or omission of the Trustee or of any Owner of any of the Bonds to exercise any right or power arising upon the happening of any Event of Default shall impair any such right or power or shall be construed to be a waiver of any such Event of Default or an acquiescence therein, and every power and remedy given by the Act or this Article to the Trustee or to the Owners of Bonds or any Credit Provider may be exercised from time to time and as often as shall be deemed expedient by the Trustee or the Owners of Bonds or any such Credit Provider.

If a suit, action or proceeding to enforce any right or exercise any remedy is abandoned or determined adversely to the Bondowners, the Authority, the Trustee and the Bondowners and each

Credit Provider shall be restored to their former positions, rights and remedies as if such suit, action or proceeding had not been brought or taken.

SECTION 7.05 Actions by Trustee as Attorney-in-Fact. Any suit, action or proceeding which any Owner of Bonds shall have the right to bring to enforce any right or remedy hereunder may be brought by the Trustee for the equal benefit and protection of all Owners of Bonds similarly situated (notwithstanding any conditions upon the bringing of any such action, suit or proceeding set forth in Section 7.03) and the Trustee is hereby appointed (and the successive respective Owners of the Bonds issued hereunder, by taking and holding the same, shall be conclusively deemed so to have appointed it) the true and lawful attorney-in-fact of the respective Owners of the Bonds for the purpose of bringing any such suit, action, or proceeding and to do and perform any and all acts and things for and on behalf of the respective Owners of the Bonds as a class or classes, as may be necessary or advisable in the opinion of the Trustee as such attorney-in-fact.

Except as may be set forth in a Supplemental Indenture in accordance with Section 11.15, anything in this Indenture to the contrary notwithstanding, the Owners of a majority in Accreted Value of the Bonds at any time Outstanding shall have the right, by an instrument or concurrent instruments in writing executed and delivered to the Trustee, to direct the method and place of conducting all remedial proceedings to be taken by the Trustee hereunder, provided that such direction shall be in accordance with law and the provisions of this Indenture.

SECTION 7.06 Remedies Not Exclusive. No remedy herein conferred upon or reserved to the Trustee or to the Owners of Bonds or to any Credit Provider is intended to be exclusive of any other remedy. Every such remedy shall be cumulative and shall be in addition to every other remedy given hereunder or now or hereafter existing, at law or in equity or by statute or otherwise and may be exercised without exhausting and without regard to any other remedy conferred by the Act or any other law.

ARTICLE VIII

THE FIDUCIARIES

SECTION 8.01 Appointment of Trustee. Bank of Guam is hereby appointed as Trustee under this Indenture.

Appointment of Co-Trustee. U.S. Bank National Association is hereby appointed as Co-Trustee under this Indenture.

SECTION 8.02 Duties, Immunities and Liabilities of Fiduciaries. (A) The Trustee and the Co-Trustee shall, prior to an Event of Default, and after the curing of all Events of Default which may have occurred, perform such duties and only such duties as are specifically set forth in this Indenture for each to perform. The Trustee and the Co-Trustee shall, during the existence of any Event of Default which has not been cured, exercise such of the rights and powers vested in them by this Indenture, and use the same degree of care and skill in their exercise, as a prudent person would exercise or use under the circumstances in the conduct of such person's own affairs. The Authority, the Trustee, the Co-Trustee and each Depository shall establish such accounting, notice and other relationships as are necessary to provide for the operation of the accounts created under or pursuant to Article V, and the handling of the Revenues credited thereto in accordance herewith.

(B) Each Depository, Registrar and Paying Agent shall, prior to an Event of Default, and after the curing of all Events of Default which may have occurred, perform such duties and only such

duties as are specifically set forth in this Indenture, and shall, during the existence of any Event of Default (which has not been cured), follow the directions of the Trustee with respect to any of the Funds and Accounts held under this Indenture.

(C) The Authority may remove any Fiduciary at any time unless an Event of Default shall have occurred and then be continuing, and shall remove a Fiduciary if at any time requested to do so by an instrument or concurrent instruments in writing signed by the Owners of not less than a majority in Accreted Value of the Bonds then Outstanding (or their attorneys duly authorized in writing) or if at any time such Fiduciary shall cease to be eligible in accordance with subsection (F) of this Section, or shall become incapable of acting, or shall be adjudged a bankrupt or insolvent, or a receiver of such Fiduciary or its property shall be appointed, or any public officer shall take control or charge of such Fiduciary or its property or affairs for the purpose of rehabilitation, conservation or liquidation; in each case by giving notice of such removal to such Fiduciary and thereupon shall appoint a successor Trustee, Co-Trustee, Depository, Registrar or Paying Agent, as the case may be, by an instrument in writing. Any Supplemental Indenture or Credit Agreement entered into in connection with Bonds may provide that the Credit Provider with respect thereto has the right to direct the Authority to remove any Fiduciary and appoint a successor under the circumstances specified therein.

(D) Any Fiduciary may at any time resign by giving notice of such resignation to the Authority, the other Fiduciaries and each Credit Provider. Subject to the provisions of any Supplemental Indenture or Credit Agreement, upon receiving such notice of resignation, the Authority shall promptly appoint a successor Trustee, Co-Trustee, Depository, Registrar or Paying Agent, as the case may be, by an instrument in writing.

(E) Any such removal or resignation and appointment of a successor Fiduciary shall become effective upon acceptance of appointment by the successor. Promptly upon such acceptance, the Authority shall give notice thereof to each Fiduciary, to each affected Credit Provider and to the affected Bondowners by mail in the manner provided by Section 4.03. If no successor shall have been appointed and have accepted appointment within forty-five (45) days after giving notice of removal or notice of resignation as aforesaid, the resigning Fiduciary or any Bondowner (on behalf of such Bondowner and all other Bondowners) or any Credit Provider may petition any court of competent jurisdiction for the appointment of a successor, and such court may thereupon, after such notice (if any) as it may deem proper, appoint such successor. Any such successor appointed under this Indenture shall signify its acceptance of such appointment by executing and delivering to the Authority and to its predecessor a written acceptance thereof (which may be a Supplemental Indenture), and thereupon such successor, without any further act, deed or conveyance, shall become vested with all the moneys, estates, properties, rights, powers, trusts, duties and obligations of such predecessor, with like effect as if originally named herein; but, nevertheless, at the Request of the Authority or the request of the successor, such predecessor shall execute and deliver any and all instruments of conveyance or further assurance and do such other things as may reasonably be required for more fully and certainly vesting in and confirming to such successor all the right, title and interest of such predecessor in and to any property held by it under this Indenture and shall pay over, transfer, assign and deliver to the successor any money or other property subject to the trusts and conditions herein set forth. Upon request of the successor, the Authority shall execute and deliver any and all instruments as may be reasonably required for more fully and certainly vesting in and confirming to such successor all such moneys, estates, properties, rights, powers, trusts, duties and obligations.

(F) (1) The Trustee and the Co-Trustee appointed under the provisions of this Section shall meet the requirements of any Supplemental Indenture and any Credit Agreement and shall each be a trust company or bank having the powers of a trust company doing business and having a corporate trust office in any State or territory and having a combined capital and surplus of at least Fifty Million Dollars

(\$50,000,000), and subject to supervision or examination by federal, state or territorial authority. The Co-Trustee shall have a corporate trust office in one of the contiguous 48 States and have a combined capital and surplus of at least One Hundred Million Dollars (\$100,000,000). Either the Trustee or the Co-Trustee shall have a corporate trust office in Guam. Any bank or trust company that meets the requirements of both of the preceding two sentences may serve as both Trustee and Co-Trustee. If a bank or trust company publishes a report of condition at least annually, pursuant to law or to the requirements of any supervising or examining authority above referred to, then for the purpose of this Section the combined capital and surplus of such bank or trust company shall be deemed to be its combined capital and surplus as set forth in its most recent report of condition so published. In case at any time the Trustee or the Co-Trustee shall cease to be eligible in accordance with the provisions of this subsection (F)(1), it shall resign immediately in the manner and with the effect specified in this Section. The Trustee and Co-Trustee may be appointed and act as a Depository, Registrar or Paying Agent hereunder.

(2) Each Registrar and Paying Agent appointed under the provisions of this Section shall meet the requirements of any Supplemental Indenture and any Credit Agreement and shall be a trust company or bank having trust powers doing business and having a corporate trust office in any State of the United States and subject to supervision or examination by federal or state authority. In case at any time any Registrar or any Paying Agent shall cease to be eligible in accordance with the provisions of this subsection (F)(2), it shall resign immediately in the manner and with the effect specified in this Section.

(3) Each Depository appointed under the provisions of this Section shall be a trust company or commercial bank having the powers of a trust company doing business and having a trust office on Guam, having a combined capital and surplus of at least Ten Million Dollars (\$10,000,000), and subject to supervision or examination by federal or territorial authority. If such bank or trust company publishes a report of condition at least annually, pursuant to law or to the requirements of any supervising or examining authority above referred to, then for the purpose of this Section the combined capital and surplus of such bank or trust company shall be deemed to be its combined capital and surplus as set forth in its most recent report of condition so published. In case at any time the Depository shall cease to be eligible in accordance with the provisions of this subsection (F)(3), the Depository shall resign immediately in the manner and with the effect specified in this Section.

(G) Any company into which any Fiduciary may be merged or converted or with which it may be consolidated or any company resulting from any merger, conversion or consolidation to which it shall be a party or any company to which such Fiduciary may sell or transfer all or substantially all of its corporate trust business, provided such company shall be eligible under subsection (F) of this Section, shall be the successor to such Fiduciary without the execution or filing of any paper or any further act, anything herein to the contrary notwithstanding. Any such successor shall give notice of such merger, conversion or consolidation to each other Fiduciary and to the Authority.

SECTION 8.03 Compensation. Subject to the terms of separate contracts with Fiduciaries, the Authority shall pay to each Fiduciary from time to time reasonable compensation for all services rendered under this Indenture, and also all reasonable expenses, charges, fees of counsel, accountants and consultants and other disbursements, including those of their attorneys, agents and employees, incurred in good faith in and about the performance of their powers and duties under this Indenture. The Authority further agrees, to the extent permitted by law, to indemnify and save each Fiduciary harmless against any losses, costs, expenses, claims and liabilities (including without limitation those of its attorneys, agents and receivers) which they may incur in the exercise and performance of their respective powers, functions and duties under this Indenture, which are not due to their own respective gross negligence or willful misconduct. Such indemnity shall survive the resignation or removal of each Fiduciary.

SECTION 8.04 Liability of Fiduciaries. The recitals of facts herein and in the Bonds contained shall be taken as statements of the Authority, and no Fiduciary assumes any responsibility or liability for the correctness of the same, or makes any representations as to the validity or sufficiency of this Indenture, of the Bonds, of any Credit Facility or of the pledge and assignment of Revenues herein or any information or statements in any offering memorandum or other disclosure material prepared or distributed in connection with the issuance of Bonds or shall incur any responsibility or liability in respect thereof, other than in connection with the duties or obligations herein or in the Bonds assigned to or imposed upon them, respectively. Each Registrar shall, however, be responsible for its representations contained in its certificate of authentication and registration on the Bonds. No Fiduciary shall be liable in connection with the performance of its respective duties hereunder, except for its own respective gross negligence or willful misconduct. Any Fiduciary may become the owner of the Bonds with the same rights it would have if it were not a Fiduciary, and, to the extent permitted by law, may act as depository for and permit any of their officers or directors to act as a member of, or in any other capacity with respect to, any committee formed to protect the rights of Bondowners, whether or not such committee shall represent the Owners of a majority in Accreted Value of the Bonds then Outstanding. No Fiduciary shall be under any responsibility or duty with respect to the application of any moneys paid to any other Fiduciary or the acts or omissions of any other Fiduciary. No Fiduciary shall be under any obligation or duty to perform any act which would require it to expend or risk its own moneys or otherwise incur any liability or to institute or defend any action or suit in respect of this Indenture or the Bonds, unless it is in its judgment adequately indemnified. No Fiduciary shall be deemed to have knowledge of an Event of Default hereunder unless it has received actual knowledge thereof at its Principal Office, except, in the case of the Trustee, default in the payment of any amounts due on the Bonds on the due date therefor.

SECTION 8.05 Right of Fiduciaries to Rely on Documents. Any Fiduciary shall be protected in acting upon any notice, resolution, request, consent, order, certificate, requisition, statement, report, opinion, bond or other paper or document believed to be genuine and to have been signed or presented by the proper party or parties. Any Fiduciary may consult with counsel, who may be counsel of or to the Authority, with regard to legal questions, and the opinion of such counsel shall be full and complete authorization and protection in respect of any action taken or suffered by it hereunder in good faith and in accordance therewith.

Whenever in the administration of the trusts imposed upon it by this Indenture a Fiduciary shall deem it necessary or desirable that a matter be proved or established prior to taking or suffering any action hereunder, such matter (unless other evidence in respect thereof be herein specifically prescribed) may be deemed to be conclusively proved and established by a Certificate of the Authority, and such Certificate shall be full warrant to such Fiduciary for any action taken or suffered in good faith under the provisions of this Indenture in reliance upon such Certificate, but in its discretion such Fiduciary may, in lieu thereof, accept other evidence of such matter or may require such additional evidence as to it may seem reasonable.

SECTION 8.06 Preservation and Inspection of Documents. All documents received by any Fiduciary under the provisions of this Indenture shall be retained in its possession and shall be subject at all reasonable times to the inspection of the Authority and any Bondowner, and their agents and representatives duly authorized in writing, at reasonable hours and under reasonable conditions.

ARTICLE IX

MODIFICATION OR AMENDMENT OF THE INDENTURE

SECTION 9.01 Amendments Permitted. (A)(1) This Indenture and the rights and obligations of the Authority and of the Owners of the Bonds and of the Trustee and Co-Trustee may be modified or amended at any time by a Supplemental Indenture which shall become binding when the consents of the Owners of at least sixty percent (60%) in Accreted Value of the Bonds then Outstanding, exclusive of Bonds disqualified as provided in Section 9.03 hereof; provided that if such modification or amendment will, by its terms, not take effect so long as any bonds of any particular maturity or Series remain Outstanding, the consent of the Owners of Bonds of such maturity or Series shall not be required and such Bonds shall not be deemed to be Outstanding for the purpose of any calculation of Outstanding Bonds under this Section; and provided further that the consent of a Credit Provider for any Bond shall be deemed to be the consent of the Owner of such Bond if specified in the Supplemental Indenture pursuant to which such Credit Provider is designated as providing a Credit Facility for such Bond.

(2) No such modification or amendment shall (a) extend the fixed maturities of the Bonds, or extend the time for making any Mandatory Sinking Account Payments, or reduce the rate of interest thereon, or extend the time of payment of interest, or reduce the amount of principal thereof, or reduce any premium payable on the redemption thereof, without the consent of the Owner of each Bond so affected, (b) reduce the aforesaid percentage of Owners of Bonds whose consent is required for the execution of any amendment or modification of this Indenture or permit the creation of any lien on the Revenues prior to or on a parity with the lien created by this Indenture or deprive the Owners of the Bonds of the lien created by this Indenture upon such Revenues, without in each case the consent of the Owners of all of the Bonds then Outstanding.

(3) No such modification or amendment shall modify any of the rights or obligations of any Fiduciary without its consent thereto.

(B) This Indenture and the rights and obligations of the Authority and of the Owners of the Bonds may also be modified or amended at any time by a Supplemental Indenture which shall become binding upon adoption, without the consent of any Bondowners, but only to the extent permitted by law and only for any one or more of the following purposes:

(1) to add to the covenants and agreements of the Authority in this Indenture contained other covenants and agreements thereafter to be observed or to surrender any right or power herein reserved to or conferred upon the Authority;

(2) to cure, correct or supplement any ambiguous or defective provision contained in this Indenture or in regard to questions arising under this Indenture, as the Authority may deem necessary or desirable and not inconsistent with this Indenture, and which shall not materially adversely affect the interests of the Owners of the Bonds or any Credit Provider;

(3) to provide for the issuance of Additional Bonds, and to provide the terms and conditions under which such Additional Bonds may be issued, subject to and in accordance with the provisions of Article III;

(4) to provide for any other matters for which a Supplemental Indenture is expressly permitted or required hereunder; and

(5) to make any other amendment or modification which shall not materially adversely affect the interests of the Owners of the Bonds or any Credit Provider.

(C) Any Supplemental Indenture providing for the issuance of a Series of Bonds may require, in addition to or in lieu of any consents required by the foregoing provisions of this Section 9.01, the consent of any Credit Provider for such Bonds in order for any amendment hereto affecting such Bonds to be effective, and may set forth appropriate procedures for obtaining and evidencing such consent.

SECTION 9.02 Procedure for Amendment with Consent of Bondowners. The Authority may at any time adopt a Supplemental Indenture amending the provisions of the Bonds or of this Indenture or any Supplemental Indenture, to the extent that such amendment is permitted by Section 9.01(A)(1), to take effect when and as provided in this Section. A copy of such Supplemental Indenture, together with a request to Bondowners for their consent thereto, shall be mailed by the Authority to each Owner of Bonds, but failure to receive any such copies of such Supplemental Indenture and request shall not affect the validity of the Supplemental Indenture when assented to as in this Section provided.

Such Supplemental Indenture shall not become effective unless there shall be filed with the Trustee the consents of the Owners of sixty percent (60%) in Accreted Value of the Bonds then Outstanding (exclusive of Bonds disqualified as provided in Section 9.03) and a notice shall have been published as hereinafter in this Section provided. Each such consent shall be effective only if accompanied by proof of ownership of the Bonds for which such consent is given, which proof shall be such as is permitted by Section 11.08. Any such consent shall be binding upon the Owner of the Bonds giving such consent and on any subsequent Owner (whether or not such subsequent Owner has notice thereof) unless such consent is revoked in writing by the Owner giving such consent or a subsequent Owner by filing such revocation with the Trustee prior to the date when the notice hereinafter in this Section provided for has been published.

After the Owners of the required percentage of Bonds shall have filed their consents to the Supplemental Indenture, the Authority shall mail a notice to the Bondowners in the manner hereinbefore provided in this Section for the mailing of the Supplemental Indenture and publication of the notice of adoption thereof, stating in substance that the Supplemental Indenture has been consented to by the Owners of the required percentage of Bonds and will be effective as provided in this Section (but failure to receive copies of said notice shall not affect the validity of the Supplemental Indenture or consents thereto). A record, consisting of the papers required by this Section to be filed with the Trustee, shall be proof of the matters therein stated until the contrary is proved.

In lieu of obtaining any demand, request, direction, consent or waiver in writing, the Trustee may call and hold a meeting of the Bondowners upon such notice and in accordance with such rules and regulations as the Trustee considers fair and reasonable for the purpose of obtaining any such action.

SECTION 9.03 Disqualified Bonds. Bonds owned or held by or for the account of the Authority (but excluding Bonds held in any pension or retirement fund) shall not be deemed Outstanding for the purpose of any consent or other action or any calculation of Outstanding Bonds provided for in this Article or Indenture, and shall not be entitled to consent to or take any other action provided for in this Article or Indenture.

The Authority may adopt appropriate regulations to require each Bondowner, before his consent provided for in this Article shall be deemed effective, to reveal if the Bonds as to which such consent is given are disqualified as provided in this Section.

SECTION 9.04 Effect of Supplemental Indenture. From and after the time any Supplemental Indenture becomes effective pursuant to this Article, this Indenture shall be deemed to be modified and amended in accordance therewith, and the respective rights, duties and obligations under this Indenture of the Authority, the Trustee, the Co-Trustee and all Owners of Bonds Outstanding shall thereafter be determined, exercised and enforced hereunder subject in all respects to such modification and amendment, and all the terms and conditions of any such Supplemental Indenture shall be deemed to be part of the terms and conditions of this Indenture for any and all purposes.

SECTION 9.05 Endorsement or Replacement of Bonds Issued Before Amendments. The Authority may determine that Bonds issued and delivered before the effective date of any action taken as provided in this Article shall bear a notation, by endorsement or otherwise, in form approved by the Authority, as to such action. In that case, upon demand of the Owner of any Bond Outstanding at such effective date and presentation of his Bond for that purpose at the office of the Authority or at such other office as the Authority may select and designate for that purpose, a suitable notation shall be made on such Bond. The Authority may determine that new Bonds, so modified as in the opinion of the Authority is necessary to conform to such action, shall be prepared, executed and delivered. In that case, upon demand of the Owner of any Bonds then Outstanding, such new Bonds shall be exchanged at the Principal Office of the applicable Registrar, without cost to such Owner, for Bonds of the same character then Outstanding, upon surrender of such Bonds.

SECTION 9.06 Amendatory Endorsement of Bonds. The provisions of this Article shall not prevent any Bondowner from accepting any amendment as to the particular Bonds held by such Bondholder, provided that due notification thereof is made on such Bonds.

SECTION 9.07 Credit Provider Consent. Nothing in this Article or in this Indenture shall affect any provision of any Credit Agreement or Supplemental Indenture requiring the Authority to obtain the consent of the Credit Provider or to satisfy any other conditions before amending or supplementing this Indenture or any Bond.

ARTICLE X

DEFEASANCE

SECTION 10.01 Discharge of Indenture. If the Authority shall pay and discharge the entire indebtedness on all Bonds Outstanding in any one or more of the following ways—

(A) by well and truly paying or causing to be paid the principal of (including redemption premiums, if any) and interest on all Bonds Outstanding, as and when the same become due and payable (but this clause shall not include Bonds the principal of or interest on which has been paid by a Credit Provider until said principal and interest shall have been paid by the Authority); or

(B) by depositing with the Co-Trustee, in trust, at or before maturity, money which, together with the amounts then on deposit in the Debt Service Fund and the Bond Reserve Fund, is fully sufficient to pay or redeem all Bonds Outstanding, including all principal, interest and redemption premiums, if any; or

(C) by delivering to the Co-Trustee, for cancellation by it, all Bonds Outstanding; or

(D) by depositing with the Co-Trustee, in trust, non-callable Federal Securities in such amount which, in the determination of an Independent Certified Public Accountant, who shall certify such

determination to the Co-Trustee and, if so provided in a Supplemental Indenture, any Credit Provider, shall, together with the income or increment to accrue thereon and any other moneys of the Authority made available for such purpose, be fully sufficient to pay and discharge the indebtedness on all Bonds (including all principal, interest and redemption premiums, if any) at or before their respective maturity dates;

and if the Authority shall also pay or cause to be paid all other sums payable hereunder by the Authority (including all Parity Payment Agreement Payments and any Termination Payments payable in connection with a termination of a Parity Payment Agreement and any Credit Agreement Payments then due and payable) and deliver or have delivered to the Trustee, the Co-Trustee and each Credit Provider an Opinion of Counsel to the effect that upon satisfaction of the other requirements of this Section 10.01 and any Supplemental Indenture all obligations of the Authority under this Indenture have ceased, terminated and been completely discharged, then and in that case, at the election of the Authority (evidenced by a Certificate of the Authority signifying its intention to pay and discharge all such indebtedness and that this Indenture and all other obligations of the Authority under this Indenture shall cease and terminate, which shall be filed with the Trustee and the Co-Trustee), and notwithstanding that any Bonds shall not have been surrendered for payment, the pledge of the Revenues and other funds provided for in this Indenture and all other obligations of the Authority under this Indenture shall cease, terminate and be completely discharged, and the Owners of the Bonds not so surrendered and paid shall thereafter be entitled to payment only out of the money or Federal Securities deposited with the Co-Trustee as aforesaid for their payment; subject, however, to the provisions of Section 10.03. The discharge of the obligations of the Authority under this Indenture shall be without prejudice to the rights of the Co-Trustee to charge for and be reimbursed by the Authority for any expenditures which it may thereafter incur in connection herewith.

The Authority may at any time surrender to the Co-Trustee for cancellation by it any Bonds previously issued and delivered, which the Authority may have acquired in any manner whatsoever, and such Bonds, upon such surrender and cancellation, shall be deemed to be paid and retired.

SECTION 10.02 Discharge of Liability on Bonds. Upon the deposit with the Co-Trustee, in trust, at or before maturity, of money or Federal Securities in the necessary amount to pay or redeem Outstanding Bonds (whether upon or prior to their maturity or the redemption date of such Bonds), provided that if such Bonds are to be redeemed prior to the maturity thereof, notice of such redemption shall have been given as in Article IV provided or provision satisfactory to the Co-Trustee shall have been made for the giving of such notice, then all liability of the Authority in respect of such Bonds shall cease, determine and be completely discharged and the Owners thereof shall thereafter be entitled only to payment out of the money or Federal Securities deposited with the Trustee as aforesaid for their payment, subject, however, to the provisions of Section 10.03.

SECTION 10.03 Payment of Bonds after Discharge of Indenture. Notwithstanding any provisions of this Indenture, any moneys deposited with the Co-Trustee in trust for the payment of the principal of, or interest or premium on, any Bonds and remaining unclaimed for two years after the principal of all the Outstanding Bonds has become due and payable (whether at maturity or upon call for redemption or by declaration as provided in this Indenture) shall then be repaid to the Authority upon its Request, and the Owners of such Bonds shall thereafter be entitled to look only to the Authority for payment thereof, and all liability of the Co-Trustee with respect to such moneys shall thereupon cease; provided, however, that before the repayment of such moneys to the Authority as aforesaid, the Co-Trustee may (at the cost of the Authority) first publish at least once in a Financial Newspaper or Journal and in a newspaper of general circulation in Guam a notice, in such form as may be deemed appropriate by the Co-Trustee, with respect to the Bonds so payable and not presented and with

respect to the provisions relating to the repayment to the Authority of the moneys held for the payment thereof. In the event of the repayment of any such moneys to the Authority as aforesaid, the Owners of the Bonds in respect of which such moneys were deposited shall thereafter be deemed to be general creditors of the Authority for amounts equivalent to the respective amounts deposited for the payment of such Bonds and so repaid to the Authority (without interest thereon).

ARTICLE XI

MISCELLANEOUS

SECTION 11.01 Liability of Authority Limited to Revenues. Notwithstanding anything in this Indenture contained, the Authority shall not be required to advance any moneys derived from any source of income other than the Revenues, for the payment of the principal of or interest on the Bonds, Payment Agreement Payments, Termination Payments and Credit Agreement Payments, for the operation and maintenance of the System, for the performance of any covenants herein contained or for the payment of any obligations hereunder, including indemnification. The Authority may, however, advance funds for any such purpose, provided that such funds are derived from a source legally available for such purpose and may be used by the Authority for such purpose without incurring indebtedness.

The Bonds shall be limited obligations of the Authority, payable solely from and secured by a pledge of the Revenues as provided in this Indenture. The Bonds shall not be a legal or equitable pledge, charge, lien or encumbrance upon any property of the Authority or upon any of its income, receipts or revenues except the Revenues pledged to the payment thereof as provided in this Indenture.

Neither the Government of Guam (the "Government") nor any political subdivision thereof is obligated to pay the principal of, Redemption Price, if applicable, or interest on the Bonds, except from Revenues, and neither the Authority, the Government nor any political subdivision thereof has pledged its faith or credit to the payment of the principal of, redemption price, if applicable, or interest on the Bonds.

SECTION 11.02 Successor Is Deemed Included in All References to Predecessor. Whenever in this Indenture either the Authority or any Fiduciary is named or referred to, such reference shall be deemed to include the successors or assigns thereof, and all the covenants and agreements in this Indenture contained by or on behalf of the Authority or any Fiduciary shall bind and inure to the benefit of the respective successors and assigns thereof whether so expressed or not.

SECTION 11.03 Limitation of Rights to Parties and Bondowners. Nothing in this Indenture or in the Bonds expressed or implied is intended or shall be construed to give to any person, other than the Authority, the Fiduciaries and the Owners of the Bonds issued hereunder and to the extent set forth herein or in a Supplemental Indenture any Credit Provider, any legal or equitable right, remedy or claim under or in respect of this Indenture or any covenant, condition or provision therein or herein contained; and all such covenants, conditions and provisions are and shall be held to be for the sole and exclusive benefit of the Authority, the Fiduciaries and the Owners of the Bonds issued hereunder and any such Credit Provider.

SECTION 11.04 Waiver of Notice. Whenever in this Indenture the giving of notice by mail or otherwise is required, the giving of such notice may be waived in writing by the person entitled to receive such notice and in any such case the giving or receipt of such notice shall not be a condition precedent to the validity of any action taken in reliance upon such waiver.

SECTION 11.05 Destruction of Bonds. Whenever in this Indenture provision is made for the cancellation by the Co-Trustee and the delivery to the Authority of any Bonds, the Co-Trustee may destroy such Bonds (in the presence of an officer of the Authority, if the Authority shall so require), and deliver a certificate of such destruction to the Authority, unless the Authority shall, by Request of the Authority, request the Co-Trustee to instead cancel and deliver said Bonds to the Authority.

SECTION 11.06 Severability of Invalid Provisions. If any one or more of the provisions contained in this Indenture or in the Bonds shall for any reason be held to be invalid, illegal or unenforceable in any respect, then such provision or provisions shall be deemed severable from the remaining provisions contained in this Indenture and such invalidity, illegality or unenforceability shall not affect any other provision of this Indenture, and this Indenture shall be construed as if such invalid or illegal or unenforceable provision had never been contained herein. The Authority hereby declares that it would have adopted this Indenture and each and every other Section, paragraph, sentence, clause or phrase hereof and authorized the issuance of the Bonds pursuant thereto irrespective of the fact that any one or more Sections, paragraphs, sentences, clauses or phrases of this Indenture may be held illegal, invalid or unenforceable. If, by reason of the judgment of any court, the Trustee or the Co-Trustee or any successor Trustee or Co-Trustee is rendered unable to perform its duties hereunder, and if no successor Trustee or Co-Trustee be then appointed, all such duties and all of the rights and powers of the Trustee or the Co-Trustee hereunder, as applicable, shall be assumed by and vest in the Chief Financial Officer of the Authority in trust for the benefit of the Bondowners.

SECTION 11.07 Notice to Authority, Trustee and Co-Trustee. Any notice to or demand upon the Authority, the Trustee, the Co-Trustee, any Depositary or any Registrar shall be deemed to have been sufficiently given or served for all purposes by being deposited, postage prepaid, in a post office letter box, addressed to the applicable address set forth below, or at such other address as may have been specified by the Supplemental Indenture appointing such party or filed in writing by such party with each other party.

Any notice to or demand upon the Authority may be served or presented, and such demand may be made, at the office of the principal administrative office of the Authority, which at the date of adoption of this Indenture is: Guam Waterworks Authority, 578 N. Marine Corps Drive, Tamuning, Guam 96913, Attention: Chief Financial Officer.

Any notice to or demand upon the Trustee or the Depositary may be served or presented, and such demand may be made, at the Principal Office of the Trustee, which at the date of adoption of this Indenture is: Bank of Guam, 111 Chalan Santo Papa, 2nd Floor, Agana, Guam 96910, Attention: Corporate Trust Department.

Any notice to or demand upon the Co-Trustee may be served or presented, and such demand may be made, at the Principal Office of the Co-Trustee, which at the date of adoption of this Indenture is: U.S. Bank National Association, 633 West Fifth Street, 24th Floor, Los Angeles, CA 90071, Attention: Corporate Trust Services; provided, however, that for purposes of payment, transfer, registration and exchange of Bonds, presentation shall be made at the Principal Office of the Co-Trustee located at 60 Livingston Avenue, St. Paul, MN 55107, Attention: Corporate Trust Operations.

SECTION 11.08 Evidence of Rights of Bondowners. Any request, consent or other instrument required by this Indenture to be signed and executed by Bondowners may be in any number of concurrent writings of substantially similar tenor and may be signed or executed by such Bondowners in person or by an agent or agents duly appointed in writing. Proof of the execution of any such request, consent or other instrument or of a writing appointing any such agent shall be sufficient for

any purpose of this Indenture and shall be conclusive in favor of the Trustee, the Co-Trustee and of the Authority if made in the manner provided in this Section.

The fact and date of the execution by any person of any such request, consent or other instrument or writing may be proved in any manner reasonably acceptable to the Trustee or the Co-Trustee, as applicable.

The ownership of Bonds shall be proved by the Bond registration books maintained pursuant to Section 2.06.

Any request, consent, vote or declaration of the Owner of any Bond shall bind every future Owner of the same Bond and the Owner of every Bond issued in exchange therefor or in lieu thereof, in respect of anything done or suffered to be done by the Trustee, the Co-Trustee or the Authority in pursuance of such request, consent, vote or declaration.

SECTION 11.09 Article and Section Headings and References. The headings or titles of the several Articles and Sections hereof, and any table of contents appended to copies hereof, shall be solely for convenience of reference and shall not affect the meaning, construction or effect of this Indenture.

All references herein to "Articles," "Sections" and other subdivisions are to the corresponding Articles, Sections or subdivisions of this Indenture; and the words "herein," "hereof," "hereunder" and other words of similar import refer to this Indenture as a whole and not to any particular Article, Section or subdivision hereof.

SECTION 11.10 Funds and Accounts. Any fund required by this Indenture to be established and maintained by the Authority, the Trustee, the Co-Trustee or any Depository may be established and maintained in the accounting records of the Authority, the Trustee, the Co-Trustee or the Depository, as applicable, either as a fund or an account, and may, for the purposes of such records, any audits thereof and any reports or statements with respect thereto, be treated either as a fund or as an account; but all such records with respect to all such funds shall at all times be maintained in accordance with generally accepted accounting practices (and as to the Trustee, the Co-Trustee and any Depository, sound industry practice) and with due regard for the protection of the security of the Bonds and the rights of every Owner thereof.

SECTION 11.11 Saturdays, Sundays and Legal Holidays. If any party hereto is required to perform, pursuant to a provision of this Indenture, any act on a date which falls on a Saturday, Sunday or legal holiday, the party required to perform such act shall be deemed to have performed it in a timely manner, and in conformance with such provision, if it shall perform such act on the next succeeding Business Day. Any payments or transfers which would otherwise become due on any day which is not a Business Day shall become due or shall be made on the next succeeding Business Day.

SECTION 11.12 Waiver of Personal Liability. No Board member, officer, agent or employee of the Authority shall be individually or personally liable for the payment of the principal of or interest on the Bonds; but nothing herein contained shall relieve any such Board member, officer, agent or employee from the performance of any official duty provided by law.

SECTION 11.13 Governing Law. This Indenture and any Supplemental Indentures shall be construed and governed in accordance with the laws of the Government of Guam, provided, however, that the administration of the trusts imposed upon the Trustee and the Co-Trustee by the Indenture and the rights and duties of the Trustee and Co-Trustee hereunder shall be governed by, and

construed in accordance with, the laws of the jurisdiction in which the Trustee or the Co-Trustee, as applicable, has its corporate trust office.

SECTION 11.14 Execution in Several Counterparts. This Indenture may be executed in any number of counterparts and each of such counterparts shall for all purposes be deemed to be an original; and all such counterparts, or as many of them as the Authority, the Trustee and the Co-Trustee shall preserve undestroyed, shall together constitute but one and the same instrument.

SECTION 11.15 Credit Agreements and Credit Providers. Anything herein to the contrary notwithstanding, a Supplemental Indenture providing for the issuance of a Series of Bonds for which a Credit Facility provides supplemental credit support may, so long as such Credit Facility shall be Outstanding or any Credit Agreement Payments are due and payable with respect thereto, provide additional terms, provisions and limitations not inconsistent with the provisions hereof for the protection and benefit of the related Credit Provider.

IN WITNESS WHEREOF, the GUAM WATERWORKS AUTHORITY has caused this Indenture to be signed in its name by its duly authorized officers; and BANK OF GUAM and U.S. BANK NATIONAL ASSOCIATION, in token of their acceptance of the respective trusts created hereunder, has caused this Indenture to be signed in their respective corporate names by one of their authorized officers, all as of the day and year first above written.

GUAM WATERWORKS AUTHORITY

By *Simon A. Sanj II*
Chairperson of the Board

By *David E. R. ...*
General Manager

BANK OF GUAM, as Trustee

By *J. R. ...*
Title:

U.S. BANK NATIONAL ASSOCIATION, as Co-Trustee

By _____
Title:

IN WITNESS WHEREOF, the GUAM WATERWORKS AUTHORITY has caused this Indenture to be signed in its name by its duly authorized officers; and BANK OF GUAM and U.S. BANK NATIONAL ASSOCIATION, in token of their acceptance of the respective trusts created hereunder, has caused this Indenture to be signed in their respective corporate names by one of their authorized officers, all as of the day and year first above written.

GUAM WATERWORKS AUTHORITY

By _____
Chairperson of the Board

By _____
General Manager

BANK OF GUAM, as Trustee

By _____
Title:

U.S. BANK NATIONAL ASSOCIATION, as Co-Trustee

By Mat Meyer
Title: Assistant Vice President

The undersigned BANK OF GUAM, hereby accepts and agrees to perform the duties and obligations of Depositary for the Revenue Fund under this Indenture.

BANK OF GUAM, as Depositary for the Revenue Fund

By



Title: VP/Trust and Economic and
Market Statistics Officer

GUAM WATERWORKS AUTHORITY

and

**BANK OF GUAM,
as Trustee,**

and

**U.S. BANK NATIONAL ASSOCIATION,
as Co-Trustee**

SUPPLEMENTAL INDENTURE

Dated as of December 1, 2005

Relating to

**\$101,175,000
Guam Waterworks Authority
Water and Wastewater System Revenue Bonds,
Series 2005**

THIS SUPPLEMENTAL INDENTURE, made and entered into as of December 1, 2005, by and between the GUAM WATERWORKS AUTHORITY, a duly organized public corporation of the government of Guam (the "Authority"), BANK OF GUAM, a domestic banking corporation duly organized and existing under and by virtue of the laws of Guam, having a corporate trust office in Guam, and being qualified to accept and administer the trusts hereby created and to do business within Guam, as trustee (the "Trustee"), and U.S. BANK NATIONAL ASSOCIATION, a national banking association organized under the laws of the United States of America and qualified to accept and administer the trusts hereby created, as co-trustee (the "Co-Trustee"),

WITNESSETH:

WHEREAS, pursuant to Article 2, Chapter 14 of Title 12 of the Guam Code Annotated (the "Act"), the Authority is authorized to issue and sell revenue bonds to raise funds for the purpose of acquiring, constructing, improving, equipping, maintaining, repairing, renewing, replacing, reconstructing or insuring the System (as defined in the Indenture), or any part thereof, or for the purpose of refunding any such bonds or any other prior obligations of the Authority, or for any combination of such purposes;

WHEREAS, the Authority has determined to issue revenue bonds for such purposes and to that end has duly authorized the execution and delivery of that certain Indenture, dated as of December 1, 2005 (the "Indenture"), between the Authority and the Trustee, to secure the payment of the principal thereof and the interest and premium, if any, thereon, and the observance of the covenants and conditions therein contained;

WHEREAS, revenue bonds may be issued pursuant to the Indenture and one or more indentures supplemental thereto ("Supplemental Indentures"), from time to time, in an aggregate principal amount not limited except as therein provided, and said revenue bonds are to be designated as the "Guam Waterworks Authority Water and Wastewater System Revenue Bonds" (the "Bonds");

WHEREAS, it is now desirable and necessary and in the best interests of the Authority to authorize the issuance of \$101,175,000 principal amount of Bonds further designated as "Series 2005 Bonds" to raise funds for the purpose of acquiring, constructing, improving, equipping, maintaining, repairing, renewing, replacing and reconstructing parts of the System and for the purpose of refunding and effecting the defeasance of the Authority's outstanding Certificates of Participation, Series 2005 (as further defined below, the "Series 2005 Certificates");

WHEREAS, pursuant to and subject to the terms and conditions set forth in Public Law No. 28-71, the Legislature of Guam (as required by Section 50103(k) of Title 12, Guam Code Annotated (the "GEDCA Law") approved the terms and conditions of the issuance of said Series 2005 Bonds, so long as the Series 2005 Bonds meet the requirements set forth in the Act;

WHEREAS, the Guam Economic Development and Commerce Authority has approved the issuance and sale of said Series 2005 Bonds as required by the GEDCA Law;

WHEREAS, all acts, conditions and things required by the laws of the United States of America and the laws of Guam to exist, to have happened and to have been performed precedent to and in connection with the issuance of said Series 2005 Bonds exist, have happened, and have been performed in regular and due time, form and manner as required by law, and the Authority is now duly authorized and empowered, pursuant to each and every requirement of law, to issue said Bonds for the purpose, in the manner and upon the terms herein provided;

NOW, THEREFORE, THIS SUPPLEMENTAL INDENTURE WITNESSETH, in consideration of the premises and of the mutual covenants herein contained and of the purchase and acceptance of the Series 2005 Bonds by the owners thereof, and for other valuable considerations, the receipt whereof is hereby acknowledged, the Authority does hereby covenant and agree with the Trustee and the Co-Trustee as follows:

ARTICLE XII

DEFINITIONS

SECTION 12.01 Definitions. Unless the context otherwise requires, the terms defined in the Indenture shall, for all purposes of this Supplemental Indenture and of any certificate, opinion or other document herein mentioned, have the meanings specified in the Indenture.

In addition, unless the context otherwise requires, the terms defined in this Section shall for all purposes of the Indenture and this Supplemental Indenture and of any certificate, opinion or other document herein mentioned, have the meanings herein specified.

Bond Year

“Bond Year” means, with respect to the Series 2005 Bonds, the period of twelve consecutive months ending on July 1 of each year if Series 2005 Bonds are or will be Outstanding in such twelve-month period; provided that the first Bond Year shall commence on the date of delivery of the Series 2005 Bonds and end on July 1, 2006.

Certificate Indenture

“Certificate Indenture” means the indenture, dated as of July 1, 2005, between the Guam Waterworks Facilities Corporation and the Certificate Trustee, relating to the Series 2005 Certificates.

Certificate Trustee

“Certificate Trustee” means J.P. Morgan Trust Company, National Association, as trustee under the Certificate Indenture, its successors and assigns, and any other corporation or association which may at any time be substituted in its place.

DTC

“DTC” means The Depository Trust Company, New York, New York, and its successors and assigns.

Escrow Agreement

“Escrow Agreement” means the agreement, dated as of December 1, 2005 and entitled “Escrow Agreement,” to be entered into between the Authority and the Certificate Trustee.

Escrow Fund

“Escrow Fund” means the fund of that name to be established by the Certificate Trustee pursuant to the Escrow Agreement.

Representation Letter

"Representation Letter" means any representation letter delivered to or agreement with DTC with respect to the Series 2005 Bonds L Bonds.

Series 2005 Certificates

"Series 2005 Certificates" means the Certificates of Participation, Series 2005, evidencing an assignment of a proportionate interest in rights to receive certain Net Pledged Revenues pursuant to the Purchase Agreement between Guam Waterworks Facilities Corporation and the Authority.

Series 2005 Bonds, Series 2005 Serial Bonds, Series 2005 Term Bonds

"Series 2005 Bonds" means the \$101,175,000 principal amount of Guam Waterworks Authority Water and Wastewater System Revenue Bonds, Series 2005.

"Series 2005 Serial Bonds" means the Series 2005 Bonds designated as such by Section 13.02, and for which no Mandatory Sinking Account Payments are provided.

"Series 2005 Term Bonds" means the Series 2005 Bonds designated as such by Section 13.02, and for which Mandatory Sinking Account Payments are provided.

ARTICLE XIII

AUTHORIZATION AND TERMS OF THE SERIES 2005 BONDS

SECTION 13.01 Authorization of Series 2005 Bonds. An initial Series of Bonds is hereby authorized and created under the Act to raise funds for the purpose of acquiring, constructing, improving, equipping, maintaining, repairing, renewing, replacing and reconstructing parts of the System; and for the purpose of refunding and effecting the defeasance of the Authority's Series 2005 Certificates. Such Series of Bonds is designated as the "Guam Waterworks Authority Water and Wastewater System Revenue Bonds, Series 2005". The aggregate principal amount of Series 2005 Bonds which may be issued and Outstanding under this Supplemental Indenture shall not exceed \$101,175,000.

The Series 2005 Bonds shall be treated as a single Series under the Indenture.

SECTION 13.02 Terms of Series 2005 Bonds; Appointments; Designations.

The Series 2005 Bonds shall be issued as fully registered Bonds without coupons in the denominations of \$5,000 or any integral multiple thereof. The Series 2005 Bonds shall be dated their date of delivery, and interest thereon (based on a 360-day year of twelve thirty-days months) shall be payable on January 1 and July 1 of each year, commencing January 1, 2006 (each, an "Interest Payment Date" for the Series 2005 Bonds).

The Series 2005 Bonds shall mature on the dates and in the amounts and shall bear interest at the rates per annum specified in the following table:

Maturity Date (July 1)	Principal Amount	Interest Rate
2008	\$ 1,865,000	5.000%
2009	1,960,000	5.000
2010	2,055,000	5.000
2011	2,160,000	5.000
2012	2,270,000	5.000
2013	2,380,000	5.000
2016	7,420,000	5.500
2025	27,700,000	6.000
2035	53,365,000	5.875

The Series 2005 Bonds maturing on July 1, 2008 through July 1, 2013 are Serial Bonds, and the Series 2005 Bonds maturing on July 1, 2016, July 1, 2025 and July 1, 2035 are Term Bonds.

The Principal Payment Period for the Series 2005 Bonds shall be the twelve calendar months next preceding each maturity date for such Bonds. The Series 2005 Bonds are Series 2005 Serial Bonds.

The Record Date for all scheduled payments of principal of and interest on the Series 2005 Bonds shall be the 15th day of the calendar month next preceding the date each such payment is due, whether or not such 15th day is a Business Day.

The Co-Trustee is hereby appointed Paying Agent for the Series 2005 Bonds and Registrar for the Series 2005 Bonds, and the Co-Trustee's corporate trust office in Los Angeles, California is hereby designated as the Principal Office of the Co-Trustee. The Trustee is hereby appointed Depository for the Series 2005 Construction Account.

The principal of and premium, if any, on each Series 2005 Bond shall be payable in lawful money of the United States of America to the Owner of such Bond, upon the surrender of such Bond at the Principal Office of any Paying Agent for such Bond. The interest on each Series 2005 Bond shall be payable in like lawful money to the person whose name appears on the bond registration books of the Registrar for such Bond as the Owner of such Bond as of the close of business on the Record Date for such Bond preceding the Interest Payment Date, whether or not such Record Date is a Business Day, such interest to be paid by check or mailed by first class mail to such Owner at such address as appears on such registration books or at such address as such Owner may have filed with the Registrar for that purpose. Upon the written request of a registered owner of one million dollars (\$1,000,000) or more in aggregate principal amount of Series 2005 Bonds, payment of interest on and principal (including Redemption Price) of such Bonds shall be made by wire transfer from the Paying Agent to the registered owner of such Bonds. Any such principal payment by wire transfer shall nevertheless be subject to prior surrender of the Series 2005 Bonds with respect to which such payment is made. Each payment of interest or principal on Series 2005 Bonds, whether by check, draft or wire transfer, shall be accompanied by information specifying for each maturity of such Bonds with respect to which such payment is being made, the amount and the CUSIP number (if available).

Each Series 2005 Bond shall bear interest from the Interest Payment Date next preceding the date of authentication thereof unless it is authenticated as of a day during the period from the Record

Date preceding any Interest Payment Date to the Interest Payment Date, inclusive, in which event it shall bear interest from such Interest Payment Date, or unless it is authenticated on or before December 15, 2004, in which event it shall bear interest from its date of delivery; provided, however, that if, at the time of authentication of any Series 2005 Bond, interest is in default on Outstanding Bonds of such Series, such Bond shall bear interest from the Interest Payment Date to which interest has previously been paid or made available for payment on the Outstanding Bonds of such Series.

The Series 2005 Bonds shall be subject to redemption as provided in Section 13.03.

The Registrar for the Series 2005 Bonds shall assign each Series 2005 Bond authenticated and registered by it a distinctive letter, or number, or letter and number, and shall maintain a record thereof which shall be available to the Authority for inspection.

The Series 2005 Bonds, the Registrar's certificate of authentication and registration and the form of assignment to appear thereon shall be in substantially the forms set forth in Exhibit A hereto, respectively, with necessary or appropriate variations, omissions and insertions as permitted or required by this Indenture.

SECTION 13.03 Terms of Redemption of the Series 2005 Bonds. (A) The Series 2005 Bonds are subject to redemption on any date prior to their respective stated maturities, as a whole, or in part so that the reduction in Annual Debt Service for the Series 2005 Bonds for each Bond Year after such redemption shall be as nearly proportional as practicable, from and to the extent of proceeds received by the Authority due to a governmental taking of the System or portions thereof by eminent domain proceedings, if such amounts are not used for additions, improvements or extensions to the System, under the circumstances and upon the conditions and terms set forth in the Indenture, at the greater of par or Amortized Value, plus accrued interest. "Amortized Value" means on any interest payment date, the then current value of the bond amortizing the original issue premium over the period ending on the first call date using the constant yield method.

(B) The Series 2005 Bonds maturing on or after July 1, 2016 are subject to redemption prior to their respective stated maturities, at the option of the Authority, from any source of available moneys, on any date on or after July 1, 2015, as a whole, or in part by such maturities or portions of maturities as shall be determined by the Authority (or by lot within a maturity in the absence of such a determination), at a redemption price equal to the principal amount of each Series 2005 Bond called for redemption plus interest accrued to the date fixed for redemption, without premium.

(C) The Series 2005 Term Bonds maturing on July 1, 2016 are subject to redemption prior to their stated maturity in part, by lot, on July 1 of each year, commencing July 1, 2014, at a redemption price equal to their principal amount, plus accrued interest thereon to the date fixed for redemption, without premium, in the years and in the amounts, as set forth below:

<u>Year</u>	<u>Amount</u>
2014	\$2,500,000
2015	2,635,000
2016†	2,285,000

† Final maturity.

(D) The Series 2005 Term Bonds maturing on July 1, 2025 are subject to redemption prior to their stated maturity in part, by lot, on July 1 of each year, commencing July 1, 2017, at a redemption price equal to their principal amount, plus accrued interest thereon to the date fixed for redemption, without premium, in the years and in the amounts, as set forth below:

<u>Year</u>	<u>Amount</u>
2017	\$2,410,000
2018	2,555,000
2019	2,710,000
2020	2,870,000
2021	3,045,000
2022	3,225,000
2023	3,420,000
2024	3,625,000
2025†	3,840,000

† Final maturity.

(E) The Series 2005 Term Bonds maturing on July 1, 2035 are subject to redemption prior to their stated maturity in part, by lot, on July 1 of each year, commencing July 1, 2026, at a redemption price equal to their principal amount, plus accrued interest thereon to the date fixed for redemption, without premium, in the years and in the amounts, as set forth below:

<u>Year</u>	<u>Amount</u>
2026	\$4,070,000
2027	4,310,000
2028	4,565,000
2029	4,835,000
2030	5,115,000
2031	5,420,000
2032	5,735,000
2033	6,075,000
2034	6,430,000
2035†	6,810,000

† Final maturity.

SECTION 13.04 Special Covenants as to Book-Entry Only System for Series 2005 Bonds. (a) Except as otherwise provided in subsections (b) and (c) of this Section 13.04, all of the

Series 2005 Bonds initially issued shall be registered in the name of Cede & Co., as nominee for The Depository Trust Company, New York, New York ("DTC"), or such other nominee as DTC shall request pursuant to the Representation Letter. Payment of the interest on any Series 2005 Bond registered in the name of Cede & Co. shall be made on each interest payment date for such Series 2005 Bonds to the account, in the manner and at the address indicated in or pursuant to the Representation Letter.

(b) The Series 2005 Bonds initially shall be issued in the form of a single authenticated fully registered bond for each stated maturity of each portion of such Series 2005 Bonds, representing the aggregate principal amount of the Series 2005 Bonds of such portion and maturity. Upon initial issuance, the ownership of all such Series 2005 Bonds shall be registered in the registration records maintained by the Registrar pursuant to Section 2.05 hereof in the name of Cede & Co., as nominee of DTC, or such other nominee as DTC shall request pursuant to the Representation Letter. The Trustee, the Co-Trustee, the Registrar, the Authority and any paying agent may treat DTC (or its nominee) as the sole and exclusive owner of the Series 2005 Bonds registered in its name for the purposes of payment of the principal or redemption price of and interest on such Series 2005 Bonds, selecting the Series 2005 Bonds or portions thereof to be redeemed, giving any notice permitted or required to be given to Bondowners hereunder, registering the transfer of Series 2005 Bonds, obtaining any consent or other action to be taken by Bondowners of the Series 2005 Bonds and for all other purposes whatsoever; and the Trustee, the Co-Trustee, the Registrar, the Authority and any paying agent shall not be affected by any notice to the contrary. Neither the Trustee, the Co-Trustee, the Authority nor any paying agent shall have any responsibility or obligation to any Participant (which shall mean, for purposes of this Section 13.04, securities brokers and dealers, banks, trust companies, clearing corporations and other entities, some of whom directly or indirectly own DTC), any person claiming a beneficial ownership interest in the Series 2005 Bonds under or through DTC or any Participant, or any other person which is not shown on the registration records as being a Bondowner, with respect to (i) the accuracy of any records maintained by DTC or any Participant, (ii) the payment by DTC or any Participant of any amount in respect of the principal or redemption price of or interest on the Series 2005 Bonds, (iii) any notice which is permitted or required to be given to Holders of Series 2005 Bonds hereunder, (iv) the selection by DTC or any Participant of any person to receive payment in the event of a partial redemption of the Series 2005 Bonds, or (v) any consent given or other action taken by DTC as Holder of Series 2005 Bonds. The Paying Agent shall pay all principal of and premium, if any, and interest on the Series 2005 Bonds only at the times, to the accounts, at the addresses and otherwise in accordance with the Representation Letter, and all such payments shall be valid and effective to satisfy fully and discharge the Authority's obligations with respect to the principal of and premium, if any, and interest on the Series 2005 Bonds to the extent of the sum or sums so paid. Upon delivery by DTC to the Trustee of written notice to the effect that DTC has determined to substitute a new nominee in place of its then existing nominee, the Series 2005 Bonds will be transferable to such new nominee in accordance with subsection (f) of this Section 13.04.

(c) In the event that the Authority elects to discontinue the book-entry system for any Series 2005 Bonds, the Trustee shall, upon the written instruction of the Authority, so notify DTC, whereupon DTC shall notify the Participants of the availability through DTC of bond certificates. In such event, such Series 2005 Bonds will be transferable in accordance with subsection (f) of this Section 13.04. DTC may determine to discontinue providing its services with respect to the Series 2005 Bonds at any time by giving written notice of such discontinuance to the Authority or the Trustee and discharging its responsibilities with respect thereto under applicable law. In such event, the Series 2005 Bonds will be transferable in accordance with subsection (f) of this Section 13.04. Whenever DTC requests the Authority and the Trustee to do so, the Trustee and the Authority will cooperate with DTC in taking appropriate action after reasonable notice to arrange for another securities depository to maintain custody of all certificates evidencing the Series 2005 Bonds then Outstanding. In such event, the Series 2005 Bonds will be transferable to such securities depository in accordance with subsection (f) of this Section.

13.04, and thereafter, all references in this Supplemental Indenture to DTC or its nominee shall be deemed to refer to such successor securities depository and its nominee, as appropriate.

(d) Notwithstanding any other provision of this Supplemental Indenture to the contrary, so long as all Series 2005 Bonds Outstanding are registered in the name of any nominee of DTC, all payments with respect to the principal of and premium, if any, and interest on each such Series 2005 Bond and all notices with respect to each such Series 2005 Bond shall be made and given, respectively, to DTC as provided in the Representation Letter.

(e) The Co-Trustee is hereby authorized and requested to execute and deliver the Representation Letter and, in connection with any successor nominee for DTC or any successor depository, enter into comparable arrangements, and shall have the same rights with respect to its actions thereunder as it has with respect to its actions under this Supplemental Indenture.

(f) In the event that any transfer or exchange of Series 2005 Bonds is authorized under subsection (b) or (c) of this Section 13.04, such transfer or exchange shall be accomplished upon receipt by the Registrar from the registered owner thereof of the Series 2005 Bonds to be transferred or exchanged and appropriate instruments of transfer to the permitted transferee, all in accordance with the applicable provisions of Sections 2.03 and 2.04 of the Indenture. In the event Series 2005 Bond certificates are issued to Holders other than Cede & Co., its successor as nominee for DTC as holder of all the Series 2005 Bonds, another securities depository as holder of all the Series 2005 Bonds, or the nominee of such successor securities depository, the provisions of Sections 2.03 and 2.04 of the Indenture shall also apply to, among other things, the registration, exchange and transfer of the Series 2005 Bonds and the method of payment of principal of, premium, if any, and interest on the Series 2005 Bonds.

ARTICLE XIV

ISSUANCE OF SERIES 2005 BONDS; APPLICATION OF PROCEEDS

SECTION 14.01 Issuance of Series 2005 Bonds. At any time after the execution and delivery of this Supplemental Indenture, the Authority may sell and execute and the Registrar for the Series 2005 Bonds shall authenticate and, upon the Order of the Authority, deliver Series 2005 Bonds in an aggregate principal amount not to exceed \$101,175,000.

SECTION 14.02 Application of Proceeds of Series 2005 Bonds and Other Moneys; Defeasance of Series 2005 Certificates. (A) A portion of the net proceeds received by the Authority from the sale of the Series 2005 Bonds in the amount of \$86,838,263.18 shall be deposited with the Co-Trustee, who shall forthwith apply such proceeds in the following manner, as directed by a Request of the Authority:

(1) the Co-Trustee shall deposit in the Bond Reserve Fund an amount which, together with any funds received from the Certificate Trustee pursuant to subsection (C)(1) of this Section 14.02, brings the total amount on deposit therein to \$7,707,793.76; and

(2) the Co-Trustee shall transfer to the Series 2005 Construction Account Depository, for deposit pursuant to an Order of the Authority, the balance of such proceeds.

(B) A portion of the net proceeds received by the Authority from the sale of the Series 2005 Bonds in the amount of \$16,190,775.24 shall be deposited with the Certificate Trustee, who shall forthwith apply such funds as instructed in the Escrow Agreement.

(C) On the date of original issuance of the Series 2005 Bonds, the Authority shall deliver to the Certificate Trustee a request that the Certificate Trustee deposit certain funds as follows:

(1) to transfer to the Depository for deposit in the Bond Reserve Fund the entire balance in the Debt Service Reserve Fund and the Certificate Fund established pursuant to the Certificate Indenture;

(2) to transfer to the Series 2005 Construction Account Depository, for deposit in the Series 2005 Construction Account, the entire unencumbered balance in the Acquisition Fund established pursuant to the Certificate Indenture and, for deposit pursuant to an Order of the Authority, the entire balance in the Insurance Reserve Account established pursuant to the Certificate Indenture; and

(3) to transfer to the Authority the entire balance of any other fund or account established pursuant to the Certificate Indenture, if any.

ARTICLE XV

TAX COVENANTS

SECTION 15.01 2005 Rebate Account.

(A) The Trustee, as Depository for the Revenue Fund, shall establish and maintain within the Rebate Fund a separate subaccount designated as the "2005 Rebate Account." There shall be deposited in the 2005 Rebate Account from amounts in the Operation and Maintenance Fund or other lawfully available moneys such amounts as are required to be deposited therein pursuant to the Tax Certificate delivered by the Authority in connection with the issuance of the Series 2005 Bonds. All money at any time deposited in the 2005 Rebate Account shall be held by the Trustee in trust, to the extent required to satisfy the Rebate Requirement for the Series 2005 Bonds (as defined in such Tax Certificate), for payment to the United States of America, and the United States of America is hereby granted a first lien on such money until such payment. All amounts required to be deposited into or on deposit in the 2005 Rebate Account shall be governed exclusively by this Section and by such Tax Certificate (which is incorporated herein by reference).

In the event that the amount in the 2005 Rebate Account exceeds the Rebate Requirement for the Series 2005 Bonds, upon the Request of the Authority, the Trustee shall transfer the excess from the 2005 Rebate Account to the Revenue Fund.

(B) Notwithstanding any provisions of this Section, if the Authority shall provide to the Trustee an opinion of Bond Counsel that any specified action required under this Section is no longer required or that some further or different action is required to maintain the exclusion from federal income tax of interest on any Series of Bonds, the Trustee and the Authority may conclusively rely on such opinion in complying with the requirements of this Section, and, notwithstanding Article IX of the Indenture, the covenants hereunder shall be deemed to be modified to that extent.

SECTION 15.02 Tax Covenants for Series 2005 Bonds. (A) The Authority intends that interest on the Series 2005 Bonds be excluded from gross income for federal income tax purposes, that the Series 2005 Bonds and the interest thereon be exempt from taxation by any state or political subdivision or the District of Columbia and that interest on the Series 2005 Bonds not be treated as a specific preference item for purposes of the federal individual and corporate alternative minimum

taxes. The Authority reserves the right to determine the desired tax status of any additional Series of Bonds.

(B) The Authority shall not use or permit the use of any proceeds of the Series 2005 Bonds or any other funds of the Authority, directly or indirectly, to acquire any securities or obligations, and shall not use or permit the use of any amounts received by the Authority in any manner, and shall not take or permit to be taken any other action or actions, which would cause any such Bond to be an "arbitrage bond" within the meaning of Section 148 of the Code or to be "federally guaranteed" within the meaning of Section 149(b) of the Code.

(C) The Authority shall at all times do and perform all acts and things permitted by law and this Indenture which are necessary or desirable in order to assure that interest paid on the Series 2005 Bonds (or on any of them) shall be excluded from gross income for federal income tax purposes and that interest paid on the Series 2005 Bonds shall not be treated as a specific preference item for purposes of the federal individual and corporate alternative minimum taxes.

IN WITNESS WHEREOF, the GUAM WATERWORKS AUTHORITY has caused this Supplemental Indenture to be signed in its name by its duly authorized officers; and BANK OF GUAM and U.S. BANK NATIONAL ASSOCIATION, in token of their acceptance of the respective trusts created hereunder, has caused this Supplemental Indenture to be signed in their respective corporate names by one of their authorized officers, and the Trustee and the Co-Trustee have each caused their respective corporate seals to be hereunto affixed, all as of the day and year first above written.

GUAM WATERWORKS AUTHORITY

By *Louis A. Lumbert II*
Chairperson of the Board

By *Donald R. Cresswell*
General Manager

BANK OF GUAM, as Trustee

By *John Bradley*
Title:

U.S. BANK NATIONAL ASSOCIATION, as Co-Trustee

By _____
Title:

The undersigned U.S. BANK NATIONAL ASSOCIATION, hereby accepts and agrees to perform the duties and obligations of Registrar and Paying Agent under this Supplemental Indenture.

U.S. BANK NATIONAL ASSOCIATION, as Co-Trustee

By

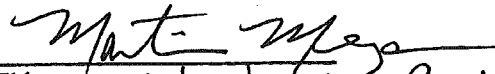

Title: Assistant Vice President

EXHIBIT A
FORM OF BOND

No. R- _____ \$ _____

GUAM WATERWORKS AUTHORITY
WATER AND WASTEWATER SYSTEM REVENUE BOND,
SERIES 2005

<u>INTEREST RATE</u>	<u>MATURITY DATE</u>	<u>DATED DATE</u>	<u>CUSIP</u>
	July 1,	December 7, 2005	

Registered Owner:

Principal Sum: Dollars

The GUAM WATERWORKS AUTHORITY, a duly organized public corporation of the government of Guam (herein called the "Authority"), for value received, hereby promises to pay (but only out of the Revenues and other assets pledged therefor as hereinafter mentioned) to the registered owner identified above or registered assigns, on the maturity date specified above (subject to any right of prior redemption hereinafter mentioned), the principal sum specified above in lawful money of the United States of America; and to pay interest thereon, in like lawful money and solely from said Revenues and assets, from the Interest Payment Date next preceding the date of authentication of this Bond unless this Bond is authenticated as of a day during the period from the Record Date preceding any Interest Payment Date to the Interest Payment Date, inclusive, in which event it shall bear interest from such Interest Payment Date, or unless this Bond is authenticated on or before December 15, 2005, in which event it shall bear interest from its date of delivery, until payment of such principal sum shall be discharged as provided in the indenture hereinafter mentioned, at the interest rate specified above per annum, payable on January 1 and July 1 in each year, commencing January 1, 2006; provided, however, that if, at the time of authentication of this Bond, interest is in default hereon, this Bond shall bear interest from the Interest Payment Date to which interest has previously been paid or made available for payment. The principal (or redemption price) hereof is payable upon surrender hereof at the Principal Office of U.S. Bank National Association (herein called the "Paying Agent") in Los Angeles, California, and the interest hereon is payable by check or draft mailed by first class mail to the person in whose name this Bond is registered at the close of business on the fifteenth day of the month immediately preceding an interest payment date, at such person's address as it appears on the bond registration books of U.S. Bank National Association (herein called the "Registrar"). Upon the written request of a registered owner of \$1,000,000 or more in aggregate principal amount of Series 2005 Bonds, payment of interest on and principal (including redemption price) of such Bonds will be made by wire transfer as provided in the Indenture; provided that any such principal payment shall nevertheless be subject to prior surrender of the Series 2005 Bonds with respect to which such payment is made.

This Bond is one of a duly authorized issue of bonds of the Authority designated as the "Guam Waterworks Authority Water and Wastewater System Revenue Bonds" (herein called the "Bonds"), unlimited in aggregate principal amount, except as otherwise provided in the laws of the United States of America and the government of Guam and in the Indenture hereinafter mentioned, which issue of Bonds consists or may consist of one or more Series of varying dates, maturities, interest rates, and redemption and other provisions, all issued or to be issued pursuant to Article 2, Chapter 14 of Title 12 of the Guam Code Annotated, as amended, and that certain Indenture, dated as of December 1, 2005 (herein called the "Indenture"), by and between the Authority, Bank of Guam, as trustee (herein called the

"Trustee") and U.S. Bank National Association, as co-trustee (herein called the "Co-Trustee"). This Bond is also one of a duly authorized series of Bonds additionally designated "Series 2005" (herein called the "Series 2005 Bonds"), in the aggregate principal amount of One Hundred One Million One Hundred Seventy-Five Thousand Dollars (\$101,175,000), all issued under the provisions of the Indenture and a Supplemental Indenture, dated as of December 1, 2005, by and between the Authority, the Trustee and the Co-Trustee. Reference is hereby made to the Indenture (a copy of which is on file at said office of the Trustee) and all indentures supplemental thereto for a description of the rights thereunder of the registered owners of the Bonds, of the nature and extent of the security and provisions for payment of the Bonds, of the rights, duties and immunities of the Trustee and other fiduciaries and of the rights and obligations of the Authority thereunder, to all the provisions of which Indenture the registered owner of this Bond, by acceptance hereof, assents and agrees.

The Bonds and the interest thereon (to the extent set forth in the Indenture) are payable solely from Revenues (as that term is defined in the Indenture) and other assets pledged as provided in the Indenture. Subject only to the provisions of the Indenture permitting the application thereof for or to the purposes and on the terms and conditions set forth therein, said Revenues are pledged under the Indenture to secure the payment of the principal of, premium, if any, and interest on the Bonds in accordance with their terms and the provisions of the Indenture and the payment of Credit Agreement Payments and Parity Payment Agreement Payments in accordance with their terms.

The Series 2005 Bonds are subject to redemption on any date prior to their respective stated maturities, as a whole, or in part so that the reduction in Annual Debt Service for the Series 2005 Bonds for each Bond Year after such redemption shall be as nearly proportional as practicable, from and to the extent of proceeds received by the Authority due to a governmental taking of the System or portions thereof by eminent domain proceedings, if such amounts are not used for additions, improvements or extensions to the System, under the circumstances and upon the conditions and terms set forth in the Indenture, at the greater of par or Amortized Value, plus accrued interest. "Amortized Value" means on any Interest Payment Date, the then current value of the Series 2005 Bond, amortizing the original issue premium over the period ending on the first call date using the constant yield method.

The Series 2005 Bonds maturing on or after July 1, 2016 are subject to redemption prior to their respective stated maturities, at the option of the Authority, from any source of available moneys, on any date on or after July 1, 2015, as a whole, or in part by such maturities or portions of maturities as shall be determined by the Authority (or by lot within a maturity in the absence of such a determination), at a redemption price equal to the principal amount of each Series 2005 Bond called for redemption plus interest accrued to the date fixed for redemption, without premium.

The 2005 Bonds maturing on July 1, 2016, July 1, 2025 and July 1, 2035 are subject to redemption prior to their stated maturity in part, by lot, on July 1 of each year, commencing July 1, 2014, July 1, 2017 and July 1, 2026, respectively, at a redemption price equal to their principal amount, plus accrued interest thereon to the date fixed for redemption, without premium.

Notice of any redemption, identifying the Bonds or portions thereof to be redeemed, shall be given by the Registrar not less than 30 nor more than 60 days before the date fixed for redemption by first class mail to each of the registered owners of Bonds designated for redemption at their addresses appearing on the bond registration books of the Registrar on the date the Bonds to be redeemed are selected. Receipt of such notice by such registered owners shall not be a condition precedent to such redemption.

If this Bond is called for redemption and payment is duly provided herefor as specified in the Indenture, interest shall cease to accrue hereon from and after the date fixed for redemption.

The Series 2005 Bonds are issuable only in fully registered form in denominations of \$5,000 or any integral multiple thereof. Subject to the limitations and upon payment of the charges, if any, provided in the Indenture, this Bond may be exchanged, at the Principal Office of the Registrar, in Los Angeles, California, for a new fully registered Bond or Bonds, of the same Series, maturity and tenor and of any authorized denomination or denominations and for the aggregate principal amount of this Bond then remaining outstanding.

This Bond is transferable by the registered owner hereof, in person or by its attorney duly authorized in writing, at said office of the Registrar, but only in the manner, subject to the limitations and upon payment of the charges, if any, provided in the Indenture, and upon surrender and cancellation of this Bond. Upon such transfer a new registered Bond or Bonds, of the same Series, maturity and tenor and of any authorized denomination or denominations and for the same aggregate principal amount of this Bond then remaining outstanding, will be issued to the transferee in exchange therefor. The Registrar shall not be required to register the transfer of this Bond during the period established by the Trustee for the selection of Bonds for redemption or at any time after selection of this Bond for redemption.

The Authority, the Trustee, the Paying Agent and the Registrar may treat the registered owner hereof as the absolute owner hereof for all purposes, and neither the Authority, the Paying Agent nor the Registrar shall be affected by any notice to the contrary.

The Indenture and the rights and obligations of the Authority, the registered owners of the Bonds, the Trustee, the Registrar and other fiduciaries may be modified or amended at any time in the manner, to the extent, and upon the terms provided in the Indenture, provided that no such modification or amendment shall (i) extend the fixed maturity of this Bond, or extend the time for making any Mandatory Sinking Account Payments, or reduce the rate of interest on this Bond, or extend the time of payment of interest, or reduce the amount of principal of this Bond, or reduce any premium payable on the redemption hereof, without the consent of the registered owner hereof, or (ii) reduce the percentage of the principal amount of Bonds the consent of the registered owners of which is required to effect any such modification or amendment, or permit the creation of any lien on the Revenues (including additional Bonds hereafter issued) prior to or on a parity with the lien created by the Indenture or deprive the Owners of the Bonds of the lien created by the Indenture upon such Revenues (except as expressly provided in the Indenture), without the consent of the registered owners of all Bonds then outstanding, all as more fully set forth in the Indenture. There is no provision in the Indenture for the acceleration of amounts due on the Bonds upon the occurrence of an event of default thereunder.

The Bonds are limited obligations of the Authority and are not a lien or charge upon the funds or property of the Authority, except to the extent of the pledge and assignment herein described. Neither the faith and credit of the government of Guam nor the faith and credit of the United States of America or any political subdivision thereof is pledged to the payment of the principal of or interest on the Bonds.

This Bond shall not be entitled to any benefit under the Indenture, or become valid or obligatory for any purpose, until the certificate of authentication and registration hereon endorsed shall have been dated and signed by the Registrar.

It is hereby certified and recited that any and all conditions, things and acts required to exist, to have happened and to have been performed precedent to and in the issuance of this Bond exist, have happened and have been performed in due time, form and manner as required by the laws of the United States of America and the government of Guam, and that the amount of this Bond, together with all other indebtedness of the Authority, does not exceed any limit prescribed by such laws, and is not in excess of the amount of Bonds permitted to be issued under the Indenture.

IN WITNESS WHEREOF, the GUAM WATERWORKS AUTHORITY has caused this Bond to be executed in its name and on its behalf by the manual or facsimile signature of the Chairman of the Consolidated Commission on Utilities and the Chief Financial Officer of the Authority, all as of

GUAM WATERWORKS AUTHORITY

By _____
Chairman of the Board of Directors

By _____
Chief Financial Officer

[FORM OF] CERTIFICATE OF AUTHENTICATION AND REGISTRATION .

This is one of the Bonds described in the within- mentioned Indenture, which has been registered as of _____.

U.S. BANK NATIONAL ASSOCIATION, as
Registrar

By _____
Authorized Officer

[FORM OF] ASSIGNMENT

For value received the undersigned do(es) hereby sell, assign and transfer unto the within-mentioned registered Bond and hereby irrevocably constitute(s) and appoint(s) attorney, to transfer the same on the books of the Registrar with full power of substitution in the premises.

Dated: _____

NOTICE: The signature on this Assignment must correspond with the name as it appears on the face of the within Bond in every particular, without alteration or enlargement or any change whatsoever.

Signature Guaranteed:

Social Security Number, Taxpayer Identification Number or other Identifying Number of Assignee:

Notice: Signature must be guaranteed by a member firm of the New York Stock Exchange or a commercial bank or trust company.

Note: Transfer fees must be paid to the Registrar in order to transfer or exchange this bond as provided in the within-mentioned Indenture.

GUAM WATERWORKS AUTHORITY

and

BANK OF GUAM,
as Trustee,

and

U.S. BANK NATIONAL ASSOCIATION,
as Co-Trustee

SUPPLEMENTAL INDENTURE

Dated as of November 1, 2010

Relating to

\$118,825,000
Guam Waterworks Authority
Water and Wastewater System Revenue Bonds,
Series 2010

TABLE OF CONTENTS

		Page
ARTICLE XVI	DEFINITIONS	2
	SECTION 16.01 Definitions.....	2
ARTICLE XVII	AUTHORIZATION AND TERMS OF THE SERIES 2010 BONDS.....	3
	SECTION 17.01 Authorization of Series 2010 Bonds	3
	SECTION 17.02 Terms of Series 2010 Bonds; Appointments; Designations	3
	SECTION 17.03 Terms of Redemption of the Series 2010 Bonds	5
	SECTION 17.04 Special Covenants as to Book-Entry Only System for Series 2010 Bonds	6
ARTICLE XVIII	ISSUANCE OF SERIES 2010 BONDS; APPLICATION OF PROCEEDS; FUNDS AND ACCOUNTS	8
	SECTION 18.01 Issuance of Series 2010 Bonds.....	8
	SECTION 18.02 Application of Proceeds of Series 2010 Bonds and Other Moneys.....	8
	SECTION 18.03 Establishment of Funds and Accounts.....	9
ARTICLE XIX	TAX COVENANTS.....	10
	SECTION 19.01 2010 Rebate Account.....	10
	SECTION 19.02 Tax Covenants for Series 2010 Bonds.....	11
	SECTION 19.03 Continuing Disclosure	11
EXHIBIT A	FORM OF BOND	A-1

THIS SUPPLEMENTAL INDENTURE, made and entered into as of November 1, 2010, by and between the GUAM WATERWORKS AUTHORITY, a duly organized public corporation of the government of Guam (the "Authority"), BANK OF GUAM, a domestic banking corporation duly organized and existing under and by virtue of the laws of Guam, having a corporate trust office in Guam, and being qualified to accept and administer the trusts hereby created and to do business within Guam, as trustee (the "Trustee"), and U.S. BANK NATIONAL ASSOCIATION, a national banking association organized under the laws of the United States of America and qualified to accept and administer the trusts hereby created, as co-trustee (the "Co-Trustee"),

W I T N E S S E T H:

WHEREAS, pursuant to Article 2, Chapter 14 of Title 12 of the Guam Code Annotated (the "Act"), the Authority is authorized to issue and sell revenue bonds to raise funds for the purpose of acquiring, constructing, improving, equipping, maintaining, repairing, renewing, replacing, reconstructing or insuring the System (as defined in the Indenture), or any part thereof, or for the purpose of refunding any such bonds or any other prior obligations of the Authority, or for any combination of such purposes;

WHEREAS, the Authority has determined to issue revenue bonds for such purposes and to that end has duly entered into that certain Indenture, dated as of December 1, 2005 (the "Indenture"), between the Authority and the Trustee, to secure the payment of the principal thereof and the interest and premium, if any, thereon, and the observance of the covenants and conditions therein contained;

WHEREAS, revenue bonds may be issued pursuant to the Indenture and one or more indentures supplemental thereto ("Supplemental Indentures"), from time to time, in an aggregate principal amount not limited except as therein provided, and said revenue bonds are to be designated as the "Guam Waterworks Authority Water and Wastewater System Revenue Bonds" (the "Bonds");

WHEREAS, it is now desirable and necessary and in the best interests of the Authority to authorize the issuance of \$118,825,000 principal amount of Bonds further designated as "Series 2010 Bonds" to raise funds for the purpose of acquiring, constructing, improving, equipping, maintaining, repairing, renewing, replacing and reconstructing parts of the System, fund capitalized interest on the Series 2010 Bonds, make a deposit into the Bond Reserve Fund, and pay costs of issuance;

WHEREAS, pursuant to and subject to the terms and conditions set forth in Public Law No. 28-71, as amended by Public Law No. 30-145, the Legislature of Guam (as required by Section 50103(k) of Title 12, Guam Code Annotated (the "GEDA Law")) approved the terms and conditions of the issuance of said Series 2010 Bonds, so long as the Series 2010 Bonds meet the requirements set forth in the Act;

WHEREAS, the Guam Economic Development Authority has approved the issuance and sale of said Series 2010 Bonds as required by the GEDA Law;

WHEREAS, all acts, conditions and things required by the laws of the United States of America and the laws of Guam to exist, to have happened and to have been performed precedent to and in connection with the issuance of said Series 2010 Bonds exist, have happened, and have been performed in regular and due time, form and manner as required by law, and the Authority is now duly authorized and empowered, pursuant to each and every requirement of law, to issue said Bonds for the purpose, in the manner and upon the terms herein provided;

WHEREAS, no Event of Default (as defined in the Indenture) has occurred or is now occurring;

NOW, THEREFORE, THIS SUPPLEMENTAL INDENTURE WITNESSETH, in consideration of the premises and of the mutual covenants herein contained and of the purchase and acceptance of the Series 2010 Bonds by the owners thereof, and for other valuable considerations, the receipt of which is hereby acknowledged, the Authority does hereby covenant and agree with the Trustee and the Co-Trustee as follows:

ARTICLE XVI

DEFINITIONS

SECTION 16.01 Definitions. Unless the context otherwise requires, the terms defined in the Indenture shall, for all purposes of this Supplemental Indenture and of any certificate, opinion or other document herein mentioned, have the meanings specified in the Indenture.

In addition, unless the context otherwise requires, the terms defined in this Section shall for all purposes of the Indenture and this Supplemental Indenture and of any certificate, opinion or other document herein mentioned, have the meanings herein specified.

Bond Year

“Bond Year” means, with respect to the Series 2010 Bonds, the period of twelve consecutive months ending on July 1 of each year if Series 2010 Bonds are or will be Outstanding in such twelve-month period; provided that the first Bond Year shall commence on the date of delivery of the Series 2010 Bonds and end on July 1, 2011.

DTC

“DTC” means The Depository Trust Company, New York, New York, and its successors and assigns.

Series 2010 Project

“Series 2010 Project” means, with respect to the Series 2010 Bonds, the acquisition, construction, improvement, equipping, maintenance, repair, renewal, replacement and reconstruction of those certain parts of the System to be funded with proceeds of the Series 2010 Bonds.

Series 2010 Bonds, Series 2010 Serial Bonds, Series 2010 Term Bonds

“Series 2010 Bonds” means the \$118,825,000 principal amount of Guam Waterworks Authority Water and Wastewater System Revenue Bonds, Series 2010.

“Series 2010 Serial Bonds” means the Series 2010 Bonds designated as Serial Bonds by Section 17.02, and for which no Mandatory Sinking Account Payments are provided.

“Series 2010 Term Bonds” means the Series 2010 Bonds designated as Term Bonds by Section 17.02, and for which Mandatory Sinking Account Payments are provided.

ARTICLE XVII

AUTHORIZATION AND TERMS OF THE SERIES 2010 BONDS

SECTION 17.01 Authorization of Series 2010 Bonds. A Series of Bonds is hereby authorized and created under the Act to raise funds for the Project Costs of the Series 2010 Project and to pay the Costs of Issuance of such Bonds. Such Series of Bonds is designated as the "Guam Waterworks Authority Water and Wastewater System Revenue Bonds, Series 2010". The aggregate principal amount of Series 2010 Bonds which may be issued and Outstanding under this Supplemental Indenture shall not exceed \$118,825,000.

The Series 2010 Bonds shall be treated as a single Series under the Indenture.

SECTION 17.02 Terms of Series 2010 Bonds; Appointments; Designations.

(a) The Series 2010 Bonds shall be issued as fully registered Bonds without coupons in the denominations of \$5,000 or any integral multiple thereof. The Series 2010 Bonds shall be dated their date of delivery, and interest thereon (based on a 360-day year of twelve thirty-days months) shall be payable on January 1 and July 1 of each year, commencing July 1, 2011 (each, an "Interest Payment Date" for the Series 2010 Bonds).

(b) The Series 2010 Bonds shall mature on the dates and in the amounts and shall bear interest at the rates per annum specified in the following table:

Maturity Date (July 1)	Principal Amount	Interest Rate
2015	\$1,055,000	4.000%
2016	1,590,000	4.000
2017	1,655,000	4.250
2018	1,725,000	4.500
2019	1,800,000	5.000
2020	1,895,000	5.000
2025	11,030,000	5.250
2030	14,325,000	5.500
2040	83,750,000	5.625

(c) The Series 2010 Bonds maturing on July 1, 2015 through July 1, 2020 are Serial Bonds, and the Series 2010 Bonds maturing on July 1, 2025, July 1, 2030 and July 1, 2040 are Term Bonds.

(d) The Principal Payment Period for the Series 2010 Bonds shall be the twelve calendar months next preceding each maturity date or Mandatory Sinking Account Payment date for such Bonds.

(e) The Record Date for all scheduled payments of principal of and interest on the Series 2010 Bonds shall be the 15th day of the calendar month next preceding the date each such payment is due, whether or not such 15th day is a Business Day.

(f) The Co-Trustee is hereby appointed Paying Agent for the Series 2010 Bonds and Registrar for the Series 2010 Bonds, and the Co-Trustee's corporate trust office in Los Angeles, California is hereby designated as the Principal Office of the Co-Trustee. The Trustee is hereby appointed Depository for the Series 2010 Construction Account and the Series 2010 Capitalized Interest Account.

(g) The principal of and premium, if any, on each Series 2010 Bond shall be payable in lawful money of the United States of America to the Owner of such Bond, upon the surrender of such Bond at the Principal Office of any Paying Agent for such Bond. The interest on each Series 2010 Bond shall be payable in like lawful money to the person whose name appears on the bond registration books of the Registrar for such Bond as the Owner of such Bond as of the close of business on the Record Date for such Bond preceding the Interest Payment Date, whether or not such Record Date is a Business Day, such interest to be paid by check or mailed by first class mail to such Owner at such address as appears on such registration books or at such address as such Owner may have filed with the Registrar for that purpose. Upon the written request of a registered owner of one million dollars (\$1,000,000) or more in aggregate principal amount of Series 2010 Bonds, payment of interest on and principal (including Redemption Price) of such Bonds shall be made by wire transfer from the Paying Agent to the registered owner of such Bonds. Any such principal payment by wire transfer shall nevertheless be subject to prior surrender of the Series 2010 Bonds with respect to which such payment is made. Each payment of interest or principal on Series 2010 Bonds, whether by check, draft or wire transfer, shall be accompanied by information specifying for each maturity of such Bonds with respect to which such payment is being made, the amount and the CUSIP number (if available).

(h) Each Series 2010 Bond shall bear interest from the Interest Payment Date next preceding the date of authentication thereof unless it is authenticated as of a day during the period from the Record Date preceding any Interest Payment Date to the Interest Payment Date, inclusive, in which event it shall bear interest from such Interest Payment Date, or unless it is authenticated on or before December 15, 2010, in which event it shall bear interest from its date of delivery; provided, however, that if, at the time of authentication of any Series 2010 Bond, interest is in default on Outstanding Bonds of such Series, such Bond shall bear interest from the Interest Payment Date to which interest has previously been paid or made available for payment on the Outstanding Bonds of such Series.

(i) The Series 2010 Bonds shall be subject to redemption as provided in Section 17.03.

(j) The Registrar for the Series 2010 Bonds shall assign each Series 2010 Bond authenticated and registered by it a distinctive letter, or number, or letter and number, and shall maintain a record thereof which shall be available to the Authority for inspection.

(k) The Series 2010 Bonds, the Registrar's certificate of authentication and registration and the form of assignment to appear thereon shall be in substantially the forms set forth in Exhibit A hereto, with necessary or appropriate variations, omissions and insertions as permitted or required by this Indenture.

SECTION 17.03 Terms of Redemption of the Series 2010 Bonds.

(a) Extraordinary Optional Redemption. The Series 2010 Bonds are subject to redemption on any date prior to their respective stated maturities, as a whole, or in part so that the reduction in Annual Debt Service for the Series 2010 Bonds for each Bond Year after such redemption shall be as nearly proportional as practicable, from and to the extent of proceeds received by the Authority due to a governmental taking of the System or portions thereof by eminent domain proceedings, if such amounts are not used for additions, improvements or extensions to the System, under the circumstances and upon the conditions and terms set forth in the Indenture, at the greater of par or Amortized Value, plus accrued interest to the date fixed for redemption, without premium. "Amortized Value" means on any interest payment date, the then current value of the bond amortizing the original issue premium over the period ending on the first call date using the constant yield method.

(b) Optional Redemption. The Series 2010 Bonds maturing on or after July 1, 2021 are subject to redemption prior to their respective stated maturities, at the option of the Authority, from any source of available moneys, on any date on or after July 1, 2020, as a whole, or in part by such maturities or portions of maturities as shall be determined by the Authority (or by lot within a maturity in the absence of such a determination), at a redemption price equal to the principal amount of each Series 2010 Bond called for redemption plus interest accrued to the date fixed for redemption, without premium.

(c) Mandatory Sinking Account Redemption. The Series 2010 Term Bonds maturing on July 1, 2025 are subject to redemption prior to their stated maturity in part, by lot, on July 1 of each year from Mandatory Sinking Account Payments, commencing July 1, 2021, at a redemption price equal to their principal amount, plus accrued interest thereon to the date fixed for redemption, without premium, in the years and in the amounts, as set forth below:

<u>Year</u>	<u>Amount</u>
2021	\$1,985,000
2022	2,090,000
2023	2,200,000
2024	2,315,000
2025†	2,440,000

† Final maturity.

The Series 2010 Term Bonds maturing on July 1, 2030 are subject to redemption prior to their stated maturity in part, by lot, on July 1 of each year from Mandatory Sinking Account Payments, commencing July 1, 2026, at a redemption price equal to their principal amount, plus accrued interest thereon to the date fixed for redemption, without premium, in the years and in the amounts, as set forth below:

<u>Year</u>	<u>Amount</u>
2026	\$2,570,000
2027	2,710,000
2028	2,855,000
2029	3,010,000
2030†	3,180,000

† Final maturity.

The Series 2010 Term Bonds maturing on July 1, 2040 are subject to redemption prior to their stated maturity in part, by lot, on July 1 of each year from Mandatory Sinking Account Payments, commencing July 1, 2031, at a redemption price equal to their principal amount, plus accrued interest thereon to the date fixed for redemption, without premium, in the years and in the amounts, as set forth below:

<u>Year</u>	<u>Amount</u>
2031	\$3,350,000
2032	3,545,000
2033	3,740,000
2034	3,950,000
2035	4,170,000
2036	11,615,000
2037	12,270,000
2038	12,960,000
2039	13,690,000
2040†	14,460,000

† Final maturity.

SECTION 17.04 Special Covenants as to Book-Entry Only System for Series 2010 Bonds. (a) Except as otherwise provided in subsections (b) and (c) of this Section 17.04, all of the Series 2010 Bonds initially issued shall be registered in the name of Cede & Co., as nominee for The Depository Trust Company, New York, New York (“DTC”), or such other nominee as DTC shall request pursuant to the Representation Letter. Payment of the interest on any Series 2010 Bond registered in the

name of Cede & Co. shall be made on each interest payment date for such Series 2010 Bonds to the account, in the manner and at the address indicated in or pursuant to the Representation Letter.

(b) The Series 2010 Bonds initially shall be issued in the form of a single authenticated fully registered bond for each stated maturity of each portion of such Series 2010 Bonds, representing the aggregate principal amount of the Series 2010 Bonds of such portion and maturity. Upon initial issuance, the ownership of all such Series 2010 Bonds shall be registered in the registration records maintained by the Registrar pursuant to Section 2.05 hereof in the name of Cede & Co., as nominee of DTC, or such other nominee as DTC shall request pursuant to the Representation Letter. The Trustee, the Co-Trustee, the Registrar, the Authority and any paying agent may treat DTC (or its nominee) as the sole and exclusive owner of the Series 2010 Bonds registered in its name for the purposes of payment of the principal or redemption price of and interest on such Series 2010 Bonds, selecting the Series 2010 Bonds or portions thereof to be redeemed, giving any notice permitted or required to be given to Bondowners hereunder, registering the transfer of Series 2010 Bonds, obtaining any consent or other action to be taken by Bondowners of the Series 2010 Bonds and for all other purposes whatsoever; and the Trustee, the Co-Trustee, the Registrar, the Authority and any paying agent shall not be affected by any notice to the contrary. Neither the Trustee, the Co-Trustee, the Authority nor any paying agent shall have any responsibility or obligation to any Participant (which shall mean, for purposes of this Section 17.04, securities brokers and dealers, banks, trust companies, clearing corporations and other entities, some of whom directly or indirectly own DTC), any person claiming a beneficial ownership interest in the Series 2010 Bonds under or through DTC or any Participant, or any other person which is not shown on the registration records as being a Bondowner, with respect to (i) the accuracy of any records maintained by DTC or any Participant, (ii) the payment by DTC or any Participant of any amount in respect of the principal or redemption price of or interest on the Series 2010 Bonds, (iii) any notice which is permitted or required to be given to Holders of Series 2010 Bonds hereunder, (iv) the selection by DTC or any Participant of any person to receive payment in the event of a partial redemption of the Series 2010 Bonds, or (v) any consent given or other action taken by DTC as Holder of Series 2010 Bonds. The Paying Agent shall pay all principal of and premium, if any, and interest on the Series 2010 Bonds only at the times, to the accounts, at the addresses and otherwise in accordance with the Representation Letter, and all such payments shall be valid and effective to satisfy fully and discharge the Authority's obligations with respect to the principal of and premium, if any, and interest on the Series 2010 Bonds to the extent of the sum or sums so paid. Upon delivery by DTC to the Trustee and Co-Trustee of written notice to the effect that DTC has determined to substitute a new nominee in place of its then existing nominee, the Series 2010 Bonds will be transferable to such new nominee in accordance with subsection (f) of this Section 17.04.

(c) In the event that the Authority elects to discontinue the book-entry system for any Series 2010 Bonds, the Trustee shall, upon the written instruction of the Authority, so notify DTC, whereupon DTC shall notify the Participants of the availability through DTC of bond certificates. In such event, such Series 2010 Bonds will be transferable in accordance with subsection (f) of this Section 17.04. DTC may determine to discontinue providing its services with respect to the Series 2010 Bonds at any time by giving written notice of such discontinuance to the Authority or the Trustee and Co-Trustee and discharging its responsibilities with respect thereto under applicable law. In such event, the Series 2010 Bonds will be transferable in accordance with subsection (f) of this Section 17.04. Whenever DTC requests the Authority, the Trustee and the Co-Trustee to do so, the Trustee, the Co-Trustee and the Authority will cooperate with DTC in taking appropriate action after reasonable notice to arrange for another securities depository to maintain custody of all certificates evidencing the Series 2010 Bonds then Outstanding. In such event, the Series 2010 Bonds will be transferable to such securities depository in accordance with subsection (f) of this Section 17.04, and

thereafter, all references in this Supplemental Indenture to DTC or its nominee shall be deemed to refer to such successor securities depository and its nominee, as appropriate.

(d) Notwithstanding any other provision of this Supplemental Indenture to the contrary, so long as all Series 2010 Bonds Outstanding are registered in the name of any nominee of DTC, all payments with respect to the principal of and premium, if any, and interest on each such Series 2010 Bond and all notices with respect to each such Series 2010 Bond shall be made and given, respectively, to DTC as provided in the Representation Letter.

(e) The Co-Trustee is hereby authorized and requested to execute and deliver the Representation Letter and, in connection with any successor nominee for DTC or any successor depository, enter into comparable arrangements, and shall have the same rights with respect to its actions thereunder as it has with respect to its actions under this Supplemental Indenture.

(f) In the event that any transfer or exchange of Series 2010 Bonds is authorized under subsection (b) or (c) of this Section 17.04, such transfer or exchange shall be accomplished upon receipt by the Registrar from the registered owner thereof of the Series 2010 Bonds to be transferred or exchanged and appropriate instruments of transfer to the permitted transferee, all in accordance with the applicable provisions of Sections 2.03 and 2.04 of the Indenture. In the event Series 2010 Bond certificates are issued to Holders other than Cede & Co., its successor as nominee for DTC as holder of all the Series 2010 Bonds, another securities depository as holder of all the Series 2010 Bonds, or the nominee of such successor securities depository, the provisions of Sections 2.03 and 2.04 of the Indenture shall also apply to, among other things, the registration, exchange and transfer of the Series 2010 Bonds and the method of payment of principal of, premium, if any, and interest on the Series 2010 Bonds.

ARTICLE XVIII

ISSUANCE OF SERIES 2010 BONDS; APPLICATION OF PROCEEDS; FUNDS AND ACCOUNTS

SECTION 18.01 Issuance of Series 2010 Bonds. At any time after the execution and delivery of this Supplemental Indenture, the Authority may sell and execute and the Registrar for the Series 2010 Bonds shall authenticate and, upon the Order of the Authority, deliver the Series 2010 Bonds in an aggregate principal amount not to exceed \$118,825,000.

SECTION 18.02 Application of Proceeds of Series 2010 Bonds and Other Moneys. (a) The net proceeds received by the Authority from the sale of the Series 2010 Bonds in the amount of \$115,048,294.72 shall be deposited with the Trustee, who shall forthwith apply such proceeds in the following manner, as directed by a Request of the Authority:

(i) The Trustee shall deposit in the Series 2010 Capitalized Interest Account the amount of \$18,607,942.22;

(ii) the Trustee shall deposit in the Series 2010 Construction Account the amount of \$88,873,815.00; and

(iii) the Trustee shall transfer to the Co-Trustee, for deposit in the Bond Reserve Fund, the amount of \$7,566,537.50, which brings the total amount on deposit therein to the Bond Reserve Requirement of \$15,274,277.26.

(b) Pursuant to Section 5.06 of the Indenture, to the extent that moneys in the Bond Reserve Fund exceed the Bond Reserve Fund Requirement, income derived from the investment of the proceeds of the Series 2010 Bonds in the Bond Reserve Fund prior to the completion of the Series 2010 Project shall be deposited in the Series 2010 Construction Account; otherwise such income shall be transferred to the Revenue Fund.

SECTION 18.03 Establishment of Funds and Accounts.

(a) To ensure the proper application of such portion of proceeds from the sale of the Series 2010 Bonds to be applied to pay Project Costs of the Series 2010 Project, including Capitalized Interest on the Series 2010 Bonds, and to pay Costs of Issuance of the Series 2010 Bonds, there is hereby established within the Construction Fund the "Series 2010 Construction Account", which shall be held by the Trustee, as Depositary therefor. To ensure the proper application of such proceeds from the sale of the Series 2010 Bonds to be applied to pay Capitalized Interest on the Series 2010 Bonds, there is hereby established within the Series 2010 Construction Account the "Series 2010 Capitalized Interest Account," which shall be held by the Trustee as Depositary therefor.

(b) The monies set aside and placed in the Series 2010 Construction Account to be applied to the Project Costs of the Series 2010 Project shall be expended for the purposes of the Series 2010 Project and shall not be used for any other purpose whatsoever. The Depositary shall reserve the amount of \$1,514,481.31 to pay Costs of Issuance of the Series 2010 Bonds; provided, however, that any of such funds that remain on deposit in the Series 2010 Construction Account after May 22, 2011 shall be applied to the Project Costs of the Series 2010 Project.

(i) Before any payment from the Series 2010 Construction Account shall be made by the Depositary, the Authority shall file or cause to be filed with the Depositary a requisition of the Authority (each a "Requisition"), such Requisition to be signed by the Chairperson or the General Manager or by any other officer of the Authority duly authorized by resolution of the Board for that purpose and to include (1) the item number of such payment; (2) the name and address of the person to whom each such payment is due, which may be the Authority in the case of reimbursement for costs theretofore paid by the Authority; (3) the respective amounts to be paid; (4) the purpose by general classification for which each obligation to be paid was incurred; and (5) that obligations in the stated amounts have been incurred by the Authority and are presently due and payable and that each item thereof is a proper charge against the Series 2010 Construction Account and has not been previously paid from said Account.

(ii) When the Authority determines that the Series 2010 Project has been completed, a Certificate of the Authority shall be delivered to the Depositary by the Authority stating: (1) the fact and date of such completion; (2) that all of the Project Costs of the Series 2010 Project have been determined and paid (or that all of such costs have been paid less specified claims that are subject to dispute and for which a retention in the Series 2010 Construction Account is to be maintained in the full amount of such claims until such dispute is resolved); and (3) that the Depositary is to transfer the remaining balance in the Series 2010 Construction Account, less the amount of any such retention, to the Co-Trustee for deposit to the Bond Reserve Fund, to the extent of any deficiency therein, and then to the Debt Service Fund.

(c) The Depositary shall transfer all money in the Series 2010 Capitalized Interest Account to the Co-Trustee, and the Co-Trustee shall apply such money to pay interest due on the Series 2010 Bonds in accordance with the following schedule, provided that any amounts remaining in the Series 2010 Capitalized Interest Account after the final transfer shall be transferred to the Co-

Trustee for deposit in the Debt Service Fund and the Depository shall close the 2010 Capitalized Interest Account:

<u>Series 2010 Capitalized Interest Schedule</u>	
Date	Capitalized Interest Transfer Amount
July 1, 2011	\$3,946,042.22
January 1, 2012	3,258,200.00
July 1, 2012	3,258,200.00
January 1, 2013	3,258,200.00
July 1, 2013	3,258,200.00
January 1, 2014*	Balance

* Final transfer

(d) As provided in Section 5.05 of the Indenture, the Series 2010 Bonds shall be payable from the Debt Service Fund, and, in accordance with Section 5.06 of the Indenture, the Series 2010 Bonds shall be secured by the Bond Reserve Fund.

ARTICLE XIX

TAX COVENANTS

SECTION 19.01 2010 Rebate Account.

(A) The Trustee, as Depository for the Revenue Fund, shall establish and maintain within the Rebate Fund a separate subaccount designated as the "2010 Rebate Account." There shall be deposited in the 2010 Rebate Account from amounts in the Operation and Maintenance Fund or other lawfully available moneys such amounts as are required to be deposited therein pursuant to the Tax Certificate delivered by the Authority in connection with the issuance of the Series 2010 Bonds. All money at any time deposited in the 2010 Rebate Account shall be held by the Trustee in trust, to the extent required to satisfy the Rebate Requirement for the Series 2010 Bonds (as defined in such Tax Certificate), for payment to the United States of America, and the United States of America is hereby granted a first lien on such money until such payment. All amounts required to be deposited into or on deposit in the 2010 Rebate Account shall be governed exclusively by this Section and by such Tax Certificate (which is incorporated herein by reference).

In the event that the amount in the 2010 Rebate Account exceeds the Rebate Requirement for the Series 2010 Bonds, upon the Request of the Authority, the Trustee shall transfer the excess from the 2010 Rebate Account to the Revenue Fund.

(B) Notwithstanding any provisions of this Section, if the Authority shall provide to the Trustee an opinion of Bond Counsel that any specified action required under this Section is no longer

required or that some further or different action is required to maintain the exclusion from federal income tax of interest on any Series of Bonds, the Trustee and the Authority may conclusively rely on such opinion in complying with the requirements of this Section, and, notwithstanding Article IX of the Indenture, the covenants hereunder shall be deemed to be modified to that extent.

SECTION 19.02 Tax Covenants for Series 2010 Bonds. (A) The Authority intends that interest on the Series 2010 Bonds be excluded from gross income for federal income tax purposes, that the Series 2010 Bonds and the interest thereon be exempt from taxation by any state or political subdivision or the District of Columbia and that interest on the Series 2010 Bonds not be treated as a specific preference item for purposes of the federal individual and corporate alternative minimum taxes. The Authority reserves the right to determine the desired tax status of any additional Series of Bonds.


(B) The Authority shall not use or permit the use of any proceeds of the Series 2010 Bonds or any other funds of the Authority, directly or indirectly, to acquire any securities or obligations, and shall not use or permit the use of any amounts received by the Authority in any manner, and shall not take or permit to be taken any other action or actions, which would cause any such Bond to be an "arbitrage bond" within the meaning of Section 148 of the Code or to be "federally guaranteed" within the meaning of Section 149(b) of the Code.


(C) The Authority shall at all times do and perform all acts and things permitted by law and this Indenture which are necessary or desirable in order to assure that interest paid on the Series 2010 Bonds (or on any of them) shall be excluded from gross income for federal income tax purposes and that interest paid on the Series 2010 Bonds shall not be treated as a specific preference item for purposes of the federal individual and corporate alternative minimum taxes.

SECTION 19.03 Continuing Disclosure. The Authority hereby covenants and agrees to comply with the Series 2010 Continuing Disclosure Agreement, by and between the Authority and the Co-Trustee (the "Series 2010 Continuing Disclosure Agreement"), as it may from time to time hereafter be amended or supplemented. Notwithstanding any other provision of the Indenture, failure of the Authority to comply with the requirements of the Series 2010 Continuing Disclosure Agreement shall not be considered an Event of Default and the Co-Trustee shall have no right to accelerate amounts due under the Indenture as a result thereof; provided, however, that the Trustee and the Owners of not less than 25% in principal amount of the Outstanding Series 2010 Bonds may take such action as may be necessary and appropriate, including seeking mandate or specific performance by court order, to cause the Authority to comply with its obligations in this Section with respect to the Series 2010 Continuing Disclosure Agreement.

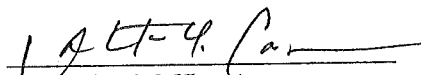
IN WITNESS WHEREOF, the GUAM WATERWORKS AUTHORITY has caused this Supplemental Indenture to be signed in its name by its duly authorized officers; and BANK OF GUAM and U.S. BANK NATIONAL ASSOCIATION, in token of their acceptance of the respective trusts created hereunder, and being hereby appointed by the GUAM WATERWORKS AUTHORITY to such trusts, have caused this Supplemental Indenture to be signed in their respective corporate names by one of their authorized officers, all as of the day and year first above written.

GUAM WATERWORKS AUTHORITY

By 
Chairperson of the Board

By 
Acting General Manager

BANK OF GUAM, as Trustee

By 
Authorized Officer

U.S. BANK NATIONAL ASSOCIATION, as Co-Trustee

By _____
Authorized Officer

IN WITNESS WHEREOF, the GUAM WATERWORKS AUTHORITY has caused this Supplemental Indenture to be signed in its name by its duly authorized officers; and BANK OF GUAM and U.S. BANK NATIONAL ASSOCIATION, in token of their acceptance of the respective trusts created hereunder, and being hereby appointed by the GUAM WATERWORKS AUTHORITY to such trusts, have caused this Supplemental Indenture to be signed in their respective corporate names by one of their authorized officers, all as of the day and year first above written.

GUAM WATERWORKS AUTHORITY

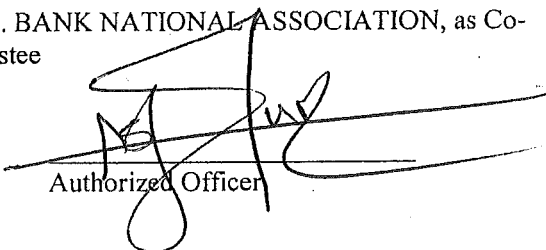
By _____
Chairperson of the Board

By _____
Acting General Manager

BANK OF GUAM, as Trustee

By _____
Authorized Officer

U.S. BANK NATIONAL ASSOCIATION, as Co-Trustee

By  _____
Authorized Officer

The undersigned U.S. BANK NATIONAL ASSOCIATION, hereby accepts and agrees to perform the duties and obligations of Registrar and Paying Agent under this Supplemental Indenture.

U.S. BANK NATIONAL ASSOCIATION, as Registrar
and Paying Agent

By

Authorized Officer

The undersigned BANK OF GUAM, hereby accepts and agrees to perform the duties and obligations of Depositary for the Series 2010 Construction Account and for the Series 2010 Capitalized Interest Account under this Supplemental Indenture.

BANK OF GUAM, as Depositary

By J. G. L. C.
Authorized Officer

EXHIBIT A
FORM OF BOND

No. R- _____

\$ _____

GUAM WATERWORKS AUTHORITY
WATER AND WASTEWATER SYSTEM REVENUE BOND,
SERIES 2010

<u>INTEREST RATE</u>	<u>MATURITY DATE</u>	<u>DATED DATE</u>	<u>CUSIP</u>
----------------------	----------------------	-------------------	--------------

Registered Owner:	July 1, 20__ CEDE AND CO.	November 23, 2010	
-------------------	------------------------------	-------------------	--

Principal Sum: Dollars

The GUAM WATERWORKS AUTHORITY, a duly organized public corporation of the government of Guam (herein called the "Authority"), for value received, hereby promises to pay (but only out of the Revenues pledged therefor as hereinafter mentioned) to the registered owner identified above or registered assigns, on the maturity date specified above (subject to any right of prior redemption hereinafter mentioned), the principal sum specified above in lawful money of the United States of America; and to pay interest thereon, in like lawful money and solely from said Revenues, from the Interest Payment Date next preceding the date of authentication of this Bond unless this Bond is authenticated as of a day during the period from the Record Date preceding any Interest Payment Date to the Interest Payment Date, inclusive, in which event it shall bear interest from such Interest Payment Date, or unless this Bond is authenticated on or before June 15, 2011, in which event it shall bear interest from its date of delivery, until payment of such principal sum shall be discharged as provided in the indenture hereinafter mentioned, at the interest rate specified above per annum, payable on January 1 and July 1 in each year, commencing July 1, 2011; provided, however, that if, at the time of authentication of this Bond, interest is in default hereon, this Bond shall bear interest from the Interest Payment Date to which interest has previously been paid or made available for payment. The principal (or redemption price) hereof is payable upon surrender hereof at the Principal Office of U.S. Bank National Association (herein called the "Paying Agent") in Los Angeles, California, and the interest hereon is payable by check or draft mailed by first class mail to the person in whose name this Bond is registered at the close of business on the fifteenth day of the month immediately preceding an interest payment date, at such person's address as it appears on the bond registration books of U.S. Bank National Association (herein called the "Registrar"). Upon the written request of a registered owner of \$1,000,000 or more in aggregate principal amount of Series 2010 Bonds, payment of interest on and principal (including redemption price) of such Bonds will be made by wire transfer as provided in the Indenture; provided that any such principal payment shall nevertheless be subject to prior surrender of the Series 2010 Bonds with respect to which such payment is made.

This Bond is one of a duly authorized issue of bonds of the Authority designated as the "Guam Waterworks Authority Water and Wastewater System Revenue Bonds" (herein called the "Bonds"), unlimited in aggregate principal amount, except as otherwise provided in the laws of the United States of America and the government of Guam and in the Indenture hereinafter mentioned, which issue of Bonds consists or may consist of one or more Series of varying dates, maturities, interest rates, and redemption and other provisions, all issued or to be issued pursuant to Article 2, Chapter 14 of Title 12 of the Guam Code Annotated, as amended, and that certain Indenture, dated as of December 1, 2005 (as heretofore and hereafter supplemented, the "Indenture"), by and between the Authority, Bank of

Guam, as trustee (herein called the "Trustee") and U.S. Bank National Association, as co-trustee (herein called the "Co-Trustee"). This Bond is also one of a duly authorized series of Bonds additionally designated "Series 2010" (herein called the "Series 2010 Bonds"), in the aggregate principal amount of One Hundred Eighteen Million Eight Hundred Twenty-Five Dollars (\$118,825,000), all issued under the provisions of the Indenture and a Supplemental Indenture, dated as of November 1, 2010, by and between the Authority, the Trustee and the Co-Trustee. Reference is hereby made to the Indenture (a copy of which is on file at said office of the Trustee), including all indentures supplemental thereto, for a description of the rights thereunder of the registered owners of the Bonds, of the nature and extent of the security and provisions for payment of the Bonds, of the rights, duties and immunities of the Trustee and other fiduciaries and of the rights and obligations of the Authority thereunder, to all the provisions of which Indenture the registered owner of this Bond, by acceptance hereof, assents and agrees.

The Bonds and the interest thereon (to the extent set forth in the Indenture) are payable solely from Revenues (as that term is defined in the Indenture) pledged as provided in the Indenture. Subject only to the provisions of the Indenture permitting the application thereof for or to the purposes and on the terms and conditions set forth therein and to the provisions of that certain Consent Decree dated April 24, 2003 and the related Order dated May 9, 2003, relating to *United States of America v. Government of Guam*, said Revenues are pledged under the Indenture to secure the payment of the principal of, premium, if any, and interest on the Bonds in accordance with their terms and the provisions of the Indenture and the payment of Credit Agreement Payments and Parity Payment Agreement Payments in accordance with their terms.

The Series 2010 Bonds are subject to redemption on any date prior to their respective stated maturities, as a whole, or in part so that the reduction in Annual Debt Service for the Series 2010 Bonds for each Bond Year after such redemption shall be as nearly proportional as practicable, from and to the extent of proceeds received by the Authority due to a governmental taking of the System or portions thereof by eminent domain proceedings, if such amounts are not used for additions, improvements or extensions to the System, under the circumstances and upon the conditions and terms set forth in the Indenture, at the greater of par or Amortized Value, plus accrued interest to the date fixed for redemption, without premium. "Amortized Value" means on any interest payment date, the then current value of the bond amortizing the original issue premium over the period ending on the first call date using the constant yield method.

The Series 2010 Bonds maturing on or after July 1, 2021 are subject to redemption prior to their respective stated maturities, at the option of the Authority, from any source of available moneys, on any date on or after July 1, 2020, as a whole, or in part by such maturities or portions of maturities as shall be determined by the Authority (or by lot within a maturity in the absence of such a determination), at a redemption price equal to the principal amount of each Series 2010 Bond called for redemption plus interest accrued to the date fixed for redemption, without premium.

The Series 2010 Bonds maturing on July 1, 2025, July 1, 2030 and July 1, 2040 are subject to redemption prior to their stated maturity in part, by lot, on July 1 of each year from Mandatory Sinking Account Payments, commencing July 1, 2021, July 1, 2026 and July 1, 2031, respectively, at a redemption price equal to the Mandatory Sinking Account Payment amount for such date set forth in the Indenture, plus accrued interest thereon to the date fixed for redemption, without premium.

Notice of any redemption, identifying the Bonds or portions thereof to be redeemed, shall be given by the Registrar not less than 30 nor more than 60 days before the date fixed for redemption by first class mail to each of the registered owners of Bonds designated for redemption at their addresses appearing on the bond registration books of the Registrar on the date the Bonds to be redeemed are

selected. Receipt of such notice by such registered owners shall not be a condition precedent to such redemption.

If this Bond is called for redemption and payment is duly provided herefor as specified in the Indenture, interest shall cease to accrue hereon from and after the date fixed for redemption.

The Series 2010 Bonds are issuable only in fully registered form in denominations of \$5,000 or any integral multiple thereof. Subject to the limitations and upon payment of the charges, if any, provided in the Indenture, this Bond may be exchanged, at the Principal Office of the Registrar, in Los Angeles, California, or such other office as the Registrar shall designate, for a new fully registered Bond or Bonds, of the same Series, maturity and tenor and of any authorized denomination or denominations and for the aggregate principal amount of this Bond then remaining outstanding.

This Bond is transferable by the registered owner hereof, in person or by its attorney duly authorized in writing, at said office of the Registrar, but only in the manner, subject to the limitations and upon payment of the charges, if any, provided in the Indenture, and upon surrender and cancellation of this Bond. Upon such transfer a new registered Bond or Bonds, of the same Series and maturity and of any authorized denomination or denominations and for the same aggregate principal amount of this Bond then remaining outstanding, will be issued to the transferee in exchange therefor. The Registrar shall not be required to register the transfer of this Bond during the period established by the Trustee for the selection of Bonds for redemption or at any time after selection of this Bond for redemption.

The Authority, the Trustee, the Paying Agent and the Registrar may treat the registered owner hereof as the absolute owner hereof for all purposes, and neither the Authority, the Paying Agent nor the Registrar shall be affected by any notice to the contrary.

The Indenture and the rights and obligations of the Authority, the registered owners of the Bonds, the Trustee, the Registrar and other fiduciaries may be modified or amended at any time in the manner, to the extent, and upon the terms provided in the Indenture, provided that no such modification or amendment shall (a) extend the fixed maturities of the Bonds, or extend the time for making any Mandatory Sinking Account Payments, or reduce the rate of interest thereon, or extend the time of payment of interest, or reduce the amount of principal thereof, or reduce any premium payable on the redemption thereof, without the consent of the Owner of each Bond so affected, (b) reduce the aforesaid percentage of Owners of Bonds whose consent is required for the execution of any amendment or modification of this Indenture or permit the creation of any lien on the Revenues prior to or on a parity with the lien created by this Indenture or deprive the Owners of the Bonds of the lien created by this Indenture upon such Revenues, without in each case the consent of the Owners of all of the Bonds then Outstanding.

The Bonds are limited obligations of the Authority, payable solely from and secured by a pledge of the Revenues as provided in the Indenture. The Bonds are not a legal or equitable pledge, charge, lien or encumbrance upon any property of the Authority or upon any of its income, receipts or revenues except the Revenues pledged to the payment thereof as provided in the Indenture.

Neither the Government of Guam nor any political subdivision thereof is obligated to pay the principal of, Redemption Price, if applicable, or interest on the Bonds, except from Revenues, and neither the Authority, the Government of Guam nor any political subdivision thereof has pledged its faith or credit to the payment of the principal of, redemption price, if applicable, or interest on the Bonds.

This Bond shall not be entitled to any benefit under the Indenture, or become valid or obligatory for any purpose, until the certificate of authentication and registration hereon endorsed shall have been dated and signed by the Registrar.

It is hereby certified and recited that any and all conditions, things and acts required to exist, to have happened and to have been performed precedent to and in the issuance of this Bond exist, have happened and have been performed in due time, form and manner as required by the laws of the United States of America and the government of Guam, and that the amount of this Bond, together with all other indebtedness of the Authority, does not exceed any limit prescribed by such laws, and is not in excess of the amount of Bonds permitted to be issued under the Indenture.

IN WITNESS WHEREOF, the GUAM WATERWORKS AUTHORITY has caused this Bond to be executed in its name and on its behalf by the manual or facsimile signature of the Chairman of the Consolidated Commission on Utilities and the Chief Financial Officer of the Authority, all as of the dated date first set forth above.

GUAM WATERWORKS AUTHORITY

By _____
Chairman of the Board of Directors

By _____
Chief Financial Officer

[FORM OF] CERTIFICATE OF AUTHENTICATION AND REGISTRATION

This is one of the Bonds described in the within-mentioned Indenture, which has been registered as of _____.

U.S. BANK NATIONAL ASSOCIATION, as
Registrar

By _____
Authorized Officer

[FORM OF] ASSIGNMENT

For value received the undersigned do(es) hereby sell, assign and transfer unto the within-mentioned registered Bond and hereby irrevocably constitute(s) and appoint(s) attorney, to transfer the same on the books of the Registrar with full power of substitution in the premises.

Dated: _____

NOTICE: The signature on this Assignment must correspond with the name as it appears on the face of the within Bond in every particular, without alteration or enlargement or any change whatsoever.

Signature Guaranteed:

Social Security Number, Taxpayer Identification Number or other Identifying Number of Assignee:

Notice: Signature must be guaranteed by a member firm of the New York Stock Exchange or a commercial bank or trust company.

Note: Transfer fees must be paid to the Registrar in order to transfer or exchange this bond as provided in the within-mentioned Indenture.

GUAM WATERWORKS AUTHORITY

and

BANK OF GUAM,
as Trustee,

and

U.S. BANK NATIONAL ASSOCIATION,
as Co-Trustee

THIRD SUPPLEMENTAL INDENTURE

Dated as of December 1, 2013

Relating to

\$172,630,000
Guam Waterworks Authority
Water and Wastewater System Revenue Bonds
Series 2013

TABLE OF CONTENTS

	Page
ARTICLE XX	DEFINITIONS 2
SECTION 20.01	Definitions 2
ARTICLE XXI	AUTHORIZATION AND TERMS OF THE SERIES 2013 BONDS..... 3
SECTION 21.01	Authorization of Series 2013 Bonds 3
SECTION 21.02	Terms of Series 2013 Bonds; Appointments; Designations 3
SECTION 21.03	Terms of Redemption of the Series 2013 Bonds 5
SECTION 21.04	Special Covenants as to Book-Entry Only System for Series 2013 Bonds 7
ARTICLE XXII	ISSUANCE OF SERIES 2013 BONDS; APPLICATION OF PROCEEDS; FUNDS AND ACCOUNTS..... 9
SECTION 22.01	Issuance of Series 2013 Bonds 9
SECTION 22.02	Application of Proceeds of Series 2013 Bonds and Other Moneys 9
SECTION 22.03	Establishment of Funds and Accounts..... 9
ARTICLE XXIII	TAX COVENANTS..... 11
SECTION 23.01	2013 Rebate Account..... 11
SECTION 23.02	Tax Covenants for Series 2013 Bonds..... 11
SECTION 23.03	Continuing Disclosure 12
ARTICLE XXIV	AMENDMENT TO INDENTURE..... 12
SECTION 24.01	Amendment to Indenture to Remove Definition of and References to “Navy/GPA Surcharge.” 12
SECTION 24.02	Amendment and Restatement of Section 5.01(A) of the Indenture 12
SECTION 24.03	Amendment and Restatement of Section 5.02 of the Indenture 12
EXHIBIT A	FORM OF BOND i

THIS THIRD SUPPLEMENTAL INDENTURE, made and entered into and dated as of December 1, 2013, by and among the GUAM WATERWORKS AUTHORITY, a duly organized public corporation of the government of Guam (the "Authority"), BANK OF GUAM, a domestic banking corporation duly organized and existing under and by virtue of the laws of Guam, having a corporate trust office in Guam, and being qualified to accept and administer the trusts hereby created and to do business within Guam, as trustee (the "Trustee"), and U.S. BANK NATIONAL ASSOCIATION, a national banking association organized under the laws of the United States of America and qualified to accept and administer the trusts hereby created, as co-trustee (the "Co-Trustee"),

W I T N E S S E T H:

WHEREAS, pursuant to Article 2, Chapter 14 of Title 12 of the Guam Code Annotated (the "Act"), the Authority is authorized to issue and sell revenue bonds to raise funds for the purpose of acquiring, constructing, improving, equipping, maintaining, repairing, renewing, replacing, reconstructing or insuring the System (as defined in the Indenture), or any part thereof, or for the purpose of refunding any such bonds or any other prior obligations of the Authority, or for any combination of such purposes;

WHEREAS, the Authority has determined to issue revenue bonds for such purposes and to that end has duly entered into that certain Indenture, dated as of December 1, 2005 (the "Indenture"), between the Authority and the Trustee, to secure the payment of the principal thereof and the interest and premium, if any, thereon, and the observance of the covenants and conditions therein contained;

WHEREAS, revenue bonds may be issued pursuant to the Indenture and one or more indentures supplemental thereto ("Supplemental Indentures"), from time to time, in an aggregate principal amount not limited except as therein provided, and said revenue bonds are to be designated as the "Guam Waterworks Authority Water and Wastewater System Revenue Bonds" (the "Bonds");

WHEREAS, The Authority, the Trustee and the Co-Trustee have heretofore entered into a Supplemental Indenture dated as of December 1, 2005 pursuant to which \$101,175,000 aggregate principal amount of Bonds further designated as "Series 2005 Bonds" were issued and a Supplemental Indenture dated as of November 1, 2010, pursuant to which \$118,825,000 of Bonds further designated as "Series 2010 Bonds" were issued.

WHEREAS, it is now desirable and necessary and in the best interests of the Authority to authorize the issuance of \$172,630,000 aggregate principal amount of Bonds further designated as "Series 2013 Bonds" to raise funds for the purpose of acquiring, constructing, improving, equipping, maintaining, repairing, renewing, replacing and reconstructing parts of the System, fund capitalized interest on the Series 2013 Bonds, make a deposit into the Bond Reserve Fund, and pay costs of issuance;

WHEREAS, pursuant to and subject to the terms and conditions set forth in Public Law No. 28-71, as amended by Public Law Nos. 30-145 and 32-069, the Legislature of Guam (as required by Section 50103(k) of Title 12, Guam Code Annotated (the "GEDA Law")) approved the terms and conditions of the issuance of said Series 2013 Bonds, so long as the Series 2013 Bonds meet the requirements set forth in the Act;

WHEREAS, the Guam Economic Development Authority has approved the issuance and sale of said Series 2013 Bonds as required by the GEDA Law;

WHEREAS, Section 9.01(B) of the Indenture provides that the Indenture may be modified or amended at any time by a Supplemental Indenture which shall become binding upon adoption, without the consent of any Bondowners, but only to the extent permitted by law and as

permitted by said Section 9.01(B), including, among other things, to make any amendment or modification which shall not materially adversely affect the interests of the Owners of the Bonds or any Credit Provider;

WHEREAS, the Authority wishes to amend the Indenture to clarify that a Satisfaction of Judgment has been entered with respect to the obligations of the Authority under and pursuant to that certain Consent Decree, dated April 24, 2003 and the related Order dated May 9, 2003, relating to *United States of America v. Government of Guam* (settling a lawsuit filed on behalf of the U.S. Navy against the Government and the Authority) (collectively, the “Navy Lien”);

WHEREAS, the Authority has determined that such amendments will not materially adversely affect the interests of the Owners of the Bonds or any Credit Provider;

WHEREAS, the amendments effected by this Supplemental Indenture shall become effective upon the execution hereof;

WHEREAS, all acts, conditions and things required by the laws of the United States of America and the laws of Guam to exist, to have happened and to have been performed precedent to and in connection with the issuance of said Series 2013 Bonds exist, have happened, and have been performed in regular and due time, form and manner as required by law, and the Authority is now duly authorized and empowered, pursuant to each and every requirement of law, to issue said Bonds for the purpose, in the manner and upon the terms herein provided;

WHEREAS, no Event of Default (as defined in the Indenture) has occurred or is now occurring;

NOW, THEREFORE, THIS SUPPLEMENTAL INDENTURE WITNESSETH, in consideration of the premises and of the mutual covenants herein contained and of the purchase and acceptance of the Series 2013 Bonds by the owners thereof, and for other valuable considerations, the receipt of which is hereby acknowledged, the Authority does hereby covenant and agree with the Trustee and the Co-Trustee as follows:

ARTICLE XX

DEFINITIONS

SECTION 20.01 Definitions. Unless the context otherwise requires, the terms defined in the Indenture shall, for all purposes of this Supplemental Indenture and of any certificate, opinion or other document herein mentioned, have the meanings specified in the Indenture.

In addition, unless the context otherwise requires, the terms defined in this Section shall for all purposes of the Indenture and this Supplemental Indenture and of any certificate, opinion or other document herein mentioned, have the meanings herein specified.

Bond Year

“Bond Year” means, with respect to the Series 2013 Bonds, the period of twelve consecutive months ending on December 12 of each year if Series 2013 Bonds are or will be Outstanding in such twelve-month period; provided that the first Bond Year shall commence on the date of delivery of the Series 2013 Bonds and end on December 12, 2014.

DTC

“DTC” means The Depository Trust Company, New York, New York, and its successors and assigns.

Series 2013 Project

“Series 2013 Project” means, with respect to the Series 2013 Bonds, the acquisition, construction, improvement, equipping, maintenance, repair, renewal, replacement and reconstruction of those certain parts of the System to be funded with proceeds of the Series 2013 Bonds.

Series 2013 Bonds, Series 2013 Serial Bonds, Series 2013 Term Bonds

“Series 2013 Bonds” means the \$172,630,000 aggregate principal amount of Guam Waterworks Authority Water and Wastewater System Revenue Bonds, Series 2013.

“Series 2013 Serial Bonds” means the Series 2013 Bonds designated as Serial Bonds by Section 21.02, and for which no Mandatory Sinking Account Payments are provided.

“Series 2013 Term Bonds” means the Series 2013 Bonds designated as Term Bonds by Section 21.02, and for which Mandatory Sinking Account Payments are provided.

ARTICLE XXI

AUTHORIZATION AND TERMS OF THE SERIES 2013 BONDS

SECTION 21.01 Authorization of Series 2013 Bonds. A Series of Bonds is hereby authorized and created under the Act to raise funds for the Project Costs of the Series 2013 Project and to pay the Costs of Issuance of such Bonds. Such Series of Bonds is designated as the “Guam Waterworks Authority Water and Wastewater System Revenue Bonds, Series 2013”. The aggregate principal amount of Series 2013 Bonds which may be issued and Outstanding under this Supplemental Indenture shall not exceed \$172,630,000.

The Series 2013 Bonds shall be treated as a single Series under the Indenture.

SECTION 21.02 Terms of Series 2013 Bonds; Appointments; Designations.

(a) The Series 2013 Bonds shall be issued as fully registered Bonds without coupons in the denominations of \$5,000 or any integral multiple thereof. The Series 2013 Bonds shall be dated their date of delivery, and interest thereon (based on a 360-day year of twelve thirty-days months) shall be payable on January 1 and July 1 of each year, commencing July 1, 2014 (each, an “Interest Payment Date” for the Series 2013 Bonds).

(b) The Series 2013 Bonds shall mature on the dates and in the amounts and shall bear interest at the rates per annum specified in the following table:

Maturity Date (July 1)	Principal Amount	Interest Rate
2020	\$2,695,000	5.25%
2021	2,840,000	5.25
2022	2,990,000	5.25
2023	3,145,000	5.25
2024	3,315,000	5.25
2025	3,485,000	5.25
2028	11,565,000	5.00
2033	23,585,000	5.25
2043	119,010,000	5.50

(c) The Series 2013 Bonds maturing on July 1, 2020 through July 1, 2025 are Serial Bonds, and the Series 2013 Bonds maturing on July 1, 2028, July 1, 2033 and July 1, 2043 are Term Bonds.

(d) The Principal Payment Period for the Series 2013 Bonds shall be the twelve calendar months next preceding each maturity date or Mandatory Sinking Account Payment date for such Bonds.

(e) The Record Date for all scheduled payments of principal of and interest on the Series 2013 Bonds shall be the 15th day of the calendar month next preceding the date each such payment is due, whether or not such 15th day is a Business Day.

(f) The Co-Trustee is hereby appointed Paying Agent for the Series 2013 Bonds and Registrar for the Series 2013 Bonds, and the Co-Trustee's corporate trust office in Los Angeles, California is hereby designated as the Principal Office of the Co-Trustee. The Trustee is hereby appointed Depository for the Series 2013 Construction Account and the Series 2013 Capitalized Interest Account.

(g) The principal of and premium, if any, on each Series 2013 Bond shall be payable in lawful money of the United States of America to the Owner of such Bond, upon the surrender of such Bond at the Principal Office of any Paying Agent for such Bond. The interest on each Series 2013 Bond shall be payable in like lawful money to the person whose name appears on the bond registration books of the Registrar for such Bond as the Owner of such Bond as of the close of business on the Record Date for such Bond preceding the Interest Payment Date, whether or not such Record Date is a Business Day, such interest to be paid by check or mailed by first class mail to such Owner at such address as appears on such registration books or at such address as such Owner may have filed with the Registrar for that purpose. Upon the written request of a registered owner of one million dollars (\$1,000,000) or more in aggregate principal amount of Series 2013 Bonds, payment of interest on and principal (including Redemption Price) of such Bonds shall be made by wire transfer from the Paying Agent to the registered owner of such Bonds. Any such principal payment by wire transfer shall nevertheless be subject to prior surrender of the Series 2013 Bonds with respect to which such payment is made. Each payment of interest or principal on Series 2013 Bonds, whether by check, draft or wire transfer, shall be accompanied by information specifying for each maturity of such Bonds with respect to which such payment is being made, the amount and the CUSIP number (if available).

(h) Each Series 2013 Bond shall bear interest from the Interest Payment Date next preceding the date of authentication thereof unless it is authenticated as of a day during the period

from the Record Date preceding any Interest Payment Date to the Interest Payment Date, inclusive, in which event it shall bear interest from such Interest Payment Date, or unless it is authenticated on or before June 15, 2014, in which event it shall bear interest from its date of delivery; provided, however, that if, at the time of authentication of any Series 2013 Bond, interest is in default on Outstanding Bonds of such Series, such Bond shall bear interest from the Interest Payment Date to which interest has previously been paid or made available for payment on the Outstanding Bonds of such Series.

(i) The Series 2013 Bonds shall be subject to redemption as provided in Section 21.03.

(j) The Registrar for the Series 2013 Bonds shall assign each Series 2013 Bond authenticated and registered by it a distinctive letter, or number, or letter and number, and shall maintain a record thereof which shall be available to the Authority for inspection.

(k) The Series 2013 Bonds, the Registrar's certificate of authentication and registration and the form of assignment to appear thereon shall be in substantially the forms set forth in Exhibit A hereto, with necessary or appropriate variations, omissions and insertions as permitted or required by this Indenture.

SECTION 21.03 Terms of Redemption of the Series 2013 Bonds.

(a) Extraordinary Optional Redemption. The Series 2013 Bonds are subject to redemption on any date prior to their respective stated maturities, as a whole, or in part so that the reduction in Annual Debt Service for the Series 2013 Bonds for each Bond Year after such redemption shall be as nearly proportional as practicable, from and to the extent of proceeds received by the Authority due to a governmental taking of the System or portions thereof by eminent domain proceedings, if such amounts are not used for additions, improvements or extensions to the System, under the circumstances and upon the conditions and terms set forth in the Indenture, at the greater of par or Amortized Value, plus accrued interest to the date fixed for redemption, without premium. "Amortized Value" means on any interest payment date, the then current value of the bond amortizing the original issue premium over the period ending on the first call date using the constant yield method.

(b) Optional Redemption. The Series 2013 Bonds maturing on or after July 1, 2024 are subject to redemption prior to their respective stated maturities, at the option of the Authority, from any source of available moneys, on any date on or after July 1, 2023, as a whole, or in part by such maturities or portions of maturities as shall be determined by the Authority (or by lot within a maturity in the absence of such a determination), at a redemption price equal to the principal amount of each Series 2013 Bond called for redemption plus interest accrued to the date fixed for redemption, without premium.

(c) Mandatory Sinking Account Redemption. The Series 2013 Term Bonds maturing on July 1, 2028 are subject to redemption prior to their stated maturity in part, by lot, on July 1 of each year from Mandatory Sinking Account Payments, commencing July 1, 2026, at a redemption price equal to their principal amount, plus accrued interest thereon to the date fixed for redemption, without premium, in the years and in the amounts, as set forth below:

<u>Year</u>	<u>Amount</u>
2026	\$3,670,000
2027	\$3,850,000
2028†	\$4,045,000

† Final maturity.

The Series 2013 Term Bonds maturing on July 1, 2033 are subject to redemption prior to their stated maturity in part, by lot, on July 1 of each year from Mandatory Sinking Account Payments, commencing July 1, 2029, at a redemption price equal to their principal amount, plus accrued interest thereon to the date fixed for redemption, without premium, in the years and in the amounts, as set forth below:

<u>Year</u>	<u>Amount</u>
2029	\$4,250,000
2030	\$4,470,000
2031	\$4,705,000
2032	\$4,950,000
2033†	\$5,210,000

† Final maturity.

The Series 2013 Term Bonds maturing on July 1, 2043 are subject to redemption prior to their stated maturity in part, by lot, on July 1 of each year from Mandatory Sinking Account Payments, commencing July 1, 2034, at a redemption price equal to their principal amount, plus accrued interest thereon to the date fixed for redemption, without premium, in the years and in the amounts, as set forth below:

<u>Year</u>	<u>Amount</u>
2034	\$5,485,000
2035	\$5,790,000
2036	\$6,105,000
2037	\$6,440,000
2038	\$6,795,000
2039	\$7,170,000
2040	\$7,565,000
2041	\$23,250,000
2042	\$24,530,000
2043†	\$25,880,000

† Final maturity.

SECTION 21.04 Special Covenants as to Book-Entry Only System for Series 2013 Bonds. (a) Except as otherwise provided in subsections (b) and (c) of this Section 21.04, all of the Series 2013 Bonds initially issued shall be registered in the name of Cede & Co., as nominee for The Depository Trust Company, New York, New York (“DTC”), or such other nominee as DTC shall request pursuant to the Representation Letter. Payment of the interest on any Series 2013 Bond registered

in the name of Cede & Co. shall be made on each interest payment date for such Series 2013 Bonds to the account, in the manner and at the address indicated in or pursuant to the Representation Letter.

(b) The Series 2013 Bonds initially shall be issued in the form of a single authenticated fully registered bond for each stated maturity of each portion of such Series 2013 Bonds, representing the aggregate principal amount of the Series 2013 Bonds of such portion and maturity. Upon initial issuance, the ownership of all such Series 2013 Bonds shall be registered in the registration records maintained by the Registrar pursuant to Section 2.05 hereof in the name of Cede & Co., as nominee of DTC, or such other nominee as DTC shall request pursuant to the Representation Letter. The Trustee, the Co-Trustee, the Registrar, the Authority and any paying agent may treat DTC (or its nominee) as the sole and exclusive owner of the Series 2013 Bonds registered in its name for the purposes of payment of the principal or redemption price of and interest on such Series 2013 Bonds, selecting the Series 2013 Bonds or portions thereof to be redeemed, giving any notice permitted or required to be given to Bondowners hereunder, registering the transfer of Series 2013 Bonds, obtaining any consent or other action to be taken by Bondowners of the Series 2013 Bonds and for all other purposes whatsoever; and the Trustee, the Co-Trustee, the Registrar, the Authority and any paying agent shall not be affected by any notice to the contrary. Neither the Trustee, the Co-Trustee, the Authority nor any paying agent shall have any responsibility or obligation to any Participant (which shall mean, for purposes of this Section 21.04, securities brokers and dealers, banks, trust companies, clearing corporations and other entities, some of whom directly or indirectly own DTC), any person claiming a beneficial ownership interest in the Series 2013 Bonds under or through DTC or any Participant, or any other person which is not shown on the registration records as being a Bondowner, with respect to (i) the accuracy of any records maintained by DTC or any Participant, (ii) the payment by DTC or any Participant of any amount in respect of the principal or redemption price of or interest on the Series 2013 Bonds, (iii) any notice which is permitted or required to be given to Holders of Series 2013 Bonds hereunder, (iv) the selection by DTC or any Participant of any person to receive payment in the event of a partial redemption of the Series 2013 Bonds, or (v) any consent given or other action taken by DTC as Holder of Series 2013 Bonds. The Paying Agent shall pay all principal of and premium, if any, and interest on the Series 2013 Bonds only at the times, to the accounts, at the addresses and otherwise in accordance with the Representation Letter, and all such payments shall be valid and effective to satisfy fully and discharge the Authority's obligations with respect to the principal of and premium, if any, and interest on the Series 2013 Bonds to the extent of the sum or sums so paid. Upon delivery by DTC to the Trustee and Co-Trustee of written notice to the effect that DTC has determined to substitute a new nominee in place of its then existing nominee, the Series 2013 Bonds will be transferable to such new nominee in accordance with subsection (f) of this Section 21.04.

(c) In the event that the Authority elects to discontinue the book-entry system for any Series 2013 Bonds, the Trustee shall, upon the written instruction of the Authority, so notify DTC, whereupon DTC shall notify the Participants of the availability through DTC of bond certificates. In such event, such Series 2013 Bonds will be transferable in accordance with subsection (f) of this Section 21.04. DTC may determine to discontinue providing its services with respect to the Series 2013 Bonds at any time by giving written notice of such discontinuance to the Authority or the Trustee and Co-Trustee and discharging its responsibilities with respect thereto under applicable law. In such event, the Series 2013 Bonds will be transferable in accordance with subsection (f) of this Section 21.04. Whenever DTC requests the Authority, the Trustee and the Co-Trustee to do so, the Trustee, the Co-Trustee and the Authority will cooperate with DTC in taking appropriate action after reasonable notice to arrange for another securities depository to maintain custody of all certificates evidencing the Series 2013 Bonds then Outstanding. In such event, the Series 2013 Bonds will be transferable to such securities depository in accordance with subsection (f) of this Section 21.04, and

thereafter, all references in this Supplemental Indenture to DTC or its nominee shall be deemed to refer to such successor securities depository and its nominee, as appropriate.

(d) Notwithstanding any other provision of this Supplemental Indenture to the contrary, so long as all Series 2013 Bonds Outstanding are registered in the name of any nominee of DTC, all payments with respect to the principal of and premium, if any, and interest on each such Series 2013 Bond and all notices with respect to each such Series 2013 Bond shall be made and given, respectively, to DTC as provided in the Representation Letter.

(e) The Co-Trustee is hereby authorized and requested to execute and deliver the Representation Letter and, in connection with any successor nominee for DTC or any successor depository, enter into comparable arrangements, and shall have the same rights with respect to its actions thereunder as it has with respect to its actions under this Supplemental Indenture.

(f) In the event that any transfer or exchange of Series 2013 Bonds is authorized under subsection (b) or (c) of this Section 21.04, such transfer or exchange shall be accomplished upon receipt by the Registrar from the registered owner thereof of the Series 2013 Bonds to be transferred or exchanged and appropriate instruments of transfer to the permitted transferee, all in accordance with the applicable provisions of Sections 2.03 and 2.04 of the Indenture. In the event Series 2013 Bond certificates are issued to Holders other than Cede & Co., its successor as nominee for DTC as holder of all the Series 2013 Bonds, another securities depository as holder of all the Series 2013 Bonds, or the nominee of such successor securities depository, the provisions of Sections 2.03 and 2.04 of the Indenture shall also apply to, among other things, the registration, exchange and transfer of the Series 2013 Bonds and the method of payment of principal of, premium, if any, and interest on the Series 2013 Bonds.

ARTICLE XXII

ISSUANCE OF SERIES 2013 BONDS; APPLICATION OF PROCEEDS; FUNDS AND ACCOUNTS

SECTION 22.01 Issuance of Series 2013 Bonds. At any time after the execution and delivery of this Supplemental Indenture, the Authority may sell and execute and the Registrar for the Series 2013 Bonds shall authenticate and, upon the Order of the Authority, deliver the Series 2013 Bonds in an aggregate principal amount not to exceed \$172,630,000.

SECTION 22.02 Application of Proceeds of Series 2013 Bonds and Other Moneys. (a) The net proceeds received by the Authority from the sale of the Series 2013 Bonds in the amount of \$169,835,064.81 shall be deposited with the Trustee, who shall forthwith apply such proceeds in the following manner, as directed by a Request of the Authority:

(i) The Trustee shall deposit in the Series 2013 Capitalized Interest Account the amount of \$16,822,958.86;

(ii) the Trustee shall deposit in the Series 2013 Construction Account the amount of \$140,980,418.19 ; and

(iii) the Trustee shall transfer to the Co-Trustee, for deposit in the Bond Reserve Fund, the amount of \$12,031,687.76, which brings the total amount on deposit therein to \$27,306,018.76 , which is at least equal to the Bond Reserve Requirement.

(b) Pursuant to Section 5.06 of the Indenture, to the extent that moneys in the Bond Reserve Fund exceed the Bond Reserve Fund Requirement, income derived from the investment of the proceeds of the Series 2013 Bonds in the Bond Reserve Fund prior to the completion of the Series 2013 Project shall be deposited in the Series 2013 Construction Account; otherwise such income shall be transferred and deposited in the Revenue Fund.

SECTION 22.03 Establishment of Funds and Accounts.

(a) To ensure the proper application of such portion of proceeds from the sale of the Series 2013 Bonds to be applied to pay Project Costs of the Series 2013 Project, including Capitalized Interest on the Series 2013 Bonds, and to pay Costs of Issuance of the Series 2013 Bonds, there is hereby established within the Construction Fund the "Series 2013 Construction Account", which shall be held by the Trustee, as Depository therefor. To ensure the proper application of such proceeds from the sale of the Series 2013 Bonds to be applied to pay Capitalized Interest on the Series 2013 Bonds, there is hereby established within the Series 2013 Construction Account the "Series 2013 Capitalized Interest Account," which shall be held by the Trustee as Depository therefor.

(b) The monies set aside and placed in the Series 2013 Construction Account to be applied to the Project Costs of the Series 2013 Project shall be expended for the purposes of the Series 2013 Project and shall not be used for any other purpose whatsoever. The Depository shall reserve the amount of \$1,699,457.21 to pay Costs of Issuance of the Series 2013 Bonds; provided, however, that any of such funds that remain on deposit in the Series 2013 Construction Account 180 days after the Closing Date shall be applied to the Project Costs of the Series 2013 Project.

(i) Before any payment from the Series 2013 Construction Account shall be made by the Depository, the Authority shall file or cause to be filed with the Depository a requisition of the Authority (each a "Requisition"), such Requisition to be signed by the Chairperson or the General Manager or by any other officer of the Authority duly authorized by resolution of the Board for that purpose and to include (1) the item number of such payment; (2) the name and address of the person to whom each such payment is due, which may be the Authority in the case of reimbursement for costs theretofore paid by the Authority; (3) the respective amounts to be paid; (4) the purpose by general classification for which each obligation to be paid was incurred; and (5) that obligations in the stated amounts have been incurred by the Authority and are presently due and payable and that each item thereof is a proper charge against the Series 2013 Construction Account and has not been previously paid from said Account.

(ii) When the Authority determines that the Series 2013 Project has been completed, a Certificate of the Authority shall be delivered to the Depository by the Authority stating: (1) the fact and date of such completion; (2) that all of the Project Costs of the Series 2013 Project have been determined and paid (or that all of such costs have been paid less specified claims that are subject to dispute and for which a retention in the Series 2013 Construction Account is to be maintained in the full amount of such claims until such dispute is resolved); and (3) that the Depository is to transfer the remaining balance in the Series 2013 Construction Account, less the amount of any such retention, to the Co-Trustee for deposit to the Bond Reserve Fund, to the extent of any deficiency therein, and then to the Debt Service Fund.

(c) The Depository shall transfer all money in the Series 2013 Capitalized Interest Account to the Co-Trustee, and the Co-Trustee shall apply such money to pay interest due on the Series 2013 Bonds in accordance with the following schedule, provided that any amounts remaining in the Series 2013 Capitalized Interest Account after the final transfer shall be transferred to the Co-

Trustee for deposit in the Debt Service Fund and the Depository shall close the 2013 Capitalized Interest Account:

Series 2013 Capitalized Interest Schedule

<u>Date</u>	<u>Capitalized Interest Transfer Amount</u>
July 1, 2014	\$5,158,349.48
January 1, 2015	\$4,665,843.75
July 1, 2015	\$4,665,843.75
January 1, 2016*	Balance

* Final transfer

(d) As provided in Section 5.05 of the Indenture, the Series 2013 Bonds shall be payable from the Debt Service Fund, and, in accordance with Section 5.06 of the Indenture, the Series 2013 Bonds shall be secured by the Bond Reserve Fund.

ARTICLE XXIII

TAX COVENANTS

SECTION 23.01 2013 Rebate Account.

(A) The Trustee, as Depository for the Revenue Fund, shall establish and maintain within the Rebate Fund a separate subaccount designated as the “2013 Rebate Account.” There shall be deposited in the 2013 Rebate Account from amounts in the Operation and Maintenance Fund or other lawfully available moneys such amounts as are required to be deposited therein pursuant to the Tax Certificate delivered by the Authority in connection with the issuance of the Series 2013 Bonds. All money at any time deposited in the 2013 Rebate Account shall be held by the Trustee in trust, to the extent required to satisfy the Rebate Requirement for the Series 2013 Bonds (as defined in such Tax Certificate), for payment to the United States of America, and the United States of America is hereby granted a first lien on such money until such payment. All amounts required to be deposited into or on deposit in the 2013 Rebate Account shall be governed exclusively by this Section and by such Tax Certificate (which is incorporated herein by reference).

In the event that the amount in the 2013 Rebate Account exceeds the Rebate Requirement for the Series 2013 Bonds, upon the Request of the Authority, the Trustee shall transfer the excess from the 2013 Rebate Account to the Revenue Fund.

(B) Notwithstanding any provisions of this Section, if the Authority shall provide to the Trustee an opinion of Bond Counsel that any specified action required under this Section is no longer required or that some further or different action is required to maintain the exclusion from federal income tax of interest on any Series of Bonds, the Trustee and the Authority may conclusively rely on such opinion in complying with the requirements of this Section, and, notwithstanding Article IX of the Indenture, the covenants hereunder shall be deemed to be modified to that extent.

SECTION 23.02 Tax Covenants for Series 2013 Bonds. (A) The Authority intends that interest on the Series 2013 Bonds be excluded from gross income for federal income tax purposes, that the Series 2013 Bonds and the interest thereon be exempt from taxation by any state or

political subdivision or the District of Columbia and that interest on the Series 2013 Bonds not be treated as a specific preference item for purposes of the federal individual and corporate alternative minimum taxes. The Authority reserves the right to determine the desired tax status of any additional Series of Bonds.

(B) The Authority shall not use or permit the use of any proceeds of the Series 2013 Bonds or any other funds of the Authority, directly or indirectly, to acquire any securities or obligations, and shall not use or permit the use of any amounts received by the Authority in any manner, and shall not take or permit to be taken any other action or actions, which would cause any such Bond to be an “arbitrage bond” within the meaning of Section 148 of the Code or to be “federally guaranteed” within the meaning of Section 149(b) of the Code.

(C) The Authority shall at all times do and perform all acts and things permitted by law and this Indenture which are necessary or desirable in order to assure that interest paid on the Series 2013 Bonds (or on any of them) shall be excluded from gross income for federal income tax purposes and that interest paid on the Series 2013 Bonds shall not be treated as a specific preference item for purposes of the federal individual and corporate alternative minimum taxes.

SECTION 23.03 Continuing Disclosure. The Authority hereby covenants and agrees to comply with the Series 2013 Continuing Disclosure Agreement, by and between the Authority and the Co-Trustee (the “Series 2013 Continuing Disclosure Agreement”), as it may from time to time hereafter be amended or supplemented. Notwithstanding any other provision of the Indenture, failure of the Authority to comply with the requirements of the Series 2013 Continuing Disclosure Agreement shall not be considered an Event of Default and the Co-Trustee shall have no right to accelerate amounts due under the Indenture as a result thereof; provided, however, that the Trustee and the Owners of not less than 25% in principal amount of the Outstanding Series 2013 Bonds may take such action as may be necessary and appropriate, including seeking mandate or specific performance by court order, to cause the Authority to comply with its obligations in this Section with respect to the Series 2013 Continuing Disclosure Agreement.

ARTICLE XXIV

AMENDMENT TO INDENTURE

SECTION 24.01 Amendment to Indenture to Remove Definition of and References to “Navy/GPA Surcharge.”

(a) Section 1.01 of the Indenture is hereby amended to delete the definition of “Navy/GPA Surcharge” in its entirety.

(b) The Indenture is hereby amended to render all remaining references to the “Navy/GPA Surcharge” of no further force or effect.

SECTION 24.02 Amendment and Restatement of Section 5.01(A) of the Indenture. Section 5.01(A) of the Indenture is hereby amended and restated in its entirety as follows (for convenience of the reader, deleted text is shown as ~~italicized strikethrough~~ and inserted text is shown as **bold underlined**):

“SECTION 5.01 (A) Pledge and Assignment of Revenues; Revenue Fund. (A) ~~Subject only to the provisions of this Indenture permitting the application thereof for or to the purposes and on the terms and conditions set forth~~

~~herein and to the provisions of that certain Consent Decree dated April 24, 2003 and the related Order dated May 9, 2003, relating to United States of America v. Government of Guam (settling a lawsuit filed on behalf of the U.S. Navy against the Government and the Authority),~~ There are hereby pledged to secure the payment of the principal of, premium, if any, and interest on the Bonds in accordance with their terms and the provisions of this Indenture and the payment of Credit Agreement Payments and Parity Payment Agreement Payments in accordance with their terms, all of the Revenues. Said pledge shall constitute a lien on and security interest in such Revenues and shall attach, be perfected and be valid and binding from and after delivery by the applicable Registrar of the first Series of Bonds hereunder, without any physical delivery of such Revenues or further act.”


SECTION 24.03 Amendment and Restatement of Section 5.02 of the Indenture.

The introductory paragraph of Section 5.02 of the Indenture is hereby amended and restated in its entirety as follows (for convenience of the reader, deleted text is shown as ~~italicized strikethrough~~ and inserted text is shown as **bold underlined**):

“Allocation of Revenues. On or before the fifth day of each calendar month, ~~after providing for any amounts due under the Consent Decree described in Section 5.01 for which revenues from the Navy/GPA Surcharge are not available to pay,~~ the Depository for the Revenue Fund shall transfer from the Revenue Fund (to the Trustee as necessary) for deposit into one or more of the following respective separate funds, the following amounts in the following order of priority, the requirements of each such fund or account (including the making up of any deficiencies in any such fund or account resulting from lack of Revenues sufficient to make any earlier required deposit) at the time of deposit to be satisfied, and the results of such satisfaction being taken into account, before any transfer is made to any fund subordinate in priority:”

IN WITNESS WHEREOF, the GUAM WATERWORKS AUTHORITY has caused this Supplemental Indenture to be signed in its name by its duly authorized officers; and BANK OF GUAM and U.S. BANK NATIONAL ASSOCIATION, in token of their acceptance of the respective trusts created hereunder, and being hereby appointed by the GUAM WATERWORKS AUTHORITY to such trusts, have caused this Supplemental Indenture to be signed in their respective corporate names by one of their authorized officers, all as of the day and year first above written.

GUAM WATERWORKS AUTHORITY

By 
Chairperson of the Board

By 
General Manager

BANK OF GUAM, as Trustee

By _____
Authorized Officer

U.S. BANK NATIONAL ASSOCIATION,
as Co-Trustee

By _____
Authorized Officer

Third Supplemental Indenture – Guam Water Authority

IN WITNESS WHEREOF, the GUAM WATERWORKS AUTHORITY has caused this Supplemental Indenture to be signed in its name by its duly authorized officers; and BANK OF GUAM and U.S. BANK NATIONAL ASSOCIATION, in token of their acceptance of the respective trusts created hereunder, and being hereby appointed by the GUAM WATERWORKS AUTHORITY to such trusts, have caused this Supplemental Indenture to be signed in their respective corporate names by one of their authorized officers, all as of the day and year first above written.

GUAM WATERWORKS AUTHORITY

By _____
Chairperson of the Board

By _____
General Manager

BANK OF GUAM, as Trustee

By  _____
Authorized Officer

U.S. BANK NATIONAL ASSOCIATION,
as Co-Trustee

By _____
Authorized Officer

Third Supplemental Indenture – Guam Water Authority

IN WITNESS WHEREOF, the GUAM WATERWORKS AUTHORITY has caused this Supplemental Indenture to be signed in its name by its duly authorized officers; and BANK OF GUAM and U.S. BANK NATIONAL ASSOCIATION, in token of their acceptance of the respective trusts created hereunder, and being hereby appointed by the GUAM WATERWORKS AUTHORITY to such trusts, have caused this Supplemental Indenture to be signed in their respective corporate names by one of their authorized officers, all as of the day and year first above written.

GUAM WATERWORKS AUTHORITY

By _____
Chairperson of the Board

By _____
General Manager

BANK OF GUAM, as Trustee

By _____
Authorized Officer

U.S. BANK NATIONAL ASSOCIATION,
as Co-Trustee

By _____
Authorized Officer



The undersigned U.S. BANK NATIONAL ASSOCIATION, hereby accepts and agrees to perform the duties and obligations of Registrar and Paying Agent under this Supplemental Indenture.

U.S. BANK NATIONAL ASSOCIATION, as Registrar
and Paying Agent

By



Authorized Officer


Third Supplemental Indenture – Guam Water Authority

OHSUSA:754590185

The undersigned BANK OF GUAM, hereby accepts and agrees to perform the duties and obligations of Depositary for the Series 2013 Construction Account and for the Series 2013 Capitalized Interest Account under this Supplemental Indenture.

BANK OF GUAM, as Depositary

By


Authorized Officer

Third Supplemental Indenture – Guam Water Authority

OHSUSA:754590185.

EXHIBIT A
FORM OF BOND

No. R-____ \$ _____

GUAM WATERWORKS AUTHORITY
WATER AND WASTEWATER SYSTEM REVENUE BOND,
SERIES 2013

<u>INTEREST RATE</u>	<u>MATURITY DATE</u>	<u>DATED DATE</u>	<u>CUSIP</u>
	July 1, 20__	December 12, 2013	

Registered Owner: CEDE AND CO.

Principal Sum: Dollars

The GUAM WATERWORKS AUTHORITY, a duly organized public corporation of the government of Guam (herein called the "Authority"), for value received, hereby promises to pay (but only out of the Revenues pledged therefor as hereinafter mentioned) to the registered owner identified above or registered assigns, on the maturity date specified above (subject to any right of prior redemption hereinafter mentioned), the principal sum specified above in lawful money of the United States of America; and to pay interest thereon, in like lawful money and solely from said Revenues, from the Interest Payment Date next preceding the date of authentication of this Bond unless this Bond is authenticated as of a day during the period from the Record Date preceding any Interest Payment Date to the Interest Payment Date, inclusive, in which event it shall bear interest from such Interest Payment Date, or unless this Bond is authenticated on or before June 15, 2014, in which event it shall bear interest from its date of delivery, until payment of such principal sum shall be discharged as provided in the indenture hereinafter mentioned, at the interest rate specified above per annum, payable on January 1 and July 1 in each year, commencing July 1, 2014; provided, however, that if, at the time of authentication of this Bond, interest is in default hereon, this Bond shall bear interest from the Interest Payment Date to which interest has previously been paid or made available for payment. The principal (or redemption price) hereof is payable upon surrender hereof at the Principal Office of U.S. Bank National Association (herein called the "Paying Agent") in Los Angeles, California (or such other office as may be subsequently designated), and the interest hereon is payable by check or draft mailed by first class mail to the person in whose name this Bond is registered at the close of business on the fifteenth day of the month immediately preceding an interest payment date, at such person's address as it appears on the bond registration books of U.S. Bank National Association (herein called the "Registrar"). Upon the written request of a registered owner of \$1,000,000 or more in aggregate principal amount of Series 2013 Bonds, payment of interest on and principal (including redemption price) of such Bonds will be made by wire transfer as provided in the Indenture; provided that any such principal payment shall nevertheless be subject to prior surrender of the Series 2013 Bonds with respect to which such payment is made.

This Bond is one of a duly authorized issue of bonds of the Authority designated as the "Guam Waterworks Authority Water and Wastewater System Revenue Bonds" (herein called the "Bonds"), unlimited in aggregate principal amount, except as otherwise provided in the laws of the United States of America and the government of Guam and in the Indenture hereinafter mentioned, which issue of Bonds consists or may consist of one or more Series of varying dates, maturities, interest rates, and redemption and other provisions, all issued or to be issued pursuant to Article 2, Chapter 14 of Title 12 of the Guam Code Annotated, as amended, and that certain Indenture, dated as of December 1, 2005 (as heretofore and hereafter supplemented, the "Indenture"), by and between the Authority, Bank of

Guam, as trustee (herein called the “Trustee”) and U.S. Bank National Association, as co-trustee (herein called the “Co-Trustee”). This Bond is also one of a duly authorized series of Bonds additionally designated “Series 2013” (herein called the “Series 2013 Bonds”), in the aggregate principal amount of One Hundred Seventy-Two Million Six Hundred Thirty Thousand Dollars (\$172,630,000), all issued under the provisions of the Indenture the Third Supplemental Indenture, dated as of December 1, 2013, by and among the Authority, the Trustee and the Co-Trustee. Reference is hereby made to the Indenture (a copy of which is on file at said office of the Trustee), including all indentures supplemental thereto, for a description of the rights thereunder of the registered owners of the Bonds, of the nature and extent of the security and provisions for payment of the Bonds, of the rights, duties and immunities of the Trustee and other fiduciaries and of the rights and obligations of the Authority thereunder, to all the provisions of which Indenture the registered owner of this Bond, by acceptance hereof, assents and agrees.

The Bonds and the interest thereon (to the extent set forth in the Indenture) are payable solely from Revenues (as that term is defined in the Indenture) pledged as provided in the Indenture. Subject only to the provisions of the Indenture permitting the application thereof for or to the purposes and on the terms and conditions set forth therein, said Revenues are pledged under the Indenture to secure the payment of the principal of, premium, if any, and interest on the Bonds in accordance with their terms and the provisions of the Indenture and the payment of Credit Agreement Payments and Parity Payment Agreement Payments in accordance with their terms.

The Series 2013 Bonds are subject to redemption on any date prior to their respective stated maturities, as a whole, or in part so that the reduction in Annual Debt Service for the Series 2013 Bonds for each Bond Year after such redemption shall be as nearly proportional as practicable, from and to the extent of proceeds received by the Authority due to a governmental taking of the System or portions thereof by eminent domain proceedings, if such amounts are not used for additions, improvements or extensions to the System, under the circumstances and upon the conditions and terms set forth in the Indenture, at the greater of par or Amortized Value, plus accrued interest to the date fixed for redemption, without premium. “Amortized Value” means on any interest payment date, the then current value of the bond amortizing the original issue premium over the period ending on the first call date using the constant yield method.

The Series 2013 Bonds maturing on or after July 1, 2024 are subject to redemption prior to their respective stated maturities, at the option of the Authority, from any source of available moneys, on any date on or after July 1, 2023, as a whole, or in part by such maturities or portions of maturities as shall be determined by the Authority (or by lot within a maturity in the absence of such a determination), at a redemption price equal to the principal amount of each Series 2013 Bond called for redemption plus interest accrued to the date fixed for redemption, without premium.

The Series 2013 Bonds maturing on July 1, 2028, July 1, 2033 and July 1, 2043 are subject to redemption prior to their stated maturity in part, by lot, on July 1 of each year from Mandatory Sinking Account Payments, commencing July 1, 2026 July 1, 2029 and July 1, 2034, respectively, at a redemption price equal to the Mandatory Sinking Account Payment amount for such date set forth in the Indenture, plus accrued interest thereon to the date fixed for redemption, without premium.

Notice of any redemption, identifying the Bonds or portions thereof to be redeemed, shall be given by the Registrar not less than 30 nor more than 60 days before the date fixed for redemption by first class mail to each of the registered owners of Bonds designated for redemption at their addresses appearing on the bond registration books of the Registrar on the date the Bonds to be redeemed are selected. Receipt of such notice by such registered owners shall not be a condition precedent to such redemption.

If this Bond is called for redemption and payment is duly provided herefor as specified in the Indenture, interest shall cease to accrue hereon from and after the date fixed for redemption.

The Series 2013 Bonds are issuable only in fully registered form in denominations of \$5,000 or any integral multiple thereof. Subject to the limitations and upon payment of the charges, if any, provided in the Indenture, this Bond may be exchanged, at the Principal Office of the Registrar, in Los Angeles, California, or such other office as the Registrar shall designate, for a new fully registered Bond or Bonds, of the same Series, maturity and tenor and of any authorized denomination or denominations and for the aggregate principal amount of this Bond then remaining outstanding.

This Bond is transferable by the registered owner hereof, in person or by its attorney duly authorized in writing, at said office of the Registrar, but only in the manner, subject to the limitations and upon payment of the charges, if any, provided in the Indenture, and upon surrender and cancellation of this Bond. Upon such transfer a new registered Bond or Bonds, of the same Series and maturity and of any authorized denomination or denominations and for the same aggregate principal amount of this Bond then remaining outstanding, will be issued to the transferee in exchange therefor. The Registrar shall not be required to register the transfer of this Bond during the period established by the Trustee for the selection of Bonds for redemption or at any time after selection of this Bond for redemption.

The Authority, the Trustee, the Paying Agent and the Registrar may treat the registered owner hereof as the absolute owner hereof for all purposes, and neither the Authority, the Paying Agent nor the Registrar shall be affected by any notice to the contrary.

The Indenture and the rights and obligations of the Authority, the registered owners of the Bonds, the Trustee, the Registrar and other fiduciaries may be modified or amended at any time in the manner, to the extent, and upon the terms provided in the Indenture, provided that no such modification or amendment shall (a) extend the fixed maturities of the Bonds, or extend the time for making any Mandatory Sinking Account Payments, or reduce the rate of interest thereon, or extend the time of payment of interest, or reduce the amount of principal thereof, or reduce any premium payable on the redemption thereof, without the consent of the Owner of each Bond so affected, (b) reduce the aforesaid percentage of Owners of Bonds whose consent is required for the execution of any amendment or modification of this Indenture or permit the creation of any lien on the Revenues prior to or on a parity with the lien created by this Indenture or deprive the Owners of the Bonds of the lien created by this Indenture upon such Revenues, without in each case the consent of the Owners of all of the Bonds then Outstanding.

The Bonds are limited obligations of the Authority, payable solely from and secured by a pledge of the Revenues as provided in the Indenture. The Bonds are not a legal or equitable pledge, charge, lien or encumbrance upon any property of the Authority or upon any of its income, receipts or revenues except the Revenues pledged to the payment thereof as provided in the Indenture.

Neither the Government of Guam nor any political subdivision thereof is obligated to pay the principal of, Redemption Price, if applicable, or interest on the Bonds, except from Revenues, and neither the Authority, the Government of Guam nor any political subdivision thereof has pledged its faith or credit to the payment of the principal of, redemption price, if applicable, or interest on the Bonds.

This Bond shall not be entitled to any benefit under the Indenture, or become valid or obligatory for any purpose, until the certificate of authentication and registration hereon endorsed shall have been dated and signed by the Registrar.

It is hereby certified and recited that any and all conditions, things and acts required to exist, to have happened and to have been performed precedent to and in the issuance of this Bond exist, have happened and have been performed in due time, form and manner as required by the laws of the United States of America and the government of Guam, and that the amount of this Bond, together with all other indebtedness of the Authority, does not exceed any limit prescribed by such laws, and is not in excess of the amount of Bonds permitted to be issued under the Indenture.

IN WITNESS WHEREOF, the GUAM WATERWORKS AUTHORITY has caused this Bond to be executed in its name and on its behalf by the manual or facsimile signature of the Chairman of the Consolidated Commission on Utilities and the Chief Financial Officer of the Authority, all as of the dated date first set forth above.

GUAM WATERWORKS AUTHORITY

By _____
Chairman of the Board of Directors

By _____
Chief Financial Officer

[FORM OF] CERTIFICATE OF AUTHENTICATION AND REGISTRATION

This is one of the Bonds described in the within-mentioned Indenture, which has been registered as of _____.

U.S. BANK NATIONAL ASSOCIATION, as
Registrar

By _____
Authorized Officer

[FORM OF] ASSIGNMENT

For value received the undersigned do(es) hereby sell, assign and transfer unto the within-mentioned registered Bond and hereby irrevocably constitute(s) and appoint(s) attorney, to transfer the same on the books of the Registrar with full power of substitution in the premises.

Dated: _____

NOTICE: The signature on this Assignment must correspond with the name as it appears on the face of the within Bond in every particular, without alteration or enlargement or any change whatsoever.

Signature Guaranteed:

Social Security Number, Taxpayer Identification Number or other Identifying Number of Assignee:

Notice: Signature must be guaranteed by a member firm of the New York Stock Exchange or a commercial bank or trust company.

Note: Transfer fees must be paid to the Registrar in order to transfer or exchange this bond as provided in the within-mentioned Indenture.

GUAM WATERWORKS AUTHORITY

and

BANK OF GUAM,
as Trustee,

and

U.S. BANK NATIONAL ASSOCIATION,
as Co-Trustee

FOURTH SUPPLEMENTAL INDENTURE

Dated as of August 1, 2014

Relating to

\$70,000,000
Guam Waterworks Authority
Water and Wastewater System Revenue Refunding Bonds
Series 2014A

and

\$15,600,000
Guam Waterworks Authority
Water and Wastewater System Revenue Refunding Bonds
Series 2014B (Taxable)

TABLE OF CONTENTS

	Page
ARTICLE XXV DEFINITIONS	2
SECTION 25.01 Definitions	2
ARTICLE XXVI AUTHORIZATION AND TERMS OF THE SERIES 2014 BONDS.....	3
SECTION 26.01 Authorization of Series 2014 Bonds	3
SECTION 26.02 Terms of Series 2014 Bonds; Appointments; Designations	3
SECTION 26.03 Terms of Redemption of the Series 2014 Bonds	5
SECTION 26.04 Special Covenants as to Book-Entry Only System for Series 2014 Bonds	5
ARTICLE XXVII ISSUANCE OF Series 2014 Bonds; APPLICATION OF PROCEEDS; FUNDS AND ACCOUNTS	7
SECTION 27.01 Issuance of Series 2014 Bonds	7
SECTION 27.02 Application of Proceeds of Series 2014 Bonds and Other Moneys	7
SECTION 27.03 Establishment of Funds and Accounts	7
ARTICLE XXVIII TAX COVENANTS.....	8
SECTION 28.01 2014 Rebate Account.....	8
SECTION 28.02 Tax Covenants for Series 2014 Bonds.....	8
SECTION 28.03 Continuing Disclosure	9
EXHIBIT A FORM OF BOND	A-1

THIS FOURTH SUPPLEMENTAL INDENTURE, made and entered into and dated as of August 1, 2014, by and among the GUAM WATERWORKS AUTHORITY, a duly organized public corporation of the government of Guam (the "Authority"), BANK OF GUAM, a domestic banking corporation duly organized and existing under and by virtue of the laws of Guam, having a corporate trust office in Guam, and being qualified to accept and administer the trusts hereby created and to do business within Guam, as trustee (the "Trustee"), and U.S. BANK NATIONAL ASSOCIATION, a national banking association organized under the laws of the United States of America and qualified to accept and administer the trusts hereby created, as co-trustee (the "Co-Trustee"),

W I T N E S S E T H:

WHEREAS, pursuant to Article 2, Chapter 14 of Title 12 of the Guam Code Annotated (the "Act"), the Authority is authorized to issue and sell revenue bonds to raise funds for the purpose of acquiring, constructing, improving, equipping, maintaining, repairing, renewing, replacing, reconstructing or insuring the System (as defined in the Indenture), or any part thereof, or for the purpose of refunding any such bonds or any other prior obligations of the Authority, or for any combination of such purposes;

WHEREAS, the Authority has determined to issue revenue bonds for such purposes and to that end has duly entered into that certain Indenture, dated as of December 1, 2005 (the "Indenture"), between the Authority and the Trustee, to secure the payment of the principal thereof and the interest and premium, if any, thereon, and the observance of the covenants and conditions therein contained;

WHEREAS, revenue bonds may be issued pursuant to the Indenture and one or more indentures supplemental thereto ("Supplemental Indentures"), from time to time, in an aggregate principal amount not limited except as therein provided, and said revenue bonds are to be designated as the "Guam Waterworks Authority Water and Wastewater System Revenue Bonds" (the "Bonds");

WHEREAS, the Authority, the Trustee and the Co-Trustee have heretofore entered into a Supplemental Indenture dated as of December 1, 2005 pursuant to which \$101,175,000 aggregate principal amount of Bonds further designated as "Series 2005 Bonds" were issued, a Supplemental Indenture dated as of November 1, 2010, pursuant to which \$118,825,000 of Bonds further designated as "Series 2010 Bonds" were issued, and a Third Supplemental Indenture dated as of December 1, 2013, pursuant to which \$172,630,000 of Bonds further designated as "Series 2013 Bonds" were issued;

WHEREAS, it is now desirable and necessary and in the best interests of the Authority to authorize the issuance of \$70,000,000 aggregate principal amount of Bonds further designated as "Series 2014A Bonds" (the "Series 2014A Bonds") and \$15,600,000 aggregate principal amount of Bonds further designated as "Series 2014B Bonds (Taxable)" (the "Series 2014B Bonds" and, together with the Series 2014A Bonds, collectively, the "Series 2014 Bonds") to raise funds for the purpose of refunding all of the remaining Outstanding Series 2005 Bonds and paying costs of issuance;

WHEREAS, pursuant to and subject to the terms and conditions set forth in Public Law No. 28-71, as amended by Public Law Nos. 30-145 and 32-069, the Legislature of Guam (as required by Section 50103(k) of Title 12, Guam Code Annotated (the "GEDA Law")) approved the terms and conditions of the issuance of said Series 2014 Bonds, so long as the Series 2014 Bonds meet the requirements set forth in the Act;

WHEREAS, the Guam Economic Development Authority has approved the issuance and sale of said Series 2014 Bonds as required by the GEDA Law;

WHEREAS, all acts, conditions and things required by the laws of the United States of America and the laws of Guam to exist, to have happened and to have been performed precedent to and in connection with the issuance of said Series 2014 Bonds exist, have happened, and have been performed in regular and due time, form and manner as required by law, and the Authority is now duly authorized and empowered, pursuant to each and every requirement of law, to issue said Bonds for the purpose, in the manner and upon the terms herein provided;

WHEREAS, no Event of Default (as defined in the Indenture) has occurred or is now occurring;

NOW, THEREFORE, THIS SUPPLEMENTAL INDENTURE WITNESSETH, in consideration of the premises and of the mutual covenants herein contained and of the purchase and acceptance of the Series 2014 Bonds by the owners thereof, and for other valuable considerations, the receipt of which is hereby acknowledged, the Authority does hereby covenant and agree with the Trustee and the Co-Trustee as follows:

ARTICLE XXV

DEFINITIONS

SECTION 25.01 Definitions. Unless the context otherwise requires, the terms defined in the Indenture shall, for all purposes of this Supplemental Indenture and of any certificate, opinion or other document herein mentioned, have the meanings specified in the Indenture.

In addition, unless the context otherwise requires, the terms defined in this Section shall for all purposes of the Indenture and this Supplemental Indenture and of any certificate, opinion or other document herein mentioned, have the meanings herein specified.

Bond Year

“Bond Year” means, with respect to the Series 2014 Bonds, the period of twelve consecutive months ending on August 7 of each year if Series 2014 Bonds are or will be Outstanding in such twelve-month period; provided that the first Bond Year shall commence on the date of delivery of the Series 2014 Bonds and end on August 7, 2015.

DTC

“DTC” means The Depository Trust Company, New York, New York, and its successors and assigns.

Escrow Agent

“Escrow Agent” means, with respect to the Series 2014 Bonds, the Co-Trustee in its capacity as Escrow Agent under the 2005 Escrow Agreement.

Series 2014 Bonds, Series 2014A Bonds, Series 2014B Bonds, Series 2014 Serial Bonds, Series 2014 Term Bonds

“Series 2014A Bonds” means the \$70,000,000 aggregate principal amount of Guam Waterworks Authority Water and Wastewater System Revenue Refunding Bonds, Series 2014A.

“Series 2014B Bonds” means the \$15,600,000 aggregate principal amount of Guam Waterworks Authority Water and Wastewater System Revenue Refunding Bonds, Series 2014B (Taxable).

“Series 2014 Bonds” means, collectively, the Series 2014A Bonds and the Series 2014B Bonds.

“Series 2014 Serial Bonds” means the Series 2014 Bonds designated as Serial Bonds by Section 25.02, and for which no Mandatory Sinking Account Payments are provided.

“Series 2014 Term Bonds” means the Series 2014 Bonds designated as Term Bonds by Section 25.02, and for which Mandatory Sinking Account Payments are provided.

2005 Bond Escrow Fund

“2005 Bond Escrow Fund” means the fund by such name established pursuant to the 2005 Escrow Agreement.

2005 Escrow Agreement

“2005 Escrow Agreement” means, with respect to the Series 2014 Bonds, that certain Escrow Agreement, dated as of August 1, 2014, executed by the Authority and the Co-Trustee, as escrow agent thereunder, relating to the refunding of the Series 2005 Bonds to be refunded.

ARTICLE XXVI

AUTHORIZATION AND TERMS OF THE SERIES 2014 BONDS

SECTION 26.01 Authorization of Series 2014 Bonds. Two Series of Bonds are hereby authorized and created under the Act to raise funds for the purpose of refunding the Series 2005 Bonds remaining outstanding and to pay related Costs of Issuance. Such Series of Bonds are further designated as the “Guam Waterworks Authority Water and Wastewater System Revenue Refunding Bonds Series 2014A” and “Guam Waterworks Authority Water and Wastewater System Revenue Refunding Bonds Series 2014B (Taxable).” The aggregate principal amount of Series 2014 Bonds which may be issued and Outstanding under this Supplemental Indenture shall not exceed \$85,600,000.

The Series 2014 Bonds shall be treated as a single Series under the Indenture.

SECTION 26.02 Terms of Series 2014 Bonds; Appointments; Designations.

(a) The Series 2014 Bonds shall be issued as fully registered Bonds without coupons in the denominations of \$5,000 or any integral multiple thereof. The Series 2014 Bonds shall be dated their date of delivery, and interest thereon (based on a 360-day year of twelve thirty-days months) shall be payable on January 1 and July 1 of each year, commencing January 1, 2015 (each, an “Interest Payment Date” for the Series 2014 Bonds).

(b) The Series 2014A Bonds shall mature on the dates and in the amounts and shall bear interest at the rates per annum specified in the following table:

Maturity Date (July 1)	Principal Amount	Interest Rate
2019	\$1,100,000	5.0%
2020	3,760,000	5.0
2021	530,000	5.0
2022	555,000	5.0
2023	4,005,000	5.0
2024	4,205,000	5.0
2025	4,410,000	5.0
2029	19,970,000	5.0
2035	31,465,000	5.0

(c) The Series 2014A Bonds maturing on July 1, 2019 through and including July 1, 2025 are Serial Bonds, and the Series 2014A Bonds maturing on July 1, 2029 and July 1, 2035 are Term Bonds.

(d) The Series 2014B Bonds, which are Serial Bonds, shall mature on the dates and in the amounts and shall bear interest at the rates per annum specified in the following table:

Maturity Date (July 1)	Principal Amount	Interest Rate
2015	\$2,900,000	1.580%
2016	3,320,000	1.880
2017	3,385,000	2.516
2018	3,475,000	3.061
2019	2,520,000	3.511

(e) The Principal Payment Period for the Series 2014 Bonds shall be the twelve calendar months next preceding each maturity date or Mandatory Sinking Account Payment date for such Bonds.

(f) The Record Date for all scheduled payments of principal of and interest on the Series 2014 Bonds shall be the 15th day of the calendar month next preceding the date each such payment is due, whether or not such 15th day is a Business Day.

(g) The Co-Trustee is hereby appointed Paying Agent for the Series 2014 Bonds and Registrar for the Series 2014 Bonds, and the Co-Trustee's corporate trust office in Los Angeles, California, is hereby designated as the Principal Office of the Co-Trustee.

(h) The principal of and premium, if any, on each Series 2014 Bond shall be payable in lawful money of the United States of America to the Owner of such Bond, upon the surrender of such Bond at the Principal Office of any Paying Agent for such Bond. The interest on each Series 2014 Bond shall be payable in like lawful money to the person whose name appears on the bond registration books of the Registrar for such Bond as the Owner of such Bond as of the close of business on the Record Date for such Bond preceding the Interest Payment Date, whether or not such Record Date is a Business Day, such interest to be paid by check or mailed by first class mail to such Owner at such address as appears on such registration books or at such address as such Owner may have filed with the Registrar for that purpose. Upon the written request of a registered owner of one

million dollars (\$1,000,000) or more in aggregate principal amount of Series 2014 Bonds, payment of interest on and principal (including Redemption Price) of such Bonds shall be made by wire transfer from the Paying Agent to the registered owner of such Bonds. Any such principal payment by wire transfer shall nevertheless be subject to prior surrender of the Series 2014 Bonds with respect to which such payment is made. Each payment of interest or principal on Series 2014 Bonds, whether by check, draft or wire transfer, shall be accompanied by information specifying for each maturity of such Bonds with respect to which such payment is being made, the amount and the CUSIP number (if available).

(i) Each Series 2014 Bond shall bear interest from the Interest Payment Date next preceding the date of authentication thereof unless it is authenticated as of a day during the period from the Record Date preceding any Interest Payment Date to the Interest Payment Date, inclusive, in which event it shall bear interest from such Interest Payment Date, or unless it is authenticated on or before December 15, 2014, in which event it shall bear interest from its date of delivery; provided, however, that if, at the time of authentication of any Series 2014 Bond, interest is in default on Outstanding Bonds of such Series, such Bond shall bear interest from the Interest Payment Date to which interest has previously been paid or made available for payment on the Outstanding Bonds of such Series.

(j) The Series 2014 Bonds shall be subject to redemption as provided in Section 26.03.

(k) The Registrar for the Series 2014 Bonds shall assign each Series 2014 Bond authenticated and registered by it a distinctive letter, or number, or letter and number, and shall maintain a record thereof which shall be available to the Authority for inspection.

(l) The Series 2014 Bonds, the Registrar's certificate of authentication and registration and the form of assignment to appear thereon shall be in substantially the forms set forth in Exhibit A hereto, with necessary or appropriate variations, omissions and insertions as permitted or required by this Indenture.

SECTION 26.03 Terms of Redemption of the Series 2014 Bonds.

(a) Extraordinary Optional Redemption. The Series 2014 Bonds are subject to redemption on any date prior to their respective stated maturities, as a whole, or in part so that the reduction in Annual Debt Service for the Series 2014 Bonds for each Bond Year after such redemption shall be as nearly proportional as practicable, from and to the extent of proceeds received by the Authority due to a governmental taking of the System or portions thereof by eminent domain proceedings, if such amounts are not used for additions, improvements or extensions to the System, under the circumstances and upon the conditions and terms set forth in the Indenture, at the greater of par or Amortized Value, plus accrued interest to the date fixed for redemption, without premium. "Amortized Value" means on any interest payment date, the then current value of the bond amortizing the original issue premium over the period ending on the first call date using the constant yield method.

(b) Optional Redemption. The Series 2014 Bonds maturing on or after July 1, 2025 are subject to redemption prior to their respective stated maturities, at the option of the Authority, from any source of available moneys, on any date on or after July 1, 2024, as a whole, or in part by such maturities or portions of maturities as shall be determined by the Authority (or by lot within a maturity in the absence of such a determination), at a redemption price equal to the principal amount of each Series 2014 Bond called for redemption plus interest accrued to the date fixed for redemption, without premium.

(c) Mandatory Sinking Account Redemption. The Series 2014A Term Bonds maturing on July 1, 2029 are subject to redemption prior to their stated maturity in part, by lot, on July 1 of each year from Mandatory Sinking Account Payments, commencing July 1, 2026, at a redemption price equal to their principal amount, plus accrued interest thereon to the date fixed for redemption, without premium, in the years and in the amounts, as set forth below:

<u>Year</u>	<u>Amount</u>
2026	\$4,630,000
2027	4,865,000
2028	5,110,000
2029†	5,365,000

† Final maturity.

(d) Mandatory Sinking Account Redemption. The Series 2014A Term Bonds maturing on July 1, 2035 are subject to redemption prior to their stated maturity in part, by lot, on July 1 of each year from Mandatory Sinking Account Payments, commencing July 1, 2030, at a redemption price equal to their principal amount, plus accrued interest thereon to the date fixed for redemption, without premium, in the years and in the amounts, as set forth below:

<u>Year</u>	<u>Amount</u>
2030	\$5,630,000
2031	5,915,000
2032	6,205,000
2033	6,520,000
2034	6,845,000
2035†	350,000

† Final maturity.

SECTION 26.04 Special Covenants as to Book-Entry Only System for Series 2014 Bonds. (a) Except as otherwise provided in subsections (b) and (c) of this Section 26.04, all of the Series 2014 Bonds initially issued shall be registered in the name of Cede & Co., as nominee for The Depository Trust Company, New York, New York (“DTC”), or such other nominee as DTC shall request pursuant to the Representation Letter. Payment of the interest on any Series 2014 Bond registered in the name of Cede & Co. shall be made on each interest payment date for such Series 2014 Bonds to the account, in the manner and at the address indicated in or pursuant to the Representation Letter.

(b) The Series 2014 Bonds initially shall be issued in the form of a single authenticated fully registered bond for each stated maturity of each portion of each series of Series 2014 Bonds, representing the aggregate principal amount of the Series 2014 Bonds of such portion, series and maturity. Upon initial issuance, the ownership of all such Series 2014 Bonds shall be registered in the registration records maintained by the Registrar pursuant to Section 2.05 hereof in the name of Cede & Co., as nominee of DTC, or such other nominee as DTC shall request pursuant to the Representation Letter. The Trustee, the Co-Trustee, the Registrar, the Authority and any paying agent may treat DTC (or its nominee) as the sole and exclusive owner of the Series 2014 Bonds registered in its name for the purposes of payment of the principal or redemption price of and interest on such Series 2014 Bonds, selecting the Series 2014 Bonds or portions thereof to be redeemed, giving any notice permitted or required to be given to Bondowners hereunder, registering the transfer of Series 2014 Bonds, obtaining any consent or other action to be taken by Bondowners of the Series 2014

Bonds and for all other purposes whatsoever; and the Trustee, the Co-Trustee, the Registrar, the Authority and any paying agent shall not be affected by any notice to the contrary. Neither the Trustee, the Co-Trustee, the Authority nor any paying agent shall have any responsibility or obligation to any Participant (which shall mean, for purposes of this Section 26.04, securities brokers and dealers, banks, trust companies, clearing corporations and other entities, some of whom directly or indirectly own DTC), any person claiming a beneficial ownership interest in the Series 2014 Bonds under or through DTC or any Participant, or any other person which is not shown on the registration records as being a Bondowner, with respect to (i) the accuracy of any records maintained by DTC or any Participant, (ii) the payment by DTC or any Participant of any amount in respect of the principal or redemption price of or interest on the Series 2014 Bonds, (iii) any notice which is permitted or required to be given to Holders of Series 2014 Bonds hereunder, (iv) the selection by DTC or any Participant of any person to receive payment in the event of a partial redemption of the Series 2014 Bonds, or (v) any consent given or other action taken by DTC as Holder of Series 2014 Bonds. The Paying Agent shall pay all principal of and premium, if any, and interest on the Series 2014 Bonds only at the times, to the accounts, at the addresses and otherwise in accordance with the Representation Letter, and all such payments shall be valid and effective to satisfy fully and discharge the Authority's obligations with respect to the principal of and premium, if any, and interest on the Series 2014 Bonds to the extent of the sum or sums so paid. Upon delivery by DTC to the Trustee and Co-Trustee of written notice to the effect that DTC has determined to substitute a new nominee in place of its then existing nominee, the Series 2014 Bonds will be transferable to such new nominee in accordance with subsection (f) of this Section 26.04.

(c) In the event that the Authority elects to discontinue the book-entry system for any Series 2014 Bonds, the Trustee shall, upon the written instruction of the Authority, so notify DTC, whereupon DTC shall notify the Participants of the availability through DTC of bond certificates. In such event, such Series 2014 Bonds will be transferable in accordance with subsection (f) of this Section 26.04. DTC may determine to discontinue providing its services with respect to the Series 2014 Bonds at any time by giving written notice of such discontinuance to the Authority or the Trustee and Co-Trustee and discharging its responsibilities with respect thereto under applicable law. In such event, the Series 2014 Bonds will be transferable in accordance with subsection (f) of this Section 26.04. Whenever DTC requests the Authority, the Trustee and the Co-Trustee to do so, the Trustee, the Co-Trustee and the Authority will cooperate with DTC in taking appropriate action after reasonable notice to arrange for another securities depository to maintain custody of all certificates evidencing the Series 2014 Bonds then Outstanding. In such event, the Series 2014 Bonds will be transferable to such securities depository in accordance with subsection (f) of this Section 26.04, and thereafter, all references in this Supplemental Indenture to DTC or its nominee shall be deemed to refer to such successor securities depository and its nominee, as appropriate.

(d) Notwithstanding any other provision of this Supplemental Indenture to the contrary, so long as all Series 2014 Bonds Outstanding are registered in the name of any nominee of DTC, all payments with respect to the principal of and premium, if any, and interest on each such Series 2014 Bond and all notices with respect to each such Series 2014 Bond shall be made and given, respectively, to DTC as provided in the Representation Letter.

(e) The Co-Trustee is hereby authorized and requested to execute and deliver the Representation Letter and, in connection with any successor nominee for DTC or any successor depository, enter into comparable arrangements, and shall have the same rights with respect to its actions thereunder as it has with respect to its actions under this Supplemental Indenture.

(f) In the event that any transfer or exchange of Series 2014 Bonds is authorized under subsection (b) or (c) of this Section 26.04, such transfer or exchange shall be accomplished upon

receipt by the Registrar from the registered owner thereof of the Series 2014 Bonds to be transferred or exchanged and appropriate instruments of transfer to the permitted transferee, all in accordance with the applicable provisions of Sections 2.03 and 2.04 of the Indenture. In the event Series 2014 Bond certificates are issued to Holders other than Cede & Co., its successor as nominee for DTC as holder of all the Series 2014 Bonds, another securities depository as holder of all the Series 2014 Bonds, or the nominee of such successor securities depository, the provisions of Sections 2.03 and 2.04 of the Indenture shall also apply to, among other things, the registration, exchange and transfer of the Series 2014 Bonds and the method of payment of principal of, premium, if any, and interest on the Series 2014 Bonds.

ARTICLE XXVII

ISSUANCE OF SERIES 2014 BONDS; APPLICATION OF PROCEEDS; FUNDS AND ACCOUNTS

SECTION 27.01 Issuance of Series 2014 Bonds. At any time after the execution and delivery of this Fourth Supplemental Indenture, the Authority may sell and execute and the Registrar for the Series 2014 Bonds shall authenticate and, upon the Order of the Authority, deliver the Series 2014 Bonds in an aggregate principal amount not to exceed \$85,600,000.

SECTION 27.02 Application of Proceeds of Series 2014 Bonds and Other Moneys. The net proceeds received by the Authority from the sale of the Series 2014 Bonds in the amount of \$90,489,848.38 shall be deposited with the Co-Trustee, who shall forthwith apply such proceeds in the following manner, as directed by a Request of the Authority:

(a) the Co-Trustee shall transfer to the Trustee, for deposit in the Series 2014 Costs of Issuance Account, the amount of \$777,055.47; and

(b) the Co-Trustee, as Escrow Agent, shall deposit \$89,712,792.91 in the 2005 Bond Escrow Fund established pursuant to the 2005 Escrow Agreement for the purpose of refunding the Series 2005 Bonds to be refunded, as described in the 2005 Escrow Agreement.

SECTION 27.03 Establishment of Funds and Accounts.

(a) To ensure the proper application of such portion of proceeds from the sale of the Series 2014 Bonds, including to pay Costs of Issuance of the Series 2014 Bonds, there is hereby established within the Construction Fund the "Series 2014 Costs of Issuance Account", which shall be held by the Trustee, as Depositary therefor. Any of such funds that remain on deposit in the Series 2014 Costs of Issuance Account 180 days after the Closing Date shall be transferred and deposited in the Revenue Fund and the Series 2014 Costs of Issuance Account shall be closed.

ARTICLE XXVIII

TAX COVENANTS

SECTION 28.01 2014 Rebate Account.

(A) The Trustee, as Depositary for the Revenue Fund, shall establish and maintain within the Rebate Fund a separate subaccount designated as the "2014 Rebate Account." There shall be deposited in the 2014 Rebate Account from amounts in the Operation and Maintenance Fund or other lawfully available moneys such amounts as are required to be deposited therein pursuant to the Tax Certificate delivered by the Authority in connection with the issuance of the Series 2014A Bonds. All

money at any time deposited in the 2014 Rebate Account shall be held by the Trustee in trust, to the extent required to satisfy the Rebate Requirement for the Series 2014A Bonds (as defined in such Tax Certificate), for payment to the United States of America, and the United States of America is hereby granted a first lien on such money until such payment. All amounts required to be deposited into or on deposit in the 2014 Rebate Account shall be governed exclusively by this Section and by such Tax Certificate (which is incorporated herein by reference).

In the event that the amount in the 2014 Rebate Account exceeds the Rebate Requirement for the Series 2014A Bonds, upon the Request of the Authority, the Trustee shall transfer the excess from the 2014 Rebate Account to the Revenue Fund.

(B) Notwithstanding any provisions of this Section, if the Authority shall provide to the Trustee an opinion of Bond Counsel that any specified action required under this Section is no longer required or that some further or different action is required to maintain the exclusion from federal income tax of interest on any Series of Bonds, the Trustee and the Authority may conclusively rely on such opinion in complying with the requirements of this Section, and, notwithstanding Article IX of the Indenture, the covenants hereunder shall be deemed to be modified to that extent.

SECTION 28.02 Tax Covenants for Series 2014A Bonds. (A) The Authority intends that interest on the Series 2014A Bonds be excluded from gross income for federal income tax purposes, that the Series 2014A Bonds and the interest thereon be exempt from taxation by any state or political subdivision or the District of Columbia and that interest on the Series 2014A Bonds not be treated as a specific preference item for purposes of the federal individual and corporate alternative minimum taxes. The Authority reserves the right to determine the desired tax status of any additional Series of Bonds.

(B) The Authority shall not use or permit the use of any proceeds of the Series 2014A Bonds or any other funds of the Authority, directly or indirectly, to acquire any securities or obligations, and shall not use or permit the use of any amounts received by the Authority in any manner, and shall not take or permit to be taken any other action or actions, which would cause any such Bond to be an “arbitrage bond” within the meaning of Section 148 of the Code or to be “federally guaranteed” within the meaning of Section 149(b) of the Code.

(C) The Authority shall at all times do and perform all acts and things permitted by law and this Indenture which are necessary or desirable in order to assure that interest paid on the Series 2014A Bonds (or on any of them) shall be excluded from gross income for federal income tax purposes and that interest paid on the Series 2014A Bonds shall not be treated as a specific preference item for purposes of the federal individual and corporate alternative minimum taxes.

SECTION 28.03 Continuing Disclosure. The Authority hereby covenants and agrees to comply with the Series 2014 Continuing Disclosure Agreement, by and between the Authority and the Co-Trustee (the “Series 2014 Continuing Disclosure Agreement”), as it may from time to time hereafter be amended or supplemented. Notwithstanding any other provision of the Indenture, failure of the Authority to comply with the requirements of the Series 2014 Continuing Disclosure Agreement shall not be considered an Event of Default and the Co-Trustee shall have no right to accelerate amounts due under the Indenture as a result thereof; provided, however, that the Trustee and the Owners of not less than 25% in principal amount of the Outstanding Series 2014 Bonds may take such action as may be necessary and appropriate, including seeking mandate or specific performance by court order, to cause the Authority to comply with its obligations in this Section with respect to the Series 2014 Continuing Disclosure Agreement.

IN WITNESS WHEREOF, the GUAM WATERWORKS AUTHORITY has caused this Fourth Supplemental Indenture to be signed in its name by its duly authorized officers; and BANK OF GUAM and U.S. BANK NATIONAL ASSOCIATION, in token of their acceptance of the respective trusts created hereunder, and being hereby appointed by the GUAM WATERWORKS AUTHORITY to such trusts, have caused this Fourth Supplemental Indenture to be signed in their respective corporate names by one of their authorized officers, all as of the day and year first above written.

GUAM WATERWORKS AUTHORITY

By Jim A. Lopez II
Chairperson of the Board

By _____
Acting General Manager

BANK OF GUAM, as Trustee

By _____
Authorized Officer

U.S. BANK NATIONAL ASSOCIATION,
as Co-Trustee

By _____
Authorized Officer

IN WITNESS WHEREOF, the GUAM WATERWORKS AUTHORITY has caused this Fourth Supplemental Indenture to be signed in its name by its duly authorized officers; and BANK OF GUAM and U.S. BANK NATIONAL ASSOCIATION, in token of their acceptance of the respective trusts created hereunder, and being hereby appointed by the GUAM WATERWORKS AUTHORITY to such trusts, have caused this Fourth Supplemental Indenture to be signed in their respective corporate names by one of their authorized officers, all as of the day and year first above written.

GUAM WATERWORKS AUTHORITY

By _____
Chairperson of the Board

By  _____
Acting General Manager

BANK OF GUAM, as Trustee

By _____
Authorized Officer

U.S. BANK NATIONAL ASSOCIATION,
as Co-Trustee

By _____
Authorized Officer

Fourth Supplemental Indenture – Guam Waterworks Authority

OHSUSA:757779477.

IN WITNESS WHEREOF, the GUAM WATERWORKS AUTHORITY has caused this Fourth Supplemental Indenture to be signed in its name by its duly authorized officers; and BANK OF GUAM and U.S. BANK NATIONAL ASSOCIATION, in token of their acceptance of the respective trusts created hereunder, and being hereby appointed by the GUAM WATERWORKS AUTHORITY to such trusts, have caused this Fourth Supplemental Indenture to be signed in their respective corporate names by one of their authorized officers, all as of the day and year first above written.

GUAM WATERWORKS AUTHORITY

By _____
Chairperson of the Board

By _____
Acting General Manager

BANK OF GUAM, as Trustee

By 
Authorized Officer

U.S. BANK NATIONAL ASSOCIATION,
as Co-Trustee

By _____
Authorized Officer

Fourth Supplemental Indenture – Guam Waterworks Authority

IN WITNESS WHEREOF, the GUAM WATERWORKS AUTHORITY has caused this Fourth Supplemental Indenture to be signed in its name by its duly authorized officers; and BANK OF GUAM and U.S. BANK NATIONAL ASSOCIATION, in token of their acceptance of the respective trusts created hereunder, and being hereby appointed by the GUAM WATERWORKS AUTHORITY to such trusts, have caused this Fourth Supplemental Indenture to be signed in their respective corporate names by one of their authorized officers, all as of the day and year first above written.

GUAM WATERWORKS AUTHORITY

By _____
Chairperson of the Board

By _____
Acting General Manager

BANK OF GUAM, as Trustee

By _____
Authorized Officer

U.S. BANK NATIONAL ASSOCIATION,
as Co-Trustee

By _____
Authorized Officer



Fourth Supplemental Indenture – Guam Waterworks Authority

The undersigned U.S. BANK NATIONAL ASSOCIATION, hereby accepts and agrees to perform the duties and obligations of Registrar and Paying Agent under this Fourth Supplemental Indenture.

U.S. BANK NATIONAL ASSOCIATION, as Registrar
and Paying Agent

By



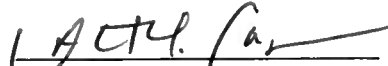
Authorized Officer

Fourth Supplemental Indenture – Guam Waterworks Authority

The undersigned BANK OF GUAM, hereby accepts and agrees to perform the duties and obligations of Depositary for the Series 2014 Costs of Issuance Account under this Fourth Supplemental Indenture.

BANK OF GUAM, as Depositary

By


Authorized Officer

Fourth Supplemental Indenture – Guam Waterworks Authority

OHSUSA:757779477.

EXHIBIT A
FORM OF BOND

No. R-____ \$ _____

GUAM WATERWORKS AUTHORITY
WATER AND WASTEWATER SYSTEM REVENUE REFUNDING BOND,
SERIES 2014[A/B] [(Taxable)]

<u>INTEREST RATE</u>	<u>MATURITY DATE</u>	<u>DATED DATE</u>	<u>CUSIP</u>
	July 1, 20__	August 7, 2014	

Registered Owner: CEDE AND CO.

Principal Sum: Dollars

The GUAM WATERWORKS AUTHORITY, a duly organized public corporation of the government of Guam (herein called the “Authority”), for value received, hereby promises to pay (but only out of the Revenues pledged therefor as hereinafter mentioned) to the registered owner identified above or registered assigns, on the maturity date specified above (subject to any right of prior redemption hereinafter mentioned), the principal sum specified above in lawful money of the United States of America; and to pay interest thereon, in like lawful money and solely from said Revenues, from the Interest Payment Date next preceding the date of authentication of this Bond unless this Bond is authenticated as of a day during the period from the Record Date preceding any Interest Payment Date to the Interest Payment Date, inclusive, in which event it shall bear interest from such Interest Payment Date, or unless this Bond is authenticated on or before December 15, 2014, in which event it shall bear interest from its date of delivery, until payment of such principal sum shall be discharged as provided in the indenture hereinafter mentioned, at the interest rate specified above per annum, payable on January 1 and July 1 in each year, commencing January 1, 2015; provided, however, that if, at the time of authentication of this Bond, interest is in default hereon, this Bond shall bear interest from the Interest Payment Date to which interest has previously been paid or made available for payment. The principal (or redemption price) hereof is payable upon surrender hereof at the Principal Office of U.S. Bank National Association (herein called the “Paying Agent”) in Los Angeles, California (or such other office as may be subsequently designated), and the interest hereon is payable by check or draft mailed by first class mail to the person in whose name this Bond is registered at the close of business on the fifteenth day of the month immediately preceding an interest payment date, at such person’s address as it appears on the bond registration books of U.S. Bank National Association (herein called the “Registrar”). Upon the written request of a registered owner of \$1,000,000 or more in aggregate principal amount of Series 2014 Bonds, payment of interest on and principal (including redemption price) of such Bonds will be made by wire transfer as provided in the Indenture; provided that any such principal payment shall nevertheless be subject to prior surrender of the Series 2014 Bonds with respect to which such payment is made.

This Bond is one of a duly authorized issue of bonds of the Authority designated as the “Guam Waterworks Authority Water and Wastewater System Revenue Bonds” (herein called the “Bonds”), unlimited in aggregate principal amount, except as otherwise provided in the laws of the United States of America and the government of Guam and in the Indenture hereinafter mentioned, which issue of Bonds consists or may consist of one or more Series of varying dates, maturities, interest rates, and redemption and other provisions, all issued or to be issued pursuant to Article 2, Chapter 14 of Title 12 of the Guam Code Annotated, as amended, and that certain Indenture, dated as of December 1, 2005 (as heretofore and hereafter supplemented and amended, the “Indenture”), by and between the

Authority, Bank of Guam, as trustee (herein called the “Trustee”) and U.S. Bank National Association, as co-trustee (herein called the “Co-Trustee”). This Bond is also one of a duly authorized series of Bonds additionally designated “Series 2014[A/B] [(Taxable)]” (herein called the “Series 2014[A/B] Bonds”), in the aggregate principal amount of [_____] Dollars (\$[2014[A/B] PAR]), all issued under the provisions of the Indenture and the Fourth Supplemental Indenture, dated as of August 1, 2014, by and among the Authority, the Trustee and the Co-Trustee. Reference is hereby made to the Indenture (a copy of which is on file at said office of the Trustee), including all indentures supplemental thereto, for a description of the rights thereunder of the registered owners of the Bonds, of the nature and extent of the security and provisions for payment of the Bonds, of the rights, duties and immunities of the Trustee and other fiduciaries and of the rights and obligations of the Authority thereunder, to all the provisions of which Indenture the registered owner of this Bond, by acceptance hereof, assents and agrees.

The Bonds and the interest thereon (to the extent set forth in the Indenture) are payable solely from Revenues (as that term is defined in the Indenture) pledged as provided in the Indenture. Subject only to the provisions of the Indenture permitting the application thereof for or to the purposes and on the terms and conditions set forth therein, said Revenues are pledged under the Indenture to secure the payment of the principal of, premium, if any, and interest on the Bonds in accordance with their terms and the provisions of the Indenture and the payment of Credit Agreement Payments and Parity Payment Agreement Payments in accordance with their terms.

The Series 2014[A/B] Bonds are subject to redemption on any date prior to their respective stated maturities, as a whole, or in part so that the reduction in Annual Debt Service for the Series 2014 Bonds for each Bond Year after such redemption shall be as nearly proportional as practicable, from and to the extent of proceeds received by the Authority due to a governmental taking of the System or portions thereof by eminent domain proceedings, if such amounts are not used for additions, improvements or extensions to the System, under the circumstances and upon the conditions and terms set forth in the Indenture, at the greater of par or Amortized Value, plus accrued interest to the date fixed for redemption, without premium. “Amortized Value” means on any interest payment date, the then current value of the bond amortizing the original issue premium over the period ending on the first call date using the constant yield method.

[The Series 2014A Bonds maturing on July 1, 2029 and July 1, 2035 are subject to redemption prior to their stated maturity in part, by lot, on July 1 of each year from Mandatory Sinking Account Payments, commencing July 1, 2026 and July 1, 2030, respectively, at a redemption price equal to the Mandatory Sinking Account Payment amount for such date set forth in the Indenture, plus accrued interest thereon to the date fixed for redemption, without premium.]

Notice of any redemption, identifying the Bonds or portions thereof to be redeemed, shall be given by the Registrar not less than 30 nor more than 60 days before the date fixed for redemption by first class mail to each of the registered owners of Bonds designated for redemption at their addresses appearing on the bond registration books of the Registrar on the date the Bonds to be redeemed are selected. Receipt of such notice by such registered owners shall not be a condition precedent to such redemption.

If this Bond is called for redemption and payment is duly provided herefor as specified in the Indenture, interest shall cease to accrue hereon from and after the date fixed for redemption.

The Series 2014[A/B] Bonds are issuable only in fully registered form in denominations of \$5,000 or any integral multiple thereof. Subject to the limitations and upon payment of the charges, if any, provided in the Indenture, this Bond may be exchanged, at the Principal Office of the Registrar, in

Los Angeles, California, or such other office as the Registrar shall designate, for a new fully registered Bond or Bonds, of the same Series, maturity and tenor and of any authorized denomination or denominations and for the aggregate principal amount of this Bond then remaining outstanding.

This Bond is transferable by the registered owner hereof, in person or by its attorney duly authorized in writing, at said office of the Registrar, but only in the manner, subject to the limitations and upon payment of the charges, if any, provided in the Indenture, and upon surrender and cancellation of this Bond. Upon such transfer a new registered Bond or Bonds, of the same Series and maturity and of any authorized denomination or denominations and for the same aggregate principal amount of this Bond then remaining outstanding, will be issued to the transferee in exchange therefor. The Registrar shall not be required to register the transfer of this Bond during the period established by the Trustee for the selection of Bonds for redemption or at any time after selection of this Bond for redemption.

The Authority, the Trustee, the Paying Agent and the Registrar may treat the registered owner hereof as the absolute owner hereof for all purposes, and neither the Authority, the Paying Agent nor the Registrar shall be affected by any notice to the contrary.

The Indenture and the rights and obligations of the Authority, the registered owners of the Bonds, the Trustee, the Registrar and other fiduciaries may be modified or amended at any time in the manner, to the extent, and upon the terms provided in the Indenture, provided that no such modification or amendment shall (a) extend the fixed maturities of the Bonds, or extend the time for making any Mandatory Sinking Account Payments, or reduce the rate of interest thereon, or extend the time of payment of interest, or reduce the amount of principal thereof, or reduce any premium payable on the redemption thereof, without the consent of the Owner of each Bond so affected, (b) reduce the aforesaid percentage of Owners of Bonds whose consent is required for the execution of any amendment or modification of this Indenture or permit the creation of any lien on the Revenues prior to or on a parity with the lien created by this Indenture or deprive the Owners of the Bonds of the lien created by this Indenture upon such Revenues, without in each case the consent of the Owners of all of the Bonds then Outstanding.

The Bonds are limited obligations of the Authority, payable solely from and secured by a pledge of the Revenues as provided in the Indenture. The Bonds are not a legal or equitable pledge, charge, lien or encumbrance upon any property of the Authority or upon any of its income, receipts or revenues except the Revenues pledged to the payment thereof as provided in the Indenture.

Neither the Government of Guam nor any political subdivision thereof is obligated to pay the principal of, Redemption Price, if applicable, or interest on the Bonds, except from Revenues, and neither the Authority, the Government of Guam nor any political subdivision thereof has pledged its faith or credit to the payment of the principal of, redemption price, if applicable, or interest on the Bonds.

This Bond shall not be entitled to any benefit under the Indenture, or become valid or obligatory for any purpose, until the certificate of authentication and registration hereon endorsed shall have been dated and signed by the Registrar.

It is hereby certified and recited that any and all conditions, things and acts required to exist, to have happened and to have been performed precedent to and in the issuance of this Bond exist, have happened and have been performed in due time, form and manner as required by the laws of the United States of America and the government of Guam, and that the amount of this Bond, together with all other indebtedness of the Authority, does not exceed any limit prescribed by such laws, and is not in excess of the amount of Bonds permitted to be issued under the Indenture.

IN WITNESS WHEREOF, the GUAM WATERWORKS AUTHORITY has caused this Bond to be executed in its name and on its behalf by the manual or facsimile signature of the Chairman of the Consolidated Commission on Utilities and the Chief Financial Officer of the Authority, all as of the dated date first set forth above.

GUAM WATERWORKS AUTHORITY

By _____
Chairman of the Board of Directors

By _____
Chief Financial Officer

[FORM OF] CERTIFICATE OF AUTHENTICATION AND REGISTRATION

This is one of the Bonds described in the within-mentioned Indenture, which has been registered as of _____.

U.S. BANK NATIONAL ASSOCIATION, as
Registrar

By _____
Authorized Officer

[FORM OF] ASSIGNMENT

For value received the undersigned do(es) hereby sell, assign and transfer unto the within-mentioned registered Bond and hereby irrevocably constitute(s) and appoint(s) attorney, to transfer the same on the books of the Registrar with full power of substitution in the premises.

Dated: _____

NOTICE: The signature on this Assignment must correspond with the name as it appears on the face of the within Bond in every particular, without alteration or enlargement or any change whatsoever.

Signature Guaranteed:

Social Security Number, Taxpayer Identification Number or other Identifying Number of Assignee:

Notice: Signature must be guaranteed by a member firm of the New York Stock Exchange or a commercial bank or trust company.

Note: Transfer fees must be paid to the Registrar in order to transfer or exchange this bond as provided in the within-mentioned Indenture.

GUAM WATERWORKS AUTHORITY

and

BANK OF GUAM,
as Trustee,

and

U.S. BANK NATIONAL ASSOCIATION,
as Co-Trustee

FIFTH SUPPLEMENTAL INDENTURE

Dated as of February 1, 2016

Relating to

\$143,310,000

Guam Waterworks Authority
Water and Wastewater System Revenue Bonds
Series 2016

TABLE OF CONTENTS

	Page
ARTICLE XXIX DEFINITIONS	2
SECTION 29.01 Definitions	2
ARTICLE XXX AUTHORIZATION AND TERMS OF THE SERIES 2016 BONDS.....	3
SECTION 30.01 Authorization of Series 2016 Bonds	3
SECTION 30.02 Terms of Series 2016 Bonds; Appointments; Designations	3
SECTION 30.03 Terms of Redemption of the Series 2016 Bonds	5
SECTION 30.04 Special Covenants as to Book-Entry Only System for Series 2016 Bonds	6
SECTION 30.05 Waiver of Brokerage Confirmations.....	8
ARTICLE XXXI ISSUANCE OF SERIES 2016 BONDS; APPLICATION OF PROCEEDS; FUNDS AND ACCOUNTS.....	8
SECTION 31.01 Issuance of Series 2016 Bonds	8
SECTION 31.02 Application of Proceeds of Series 2016 Bonds and Other Moneys	8
SECTION 31.03 Establishment of Funds and Accounts.....	8
ARTICLE XXXII TAX COVENANTS	10
SECTION 32.01 2016 Rebate Account.....	10
SECTION 32.02 Tax Covenants for Series 2016 Bonds.....	10
SECTION 32.03 Continuing Disclosure	11
EXHIBIT A FORM OF BOND.....	1

THIS FIFTH SUPPLEMENTAL INDENTURE, made and entered into and dated as of February 1, 2016, by and among the GUAM WATERWORKS AUTHORITY, a duly organized public corporation of the government of Guam (the “Authority”), BANK OF GUAM, a domestic banking corporation duly organized and existing under and by virtue of the laws of Guam, having a corporate trust office in Guam, and being qualified to accept and administer the trusts hereby created and to do business within Guam, as trustee (the “Trustee”), and U.S. BANK NATIONAL ASSOCIATION, a national banking association organized under the laws of the United States of America and qualified to accept and administer the trusts hereby created, as co-trustee (the “Co-Trustee”),

W I T N E S S E T H:

WHEREAS, pursuant to Article 2, Chapter 14 of Title 12 of the Guam Code Annotated (the “Act”), the Authority is authorized to issue and sell revenue bonds to raise funds for the purpose of acquiring, constructing, improving, equipping, maintaining, repairing, renewing, replacing, reconstructing or insuring the System (as defined in the Indenture), or any part thereof, or for the purpose of refunding any such bonds or any other prior obligations of the Authority, or for any combination of such purposes;

WHEREAS, the Authority has determined to issue revenue bonds for such purposes and to that end has duly entered into that certain Indenture, dated as of December 1, 2005 (the “Indenture”), between the Authority and the Trustee, to secure the payment of the principal thereof and the interest and premium, if any, thereon, and the observance of the covenants and conditions therein contained;

WHEREAS, revenue bonds may be issued pursuant to the Indenture and one or more indentures supplemental thereto (“Supplemental Indentures”), from time to time, in an aggregate principal amount not limited except as therein provided, and said revenue bonds are to be designated as the “Guam Waterworks Authority Water and Wastewater System Revenue Bonds” (the “Bonds”);

WHEREAS, the Authority, the Trustee and the Co-Trustee have heretofore entered into a Supplemental Indenture dated as of December 1, 2005 pursuant to which \$101,175,000 aggregate principal amount of Bonds further designated as “Series 2005 Bonds” were issued, a Supplemental Indenture dated as of November 1, 2010, pursuant to which \$118,825,000 of Bonds further designated as “Series 2010 Bonds” were issued, a Third Supplemental Indenture dated as of December 1, 2013, pursuant to which \$172,630,000 of Bonds further designated as “Series 2013 Bonds” were issued and a Fourth Supplemental Indenture dated as of August 1, 2014, pursuant to which \$85,600,000 of Bonds further designated as “Series 2014 Bonds” were issued;

WHEREAS, it is now desirable and necessary and in the best interests of the Authority to authorize the issuance of \$143,310,000 aggregate principal amount of Bonds further designated as “Series 2016 Bonds” (the “Series 2016 Bonds”) to raise funds for the purposes of financing the Series 2016 Project (as defined herein), funding capitalized interest on the Series 2016 Bonds, making a deposit into the Bond Reserve Fund, and paying costs of issuance;

WHEREAS, pursuant to and subject to the terms and conditions set forth in Public Law No. 28-71, as amended by Public Law Nos. 30-145 and 32-069, the Legislature of Guam (as required by Section 50103(k) of Title 12, Guam Code Annotated (the “GEDA Law”)) approved the terms and conditions of the issuance of said Series 2016 Bonds, so long as the Series 2016 Bonds meet the requirements set forth in the Act;

WHEREAS, the Guam Economic Development Authority has approved the issuance and sale of said Series 2016 Bonds as required by the GEDA Law;

WHEREAS, all acts, conditions and things required by the laws of the United States of America and the laws of Guam to exist, to have happened and to have been performed precedent to and in connection with the issuance of said Series 2016 Bonds exist, have happened, and have been performed in regular and due time, form and manner as required by law, and the Authority is now duly authorized and empowered, pursuant to each and every requirement of law, to issue said Bonds for the purpose, in the manner and upon the terms herein provided;

WHEREAS, no Event of Default (as defined in the Indenture) has occurred or is now occurring;

NOW, THEREFORE, THIS SUPPLEMENTAL INDENTURE WITNESSETH, in consideration of the premises and of the mutual covenants herein contained and of the purchase and acceptance of the Series 2016 Bonds by the owners thereof, and for other valuable considerations, the receipt of which is hereby acknowledged, the Authority does hereby covenant and agree with the Trustee and the Co-Trustee as follows:

ARTICLE XXIX

DEFINITIONS

SECTION 29.01 Definitions. Unless the context otherwise requires, the terms defined in the Indenture shall, for all purposes of this Supplemental Indenture and of any certificate, opinion or other document herein mentioned, have the meanings specified in the Indenture.

In addition, unless the context otherwise requires, the terms defined in this Section shall for all purposes of the Indenture and this Supplemental Indenture and of any certificate, opinion or other document herein mentioned, have the meanings herein specified.

Bond Year

“Bond Year” means, with respect to the Series 2016 Bonds, the period of twelve consecutive months ending on February 24 of each year if Series 2016 Bonds are or will be Outstanding in such twelve-month period; provided that the first Bond Year shall commence on the date of delivery of the Series 2016 Bonds and end on February 24, 2017.

DTC

“DTC” means The Depository Trust Company, New York, New York, and its successors and assigns.

Series 2016 Bonds, Series 2016 Serial Bonds, Series 2016 Term Bonds

“Series 2016 Bonds” means the \$143,310,000 aggregate principal amount of Guam Waterworks Authority Water and Wastewater System Revenue Bonds, Series 2016.

“Series 2016 Project” means, with respect to the Series 2016 Bonds, the acquisition, construction, improvement, equipping, maintenance, repair, renewal, replacement and reconstruction of those certain parts of the System to be funded with proceeds of the Series 2016 Bonds.

“Series 2016 Serial Bonds” means the Series 2016 Bonds designated as Serial Bonds by Section 30.02, and for which no Mandatory Sinking Account Payments are provided.

“Series 2016 Term Bonds” means the Series 2016 Bonds designated as Term Bonds by Section 30.02, and for which Mandatory Sinking Account Payments are provided.

ARTICLE XXX

AUTHORIZATION AND TERMS OF THE SERIES 2016 BONDS

SECTION 30.01 Authorization of Series 2016 Bonds. One Series of Bonds is hereby authorized and created under the Act to raise funds for the Project Costs of the Series 2016 Project, including to fund capitalized interest on the Series 2016 Bonds and to pay the Costs of Issuance of such Series 2016 Bonds, and to make a deposit into the Bond Reserve Fund. Such Series of Bonds is further designated as the “Guam Waterworks Authority Water and Wastewater System Revenue Bonds Series 2016.” The aggregate principal amount of Series 2016 Bonds which may be issued and Outstanding under this Supplemental Indenture shall not exceed \$143,310,000.

The Series 2016 Bonds shall be treated as a single Series under the Indenture.

SECTION 30.02 Terms of Series 2016 Bonds; Appointments; Designations.

(a) The Series 2016 Bonds shall be issued as fully registered Bonds without coupons in the denominations of \$5,000 or any integral multiple thereof. The Series 2016 Bonds shall be dated their date of delivery, and interest thereon (based on a 360-day year of twelve thirty-day months) shall be payable on January 1 and July 1 of each year, commencing July 1, 2016 (each, an “Interest Payment Date” for the Series 2016 Bonds).

(b) The Series 2016 Bonds shall mature on the dates and in the amounts and shall bear interest at the rates per annum specified in the following table:

Maturity Date	Principal Amount	Interest Rate
July 1, 2020	\$ 420,000	5.000%
July 1, 2021	3,860,000	5.000%
July 1, 2022	4,055,000	5.000%
July 1, 2023	835,000	5.000%
July 1, 2024	875,000	5.000%
July 1, 2025	925,000	5.000%
July 1, 2026	965,000	5.000%
July 1, 2027	1,015,000	5.000%
July 1, 2028	1,065,000	5.000%
July 1, 2029	1,120,000	5.000%
July 1, 2030	1,180,000	5.000%
July 1, 2031	1,240,000	5.000%
July 1, 2036	14,360,000	5.000%
January 1, 2046	111,395,000	5.000%

(c) The Series 2016 Bonds maturing on July 1, 2020 through and including July 1, 2031 are Serial Bonds, and the Series 2016 Bonds maturing on July 1, 2036 and July 1, 2046 are Term Bonds.

(d) The Principal Payment Period for the Series 2016 Bonds shall be the twelve calendar months next preceding each maturity date or Mandatory Sinking Account Payment date for such Bonds.

(e) The Record Date for all scheduled payments of principal of and interest on the Series 2016 Bonds shall be the 15th day of the calendar month next preceding the date each such payment is due, whether or not such 15th day is a Business Day.

(f) The Co-Trustee is hereby appointed Paying Agent for the Series 2016 Bonds and Registrar for the Series 2016 Bonds, and the Co-Trustee's corporate trust office in Los Angeles, California, is hereby designated as the Principal Office of the Co-Trustee. The Trustee is hereby appointed Depository for the Series 2016 Construction Account and the Series 2016 Capitalized Interest Account.

(g) The principal of and premium, if any, on each Series 2016 Bond shall be payable in lawful money of the United States of America to the Owner of such Bond, upon the surrender of such Bond at the Principal Office of any Paying Agent for such Bond. The interest on each Series 2016 Bond shall be payable in like lawful money to the person whose name appears on the bond registration books of the Registrar for such Bond as the Owner of such Bond as of the close of business on the Record Date for such Bond preceding the Interest Payment Date, whether or not such Record Date is a Business Day, such interest to be paid by check or mailed by first class mail to such Owner at such address as appears on such registration books or at such address as such Owner may have filed with the Registrar for that purpose. Upon the written request of a registered owner of one million dollars (\$1,000,000) or more in aggregate principal amount of Series 2016 Bonds, payment of interest on and principal (including Redemption Price) of such Bonds shall be made by wire transfer from the Paying Agent to the registered owner of such Bonds. Any such principal payment by wire transfer shall nevertheless be subject to prior surrender of the Series 2016 Bonds with respect to which such payment is made. Each payment of interest or principal on Series 2016 Bonds, whether by check, draft or wire transfer, shall be accompanied by information specifying for each maturity of such Bonds with respect to which such payment is being made, the amount and the CUSIP number (if available).

(h) Each Series 2016 Bond shall bear interest from the Interest Payment Date next preceding the date of authentication thereof unless it is authenticated as of a day during the period from the Record Date preceding any Interest Payment Date to the Interest Payment Date, inclusive, in which event it shall bear interest from such Interest Payment Date, or unless it is authenticated on or before June 15, 2016, in which event it shall bear interest from its date of delivery; provided, however, that if, at the time of authentication of any Series 2016 Bond, interest is in default on Outstanding Bonds of such Series, such Bond shall bear interest from the Interest Payment Date to which interest has previously been paid or made available for payment on the Outstanding Bonds of such Series.

(i) The Series 2016 Bonds shall be subject to redemption as provided in Section 30.03.

(j) The Registrar for the Series 2016 Bonds shall assign each Series 2016 Bond authenticated and registered by it a distinctive letter, or number, or letter and number, and shall maintain a record thereof which shall be available to the Authority for inspection.

(k) The Series 2016 Bonds, the Registrar's certificate of authentication and registration and the form of assignment to appear thereon shall be in substantially the forms set forth in Exhibit A hereto, with necessary or appropriate variations, omissions and insertions as permitted or required by this Indenture.

SECTION 30.03

Terms of Redemption of the Series 2016 Bonds.

(a) Extraordinary Optional Redemption. The Series 2016 Bonds are subject to redemption on any date prior to their respective stated maturities, as a whole, or in part so that the reduction in Annual Debt Service for the Series 2016 Bonds for each Bond Year after such redemption shall be as nearly proportional as practicable, from and to the extent of proceeds received by the Authority due to a governmental taking of the System or portions thereof by eminent domain proceedings, if such amounts are not used for additions, improvements or extensions to the System, under the circumstances and upon the conditions and terms set forth in the Indenture, at the greater of par or Amortized Value, plus accrued interest to the date fixed for redemption, without premium. “Amortized Value” means on any interest payment date, the then current value of the bond amortizing the original issue premium over the period ending on the first call date using the constant yield method.

(b) Optional Redemption. The Series 2016 Bonds maturing on or after July 1, 2027 are subject to redemption prior to their respective stated maturities, at the option of the Authority, from any source of available moneys, on any date on or after July 1, 2026, as a whole, or in part by such maturities or portions of maturities as shall be determined by the Authority (or by lot within a maturity in the absence of such a determination), at a redemption price equal to the principal amount of each Series 2016 Bond called for redemption plus interest accrued to the date fixed for redemption, without premium.

(c) Mandatory Sinking Account Redemption. The Series 2016 Term Bonds maturing on July 1, 2036 are subject to redemption prior to their stated maturity in part, by lot, on July 1 of each year from Mandatory Sinking Account Payments, commencing July 1, 2032, at a redemption price equal to their principal amount, plus accrued interest thereon to the date fixed for redemption, without premium, on the dates and in the amounts, as set forth below:

<u>Date</u>	<u>Amount</u>
July 1, 2032	\$1,300,000
July 1, 2033	1,365,000
July 1, 2034	1,435,000
July 1, 2035	8,340,000
July 1, 2036 [†]	1,920,000

[†] Final maturity.

(d) Mandatory Sinking Account Redemption. The Series 2016 Term Bonds maturing on January 1, 2046 are subject to redemption prior to their stated maturity in part, by lot, on July 1 of each year from Mandatory Sinking Account Payments, commencing July 1, 2037, at a redemption price equal to their principal amount, plus accrued interest thereon to the date fixed for redemption, without premium, on the dates and in the amounts, as set forth below:

<u>Date</u>	<u>Amount</u>
July 1, 2037	\$ 2,015,000
July 1, 2038	2,115,000
July 1, 2039	2,215,000
July 1, 2040	2,330,000
July 1, 2041	2,450,000
July 1, 2042	2,570,000
July 1, 2043	2,700,000
July 1, 2044	30,135,000
July 1, 2045	31,640,000
January 1, 2046†	33,225,000

† Final maturity.

SECTION 30.04 Special Covenants as to Book-Entry Only System for Series 2016 Bonds. Except as otherwise provided in subsections (b) and (c) of this Section 30.04, all of the Series 2016 Bonds initially issued shall be registered in the name of Cede & Co., as nominee for The Depository Trust Company, New York, New York (“DTC”), or such other nominee as DTC shall request pursuant to the Representation Letter. Payment of the interest on any Series 2016 Bond registered in the name of Cede & Co. shall be made on each interest payment date for such Series 2016 Bonds to the account, in the manner and at the address indicated in or pursuant to the Representation Letter.

(a) The Series 2016 Bonds initially shall be issued in the form of a single authenticated fully registered bond for each stated maturity of each portion of each series of Series 2016 Bonds, representing the aggregate principal amount of the Series 2016 Bonds of such portion, series and maturity. Upon initial issuance, the ownership of all such Series 2016 Bonds shall be registered in the registration records maintained by the Registrar pursuant to Section 2.05 hereof in the name of Cede & Co., as nominee of DTC, or such other nominee as DTC shall request pursuant to the Representation Letter. The Trustee, the Co-Trustee, the Registrar, the Authority and any paying agent may treat DTC (or its nominee) as the sole and exclusive owner of the Series 2016 Bonds registered in its name for the purposes of payment of the principal or redemption price of and interest on such Series 2016 Bonds, selecting the Series 2016 Bonds or portions thereof to be redeemed, giving any notice permitted or required to be given to Bondowners hereunder, registering the transfer of Series 2016 Bonds, obtaining any consent or other action to be taken by Bondowners of the Series 2016 Bonds and for all other purposes whatsoever; and the Trustee, the Co-Trustee, the Registrar, the Authority and any paying agent shall not be affected by any notice to the contrary. Neither the Trustee, the Co-Trustee, the Authority nor any paying agent shall have any responsibility or obligation to any Participant (which shall mean, for purposes of this Section 30.04, securities brokers and dealers, banks, trust companies, clearing corporations and other entities, some of whom directly or indirectly own DTC), any person claiming a beneficial ownership interest in the Series 2016 Bonds under or through DTC or any Participant, or any other person which is not shown on the registration records as being a Bondowner, with respect to (i) the accuracy of any records maintained by DTC or any Participant, (ii) the payment by DTC or any Participant of any amount in respect of the principal or redemption price of or interest on the Series 2016 Bonds, (iii) any notice which is permitted or required to be given to Holders of Series 2016 Bonds hereunder, (iv) the selection by DTC or any

Participant of any person to receive payment in the event of a partial redemption of the Series 2016 Bonds, or (v) any consent given or other action taken by DTC as Holder of Series 2016 Bonds. The Paying Agent shall pay all principal of and premium, if any, and interest on the Series 2016 Bonds only at the times, to the accounts, at the addresses and otherwise in accordance with the Representation Letter, and all such payments shall be valid and effective to satisfy fully and discharge the Authority's obligations with respect to the principal of and premium, if any, and interest on the Series 2016 Bonds to the extent of the sum or sums so paid. Upon delivery by DTC to the Trustee and Co-Trustee of written notice to the effect that DTC has determined to substitute a new nominee in place of its then existing nominee, the Series 2016 Bonds will be transferable to such new nominee in accordance with subsection (f) of this Section 30.04.

(b) In the event that the Authority elects to discontinue the book-entry system for any Series 2016 Bonds, the Trustee shall, upon the written instruction of the Authority, so notify DTC, whereupon DTC shall notify the Participants of the availability through DTC of bond certificates. In such event, such Series 2016 Bonds will be transferable in accordance with subsection (f) of this Section 30.04. DTC may determine to discontinue providing its services with respect to the Series 2016 Bonds at any time by giving written notice of such discontinuance to the Authority or the Trustee and Co-Trustee and discharging its responsibilities with respect thereto under applicable law. In such event, the Series 2016 Bonds will be transferable in accordance with subsection (f) of this Section 30.04. Whenever DTC requests the Authority, the Trustee and the Co-Trustee to do so, the Trustee, the Co-Trustee and the Authority will cooperate with DTC in taking appropriate action after reasonable notice to arrange for another securities depository to maintain custody of all certificates evidencing the Series 2016 Bonds then Outstanding. In such event, the Series 2016 Bonds will be transferable to such securities depository in accordance with subsection (f) of this Section 30.04, and thereafter, all references in this Supplemental Indenture to DTC or its nominee shall be deemed to refer to such successor securities depository and its nominee, as appropriate.

(c) Notwithstanding any other provision of this Supplemental Indenture to the contrary, so long as all Series 2016 Bonds Outstanding are registered in the name of any nominee of DTC, all payments with respect to the principal of and premium, if any, and interest on each such Series 2016 Bond and all notices with respect to each such Series 2016 Bond shall be made and given, respectively, to DTC as provided in the Representation Letter.

(d) The Co-Trustee is hereby authorized and requested to execute and deliver the Representation Letter and, in connection with any successor nominee for DTC or any successor depository, enter into comparable arrangements, and shall have the same rights with respect to its actions thereunder as it has with respect to its actions under this Supplemental Indenture.

(e) In the event that any transfer or exchange of Series 2016 Bonds is authorized under subsection (b) or (c) of this Section 30.04, such transfer or exchange shall be accomplished upon receipt by the Registrar from the registered owner thereof of the Series 2016 Bonds to be transferred or exchanged and appropriate instruments of transfer to the permitted transferee, all in accordance with the applicable provisions of Sections 2.03 and 2.04 of the Indenture. In the event Series 2016 Bond certificates are issued to Holders other than Cede & Co., its successor as nominee for DTC as holder of all the Series 2016 Bonds, another securities depository as holder of all the Series 2016 Bonds, or the nominee of such successor securities depository, the provisions of Sections 2.03 and 2.04 of the Indenture shall also apply to, among other things, the registration, exchange and transfer of the Series 2016 Bonds and the method of payment of principal of, premium, if any, and interest on the Series 2016 Bonds.

SECTION 30.05 Waiver of Brokerage Confirmations. The Authority acknowledges that to the extent regulations of the Comptroller of the Currency or another applicable regulatory entity grant the Authority the right to receive brokerage confirmations of security transactions as they occur, the Authority specifically waives receipt of such confirmations to the extent permitted by law. The Co-Trustee shall furnish the Authority and the Trustee periodic cash transaction statements which shall include detail for all investment transactions made by the Co-Trustee.

ARTICLE XXXI

ISSUANCE OF SERIES 2016 BONDS; APPLICATION OF PROCEEDS; FUNDS AND ACCOUNTS

SECTION 31.01 Issuance of Series 2016 Bonds. At any time after the execution and delivery of this Fifth Supplemental Indenture, the Authority may sell and execute and the Registrar for the Series 2016 Bonds shall authenticate and, upon the Order of the Authority, deliver the Series 2016 Bonds in an aggregate principal amount not to exceed \$143,310,000.

SECTION 31.02 Application of Proceeds of Series 2016 Bonds and Other Moneys. The net proceeds received by the Authority from the sale of the Series 2016 Bonds in the amount of \$160,364,807.98 shall be deposited with the Trustee, who shall forthwith transfer or apply such proceeds in the following manner, as directed by a Request of the Authority:

(a) The Trustee shall deposit in the Series 2016 Capitalized Interest Account, the amount of \$11,464,800.00;

(b) the Trustee shall deposit in the Series 2016 Costs of Issuance Account, the amount of \$1,297,820.00;

(c) the Trustee shall deposit in the Series 2016 Construction Account the amount of \$140,019,462.98; and

(d) the Trustee shall transfer to the Co-Trustee, for deposit in the Bond Reserve Fund, the amount of \$7,582,725.00, which shall bring the total amount on deposit therein to \$34,888,475, which shall be at least equal to the Bond Reserve Requirement.

SECTION 31.03 Establishment of Funds and Accounts.

(a) To ensure the proper application of such portion of proceeds from the sale of the Series 2016 Bonds, including to pay Costs of Issuance of the Series 2016 Bonds, there is hereby established within the Construction Fund the "Series 2016 Costs of Issuance Account", which shall be held by the Trustee, as Depository therefor. Any of such funds that remain on deposit in the Series 2016 Costs of Issuance Account 180 days after the Closing Date shall be transferred and deposited in the Revenue Fund and the Series 2016 Costs of Issuance Account shall be closed.

(b) To ensure the proper application of such portion of proceeds from the sale of the Series 2016 Bonds to be applied to pay Project Costs of the Series 2016 Project, there is hereby established within the Construction Fund the "Series 2016 Construction Account", which shall be held by the Trustee, as Depository therefor. The monies set aside and placed in the Series 2016 Construction Account to be applied to the Project Costs of the Series 2016 Project shall be expended for the purposes of the Series 2016 Project and shall not be used for any other purpose whatsoever.

(i) Before any payment from the Series 2016 Construction Account shall be made by the Depository, the Authority shall file or cause to be filed with the Depository a requisition

of the Authority (each a “Requisition”), such Requisition to be signed by the Chairperson or the General Manager or by any other officer of the Authority duly authorized by resolution of the Board for that purpose and to include (1) the item number of such payment; (2) the name and address of the person to whom each such payment is due, which may be the Authority in the case of reimbursement for costs theretofore paid by the Authority; (3) the respective amounts to be paid; (4) the purpose by general classification for which each obligation to be paid was incurred; and (5) that obligations in the stated amounts have been incurred by the Authority and are presently due and payable and that each item thereof is a proper charge against the Series 2016 Construction Account and has not been previously paid from said Account.

(ii) When the Authority determines that the Series 2016 Project has been completed, a Certificate of the Authority shall be delivered to the Depository by the Authority stating: (1) the fact and date of such completion; (2) that all of the Project Costs of the Series 2016 Project have been determined and paid (or that all of such costs have been paid less specified claims that are subject to dispute and for which a retention in the Series 2016 Construction Account is to be maintained in the full amount of such claims until such dispute is resolved); and (3) that the Depository is to transfer the remaining balance in the Series 2016 Construction Account, less the amount of any such retention, to the Co-Trustee for deposit to the Bond Reserve Fund, to the extent of any deficiency therein, and then to the Debt Service Fund.

(c) To ensure the proper application of such proceeds from the sale of the Series 2016 Bonds to be applied to pay Capitalized Interest on the Series 2016 Bonds, there is hereby established within the Series 2016 Construction Account the “Series 2016 Capitalized Interest Account,” which shall be held by the Trustee as Depository therefor. The Depository shall transfer all money in the Series 2016 Capitalized Interest Account to the Co-Trustee, and the Co-Trustee shall apply such money to pay interest due on the Series 2016 Bonds (which amount in respect of proceeds of the 2016 Bonds initially deposited therein shall not exceed the amount sufficient to pay interest on the Series 2016 Bonds to and including September 30, 2017) in accordance with the following schedule, provided that any amounts remaining in the Series 2016 Capitalized Interest Account after the final transfer shall be transferred to the Co-Trustee for deposit in the Debt Service Fund and the Depository shall close the 2016 Capitalized Interest Account:

Series 2016 Capitalized Interest Schedule

<u>Date</u>	<u>Capitalized Interest Transfer Amount</u>
July 1, 2016	\$2,527,829.17
January 1, 2017	3,582,750.00
July 1, 2017	3,582,750.00
January 1, 2018*	Balance

* Final transfer

(d) As provided in Section 5.05 of the Indenture, the Series 2016 Bonds shall be payable from the Debt Service Fund, and, in accordance with Section 5.06 of the Indenture, the Series 2016 Bonds shall be secured by the Bond Reserve Fund. Pursuant to Section 5.06 of the Indenture, to the extent that moneys in the Bond Reserve Fund exceed the Bond Reserve Fund Requirement, income derived from the investment of the proceeds of the Series 2016 Bonds in the Bond Reserve Fund prior to the completion of the Series 2016 Project shall be deposited in the Series 2016 Construction Account; otherwise such income shall be transferred and deposited in the Revenue Fund.

ARTICLE XXXII

TAX COVENANTS

SECTION 32.01 2016 Rebate Account.

(A) The Trustee, as Depository for the Revenue Fund, shall establish and maintain within the Rebate Fund a separate subaccount designated as the “2016 Rebate Account.” There shall be deposited in the 2016 Rebate Account from amounts in the Operation and Maintenance Fund or other lawfully available moneys such amounts as are required to be deposited therein pursuant to the Tax Certificate delivered by the Authority in connection with the issuance of the Series 2016 Bonds. All money at any time deposited in the 2016 Rebate Account shall be held by the Trustee in trust, to the extent required to satisfy the Rebate Requirement for the Series 2016 Bonds (as defined in such Tax Certificate), for payment to the United States of America, and the United States of America is hereby granted a first lien on such money until such payment. All amounts required to be deposited into or on deposit in the 2016 Rebate Account shall be governed exclusively by this Section and by such Tax Certificate (which is incorporated herein by reference).

In the event that the amount in the 2016 Rebate Account exceeds the Rebate Requirement for the Series 2016 Bonds, upon the Request of the Authority, the Trustee shall transfer the excess from the 2016 Rebate Account to the Revenue Fund.

(B) Notwithstanding any provisions of this Section, if the Authority shall provide to the Trustee an opinion of Bond Counsel that any specified action required under this Section is no longer required or that some further or different action is required to maintain the exclusion from federal income tax of interest on any Series of Bonds, the Trustee and the Authority may conclusively rely on such opinion in complying with the requirements of this Section, and, notwithstanding Article IX of the Indenture, the covenants hereunder shall be deemed to be modified to that extent.

SECTION 32.02 Tax Covenants for Series 2016 Bonds. (A) The Authority intends that interest on the Series 2016 Bonds be excluded from gross income for federal income tax purposes, that the Series 2016 Bonds and the interest thereon be exempt from taxation by any state or political subdivision or the District of Columbia and that interest on the Series 2016 Bonds not be treated as a specific preference item for purposes of the federal individual and corporate alternative minimum taxes. The Authority reserves the right to determine the desired tax status of any additional Series of Bonds.

(B) The Authority shall not use or permit the use of any proceeds of the Series 2016 Bonds or any other funds of the Authority, directly or indirectly, to acquire any securities or obligations, and shall not use or permit the use of any amounts received by the Authority in any manner, and shall not take or permit to be taken any other action or actions, which would cause any such Bond to be an “arbitrage bond” within the meaning of Section 148 of the Code or to be “federally guaranteed” within the meaning of Section 149(b) of the Code.

(C) The Authority shall at all times do and perform all acts and things permitted by law and this Indenture which are necessary or desirable in order to assure that interest paid on the Series 2016 Bonds (or on any of them) shall be excluded from gross income for federal income tax purposes and that interest paid on the Series 2016 Bonds shall not be treated as a specific preference item for purposes of the federal individual and corporate alternative minimum taxes.

SECTION 32.03 Continuing Disclosure. The Authority hereby covenants and agrees to comply with the Series 2016 Continuing Disclosure Agreement, by and between the Authority and the Co-Trustee (the “Series 2016 Continuing Disclosure Agreement”), as it may from time to time hereafter be amended or supplemented. Notwithstanding any other provision of the Indenture, failure of the Authority to comply with the requirements of the Series 2016 Continuing Disclosure Agreement shall not be considered an Event of Default and the Co-Trustee shall have no right to accelerate amounts due under the Indenture as a result thereof; provided, however, that the Trustee and the Owners of not less than 25% in principal amount of the Outstanding Series 2016 Bonds may take such action as may be necessary and appropriate, including seeking mandate or specific performance by court order, to cause the Authority to comply with its obligations in this Section with respect to the Series 2016 Continuing Disclosure Agreement.

IN WITNESS WHEREOF, the GUAM WATERWORKS AUTHORITY has caused this Fifth Supplemental Indenture to be signed in its name by its duly authorized officers; and BANK OF GUAM and U.S. BANK NATIONAL ASSOCIATION, in token of their acceptance of the respective trusts created hereunder, and being hereby appointed by the GUAM WATERWORKS AUTHORITY to such trusts, have caused this Fifth Supplemental Indenture to be signed in their respective corporate names by one of their authorized officers, all as of the day and year first above written.

GUAM WATERWORKS AUTHORITY

By 
Chairperson of the Board

By 
General Manager

BANK OF GUAM, as Trustee

By _____
Authorized Officer

U.S. BANK NATIONAL ASSOCIATION,
as Co-Trustee

By _____
Authorized Officer

Fifth Supplemental Indenture – Guam Waterworks Authority

IN WITNESS WHEREOF, the GUAM WATERWORKS AUTHORITY has caused this Fifth Supplemental Indenture to be signed in its name by its duly authorized officers; and BANK OF GUAM and U.S. BANK NATIONAL ASSOCIATION, in token of their acceptance of the respective trusts created hereunder, and being hereby appointed by the GUAM WATERWORKS AUTHORITY to such trusts, have caused this Fifth Supplemental Indenture to be signed in their respective corporate names by one of their authorized officers, all as of the day and year first above written.

GUAM WATERWORKS AUTHORITY

By _____
Chairperson of the Board

By _____
General Manager

BANK OF GUAM, as Trustee

By 
Authorized Officer

U.S. BANK NATIONAL ASSOCIATION,
as Co-Trustee

By _____
Authorized Officer

Fifth Supplemental Indenture – Guam Waterworks Authority

IN WITNESS WHEREOF, the GUAM WATERWORKS AUTHORITY has caused this Fifth Supplemental Indenture to be signed in its name by its duly authorized officers; and BANK OF GUAM and U.S. BANK NATIONAL ASSOCIATION, in token of their acceptance of the respective trusts created hereunder, and being hereby appointed by the GUAM WATERWORKS AUTHORITY to such trusts, have caused this Fifth Supplemental Indenture to be signed in their respective corporate names by one of their authorized officers, all as of the day and year first above written.

GUAM WATERWORKS AUTHORITY

By _____
Chairperson of the Board

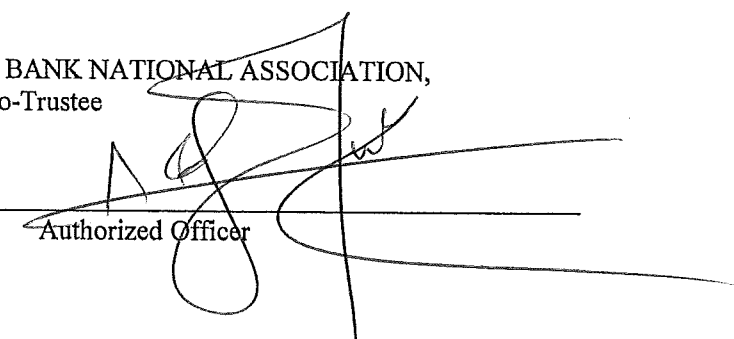
By _____
General Manager

BANK OF GUAM, as Trustee

By _____
Authorized Officer

U.S. BANK NATIONAL ASSOCIATION,
as Co-Trustee

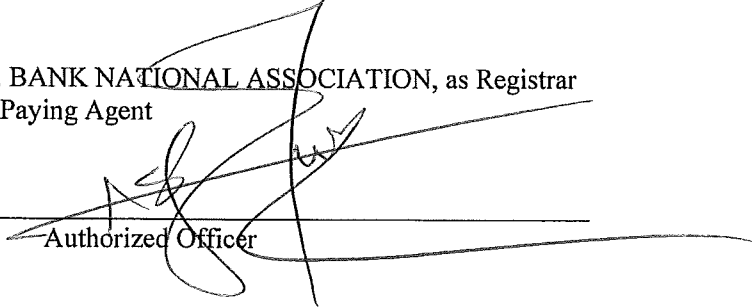
By _____
Authorized Officer



Fifth Supplemental Indenture – Guam Waterworks Authority

The undersigned U.S. BANK NATIONAL ASSOCIATION, hereby accepts and agrees to perform the duties and obligations of Registrar and Paying Agent under this Fifth Supplemental Indenture.


U.S. BANK NATIONAL ASSOCIATION, as Registrar
and Paying Agent

By 
Authorized Officer

Fifth Supplemental Indenture – Guam Waterworks Authority

The undersigned BANK OF GUAM, hereby accepts and agrees to perform the duties and obligations of Depository under this Fifth Supplemental Indenture.

BANK OF GUAM, as Depository

By 
Authorized Officer

Fifth Supplemental Indenture – Guam Waterworks Authority

EXHIBIT A
FORM OF BOND

No. R-____ \$ _____

GUAM WATERWORKS AUTHORITY
WATER AND WASTEWATER SYSTEM REVENUE BOND,
SERIES 2016

<u>INTEREST RATE</u>	<u>MATURITY DATE</u>	<u>DATED DATE</u>	<u>CUSIP</u>
	[January 1/July 1], 20__	February 24, 2016	

Registered Owner: CEDE AND CO.

Principal Sum: Dollars

The GUAM WATERWORKS AUTHORITY, a duly organized public corporation of the government of Guam (herein called the “Authority”), for value received, hereby promises to pay (but only out of the Revenues pledged therefor as hereinafter mentioned) to the registered owner identified above or registered assigns, on the maturity date specified above (subject to any right of prior redemption hereinafter mentioned), the principal sum specified above in lawful money of the United States of America; and to pay interest thereon, in like lawful money and solely from said Revenues, from the Interest Payment Date next preceding the date of authentication of this Bond unless this Bond is authenticated as of a day during the period from the Record Date preceding any Interest Payment Date to the Interest Payment Date, inclusive, in which event it shall bear interest from such Interest Payment Date, or unless this Bond is authenticated on or before June 15, 2016, in which event it shall bear interest from its date of delivery, until payment of such principal sum shall be discharged as provided in the indenture hereinafter mentioned, at the interest rate specified above per annum, payable on January 1 and July 1 in each year, commencing July 1, 2016; provided, however, that if, at the time of authentication of this Bond, interest is in default hereon, this Bond shall bear interest from the Interest Payment Date to which interest has previously been paid or made available for payment. The principal (or redemption price) hereof is payable upon surrender hereof at the Principal Office of U.S. Bank National Association (herein called the “Paying Agent”) in Los Angeles, California (or such other office as may be subsequently designated), and the interest hereon is payable by check or draft mailed by first class mail to the person in whose name this Bond is registered at the close of business on the fifteenth day of the month immediately preceding an interest payment date, at such person’s address as it appears on the bond registration books of U.S. Bank National Association (herein called the “Registrar”). Upon the written request of a registered owner of \$1,000,000 or more in aggregate principal amount of Series 2016 Bonds, payment of interest on and principal (including redemption price) of such Bonds will be made by wire transfer as provided in the Indenture; provided that any such principal payment shall nevertheless be subject to prior surrender of the Series 2016 Bonds with respect to which such payment is made.

This Bond is one of a duly authorized issue of bonds of the Authority designated as the “Guam Waterworks Authority Water and Wastewater System Revenue Bonds” (herein called the “Bonds”), unlimited in aggregate principal amount, except as otherwise provided in the laws of the United States of America and the government of Guam and in the Indenture hereinafter mentioned, which issue of Bonds consists or may consist of one or more Series of varying dates, maturities, interest rates, and redemption and other provisions, all issued or to be issued pursuant to Article 2, Chapter 14 of Title 12 of the Guam Code Annotated, as amended, and that certain Indenture, dated as of December 1, 2005 (as heretofore and hereafter supplemented and amended, the “Indenture”), by and between the

Authority, Bank of Guam, as trustee (herein called the “Trustee”) and U.S. Bank National Association, as co-trustee (herein called the “Co-Trustee”). This Bond is also one of a duly authorized series of Bonds additionally designated “Series 2016” (herein called the “Series 2016 Bonds”), in the aggregate principal amount of One Hundred Forty Three Million Three Hundred Ten Thousand Dollars (\$143,310,000), all issued under the provisions of the Indenture and the Fifth Supplemental Indenture, dated as of February 1, 2016, by and among the Authority, the Trustee and the Co-Trustee. Reference is hereby made to the Indenture (a copy of which is on file at said office of the Trustee), including all indentures supplemental thereto, for a description of the rights thereunder of the registered owners of the Bonds, of the nature and extent of the security and provisions for payment of the Bonds, of the rights, duties and immunities of the Trustee and other fiduciaries and of the rights and obligations of the Authority thereunder, to all the provisions of which Indenture the registered owner of this Bond, by acceptance hereof, assents and agrees.

The Bonds and the interest thereon (to the extent set forth in the Indenture) are payable solely from Revenues (as that term is defined in the Indenture) pledged as provided in the Indenture. Subject only to the provisions of the Indenture permitting the application thereof for or to the purposes and on the terms and conditions set forth therein, said Revenues are pledged under the Indenture to secure the payment of the principal of, premium, if any, and interest on the Bonds in accordance with their terms and the provisions of the Indenture and the payment of Credit Agreement Payments and Parity Payment Agreement Payments in accordance with their terms.

The Series 2016 Bonds are subject to redemption on any date prior to their respective stated maturities, as a whole, or in part so that the reduction in Annual Debt Service for the Series 2016 Bonds for each Bond Year after such redemption shall be as nearly proportional as practicable, from and to the extent of proceeds received by the Authority due to a governmental taking of the System or portions thereof by eminent domain proceedings, if such amounts are not used for additions, improvements or extensions to the System, under the circumstances and upon the conditions and terms set forth in the Indenture, at the greater of par or Amortized Value, plus accrued interest to the date fixed for redemption, without premium. “Amortized Value” means on any interest payment date, the then current value of the bond amortizing the original issue premium over the period ending on the first call date using the constant yield method.

The Series 2016 Bonds maturing on or after July 1, 2027 are subject to redemption prior to their respective stated maturities, at the option of the Authority, from any source of available moneys, on any date on or after July 1, 2026, as a whole, or in part by such maturities or portions of maturities as shall be determined by the Authority (or by lot within a maturity in the absence of such a determination), at a redemption price equal to the principal amount of each Series 2016 Bond called for redemption plus interest accrued to the date fixed for redemption, without premium.

The Series 2016 Bonds maturing on July 1, 2036 and January 1, 2046 are subject to redemption prior to their stated maturity in part, by lot, on July 1 of each year from Mandatory Sinking Account Payments, commencing July 1, 2032 and July 1, 2037, respectively, at a redemption price equal to the Mandatory Sinking Account Payment amount for such date set forth in the Indenture, plus accrued interest thereon to the date fixed for redemption, without premium.

Notice of any redemption, identifying the Bonds or portions thereof to be redeemed, shall be given by the Registrar not less than 30 nor more than 60 days before the date fixed for redemption by first class mail to each of the registered owners of Bonds designated for redemption at their addresses appearing on the bond registration books of the Registrar on the date the Bonds to be redeemed are selected. Receipt of such notice by such registered owners shall not be a condition precedent to such redemption.

If this Bond is called for redemption and payment is duly provided herefor as specified in the Indenture, interest shall cease to accrue hereon from and after the date fixed for redemption.

The Series 2016 Bonds are issuable only in fully registered form in denominations of \$5,000 or any integral multiple thereof. Subject to the limitations and upon payment of the charges, if any, provided in the Indenture, this Bond may be exchanged, at the Principal Office of the Registrar, in Los Angeles, California, or such other office as the Registrar shall designate, for a new fully registered Bond or Bonds, of the same Series, maturity and tenor and of any authorized denomination or denominations and for the aggregate principal amount of this Bond then remaining outstanding.

This Bond is transferable by the registered owner hereof, in person or by its attorney duly authorized in writing, at said office of the Registrar, but only in the manner, subject to the limitations and upon payment of the charges, if any, provided in the Indenture, and upon surrender and cancellation of this Bond. Upon such transfer a new registered Bond or Bonds, of the same Series and maturity and of any authorized denomination or denominations and for the same aggregate principal amount of this Bond then remaining outstanding, will be issued to the transferee in exchange therefor. The Registrar shall not be required to register the transfer of this Bond during the period established by the Trustee for the selection of Bonds for redemption or at any time after selection of this Bond for redemption.

The Authority, the Trustee, the Paying Agent and the Registrar may treat the registered owner hereof as the absolute owner hereof for all purposes, and neither the Authority, the Paying Agent nor the Registrar shall be affected by any notice to the contrary.

The Indenture and the rights and obligations of the Authority, the registered owners of the Bonds, the Trustee, the Registrar and other fiduciaries may be modified or amended at any time in the manner, to the extent, and upon the terms provided in the Indenture, provided that no such modification or amendment shall (a) extend the fixed maturities of the Bonds, or extend the time for making any Mandatory Sinking Account Payments, or reduce the rate of interest thereon, or extend the time of payment of interest, or reduce the amount of principal thereof, or reduce any premium payable on the redemption thereof, without the consent of the Owner of each Bond so affected, (b) reduce the aforesaid percentage of Owners of Bonds whose consent is required for the execution of any amendment or modification of this Indenture or permit the creation of any lien on the Revenues prior to or on a parity with the lien created by this Indenture or deprive the Owners of the Bonds of the lien created by this Indenture upon such Revenues, without in each case the consent of the Owners of all of the Bonds then Outstanding.

The Bonds are limited obligations of the Authority, payable solely from and secured by a pledge of the Revenues as provided in the Indenture. The Bonds are not a legal or equitable pledge, charge, lien or encumbrance upon any property of the Authority or upon any of its income, receipts or revenues except the Revenues pledged to the payment thereof as provided in the Indenture.

Neither the Government of Guam nor any political subdivision thereof is obligated to pay the principal of, Redemption Price, if applicable, or interest on the Bonds, except from Revenues, and neither the Authority, the Government of Guam nor any political subdivision thereof has pledged its faith or credit to the payment of the principal of, redemption price, if applicable, or interest on the Bonds.

This Bond shall not be entitled to any benefit under the Indenture, or become valid or obligatory for any purpose, until the certificate of authentication and registration hereon endorsed shall have been dated and signed by the Registrar.

It is hereby certified and recited that any and all conditions, things and acts required to exist, to have happened and to have been performed precedent to and in the issuance of this Bond exist, have happened and have been performed in due time, form and manner as required by the laws of the United States of America and the government of Guam, and that the amount of this Bond, together with all other indebtedness of the Authority, does not exceed any limit prescribed by such laws, and is not in excess of the amount of Bonds permitted to be issued under the Indenture.

IN WITNESS WHEREOF, the GUAM WATERWORKS AUTHORITY has caused this Bond to be executed in its name and on its behalf by the manual or facsimile signature of the Chairman of the Consolidated Commission on Utilities and the Chief Financial Officer of the Authority, all as of the dated date first set forth above.

GUAM WATERWORKS AUTHORITY

By _____
Chairman of the Board of Directors

By _____
Chief Financial Officer

[FORM OF] CERTIFICATE OF AUTHENTICATION AND REGISTRATION

This is one of the Bonds described in the within-mentioned Indenture, which has been registered as of _____.

U.S. BANK NATIONAL ASSOCIATION, as
Registrar

By _____
Authorized Officer

[FORM OF] ASSIGNMENT

For value received the undersigned do(es) hereby sell, assign and transfer unto the within-mentioned registered Bond and hereby irrevocably constitute(s) and appoint(s) attorney, to transfer the same on the books of the Registrar with full power of substitution in the premises.

Dated: _____

NOTICE: The signature on this Assignment must correspond with the name as it appears on the face of the within Bond in every particular, without alteration or enlargement or any change whatsoever.

Signature Guaranteed:

Social Security Number, Taxpayer Identification Number or other Identifying Number of Assignee:

Notice: Signature must be guaranteed by a member firm of the New York Stock Exchange or a commercial bank or trust company.

Note: Transfer fees must be paid to the Registrar in order to transfer or exchange this bond as provided in the within-mentioned Indenture.

GUAM WATERWORKS AUTHORITY

and

BANK OF GUAM,
as Trustee,

and

U.S. BANK NATIONAL ASSOCIATION,
as Co-Trustee

SIXTH SUPPLEMENTAL INDENTURE

Dated as of December 1, 2017

Relating to

\$107,660,000

Guam Waterworks Authority
Water and Wastewater System Revenue Refunding Bonds
Series 2017

TABLE OF CONTENTS

	Page
ARTICLE XXXIII DEFINITIONS	2
SECTION 33.01 Definitions	2
ARTICLE XXXIV AUTHORIZATION AND TERMS OF THE SERIES 2017 BONDS	4
SECTION 34.01 Authorization of Series 2017 Bonds	4
SECTION 34.02 Terms of Series 2017 Bonds; Appointments; Designations	4
SECTION 34.03 Terms of Redemption of the Series 2017 Bonds	6
SECTION 34.04 Special Covenants as to Book-Entry Only System for Series 2017 Bonds	6
SECTION 34.05 Waiver of Brokerage Confirmations.....	8
ARTICLE XXXV ISSUANCE OF SERIES 2017 BONDS; APPLICATION OF PROCEEDS; FUNDS AND ACCOUNTS.....	8
SECTION 35.01 Issuance of Series 2017 Bonds	8
SECTION 35.02 Application of Proceeds of Series 2017 Bonds and Other Moneys	8
SECTION 35.03 Establishment of Funds and Accounts.....	9
ARTICLE XXXVI TAX COVENANTS	9
SECTION 36.01 2017 Rebate Account.....	9
SECTION 36.02 Tax Covenants for Series 2017 Bonds.....	9
SECTION 36.03 Continuing Disclosure	10
EXHIBIT A FORM OF BOND.....	1

THIS SIXTH SUPPLEMENTAL INDENTURE, made and entered into and dated as of December 1, 2017, by and among the GUAM WATERWORKS AUTHORITY, a duly organized public corporation of the government of Guam (the "Authority"), BANK OF GUAM, a domestic banking corporation duly organized and existing under and by virtue of the laws of Guam, having a corporate trust office in Guam, and being qualified to accept and administer the trusts hereby created and to do business within Guam, as trustee (the "Trustee"), and U.S. BANK NATIONAL ASSOCIATION, a national banking association organized under the laws of the United States of America and qualified to accept and administer the trusts hereby created, as co-trustee (the "Co-Trustee"),

W I T N E S S E T H:

WHEREAS, pursuant to Article 2, Chapter 14 of Title 12 of the Guam Code Annotated (the "Act"), the Authority is authorized to issue and sell revenue bonds to raise funds for the purpose of acquiring, constructing, improving, equipping, maintaining, repairing, renewing, replacing, reconstructing or insuring the System (as defined in the Indenture), or any part thereof, or for the purpose of refunding any such bonds or any other prior obligations of the Authority, or for any combination of such purposes;

WHEREAS, the Authority has determined to issue revenue bonds for such purposes and to that end has duly entered into that certain Indenture, dated as of December 1, 2005 (the "Indenture"), between the Authority and the Trustee, to secure the payment of the principal thereof and the interest and premium, if any, thereon, and the observance of the covenants and conditions therein contained;

WHEREAS, revenue bonds may be issued pursuant to the Indenture and one or more indentures supplemental thereto ("Supplemental Indentures"), from time to time, in an aggregate principal amount not limited except as therein provided, and said revenue bonds are to be designated as the "Guam Waterworks Authority Water and Wastewater System Revenue Bonds" (the "Bonds");

WHEREAS, the Authority, the Trustee and the Co-Trustee have heretofore entered into a Supplemental Indenture dated as of December 1, 2005 pursuant to which \$101,175,000 aggregate principal amount of Bonds further designated as "Series 2005 Bonds" were issued, a Supplemental Indenture dated as of November 1, 2010, pursuant to which \$118,825,000 of Bonds further designated as "Series 2010 Bonds" were issued, a Third Supplemental Indenture dated as of December 1, 2013, pursuant to which \$172,630,000 of Bonds further designated as "Series 2013 Bonds" were issued, a Fourth Supplemental Indenture, dated as of August 1, 2014, pursuant to which \$85,600,000 aggregate principal amount of Bonds further designated as "Series 2014 Bonds" were issued, and a Fifth Supplemental Indenture, dated as of February 1, 2016, pursuant to which \$143,310,000 aggregate principal amount of Bonds further designated as "Series 2016 Bonds" were issued;

WHEREAS, it is now desirable and necessary and in the best interests of the Authority to authorize the issuance of \$107,660,000 aggregate principal amount of Bonds further designated as "Series 2017 Bonds" (the "Series 2017 Bonds") to raise funds for the purpose of refunding a portion of the remaining Outstanding Series 2010 Bonds and paying Costs of Issuance and of such refunding;

WHEREAS, pursuant to and subject to the terms and conditions set forth in Public Law No. 28-71, as amended by Public Law Nos. 30-145 and 32-069, the Legislature of Guam, as required by the GEDA Law (as defined herein) approved the terms and conditions of the issuance of said Series 2017 Bonds, so long as the Series 2017 Bonds meet the requirements set forth in the Act;

WHEREAS, the Guam Economic Development Authority has approved the issuance and sale of said Series 2017 Bonds as required by the GEDA Law;

WHEREAS, all acts, conditions and things required by the laws of the United States of America and the laws of Guam to exist, to have happened and to have been performed precedent to and in connection with the issuance of said Series 2017 Bonds exist, have happened, and have been performed in regular and due time, form and manner as required by law, and the Authority is now duly authorized and empowered, pursuant to each and every requirement of law, to issue said Bonds for the purpose, in the manner and upon the terms herein provided;

WHEREAS, no Event of Default (as defined in the Indenture) has occurred or is now occurring;

NOW, THEREFORE, THIS SUPPLEMENTAL INDENTURE WITNESSETH, in consideration of the premises and of the mutual covenants herein contained and of the purchase and acceptance of the Series 2017 Bonds by the owners thereof, and for other valuable considerations, the receipt of which is hereby acknowledged, the Authority does hereby covenant and agree with the Trustee and the Co-Trustee as follows:

ARTICLE XXXIII

DEFINITIONS

SECTION 33.01 Definitions. Unless the context otherwise requires, the terms defined in the Indenture shall, for all purposes of this Supplemental Indenture and of any certificate, opinion or other document herein mentioned, have the meanings specified in the Indenture.

In addition, unless the context otherwise requires, the terms defined in this Section shall for all purposes of the Indenture and this Supplemental Indenture and of any certificate, opinion or other document herein mentioned, have the meanings herein specified.

“Bond Year” means, with respect to the Series 2017 Bonds, the period of twelve consecutive months ending on December 20 of each year if Series 2017 Bonds are or will be Outstanding in such twelve-month period; provided that the first Bond Year shall commence on the date of delivery of the Series 2017 Bonds and end on December 20, 2018.

“DTC” means The Depository Trust Company, New York, New York, and its successors and assigns.

“Escrow Agent” means, with respect to the Series 2017 Bonds, the Co-Trustee in its capacity as Escrow Agent under the 2010 Escrow Agreement.

“GEDA Law” means Section 50103(k) of Title 12, Guam Code Annotated, as in effect as of the dated date hereof and as may be amended from time to time.

“Series 2017 Bonds” means the \$107,660,000 aggregate principal amount of Guam Waterworks Authority Water and Wastewater System Revenue Refunding Bonds Series 2017.

“Series 2017 Serial Bonds” means the Series 2017 Bonds designated as Serial Bonds by Section 25.02, and for which no Mandatory Sinking Account Payments are provided.

“Series 2017 Term Bonds” means the Series 2017 Bonds designated as Term Bonds by Section 25.02, and for which Mandatory Sinking Account Payments are provided.

“2010 Bond Escrow Fund” means the fund by such name established pursuant to the 2010 Escrow Agreement.

“2010 Escrow Agreement” means, with respect to the Series 2017 Bonds, that certain Escrow Agreement, dated as of December 1, 2017, executed by the Authority and the Co-Trustee, as escrow agent thereunder, relating to the refunding of the Series 2010 Bonds to be refunded.

[Remainder of page intentionally blank]

ARTICLE XXXIV

AUTHORIZATION AND TERMS OF THE SERIES 2017 BONDS

SECTION 34.01 Authorization of Series 2017 Bonds. One Series of Bonds is hereby authorized and created under the Act to raise funds for the purpose of refunding the Series 2010 Bonds remaining outstanding and to pay related Costs of Issuance. Such Series of Bonds is further designated as the “Guam Waterworks Authority Water and Wastewater System Revenue Refunding Bonds Series 2017.” The aggregate principal amount of Series 2017 Bonds which may be issued and Outstanding under this Supplemental Indenture shall not exceed \$107,660,000.

The Series 2017 Bonds shall be treated as a single Series under the Indenture.

SECTION 34.02 Terms of Series 2017 Bonds; Appointments; Designations.

(a) The Series 2017 Bonds shall be issued as fully registered Bonds without coupons in the denominations of \$5,000 or any integral multiple thereof. The Series 2017 Bonds shall be dated their date of delivery, and interest thereon (based on a 360-day year of twelve thirty-day months) shall be payable on January 1 and July 1 of each year, commencing July 1, 2018 (each, an “Interest Payment Date” for the Series 2017 Bonds).

(b) The Series 2017 Bonds shall mature on the dates and in the amounts and shall bear interest at the rates per annum specified in the following table:

Maturity Date (July 1)	Principal Amount	Interest Rate
2019	\$ 295,000	5%
2021	2,040,000	5
2022	2,145,000	5
2023	2,250,000	5
2024	2,365,000	5
2025	2,485,000	5
2026	2,610,000	5
2027	2,740,000	5
2028	2,875,000	5
2029	3,015,000	5
2030	3,170,000	5
2031	3,325,000	5
2032	3,495,000	5
2033	3,665,000	5
2034	3,850,000	5
2035	4,040,000	5
2036	11,455,000	5
2037	12,025,000	5
—	—	—
2040	39,815,000	5

(c) The Series 2017 Bonds maturing on July 1, 2040 are Term Bonds.

(d) The Principal Payment Period for the Series 2017 Bonds shall be the twelve calendar months next preceding each maturity date or Mandatory Sinking Account Payment date for such Bonds.

(e) The Record Date for all scheduled payments of principal of and interest on the Series 2017 Bonds shall be the 15th day of the calendar month next preceding the date each such payment is due, whether or not such 15th day is a Business Day.

(f) The Co-Trustee is hereby appointed Paying Agent for the Series 2017 Bonds and Registrar for the Series 2017 Bonds, and the Co-Trustee's corporate trust office in Los Angeles, California, is hereby designated as the Principal Office of the Co-Trustee.

(g) The principal of and premium, if any, on each Series 2017 Bond shall be payable in lawful money of the United States of America to the Owner of such Bond, upon the surrender of such Bond at the Principal Office of any Paying Agent for such Bond. The interest on each Series 2017 Bond shall be payable in like lawful money to the person whose name appears on the bond registration books of the Registrar for such Bond as the Owner of such Bond as of the close of business on the Record Date for such Bond preceding the Interest Payment Date, whether or not such Record Date is a Business Day, such interest to be paid by check or mailed by first class mail to such Owner at such address as appears on such registration books or at such address as such Owner may have filed with the Registrar for that purpose. Upon the written request of a registered owner of one million dollars (\$1,000,000) or more in aggregate principal amount of Series 2017 Bonds, payment of interest on and principal (including Redemption Price) of such Bonds shall be made by wire transfer from the Paying Agent to the registered owner of such Bonds. Any such principal payment by wire transfer shall nevertheless be subject to prior surrender of the Series 2017 Bonds with respect to which such payment is made. Each payment of interest or principal on Series 2017 Bonds, whether by check, draft or wire transfer, shall be accompanied by information specifying for each maturity of such Bonds with respect to which such payment is being made, the amount and the CUSIP number (if available).

(h) Each Series 2017 Bond shall bear interest from the Interest Payment Date next preceding the date of authentication thereof unless it is authenticated as of a day during the period from the Record Date preceding any Interest Payment Date to the Interest Payment Date, inclusive, in which event it shall bear interest from such Interest Payment Date, or unless it is authenticated on or before June 15, 2018, in which event it shall bear interest from its date of delivery; provided, however, that if, at the time of authentication of any Series 2017 Bond, interest is in default on Outstanding Bonds of such Series, such Bond shall bear interest from the Interest Payment Date to which interest has previously been paid or made available for payment on the Outstanding Bonds of such Series.

(i) The Series 2017 Bonds shall be subject to redemption as provided in Section 34.03.

(j) The Registrar for the Series 2017 Bonds shall assign each Series 2017 Bond authenticated and registered by it a distinctive letter, or number, or letter and number, and shall maintain a record thereof which shall be available to the Authority for inspection.

(k) The Series 2017 Bonds, the Registrar's certificate of authentication and registration and the form of assignment to appear thereon shall be in substantially the forms set forth in Exhibit A hereto, with necessary or appropriate variations, omissions and insertions as permitted or required by this Indenture.

SECTION 34.03 Terms of Redemption of the Series 2017 Bonds.

(a) Extraordinary Optional Redemption. The Series 2017 Bonds are subject to redemption on any date prior to their respective stated maturities, as a whole, or in part so that the reduction in Annual Debt Service for the Series 2017 Bonds for each Bond Year after such redemption shall be as nearly proportional as practicable, from and to the extent of proceeds received by the Authority due to a governmental taking of the System or portions thereof by eminent domain proceedings, if such amounts are not used for additions, improvements or extensions to the System, under the circumstances and upon the conditions and terms set forth in the Indenture, at the greater of par or Amortized Value, plus accrued interest to the date fixed for redemption, without premium. “Amortized Value” means on any interest payment date, the then current value of the bond amortizing the original issue premium over the period ending on the first call date using the constant yield method.

(b) Optional Redemption. The Series 2017 Bonds maturing on or after July 1, 2028 are subject to redemption prior to their respective stated maturities, at the option of the Authority, from any source of available moneys, on any date on or after July 1, 2027, as a whole, or in part by such maturities or portions of maturities as shall be determined by the Authority (or by lot within a maturity in the absence of such a determination), at a redemption price equal to the principal amount of each Series 2017 Bond called for redemption plus interest accrued to the date fixed for redemption, without premium.

(c) Mandatory Sinking Account Redemption. The Series 2017 Term Bonds maturing on July 1, 2040 are subject to redemption prior to their stated maturity in part, by lot, on July 1 of each year from Mandatory Sinking Account Payments, commencing July 1, 2038, at a redemption price equal to their principal amount, plus accrued interest thereon to the date fixed for redemption, without premium, in the years and in the amounts, as set forth below:

<u>Year</u>	<u>Amount</u>
2038	\$12,630,000
2039	13,260,000
2040†	13,925,000

† Final maturity.

SECTION 34.04 Special Covenants as to Book-Entry Only System for Series 2017 Bonds. Except as otherwise provided in subsections (b) and (c) of this Section 34.04, all of the Series 2017 Bonds initially issued shall be registered in the name of Cede & Co., as nominee for The Depository Trust Company, New York, New York (“DTC”), or such other nominee as DTC shall request pursuant to the Representation Letter. Payment of the interest on any Series 2017 Bond registered in the name of Cede & Co. shall be made on each interest payment date for such Series 2017 Bonds to the account, in the manner and at the address indicated in or pursuant to the Representation Letter.

(a) The Series 2017 Bonds initially shall be issued in the form of a single authenticated fully registered bond for each stated maturity of each portion of each series of Series 2017 Bonds, representing the aggregate principal amount of the Series 2017 Bonds of such portion, series and maturity. Upon initial issuance, the ownership of all such Series 2017 Bonds shall be registered in the registration records maintained by the Registrar pursuant to Section 2.05 hereof in the name of Cede & Co., as nominee of DTC, or such other nominee as DTC shall request pursuant to the Representation Letter. The Trustee, the Co-Trustee, the Registrar, the Authority and any paying agent may treat DTC (or its nominee) as the sole and exclusive owner of the Series 2017 Bonds registered in its name for the purposes of payment of the principal or redemption price of and interest on such Series 2017 Bonds,

selecting the Series 2017 Bonds or portions thereof to be redeemed, giving any notice permitted or required to be given to Bondowners hereunder, registering the transfer of Series 2017 Bonds, obtaining any consent or other action to be taken by Bondowners of the Series 2017 Bonds and for all other purposes whatsoever; and the Trustee, the Co-Trustee, the Registrar, the Authority and any paying agent shall not be affected by any notice to the contrary. Neither the Trustee, the Co-Trustee, the Authority nor any paying agent shall have any responsibility or obligation to any Participant (which shall mean, for purposes of this Section 34.04, securities brokers and dealers, banks, trust companies, clearing corporations and other entities, some of whom directly or indirectly own DTC), any person claiming a beneficial ownership interest in the Series 2017 Bonds under or through DTC or any Participant, or any other person which is not shown on the registration records as being a Bondowner, with respect to (i) the accuracy of any records maintained by DTC or any Participant, (ii) the payment by DTC or any Participant of any amount in respect of the principal or redemption price of or interest on the Series 2017 Bonds, (iii) any notice which is permitted or required to be given to Holders of Series 2017 Bonds hereunder, (iv) the selection by DTC or any Participant of any person to receive payment in the event of a partial redemption of the Series 2017 Bonds, or (v) any consent given or other action taken by DTC as Holder of Series 2017 Bonds. The Paying Agent shall pay all principal of and premium, if any, and interest on the Series 2017 Bonds only at the times, to the accounts, at the addresses and otherwise in accordance with the Representation Letter, and all such payments shall be valid and effective to satisfy fully and discharge the Authority's obligations with respect to the principal of and premium, if any, and interest on the Series 2017 Bonds to the extent of the sum or sums so paid. Upon delivery by DTC to the Trustee and Co-Trustee of written notice to the effect that DTC has determined to substitute a new nominee in place of its then existing nominee, the Series 2017 Bonds will be transferable to such new nominee in accordance with subsection (f) of this Section 34.04.

(b) In the event that the Authority elects to discontinue the book-entry system for any Series 2017 Bonds, the Trustee shall, upon the written instruction of the Authority, so notify DTC, whereupon DTC shall notify the Participants of the availability through DTC of bond certificates. In such event, such Series 2017 Bonds will be transferable in accordance with subsection (f) of this Section 34.04. DTC may determine to discontinue providing its services with respect to the Series 2017 Bonds at any time by giving written notice of such discontinuance to the Authority or the Trustee and Co-Trustee and discharging its responsibilities with respect thereto under applicable law. In such event, the Series 2017 Bonds will be transferable in accordance with subsection (f) of this Section 34.04. Whenever DTC requests the Authority, the Trustee and the Co-Trustee to do so, the Trustee, the Co-Trustee and the Authority will cooperate with DTC in taking appropriate action after reasonable notice to arrange for another securities depository to maintain custody of all certificates evidencing the Series 2017 Bonds then Outstanding. In such event, the Series 2017 Bonds will be transferable to such securities depository in accordance with subsection (f) of this Section 34.04, and thereafter, all references in this Supplemental Indenture to DTC or its nominee shall be deemed to refer to such successor securities depository and its nominee, as appropriate.

(c) Notwithstanding any other provision of this Supplemental Indenture to the contrary, so long as all Series 2017 Bonds Outstanding are registered in the name of any nominee of DTC, all payments with respect to the principal of and premium, if any, and interest on each such Series 2017 Bond and all notices with respect to each such Series 2017 Bond shall be made and given, respectively, to DTC as provided in the Representation Letter.

(d) The Co-Trustee is hereby authorized and requested to execute and deliver the Representation Letter and, in connection with any successor nominee for DTC or any successor depository, enter into comparable arrangements, and shall have the same rights with respect to its actions thereunder as it has with respect to its actions under this Supplemental Indenture.

(e) In the event that any transfer or exchange of Series 2017 Bonds is authorized under subsection (b) or (c) of this Section 34.04, such transfer or exchange shall be accomplished upon receipt by the Registrar from the registered owner thereof of the Series 2017 Bonds to be transferred or exchanged and appropriate instruments of transfer to the permitted transferee, all in accordance with the applicable provisions of Sections 2.03 and 2.04 of the Indenture. In the event Series 2017 Bond certificates are issued to Holders other than Cede & Co., its successor as nominee for DTC as holder of all the Series 2017 Bonds, another securities depository as holder of all the Series 2017 Bonds, or the nominee of such successor securities depository, the provisions of Sections 2.03 and 2.04 of the Indenture shall also apply to, among other things, the registration, exchange and transfer of the Series 2017 Bonds and the method of payment of principal of, premium, if any, and interest on the Series 2017 Bonds.

SECTION 34.05 Waiver of Brokerage Confirmations. The Authority acknowledges that to the extent regulations of the Comptroller of the Currency or another applicable regulatory entity grant the Authority the right to receive brokerage confirmations of security transactions as they occur, the Authority specifically waives receipt of such confirmations to the extent permitted by law. The Co-Trustee shall furnish the Authority and the Trustee periodic cash transaction statements which shall include detail for all investment transactions made by the Co-Trustee.

ARTICLE XXXV

ISSUANCE OF SERIES 2017 BONDS; APPLICATION OF PROCEEDS; FUNDS AND ACCOUNTS

SECTION 35.01 Issuance of Series 2017 Bonds. At any time after the execution and delivery of this Sixth Supplemental Indenture, the Authority may sell and execute and the Registrar for the Series 2017 Bonds shall authenticate and, upon the Order of the Authority, deliver the Series 2017 Bonds in an aggregate principal amount not to exceed \$107,660,000.

SECTION 35.02 Application of Proceeds of Series 2017 Bonds and Other Moneys. The net proceeds received by the Authority from the sale of the Series 2017 Bonds in the amount of \$120,589,766.67 (being the purchase price for the Series 2017 Bonds, constituting the aggregate principal amount of the Series 2017 Bonds in the amount of \$107,660,000, plus original issue premium of \$13,854,832.75, less underwriter's discount of \$925,066.08), together with \$2,532,453.10, attributable to the Series 2010 Bonds to be refunded, to be withdrawn by the Co-Trustee from the Debt Service Fund for the purpose of being applied to the refunding of the Series 2010 Bonds, and \$75.00 released from the Bond Reserve Fund as a result of a reduction in the Bond Reserve Fund Requirement as a result of the refunding of the Series 2010 Bonds to be refunded, shall be deposited with the Co-Trustee, who shall forthwith apply such proceeds in the following manner, as directed by a Request of the Authority:

- (a) the Co-Trustee shall transfer to the Trustee, for deposit in the Series 2017 Costs of Issuance Account, the amount of \$966,377.71; and
- (b) the Co-Trustee, as Escrow Agent, shall deposit \$122,155,917.06 in the 2010 Bond Escrow Fund established pursuant to the 2010 Escrow Agreement for the purpose of refunding the Series 2010 Bonds to be refunded, as described in the 2010 Escrow Agreement.

Following such transfers, the amount on deposit in the Bond Reserve Fund shall be at least \$34,888,400, which amount is equal to the Bond Reserve Fund Requirement as of the date of issuance of the Series 2017 Bonds.

SECTION 35.03 Establishment of Funds and Accounts.

(a) To ensure the proper application of such portion of proceeds from the sale of the Series 2017 Bonds, including to pay Costs of Issuance of the Series 2017 Bonds, there is hereby established within the Construction Fund the “Series 2017 Costs of Issuance Account”, which shall be held by the Trustee, as Depositary therefor. Any of such funds that remain on deposit in the Series 2017 Costs of Issuance Account 180 days after the Closing Date shall be transferred and deposited in the Revenue Fund and the Series 2017 Costs of Issuance Account shall be closed.

ARTICLE XXXVI

TAX COVENANTS

SECTION 36.01 2017 Rebate Account.

(A) The Trustee, as Depositary for the Revenue Fund, shall establish and maintain within the Rebate Fund a separate subaccount designated as the “2017 Rebate Account.” There shall be deposited in the 2017 Rebate Account from amounts in the Operation and Maintenance Fund or other lawfully available moneys such amounts as are required to be deposited therein pursuant to the Tax Certificate delivered by the Authority in connection with the issuance of the Series 2017 Bonds. All money at any time deposited in the 2017 Rebate Account shall be held by the Trustee in trust, to the extent required to satisfy the Rebate Requirement for the Series 2017 Bonds (as defined in such Tax Certificate), for payment to the United States of America, and the United States of America is hereby granted a first lien on such money until such payment. All amounts required to be deposited into or on deposit in the 2017 Rebate Account shall be governed exclusively by this Section and by such Tax Certificate (which is incorporated herein by reference).

In the event that the amount in the 2017 Rebate Account exceeds the Rebate Requirement for the Series 2017 Bonds, upon the Request of the Authority, the Trustee shall transfer the excess from the 2017 Rebate Account to the Revenue Fund.

(B) Notwithstanding any provisions of this Section, if the Authority shall provide to the Trustee an opinion of Bond Counsel that any specified action required under this Section is no longer required or that some further or different action is required to maintain the exclusion from federal income tax of interest on any Series of Bonds, the Trustee and the Authority may conclusively rely on such opinion in complying with the requirements of this Section, and, notwithstanding Article IX of the Indenture, the covenants hereunder shall be deemed to be modified to that extent.

SECTION 36.02 Tax Covenants for Series 2017 Bonds. (A) The Authority intends that interest on the Series 2017 Bonds be excluded from gross income for federal income tax purposes, that the Series 2017 Bonds and the interest thereon be exempt from taxation by any state or political subdivision or the District of Columbia and that interest on the Series 2017 Bonds not be treated as a specific preference item for purposes of the federal individual and corporate alternative minimum taxes. The Authority reserves the right to determine the desired tax status of any additional Series of Bonds.


(B) The Authority shall not use or permit the use of any proceeds of the Series 2017 Bonds or any other funds of the Authority, directly or indirectly, to acquire any securities or obligations, and shall not use or permit the use of any amounts received by the Authority in any manner, and shall not take or permit to be taken any other action or actions, which would cause any such Bond to be an “arbitrage bond” within the meaning of Section 148 of the Code or to be “federally guaranteed” within the meaning of Section 149(b) of the Code.

(C) The Authority shall at all times do and perform all acts and things permitted by law and this Indenture which are necessary or desirable in order to assure that interest paid on the Series 2017 Bonds (or on any of them) shall be excluded from gross income for federal income tax purposes and that interest paid on the Series 2017 Bonds shall not be treated as a specific preference item for purposes of the federal individual and corporate alternative minimum taxes.

SECTION 36.03 Continuing Disclosure. The Authority hereby covenants and agrees to comply with the Series 2017 Continuing Disclosure Agreement, by and between the Authority and the Co-Trustee (the “Series 2017 Continuing Disclosure Agreement”), as it may from time to time hereafter be amended or supplemented. Notwithstanding any other provision of the Indenture, failure of the Authority to comply with the requirements of the Series 2017 Continuing Disclosure Agreement shall not be considered an Event of Default and the Co-Trustee shall have no right to accelerate amounts due under the Indenture as a result thereof; provided, however, that the Trustee and the Owners of not less than 25% in principal amount of the Outstanding Series 2017 Bonds may take such action as may be necessary and appropriate, including seeking mandate or specific performance by court order, to cause the Authority to comply with its obligations in this Section with respect to the Series 2017 Continuing Disclosure Agreement.

IN WITNESS WHEREOF, the GUAM WATERWORKS AUTHORITY has caused this Sixth Supplemental Indenture to be signed in its name by its duly authorized officers; and BANK OF GUAM and U.S. BANK NATIONAL ASSOCIATION, in token of their acceptance of the respective trusts created hereunder, and being hereby appointed by the GUAM WATERWORKS AUTHORITY to such trusts, have caused this Sixth Supplemental Indenture to be signed in their respective corporate names by one of their authorized officers, all as of the day and year first above written.


GUAM WATERWORKS AUTHORITY

By 
Chairperson of the Board

By 
General Manager

Sixth Supplemental Indenture – Guam Waterworks Authority

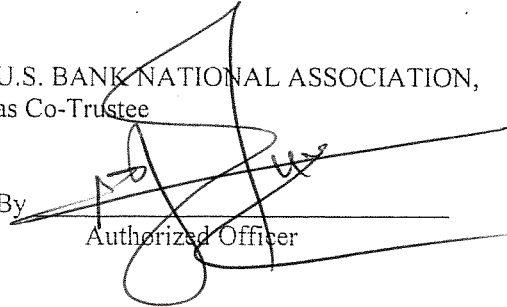
BANK OF GUAM, as Trustee

By 
Authorized Officer

Sixth Supplemental Indenture – Guam Waterworks Authority

OHSUSA:765985343

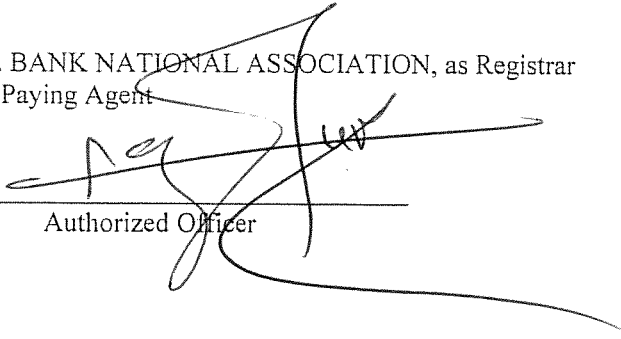
U.S. BANK NATIONAL ASSOCIATION,
as Co-Trustee

By 
Authorized Officer

Sixth Supplemental Indenture – Guam Waterworks Authority

The undersigned U.S. BANK NATIONAL ASSOCIATION, hereby accepts and agrees to perform the duties and obligations of Registrar and Paying Agent under this Sixth Supplemental Indenture.

U.S. BANK NATIONAL ASSOCIATION, as Registrar
and Paying Agent

By  _____
Authorized Officer

Sixth Supplemental Indenture – Guam Waterworks Authority

The undersigned BANK OF GUAM, hereby accepts and agrees to perform the duties and obligations of Depository for the Series 2017 Costs of Issuance Account under this Sixth Supplemental Indenture.

BANK OF GUAM, as Depository

By 
Authorized Officer

Sixth Supplemental Indenture – Guam Waterworks Authority

OHSUSA:765985343.

EXHIBIT A
FORM OF BOND

No. R-____ \$ _____

GUAM WATERWORKS AUTHORITY
WATER AND WASTEWATER SYSTEM REVENUE REFUNDING BOND
SERIES 2017

<u>INTEREST RATE</u>	<u>MATURITY DATE</u>	<u>DATED DATE</u>	<u>CUSIP</u>
	July 1, 20__	December 20, 2017	

Registered Owner: CEDE AND CO.

Principal Sum: _____ Dollars

The GUAM WATERWORKS AUTHORITY, a duly organized public corporation of the government of Guam (herein called the "Authority"), for value received, hereby promises to pay (but only out of the Revenues pledged therefor as hereinafter mentioned) to the registered owner identified above or registered assigns, on the maturity date specified above (subject to any right of prior redemption hereinafter mentioned), the principal sum specified above in lawful money of the United States of America; and to pay interest thereon, in like lawful money and solely from said Revenues, from the Interest Payment Date next preceding the date of authentication of this Bond unless this Bond is authenticated as of a day during the period from the Record Date preceding any Interest Payment Date to the Interest Payment Date, inclusive, in which event it shall bear interest from such Interest Payment Date, or unless this Bond is authenticated on or before June 15, 2018, in which event it shall bear interest from its date of delivery, until payment of such principal sum shall be discharged as provided in the indenture hereinafter mentioned, at the interest rate specified above per annum, payable on January 1 and July 1 in each year, commencing July 1, 2018; provided, however, that if, at the time of authentication of this Bond, interest is in default hereon, this Bond shall bear interest from the Interest Payment Date to which interest has previously been paid or made available for payment. The principal (or redemption price) hereof is payable upon surrender hereof at the Principal Office of U.S. Bank National Association (herein called the "Paying Agent") in Los Angeles, California (or such other office as may be subsequently designated), and the interest hereon is payable by check or draft mailed by first class mail to the person in whose name this Bond is registered at the close of business on the fifteenth day of the month immediately preceding an interest payment date, at such person's address as it appears on the bond registration books of U.S. Bank National Association (herein called the "Registrar"). Upon the written request of a registered owner of \$1,000,000 or more in aggregate principal amount of Series 2017 Bonds, payment of interest on and principal (including redemption price) of such Bonds will be made by wire transfer as provided in the Indenture; provided that any such principal payment shall nevertheless be subject to prior surrender of the Series 2017 Bonds with respect to which such payment is made.

This Bond is one of a duly authorized issue of bonds of the Authority designated as the "Guam Waterworks Authority Water and Wastewater System Revenue Bonds" (herein called the "Bonds"), unlimited in aggregate principal amount, except as otherwise provided in the laws of the United States of America and the government of Guam and in the Indenture hereinafter mentioned, which issue of Bonds consists or may consist of one or more Series of varying dates, maturities, interest rates, and redemption and other provisions, all issued or to be issued pursuant to Article 2, Chapter 14 of Title 12 of the Guam Code Annotated, as amended, and that certain Indenture, dated as of December 1, 2005 (as heretofore and hereafter supplemented and amended, the "Indenture"), by and between the Authority, Bank of Guam, as

trustee (herein called the “Trustee”) and U.S. Bank National Association, as co-trustee (herein called the “Co-Trustee”). This Bond is also one of a duly authorized series of Bonds additionally designated “Series 2017” (herein called the “Series 2017 Bonds”), in the aggregate principal amount of One Hundred Seven Million Six Hundred Sixty Thousand Dollars (\$107,660,000), all issued under the provisions of the Indenture and the Sixth Supplemental Indenture, dated as of December 1, 2017, by and among the Authority, the Trustee and the Co-Trustee. Reference is hereby made to the Indenture (a copy of which is on file at said office of the Trustee), including all indentures supplemental thereto, for a description of the rights thereunder of the registered owners of the Bonds, of the nature and extent of the security and provisions for payment of the Bonds, of the rights, duties and immunities of the Trustee and other fiduciaries and of the rights and obligations of the Authority thereunder, to all the provisions of which Indenture the registered owner of this Bond, by acceptance hereof, assents and agrees.

The Bonds and the interest thereon (to the extent set forth in the Indenture) are payable solely from Revenues (as that term is defined in the Indenture) pledged as provided in the Indenture. Subject only to the provisions of the Indenture permitting the application thereof for or to the purposes and on the terms and conditions set forth therein, said Revenues are pledged under the Indenture to secure the payment of the principal of, premium, if any, and interest on the Bonds in accordance with their terms and the provisions of the Indenture and the payment of Credit Agreement Payments and Parity Payment Agreement Payments in accordance with their terms.

The Series 2017 Bonds are subject to redemption on any date prior to their respective stated maturities, as a whole, or in part so that the reduction in Annual Debt Service for the Series 2017 Bonds for each Bond Year after such redemption shall be as nearly proportional as practicable, from and to the extent of proceeds received by the Authority due to a governmental taking of the System or portions thereof by eminent domain proceedings, if such amounts are not used for additions, improvements or extensions to the System, under the circumstances and upon the conditions and terms set forth in the Indenture, at the greater of par or Amortized Value, plus accrued interest to the date fixed for redemption, without premium. “Amortized Value” means on any interest payment date, the then current value of the bond amortizing the original issue premium over the period ending on the first call date using the constant yield method.

The Series 2017 Bonds maturing on July 1, 2040 are subject to redemption prior to their stated maturity in part, by lot, on July 1 of each year from Mandatory Sinking Account Payments, commencing July 1, 2038, at a redemption price equal to the Mandatory Sinking Account Payment amount for such date set forth in the Indenture, plus accrued interest thereon to the date fixed for redemption, without premium.

Notice of any redemption, identifying the Bonds or portions thereof to be redeemed, shall be given by the Registrar not less than 30 nor more than 60 days before the date fixed for redemption by first class mail to each of the registered owners of Bonds designated for redemption at their addresses appearing on the bond registration books of the Registrar on the date the Bonds to be redeemed are selected. Receipt of such notice by such registered owners shall not be a condition precedent to such redemption.

If this Bond is called for redemption and payment is duly provided herefor as specified in the Indenture, interest shall cease to accrue hereon from and after the date fixed for redemption.

The Series 2017 Bonds are issuable only in fully registered form in denominations of \$5,000 or any integral multiple thereof. Subject to the limitations and upon payment of the charges, if any, provided in the Indenture, this Bond may be exchanged, at the Principal Office of the Registrar, in Los Angeles, California, or such other office as the Registrar shall designate, for a new fully registered Bond or Bonds, of the same Series, maturity and tenor and of any authorized denomination or denominations and for the aggregate principal amount of this Bond then remaining outstanding.

This Bond is transferable by the registered owner hereof, in person or by its attorney duly authorized in writing, at said office of the Registrar, but only in the manner, subject to the limitations and upon payment of the charges, if any, provided in the Indenture, and upon surrender and cancellation of this Bond. Upon such transfer a new registered Bond or Bonds, of the same Series and maturity and of any authorized denomination or denominations and for the same aggregate principal amount of this Bond then remaining outstanding, will be issued to the transferee in exchange therefor. The Registrar shall not be required to register the transfer of this Bond during the period established by the Trustee for the selection of Bonds for redemption or at any time after selection of this Bond for redemption.

The Authority, the Trustee, the Paying Agent and the Registrar may treat the registered owner hereof as the absolute owner hereof for all purposes, and neither the Authority, the Paying Agent nor the Registrar shall be affected by any notice to the contrary.

The Indenture and the rights and obligations of the Authority, the registered owners of the Bonds, the Trustee, the Registrar and other fiduciaries may be modified or amended at any time in the manner, to the extent, and upon the terms provided in the Indenture, provided that no such modification or amendment shall (a) extend the fixed maturities of the Bonds, or extend the time for making any Mandatory Sinking Account Payments, or reduce the rate of interest thereon, or extend the time of payment of interest, or reduce the amount of principal thereof, or reduce any premium payable on the redemption thereof, without the consent of the Owner of each Bond so affected, (b) reduce the aforesaid percentage of Owners of Bonds whose consent is required for the execution of any amendment or modification of this Indenture or permit the creation of any lien on the Revenues prior to or on a parity with the lien created by this Indenture or deprive the Owners of the Bonds of the lien created by this Indenture upon such Revenues, without in each case the consent of the Owners of all of the Bonds then Outstanding.

The Bonds are limited obligations of the Authority, payable solely from and secured by a pledge of the Revenues as provided in the Indenture. The Bonds are not a legal or equitable pledge, charge, lien or encumbrance upon any property of the Authority or upon any of its income, receipts or revenues except the Revenues pledged to the payment thereof as provided in the Indenture.

Neither the Government of Guam nor any political subdivision thereof is obligated to pay the principal of, Redemption Price, if applicable, or interest on the Bonds, except from Revenues, and neither the Authority, the Government of Guam nor any political subdivision thereof has pledged its faith or credit to the payment of the principal of, redemption price, if applicable, or interest on the Bonds.

This Bond shall not be entitled to any benefit under the Indenture, or become valid or obligatory for any purpose, until the certificate of authentication and registration hereon endorsed shall have been dated and signed by the Registrar.

It is hereby certified and recited that any and all conditions, things and acts required to exist, to have happened and to have been performed precedent to and in the issuance of this Bond exist, have happened and have been performed in due time, form and manner as required by the laws of the United States of America and the government of Guam, and that the amount of this Bond, together with all other indebtedness of the Authority, does not exceed any limit prescribed by such laws, and is not in excess of the amount of Bonds permitted to be issued under the Indenture.

IN WITNESS WHEREOF, the GUAM WATERWORKS AUTHORITY has caused this Bond to be executed in its name and on its behalf by the manual or facsimile signature of the Chairman of the Consolidated Commission on Utilities and the Chief Financial Officer of the Authority, all as of the dated date first set forth above.

GUAM WATERWORKS AUTHORITY

By _____
Chairman of the Board of Directors

By _____
Chief Financial Officer

[FORM OF] CERTIFICATE OF AUTHENTICATION AND REGISTRATION

This is one of the Bonds described in the within-mentioned Indenture, which has been registered as of _____.

U.S. BANK NATIONAL ASSOCIATION, as
Registrar

By _____
Authorized Officer

[FORM OF] ASSIGNMENT

For value received the undersigned do(es) hereby sell, assign and transfer unto the within-mentioned registered Bond and hereby irrevocably constitute(s) and appoint(s) attorney, to transfer the same on the books of the Registrar with full power of substitution in the premises.

Dated: _____

NOTICE: The signature on this Assignment must correspond with the name as it appears on the face of the within Bond in every particular, without alteration or enlargement or any change whatsoever.

Signature Guaranteed:

Social Security Number, Taxpayer Identification Number or other Identifying Number of Assignee:

Notice: Signature must be guaranteed by a member firm of the New York Stock Exchange or a commercial bank or trust company.

Note: Transfer fees must be paid to the Registrar in order to transfer or exchange this bond as provided in the within-mentioned Indenture.

GUAM WATERWORKS AUTHORITY

and

BANK OF GUAM,
as Trustee,

and

U.S. BANK NATIONAL ASSOCIATION,
as Co-Trustee

SEVENTH SUPPLEMENTAL INDENTURE

Dated as of June 1, 2020

Relating to

\$134,000,000

Guam Waterworks Authority
Water and Wastewater System Revenue Bonds
Series 2020A

TABLE OF CONTENTS

	Page
ARTICLE XXXVII DEFINITIONS	2
SECTION 37.01 Definitions	2
ARTICLE XXXVIII AUTHORIZATION AND TERMS OF THE SERIES 2020A BONDS	3
SECTION 38.01 Authorization of Series 2020A Bonds	3
SECTION 38.02 Terms of Series 2020A Bonds; Appointments; Designations	3
SECTION 38.03 Terms of Redemption of the Series 2020A Bonds	4
SECTION 38.04 Special Covenants as to Book-Entry Only System for Series 2020A Bonds	5
SECTION 38.05 Waiver of Brokerage Confirmations.....	7
ARTICLE XXXIX ISSUANCE OF Series 2020A Bonds; APPLICATION OF PROCEEDS; FUNDS AND ACCOUNTS	7
SECTION 39.01 Issuance of Series 2020A Bonds	7
SECTION 39.02 Application of Proceeds of Series 2020A Bonds and Other Moneys	7
SECTION 39.03 Establishment of Funds and Accounts for Series 2020A Bonds; Debt Service Fund; Bond Reserve Fund.....	8
ARTICLE XL TAX COVENANTS	9
SECTION 40.01 Series 2020A Rebate Account	9
SECTION 40.02 Tax Covenants for Series 2020A Bonds	10
SECTION 40.03 Continuing Disclosure	10
EXHIBIT A FORM OF BOND	A-1

THIS SEVENTH SUPPLEMENTAL INDENTURE, made and entered into and dated as of June 1, 2020, by and among the GUAM WATERWORKS AUTHORITY, a duly organized public corporation of the government of Guam (the “Authority”), BANK OF GUAM, a domestic banking corporation duly organized and existing under and by virtue of the laws of Guam, having a corporate trust office in Guam, and being qualified to accept and administer the trusts hereby created and to do business within Guam, as trustee (the “Trustee”), and U.S. BANK NATIONAL ASSOCIATION, a national banking association organized under the laws of the United States of America and qualified to accept and administer the trusts hereby created, as co-trustee (the “Co-Trustee”),

W I T N E S S E T H:

WHEREAS, pursuant to Article 2, Chapter 14 of Title 12 of the Guam Code Annotated (the “Act”), the Authority is authorized to issue and sell revenue bonds to raise funds for the purpose of acquiring, constructing, improving, equipping, maintaining, repairing, renewing, replacing, reconstructing or insuring the System (as defined in the Indenture), or any part thereof, or for the purpose of refunding any such bonds or any other prior obligations of the Authority, or for any combination of such purposes;

WHEREAS, the Authority has determined to issue revenue bonds for such purposes and to that end has duly entered into that certain Indenture, dated as of December 1, 2005 (the “Indenture”), between the Authority and the Trustee, to secure the payment of the principal thereof and the interest and premium, if any, thereon, and the observance of the covenants and conditions therein contained;

WHEREAS, revenue bonds may be issued pursuant to the Indenture and one or more indentures supplemental thereto (“Supplemental Indentures”), from time to time, in an aggregate principal amount not limited except as therein provided, and said revenue bonds are to be designated as the “Guam Waterworks Authority Water and Wastewater System Revenue Bonds” (the “Bonds”);

WHEREAS, the Authority, the Trustee and the Co-Trustee have heretofore entered into a Supplemental Indenture dated as of December 1, 2005 pursuant to which \$101,175,000 aggregate principal amount of Bonds further designated as “Series 2005 Bonds” were issued, a Supplemental Indenture dated as of November 1, 2010, pursuant to which \$118,825,000 of Bonds further designated as “Series 2010 Bonds” were issued, a Third Supplemental Indenture dated as of December 1, 2013, pursuant to which \$172,630,000 of Bonds further designated as “Series 2013 Bonds” were issued, a Fourth Supplemental Indenture dated as of August 1, 2014, pursuant to which \$85,600,000 of Bonds further designated as “Series 2014 Bonds” were issued, a Fifth Supplemental Indenture dated as of February 1, 2016 pursuant to which \$143,310,000 aggregate principal amount of Bonds further designated as “Series 2016 Bonds” were issued, and a Sixth Supplemental Indenture dated as of December 1, 2017 pursuant to which \$107,660,000 aggregate principal amount of Bonds further designated as “Series 2017 Bonds” were issued;

WHEREAS, it is now desirable and necessary and in the best interests of the Authority to authorize the issuance of \$134,000,000 aggregate principal amount of Bonds further designated as “Series 2020A Bonds” (the “Series 2020A Bonds”) to raise funds for the purposes of financing the Series 2020A Project (as defined herein), funding capitalized interest on the Series 2020A Bonds, making a deposit into the Bond Reserve Fund, and paying costs of issuance;

WHEREAS, pursuant to and subject to the terms and conditions set forth in Public Law No. 28-71, as amended by Public Law Nos. 30-145 and 32-069, the Legislature of Guam (as required by Section 50103(k) of Title 12, Guam Code Annotated (the “GEDA Law”)) approved the terms and conditions of the issuance of the Series 2020A Bonds, so long as the Series 2020A Bonds meet the requirements set forth in the Act;

WHEREAS, the Guam Economic Development Authority has approved the issuance and sale of the Series 2020A Bonds as required by the GEDA Law;

WHEREAS, all acts, conditions and things required by the laws of the United States of America and the laws of Guam to exist, to have happened and to have been performed precedent to and in connection with the issuance of the Series 2020A Bonds exist, have happened, and have been performed in regular and due time, form and manner as required by law, and the Authority is now duly authorized and empowered, pursuant to each and every requirement of law, to issue said Bonds for the purpose, in the manner and upon the terms herein provided;

WHEREAS, no Event of Default (as defined in the Indenture) has occurred or is now occurring;

NOW, THEREFORE, THIS SEVENTH SUPPLEMENTAL INDENTURE WITNESSETH, in consideration of the premises and of the mutual covenants herein contained and of the purchase and acceptance of the Series 2020A Bonds by the owners thereof, and for other valuable considerations, the receipt of which is hereby acknowledged, the Authority does hereby covenant and agree with the Trustee and the Co-Trustee as follows:

ARTICLE XXXVII

DEFINITIONS

SECTION 37.01 Definitions. Unless the context otherwise requires, the terms defined in the Indenture shall, for all purposes of this Supplemental Indenture and of any certificate, opinion or other document herein mentioned, have the meanings specified in the Indenture.

In addition, unless the context otherwise requires, the terms defined in this Section shall for all purposes of the Indenture and this Supplemental Indenture and of any certificate, opinion or other document herein mentioned, have the meanings herein specified.

“Bond Year” means, with respect to the Series 2020A Bonds, the period of twelve consecutive months ending on June 4 of each year if Series 2020A Bonds are or will be Outstanding in such twelve-month period; provided that the first Bond Year shall commence on the date of delivery of the Series 2020A Bonds and end on June 4, 2021.

“DTC” means The Depository Trust Company, New York, New York, and its successors and assigns.

“Series 2020A Bonds” means the \$134,000,000 aggregate principal amount of Guam Waterworks Authority Water and Wastewater System Revenue Bonds, Series 2020A.

“Series 2020A Capitalized Interest Account” means the account by such name as established by Section 39.03(b) hereof.

“Series 2020A Construction Account” means the account by such name as established by Section 39.03(a) hereof.

“Series 2020A Costs of Issuance Account” means the account by such name as established by Section 39.03(a) hereof.

“Series 2020A Project” means, with respect to the Series 2020A Bonds, the acquisition, construction, improvement, equipping, maintenance, repair, renewal, replacement and reconstruction of those certain parts of the System to be funded with proceeds of the Series 2020A Bonds.

“Series 2020A Rebate Account” means the account by such name as established by Section 40.01 hereof.

“Series 2020A Serial Bonds” means the Series 2020A Bonds designated as Serial Bonds by Section 38.02, and for which no Mandatory Sinking Account Payments are provided.

“Series 2020A Term Bonds” means the Series 2020A Bonds designated as Term Bonds by Section 38.02, and for which Mandatory Sinking Account Payments are provided.

ARTICLE XXXVIII

AUTHORIZATION AND TERMS OF THE SERIES 2020A BONDS

SECTION 38.01 Authorization of Series 2020A Bonds. One Series of Bonds further designated as the “Guam Waterworks Authority Water and Wastewater System Revenue Bonds Series 2020A” is hereby authorized and created under the Act to raise funds for the Project Costs of the Series 2020A Project, including to fund capitalized interest on the Series 2020A Bonds, to pay the Costs of Issuance of the Series 2020A Bonds, and to make a deposit into the Bond Reserve Fund. The aggregate principal amount of Series 2020A Bonds which may be issued and Outstanding under this Supplemental Indenture shall not exceed \$134,000,000. The Series 2020A Bonds shall be treated as a single Series under the Indenture.

SECTION 38.02 Terms of Series 2020A Bonds; Appointments; Designations.

(a) The Series 2020A Bonds shall be issued as fully registered Bonds without coupons in the denominations of \$5,000 or any integral multiple thereof. The Series 2020A Bonds shall be dated their date of delivery, and interest thereon (based on a 360-day year of twelve thirty-day months) shall be payable on January 1 and July 1 of each year, commencing July 1, 2020 (each, an “Interest Payment Date” for the Series 2020A Bonds).

(b) The Series 2020A Bonds shall mature on the date and in the amount and shall bear interest at the rate per annum specified in the following table:

Maturity Date (January 1)	Principal Amount	Interest Rate
2050	\$134,000,000	5.00%

(c) The Series 2020A Bond is a Term Bond.

(d) The Principal Payment Period for the Series 2020A Bonds shall be the twelve calendar months next preceding each maturity date or Mandatory Sinking Account Payment date for such Bonds.

(e) The Record Date for all scheduled payments of principal of and interest on the Series 2020A Bonds shall be the 15th day of the calendar month next preceding the date each such payment is due, whether or not such 15th day is a Business Day.

(f) The Co-Trustee is hereby appointed Paying Agent for the Series 2020A Bonds and Registrar for the Series 2020A Bonds, and the Co-Trustee's corporate trust office in Los Angeles, California, is hereby designated as the Principal Office of the Co-Trustee. The Trustee is hereby appointed Depository for the Series 2020A Construction Account, the Series 2020A Costs of Issuance Account and the Series 2020A Capitalized Interest Account.

(g) The principal of and premium, if any, on each Series 2020A Bond shall be payable in lawful money of the United States of America to the Owner of such Bond, upon the surrender of such Bond at the Principal Office of any Paying Agent for such Bond. The interest on each Series 2020A Bond shall be payable in like lawful money to the person whose name appears on the bond registration books of the Registrar for such Bond as the Owner of such Bond as of the close of business on the Record Date for such Bond preceding the Interest Payment Date, whether or not such Record Date is a Business Day, such interest to be paid by check or mailed by first class mail to such Owner at such address as appears on such registration books or at such address as such Owner may have filed with the Registrar for that purpose. Upon the written request of a registered owner of one million dollars (\$1,000,000) or more in aggregate principal amount of Series 2020A Bonds, payment of interest on and principal (including Redemption Price) of such Bonds shall be made by wire transfer from the Paying Agent to the registered owner of such Bonds. Any such principal payment by wire transfer shall nevertheless be subject to prior surrender of the Series 2020A Bonds with respect to which such payment is made. Each payment of interest or principal on Series 2020A Bonds, whether by check, draft or wire transfer, shall be accompanied by information specifying for each maturity of such Bonds with respect to which such payment is being made, the amount and the CUSIP number (if available).

(h) Each Series 2020A Bond shall bear interest from the Interest Payment Date next preceding the date of authentication thereof unless it is authenticated as of a day during the period from the Record Date preceding any Interest Payment Date to the Interest Payment Date, inclusive, in which event it shall bear interest from such Interest Payment Date, or unless it is authenticated on or before June 15, 2020, in which event it shall bear interest from its date of delivery; provided, however, that if, at the time of authentication of any Series 2020A Bond, interest is in default on Outstanding Bonds of such Series, such Bond shall bear interest from the Interest Payment Date to which interest has previously been paid or made available for payment on the Outstanding Bonds of such Series.

(i) The Series 2020A Bonds shall be subject to redemption as provided in Section 38.03.

(j) The Registrar for the Series 2020A Bonds shall assign each Series 2020A Bond authenticated and registered by it a distinctive letter, or number, or letter and number, and shall maintain a record thereof which shall be available to the Authority for inspection.

(k) The Series 2020A Bonds, the Registrar's certificate of authentication and registration and the form of assignment to appear thereon shall be in substantially the forms set forth in Exhibit A hereto, with necessary or appropriate variations, omissions and insertions as permitted or required by this Indenture.

SECTION 38.03 Terms of Redemption of the Series 2020A Bonds.

(a) Extraordinary Optional Redemption. The Series 2020A Bonds are subject to redemption on any date prior to their stated maturity, as a whole, or in part so that the reduction in Annual Debt Service for the Series 2020A Bonds for each Bond Year after such redemption shall be as nearly proportional as practicable, from and to the extent of proceeds received by the Authority due to a governmental taking of the System or portions thereof by eminent domain proceedings, if such

amounts are not used for additions, improvements or extensions to the System, under the circumstances and upon the conditions and terms set forth in the Indenture, at the greater of par or Amortized Value, plus accrued interest to the date fixed for redemption, without premium. “Amortized Value” means on any interest payment date, the then current value of the bond amortizing the original issue premium over the period ending on the first call date using the constant yield method.

(b) Optional Redemption. The Series 2020A Bonds are subject to redemption prior to their stated maturity, at the option of the Authority, from any source of available moneys, on any date on or after July 1, 2030, as a whole, or in part by such maturities or portions of maturities as shall be determined by the Authority (or by lot within such maturity in the absence of such a determination), at a redemption price equal to the principal amount of each Series 2020A Bond called for redemption plus interest accrued to the date fixed for redemption, without premium.

(c) Mandatory Sinking Account Redemption. The Series 2020A Bonds are subject to redemption prior to their stated maturity in part, by lot, from Mandatory Sinking Account Payments, commencing July 1, 2047, at a redemption price equal to their principal amount, plus accrued interest thereon to the date fixed for redemption, without premium, on the dates and in the amounts, as set forth below:

<u>Date</u>	<u>Amount</u>
July 1, 2047	\$30,880,000
July 1, 2048	32,420,000
July 1, 2049	34,040,000
January 1, 2050†	36,660,000

† Final maturity.

SECTION 38.04 Special Covenants as to Book-Entry Only System for Series 2020A Bonds.

(a) Except as otherwise provided in subsections (b) and (c) of this Section 38.04, all of the Series 2020A Bonds initially issued shall be registered in the name of Cede & Co., as nominee for The Depository Trust Company, New York, New York (“DTC”), or such other nominee as DTC shall request pursuant to the Representation Letter. Payment of the interest on any Series 2020A Bond registered in the name of Cede & Co. shall be made on each interest payment date for such Series 2020A Bonds to the account, in the manner and at the address indicated in or pursuant to the Representation Letter.

(b) The Series 2020A Bonds initially shall be issued in the form of a single authenticated fully registered bond, representing the aggregate principal amount of the Series 2020A Bonds. Upon initial issuance, the ownership of the Series 2020A Bonds shall be registered in the registration records maintained by the Registrar pursuant to Section 2.05 hereof in the name of Cede & Co., as nominee of DTC, or such other nominee as DTC shall request pursuant to the Representation Letter. The Trustee, the Co-Trustee, the Registrar, the Authority and any paying agent may treat DTC (or its nominee) as the sole and exclusive owner of the Series 2020A Bonds registered in its name for the purposes of payment of the principal or redemption price of and interest on such Series 2020A Bonds, selecting the Series 2020A Bonds or portions thereof to be redeemed, giving any notice permitted or required to be given to Bondowners hereunder, registering the transfer of Series 2020A Bonds, obtaining any consent or other action to be taken by Bondowners of the Series 2020A Bonds

and for all other purposes whatsoever; and the Trustee, the Co-Trustee, the Registrar, the Authority and any paying agent shall not be affected by any notice to the contrary. Neither the Trustee, the Co-Trustee, the Authority nor any paying agent shall have any responsibility or obligation to any Participant (which shall mean, for purposes of this Section 38.04, securities brokers and dealers, banks, trust companies, clearing corporations and other entities, some of whom directly or indirectly own DTC), any person claiming a beneficial ownership interest in the Series 2020A Bonds under or through DTC or any Participant, or any other person which is not shown on the registration records as being a Bondowner, with respect to (i) the accuracy of any records maintained by DTC or any Participant, (ii) the payment by DTC or any Participant of any amount in respect of the principal or redemption price of or interest on the Series 2020A Bonds, (iii) any notice which is permitted or required to be given to Holders of Series 2020A Bonds hereunder, (iv) the selection by DTC or any Participant of any person to receive payment in the event of a partial redemption of the Series 2020A Bonds, or (v) any consent given or other action taken by DTC as Holder of Series 2020A Bonds. The Paying Agent shall pay all principal of and premium, if any, and interest on the Series 2020A Bonds only at the times, to the accounts, at the addresses and otherwise in accordance with the Representation Letter, and all such payments shall be valid and effective to satisfy fully and discharge the Authority's obligations with respect to the principal of and premium, if any, and interest on the Series 2020A Bonds to the extent of the sum or sums so paid. Upon delivery by DTC to the Trustee and Co-Trustee of written notice to the effect that DTC has determined to substitute a new nominee in place of its then existing nominee, the Series 2020A Bonds will be transferable to such new nominee in accordance with subsection (f) of this Section 38.04.

(c) In the event that the Authority elects to discontinue the book-entry system for any Series 2020A Bonds, the Trustee shall, upon the written instruction of the Authority, so notify DTC, whereupon DTC shall notify the Participants of the availability through DTC of bond certificates. In such event, such Series 2020A Bonds will be transferable in accordance with subsection (f) of this Section 38.04. DTC may determine to discontinue providing its services with respect to the Series 2020A Bonds at any time by giving written notice of such discontinuance to the Authority or the Trustee and Co-Trustee and discharging its responsibilities with respect thereto under applicable law. In such event, the Series 2020A Bonds will be transferable in accordance with subsection (f) of this Section 38.04. Whenever DTC requests the Authority, the Trustee and the Co-Trustee to do so, the Trustee, the Co-Trustee and the Authority will cooperate with DTC in taking appropriate action after reasonable notice to arrange for another securities depository to maintain custody of all certificates evidencing the Series 2020A Bonds then Outstanding. In such event, the Series 2020A Bonds will be transferable to such securities depository in accordance with subsection (f) of this Section 38.04, and thereafter, all references in this Supplemental Indenture to DTC or its nominee shall be deemed to refer to such successor securities depository and its nominee, as appropriate.

(d) Notwithstanding any other provision of this Supplemental Indenture to the contrary, so long as all Series 2020A Bonds Outstanding are registered in the name of any nominee of DTC, all payments with respect to the principal of and premium, if any, and interest on each such Series 2020A Bond and all notices with respect to each such Series 2020A Bond shall be made and given, respectively, to DTC as provided in the Representation Letter.

(e) The Co-Trustee is hereby authorized and requested to execute and deliver the Representation Letter and, in connection with any successor nominee for DTC or any successor depository, enter into comparable arrangements, and shall have the same rights with respect to its actions thereunder as it has with respect to its actions under this Supplemental Indenture.

(f) In the event that any transfer or exchange of Series 2020A Bonds is authorized under subsection (b) or (c) of this Section 38.04, such transfer or exchange shall be accomplished upon receipt by the Registrar from the registered owner thereof of the Series 2020A Bonds to be transferred or exchanged and appropriate instruments of transfer to the permitted transferee, all in accordance with the applicable provisions of Sections 2.03 and 2.04 of the Indenture. In the event Series 2020A Bond certificates are issued to Holders other than Cede & Co., its successor as nominee for DTC as holder of all the Series 2020A Bonds, another securities depository as holder of all the Series 2020A Bonds, or the nominee of such successor securities depository, the provisions of Sections 2.03 and 2.04 of the Indenture shall also apply to, among other things, the registration, exchange and transfer of the Series 2020A Bonds and the method of payment of principal of, premium, if any, and interest on the Series 2020A Bonds.

SECTION 38.05 Waiver of Brokerage Confirmations. The Authority acknowledges that to the extent regulations of the Comptroller of the Currency or another applicable regulatory entity grant the Authority the right to receive brokerage confirmations of security transactions as they occur, the Authority specifically waives receipt of such confirmations to the extent permitted by law. The Co-Trustee shall furnish the Authority and the Trustee periodic cash transaction statements which shall include detail for all investment transactions made by the Co-Trustee.

ARTICLE XXXIX

ISSUANCE OF SERIES 2020A BONDS; APPLICATION OF PROCEEDS; FUNDS AND ACCOUNTS

SECTION 39.01 Issuance of Series 2020A Bonds. At any time after the execution and delivery of this Seventh Supplemental Indenture, the Authority may sell and execute and the Registrar for the Series 2020A Bonds shall authenticate and, upon the Order of the Authority, deliver the Series 2020A Bonds in an aggregate principal amount not to exceed \$134,000,000.

SECTION 39.02 Application of Proceeds of Series 2020A Bonds and Other Moneys. The net proceeds received by the Authority from the sale of the Series 2020A Bonds in the amount of \$143,911,039.18, together with a contribution to Costs of Issuance from the Authority in the amount of \$283,000.00 (such contribution from lawfully available sources not constituting proceeds of the Series 2020A Bonds), shall be deposited with the Trustee, who shall forthwith transfer or apply such proceeds in the following manner, as directed by a Request of the Authority:

(a) The Trustee shall deposit in the Series 2020A Construction Account the amount of \$123,590,268.65;

(b) the Trustee shall deposit in the Series 2020A Costs of Issuance Account the amount of \$1,158,236.89 (constituting proceeds of the Series 2020A Bonds in the amount of \$875,236.89 and the Authority's cash contribution in the amount of \$283,000.00);

(c) the Trustee shall deposit in the Series 2020A Capitalized Interest Account the amount of \$12,785,833.33; and

(d) the Trustee shall transfer to the Co-Trustee, for deposit in the Bond Reserve Fund, the amount of \$6,659,700.31, which shall bring the total amount on deposit therein to \$41,588,400.00, which shall be at least equal to the Bond Reserve Requirement.

SECTION 39.03 Establishment of Funds and Accounts for Series 2020A Bonds;
Debt Service Fund; Bond Reserve Fund.

(a) Series 2020A Construction Account; Series 2020A Costs of Issuance Account.

(i) To ensure the proper application of such portion of proceeds from the sale of the Series 2020A Bonds to be applied to pay Project Costs of the Series 2020A Project, there is hereby established within the Construction Fund the “Series 2020A Construction Account” which shall be held by the Trustee as Depository therefor. The monies set aside and placed in the Series 2020A Construction Account to be applied to the Project Costs of the Series 2020A Project shall be expended for the purposes of the Series 2020A Project and shall not be used for any other purpose whatsoever.

(ii) To ensure the proper application of such portion of proceeds from the sale of the Series 2020A Bonds to be applied to pay Costs of Issuance of the Series 2020A Bonds, there is hereby established within the Series 2020A Construction Account the “Series 2020A Costs of Issuance Account” which shall be held by the Trustee as Depository therefor. Any funds that remain on deposit in the Series 2020A Costs of Issuance Account 180 days after the Closing Date shall be transferred and deposited or otherwise allocated to the Series 2020A Construction Account and applied to Project Costs of the Series 2020A Project, and thereafter the Series 2020A Costs of Issuance Account shall be closed.

(iii) Except as otherwise provided herein, before any payment from the Series 2020A Construction Account or the Series 2020A Costs of Issuance Account therein shall be made by the Depository, the Authority shall file or cause to be filed with the Depository a requisition of the Authority (each a “Requisition”), such Requisition to be signed by the Chairperson or the General Manager or by any other officer of the Authority duly authorized by resolution of the Board for that purpose and to include (1) the item number of such payment; (2) the name and address of the person to whom each such payment is due, which may be the Authority in the case of reimbursement for costs theretofore paid by the Authority; (3) the respective amounts to be paid; (4) the purpose by general classification for which each obligation to be paid was incurred; and (5) that obligations in the stated amounts have been incurred by the Authority and are presently due and payable and that each item thereof is a proper charge against the Series 2020A Construction Account or the Series 2020A Costs of Issuance Account, as specified, and has not been previously paid from said Account.

(iv) When the Authority determines that the Series 2020A Project has been completed, a Certificate of the Authority shall be delivered to the Depository by the Authority stating: (1) the fact and date of such completion; (2) that all of the Project Costs of the Series 2020A Project have been determined and paid (or that all of such costs have been paid less specified claims that are subject to dispute and for which a retention in the Series 2020A Construction Account is to be maintained in the full amount of such claims until such dispute is resolved); and (3) that the Depository is to transfer the remaining balance in the Series 2020A Construction Account, less the amount of any such retention, to the Co-Trustee for deposit to the Bond Reserve Fund, to the extent of any deficiency therein, and then to the Debt Service Fund.

(b) Series 2020A Capitalized Interest Account.

(i) To ensure the proper application of such proceeds from the sale of the Series 2020A Bonds to be applied to pay Capitalized Interest on the Series 2020A Bonds, there is hereby established within the Series 2020A Construction Account the “Series 2020A Capitalized Interest Account” which shall be held by the Trustee as Depository therefor.

(ii) In accordance with the following schedule, and without need of a Requisition, the Depository is hereby directed to transfer all money in the Series 2020A Capitalized

Interest Account to the Co-Trustee, and the Co-Trustee shall apply such money to pay interest due on the Series 2020A Bonds (which amount in respect of proceeds of the Series 2020A Bonds initially deposited therein shall not exceed the amount sufficient to pay interest on the Series 2020A Bonds to and including May 1, 2022). Any amounts remaining in the Series 2020A Capitalized Interest Account after the final transfer shall be transferred to the Co-Trustee for deposit in the Debt Service Fund and the Depository shall close the Series 2020 Capitalized Interest Account:

Series 2020A Capitalized Interest Schedule

<u>Date</u>	<u>Capitalized Interest Transfer Amount</u>
July 1, 2020	\$ 502,500.00
January 1, 2021	3,350,000.00
July 1, 2021	3,350,000.00
January 1, 2022	3,350,000.00
July 1, 2022*	Balance

* Final transfer.

(c) Debt Service Fund; Bond Reserve Fund. As provided in Section 5.05 of the Indenture, the Series 2020A Bonds shall be payable from the Debt Service Fund, and, in accordance with Section 5.06 of the Indenture, the Series 2020A Bonds shall be secured by the Bond Reserve Fund. Pursuant to Section 5.06 of the Indenture, to the extent that moneys in the Bond Reserve Fund exceed the Bond Reserve Fund Requirement, income derived from the investment of the proceeds of the Series 2020A Bonds in the Bond Reserve Fund prior to the completion of the Series 2020A Project shall be deposited in the Series 2020A Construction Account; otherwise such income shall be transferred and deposited in the Revenue Fund.

(d) The Series 2020A Rebate Account shall be established as provided in Section 40.01 hereof.

ARTICLE XL

TAX COVENANTS

SECTION 40.01 Series 2020A Rebate Account.

(A) The Trustee, as Depository for the Revenue Fund, shall establish and maintain within the Rebate Fund a separate subaccount designated as the “Series 2020A Rebate Account.” There shall be deposited in the Series 2020A Rebate Account from amounts in the Operation and Maintenance Fund or other lawfully available moneys such amounts as are required to be deposited therein pursuant to the Tax Certificate delivered by the Authority in connection with the issuance of the Series 2020A Bonds. All money at any time deposited in the Series 2020A Rebate Account shall be held by the Trustee in trust, to the extent required to satisfy the Rebate Requirement for the Series 2020A Bonds (as defined in such Tax Certificate), for payment to the United States of America, and the United States of America is hereby granted a first lien on such money until such payment. All amounts required to be deposited into or on deposit in the Series 2020A Rebate Account shall be governed exclusively by this Section and by such Tax Certificate (which is incorporated herein by reference).

In the event that the amount in the Series 2020A Rebate Account exceeds the Rebate Requirement for the Series 2020A Bonds, upon the Request of the Authority, the Trustee shall transfer the excess from the Series 2020A Rebate Account to the Revenue Fund.

(B) Notwithstanding any provisions of this Section, if the Authority shall provide to the Trustee an opinion of Bond Counsel that any specified action required under this Section is no longer required or that some further or different action is required to maintain the exclusion from federal income tax of interest on any Series of Bonds, the Trustee and the Authority may conclusively rely on such opinion in complying with the requirements of this Section, and, notwithstanding Article IX of the Indenture, the covenants hereunder shall be deemed to be modified to that extent.

SECTION 40.02 Tax Covenants for Series 2020A Bonds. (A) The Authority intends that interest on the Series 2020A Bonds be excluded from gross income for federal income tax purposes, that the Series 2020A Bonds and the interest thereon be exempt from taxation by any state or political subdivision or the District of Columbia and that interest on the Series 2020A Bonds not be treated as a specific preference item for purposes of the federal individual and corporate alternative minimum taxes. The Authority reserves the right to determine the desired tax status of any additional Series of Bonds.

(B) The Authority shall not use or permit the use of any proceeds of the Series 2020A Bonds or any other funds of the Authority, directly or indirectly, to acquire any securities or obligations, and shall not use or permit the use of any amounts received by the Authority in any manner, and shall not take or permit to be taken any other action or actions, which would cause any such Bond to be an “arbitrage bond” within the meaning of Section 148 of the Code or to be “federally guaranteed” within the meaning of Section 149(b) of the Code.

(C) The Authority shall at all times do and perform all acts and things permitted by law and this Indenture which are necessary or desirable in order to assure that interest paid on the Series 2020A Bonds (or on any of them) shall be excluded from gross income for federal income tax purposes and that interest paid on the Series 2020A Bonds shall not be treated as a specific preference item for purposes of the federal individual and corporate alternative minimum taxes.

SECTION 40.03 Continuing Disclosure. The Authority hereby covenants and agrees to comply with the Series 2020A Continuing Disclosure Agreement, by and between the Authority and the Co-Trustee (the “Series 2020A Continuing Disclosure Agreement”), as it may from time to time hereafter be amended or supplemented. Notwithstanding any other provision of the Indenture, failure of the Authority to comply with the requirements of the Series 2020A Continuing Disclosure Agreement shall not be considered an Event of Default and the Co-Trustee shall have no right to accelerate amounts due under the Indenture as a result thereof; provided, however, that the Trustee and the Owners of not less than 25% in principal amount of the Outstanding Series 2020A Bonds may take such action as may be necessary and appropriate, including seeking mandate or specific performance by court order, to cause the Authority to comply with its obligations in this Section with respect to the Series 2020A Continuing Disclosure Agreement.

IN WITNESS WHEREOF, the GUAM WATERWORKS AUTHORITY has caused this Seventh Supplemental Indenture to be signed in its name by its duly authorized officers; and BANK OF GUAM and U.S. BANK NATIONAL ASSOCIATION, in token of their acceptance of the respective trusts created hereunder, and being hereby appointed by the GUAM WATERWORKS AUTHORITY to such trusts, have caused this Seventh Supplemental Indenture to be signed in their respective corporate names by one of their authorized officers, all as of the day and year first above written.

GUAM WATERWORKS AUTHORITY

By 
Chairperson of the Board

By 
General Manager

BANK OF GUAM, as Trustee

By _____
Authorized Officer

U.S. BANK NATIONAL ASSOCIATION,
as Co-Trustee

By _____
Authorized Officer

Seventh Supplemental Indenture – Guam Waterworks Authority


IN WITNESS WHEREOF, the GUAM WATERWORKS AUTHORITY has caused this Seventh Supplemental Indenture to be signed in its name by its duly authorized officers; and BANK OF GUAM and U.S. BANK NATIONAL ASSOCIATION, in token of their acceptance of the respective trusts created hereunder, and being hereby appointed by the GUAM WATERWORKS AUTHORITY to such trusts, have caused this Seventh Supplemental Indenture to be signed in their respective corporate names by one of their authorized officers, all as of the day and year first above written.

GUAM WATERWORKS AUTHORITY

By _____
Chairperson of the Board

By _____
General Manager

BANK OF GUAM, as Trustee

By  _____
Authorized Officer

U.S. BANK NATIONAL ASSOCIATION,
as Co-Trustee

By _____
Authorized Officer

Seventh Supplemental Indenture – Guam Waterworks Authority

IN WITNESS WHEREOF, the GUAM WATERWORKS AUTHORITY has caused this Seventh Supplemental Indenture to be signed in its name by its duly authorized officers; and BANK OF GUAM and U.S. BANK NATIONAL ASSOCIATION, in token of their acceptance of the respective trusts created hereunder, and being hereby appointed by the GUAM WATERWORKS AUTHORITY to such trusts, have caused this Seventh Supplemental Indenture to be signed in their respective corporate names by one of their authorized officers, all as of the day and year first above written.

GUAM WATERWORKS AUTHORITY

By _____
Chairperson of the Board

By _____
General Manager

BANK OF GUAM, as Trustee

By _____
Authorized Officer


U.S. BANK NATIONAL ASSOCIATION,
as Co-Trustee

By _____
Authorized Officer

Seventh Supplemental Indenture – Guam Waterworks Authority

The undersigned U.S. BANK NATIONAL ASSOCIATION, hereby accepts and agrees to perform the duties and obligations of Registrar and Paying Agent under this Seventh Supplemental Indenture.

U.S. BANK NATIONAL ASSOCIATION, as Registrar
and Paying Agent

By 
Authorized Officer

The undersigned BANK OF GUAM, hereby accepts and agrees to perform the duties and obligations of Depositary for the Series 2020A Construction Account, the Series 2020A Costs of Issuance Account and for the Series 2020A Capitalized Interest Account under this Seventh Supplemental Indenture.

BANK OF GUAM, as Depositary

By Atty Cas
Authorized Officer

EXHIBIT A
FORM OF BOND

No. R-____

\$134,000,000

GUAM WATERWORKS AUTHORITY
WATER AND WASTEWATER SYSTEM REVENUE BOND
SERIES 2020A

<u>INTEREST RATE</u>	<u>MATURITY DATE</u>	<u>DATED DATE</u>	<u>CUSIP</u>
5.00%	January 1, 2050	June 4, 2020	40065F DF8

Registered Owner: CEDE AND CO.

Principal Sum: ONE HUNDRED THIRTY-FOUR MILLION DOLLARS

The GUAM WATERWORKS AUTHORITY, a duly organized public corporation of the government of Guam (herein called the "Authority"), for value received, hereby promises to pay (but only out of the Revenues pledged therefor as hereinafter mentioned) to the registered owner identified above or registered assigns, on the maturity date specified above (subject to any right of prior redemption hereinafter mentioned), the principal sum specified above in lawful money of the United States of America; and to pay interest thereon, in like lawful money and solely from said Revenues, from the Interest Payment Date next preceding the date of authentication of this Bond unless this Bond is authenticated as of a day during the period from the Record Date preceding any Interest Payment Date to the Interest Payment Date, inclusive, in which event it shall bear interest from such Interest Payment Date, or unless this Bond is authenticated on or before June 15, 2020, in which event it shall bear interest from its date of delivery, until payment of such principal sum shall be discharged as provided in the indenture hereinafter mentioned, at the interest rate specified above per annum, payable on January 1 and July 1 in each year, commencing July 1, 2020; provided, however, that if, at the time of authentication of this Bond, interest is in default hereon, this Bond shall bear interest from the Interest Payment Date to which interest has previously been paid or made available for payment. The principal (or redemption price) hereof is payable upon surrender hereof at the Principal Office of U.S. Bank National Association (herein called the "Paying Agent") in St. Paul, Minnesota (or such other office as may be subsequently designated), and the interest hereon is payable by check or draft mailed by first class mail to the person in whose name this Bond is registered at the close of business on the fifteenth day of the month immediately preceding an interest payment date, at such person's address as it appears on the bond registration books of U.S. Bank National Association (herein called the "Registrar"). Upon the written request of a registered owner of \$1,000,000 or more in aggregate principal amount of Series 2020A Bonds, payment of interest on and principal (including redemption price) of such Bonds will be made by wire transfer as provided in the Indenture; provided that any such principal payment shall nevertheless be subject to prior surrender of the Series 2020A Bonds with respect to which such payment is made.

This Bond is one of a duly authorized issue of bonds of the Authority designated as the "Guam Waterworks Authority Water and Wastewater System Revenue Bonds" (herein called the "Bonds"), unlimited in aggregate principal amount, except as otherwise provided in the laws of the United States of America and the government of Guam and in the Indenture hereinafter mentioned, which issue of Bonds consists or may consist of one or more Series of varying dates, maturities, interest rates, and redemption and other provisions, all issued or to be issued pursuant to Article 2, Chapter 14 of Title 12 of the Guam Code Annotated, as amended, and that certain Indenture, dated as of December 1, 2005 (as heretofore and hereafter supplemented and amended, the "Indenture"), by and between the

Authority, Bank of Guam, as trustee (herein called the “Trustee”) and U.S. Bank National Association, as co-trustee (herein called the “Co-Trustee”). This Bond is also one of a duly authorized series of Bonds additionally designated “Series 2020A” (herein called the “Series 2020A Bonds”), in the aggregate principal amount of One Hundred Thirty-Four Million Dollars (\$134,000,000), all issued under the provisions of the Indenture and the Seventh Supplemental Indenture, dated as of June 1, 2020, by and among the Authority, the Trustee and the Co-Trustee. Reference is hereby made to the Indenture (a copy of which is on file at said office of the Trustee), including all indentures supplemental thereto, for a description of the rights thereunder of the registered owners of the Bonds, of the nature and extent of the security and provisions for payment of the Bonds, of the rights, duties and immunities of the Trustee and other fiduciaries and of the rights and obligations of the Authority thereunder, to all the provisions of which Indenture the registered owner of this Bond, by acceptance hereof, assents and agrees. Any capitalized term used but not separately defined in this Bond shall have the meaning given such term in the Indenture.

The Bonds and the interest thereon (to the extent set forth in the Indenture) are payable solely from Revenues (as that term is defined in the Indenture) pledged as provided in the Indenture. Subject only to the provisions of the Indenture permitting the application thereof for or to the purposes and on the terms and conditions set forth therein, said Revenues are pledged under the Indenture to secure the payment of the principal of, premium, if any, and interest on the Bonds in accordance with their terms and the provisions of the Indenture and the payment of Credit Agreement Payments and Parity Payment Agreement Payments in accordance with their terms.

The Series 2020A Bonds are subject to redemption on any date prior to their stated maturity, as a whole, or in part so that the reduction in Annual Debt Service for the Series 2020A Bonds for each Bond Year after such redemption shall be as nearly proportional as practicable, from and to the extent of proceeds received by the Authority due to a governmental taking of the System or portions thereof by eminent domain proceedings, if such amounts are not used for additions, improvements or extensions to the System, under the circumstances and upon the conditions and terms set forth in the Indenture, at the greater of par or Amortized Value, plus accrued interest to the date fixed for redemption, without premium. “Amortized Value” means on any interest payment date, the then current value of the bond amortizing the original issue premium over the period ending on the first call date using the constant yield method.

The Series 2020A Bonds are subject to redemption prior to their stated maturity, at the option of the Authority, from any source of available moneys, on any date on or after July 1, 2030, as a whole, or in part by such maturities or portions of maturities as shall be determined by the Authority (or by lot within such maturity in the absence of such a determination), at a redemption price equal to the principal amount of each Series 2020A Bond called for redemption plus interest accrued to the date fixed for redemption, without premium.

The Series 2020A Bonds are subject to redemption prior to their stated maturity in part, by lot, from Mandatory Sinking Account Payments, commencing July 1, 2047, on the dates and at a redemption price equal to the Mandatory Sinking Account Payment amount for such date set forth in the Indenture, plus accrued interest thereon to the date fixed for redemption, without premium.

Notice of any redemption, identifying the Bonds or portions thereof to be redeemed, shall be given by the Registrar not less than 30 nor more than 60 days before the date fixed for redemption by first class mail to each of the registered owners of Bonds designated for redemption at their addresses appearing on the bond registration books of the Registrar on the date the Bonds to be redeemed are selected. Receipt of such notice by such registered owners shall not be a condition precedent to such redemption.

If this Bond is called for redemption and payment is duly provided herefor as specified in the Indenture, interest shall cease to accrue hereon from and after the date fixed for redemption.

The Series 2020A Bonds are issuable only in fully registered form in denominations of \$5,000 or any integral multiple thereof. Subject to the limitations and upon payment of the charges, if any, provided in the Indenture, this Bond may be exchanged, at the Principal Office of the Registrar, in St. Paul, Minnesota, or such other office as the Registrar shall designate, for a new fully registered Bond or Bonds, of the same Series, maturity and tenor and of any authorized denomination or denominations and for the aggregate principal amount of this Bond then remaining outstanding.

This Bond is transferable by the registered owner hereof, in person or by its attorney duly authorized in writing, at said office of the Registrar, but only in the manner, subject to the limitations and upon payment of the charges, if any, provided in the Indenture, and upon surrender and cancellation of this Bond. Upon such transfer a new registered Bond or Bonds, of the same Series and maturity and of any authorized denomination or denominations and for the same aggregate principal amount of this Bond then remaining outstanding, will be issued to the transferee in exchange therefor. The Registrar shall not be required to register the transfer of this Bond during the period established by the Trustee for the selection of Bonds for redemption or at any time after selection of this Bond for redemption.

The Authority, the Trustee, the Paying Agent and the Registrar may treat the registered owner hereof as the absolute owner hereof for all purposes, and neither the Authority, the Paying Agent nor the Registrar shall be affected by any notice to the contrary.

The Indenture and the rights and obligations of the Authority, the registered owners of the Bonds, the Trustee, the Registrar and other fiduciaries may be modified or amended at any time in the manner, to the extent, and upon the terms provided in the Indenture, provided that no such modification or amendment shall (a) extend the fixed maturities of the Bonds, or extend the time for making any Mandatory Sinking Account Payments, or reduce the rate of interest thereon, or extend the time of payment of interest, or reduce the amount of principal thereof, or reduce any premium payable on the redemption thereof, without the consent of the Owner of each Bond so affected, (b) reduce the aforesaid percentage of Owners of Bonds whose consent is required for the execution of any amendment or modification of this Indenture or permit the creation of any lien on the Revenues prior to or on a parity with the lien created by this Indenture or deprive the Owners of the Bonds of the lien created by this Indenture upon such Revenues, without in each case the consent of the Owners of all of the Bonds then Outstanding.

The Bonds are limited obligations of the Authority, payable solely from and secured by a pledge of the Revenues as provided in the Indenture. The Bonds are not a legal or equitable pledge, charge, lien or encumbrance upon any property of the Authority or upon any of its income, receipts or revenues except the Revenues pledged to the payment thereof as provided in the Indenture.

Neither the Government of Guam nor any political subdivision thereof is obligated to pay the principal of, Redemption Price, if applicable, or interest on the Bonds, except from Revenues, and neither the Authority, the Government of Guam nor any political subdivision thereof has pledged its faith or credit to the payment of the principal of, redemption price, if applicable, or interest on the Bonds.

This Bond shall not be entitled to any benefit under the Indenture, or become valid or obligatory for any purpose, until the certificate of authentication and registration hereon endorsed shall have been dated and signed by the Registrar.

It is hereby certified and recited that any and all conditions, things and acts required to exist, to have happened and to have been performed precedent to and in the issuance of this Bond exist, have happened and have been performed in due time, form and manner as required by the laws of the United States of America and the government of Guam, and that the amount of this Bond, together with all other indebtedness of the Authority, does not exceed any limit prescribed by such laws, and is not in excess of the amount of Bonds permitted to be issued under the Indenture.

UNLESS THIS BOND IS PRESENTED BY AN AUTHORIZED REPRESENTATIVE OF THE DEPOSITORY TRUST COMPANY, A NEW YORK CORPORATION (“DTC”), TO THE ISSUER OR ITS AGENT FOR REGISTRATION OF TRANSFER, EXCHANGE, OR PAYMENT, AND ANY BOND ISSUED IS REGISTERED IN THE NAME OF CEDE & CO. OR IN SUCH OTHER NAME AS IS REQUESTED BY AN AUTHORIZED REPRESENTATIVE OF DTC (AND ANY PAYMENT IS MADE TO CEDE & CO. OR TO SUCH OTHER ENTITY AS IS REQUESTED BY AN AUTHORIZED REPRESENTATIVE OF DTC), ANY TRANSFER, PLEDGE OR OTHER USE HEREOF FOR VALUE OR OTHERWISE BY OR TO ANY PERSON IS WRONGFUL INASMUCH AS THE REGISTERED OWNER HEREOF, CEDE & CO., HAS AN INTEREST HEREIN.

IN WITNESS WHEREOF, the GUAM WATERWORKS AUTHORITY has caused this Bond to be executed in its name and on its behalf by the manual or facsimile signature of the Chairman of the Consolidated Commission on Utilities and the Chief Financial Officer of the Authority, all as of the dated date first set forth above.

GUAM WATERWORKS AUTHORITY

By _____
Chairman of the Board of Directors

By _____
Chief Financial Officer

[FORM OF] CERTIFICATE OF AUTHENTICATION AND REGISTRATION

This is one of the Bonds described in the within-mentioned Indenture, which has been registered as of _____.

U.S. BANK NATIONAL ASSOCIATION, as
Registrar

By _____
Authorized Officer

[FORM OF] ASSIGNMENT

For value received the undersigned do(es) hereby sell, assign and transfer unto the within-mentioned registered Bond and hereby irrevocably constitute(s) and appoint(s) attorney, to transfer the same on the books of the Registrar with full power of substitution in the premises.

Dated: _____

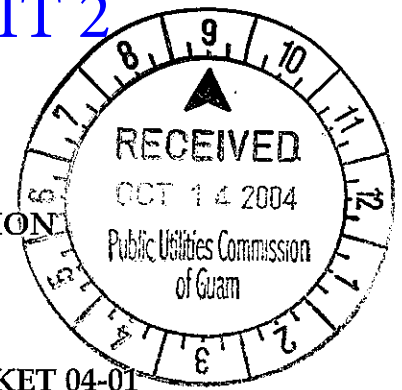
NOTICE: The signature on this Assignment must correspond with the name as it appears on the face of the within Bond in every particular, without alteration or enlargement or any change whatsoever.

Signature Guaranteed:

Social Security Number, Taxpayer Identification Number or other Identifying Number of Assignee:

Notice: Signature must be guaranteed by a member firm of the New York Stock Exchange or a commercial bank or trust company.

Note: Transfer fees must be paid to the Registrar in order to transfer or exchange this bond as provided in the within-mentioned Indenture.



BEFORE THE GUAM PUBLIC UTILITIES COMMISSION

REGULATORY REVIEW OF GWA
INTERIM FINANCIAL PLAN UNDER
FEDERAL COURT ORDER IN CIVIL
CASE 02-35

DOCKET 04-01

FY05 RATE ORDER

Background

By its March 31, 2004 Order, the Guam Public Utilities Commission [PUC] established a protocol and schedule under which Guam Waterworks Authority [GWA] would prepare and submit an Interim Financial Plan [IFP] and petition for FY05 rate relief to PUC for regulatory review.

On August 20, 2004, GWA petitioned PUC for a 10% rate increase. The petition is supported by testimony from GWA General Manager Craddick [filed 9/23/04], GWA CFO Wiegand [filed 8/30/04]; and CCU Chairman Sanchez [filed 9/28/04]. PUC's regulatory consultant [Georgetown Consulting Group - GCG] conducted its analysis of GWA's rate petition and filed responsive testimony on September 27, 2004.

During the period September 30 to October 8, 2004 GWA and GCG meet in regulatory conference to discuss their respective positions regarding GWA's need for rate relief. As a result of this conference process, GWA and GCG entered into a joint stipulation dated October 8, 2004 [copy made Attachment A], which recommends regulatory action in response to GWA's rate application and related matters.

Determinations

After carefully reviewing the Stipulation and considering the parties' presentation and the public comments received at the public hearings, which PUC conducted on October 8, 2004 [Hagatna] and on October 11 [Dededo and Agat], the commissioners at a duly noticed public meeting on October 14, 2004 by the affirmative vote of at least four commissioners and for good cause shown, find that:

1. GWA does not require rate relief in FY05 or FY06 to enable it to either meet its duties under the Stipulated Order For Preliminary Relief in

United State District Court – Territory of Guam Civil Case No. 02-35 [USA v. Guam Waterworks Authority and Government of Guam – the Federal Order] or to achieve a 1.75x debt service coverage ratio [coverage ratio].

2. GWA intends to access \$97.3 million in financing in FY05 and FY06 to fund \$70.8 million of capital projects mandated by the Federal Order and \$26.5 million of proposed additional capital projects. This financing requires prior PUC approval under 12 GCA 12004. No rate impact from this financing is anticipated in FY05 and FY06 because the proposed loan terms would provide for interest only payments for the first two years of the indenture term. However, this financing will create the need for an FY07 rate increase in the range of 20-30% over current rates.
3. Under generally accepted regulatory principles, such a one-time increase in rates is undesirable. Rather, implementation of gradual, smaller increases reflects more prudent regulatory policy.
4. PUC should implement a rate stabilization plan, under which the anticipated FY07 rate increase would be gradually implemented in FY05, FY06 and FY07. The plan should include the following components:
 - a. GWA should be awarded a 6.5% rate increase, effective for services rendered after October 14, 2004. The increase should not apply to lifeline rates, the GPA-Navy surcharge or the Supplemental annuities surcharge.
 - b. An amount equal to the additional revenues collected each month from the rate increase [\$217,000 +/-] should be deposited by GWA into a separate interest bearing account on or before the 15th day of each month commencing November 2004. The account should be named the “Rate Stabilization Trust Account”.
 - c. GWA should file with PUC a quarterly accounting of the Trust Account, commencing with the quarter ending December 31, 2004.
 - d. No funds from the Trust Account should be withdrawn or expended without prior written approval of PUC. During the January 2005 regulatory session, PUC should consider the positions of GWA and GCG regarding under what, if any, circumstances GWA should be permitted access to the Trust Account.
 - e. PUC should consider GWA’s need for FY06 rate relief during the September 2005 regulatory session.

5. PUC should reaffirm its statutory duty to provide GWA with the rate revenue necessary to enable it to obtain the financing described in determination 2 above.
6. PUC should establish a minimum 1.75x coverage ratio for the purpose of setting just and reasonable rates for GWA.
7. The September 28, 2004 testimony of GCG sub-consultant Bruce Oliver should serve as a framework for regulatory activities, which will lead to PUC's consideration during the September 2005 regulatory session of a GWA restructured user fee system, including appropriate rate design changes, appropriate new user fees and a system development charge. In the interim, GWA should be permitted to petition PUC for the establishment of new user fees in accordance with applicable law and PUC rule.
8. Attachment B to the Stipulation identifies proposed GWA FY05 capital projects, which are subject to PUC review in this rate proceeding. PUC will consider these projects during the January 2005 regulatory session. For good cause, GWA may petition PUC for early consideration of any of these projects.
9. GWA should be authorized to obtain short-term financing to fund vendor payables [\$2.3 million], privatization expenses [\$3.7 million], and inventory [\$300,000]. The loan term should not exceed 5 years. Interest should not exceed 7.5% per annum. GWA should obtain approval of the loan pursuant to 12 GCA 14201.
10. P.L. 27-106 requires GWA to fund the FY05 expense of supplemental annuities and insurance for its retirees [*the unfunded mandate*]. The 1.89% Supplemental annuities surcharge, which PUC established in March 2004 to fund only GWA's retirees' insurance premium expense in FY04 should be increased, effective October 14, 2004 to 2.59% to enable GWA to reimburse itself for the remaining FY04 insurance premium expenses and for said expenses in FY05. GWA should explore all possible legal avenues reasonably available to it to resolve the legality of the unfunded mandate.
11. By copy of this Order, PUC should report to EPA that GWA has made substantial progress in developing an IFP. This progress is represented in PUC's Orders of March 31, 2004, July 20, 2004 and October 14, 2004. An interim GWA debt collection plan was adopted by CCU Resolution 28-004. A restructured GWA user fee system, including a system

development charge, is currently under development and will be considered by PUC in September 2005.

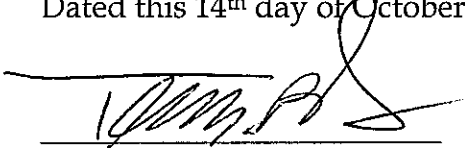
In furtherance of the above 11 determinations and in the exercise of our judgment after considering the record, ALJ's recommendations and the arguments, reasoning and position of the parties and the public comments, and for good cause shown, PUC by the affirmative vote of the undersigned commissioners hereby **ORDERS THAT**:

1. All rulings and orders of the ALJ during the course of this proceeding are confirmed and ratified. All motions not heretofore granted or denied are denied. No other matters currently require discussion.
2. PUC reserves its continuing jurisdiction to review the IFP and to award such additional rate relief as GWA may reasonably require there under, without additional GWA notices under 12 GCA 12001.2. Accordingly, any further rate proceedings incident to the IFP shall be noticed only under 12 GCA 12016.
3. A rate increase of 6.5% on current revenues [*excluding the Navy-GPA surcharge, lifeline rates and the Supplemental Annuities surcharge*] is hereby awarded for services rendered on and after October 14, 2004. This rate increase shall be part of a rate stabilization plan, which shall be subject to the following regulatory controls:
 - a. The additional revenues, which are collected each month from the rate increase, shall be deposited by GWA into a separate interest bearing account on or before the 15th day of each month commencing November 2004. This account shall be named the "*Rate Stabilization Trust Account*".
 - b. GWA shall file with PUC a quarterly accounting of the Trust Account, commencing with the quarter ending December 31, 2004.
 - c. No funds from the Trust Account shall be withdrawn or expended without PUC's prior written approval. During the January 2005 regulatory session, PUC shall consider under what, if any, circumstances GWA should be permitted access to the Trust Account.

4. PUC shall consider GWA's need for FY06 rate relief during the September 2005 regulatory session.
5. The 1.89% Supplemental Annuities surcharge, as established by PUC's March 31, 2004 Order, is hereby increased to 2.59% effective October 14, 2004. The revenues from the surcharge shall be used by GWA only to obtain reimbursement for the balance of FY04 retiree insurance premium expenses and for said expenses in FY05, provided that GWA receives written certification from the Guam Retirement Fund that the funds will be used only for this purpose [*a copy of said certification shall be filed with PUC*]. GWA shall explore all possible legal avenues reasonably available to test the legality of this unfunded legislative mandate.
6. GWA is authorized to obtain short-term financing to fund vendor payables [not to exceed \$2.3 million], privatization expenses [not to exceed \$3.7 million] and inventory [not to exceed \$300,000]. The loan term shall not exceed 5 years. Interest shall not exceed 7.5% per annum. GWA shall obtain approval of the loan pursuant to 12 GCA 14201.
7. The FY05 capital projects listed in Attachment B of the Stipulation shall require PUC approval before the commencement of the procurement process. Unless for good cause shown, PUC will consider these projects during the January 2005 regulatory session.
8. The September 28, 2004 testimony of GCG sub-consultant Bruce Oliver shall serve as a framework for regulatory activities, which will lead to PUC consideration during the September 2005 regulatory session of a GWA restructured user fee system, including appropriate new user fees, rate design changes and a system development charge.
9. PUC reaffirms its statutory duty to provide GWA with the rate revenue reasonably necessary to enable it to obtain the financing described in determination number 2 above.
10. A minimum 1.75x coverage ratio is established for the purpose of setting just and reasonable rates for GWA.
11. GWA has made substantial progress in developing an IFP pursuant to section 28 of the Federal Order.

12. GWA shall strictly observe the requirements of PUC's contract review protocol [PUC December 13, 2003 Order - Docket 00-04], which requires, within the context of this Order, that GWA obtain PUC approval before commencing the procurement process for external financing and third party relationships.
13. PUC's administrative law judge is empowered and directed to oversee all regulatory activities, which in his judgment may be reasonably required to implement this Order and to prepare for future regulatory activities required herein.
14. GWA shall pay for PUC's expenses, including, without limitation, consulting and counsel fees and expenses and the expenses of conducting the hearing process.

Dated this 14th day of October 2004.

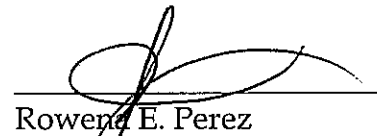


Terrence M. Brooks



Edward C. Crisostomo

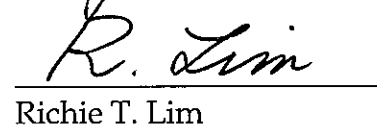
Gerald M. Woo



Rowena E. Perez



Joseph M. McDonald



Richie T. Lim



Filomena M. Cantoria

BEFORE THE GUAM PUBLIC UTILITIES COMMISSION



REGULATORY REVIEW OF GWA
INTERIM FINANCIAL PLAN UNDER
FEDERAL COURT ORDER IN CIVIL
CASE 02-35

DOCKET 04-01

Stipulation

Georgetown Consulting Group [GCG] and Guam Waterworks Authority [GWA], through their authorized representatives, hereby stipulate and agree as follows:

1. On August 20, 2004, GWA petitioned the Guam Public Utilities Commission [PUC] for a 10% rate increase. After review, GCG has concluded that no rate increase in either FY05 or in FY06 is necessary in order to enable GWA either to meet its duties under the Federal Order or to achieve a 1.75x debt service coverage ratio¹. However, GCG also recognizes, based on the testimony offered by GWA in this proceeding, that GWA intends to access \$97.3 million in financing in FY05 and FY06 to fund \$70.8 million of capital projects mandated by the Federal Order² and \$26.5 million of proposed additional capital projects³. This financing will create the need for an FY07 rate increase in the range of 20 - 30% over current rates⁴.
2. Under generally accepted regulatory principles, such a large one time increase in rates is undesirable. Rather, implementation of gradual, smaller increases reflects more prudent regulatory policy. The PUC should establish a *rate stabilization plan*, pursuant to which the anticipated FY07 rate increase would be gradually implemented in FY05, FY06 and FY07. Bank of America Securities [BOA], which serves as GWA's financial advisor, has by letter dated October 3, 2004 [Attachment C], supported the

¹ See *Attachment A*, which are schedules, which have been prepared by Georgetown as part of its analysis of GWA's petition.

² See page 11 of *Craddick testimony* dated September 23, 2004.

³ See *Attachment B* for a schedule of these capital projects, which are not mandated by the Federal Order.

⁴ No rate impact from the financing is anticipated in FY05 and 06 because the proposed loan terms would provide for interest only payments for the first two years of the indenture term

concept of a rate stabilization plan as an effective way both to avoid rate shock and to improve GWA's creditworthiness in the financial market.⁵

3. GWA and GCG, therefore, recommend to the PUC that it establish a GWA rate stabilization plan with the following terms and conditions:
 - a. PUC should award an initial rate increase of 6.5%, effective for services rendered after October 14, 2004. This increase should not apply to lifeline rates, the GPA-Navy surcharge or the Legislature surcharge.
 - b. An amount equal to the additional revenues collected each month attributable to the rate increase [$\$217,000$ +/- per month] should be deposited by GWA in a separate interest bearing account on or before the 15th day of each month commencing November 2004. The account should be named the "Rate Stabilization Trust Account". No funds in the Account should be expended without the express, prior written approval of the PUC. GWA should file with the PUC a quarterly accounting of the Account, commencing with the quarter ending December 31, 2004.
 - c. PUC should consider a GWA petition in September 2005 for an appropriate incremental rate increase in FY06 in anticipation of the impact of GWA's increased debt service obligations in FY07 on GWA's revenue requirements, as described in paragraph one above. GWA should file this rate petition, in accordance with the minimum filing requirements previously established by PUC, not later than July 15, 2005. GWA understands the importance of a timely and adequate rate filing to enable GCG to conduct its independent rate analysis and to provide the PUC adequate time for due deliberation.
 - d. In its rate order, PUC should reaffirm its statutory duty to provide GWA with the rate revenue necessary to enable it to obtain the financing described in paragraph one above.
 - e. PUC should establish a minimum 1.75x debt service coverage ratio for the purpose of establishing just and reasonable rates for GWA.

⁵ See also *Attachment D: Credit Implications of Rate Structure and Rate Setting for U.S. Municipal Water-Sewer Utilities*, by James Wiemken, Director, Standard & Poors Credit Market Services [January 20, 2004].

4. An integral part of GWA's interim financial plan is the creation of a restructured user fee system. On September 28, 2004 GCG's sub-consultant Bruce Oliver filed testimony, which proposes a framework for reviewing and restructuring GWA's user fees. The parties adopt this framework and recommend that PUC authorize its administrative law judge to oversee activities that will lead to PUC's consideration in September 2005 of appropriate rate design changes for GWA's water and wastewater services, including the establishment of appropriate new user fees and a system development charge. In the interim, GWA should be permitted to petition PUC for the establishment of new user fees prior to the September 2005 regulatory session in accordance with applicable law and PUC rules.
5. *Attachment B* identifies GWA's proposed FY05 capital projects, which are not mandated by the Federal Order. Under PUC's December 16 2003 contract review protocol, PUC may review the prudence of all procurements or obligations within the context of a rate proceeding. Accordingly, GCG asserts that these projects should undergo PUC review and approval before the commencement of procurement activities. GCG will commence discovery on these projects based upon the information contained in Mr. Craddick's September 23, 2004 testimony. Unless GWA requires earlier consideration by PUC, the parties will work toward PUC consideration of these projects during the January 2005 regulatory session.
6. On July 26, 2004, GWA petitioned PUC for review and approval of short term financing of \$13 million to fund the purchase and installation of system wide water meters, under the mandate of section 14 of the Federal Order. Under 12 GCA 12004, as implemented by the GWA contract approval protocol, GWA must obtain PUC approval of this financing. The transaction documents include an Amendment Agreement between GWA, Kusakabe Guam, Inc. and Guam Waterworks Facilities Corporation [Corporation] [draft dated 9/20/04]; a Purchase Agreement between GWA and Corporation [draft dated 9/21/04]; and an Indenture of Trust between Corporation and J.P. Morgan Trust Company, N.A. [draft dated 9/3/04] [collectively the "Transaction Documents"]. After review, GCG recommends that PUC approve the financing, subject to the following conditions:
 - a. BOA and GCG should advise PUC in writing that the Transaction Documents are reasonable and are consistent with the terms stated in subparagraph [c] below.

- b. BOA should advise PUC in writing that it has reviewed the transaction expenses [fees, costs of issuance, credit rating, insurance, etc.] and finds them to be reasonable.
- c. The loan terms should provide for interest payments only for the first two years, principal and interest payments during the next three years under an eight-year amortization schedule and a balloon payment due on the fifth anniversary of the loan. The loan terms should not include a prepayment penalty.⁶

GWA supports these conditions.

7. The parties recommend that PUC approve GWA's obtaining short-term financing, under terms not materially different those contained in Mr. Wiegand's August 30, 2004 testimony in this proceeding. The purpose of the financing would be to fund GWA's payment of vendor payables [\$2.3 million]; privatization expenses [\$3.7 million]; and inventory [\$300,000]. GWA should obtain approval of the loan under 12 GCA 14201.
8. Pursuant to section 10 of its March 31, 2004 order in this docket, PUC established a 1.89% surcharge on current rates [*excluding the Navy surcharge and lifeline rates*] to fund the insurance premium requirement for retirees, which GWA is mandated to pay under P.L. 27-29. P.L. 27-106 reimposes this financial burden on GWA for FY05. Accordingly, the parties recommend that PUC increase the current 1.89% surcharge to 2.59% in order to enable GWA to reimburse itself for remaining FY04 insurance premium expenses and for said expenses which it incurs in FY05. PUC's March 31 2004 Order also directed that GWA challenge the legality of this unfunded mandate. GWA has been unable to comply with this regulatory directive because it is not empowered to initiate litigation on its own behalf. Accordingly, the parties recommend that this requirement be suspended until such time as GWA is empowered to file suit in its own name. GWA should, however, continue to explore all possible legal avenues reasonably available to it to resolve the question as to the lawfulness of the unfunded mandate.
9. Section 28 of the Federal Order requires GWA to file an interim financial plan with PUC for its review and approval. This plan is required to include a debt reduction plan, a receivables collection plan, a restructured user fee system, a funding analysis and an interim plan projects and

⁶ Recovery of unamortized issuance costs [approximately \$1 million] should not be deemed to be a prepayment penalty.

activities report. On September 29 2004, CCU adopted Resolution 28-2004, which approved the draft debt collection plan, as attached to Mr. Wiegand's August 30, 2004 testimony. GWA agrees on or before December 15, 2004 to supplement this plan with a detailed schedule of its outstanding payables and debt and with a plan for addressing the accrued and ongoing liability for retiree pension and insurance benefits. PUC should consider this filing during the January 2005 regulatory session. GWA is also currently working on a receivables collection plan, which should be filed with PUC for review and approval not later than December 15, 2004. Paragraph 4 of this stipulation proposes a framework under which a restructured user fee system will be submitted to PUC for its review during the September 2005 regulatory session. Taken together, the parties believe this stipulation and the GCG and GWA testimonies present the essential elements of an interim funding analysis and project report. Accordingly, the parties recommend that PUC report to EPA that GWA has substantially complied with the requirements of section 28 of the Federal Order, subject to the continued activities discussed in this stipulation.

Respectfully submitted this 8th day of October 2004.

Guam Waterworks Authority

for

Georgetown Consulting Group

GUAM WATERWORKS AUTHORITY
Five Year Projection of Financial Operations and Cash Flow

Excludes
Interest Income
in DSC Ratio

	Growth	FY05 GCG Position (A)	FY05 ProForma (B)	FY06 (C)	FY07 (D)	FY08 (E)	FY09 (F)
1 OPERATING REVENUES							
2 Total Water	1.0%	\$ 22,553,515	\$ 22,553,515	\$ 22,779,050	\$ 23,006,841	\$ 23,236,909	\$ 23,469,278
3 Water Increase	1.0%		1,613,513	1,629,648	1,645,945	1,662,404	1,679,028
4 Meter Revenues		300,000	300,000	1,500,000	2,700,000	2,700,000	2,700,000
5 Total Wastewater	1.0%	14,292,150	14,292,150	14,435,072	14,579,422	14,725,216	14,872,469
6 Wastewater Increase	1.0%		1,000,526	1,010,531	1,020,636	1,030,843	1,041,151
7 Surcharge (GPA/Navy Pble)		2,650,346	2,625,961	2,625,961	2,625,961	2,625,961	2,625,961
8 Legislative Surcharge		480,725	739,454	739,454	739,454	739,454	739,454
9 Other	1.0%	100,000	100,000	101,000	102,010	103,030	104,060
10 TOTAL OPERATING REVENUES		\$ 40,376,736	\$ 43,225,119	\$ 44,820,716	\$ 46,420,269	\$ 46,823,817	\$ 47,231,401
11							
12 TOTAL O&M EXPENSES	2.0%	31,559,924	31,559,924	31,875,523	32,194,278	32,516,221	32,841,383
13							
14 OPERATING INCOME (LOSS)		\$ 8,816,812	\$ 11,665,195	\$ 12,945,192	\$ 14,225,990	\$ 14,307,596	\$ 14,390,018
15							
16 OTHER INCOME(EXPENSE):							
17 Grants from US Government							
18 Contributions in Aid of Construction							
19 Grants from Government of Guam							
20 Depreciation		10,700,000	10,700,000	10,700,000	10,700,000	10,700,000	10,700,000
21 Bad Debt	FY05%	481,961	481,961	535,007	554,100	558,917	563,782
22 Contributions from Other Agencies							
23 Interest Income		(1,240,000)	(3,438,499)	(1,761,731)	(501,433)	(501,433)	(501,433)
24 Interest Expense		2,887,625	3,428,595	3,522,822	6,453,919	6,176,138	5,882,049
25		12,829,586	11,172,058	12,996,097	17,206,586	16,933,622	16,644,398
26							
27 NET INC (DEC) IN Retained Earnings		(4,012,774)	493,137	(50,905)	(2,980,595)	(2,626,026)	(2,254,380)
28							
29							
30 Net Income		\$ (4,012,774)	\$ 493,137	\$ (50,905)	\$ (2,980,595)	\$ (2,626,026)	\$ (2,254,380)
31 Plus: Depreciation		10,700,000	10,700,000	10,700,000	10,700,000	10,700,000	10,700,000
32 Less: Interest Income		(1,240,000)	(3,438,499)	(1,761,731)	(501,433)	(501,433)	(501,433)
33 Plus: Interest Expense		2,887,625	3,428,595	3,522,822	6,453,919	6,176,138	5,882,049
34 Available for Debt Service		\$ 8,334,851	\$ 11,183,234	\$ 12,410,185	\$ 13,671,890	\$ 13,748,679	\$ 13,826,235
35							
36 Principal Payments		\$ 850,740	\$ 856,884	\$ 1,405,340	\$ 4,785,138	\$ 5,062,919	\$ 5,357,008
37 Adjustment made to interest		(230,000)					
38 Interest Expense		2,887,625	3,428,595	3,522,822	6,453,919	6,176,138	5,882,049
39 Total Debt Service		\$ 3,508,365	\$ 4,285,479	\$ 4,928,162	\$ 11,239,057	\$ 11,239,057	\$ 11,239,057
40							
41 DSCR		2.38	2.61	2.52	1.22	1.22	1.23
42							
43 Cash Flow							
44 Open Cash		\$ 2,578,217	\$ 2,578,217	\$ 7,881,583	\$ 11,369,378	\$ 8,547,684	\$ 5,802,778
45 Profit/(Loss) (Note 1)		8,816,812	11,665,195	12,945,192	14,225,990	14,307,596	14,390,018
46 Less Principal Payments		(850,740)	(856,884)	(1,405,340)	(4,785,138)	(5,062,919)	(5,357,008)
47 Less: Bad Debt		(481,961)	(481,961)	(535,007)	(554,100)	(558,917)	(563,782)
48 Subt: Operating Reserve Requirement		(2,000,000)	(2,000,000)	(2,000,000)	(2,000,000)	(2,000,000)	(2,000,000)
49 Subt: Net Interest		(2,229,125)	9,903	(1,761,090)	(5,952,485)	(5,674,704)	(5,380,616)
50 Subt: Surcharge Payments		(2,450,346)	(2,425,961)	(2,425,961)	(2,425,961)	(2,425,961)	(2,425,961)
51 Internally Funded Projects		(1,330,000)	(1,330,000)	(1,330,000)	(1,330,000)	(1,330,000)	(1,330,000)
52 Externally Funded Projects			(15,200,000)				
53 Meter Program		(13,000,000)					
54 Transportation Purchases		(900,000)					
55 USDA Land Purchase		(1,300,000)					
56 ST Debt Proceeds			18,350,000				
57 MSG Note (net)		13,000,000					
58 Short Term Note		4,450,000		1,850,000			
59 Transportation Purchase Note (net)		900,000					
60 "Ban" Proceeds			96,978,064	26,498,064			
61 FY05/06 Projects			(70,480,000)	(25,995,000)			
62 Long Term Bonds (net)		70,000,000					
63 "USDA Bond"		1,300,000	1,300,000				
64 Construction Fund		(70,000,000)	(26,498,064)	(503,064)			
65 Privatization Consultant		(1,850,000)	(1,850,000)	(1,850,000)			
66 Working Capital Changes			(1,876,926)				
67 Vendor Payable		(2,000,000)					
68 Inventory Buildup		(700,000)					
69 All Other		823,074					
70 Excess Cash		\$ 2,775,931	\$ 7,881,583	\$ 11,369,378	\$ 8,547,684	\$ 5,802,778	\$ 5,135,429

ATTACHMENT A

GUAM WATERWORKS AUTHORITY
Five Year Forecast of Financial Operations and Cash Flow

Includes
Interest Income
in DSC Ratio

	Growth	FY05 GCG Position (A)	FY05 ProForma (B)	FY06 (C)	FY07 (D)	FY08 (E)	FY09 (F)
1 OPERATING REVENUES							
2 Total Water	1.0%	\$ 22,553,515	\$22,553,515	\$ 22,779,050	\$ 23,006,841	\$ 23,236,909	\$ 23,469,278
3 Water Increase	1.0%		1,613,513	1,629,648	1,645,945	1,662,404	1,679,028
4 Meter Revenues		300,000	300,000	1,500,000	2,700,000	2,700,000	2,700,000
5 Total Wastewater	1.0%	14,292,150	14,292,150	14,435,072	14,579,422	14,725,216	14,872,469
6 Wastewater Increase	1.0%		1,000,526	1,010,531	1,020,636	1,030,843	1,041,151
7 Surcharge (GPA/Navy Pble)		2,650,346	2,625,961	2,625,961	2,625,961	2,625,961	2,625,961
8 Legislative Surcharge		480,725	739,454	739,454	739,454	739,454	739,454
9 Other	1.0%	100,000	100,000	101,000	102,010	103,030	104,060
10 TOTAL OPERATING REVENUES		\$ 40,376,736	\$43,225,119	\$ 44,820,716	\$ 46,420,269	\$ 46,823,817	\$ 47,231,401
11							
12 TOTAL O&M EXPENSES	2.0%	31,559,924	31,559,924	31,875,523	32,194,278	32,516,221	32,841,383
13							
14 OPERATING INCOME (LOSS)		\$ 8,816,812	\$11,665,195	\$ 12,945,192	\$ 14,225,990	\$ 14,307,596	\$ 14,390,018
15							
16 OTHER INCOME(EXPENSE):							
17 Grants from US Government							
18 Contributions In Aid of Construction							
19 Grants from Government of Guam							
20 Depreciation		10,700,000	10,700,000	10,700,000	10,700,000	10,700,000	10,700,000
21 Bad Debt	FY05%	481,961	481,961	535,007	554,100	558,917	563,782
22 Contributions from Other Agencies							
23 Interest Income		(1,240,000)	(3,438,499)	(1,761,731)	(501,433)	(501,433)	(501,433)
24 Interest Expense		2,887,625	3,428,595	3,522,822	6,453,919	6,176,138	5,882,049
25		12,829,586	11,172,058	12,996,097	17,206,586	16,933,622	16,644,398
26							
27 NET INC (DEC) IN Retained Earnings		(4,012,774)	493,137	(50,905)	(2,980,595)	(2,626,026)	(2,254,380)
28							
29							
30 Net Income		\$ (4,012,774)	\$ 493,137	\$ (50,905)	\$ (2,980,595)	\$ (2,626,026)	\$ (2,254,380)
31 Plus: Depreciation		10,700,000	10,700,000	10,700,000	10,700,000	10,700,000	10,700,000
32							
33 Plus: Interest Expense		2,887,625	3,428,595	3,522,822	6,453,919	6,176,138	5,882,049
34 Available for Debt Service		\$ 9,574,851	\$14,621,732	\$ 14,171,917	\$ 14,173,323	\$ 14,250,112	\$ 14,327,669
35							
36 Principal Payments		\$ 850,740	\$ 856,884	\$ 1,405,340	\$ 4,785,138	\$ 5,062,919	\$ 5,357,008
37 Adjustment made to interest (230,000)							
38 Interest Expense		2,887,625	3,428,595	3,522,822	6,453,919	6,176,138	5,882,049
39 Total Debt Service		\$ 3,508,365	\$ 4,285,479	\$ 4,928,162	\$ 11,239,057	\$ 11,239,057	\$ 11,239,057
40							
41 DSCR		2.73	3.41	2.88	1.26	1.27	1.27
42							
43 Cash Flow							
44 Open Cash		\$ 2,578,217	\$ 2,578,217	\$ 7,881,583	\$ 11,369,378	\$ 8,547,684	\$ 5,802,778
45 Profit/(Loss) (Note 1)		8,816,812	11,665,195	12,945,192	14,225,990	14,307,596	14,390,018
46 Less Principal Payments		(850,740)	(856,884)	(1,405,340)	(4,785,138)	(5,062,919)	(5,357,008)
47 Less: Bad Debt		(481,961)	(481,961)	(535,007)	(554,100)	(558,917)	(563,782)
48 Subt: Operating Reserve Requirement		(2,000,000)	(2,000,000)	(2,000,000)	(2,000,000)	(2,000,000)	(2,000,000)
49 Subt: Net Interest		(2,229,125)	9,903	(1,761,090)	(5,952,485)	(5,674,704)	(5,380,616)
50 Subt: Surcharge Payments		(2,450,346)	(2,425,961)	(2,425,961)	(2,425,961)	(2,425,961)	(2,425,961)
51 Internally Funded Projects		(1,330,000)	(1,330,000)	(1,330,000)	(1,330,000)	(1,330,000)	(1,330,000)
52 Externally Funded Projects			(15,200,000)				
53 Meter Program		(13,000,000)					
54 Transportation Purchases		(900,000)					
55 USDA Land Purchase		(1,300,000)					
56 ST Debt Proceeds			18,350,000				
57 MSG Note (net)		13,000,000					
58 Short Term Note		4,450,000		1,850,000			
59 Transportation Purchase Note (net)		900,000					
60 "Ban" Proceeds			98,978,064	26,498,064			
61 FY05/06 Projects			(70,480,000)	(25,995,000)			
62 Long Term Bonds (net)							
63 Long Term Bonds (net)		70,000,000					
64 "USDA Bond")		1,300,000	1,300,000				
65 Construction Fund		(70,000,000)	(26,498,064)	(503,064)			
66 Privatization Consultant		(1,850,000)	(1,850,000)	(1,850,000)			
67 Working Capital Changes			(1,876,926)				
68 Vendor Payable		(2,000,000)					
69 Inventory Buildup		(700,000)					
70 All Other		823,074					
71 Excess Cash		\$ 2,775,931	\$ 7,881,583	\$ 11,369,378	\$ 8,547,684	\$ 5,802,778	\$ 5,135,429
72							

2 Add to that the 10 well financing of \$70,646/year

3
4 A borrowing scenario of \$6,529,555.10/year DSP for the SO projects to
5 encumber in FY05 and FY06 is doable within proposed rate increase.

6
7 **V. FINANCIAL IMPACT OF NON-STIPULATED ORDER PROJECTS FOR**
8 **FY05 AND FY06**

9
10 Q. PLEASE DESCRIBE OTHER PROJECTS THAT WILL BE UNDERTAKEN BY GWA
11 IN FY05 AND FY06 THAT ARE NOT REQUIRED BY THE STIPULATED ORDER
12 AND THEIR PROJECTED COSTS.

13
14 A. GWA will encumber projects that are not required by the Stipulated Order and which
15 must be funded from GWA funds in FY 2005 as listed in **Exhibit B:**

<u>Project Description</u>	<u>Projected Cost</u>
1. Reservoir Land	10,000,000
2. Well electrical protection	900,000
3. Lift Station upgrades	500,000
4. Collection System Upgrade	800,000
4. Santa Rita Transmission Line	500,000 ³
5. Storage additions	800,000
6. Kaiser Tank Booster	750,000
7. Water Booster Station Upgrades	500,000
8. Mangilao Tank Repair	800,000
9. Ugum Tank replacement	2,200,000
10. EarthTech Buyout	6,000,000
11. WW/W Laboratory Modernization	900,000
12. WW mobile pumping equipment **	400,000
13. Vehicles and Equipment **	500,000
14. Land Surveying	900,000
Long Term Life TOTAL	<u>\$25,550,000</u>
** Short Term Life TOTAL	<u>\$900,000</u>
Grand TOTAL	<u>\$26,450,000</u>

16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41 There are no non-stipulated order projects scheduled for FY06 at this time.

42
³ Legislative Funds and costs not included.

Municipal Finance
9 W. 57th St., 32nd Floor
New York, NY 10019



Memorandum

October 3, 2004

To: Guam Public Utilities Commission

From: Margaret Guarino, Managing Director
Aulii Taitano, Associate

cc: Consolidated Commission on Utilities
David Craddick, General Manager
Randy Wiegand, Chief Financial Officer

Re: **MSG Meter Financing**

This memo is in response Georgetown Consulting's "Proposed Worksteps for Meter Financing", as well as several other GWA-related issues.

MSG Financing

We have received Mr. Craddick's testimony relating to the meter financing, however, we did not receive the referenced exhibits. We do agree, however, on Mr. Craddick's & GWA's rationale for proceeding with the meter financing immediately as opposed to waiting for the BAN or long-term financing. Since the average life of the proposed meters is only 10 years, with a guaranteed average life of 5 years (according to GWA), we do not recommend waiting for the BAN or long-term financing to finance the meters. It is a prudent practice that the term of the financing matches the useful life of the asset financed. In our previous letter where we stated that the meters are a possible use of the long-term financing, we were under the assumption that they had a longer average life commensurate with longer term financing. In addition, after discussion with GWA, it is apparent that implementing the meter financing immediately with MSG, will not only show immediate compliance with the EPA stipulated order, it may help GWA recover lost revenue from now until the time that the longer term financing takes place. This could be three to four months, as the rating agency, insurance and overall financing process is somewhat time consuming, especially for a new issuer such as GWA.

We also received new drafts of the MSG documents, dated 09-21-04, last week. Several sections have been amended based on our recommendations to the PUC. As the documents are not yet final, the exhibits have not been completed. We have been assured by GWA, however, that the schedule, to which the documents refer as the prepayment schedule, only includes principal and interest, and does not include an additional prepayment penalty. In addition, we have not reviewed any fees or issuance costs relating to the MSG financing. We can, however, attest to the fact that in comparing the all-in cost of a 10-year fixed rate bond issue to the proposed interest rate cap on the MSG financing, the MSG financing cost was lower. In addition, a comparison of a BAN financing and the MSG financing is not necessarily an apples-to-apples one. The BAN financing contemplates a long-term takeout, which will involve additional issuance costs,

ATTACHMENT C

whereas the MSG financing is a longer-term fixed rate financing of 10 years vs. 2 years. We have proceeded in selecting an underwriter for GWA's larger financing but it has not yet been determined whether a BAN is the best alternative. At this time, BAS, GWA & the CCU are open to other structures, including a longer-term fixed rate financing with a tax call. The schedule for the larger financing is at least three to four months. We caveat that this time frame assumes a cooperative legislature, but that is highly dependent on the outcome of the election next month.

Proposed Rate Increase

We have been asked by GWA to comment on the PUC's willingness to implement a rate increase now as opposed to implementing a very large rate increase just before the issuance of the larger financing. It is highly probable that GWA will need *at least* a 20-30% rate increase over the next several years in order to meet its debt service obligation on the proposed large financing. In order to avoid rate shock in several months, we believe that a small rate increase now will not only help ease the burden on rate payers in the future, but that it will also help show an acknowledgement by GWA and the PUC that rates need to be substantially higher to support GWA's future obligations.

It is important for the PUC to understand that in order for GWA to obtain investment grade ratings on this larger financing, which will help reduce the costs of financing in the long run, they will look to an independent rate study which projects the rate increases needed in order for GWA to pay debt service on the bonds. This rate study must be adopted by the PUC upfront, before the financing takes place, in order to show the rating agencies that the PUC is committed to the rate-setting schedule. This does not necessarily mean that the rates **MUST** be implemented at the time set forth in the study. The PUC can choose to revisit GWA's finances at any time and if it finds that debt service coverage is already met and that a rate increase is not necessary, then it does not need to implement the rates in the future. The PUC's adoption of a 1.75x debt service coverage policy will further solidify its commitment to GWA's obligations but will not satisfy the rating agencies alone.

We hope this helps clarify some of the issues set forth in your recent correspondence. Please feel free to call us with any questions or concerns at 212.933.2255 or 212.933.2254.

CREDIT IMPLICATIONS OF RATE STRUCTURE AND RATE SETTING FOR U.S. MUNICIPAL WATER-SEWER UTILITIES

—James Wiemken, Director, Standard & Poors Credit Market Services, January 20, 2004

As large future capital requirements for many water-sewer utilities become more apparent, whether because of regulatory compliance issues, sprawling growth, aging infrastructure, or simply better awareness of the need for long-term asset management, many utilities face an uphill battle to pay for these improvements due to political pressures and a lack of public understanding. Accordingly, utility credit analysis has moved beyond a point-in-time analysis of current debt service coverage and rates compared to ratepayer's income levels and rates in neighboring communities. Because a variety of factors may affect financing options at the local level, the extent of a utility's ability to implement strategies and policies that address its unique characteristics and allow it to finance needed projects becomes a differentiating factor. Many of the highest credit quality utilities rated by Standard & Poors also face significant capital requirements. The approaches they have taken, however, have allowed them to address these needs without sacrificing bondholder protection and without being hindered by political or public opposition. This article examines the key factors that Standard & Poors considers in relation to rate setting and capital planning when rating water-sewer bonds and uses several examples of utilities around the country which have made great progress in financing infrastructure to date while preparing for additional needs going forward.

Standard & Poors' analysis of rate setting practices centers on the question of whether rates are set such that available revenues are consistently sufficient to meet all of the ongoing needs and obligations of the utility, both now and in the future. While a variety of external factors influence this analysis, including regulatory issues, growth trends, customer concentration,

and operational capacity, S&P generally looks for rate stability, rate transparency, and long-term planning as relevant factors that are under some control of utility management. Rate setting procedures that address these issues should help to achieve higher debt ratings, holding other factors constant.

Rate Stability Means Recognizing and Addressing Change

Achieving rate stability requires understanding that (more often than not) the statistic to be managed is the variance of the *changes* in rates over time rather than the variance in the rates themselves. Holding rate levels constant for multiple years does not benefit ratepayers if inflationary increases in operating costs and other expense pressures eventually compound to force a rate increase of such magnitude that rate payers have extreme difficulty in budgeting for this expense. Such patterns of irregular rate increases increase the risk that ratepayers will pressure rate makers to resist needed changes, thus increasing credit risk to bondholders. This is not to say that minimizing any negative economic development consequences of rate increases and pursuit of lower rates from further efficiencies should be ignored; they should be goals that are judged from a long-term perspective rather than exclusive targets to be met in the current year regardless of long-term consequences. When managed from a long-term perspective, sound policies usually benefit both bondholders and ratepayers, and the interests of these two constituencies are more consistently aligned.

Even without large financial pressures, political forces may intervene to delay rate increases, forcing the need for larger increases in the future. Unfortunately, this practice is somewhat

ATTACHMENT D

common during election years for local officials. Such pressure is most damaging, however, when it continues for a multi-year period—often through the entire term of an administration. After several years of neglect, the local service area may face not only a current structural imbalance in its utility operations, but also compounded deferred maintenance, and a realization that the utility is no longer capable of addressing regulatory or growth related issues in a timely or manageable way. Unless credit ratings, auditor opinions, or other reports revealing this neglect receive attention, these practices may continue for several years because many systems have funds set aside for improvements which (in some cases) may be diverted for rate subsidization.

Some utilities have created rate stabilization funds that technically exist to smooth rate increases over a long-term period. While Standard & Poors' generally prefers that rates be regularly set to provide sufficient funds to meet current obligations, such funds can be credit strengths when used appropriately. Whereas the use of capital and other funds for avoiding needed rate increases detracts from the utility's long-term stability, the use of specifically designated rate stabilization funds (generally resulting from surplus moneys) to reduce (but not eliminate) an atypically large rate increase, may benefit a utility. For example, although Boston Water and Sewer Commission will need to continue to raise rates following 8.9% increases at the beginning of both 2002 and 2003 and an additional 3.9% in April 2003, it will use over \$20 million of an available \$47 million in stabilization funds going forward to keep increases manageable. If the rate stabilization fund use is not a recurring reliance and it gives the utility more credibility in achieving needed rate increases going forward, this practice can be credit strength. It should be noted, however, that rate makers may use rate stabilization funds for political convenience, and the temptation to rely on further subsidization from the fund to meet ongoing expenditure pressures may be great. Even with a fund specifically designated for rate stabilization and funded from surplus moneys, this practice

would be considered a credit risk as one-time funds were being used to temporarily meet a long-term expenditure. Without an identified long-term revenue source to make up for the rate subsidization in the following year, the utility's financial structure would be positioned to weaken consistently going forward. S&P stresses the importance of rates producing current revenues to meet current obligations for this reason.

When future financial needs are known, multi-year rate approvals are another tool to protect rate setting from outside influence. If rates are regularly adjusted, then incremental increases should be smaller and thus easier to approve—even as a whole. Approving rates for multiple years at a time often allows a utility to lock in funding for the entire cost of a needed improvement with one effort, rather than having to re-explain the reasons for the project each time a new phase of the rate increase is needed. While statutes and oversight provisions limit this ability in some states, even internal policies or agreements in principle can help build and maintain support for needed increases through politically sensitive periods.

Rate Transparency

Ratepayers will often accept rate increases when they are manageable, but understanding the reasons for needed rate increases becomes more important when larger increases are necessary. While good communication with ratepayers and all stakeholders is generally the best prescription for transparency, many utilities structure their rate setting policies so as to ensure a certain level of transparency. Many local water utilities purchase most if not all of their water pre-treated from another water utility on a wholesale basis. These distribution utilities generally face fewer regulatory burdens and water purchases from the wholesaler may constitute the vast majority of its expenses. Policies which automatically pass through any wholesale rate increases to retail customers allow ratepayers to equate their rate increases with the timing of the wholesale increases, thus creating better understanding.

By communicating the frequency and degree to which retail increases result from wholesale increases, the retail provider may enjoy better support for non-wholesale related increases when the need arises. While insulating retail customers from wholesale increases may be politically popular in the short term, it can have devastating consequences for the long term if an additional long-term savings or another funding source cannot be identified to meet this expenditure pressure.

Anaheim, California takes cost transparency one step further by breaking its water charge into a base charge and a commodity charge, which includes the cost of purchased water and the cost of electricity. Ratepayers can therefore better understand the degree to which their rates are influenced by short- or long-term factors. The use of a base charge can also be a credit strength in that funds anticipated for debt service payments are subject only to fluctuations in the number of customers—not to fluctuations in consumption.

While many utilities focus on the transparency of cost pressures because they most often drive the need for rate increases, the transparency of benefits should not be neglected. Occasionally rate increases are needed for improvements that lead to observable benefits in quality (such as removing taste and odor), but customers may be unaware of the relative benefits they are receiving. Cincinnati, Ohio's water utility has benefited greatly from its reputation for high-quality water. Over time, the utility has grown its service area as neighboring residents actively sought access to this resource. The demand from residents in northern Kentucky was such that the area utility actually chose to tunnel underneath the Ohio River to hook up to the Cincinnati system rather than developing its own treatment systems (cost played a role as well). Such public recognition makes for good relations not only with new customers who have not always enjoyed access to Cincinnati's water, but also with lifelong customers. To date, the city council has never failed to approve a rate increase proposed by the utility.

For those utilities whose water quality may not differ substantially from its neighbors, other performance measures are often used, including rate increases vs. inflation, cost increases vs. inflation, total employees, total customers per employee, and a variety of other services delivered vs. cost measures. Although such measures must often be explained and clarified when system changes occur, encouraging ratepayers to focus on the marginal or relative benefits they receive is helpful in looking beyond a long-term trend of rising rates.

Long Range Planning

Policies encouraging rate stability and transparency over the short- and medium-term horizons may be implemented with some success, but they are likely to prove insufficient without some focus on relating the system's current status to its long-term needs. True rate stability and transparency assumes that a system's current and likely future needs have been measured and are relatively known. The average increase in rates to be targeted over the next decade cannot be known without some idea of the cost pressures a utility may face, and without an honest effort to estimate these needs, it will be extremely difficult to educate and inform ratepayers. Cost pressures to be estimated include those for operations, replacement, regulatory compliance, and accommodating additional growth. The nature of these cost increases should be considered (i.e. whether they are ongoing or likely to be diminished over time) along with their magnitude. Opportunities for savings should also be considered, which could result from technological improvements or administrative restructuring. The components of the revenue stream should also be examined. How much revenue is coming from connection fees and other one-time sources, and how this relates to current and expected growth trends is especially important. If the utility relies on a single commercial or industrial customer, the likelihood of that entity maintaining its current presence in the service area over the next ten to twenty years

should be considered, as well as how reliant the utility wants to be on this assumption.

Many utility officials site the impossibility of correctly estimating future economic development trends, regulatory outcomes, and the long-term patterns of various cost pressures. As such, they claim that trying to measure them actually represents a poor use of limited resources, especially for smaller systems that lack the staff or funds for consultants to devote to such studies. While most of these drivers are indeed highly uncertain, Standard & Poors' views a refusal to consider the potential burden of pressures beyond the short to medium term to be a credit risk. Accordingly, even small utilities that have attempted to examine long-term risks and possibilities in limited ways consistent with their resources and capabilities will likely find their rate projections and capital plans more accepted by S&P.

Conclusion

Municipal Water and Sewer utilities are forced to address a variety of short-term and long-term pressures on a regular basis. While a system's current financial status is of some importance to the utility's credit rating, its likely long-term health is the key driver. As the likelihood of significant additional capital needs

increases, the current rate, financial, and debt pictures for a utility become less reliable as indicators of long-term credit quality in and of themselves. A utility's ability to implement policies and procedures which garner the support of ratepayers for the additional revenues required to support these needs will become more important to the rating. Such policies should encourage both rate stability and transparency, and should minimize the likelihood of political influence that sacrifices the utility's long-term health for temporary rate freezes. While the exact nature of the future challenges and demands on a utility is impossible to forecast, early efforts to plan for long-term pressures will allow the utility to address the needs over a longer time horizon and in a more manageable way that benefits both ratepayers and bondholders.

For more information, please contact:

James Wiemken, Director
Standard & Poors Credit Market Services
One Prudential Plaza
130 East Randolph St., Suite 2900
Chicago, IL 60601
312.233.7005 Tel
312.233.7051 Fax
james_wiemken@sandp.com

studies.³

6. The statute requires that such study compare GWA with at least four (4) comparable utilities in the U.S. Mainland. The statutory requirements were complied with: on February 18, 2020, GCG filed the Guam Waterworks Authority Staffing Study in this Docket.⁴ GCG compared GWA to a cross-section of AWWA water and wastewater utilities. Although GCG found that GWA may be overstaffed in comparison to the mainland utilities, it determined that, for various reasons, the study results were not reliable at the present time.

7. GCG recommends at this time that no adjustment to the staffing related revenue requirements be made for FY 2020-2021. PUC supports this recommendation. GWA is not comparable to mainland water/wastewater utilities, as city or county governments often provide services to such entities (unlike GWA). A more detailed staffing study will be performed to support the FY2022 Comprehensive Review and Update of GWA's financial plan. The study should be completed by March 31, 2021.

8. In its brief, GWA addressed certain procedural aspects of the process concerning the rate case proceedings and was concerned about the length of time that it has taken to resolve the case and the level of scrutiny. GWA submits that time to resolve this case will be 236 days from the filing of its petition on July 6, 2019, implying that there was inordinate delay in resolving the case. This was a complex rate case; the PUC does not find that there was inordinate delay in this proceeding.

9. 12 GCA Sec. 12119 provides: **"Failure of the Commission to act upon a rate request change within one hundred twenty (120) days of final filing shall be deemed a final order denying said rate request change for the purposes of this Section."** (emphasis added). Should GWA insist that the one-hundred-and-twenty-day period expired before the rate case was addressed, the only result would be an order denying any rate relief.⁵

10. Rule 24 (e) of the PUC Rules of Practice and Procedure provides that **"the Commission shall act on a utility's application for rate change within one hundred twenty days after the final filing by the utility of all documentation, including responses to discovery, as may be necessary to support the application; provided, however that the ALJ shall make the determination of when this "final filing" has occurred."** (emphasis added).

11. GWA never requested a determination from the ALJ as to when a "final" filing occurred. There is no "final filing" which commences the running of the 120 days until all responses to discovery are filed. There was a discovery conference between the parties on September 18, 2019. As late as October 16, 2019, GCG was sending discovery responses to GWA's Requests for Information. Furthermore, the Combined Proposed Schedule of the parties provided for filing by GWA of a second set of Requests for Information on January 6, 2020, and GCG responses to GWA's second set of RFI's by January 22, 2020. Under Rule 24 (a), the one hundred and twenty day would not start

³ 12 GCA §12102.2(d).

⁴ Georgetown Consulting Group, Inc., Guam Waterworks Authority Staffing Study, GWA Docket 19-08, filed February 18, 2020.

⁵ 12 GCA Sec. 12119.

to run before October 15, 2019, and arguably not until GCG submitted responses to discovery on January 22, 2020.

12. As GCG outlined at the Work Session on February 19, 2020, GWA did not provide a Rate Study (rate design analysis) or a cost of service analysis in this docket. It has long been established that a rate study and cost of service analysis are fundamental to regulatory rate proceedings. Both GCG and the ALJ indicated on the record in this proceeding that these studies should ordinarily be a part of a petition to increase rates. GCG has indicated that the length of these proceedings was caused by the need to supplement the record with information that GWA did not provide. Although GWA claims that it met all of the filing requirements, in the 2009 rate case, GWA committed to future rate design changes based upon a Cost of Service Study by July 2011.⁶

13. Given the complex number of issues in the case, the length of the proceedings has not been unreasonable. The Financial Plan included three new debt series issues in 2019, 2022 and 2023. The proceeding included such diverse issues as the magnitude of recurring user rate increases, large debt financings, construction budget prioritization, water loss reduction measures and consumer affordability. There were issues concerning alternative debt financing measures, reduction of debt service coverage ratios, and capitalized interest and principal deferral in bond issuances.

14. As to the level of PUC scrutiny in this case, a third GWA rate plan, which would increase rates by 44% over five years, had to be examined carefully and critically. GWA's Twenty-Year Water Resources Master Plan Update proposed a continuing series of rate increases over the twenty-year period of between 4 and 5% annually. Another major concern was that the 58% non-revenue water loss has not improved over many years. Thus, this case justified a high level of PUC scrutiny.

15. The Stipulations embody workable solutions which will provide GWA with sufficient revenues to fund its capital improvement programs. A very detailed plan has been adopted to address the water loss issue.

16. In its Petition, GWA had originally proposed a rate increase of 10% for FY2020 and 8.5% for 2021. The Stipulation now provides that the agreed increase for Water and Wastewater base rates for FY2020 will be 5% and 5% for FY2021. All FY2020-2021 rates are to be applied across-the-board to all rate classes with no change in the lifeline rates during FY2020 or FY2021.⁷

17. These rate revenue increases will be adequate to support GWA operations and maintenance. The two-year cumulative increase has been reduced from 18.5% to 10%, a 45% decrease. The reduction of the original rate request of GWA will result in savings to the ratepayers of \$10 to \$15 million.⁸

18. An issue that GWA raised for the first time in its February 12, 2020, brief, and its presentation before the PUC on February 19, 2020, was that the PUC should grant it "compression" on the rate increase for FY 2020. According to GWA, if a 5% rate

⁶ GWA Docket 09-03, July 27, 2009, GPUC Rate Decision and supporting July 14, 2009, Stipulation, paragraph 8.

⁷ GCG Presentation before the PUC on February 19, 2020.

⁸ Id.

increase were now granted by the PUC effective March 1, 2020, GWA will have been denied the benefit of the increase for the first five months of fiscal year 2020.

19. Based upon approval by the PUC of an FY2020 rate increase effective March 1, 2020, GWA is requesting that an increase of 8.57 percent to basic charges and non-lifeline rates be effective on that date and an FY2021 increase of 2%.⁹

20. GWA never presented this request to GCG in the negotiations of the Stipulations. Larry Gawlik of GCG stated at the February 19, 2020, Work Session that there was no discussion on compression included in the Stipulations. GWA GM Miguel Bordallo admitted during the Work Session that it was an "oversight" not to include "compression" in the Stipulations. Compression is not mentioned or included within the Stipulations. It is not appropriate to impose compression when it was not specifically referenced or agreed to in the Stipulations.

21. The specific provision in the Stipulation which addresses when the FY2020 Base Rate Increase will become effective states as follows: "The rate increase for FY2020 will take place upon the PUC issuing a final order in Docket No. 19-08..."¹⁰ GWA's position would essentially make the rate increase effective October 1, 2019, which is directly contrary to the express language of the Stipulations.

22. In the sentence preceding the above provision, the Stipulations state that the Parties agree to a base rate increase of 5% in FY2020. However, that sentence does not indicate when the base rate becomes effective. The provision previously cited directly addresses that issue and controls general language concerning a 5% increase in FY2020. The Appendix A Proforma also does not specifically address compression nor indicate when the FY2020 proposed rates will go into effect.

23. The PUC should deny GWA's request for compression and adopt the position of GCG. Had the Parties discussed and agreed to "compression" there would have been a Stipulation on this issue. The fact that there was not a stipulation indicates that there was no such agreement. An 8.57% rate increase implemented now, immediately, would not be in the best interest of ratepayers.

24. The target increases now provided for in FY2022 through 2024 are 5.50% for FY2022, 3% for FY2023, and 2.5% for FY2024. However, such rates are "subject to Adjustment."¹¹ The FY2022 through FY2024 rates are "proforma", "based on the best estimates that the Parties currently have." These "proforma" rates will be "subject to redetermination after the analytical studies in FY2021 are completed and the FY 2022 Comprehensive Review and Update of GWA's Financial Plan completed."¹²

----- 25. Rates cannot be set now for FY2022-2024 as there is simply an insufficient record to enable the Parties to set such rates at the present. That is why GWA is being required to conduct the six analytical studies set forth in the Stipulations. -----

⁹ GWA Position Statement on Stipulation, pg. 3.

¹⁰ Stipulations, pg. 7.

¹¹ GWA Presentation to the Consolidated Commission on Utilities, Regular Meeting, January 28, 2019, at p. 64 of the CCU Board Packet.

¹² GCG GPUC Workshop Briefing, pg. 3.

26. The PUC should approve the proposed for FY2020 and 2021 as “just” and “reasonable” pursuant to 12 GCA §§ 12116 and 12118. The rates appear to be based upon a reasonable determination of GWA’s revenue needs and the cost of the CIP program. The agreement of the Parties to reduce the original rate requests indicates that the interests of the ratepayers have been considered and respected.

27. The Water Loss Reduction Program is one of the most significant aspects of the Stipulations. GWA’s Rate petition did not include a defined water loss reduction program for the purposes of reducing water loss levels. The Stipulation deals with the substantial problem of water loss at a level of 55-58% that has adversely affected GWA’s operations for over 40 years.

28. The program includes a comprehensive systemwide water loss reduction assessment and program designed to provide meaningful reductions in water loss volumes (kGal). A water loss reduction plan, including annual loss reduction targets, will be completed and submitted by March 31, 2021, to be considered by PUC in the update to GWA’s Five-Year Plan.¹³ In FY 2020-2021, GWA will include water loss reduction project spending of no less than \$14M.¹⁴ FY2020 and 2021 production volumes will be adjusted based on projected non-revenue water reduction of 2% of actual FY2019 production and 2.75% of FY2020 production respectively.¹⁵ Measures agreed to in the Stipulations will be undertaken to reduce GWA water loss by 20% over the five-year period.

29. The Stipulations address GWA’s Capital Financing process. There are presently two separate debt service coverage ratio calculates applicable to GWA’s debt borrowing: the bond indenture coverage ratio of 1.25x coverage and the PUC 1.75x coverage target pursuant to the PUC’s FY 2005 Rate Order, with the inclusion of Working Capital Reserve fund balances per CCU policy.¹⁶

30. The Parties have agreed that the dual calculations are “uncommon among water system debt issuers”, and that a simpler debt service coverage ratio standard should be adopted.¹⁷ The PUC 1.75x standard may exceed coverage levels required for comparable and even more favorably rated water system issuers.¹⁸ Such a standard is a difficult barrier to meet, and in this case would require tremendous rate increases.¹⁹ Therefore, the Parties both recommend that the CCU and PUC provide any necessary policy changes that will allow for the adoption of a 1.40x debt service coverage ratio.

31. Adoption of this 1.40x standard will end certain confusion that presently exists, and further provide a standard that is easier to apply and is more acceptable in the national credit market.

32. The Parties have further adopted certain agreements as to the Revenue Bond Debt Structure that will be used for the proposed \$134M bond issuance. The first is that the

¹³ Id. at pg. 9.

¹⁴ Stipulations, pg. 9.

¹⁵ Id.

¹⁶ GWA Position Statement on Stipulation, pg. 10.

¹⁷ Id.

¹⁸ Id.

¹⁹ Statement of Larry Gawlik at PUC Work Session on February 19, 2020.

bond issuance will be structured with two years of capitalized interest. There are arguments for and against capitalization of interest. Such capitalization more closely aligns ratepayer benefit from capital projects with their actual availability. Capitalized interest is generally accepted in regulatory settings as a means to align debt payment obligations to asset in-service dates, and thereby nominally matches revenues and expense.²⁰

33. Capitalizing costs may place additional pressure on rates outside the current rate application period.²¹ Such capitalization merely defers principal payments and will thereafter result in a rate bump or increase when principal/interest payments become due.²² However, it is clear that, without such capitalization, there would be a more immediate rate impact, and rates would have to increase to enable the bond debt service to be paid. The PUC should approve capitalization of interest for a period of two-years.

34. Similarly, the Parties assume that principal payments will be deferred for five years with the upcoming bond issuance. This will defer the rate impact. In this case, if principal payments were not deferred, there would be a “rate bump” in FY2022. The purpose of deferral is “rate smoothing.”²³ However, deferral of principal will result in interest being paid on the deferral.²⁴

35. The five-year deferral of principal payments is justified as a part of the overall rate package. Such deferral will avoid an immediate rate impact during this five-year rate period. It is an appropriate part of the overall rate plan that the Parties have crafted.

36. The Parties have also agreed that GWA will explore alternatives to bond financing, such as tax-exempt commercial paper and lines of credit, for future capital borrowing needs. It makes sense for GWA to consider other forms of financing that could reduce the cost of borrowing. These alternatives will require further consideration and approval by CCU, PUC, and possibly the Guam Legislature.

37. There are currently pending negotiations between GWA and USEPA concerning a Consent Decree. GWA will likely agree with USEPA to capital programs and projects with spending commitments that will impact future rate revenue requirements. In the Stipulations, the Parties have agreed that, upon completion of substantive Consent Decree negotiations with USEPA, GWA will provide a detailed briefing on the proposed decree to the PUC. The briefing will outline, among other matters, potential GWA spending commitments that will impact future rate revenue requirements and to provide a comparison to what was projected in GWA’s Five-Year Financial Plan.²⁵ This provision in the Stipulations should be approved.

~~38. The ALJ and GWA do not presently agree whether GWA is required to obtain prior approval of its settlement agreement with USEPA before entering into the Consent Decree. It is the ALJ’s position that prior PUC approval of such settlement agreement is~~

²⁰ GWA Position Statement on Stipulation, pg. 12.

²¹ Id.

²² Statement of Larry Gawlik at PUC Work Session on February 19, 2020.

²³ Id.

²⁴ Statement of Eric Rothstein at PUC Work Session on February 19, 2020.

²⁵ Stipulations, pg. 11.

required under Guam statute and the GWA-PUC Contract Review Protocol. 12 GCA Sec. 12105 (e)(1) requires PUC approval of any contract or obligation which could increase rates prior to entry into such contract by GWA. Furthermore, the Contract Review Protocol requires prior PUC review of any contract or obligation which exceeds \$1,000,000.

39. This remains an open issue in this Docket. The PUC retains jurisdiction over such issue and reserves the right to later decide whether PUC prior approval of the Consent Decree Settlement is required pursuant to statute and the Contract Review Protocol.

Ordering Provisions

After careful review and consideration of the above determinations, the Report and Recommendations of the ALJ, and the Stipulations and the record herein, for good cause shown, on motion duly made, seconded and carried by the undersigned Commissioners, the Guam Public Utilities Commission **HEREBY ORDERS THAT:**

1. All rulings and orders of the ALJ in this proceeding are confirmed and ratified. All motions not heretofore granted or denied are denied. No other matters currently require discussion.
2. The Stipulations of the Guam Waterworks Authority and Georgetown Consulting Group, on behalf of the Public Utilities Commission of Guam, entered into by the Parties on January 17, 2020 and attached hereto as Exhibit "1", are hereby approved and adopted by the PUC.
3. The Parties are hereby ordered and directed to perform and carry out all obligations and duties set forth in the Stipulations.
4. GWA is awarded water and wastewater base rate increases of 5.0% in FY2020 and 5.0% in FY2021. The rate increase for FY2020 will be effective upon the issuance of this Decision by the PUC. The FY2021 increase will take effect on October 1, 2020. There shall be no change in the "lifeline" rate for FY2020 and FY2021.
5. Based upon the information received by the PUC as of the date of this Decision, the rates proposed by the Parties are "just" and "reasonable" pursuant to 12 GCA §§ 12116 and 12118.
6. GWA and GCG have agreed to "proforma" rates for FY2022, 2023, and 2024. However, such rates are not "final" at the present time. Based upon the studies that GWA has agreed to undertake, and the submission of information required by the Stipulations, the PUC will undertake an FY2022 Comprehensive Review and Update to GWA's Five-Year Financial Plan. The final rates for those fiscal years will be determined by the PUC based upon the results of the studies to be performed.
7. In accordance with the Stipulations, GWA shall undertake various analytical studies to support the FY2022 Comprehensive Review and Update of GWA's Financial Plan and the subsequent annual rate review processes for FY2023 and 2024. The required studies include Demand Forecasting, a comprehensive system-wide Water Loss Reduction program, a Cost of Service/Rate Design

Study, an Affordability Study (concerning the ability of low-income rate payers to afford the rapidly increasing water and wastewater rates), Financing and Alternatives to Bond Issuance, a review of the Capitalized Labor Expense protocol, and a study designed to connect more rate payers to the wastewater system and cesspool/septic tank elimination.

8. On or before May 1, 2021, GWA will file its FY2022 Comprehensive Review and Update to GWA's 5-Year Financial Plan which will compare its forecast to actual performance of GWA revenues and expense categories. Such update will include an analysis of how the Demand Forecast, Water Loss Reduction, Cost of Service study, Affordability study, Financing study and other analyses should be incorporated into the Five-Year Financial Plan.
9. GWA shall complete all analytical studies referenced in the Stipulations and file them with the PUC no later than March 31, 2021, to support a Comprehensive Review and Update of GWA's Financial Plan.
10. GWA shall comply with its agreement to undertake a comprehensive system wide Water Loss Reduction program designed to provide meaningful reductions in annual water loss volumes (kGal). The annual non-revenue water loss of 55-58%, according to GCG, is "the single most important issue confronting GWA." GCG estimates that these water losses cost Guam consumers an excess of \$10-\$12 million annually in terms of variable cost of water system operations. Future investments for oversizing facilities can be avoided by reducing water loss.
11. GWA shall continue its ongoing loss reduction field work with Water Systems Optimization, Inc. GWA will identify water loss reduction projects in accordance with the Stipulations. A Water Loss Reduction Plan, including annual loss reduction targets, will be completed and submitted by GWA to the PUC by March 31, 2021, to be considered in the update of GWA's Five-Year Plan.
12. In FY2020-2021, GWA will include water loss reduction project spending of no less than \$14M.
13. GWA shall adjust its FY2020 and 2021 water production volumes based on projected non-revenue water reduction of 2% of actual FY2019 production and 2.75% of actual FY2020 production respectively. GWA will undertake all measures agreed to in the Stipulations to reduce GWA water loss by 20% over the Five-Year period.
14. GWA shall investigate the availability and relative cost of alternative debt instruments such as letters-of-credit and surety bonds to fund debt service reserves in lieu of bond financing required reserves through debt issuance proceeds. If such options are determined to be viable and economical, GWA shall recommend to the CCU, Legislature and PUC the approval of such option(s) for meeting debt service reserve fund requirements as delineated in GWA's Indenture.
15. GWA shall investigate the availability and relative cost of the use of commercial paper and lines of credit to finance the ongoing capital construction program following issuance of its Series 2020 revenue bonds. GWA shall complete such

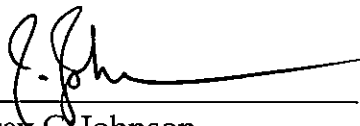
activities in a timely manner to allow adjustment to FY2022-2024 rates in conjunction with the FY2022 Comprehensive Review and Update of GWA's Financial Plan. GWA will provide to the CCU and PUC detailed submissions and briefings on all documentation required for the FY2022 Comprehensive Review and Update to GWA's Five-Year Financial Plan. These submissions and detailed briefings on the submissions, and the GWA rate model adjustments, will be provided to the CCU and PUC by May 1, 2021.

16. Both GWA and GCG will support policy changes that create one standard for debt service coverage at 1.40x debt service coverage.
17. The Parties shall use best efforts to revise the CCU policy (Resolution No. 21-FY2014) that establishes a cash reserve for the purpose of meeting PUC's current established Aggregate Debt Service Coverage Ratio of 1.75x. Such revision will mean that net revenues are not supplemented with cash reserves.
18. The Parties will also use best efforts to revise and clarify the PUC Order, Docket 04-01, FY2005 Rate Order, that establishes a minimum 1.75x coverage ratio for setting just and reasonable rates.
19. GWA's Five-Year Financial Plan will be based on a projected fund balance target of not less than \$3 million and a debt service coverage ratio of 1.40x-1.50x.
20. GWA's \$134 million Series 2020 bond issue will be structured with a term of thirty (30) years, two (2) years of capitalized interest, assumed to be issued at an average coupon rate of five percent (5%) with cost of issuance equal to two percent (2%) of par. For the Series 2020 bonds principal payments will be deferred for a five (5) year period.
21. GWA will re-program all existing non-committed bond fund balances (from its past three issues), in an amount of no less than \$2.7 million, to its capital program, subject to the applicable PUC review procedures and will provide a priority consideration in funding with reprogrammed funds non-revenue water projects.
22. GWA will use its best efforts to enter into a zero-cost "water exchange" program with Navy. If unable to do so, GWA will prioritize reducing the amount of water purchased from the US Navy and undertake the necessary construction to eliminate Navy water (if supported by a large benefit-cost ratio supporting such construction).
23. GWA will ensure that the new SCADA system is designed to assist GWA in the identification and detection of water losses and the prioritization and targeting of water loss projects.
24. Upon completion of substantive Consent Decree negotiations with USEPA, GWA will provide a detailed briefing on the proposed decree to the PUC. This briefing will outline, among other matters, potential GWA spending commitments that will impact future rate revenue requirements and provide a comparison to what was projected in GWA's Five-Year Financial Plan.

25. The ALJ and GWA do not presently agree as to whether prior PUC approval of the GWA- USEPA Consent Decree Settlement Agreement is required by Guam statute and the Contract Review Protocol. This remains an open issue in this Docket. The PUC retains jurisdiction over such issue and reserves the right to later decide whether PUC prior approval of the Consent Decree Settlement is required pursuant to statute and the Contract Review Protocol.
26. GWA is ordered to pay the Commission's regulatory fees and expenses, including, without limitation, consulting and counsel fees and the fees and expenses of conducting the hearing proceedings. Assessment of PUC's regulatory fees and expenses is authorized pursuant to 12 GCA §§ 12103(b) and 12125(b), and Rule 40 of the Rules of Practice and Procedure before the Public Utilities Commission.
27. PUC will keep this docket open in order to conduct all proceedings referenced in the Stipulation. The ALJ is authorized and directed to oversee such administrative tasks and to issue such administrative orders as may be reasonable and necessary to implement this Decision.

[SIGNATURES TO FOLLOW ON NEXT PAGE]

Dated this 27th day of February, 2020.



Jeffrey C. Johnson
Chairman

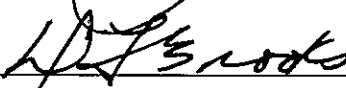


Rowena E. Perez-Camacho
Commissioner



Joseph M. McDonald
Commissioner

Michael A. Pangelinan
Commissioner



Peter Montinola
Commissioner

Doris Flores Brooks
Commissioner

Pedro S.N. Guerrero
Commissioner

1
2
3 **BEFORE THE GUAM PUBLIC UTILITIES COMMISSION**

4 **IN RE: PETITION FOR APPROVAL OF) DOCKET NUMBER NO. 19-08**
5 **GWA'S THIRD FIVE-YEAR)**
6 **FINANCIAL PLAN.) STIPULATIONS OF THE GUAM**
7 **) WATERWORKS AUTHORITY AND**
8 **) GEORGETOWN CONSULTING GROUP**
9 **) ON BEHALF OF THE PUBLIC UTILITY**
10 **) COMMISSION OF GUAM**
11 **)**

12 **PROPOSED STIPULATION**

13 *The GUAM WATERWORKS AUTHORITY (hereinafter "GWA") and GEORGETOWN*
14 *CONSULTING GROUP, INC. (hereinafter "GCG") (hereinafter both jointly referred to as the*
15 *"Parties"), hereby agree and stipulate to recommend the following to the GUAM PUBLIC*
16 *UTILITIES COMMISSION (hereinafter "PUC") for approval in Docket No. 19-08:*

17 **PREAMBLE**

18 *Whereas GWA published notice in a local paper of its intent to request PUC approval of*
19 *water and sewer rate increases above existing tariffs on April 6, 2019; and*

20 *Whereas GWA conducted no less than seven (7) public hearings over the subsequent*
21 *weeks, provided notice in the May 2019 customer billing cycle, and gave notice in the paper on*
22 *June 6, 2019; and*

23 *Whereas the Guam Consolidated Commission on Utilities (CCU) under its budgetary*
24 *authority in Public Law 26-76, by Resolution No. 36-FY 2019, approved filing of GWA's Five-*
25 *Year Financial Plan on June 5, 2019; and*

26 *Whereas GWA petitioned the PUC on July 6, 2019 for approval of its Five-Year Financial*
27 *Plan and rate relief and submitted a complete application for rate relief in conformance with*
28 *applicable PUC rules (Part 4: Application for Rate Relief, Rules 19 -21); and*

29 *Whereas, GCG was authorized by the PUC to serve as Technical Consultants on April*
30 *23, 2019 in Docket No. 19-08 to review GWA's Petition and GCG reviewed GWA's Petition and*
31 *rate filing information; and*
32

- 1 b. GWA will consider, as deemed appropriate, modeling the hotel class by individual
2 customer for the largest 10 – 20 customers and meeting with local hotel facility
3 managers about plans such as expansion and water conservation measures and
4 equipment that they plan to install within the next five (5) years. GWA will
5 consider, as deemed appropriate, the relationship between hotel water
6 consumption, tourist arrivals and room occupancy.
- 7 c. Related projections of GWA water production will be prepared specifically to
8 include consideration of demonstrated impacts of GWA’s water loss management
9 initiatives.
- 10 d. The study must be completed no later than March 31, 2021 for consideration by
11 the PUC in the FY 2022 Comprehensive Review and Update to GWA’s Five-Year
12 Financial Plan.

13 2. Water Loss Reduction – GWA will advance and expand water loss reduction
14 measures including accelerating planned water line replacements, implementation of district
15 metering areas and other high priority measures.

- 16 a. GWA will undertake a comprehensive systemwide water loss reduction program
17 designed to provide meaningful reductions in annual water loss volumes (kGal)
18 deemed to be economically justifiable. The Parties agree that any water loss
19 reduction project shown in the analytical study to have a benefit-cost ratio above
20 1.25 will be accelerated to the extent practicable.
- 21 b. GWA will continue its ongoing loss reduction field work with Water Systems
22 Optimization, Inc. (WSO), or other experts, for the purpose of identifying
23 implementable loss reduction measures and appropriate loss reduction targets for
24 its water system. GWA will evaluate calendar year 2020 outcomes of water loss
25 reduction efforts in district metering areas for consideration in making adjustments
26 to its FY 2022 – 2024 water production and variable expense estimates.
- 27 c. GWA will identify water loss reduction projects and the corresponding benefit-
28 cost ratio associated with each project and will rank each water loss reduction
29 project with a benefit-cost ratio above 1.0 from the highest to the lowest.
30 Documentation of water loss reductions achieved for the period and a
31 comprehensive five (5) year (FY 2022 – 2026) water loss reduction plan (inclusive
32 of annual loss reduction targets using appropriate and industry standard metrics)

1 will be completed and submitted no later than March 31, 2021 for consideration
2 by the PUC in the FY 2022 Comprehensive Review and Update to GWA's Five-
3 Year Financial Plan.

- 4 d. Annually, GWA will provide to the PUC information on results achieved, allowing
5 the PUC to actively monitor and independently verify GWA's progress in water
6 system loss reduction and its undertaking of the water loss reduction projects
7 stipulated to in this proceeding. The annual report will be prepared in a form
8 mutually agreeable by the Parties. These annual updates will include the
9 identification of potential barriers to achievement of loss reduction targets and
10 identification of any corrective actions required to ensure the targets are achieved.

11 3. Cost of Service/Rate Design - GWA must conduct a water and wastewater cost of
12 service and rate design (COS) study that independently examines the allocation of costs to all
13 customer classes of both the water and wastewater systems employing analysis methodologies as
14 outlined in the American Water Works Association's (AWWA) and Water Environment
15 Federation's (WEF) manuals of standard practice.¹

- 16 a. The COS study will examine GWA's current allocation of costs to its various
17 water and wastewater customer classifications and present alternatives to GWA's
18 current rate designs to support low-income affordability and water conservation
19 objectives. The study must be completed and submitted to the PUC to support the
20 FY 2022 Comprehensive Review and Update to GWA's Five-Year Financial Plan.

21 4. Affordability – GWA will prepare an evaluation of household water affordability
22 using measures as outlined in the AWWA/NACWA²/WEF report submitted to EPA in May
23 2019,³ and will prepare Financial Capability Assessment (FCA) information using its
24 recommendations.

- 25 a. In conjunction with GWA's COS study, GWA will prepare an evaluation of
26 options to address low-income water affordability challenges through both the
27

28
29
30 ¹ AWWA Manual of Practice (M1), Principles of Water Rates, Fees and Charges, 7th Edition and WEF Manual of
Practice (No. 27), Financing and Charges for Wastewater Systems, 4th Edition.

31 ² National Association of Clean Water Agencies (NACWA).

32 ³ "Developing a Framework for Household Affordability and Financial Capability Assessment in the Water Sector,"
prepared by Raftelis, Galardi Rothstein Group, and Corona Consulting for the American Water Works Association,
National Association of Clean Water Agencies, and Water Environment Federation, completed in April 2019 and
submitted to US EPA in May 2019.

1 design of a Customer Assistance Program and revision of its current residential
2 lifeline rate structure. The study will consider alternative low-income Customer
3 Assistance Programs (CAP) and the financing of such programs (intra- and inter-
4 class subsidies) as well as rate design alternatives.

- 5 b. The Parties agree that reasonable efforts will be made to provide for water rates
6 that result in an improvement in the affordability of basic water service and
7 consider cost impacts of all Guam utilities on low-income customers. The study
8 will be completed and submitted no later than March 31, 2021 to the PUC to
9 support the FY 2022 Comprehensive Review and Update to GWA's Five-Year
10 Financial Plan.

11 5. Capital Financing – GWA agrees to pursue legislative and other actions necessary,
12 including working with the PUC and the Guam Economic Development Authority (GEDA) and
13 appropriate financial advisors to enable access to certain financing tools, and to modify selected
14 financial policies. GCG agrees to support GWA's actions before the PUC in pursuing the
15 following enhancements to its financing vehicles:

- 16 a. GWA agrees to investigate the availability and relative costs of alternative debt
17 instruments such as letters-of-credit or surety bonds to fund debt service reserves
18 in lieu of bond financing required reserves through debt issuance proceeds. If
19 determined to be viable and economical, GWA agrees to recommend to the CCU,
20 Legislature and PUC the approval of this option for meeting debt service reserve
21 fund requirements delineated in GWA's indenture.
- 22 b. GWA agrees to investigate the availability and relative costs of the use of
23 commercial paper or lines of credit to finance its ongoing capital construction
24 program following issuance of its Series 2020 revenue bonds. If determined to be
25 viable and economical, GWA agrees to seek necessary approvals to allow GWA
26 the option to employ commercial paper for prospective capital financing.
- 27 c. These activities will be completed a timely manner to allow adjustment to FY 2022
28 – 2024 rates in conjunction with the FY 2022 Comprehensive Review and Update
29 of GWA's Financial Plan. Given the uncertainty of both the availability and costs
30 of these alternative financing options, the Parties agree that the stipulated FY 2020
31 and FY 2021 rates will not assume the availability of these instruments.
32

1 6. Capitalized Labor – GWA agrees to undertake a review of its current capitalized
2 labor expense protocol to be completed no later than March 31, 2021 to support the FY 2022
3 Comprehensive Review and Update to GWA’s Five-Year Financial Plan.

4 7. Cesspool/Septic Tank Elimination – GWA agrees to investigate options to
5 enhance compliance with Title 10, Chapter 48, Toilet Facilities and Sewage Disposal, potentially
6 including legislatively approved transfer of regulatory authority to GWA. GWA will complete
7 its septic tank / cesspool review and analysis, and provide its recommendations to the PUC for
8 review and consideration no later than March 31, 2021.

- 9 a. GWA will identify all residential facilities with 200 ft. of an existing GWA
10 sanitary sewer line or 1000 ft. of a GWA water well that require specific action
11 steps to be taken by GWA in accordance with Chapter 48. GWA will estimate the
12 potential consumer and GWA investments required, identify potential sources of
13 funding these investments and estimate GWA revenue impacts and expenses of
14 implementation.
- 15 b. GWA will consider alternative funding mechanisms to assist consumers in
16 connecting to the sewer system, including use of the SDC fund to increase the
17 funds available in the sewer connection revolving fund. GWA will evaluate
18 potential obstacles, if any, to using the SDC fund and outline potential solutions.
19 Other funding mechanisms may be explored as well including private sector
20 financing.
- 21 c. GWA agrees to notify the CCU and PUC on a timely basis if potential barriers,
22 including funding and procurement issues, may preclude completion of the above-
23 listed studies by the completion dates scheduled and to request necessary
24 modifications and approval of any changes.

25 8 FY 2022 Comprehensive Review and Update to GWA’s Five-Year Financial Plan
26 -The review will require GWA to supplement the filings of the studies enumerated below with
27 reporting to the PUC by May 1, 2021 on:

- 28 a. Forecasted (per the stipulated FY 2020 – 2024 rate plan) versus actual performance
29 by the categories of GWA revenues and expense included in GWA’s Five-Year
30 Financial Plan filed with the PUC on July 6, 2019. This variance analysis reporting
31 will address and explain, through narrative and supporting analyses, reasons for
32 variances between forecasted and actual (FY 2020 audited data and FY2021 YTD

1 data) performance greater than 5 percent. PUC may ask for further explanation of
2 other documented variances throughout the review process.

3 b. GWA will submit proposed updates to its Five-Year Financial Plan for FY 2022 –
4 2024 and supporting rate model based in part on the findings and recommendations
5 of the studies enumerated above. GWA will provide documentation of how
6 findings of each study were incorporated into GWA's revised financial plan by
7 major categories of GWA revenues and expense.

8 c. GWA will provide documentation including, but not limited to a petition, reports,
9 memos, spreadsheets and workpapers outlining how the findings and
10 recommendations of the GWA demand forecast, water loss reduction, cost of
11 service, affordability, capital financing, and other analyses are proposed to be
12 incorporated into the FY 2022 Comprehensive Review and Update to GWA's
13 Five-Year Financial Plan.

14 **The FY 2022 Comprehensive Review and Update to GWA's Five-year Financial Plan**
15 **contemplates an enhanced annual rate review process and specifically does not constitute a new**
16 **GWA rate application. GWA will provide both the CCU and PUC detailed submissions and**
17 **briefings on these submissions and GWA rate model adjustments by May 1, 2021. As noted**
18 **below, GWA will respond to Requests for Information or PUC submittals regarding the studies**
19 **and GWA rate model adjustments on a timely basis throughout the review process. PUC action**
20 **on the FY 2022 Comprehensive Review and Update to GWA's Five-year Financial Plan is**
21 **anticipated by September 2021. The review process is recommended by the Parties to provide for**
22 **full and appropriate consideration of the studies that GWA has agreed to complete by March 31,**
23 **2021.**

24 **II. GWA's FY 2020 – FY 2024 Financial Plan**

25
26 1. **FY 2020 – 2021 Base Water Rates – By this Stipulation, the Parties agree to the**
27 **proforma results of operations contained in the detailed Attachment A for the period FY 2020 –**
28 **2021 that memorializes the details of projections that the Parties have agreed to recommend to**
29 **the PUC for its review and approval.**

30
31 2. **FY 2020 – FY 2021 Base Rate Increase Implementation – The Parties agree to the**
32 **stipulated water and wastewater base rate increases of 5.0 % in FY2020 and 5.0% in FY2021.**
The rate increase for FY 2020 will take place upon the PUC issuing a final order in Docket No.

1 19-08 and for FY 2021 will take effect on October 1, 2020. There will be no change to the
2 "lifeline" rate for FY2020 and FY2021.

3
4 3. DSCR – The Parties acknowledge that the projected debt service coverage ratio
5 (DSCR) for FY2020-2021 is below the target of 1.75x the PUC has set to be achieved for
6 ratemaking purposes.

7 4. Policy Changes – The Parties will use best efforts to secure revisions to CCU and
8 PUC policies related to minimum debt service coverage levels:

9 a. Revision of the CCU policy (adopted by Resolution No. 21-FY2014) that calls for
10 funding of a Working Capital and Debt Service Reserve that "serves to establish a
11 Cash Reserve for supplementing Net Revenues for the sole purpose of meeting the
12 PUC's currently established ADSCR [Aggregate Debt Service Coverage Ratio]
13 requirement that Net Revenues will be 175%- or 1.75 times annual debt service."
14 The revision would provide for meeting of a PUC minimum ADSCR target based
15 on a calculation consistent with GWA's indenture (and common municipal finance
16 practice) that does not supplement Net Revenues with such reserves.

17 b. Revision and clarification of the PUC's order (Regulatory Review of GWA
18 Interim Financial Plan Under Federal Court Order in Civil Case 02-35 - Docket
19 04-01: FY 2005 Rate Order) that a minimum 1.75x coverage ratio is established
20 for purposes of setting just and reasonable rates for GWA (Paragraph 8, p. 5).

21 c. The Parties to this stipulation agree to support the approval of both policy changes
22 inclusive of a minimum 1.40x debt service coverage ratio. It is further
23 recommended that as part of CCU and PUC's consideration of alternative debt
24 financing instruments, the PUC debt service coverage policy be reevaluated based
25 on references to credit rating agency medians of comparable and favorably rated
26 debt issuers and consideration of customer affordability of utility services.

27 5. kGal Water Sales – For purposes of the FY 2020 – 2021 revenue requirements, the
28 Parties stipulate that the annual water sales volumes by customer class will not be adjusted from
29 GWA's original July 6, 2019 rate application. Adjustments may be implemented beginning in
30 FY 2022 based on the results of the supporting "Analytical Studies" enumerated above that will
31 be incorporated into the FY 2022 Comprehensive Review and Update to GWA's Five-Year
32 Financial Plan.

1 6. **Water Loss Reduction Program** – The Parties stipulate GWA will be deploying an
2 aggressive water loss reduction program. For purposes of FY 2020 – 2021, GWA’s water
3 production forecast will be adjusted to reflect anticipated reductions in water losses due to GWA’s
4 expansion and acceleration of water loss reduction measures:

- 5 a. FY 2020 production volumes will be adjusted based on a projected reduction of
6 non-revenue water by 2.00% of actual FY 2019 production (adjusted for partial
7 year implementation, which implementation will begin no later than March 1,
8 2020).
- 9 b. FY 2021 production volumes will be adjusted based on a projected non-revenue
10 water reduction of an additional 2.75% of actual FY 2020 production for a
11 cumulative total of 4.75% (adjusted for FY 2020 partial year implementation).
- 12 c. GWA will include planned water loss reduction project spending for FY 2020 –
13 2021 of no less than \$14 million. GWA will consider the efficacy of alternative
14 project delivery options to effect acceleration of water loss reduction project
15 implementation.

16 7. **Labor/Benefits Expenses** – The Parties stipulate to the GCG adjustments for FY
17 2020 – 2021 of Personnel Salary and Benefits expenses. Projected annual expense reductions
18 are:

19

20

FY 2020	FY 2021
\$2,248,207	\$1,958,153

21

22

23 8. **Variable Operations and Maintenance Expenses** – The Parties stipulate to the GCG
24 adjustments for FY 2020-2021 of certain variable (e.g., water production dependent) expenses
25 These adjustments relate to water purchases, salaries and benefits, contractual expenses, and
26 Administrative and General expenses (inclusive of related power expense impacts) and were
27 determined by applying unit savings estimated by GCG to the volume reductions outlined herein.
28 Projected annual expense reductions are:

29

30

FY 2020	FY 2021
\$2,030,877	\$3,703,629

31

32

1 9. Capital and Financing Programs – The Parties have agreed to the following for
2 purposes of development of GWA’s Five-Year Financial Plan:

- 3 a. GWA’s financial plan will be based on a projected fund balance target (as shown
4 in Attachment A) of not less than \$3 million and a debt service coverage ratio⁴ of
5 1.40x – 1.50x.
- 6 b. GWA’s \$134 million Series 2020 bond issue will be structured with a term of
7 thirty (30) years, two (2) years of capitalized interest, and assumed to be issued at
8 an average coupon rate of five percent (5%) with costs of issuance equal to two
9 percent (2%) of par. For the Series 2020 bonds principal payments will be deferred
10 for a five (5) year period.
- 11 c. GWA will re-program all existing non-committed bond fund balances (from its
12 past three issues) in an amount of no less than \$2.7 million to its capital program
13 (see Attachment B), subject to applicable PUC review procedures and will provide
14 a priority consideration to funding with reprogramed funds non-revenue water
15 projects.

16 **III. Potential Capital and Financing Program Revisions**

17
18 Based on outcomes of the efforts outlined in item number 5 above to be completed by
19 March 31, 2021, the Parties stipulate to the following (which may result in adjustments to GWA’s
20 Financial Plan):

- 21 a. GWA’s targeted debt service coverage ratio⁵ of 1.40x – 1.50x may be adjusted
22 based on evaluation of potential policy changes enumerated in 4 (c) above.
- 23 b. Use of up to \$50 million in commercial paper or lines-of-credit, to the extent
24 allowed by GWA enabling legislation and if cost-effective, may be used to
25 augment GWA’s ongoing construction capital requirements with available capital
26 funds.
- 27 c. GWA will seek to lower the financing cost associated with the capital funding of
28 debt service reserve funds for subsequent borrowings by using letters-of-credit or
29 surety bonds as allowed by GWA enabling legislation.

30
31 ⁴ As traditionally calculated as the ratio of net operating expenses divided by scheduled debt service payments per
32 GWA’s bond indenture (without adjustment for debt service reserve funds).

⁵ As traditionally calculated as the ratio of net operating expenses divided by scheduled debt service payments per
GWA’s bond indenture (without adjustment for debt service reserve funds).

1
2
3 **IV. Water Loss Reduction Targets**

4 The Parties stipulate that the water loss reduction targets for the water system will be
5 based on the work of WSO and GWA who will prioritize each water loss reduction project based
6 on its respective benefit-cost ratio. The Parties agree that the water loss reduction targets should
7 reflect an aggressive approach to water loss management with the objective to have GWA's water
8 loss rates compare favorably with established industry benchmarks as soon as reasonably possible
9 within a twenty (20) year period. The capital investment program will be reprogrammed as
10 necessary starting with projects having the highest benefit-cost ratio to achieve these targets.

11 Further:

- 12 a. GWA will use its best efforts to enter into a zero-cost "water exchange" program
13 with Navy. Absent the ability to enter into a zero-cost exchange program, GWA
14 will prioritize reducing the amount of water purchased from the US Navy or
15 undertake the necessary construction to eliminate Navy water (if supported by a
16 large benefit-cost ratio supporting such construction).
- 17 b. GWA will ensure the new SCADA system is designed to assist GWA in the
18 identification and detection of water losses and the prioritization and targeting of
19 water loss projects.
- 20 c. For the period FY2020-2024 GWA's water loss reduction targets will be as
21 determined through the study to be completed by March 31, 2021 with designated
22 benchmarks to reduce water losses by 20% as compared to its 2019 water loss
23 level and to the median level of comparable water utilities in the US Mainland in
24 less than twenty (20) years from 2019.

25 **V. Consent Decree:**

26
27 Upon completion of substantive Consent Decree negotiations with USEPA (and lifting of
28 confidentiality restrictions), GWA will provide a detailed briefing on the proposed decree to the
29 PUC. This briefing will outline, among other matters, potential GWA spending commitments
30 that will impact future rate revenue requirements and to provide a comparison to what was
31 projected in GWA's Five-Year Financial Plan.

32 **VI. Requirements of 12 GCA § 12102.2. (d) Staffing Study**

1 The Parties acknowledge that the PUC, pursuant to 12 GCA 12102.2 (d), Proposed
2 Public Utility Rate Increases, is required to conduct studies comparing the staffing pattern and
3 manpower levels of GWA and other utilities under their purview to the staffing patterns and
4 manpower levels of at least four (4) mainland utilities providing similar services with a
5 comparable number of customers. The Parties acknowledge that the PUC must, in determining
6 approval of any proposed rate increase, take into account the results of such staffing studies.

- 7 a. GCG conducted a staffing study pursuant to the statute comparing GWA to a large
8 cross-section of water utilities. The results indicate GWA is an outlier when
9 compared directly to this cross-section of mainland water/wastewater utilities
10 participating in the annual AWWA Benchmarking Review and has a greater
11 manpower level than participating utilities.
- 12 b. GCG does not believe the data in the AWWA Benchmarking Review is directly
13 comparable to GWA as many mainland water systems included in the review are
14 part of city or county governments wherein the utility is provided services such as
15 IT, procurement, HR, finance and other services from the county or municipal
16 government.
- 17 c. Any realistic comparison will be difficult given the unique nature of the Guam
18 water system due in part to the inheritance of the legacy systems of the US Navy
19 and the Public Utility Agency of Guam systems. For this reason, we do not believe
20 it appropriate that the staffing study performed be used by the PUC at this time.
- 21 d. The Parties recommends that the Analytical Studies to be Undertaken to Support
22 the FY 2022 Comprehensive Review and Update of GWA's Financial Plan include
23 a more detailed staffing study by the PUC taking into account many of the issues
24 that have surfaced such as: elasticity/affordability/age of the system and resulting
25 system losses that may enable a future smaller and efficient system. This study
26 should be completed by March 31, 2021.
- 27 e. GCG recommends no adjustment to GWA staffing for FY 2020 – FY 2021 is
28 appropriate at this time.


29 VII. Procedural Provisions

30
31 The FY 2022 Comprehensive Review and Update to GWA's Five-Year Financial Plan
32 will be an abbreviated proceeding designed to take into consideration all the required studies that
are to be submitted no later than March 31 of 2021 along with any legislative authorization or

1 statutory changes GWA has pursued in furtherance of this stipulation. GWA will file its proposed
2 FY 2022 Comprehensive Review and Update to its Five-Year Financial Plan for PUC review no
3 later than May 1, 2021 – giving the PUC ample opportunity for RFI’s and responses to be
4 exchanged prior to the September PUC meeting for approval.

5 **SO STIPULATED this 17th day of January 2020.**

6
7 **GUAM WATERWORKS AUTHORITY**

8
9 BY: 
10 _____
11 KELLY O. CLARK
12 GWA GENERAL COUNSEL

13
14 **GEORGETOWN CONSULTING GROUP, INC.**

15
16 BY: 
17 _____
18 JAMSHED MADAN

19 ATTACHMENTS A & B
20
21
22
23
24
25
26
27
28
29
30
31
32



GUAM WATERWORKS AUTHORITY

PROPOSED 5-YEAR FINANCIAL PLAN 2020 - 2024

	Projection				
	2020	2021	2022	2023	2024
Basic Charge -Water	5.00%	5.00%	5.50%	3.00%	2.50%
Lifeline Increase	0.00%	0.00%	0.00%	0.00%	2.50%
Non-Lifeline Increase	5.00%	5.00%	5.50%	3.00%	2.50%
Legislative Surcharge	3.60%	3.60%	3.50%	3.40%	3.45%
Customer Growth	0.50%	0.50%	0.50%	0.50%	0.50%
Demand Growth	0.00%	0.00%	0.00%	0.00%	0.00%
OPERATING REVENUES					
Water Revenues	120,007,713	125,418,435	132,046,975	135,575,856	139,154,045
Wastewater Revenues	\$ 73,925,751	\$ 77,436,674	\$ 81,489,096	\$ 83,856,280	\$ 86,029,337
Legislative Surcharge	42,401,836	44,115,188	46,589,441	47,746,340	48,989,606
Other Revenues	3,680,126	3,866,573	3,968,438	3,973,236	4,135,102
System Development Charge	431,932	430,737	433,741	432,137	432,205
	914,964	929,304	832,509	892,259	884,691
Total Operating Revenues	121,354,609	126,778,476	133,313,225	136,900,252	140,470,940
O & M EXPENSES					
Power Purchases	13,360,490	12,985,578	12,437,383	11,464,591	10,899,476
Water Purchases	9,723,387	10,123,306	10,377,505	10,700,149	11,096,715
	23,083,877	23,108,884	22,814,888	22,164,741	21,996,191
Salaries and Benefits	24,627,194	26,814,544	28,847,199	30,089,804	31,344,171
Intentionally Left Blank					
Administrative and General Expenses	12,020,482	12,262,728	12,155,884	12,237,962	12,523,694
Intentionally Left Blank					
Depreciation Expense	21,962,670	22,271,032	22,300,621	22,648,171	24,038,420
Intentionally Left Blank					
Contractual Expense	6,025,390	7,305,994	7,222,396	7,704,660	8,339,540
Intentionally Left Blank					
Retiree Supplemental Annuities/Health care costs	3,763,479	3,933,180	4,112,018	4,300,483	4,499,094
Total Operating Expenses	91,483,090	95,696,362	97,453,007	99,145,822	102,741,110
Earnings (Loss) from Operations	29,871,519	31,082,114	35,860,218	37,754,430	37,729,830
Interest Income-Bond 2013,2014 Refunding,2016,2017 Refund	1,350,758	1,539,593	1,303,222	1,397,858	1,413,558
Interest Income-Other Funds	216,573	248,637	210,495	225,235	228,122
Interest Income-SDC	25,567	29,850	26,760	27,392	28,001
Interest Expense-Bond 2013,2014 Refunding,2016,2017 Refur	(32,105,188)	(31,659,950)	(31,189,350)	(34,944,625)	(34,425,013)
Interest Expense-BOG	(67,345)	-	-	-	-
Interest Expense-Commercial Paper	-	-	280,000	-	340,000
AFUDC	-	-	-	-	-
Amortization of Discount, Premium and Issuance Costs	(403,640)	(276,930)	(298,049)	(326,206)	(300,395)
Grants & other contributions (net of federal expenditures)	39,732,857	39,732,857	33,430,130	8,000,000	8,000,000
Deferred outflows from Pension	(944,114)	(269,263)	(308,689)	(287,976)	(287,332)
Net Income (Loss)	38,276,987	40,426,908	39,316,739	11,846,108	12,716,771
INCREASE (DECREASE) in Capital	38,276,987	40,426,908	39,316,739	11,846,108	12,716,771
BOND DEBT SERVICE	34,175,188	34,229,950	40,934,350	40,929,625	40,935,013



GUAM WATERWORKS AUTHORITY

PROPOSED 5-YEAR FINANCIAL PLAN 2020 - 2024

	Projection			
	2020	2021	2023	2024
DEBT SERVICE COVERAGE CALCULATION - Section 6.12				
Earnings (Loss) from Operations	29,871,519	31,082,114	35,860,218	37,729,830
Investment Income-Other funds	216,573	248,637	210,495	228,122
COLA	644,877	688,520	735,117	784,867
System Development Charge	(914,964)	(929,304)	(892,259)	(884,691)
Depreciation	21,952,670	22,271,032	22,300,621	24,038,420
Balance Available for Debt Service - Section 6.12	51,780,674	53,360,999	58,273,942	61,949,666
Debt Service Coverage (1.25X) - Section 6.12	1.52	1.56	1.42	1.51
DEBT SERVICE COVERAGE CALCULATION - PUC Debt Ratio				
Balance Available for Debt Service	51,780,674	53,360,999	58,273,942	61,949,666
Transfer - Reserve for O & M				
Transfer - Reserve for Debt Service				
2017 Refunding bond savings				
Available for Debt Service -Reserve for Debt Service	11,217,733	11,217,733	11,217,733	11,217,733
Balance Available for Debt Service - PUC	62,998,408	64,578,733	69,491,677	73,167,399
Debt Service Coverage (1.75X) - PUC	1.84	1.89	1.70	1.79
Requested				
Amount at 1.4	\$ 51,780,674	53,360,999	58,273,942	61,949,666
Reduced Revenues	3,935,412	5,439,069	965,852	3,218,970
% of revenues	3.3%	4.3%	0.7%	2.4%
CASH FLOW STATEMENT				
Net Income (Loss)	38,276,987	40,426,908	39,316,739	11,846,108
Depreciation & Amortization	22,366,310	22,547,962	22,598,670	22,974,378
AFUDC				
Principal Payments - Bonds	(8,770,000)	(9,270,000)	(9,745,000)	(10,235,000)
Working Capital Change (Increase)Decrease	(878,321)	(542,131)	(932,330)	(625,422)
Principal Payments-BOG	(2,780,552)			(319,479)
Transfer to Trust				
Deferred outflows from pension				
Gross Bond Proceeds	344,114	269,263	306,689	287,976
Deposit to Bond Construction Fund	134,000,000			85,000,000
Deposit to CAP Interest Fund	(108,925,561)			(69,094,565)
Deposit to Debt Service Reserve Fund	(13,400,000)			(8,500,000)
Cost of Issuance/Underwriter Discount	(\$8,994,419)			(\$5,705,415)
Loss on Derecognition Bond/Amortization of Discot, Premium&IssuanceCost	(2,680,000)			(1,700,000)
Revenue Funded CAPEX	403,640	276,930	298,049	326,206
Bond Reserve Requirement				
System Development Charge	500,000	500,000	500,000	(449,399)
Working Capital Reserve for CAPEX/PAYGO	(17,000,000)	(12,400,000)	(17,500,000)	(15,000,000)
Working Capital Reserve for O & M				
Working Capital Reserve for Debt Service				
Grants and Contributions	(39,732,857)	(39,732,857)	(33,430,130)	(8,000,000)
Transfer from Capitalized Interest Fund	6,700,000	6,700,000	-	4,250,000
Prior Year Adjustment & Loss on Asset Disposal/Invty writedov				
Cash Surplus (Deficit)	(570,680)	776,075	1,412,686	3,824,247
Beginning Balance	4,962,086	4,391,406	5,167,481	6,580,167
Ending Balance	\$ 4,391,406	\$ 5,167,481	\$ 6,580,167	\$ 10,404,414

GWA Cat	GCG Cat	Project #	Project Description	FY2020 Total	FY2021 Total	FY2022 Total	FY2023 Total	FY2024 Total	Subtotal By Project FY20-FY24
PW	1	PW 09-09	Water Reservoir Internal/External	0	0	0	0	0	-
PW	0	PW 05-08	Barrigada Tank Repair/Replacement	0.000	0.000	0.000	0.000	0.000	-
PW	1	PW 09-11	Water System Reservoirs 2005 Improvements	27891	1000	1000	1000	0	30,891
PW	1	PW 11-02	Ugum Water Treatment Plant Reservoir	7500	0	0	0	0	7,500
PW	1	PW 12-04	Agana Heights & Chaot Tanks	0	0	0	0	0	-
PW	1	PW 12-05	Tank Major Repair Yigo #1, Mangilao #2, Astumbo #1	0	0	0	0	0	-
PW	1	PW 12-06	Tank Replacement Piti & Hyundai	6500	0	0	0	0	6,500
PW	1	MP-PW-Tank-22	Existing Tank Inspections	150	0	0	0	0	150
PW	1	MP-PW-Tank-23	Recurring Tank Inspections	200	200	214	214	214	1,042
WW	1	WW 11-03	Baza Gardens STP Replacement	0	550	0	0	0	550
WW	1	WW 11-08	Agat/ Santa Rita STP Replacement	0	0	0	0	0	-
WW	1	WW 12-01	Northern District WWTP Primary Treatment Upgrades	0	0	0	0	0	-
WW	1	WW 12-07	Umatac Merizo STP Replacement	0	0	0	0	0	-
Subtotal GCG Cat = 1 "Court Order Projects"				42,241	1,750	1,214	1,214	214	46,633

WW	2	WW 05-04	Wastewater System Planning	150	0	0	0	0	150
WW	2	WW 09-01	Lift station upgrades	1200	1000	0	2000	2291	6,491
WW	2	WW 09-06	Wastewater Collection System Repl/ Rehabilitation	2000	2000	0	2000	2000	8,000
WW	2	WW 17-02	Northern District WWTP Secondary Treatment Upgrades	0	0	0	0	0	-
WW	2	MP-WW-Pipe-01	Gravity Pipe Rehabilitation/Replacement Program	170	2000	5346	750	6186	14,452
WW	2	MP-WW-Pipe-02	Barrigada Pump Station Pipe Rehabilitation/Replacement	0	0	411	3218	0	3,629
WW	2	MP-WW-Pipe-03	Route 1 Piti Pipe Rehabilitation/Replacement	2340	0	0	0	0	2,340
WW	2	MP-WW-Pipe-04	Southern Link Pump Station Pipe Rehabilitation/Replacement	657	0	0	0	0	657
WW	2	MP-WW-Pipe-05	Agana Heights Pipe Replacement	0	0	169	2500	0	2,669
WW	2	MP-WW-Pipe-06	Northern District Route 1 Capacity Replacement - Phase 1	0	0	0	0	1169	1,169
WW	2	MP-WW-Pipe-11	Route 15 Capacity Replacement	0	0	0	0	571	571
WW	2	MP-WW-Pipe-12	Barrigada Capacity Replacement	0	0	0	0	47	47
WW	2	MP-WW-Pipe-17	Mamajanao Capacity Replacement	400	1300	2574	0	0	4,274
WW	2	MP-WW-Pipe-21	Baza Gardens Capacity Replacement - Phase 1	0	0	0	0	320	320
WW	2	MP-WW-Pipe-24	Umatac-Merizo Capacity Replacement	0	0	0	0	207	207
WW	2	MP-WW-Pipe-25	Piping Near Bayside Lift Station	0	2000	0	250	0	2,250
WW	2	MP-WW-Pipe-26	Finile Drive Rehabilitation - Agat	813	0	0	0	0	813
WW	2	MP-WW-MH-01	Manhole Rehabilitation Program	350	0	350	0	350	1,050
WW	2	MP-WW-FM-01	Force Main Rehabilitation/Replacement Program	0	100	1458	0	120	1,678
WW	2	MP-WW-FM-02	Replace Yigo Lift Station Force Main	0	200	1829	0	0	2,029
WW	2	MP-WW-FM-03	Route 1 Asan Force Main Rehabilitation/Replacement	2124	0	0	0	0	2,124
WW	2	MP-WW-FM-04	Hagåtña WWTP Force Main Rehabilitation/Replacement	6689	0	0	0	0	6,689
WW	2	MP-WW-Pump-01	Lift Station Rehabilitation/Replacement Program	2120	6500	982	6124	2420	18,146
WW	2	MP-WW-Pump-02	Tumon Basin - Fujita Lift Station Analysis	7923	3000	0	0	0	10,923
WW	2	MP-WW-Pump-03	Replacement of Former Navy Pump Station (Donut Hole)	1301	0	0	0	0	1,301
WW	2	MP-WW-WWTP-08	Northern District WWTP Completion	0	7500	7800	0	0	15,300
WW	2	MP-WW-Misc-01B	Update Wastewater Collection System Model (Continued)	100	0	100	0	200	400
WW	2	MP-WW-Misc-02	I/I and SSES Assessments	150	0	0	400	0	550
WW	2	DoD-01	NDWWTP Secondary Treatment Capacity 12MGD	2500	0	0	0	0	2,500
MISC	2	MP-Gen-Misc-08	General Plant Improvements	1000	500	200	200	500	2,400

GWA Cat	GCG Cat	Project #	Project Description	FY2020		FY2021		FY2022		FY2023		FY2024		Subtotal By Project	
				Total	Total	Total	Total	Total	Total	Total	Total	FY20-FY24	FY20-FY24		

Subtotal GCG Cat = 2 "Consent Decree Projects"				31,987	26,100	21,219	17,442	16,381	113,129				
PW	3	PW 05-09	Leak Detection	0	500	0	0	100	0	0	0	0	600
PW	3	PW 05-10	Potable Water System Planning	0	500	0	0	0	0	0	0	0	500
PW	3	PW 09-03	Water Distribution System Pipe Replacement and Upgrades	500	1000	2250	1750	2250	0	0	0	0	7,750
PW	3	PW 14-01	Fire Hydrant Replacement Program	0	0	500	0	500	0	0	0	0	1,000
PW	3	MP-PW-Pipe-01	Astumbo Zone Piping	0	0	368	4482	0	0	0	0	0	4,850
PW	3	MP-PW-Pipe-04	Hyundai Well Piping	500	0	0	0	0	0	0	0	0	500
PW	3	MP-PW-Pipe-05	Kaiser Zone Looping	300	0	0	0	0	0	0	0	0	300
PW	3	MP-PW-Pipe-06	Mangilao Pressure Zone Realignment	300	0	0	0	0	0	0	0	0	300
PW	3	MP-PW-Pipe-07	Mataguac BPS Suction Piping	0	500	0	0	0	0	0	0	0	500
PW	3	MP-PW-Pipe-09	Yigo, Santa Rosa Zone Realignment	0	0	178	2164	0	0	0	0	0	2,342
PW	3	MP-PW-Pipe-10	Miscellaneous Piping Projects	100	100	694	0	0	0	0	0	0	894
PW	3	MP-PW-Pipe-11	Miscellaneous Piping Connections	100	100	194	0	0	0	0	0	0	394
PW	3	MP-PW-Pipe-12	Rehabilitation and Replacement Program	1000	1000	2500	3400	2000	0	0	0	0	9,900
PW	3	MP-PW-Pipe-13	2-Inch Pipe Replacement Program	2730	1200	1750	1750	1750	0	0	0	0	9,180
PW	3	MP-PW-Pipe-14	Asbestos Cement Pipe Replacement Program	0	0	3850	3850	3850	0	0	0	0	11,550
PW	3	MP-PW-Pipe-15	PRV Rehab and Replacement	1000	1450	1000	1468	1468	0	0	0	0	6,386
PW	3	MP-PW-Pipe-16	Valve Exercise, Repair, and Replacement Program	250	0	250	0	250	0	0	0	0	750
PW	3	MP-PW-Pipe-17	Cross Island Highway Piping	0	100	1401	0	0	0	0	0	0	1,501
PW	3	MP-PW-BPS-01	Rehabilitate and Replace BPSs	409	150	150	150	150	0	0	0	0	1,009
PW	3	MP-PW-BPS-02	Nimitz Hill Upper BPS	48	0	0	0	0	0	0	0	0	48
PW	3	MP-PW-Misc-02	Master Meter Implementation and Ongoing Meter Replacement	500	250	734	734	734	0	0	0	0	2,952
PW	3	MP-PW-Misc-03	Hydrant Condition Assessment and Maintenance	0	0	970	970	970	0	0	0	0	2,910
PW	3	MP-PW-Misc-05	Leak Detection Assistance	250	0	0	0	0	0	0	0	0	250
Subtotal GCG Cat = 3 "NRW Projects"				7,987	6,850	16,789	20,718	14,022	86,366				

Subtotal GCG Cat = 4 "Env-Safety Compliance Projects"				7,250	1,050	6,654	7,034	9,780	31,768				
PW	4	PW 09-01	Ugum Water Treatment Plant Intake	0	500	700	0	0	0	0	0	0	1,200
PW	4	MP-PW-SWTP-01	Ugum SWTP River Intake Cleaning Project	0	0	380	0	0	0	0	0	0	380
PW	4	MP-PW-SWTP-02	Ugum SWTP Intake Modifications	1000	0	174	0	0	0	0	0	0	1,174
PW	4	MP-PW-SWTP-03	Ugum SWTP Reliability Improvements	1000	0	150	0	0	0	0	0	0	1,150
PW	4	MP-PW-SWTP-04	Ugum SWTP 7-Year Improvement Project	0	0	0	0	3168	0	0	0	0	3,168
PW	4	MP-PW-Well-05	Wellhead Protection Program	350	0	0	660	0	0	0	0	0	1,010
PW	4	MP-PW-Well-06	Well Repair Program	500	250	1500	1274	1274	0	0	0	0	4,798
PW	4	DoD-3	Rehabilitation and New NGLA Monitoring Wells	4000	0	0	0	0	0	0	0	0	4,000
WW	4	MP-WW-Pipe-27	Septic/Cesspool System Reduction Program	0	0	350	3000	5238	0	0	0	0	8,588
WW	4	MP-WW-WWTP-04	Pago Socio WWTP Pump Station Conversion	0	0	1700	1000	0	0	0	0	0	2,700
WW	4	MP-WW-WWTP-09	Ocean Outfall Inspection Program	150	0	0	0	0	0	0	0	0	150
WW	4	MP-WW-Misc-03	Miscellaneous Wastewater Improvements	0	200	1500	1000	0	0	0	0	0	2,700
WW	4	MP-WW-Misc-04	Fats, Oils, and Grease Study	150	0	0	0	0	0	0	0	0	150
MISC	4	MC 05-01	Laboratory Modernization	0	0	0	0	0	0	0	0	0	-
MISC	4	MP-Gen-Misc-09	Security and Resilience Program	100	100	200	100	100	0	0	0	0	600
Subtotal GCG Cat = 4 "Env-Safety Compliance Projects"				7,250	1,050	6,654	7,034	9,780	31,768				

PW	5	PW 05-13	Deep Well Rehabilitation	1538	0	4000	0	0	0	0	0	0	5,538
PW	5	PW 05-14	New Deep Wells at Down Hard	500	0	0	0	0	0	0	0	0	500

GWA Cat	GCG Cat	Project #	Project Description	FY2020		FY2021		FY2022		FY2023		FY2024		Subtotal By Project	
				Total	Total	Total	Total	Total	Total	Total	Total	FY20-FY24	FY20-FY24		
PW	5	PW 05-15	Rehabilitation of Asan Springs	550	0	0	0	0	0	0	0	0	0	0	550
PW	5	PW 09-02	Water Wells	1500	1400	0	0	0	0	0	0	0	0	0	4,900
PW	5	MP-PW-Well-03	Capacity Enhancement – Well Exploration Program	0	0	0	500	0	1188	0	0	0	0	0	1,688
PW	5	MP-PW-Well-04	Capacity Enhancement – Well Development and Construction Program	0	0	0	379	4622	0	0	0	0	0	0	5,001
WW	5	WW 17-01	Wastewater Sewer System Expansion	0	0	0	0	0	0	0	0	0	0	0	-
WW	5	DoD-02	Northern Systems Wastewater System	6000	0	0	0	0	0	0	0	0	0	0	6,000
MISC	5	MC 09-01	General Plant Improvements / Water	0	100	500	800	1000	1000	1000	1000	1000	1000	1000	2,400
Subtotal GCG Cat = 5 "Capacity Projects"				10,088	1,500	5,379	7,422	2,188	26,577						

PW	6	PW 05-06	Water Booster Pump Station	1200	700	300	2000	0	0	0	0	0	0	0	4,200
PW	6	PW 05-07	Meter Replacement Program	0	0	0	0	0	0	0	0	0	0	0	-
PW	6	PW 05-12	Brigade II (Ugum Lift) BPS Upgrade	0	0	0	0	0	0	0	0	0	0	0	-
PW	6	PW 05-16	Master Meters	0	0	0	0	0	0	0	0	0	0	0	-
PW	6	PW 09-04	Pressure Zone Realignment / Development 2005 Improvements	561	0	0	0	0	650	0	0	0	0	0	1,211
PW	6	PW 12-01	Water Audit Program & Water Loss Control Plan	0	0	0	0	0	0	0	0	0	0	0	-
PW	6	MP-PW-Pipe-02	Route 1 Astumbo Zone Piping	0	0	0	0	545	3324	0	0	0	0	0	3,869
PW	6	MP-PW-Pipe-03	Harmon Cliffline Piping to Route 1	0	0	0	0	424	0	0	0	0	0	0	424
PW	6	MP-PW-Pipe-08	Nimitz Lower BPS Piping	0	0	0	0	121	1469	0	0	0	0	0	1,590
PW	6	MP-PW-BPS-03	Route 15 BPS	0	0	0	0	0	86	0	0	0	0	0	86
PW	6	MP-PW-Well-01	Well Rehabilitation Program	400	3500	2308	5368	440	12,016	0	0	0	0	0	12,016
PW	6	MP-PW-Well-02	Well Equipment Overhaul Program	0	0	1000	0	1518	2,518	0	0	0	0	0	2,518
WW	6	WW 09-11	WWTP Priority 1 Upgrades	0	0	0	0	0	0	0	0	0	0	0	-
EE	6	EE 09-02	Electrical Upgrade - Water Wells	90	0	0	0	0	0	0	0	0	0	0	90
EE	6	EE 09-04	Electrical Upgrade -Water Booster	150	0	0	0	0	0	0	0	0	0	0	150
EE	6	EE 09-05	Electrical Upgrade - Other Water	100	0	0	0	0	0	0	0	0	0	0	100
EE	6	EE 09-07	SCADA Improvements – Phase 2	45	0	0	0	0	0	0	0	0	0	0	45
EE	6	EE 09-08	SCADA Improvements – Phase 3	125	0	0	0	0	0	0	0	0	0	0	125
EE	6	EE 09-09	SCADA Improvements – Phase 4	0	0	0	0	0	0	0	0	0	0	0	0
EE	6	MP-Gen-EE-01	SCADA Implementation Phase A2 – Initial Project Completion	2000	2600	1500	2600	2600	11,300	0	0	0	0	0	11,300
EE	6	MP-Gen-EE-02	SCADA Implementation Phase B – Additional Sites	0	0	0	600	600	1,200	0	0	0	0	0	1,200
EE	6	MP-Gen-EE-04	SCADA System Improvement Program	0	0	0	0	330	330	0	0	0	0	0	330
MISC	6	MC 15-01	Information Technology Intergration Improvements	0	100	500	500	500	1,600	0	0	0	0	0	1,600
MISC	6	MP-Gen-Misc-01	GWA Systems Planning	700	500	100	250	1000	2,550	0	0	0	0	0	2,550
MISC	6	MP-Gen-Misc-04	Information Technology Improvements	5400	200	100	100	200	6,000	0	0	0	0	0	6,000
MISC	6	MP-Gen-Misc-05	GWA Infrastructure Improvements	500	2000	0	250	0	2,750	0	0	0	0	0	2,750
MISC	6	MP-Gen-Misc-07	Mobile Equipment Replacement Program	800	200	100	100	400	1,600	0	0	0	0	0	1,600
Subtotal GCG Cat = 6 "Efficiency Projects"				12,071	9,800	5,908	12,858	15,117	55,754						

PW	7	MP-PW-Misc-01	South Guam Water Supply Study	200	0	0	0	0	0	0	0	0	0	0	200
PW	7	MP-PW-Misc-04	OneGuam Program	50	50	50	50	50	250	0	0	0	0	0	250
MISC	7	MP-Gen-Misc-02A	WRMP Update (Comprehensive Update)	0	0	100	0	0	100	0	0	0	0	0	100
MISC	7	MP-Gen-Misc-02B	WRMP Update (Interim Update)	200	0	0	0	0	200	0	0	0	0	0	200
MISC	7	MP-Gen-Misc-03	Surveying and Property Delineation	0	250	250	250	0	750	0	0	0	0	0	750
MISC	7	MP-Gen-Misc-06	GPWA Fleet Maintenance Facility	0	0	500	0	0	500	0	0	0	0	0	500
Subtotal GCG Cat = 7 "Discretionary Projects"				450	300	900	300	50	2,000						

GWA Cat	GCG Cat	Project #	Project Description	FY2020		FY2021		FY2022		FY2023		FY2024		Subtotal By Project	
				Total	Total	Total	Total	Total	Total	Total	Total	FY20-FY24	FY20-FY24		
			Subtotal GCG Cat = 1 "Court Order Projects"	42,241	1,750	1,214	1,214	1,214	214						48,847
			Subtotal GCG Cat = 2 "Consent Decree Projects"	31,987	26,100	21,219	17,442	17,442	16,381						135,551
			Subtotal GCG Cat = 3 "NRW Projects"	7,987	6,850	16,789	20,718	20,718	14,022						72,797
			Subtotal "All Other Projects"	29,859	12,650	18,841	27,614	27,614	27,135						136,454

Grand Totals by Year
 112,074 47,350 58,063 66,988 57,752 **342,227**



CONSOLIDATED COMMISSION ON UTILITIES
Guam Power Authority | Guam Waterworks Authority
P.O. Box 2977 Hagatna, Guam 96932 | (671)649-3002 | guamccu.org

GWA RESOLUTION NO. 17-FY2020

RELATIVE TO ADOPTING A DEBT SERVICE COVERAGE TARGET OF 1.50 AND A WORKING CAPITAL RESERVE OF 120 DAYS OF OPERATING AND MAINTENANCE EXPENSE

WHEREAS, under 12 G.C.A. §14105, the Consolidated Commission on Utilities (“CCU”) has plenary authority over financial, contractual, and policy matters relative to the Guam Waterworks Authority (“GWA”); and

WHEREAS, the Guam Waterworks Authority is a Guam Public Corporation established and existing under the laws of Guam; and

WHEREAS, in 2014 the CCU adopted Resolution 21-FY2014 which established certain unrestricted cash reserves and set forth a policy of using such reserves to augment GWA’s net revenues for the purposes of calculating a Debt Service Coverage Ratio (DSCR) to comply with existing PUC policy of achieving coverage of 1.75x; and

WHEREAS, GWA’s long term financial plan, as presented in Volume 1, Section 12 Financial Planning, of the *2018 Water Resources Master Plan* as approved and adopted by the CCU, sets forth certain financial planning targets and states, “*For master planning purposes, these targets include ensuring that traditionally calculated debt service coverage meets or exceeds a target of 1.50x, conservatively above GWA’s covenanted requirements of 1.25x*”; and

WHEREAS, as part of Docket Number 19-08, Public Utilities Commission (PUC) proceedings on the Petition for Approval of GWA’s Third Five-Year Financial Plan, on January 17, 2020, GWA and Georgetown Consulting Group, Inc. (GCG), the PUC’s consultant, signed a stipulation in which the parties agreed to support the approval of a policy change to adopt a minimum 1.40x debt service coverage ratio based on a calculation consistent with GWA’s indenture (and common municipal finance practice) that does not supplement Net Revenues with reserves; and

WHEREAS, On February 27, 2020, the PUC approved GWA Docket 19-08 FY2020 Rate Decision which included in the Ordering Provisions the following:

1 16. Both GWA and GCG will support policy changes that create one standard for debt
2 service coverage at 1.40x...,

3 17. The Parties shall use best efforts to review the CCU policy (Resolution No. 21-FY2014)
4 that establishes a cash reserve for purposes of meeting PUC's current Aggregate Debt
5 Service Coverage Ratio of 1.75x. Such revision will mean that net revenues are not
6 supplemented with cash reserves

7 18. The Parties will also use best efforts to revise and clarify the PUC Order, Docket 04-
8 01, FY2005 Rate Order, that establishes a minimum 1.75x coverage ratio for setting just
9 and reasonable rates; and

10 **WHEREAS**, as part of GWA's petition for approval of the sale Series 2020 Bonds, it has
11 provided a draft Order to the PUC that, if adopted, will allow the PUC to reset the Policy and for
12 the immediate Bond offering, require Guam Waterworks Authority's minimum Debt Service
13 Coverage Ratio be 1.40x on an interim basis; and

14 **WHEREAS**, the CCU recognizes the merit of the PUC's ordering provisions in GWA
15 Docket 19-08 promoting adoption of a 1.40 minimum coverage ratio, and that it would be best for
16 GWA to align its DSCR with adopted long term strategic financial planning targets; and

17 **WHEREAS**, the CCU also believes the adoption of a minimum Debt Service Coverage
18 Ratio of 1.50x on an interim basis will benefit GWA during the rating process which will result in
19 lower interest rates for the Bond issuance and is reasonable, necessary and in the public interest at
20 this time allowing the Authority to maintain just and reasonable rates; and

21 **WHEREAS**, the prospective review of capital financing options and policy reevaluation
22 to be undertaken as required by the PUC's ordering provisions in GWA Docket 19-08 may suggest
23 upward adjustments to the stipulated PUC 1.40x debt service coverage ratio; and

24 **WHEREAS**, the CCU recognizes that sound financial and risk management entail the
25 preservation of adequate financial reserves to cover cash flow variations from short term volatility
26 in revenues and expenses and unanticipated and unforeseeable expenses; and

27 **WHEREAS**, the CCU also recognizes that financial reserves are one of the major
28 components that bond rating agencies study in determining the creditworthiness of an issuer which
29 in turn can impact interest rates on debt issuance; and
30

1 **WHEREAS**, the CCU also recognizes that reserves, when properly established and applied
2 can be used as a tool for mitigating water rate fluctuations influenced primarily by (1) volatile and
3 temporary financial adversities; and/or (2) unexpected capital or operational expenses; and

4 **WHEREAS**, the CCU also recognizes it would be prudent to adopt a policy setting the
5 Working Capital Reserves at 120 days of operating and maintenance expense.

6
7 **NOW BE IT THEREFORE RESOLVED**, the Consolidated Commission on Utilities
8 does hereby approve the following:

- 9 1. The recitals set forth above hereby constitute the findings of the CCU.
- 10 2. The adoption of a policy setting a target minimum debt service coverage ratio
11 of 1.40X for FY2020 and FY2021, with a near term goal of 1.50X beginning in
12 FY2022, calculated on the same basis as called for in GWA Revenue Bond
13 Indenture.
- 14 3. Upon completion of GWA's review and evaluation of capital finance options,
15 this policy will be reevaluated and may be revised.
- 16 4. The CCU authorizes the dissolution of the Working Capital Reserves for Debt
17 Services and the transfer of cash balances into the Working Capital Reserve.
- 18 5. The adoption of a policy setting minimum balances for the Working Capital
19 Reserve at 120 days of Operations and Maintenance Expenses. The Chief
20 Financial Officer shall have the authority to draw up to \$500,000, subject to the
21 approval of General Manager, for Operations and Maintenance Expenses as
22 defined pursuant to the GWA Revenue Bond Indenture. The General Manager
23 shall inform the CCU within thirty (30) days of any such drawdowns. For draws
24 greater than \$500,000, prior approval from the CCU is required.
- 25 6. The Reserve may be withdrawn and used to the extent necessary to pay for
26 operational and maintenance expenses if cash flow is insufficient for such
27 purpose.
- 28 7. A monthly report of the DSC ratio and the reserve level will be provided to the
29 CCU. This report will include reserve level required and date and reason for
30 any withdrawals from the reserve.
- 31 8. This Resolution repeals and replaces CCU Resolution 21-FY2014.
- 32

1 **RESOLVED**, that the Chairman certified, and the Board Secretary attests to the adoption
2 of this Resolution.

3
4 **DULY AND REGULARLY ADOPTED**, this 24th day of March 2020.

5
6 Certified by:

 Attested by:

7
8 



9 **JOSEPH T. DUENAS**
10 Chairperson

MICHAEL T. LIMTIACO
11 Secretary

12 //

13
14 //

15
16 //

17
18 //

19
20
21
22
23
24
25
26
27
28
29
30
31
32

BEFORE THE GUAM PUBLIC UTILITIES COMMISSION

)	GWA DOCKET 19-08
)	
IN RE: PETITION FOR APPROVAL OF)	
GWA’S THIRD FIVE-YEAR)	RATE DECISION
FINANCIAL PLAN (BASE RATE)	
INCREASES))	
_____)	

1. February 27, 2020 Rate Decision and January 17, 2020 Stipulation

Pertinent to these proceedings, the Guam Public Utilities Commission’s (“PUC” or the “Commission”) February 27, 2020 Rate Decision, provided that Guam Waterworks Authority (“GWA”) and Georgetown Consulting Group (“GCG”) agreed to certain “*pro forma*” rates for fiscal years 2022, 2023, and 2024; and that the final rates for such fiscal years would be based upon the results of certain analytical studies.¹ Such studies included: Demand Forecasting; a comprehensive system-wide Water Loss Reduction program; a Cost of Service/Rate Design Study, an Affordability Study (concerning the ability of low-income rate payers to afford the rapidly increasing water and wastewater rates); Financing and Alternatives to Bond Issuance; a review of the Capitalized Labor Expense protocol; and a study designed to connect more rate payers to the wastewater system and cesspool septic tank elimination.² Such studies were due on March 31, 2021.³

The PUC further required that GWA file a FY2022 Comprehensive Review and Update to its Five-Year Financial Plan by no later than May 1, 2021.⁴ This update had to compare GWA’s “forecast to actual performance of GWA revenues and expense categories”; and, it had

¹ FY20 Rate Decision, GWA Docket 19-08, p. 7 (Feb. 27, 2020).
² FY20 Rate Decision, GWA Docket 19-08, p. 7 (Feb. 27, 2020).
³ FY20 Rate Decision, GWA Docket 19-08, p. 7 (Feb. 27, 2020).
⁴ FY20 Rate Decision, GWA Docket 19-08, p. 8 (Feb. 27, 2020).

to include “an analysis of how the Demand Forecast, Water Loss Reduction, Cost of Service study, Affordability study, Financing study and other analyses . . . incorporated into the Five-Year Financial Plan.”⁵

Among other provisions, the FY2020 Rate Decision also required GWA to “investigate the availability and relative cost of alternative debt instruments such as letters of credit and surety bonds to fund debt service”⁶; and “investigate the availability and relative cost of the use of commercial paper and lines of credit to finance the ongoing capital construction program following issuance of its Series 2020 revenue bonds.”⁷ Further, the Decision required both GWA and GCG to support “policy changes that create one standard for debt service coverage at 1.40x debt service coverage”⁸; and that “GWA’s Five-Year Financial Plan will be based on a projected fund balance target of not less than \$3 million and a debt service coverage ratio of 1.40x-1.50x.”⁹

Moreover, the January 17, 2020 Stipulation indicated that GWA has been tasked with entering into a zero-cost “water exchange” program with the Navy; otherwise, absent a zero-cost exchange program, GWA must reduce the amount of water purchased from the Navy or undertake the necessary construction to eliminate its Navy water purchases.¹⁰ Further, through 2024, GWA will reduce its water losses by 20%.¹¹

Other parts of the Stipulation included reporting on GWA’s Consent Decree negotiations with the U.S. E.P.A., furnishing the PUC with a detailed briefing on any spending commitments

⁵ FY20 Rate Decision, GWA Docket 19-08, p. 7 (Feb. 27, 2020).

⁶ FY20 Rate Decision, GWA Docket 19-08, p. 8 (Feb. 27, 2020).

⁷ FY20 Rate Decision, GWA Docket 19-08, pp. 8-9 (Feb. 27, 2020).

⁸ FY20 Rate Decision, GWA Docket 19-08, p. 9 (Feb. 27, 2020).

⁹ FY20 Rate Decision, GWA Docket 19-08, p. 9 (Feb. 27, 2020).

¹⁰ Stipulation, p. 11 (Jan. 17, 2020).

¹¹ Stipulation, p. 11.

that would impact GWA’s rates.¹² Finally, GCG and GWA both agreed that this Update would “not constitute a new rate application”¹³; and would be “an abbreviated proceeding designed to take into consideration all the required studies”¹⁴

2. GWA’s May 1, 2021 Updated Financial Plan and Rate Application

On May 1, 2021, GWA filed its Updated Financial Plan. According to GWA, the rate plan submitted in these proceedings was “reworked” “to incorporate the results of the Analytical Studies.”¹⁵ According to GWA’s General Manager, Mr. Miguel Bordallo, the “placeholder” rates that were assigned in the first phase of this rate case were not viable and would result in GWA defaulting on its bonds.¹⁶ He maintained that such rates were “untenable” “in light of pandemic-induced economic hardships.”¹⁷ The Updated Financial Plan, however, would allow GWA to “meet bond indenture requirements and minimum operational needs, and the relaxation of prescribed targets for debt service coverage.”¹⁸ It also proposed a new water affordability program to replace GWA’s Lifeline Rates as a means to provide “targeted relief to Guam’s economically disadvantaged customers.”¹⁹ It further proposed new water and sewer rate “design adjustments” that would “simplify rate administration.”²⁰

Accordingly, the Rate Application reflected proposed rate revenue increases of “10% in FY2022 and FY2023 and 7% in FY2024 without adjustment for potential receipt of Rescue Act

¹² Stipulation, p. 11.

¹³ Stipulation, p. 7.

¹⁴ Stipulation, p. 12.

¹⁵ Bordallo Testimony, p. 4 (May 1, 2021).

¹⁶ Bordallo Testimony, p. 4 (May 1, 2021).

¹⁷ Bordallo Testimony, p. 4 (May 1, 2021).

¹⁸ Bordallo Testimony, p. 4 (May 1, 2021).

¹⁹ Bordallo Testimony, p. 4 (May 1, 2021).

²⁰ Bordallo Testimony, p. 4 (May 1, 2021).

Funds”²¹; along with increases to GWA’s Legislative Surcharge of 3.7% in FY2022, 3.5% in FY2023, and 3.4% in FY2024 applied against all rate components.²² The update also included \$24.5 million dollars of capital improvement projects, which GWA intends to fund internally instead of obtaining financing.²³ Further, GWA requested a temporary reduction of its debt service coverage ratio to 1.3x;²⁴ and, it intends on obtaining a Letter of Credit, supported by a Commercial Paper program, to fund \$200 million in projects related to a Consent Decree, water loss reduction, and other necessary GWA projects.²⁵ GWA also intends on extending sewer lines and developing programs to encourage rate payers to connect to the sewer system and eliminate cesspools and septic tanks.²⁶ It plans to use \$5.3 million in its Rate Stabilization Fund and federal ARPA monies to mitigate needed rate increases.²⁷

In support of its Updated Financial Plan, GWA attached the required revenue schedules and financial models, specifically models on: operating cash flow under existing rates; operating cash flow under existing rates and modified assumptions; operating cash flow under requested rates and modified assumptions; system revenues by customers class for fiscal years 2022 through 2024; operating expenses by major cost categories; operating expenses by business units, such as information technology, fleet maintenance, finance, wastewater treatment and pump stations; Navy water purchases; sources and uses of funds for capital projects; proposed rate adjustment; and customer impact, just to name a few. In addition, GWA provided seven (7)

²¹ CCU Resolution, p. 3 (Apr. 27, 2021).

²² CCU Resolution, p. 3 (Apr. 27, 2021).

²³ CCU Resolution, p. 3 (Apr. 27, 2021).

²⁴ CCU Resolution, p. 3 (Apr. 27, 2021).

²⁵ CCU Resolution, p. 5 (Apr. 27, 2021).

²⁶ CCU Resolution, p. 4 (Apr. 27, 2021).

²⁷ CCU Resolution, p. 4 (Apr. 27, 2021).

Analytical Studies, required under the Stipulation, and a Resolution by the Consolidated Commission on Utilities (“CCU”), in support of its Updated Rate Plan.

3. October 22, 2021 GCG’s Review

In these proceedings, GCG served as “Staff” for the PUC and provided testimony that memorialized its findings and recommendations to the Commission concerning its investigation into the water and wastewater rates and other changes proposed in GWA’s rate filings. The testimony, in the form of a report, was based on information provided by GWA contained in its submissions to the PUC as well as information exchanged in several rounds of discovery over the course of several months.

On October 22, 2021, GCG submitted its review of GWA’s Updated Rate Plan. In its review GCG found that GWA generally satisfied the filing requirements ordered in Phase 1.²⁸ It noted that GWA’s update reflects the large impact the current Covid-19 pandemic has had on the agency.²⁹ Specifically, GCG found that “[t]he rate request for Test-Year FY 2022 made by GWA is to increase operating revenues by \$12.024 million,” with “a projected use of \$3.5 million of RSF funds that produces a DSCR of 1.306x, the coverage proposed by GWA to moderate any rate impact.”³⁰

GCG submitted, however, that it had adjustments to make to GWA’s models. For instance, GCG found that the Government of Guam intends on providing GWA with \$14.4 million in federal relief from American Rescue Act funds, of which GWA will apply \$5.6

²⁸ GCG Report, p. 10 (Oct. 22, 2021).

²⁹ GCG Report, p. 1 (Oct. 22, 2021).

³⁰ GCG Report, pp. 16-17 (Oct. 22, 2021).

million for FY2022.³¹ GCG submits that this \$5.6 million will directly offset GWA’s proposed increase of \$12 million.³²

Additionally, GCG recommended against considering any impact of GWA’s Affordability Program in FY2022. To GCG, “charging ratepayers \$5.2 million annually to provide a subsidy to some undetermined number of yet undefined class of low-income customers has not been vetted,” along with other reasons against its implementation.³³ GCG therefore submitted that deferral of the program reduces GWA’s request further by \$5.25 million.³⁴

Further, GCG maintained that expenses for FY2022 should be “adjusted downward” as follows: less \$2.473 million for Navy Water expenses; less \$2.625 million for Salaries and Benefits; and less \$2.542 million for contractual expenses.³⁵ Accordingly, GCG concluded that with these adjustments, GWA should net over \$18 million in FY2022. Therefore, it did not recommend any rate increase.³⁶

4. Public Hearings

While not necessarily required by statute, rules, or other authorities binding these proceedings, the PUC held three public hearings in an ongoing effort to keep ratepayers apprised of any possible changes in the water and wastewater rates. In keeping with the spirit of the Ratepayers Bill of Rights, the PUC held hearings in the northern, southern, and central villages of Guam, in 2021 on November 3, 4, and 5, respectively.

³¹ GCG Report, p. 17 (Oct. 22, 2021).

³² GCG Report, p. 17 (Oct. 22, 2021).

³³ GCG Report, p. 17 (Oct. 22, 2021).

³⁴ GCG Report, p. 17 (Oct. 22, 2021).

³⁵ GCG Report, pp. 16-17 (Oct. 22, 2021).

³⁶ GCG Report, p. 18 (Oct. 22, 2021).

For all three public hearings, representatives from GWA were present to give presentations concerning the material contained in its filings and to answer possible questions from the public. No one from the public presented any testimony at these public hearings.

5. No Stipulation

Because GCG and GWA were unable to reach any compromise regarding any of the outstanding issues, an evidentiary hearing, as opposed to a stipulation, was held.

6. November 2021 Evidentiary Hearing

On November 8, 2021, the Administrative Law Judge (“ALJ”) held a virtual evidentiary hearing, via Zoom video conferencing, to take testimony related to GWA’s filings supporting its application for rate relief. Present during the proceedings were representatives and witnesses for GWA, GCG, and the Navy, along with their respective counsel. PowerPoint presentations, testimony, and exhibits were presented before the ALJ, where examination of witnesses was allowed.

On November 9, 2021, the second day of the evidentiary hearing, GWA presented testimony and evidence on what was styled as GWA’s Revised Rate Application and Modified Financial Plan. GWA presented information indicating a modification to its initial request, for rate increases. In general, GWA indicated that since it would be receiving federal funding due to the American Rescue Plan Act (“ARPA”), GWA requested relief in the form of rate increases of 8%, 6.5%, and 6.5%, for fiscal years 2022, 2023, and 2024, respectively.

GCG was also given an opportunity to present its findings, and did so during the second day of the evidentiary hearings, arguing essentially that GWA was proceeding in bad faith, presenting new information that GCG did not have an opportunity to review. GCG vehemently objected to the introduction of what were revisions to GWA’s rate application. The Navy also

presented arguments concerning its wastewater rate. On November 18, 2021, GCG memorialized its objections to GWA’s testimony.

Thereafter, the ALJ ordered GWA to formally submit its Revised Rate Application and Modified Financial Plan, to include appropriate testimony and narratives, any supporting data and documents, along with revisions to a fully executable Rate Application Model by December 3, 2021. The ALJ also permitted another round of discovery, and ordered GCG to provide a supplemental report indicating any new findings and recommendations based on its review of GWA’s Revised Rate Application and Modified Financial Plan by January 15, 2022.

7. Clarification to Modified Financial Plan and Revised Rate Application

GWA’s December 3, 2021 “Modified Financial Plan” was supported by the testimonies of Miguel Bordallo, Eric Rothstein, Chris Budasi, and Thomas Chestnutt. According to Mr. Bordallo, “[t]he Updated Rate Plan is based on the ALJ-requested RAM version 1.4, with a limited number of adjustments made in response/rebuttal to the GPUC’s consultants and Navy final testimony.”³⁷ “It incorporates reasonable and just adjustments to revenues and expenses and presents a path to compromise between GWA’s initial May 1st 2021 filing and the final testimony of the GPUC consultant and Navy intervenor.”³⁸

Mr. Bordallo indicated that GWA’s Updated Rate Plan aligns with the “intent and requirements of the FY20 Rate Decision . . . in presenting a rate path for FY2022 through FY2024, and appropriately considers required revenue generation to meet GWA debt obligations in FY2025 and beyond, which the GPUC’s consultant has testified under oath that they did not consider.”³⁹ Mr. Bordallo further submitted that GCG’s proposed ‘adjustments and testimony

³⁷ Bordallo Testimony, p. 9 (Dec. 3, 2021).

³⁸ Bordallo Testimony, p. 9 (Dec. 3, 2021).

³⁹ Bordallo Testimony, p. 9 (Dec. 3, 2021).

intentionally avoid the potential 27-33% rate increase in FY 2025 that would be required if the GPUC chooses to follow their recommendation.”⁴⁰

Mr. Rothstein indicated in his testimony that “[n]otwithstanding Georgetown Consulting Group’s unsubstantiated claim that GWA has not adequately supported its filing with testimony and supporting documentation, GWA has provided more information for this ‘enhanced annual rate review’ than, to my understanding, has ever been required to support a new Five-Year GWA rate application.”⁴¹

According to Mr. Rothstein:

GWA has completed 7 Analytical Studies with accompanying technical models, provided 1 enhanced Rate Application Models that, as a matter of course, generates all PUC required schedules. GWA conducted multiple workshops with Intervenors to review in progress Analytical Studies and the development of the RAM. After the studies and RAM were submitted timely, GWA conducted additional workshops with Intervenors to review the results of analytical studies and demonstrate the analytical functionality and reporting available through the RAM. GWA has further responded to over 130 Requests for Information and has provided a presentation to support its oral testimony at the Evidentiary Hearings held on November 8-9, 2021.⁴²

Mr. Budasi indicated in his testimony again that the pandemic has significantly impacted Guam’s tourism industry, affecting Guam’s labor force and increasing Guam’s population who live “below the federal poverty line.”⁴³ In addition, according to Mr. Budasi, “senior citizens on fixed incomes are unable to keep up with the rising cost of living that is primarily driven by Guam’s import economy and the cost of oil.”⁴⁴ Mr. Budasi also identified water leaks as another area that affects lower income customers since these customers are typically unable to hire

⁴⁰ Bordallo Testimony, p. 9 (Dec. 3, 2021).

⁴¹ Rothstein Testimony, p. 7 (Dec. 3, 2021).

⁴² Rothstein Testimony, p. 7 (Dec. 3, 2021).

⁴³ Budasi Testimony, p. 6 (Dec. 3, 2021).

⁴⁴ Budasi Testimony, p. 6 (Dec. 3, 2021).

private plumbers.⁴⁵ He maintained that the new Affordability Program, the Customer Assistance Program, should be implemented to assist the “economically disadvantaged” and that its implementation would create a “mechanism to receive and disperse any future federal grants and aid made available to low-income residents for water utility services.”⁴⁶

8. Revised Rates

Initially, GWA requested the following rate increases: 10% for FY2022; 10% for FY2023; and 10% for FY2024. However, in its December 3, 2021 Modified Financial Plan, GWA amended its application, requesting instead the following: 8.1% for FY2022; 6.5% for FY2023; and 6.5% for FY2024. Based on the Modified Financial Plan, GWA updated its rate application to reflect “(1) the confirmation that the Governor would allocate \$14.4 million of American Rescue Plan Act (ARPA) funds to GWA to mitigate the rate impacts of GWA’s original rate filing; and (2) to be responsive to ALJ scheduled Intervenor testimony and discovery.”⁴⁷

According to Mr. Rothstein, “GWA’s financial plan therefore was developed to enable a smooth and consistent pattern of rate increases through the period when refinancing of short-term Commercial Paper is scheduled in FY2025.”⁴⁸ Mr. Rothstein submitted that the requested “[r]evenue increases in FY2022 of 8.1 percent with residential bill impacts moderated through rate design reform and CAP implementation are complimented by 6.5 percent revenue increases in FY2023 and FY2024, with debt service coverage rising to 1.40x by the final year of the rate application period”; and that GWA will seek “a similar 6.5 percent revenue increase requirement

⁴⁵ Budasi Testimony, p. 6 (Dec. 3, 2021).

⁴⁶ Budasi Testimony, pp. 6-7 (Dec. 3, 2021).

⁴⁷ Rothstein Testimony, p. 15 (Dec. 3, 2021).

⁴⁸ Rothstein Testimony, p. 16 (Dec. 3, 2021).

is projected for FY2025 when Commercial Paper notes are refinanced with take-out revenue bonds.”⁴⁹

Mr. Rothstein indicated that where GWA is not provided the relief requested, the following would be the result:

“Bond rating agencies and investors—already chastened by pandemic impacts—will (appropriately) gauge GWA’s credit worthiness based on whether GWA can articulate a cohesive, sensible long term financing strategy. EPA’s enforcement action that precipitated Consent Decree negotiations was based on concerns regarding GWA’s commitment to infrastructure reinvestment.”⁵⁰

He added that “[i]nadequate rate relief in the face of general and pandemic induced declining revenues, and scheduled increases in debt service payments runs the disconcerting risk of a bond rating downgrade, as well as complications in securing a line-of-credit to support the planned Commercial Paper program.”⁵¹

Mr. Rothstein indicated that the “proposed modifications” are “quite limited,” respond to the Navy’s and ALJ’s requests, and further “rely on information” already in the record.⁵² The revisions include the following: (1) an Update of forecasted FY2022 through 2024 water demand; (2) Revised Navy wastewater rates; (3) Reduction in Navy water purchase expenses; (4) Reduction in GWA’s Salaries and benefits expenses; (5) FY2022 CAP expense revision; (6) Application of ARPA funds; and (7) Elimination of the water lifeline volumetric rate increase in FY2024.⁵³ The required rate filing schedules based on GWA’s Modified Financial Plan,

⁴⁹ Rothstein Testimony, p. 16 (Dec. 3, 2021).

⁵⁰ Rothstein Testimony, p. 17 (Dec. 3, 2021).

⁵¹ Rothstein Testimony, p. 17 (Dec. 3, 2021).

⁵² Rothstein Testimony, p. 23 (Dec. 3, 2021).

⁵³ Rothstein Testimony, pp. 23-24 (Dec. 3, 2021).

including proposed uses of ARPA funds and RSF reserves, were attached to Mr. Rothstein’s testimony.⁵⁴

In response, GCG stated that based on an “overall analysis,” its “position and recommendations in this supplemental filing have not changed”; indicating that “[t]here is nothing filed in GWA’s December 3, 2021, supplemental testimony that would compel Staff to change its position.”⁵⁵ GCG indicated that GWA’s revision were “not significant”; and that, therefore, it reached “the same conclusions.”⁵⁶

Specifically, based on its analyses, GCG stated that it has “examined the data for FY2021 and determined that even if the GWA analysis was adopted there would be no change in the recommendation by Staff that no rate relief for FY2022 is warranted and that a Rate Path with no rate increases in FY2023 and FY2024 would be sufficient to produce a [debt service] coverage of 1.3x.”⁵⁷ GCG further found that, absent any rate increases, and instead implementing “adjustments that have been supported in [GCG’s] October 21, 2021, testimony, GWA does achieve its target coverage of 1.3x in each one of the remaining years in the 5-Year Rate Plan—FY2022, FY2023, and FY2024.”⁵⁸ Accordingly, GCG concluded that “[n]o rate increase is required over the remainder of the 5-Year Rate Plan (FY2020 through FY2024).”⁵⁹

9. Cost of Service Analysis

Based on GWA’s Cost of Service Analysis, it determined that at least for FY2022 proposed rates, GWA’s water system rates collect approximately 6.9% more than the water rate

⁵⁴ Rothstein Testimony, p. 29 (Dec. 3, 2021).

⁵⁵ GCG Report, p. 18 (Jan. 15, 2022).

⁵⁶ GCG Report, p. 30 (Jan. 15, 2022).

⁵⁷ GCG Report, p. 17 (Jan. 15, 2022).

⁵⁸ GCG Report, p. 30 (Jan. 15, 2022).

⁵⁹ GCG Report, p. 30 (Jan. 15, 2022).

revenue requirement.⁶⁰ With respect to wastewater, the FY2022 proposed rates would collect nearly 15% less than the wastewater rate revenue requirement.⁶¹

GWA found that “some water customer classes are projected to pay more than their cost of service.”⁶² For instance, GWA’s Commercial, Hotels (separated from Commercial II), Government (separated from the Government and Federal cluster), and GIAA (also separated from the Government and Federal cluster) customers pay more than their cost of service, according to GWA.⁶³ On the other hand, GWA’s Residential, Agriculture, and Irrigation customers pay less than their cost of service.⁶⁴

With respect to wastewater, some wastewater customer classes are projected to pay more than their cost of service, such as GWA’s Commercial II, Commercial III, Hotels, Government, Navy (also separated from the Government and Federal cluster) and new Leachate customers.⁶⁵ However, some wastewater customer classes pay less than their cost of service, such as GWA’s Residential, Commercial I, and new Septage customers.⁶⁶

10. Proposed New Residential and Sewer Rate Charges

In these proceedings, GWA requested implementation of water and sewer rate design changes that “include rendering more substantial and targeted assistance to economically disadvantaged customers, while staunching the degree of subsidy provided to higher volume and (generally) higher income residential users.”⁶⁷ The new design protects residential users from assuming “a larger share of the overall cost burden in the FY2022 through 2024 period, or to

⁶⁰ GWA Cost of Service Analysis, p. xiv (May 15, 2021).

⁶¹ GWA Cost of Service Analysis, p. xiv (May 15, 2021).

⁶² GWA Cost of Service Analysis, p. xiv (May 15, 2021).

⁶³ GWA Cost of Service Analysis, p. xiv (May 15, 2021).

⁶⁴ GWA Cost of Service Analysis, p. xiv (May 15, 2021).

⁶⁵ GWA Cost of Service Analysis, p. xiv (May 15, 2021).

⁶⁶ GWA Cost of Service Analysis, p. xiv (May 15, 2021).

⁶⁷ Bordallo Testimony, p. 11 (May 1, 2021).

require stressed non-residential users to further subsidize residential use.”⁶⁸ Instead, it imposes relatively “higher increases to rates and charges of governmental users (including accounts associated with the military build-up) to enable imposition of lower increases across customer classes most impacted by the pandemic, most notably hotels and selected general commercial classes.”⁶⁹

For instance, GWA proposed the following:

- (a) Adoption of meter-size scaled base charge increases for water services, and new meter-size scaled base charges for wastewater service applicable across all customer classes.⁷⁰
- (b) Adoption of inverted 3-tiered residential rates with usage tier thresholds at 3kgals, 10kgals, and above.⁷¹
- (c) Establishment of an affordability program operating expense to enable provision of monthly bill assistance in amounts up to 20% of usage-related charges for income-qualified families.⁷²
- (d) Adoption of a new residential sewer volumetric rate and revised non-residential sewer rates.⁷³

According to testimony by Eric Rothstein, this proposal is intended to “reform several problematic aspects of GWA’s existing customer classifications and rate designs.” Specifically, “[t]hese reforms will provide for more consistent pricing of services, eliminate historical anomalies, facilitate future movement to cost-of-service pricing, and complement GWA’s proposed Customer Assistance Program”⁷⁴

As an example, Mr. Rothstein added that:

GWA’s existing residential water rate design features meter-size scaled base water charges, a discounted lifeline water rate applicable to usage below 5,000 gallons per month, and a

⁶⁸ Bordallo Testimony, p. 11 (May 1, 2021).

⁶⁹ Bordallo Testimony, p. 12 (May 1, 2021).

⁷⁰ CCU Resolution, pp. 3-4 (Apr. 27, 2021).

⁷¹ CCU Resolution, pp. 3-4 (Apr. 27, 2021).

⁷² CCU Resolution, pp. 3-4 (Apr. 27, 2021).

⁷³ CCU Resolution, pp. 3-4 (Apr. 27, 2021).

⁷⁴ Rothstein Testimony, p. 9 (Dec. 3, 2021).

volumetric rate for all usage above 5,000 gallons. The lifeline rate is applicable to just over 50 percent of average residential usage and benefits all residential customers irrespective of income level. Residential sewer service is charged through a \$27.54 per month flat base charge irrespective of household water usage, income level, or service meter size. While GWA’s legislative surcharge is currently applied to all non-residential rate components, the surcharge is not imposed against the lifeline rate nor the flat wastewater base charge for residential customers.⁷⁵

In response, GCG contended that since it believed there is no need to increase rates, then correspondingly there is “no reason to create confusion among GWA’s customers with a change in rate structure”⁷⁶ GCG submitted that “[a]ny change in rate structure and rate design will increase bills for some customers and decrease bills for others”; and, therefore, it recommended review of any new rate structure later in time.⁷⁷ GCG recommended consideration of the revisions identified above during GWA’s next filing, presumably in Phase 3.

11. Navy Rate

In these proceedings, the Navy submitted the written testimony of Brian Collins, who contended that Navy’s wastewater rate should set to a “cost of service rate” of \$12.18 per kgal.⁷⁸ Mr. Collins submitted that the Navy’s rate should be set to a “cost of service” rate because “each customer class should, to the extent practicable, produce revenues equal to the cost of serving that particular class, no more and no less.”⁷⁹ In addition, Mr. Collins maintained that a cost of service rate is what is required pursuant to a 1972 Utility Service Contract between the Navy and GWA.⁸⁰ Mr. Collins indicated in his testimony that the contract states: “the rates set forth herein

⁷⁵ Rothstein Testimony, p. 12 (Dec. 3, 2021).

⁷⁶ GCG Report, p. 62 (Oct. 22, 2021).

⁷⁷ GCG Report, p. 62 (Oct. 22, 2021).

⁷⁸ Collins Testimony, p. 3 (Nov. 5, 2021).

⁷⁹ Collins Testimony, p. 3 (Nov. 5, 2021).

⁸⁰ Collins Testimony, p. 3 (Nov. 5, 2021).

shall be renegotiated based on actual costs . . . provided that any rates so negotiated shall not be in excess of rates to any other customer of [the utility provider] under similar conditions of service.”⁸¹

In the second day of the evidentiary hearing, GWA submitted that its “modified” rate application “accepts” the Navy’s recommendation to align wastewater rates with other Guam government accounts. In particular, GWA indicated that its Modified Financial Plan reflects “the Navy’s request to align their wastewater rates to those of Guam government and airport accounts.”⁸² Accordingly, in its Revised Rate Application, “the Navy’s volumetric wastewater rate was changed from \$12.80 to \$12.65”⁸³

12. Affordability and GWA’s Proposed Customer Assistance Program

In its Affordability/Rate Design Study, GWA introduced a Customer Assistance Program (also known as “CAP”) that would provide “water and wastewater bill assistance for those households income-qualified through other Guam social service programs.”⁸⁴ According to GWA, this new program would either modify or eliminate GWA’s current Lifeline water and wastewater rates⁸⁵, and would “render assistance to GWA’s most economically disadvantaged customers, streamline eligibility screening and administrative requirements to minimize associated costs, and provide water use efficiency support for those low-income customers plagued by relatively high metered water use.”⁸⁶

Specifically, the program is intended to provide “limited supplemental bill assistance for special circumstances as well as provision of water audits and plumbing repairs for qualifying

⁸¹ Collins Testimony, p. 3 (Nov. 5, 2021).

⁸² Rothstein Testimony, p. 23 (Dec. 3, 2021).

⁸³ Rothstein Testimony, p. 23 (Dec. 3, 2021).

⁸⁴ GWA Affordability/Rate Design Analytical Study, p. 2 (Mar. 2021).

⁸⁵ GWA Affordability/Rate Design Analytical Study, p. 2 (Mar. 2021).

⁸⁶ Bordallo Testimony, p. 13 (May 1, 2021).

low-income customers with unusually high water usage patterns.”⁸⁷ In some detail, the Affordability/Rate Design Study addressed the design of the program, including eligibility criteria and forms of assistance, administrative procedures, and possible funding options.⁸⁸

According to the testimony submitted by Mr. Christopher Budasi, while “[t]here are several components,” “[t]he largest allocation of assistance is for administratively qualified bill assistance that provides a 20% discount to residential customers monthly volumetric water and wastewater charges.”⁸⁹ In addition, the program would provide “limited” assistance to customers scheduled for disconnection but who are undergoing a hardship. In such instance, GWA would allow a “one-time payment” “capped at \$500” to the customer’s account that would make the account current.⁹⁰ Further, GWA would provide a wide variety of other services, such as a water audit, bill assistance, leak detection, and repair services.⁹¹

According to Mr. Budasi, GWA estimated that the program will cost “\$5 million with modest annual adjustments upward for program growth.”⁹² This cost will fund direct assistance through the reduction of customers’ water and wastewater bill; leak detection, water audits, and program administration.⁹³

In its initial review, GCG recommended that the PUC deny implementation of the proposed program.⁹⁴ It submitted that the program was not completely designed; that the price was unreasonable; and that Legislative approval may be required.⁹⁵

⁸⁷ GWA Affordability/Rate Design Analytical Study, p. 2 (Mar. 2021).

⁸⁸ GWA Affordability/Rate Design Analytical Study, pp. 13-18 (Mar. 2021).

⁸⁹ Budasi Testimony, p. 7 (Dec. 3, 2021).

⁹⁰ Budasi Testimony, p. 7 (Dec. 3, 2021).

⁹¹ Budasi Testimony, p. 7 (Dec. 3, 2021).

⁹² Budasi Testimony, p. 8 (Dec. 3, 2021).

⁹³ Budasi Testimony, p. 9 (Dec. 3, 2021).

⁹⁴ GCG Report, p. 70 (Oct. 22, 2021).

⁹⁵ GCG Report, p. 70 (Oct. 22, 2021).

In contrast, Mr. Budasi indicated that “[t]here is nothing in GWA’s or the GPUC’s enabling legislation that prohibits or places restrictions on a revenue funded customer assistance program.”⁹⁶ Mr. Budasi added that “Title 12, G.C.A. §12116 states the GPUC ‘may prohibit rebates and discrimination between localities, or between consumers, under substantially similar conditions.’”⁹⁷ However, according to Mr. Budasi, the agency’s existing subsidies were the result of “policy decisions approved by both the CCU and GPUC and set a clear precedent that subsidization of GWA rates is an accepted practice and allowable.”⁹⁸

Moreover, at the evidentiary hearing, GWA maintained that the proposed program is consistent with the intent of ARPA legislation and is permissible under existing Guam law. However, GWA indicated that it would pursue legislative measures to reinforce GWA’s authority concerning the implementation of its proposed program; and that it would seek clarification concerning any statutory requirements related to implementation.

In January, GCG again recommended deferring implementation of the proposal.⁹⁹ It suggested that GWA more “fully define its Affordability Program (Program) and hold public hearings about the program so its customers understand: the reason for the Program; provide an overview of Program benefits and costs, seek input on how the program could be modified to better provide assistance to its economically challenged citizens, review the program considering Guam Law that requires all members of a customer [class] be treated equally.”¹⁰⁰ Further, according to GCG, deferral of the program saves GWA \$5.25 million.¹⁰¹

⁹⁶ Budasi Testimony, p. 10 (Dec. 3, 2021).

⁹⁷ Budasi Testimony, p. 10 (Dec. 3, 2021).

⁹⁸ Budasi Testimony, pp. 10-11 (Dec. 3, 2021).

⁹⁹ GCG Report, p. 69 (Oct. 22, 2021).

¹⁰⁰ GCG Report, p. 24 (Jan. 15, 2022).

¹⁰¹ GCG Report, p. 37 (Jan. 15, 2022).

13. GCG's Proposed Adjustments to GWA' Expenses

As discussed above, in its analyses, GCG identified three expense adjustments: (1) Navy water purchases; (2) Salary and benefits; (3) Contractual expenses; and (4) GWA's proposed Affordability Program.

A. Navy Water Expenses

Regarding GWA's purchases of Navy water, GCG submitted that GWA's increases in its purchases of Navy water appeared inconsistent with GWA's purchases in recent years.¹⁰² According to GCG, GWA did not provide any data to support a projected 30% increase in Navy water purchases.¹⁰³ Instead, GCG noted that the Official Statement of the 2020A Bond Indenture indicated the following: 531,000 kgals in FY2022; 505,000 kgals in FY2023; and 480,000 kgals in FY2024.¹⁰⁴ GCG cited to language in the Official Statement, which states:

Projections for Fiscal Years 2020 through 2025 assume purchases will be impacted by stipulated assumptions of annual and compounding water loss reductions of 2% in Fiscal Year 2020 (adjusted for partial-year (7/12) implementation of stipulated measures), 2.75% in Fiscal Year 2021, 5% for Fiscal Years 2022, 2023 and 2024, and no further reduction in Fiscal Year 2025.¹⁰⁵

Accordingly, GCG proposed adjusting this expense to mirror the data indicated in the Official Statement of GWA's 2020A Bond Indenture, lowering the purchased Navy water expense to: \$6.159 million in FY2022; \$5.858 million in FY2023; and \$5.568 million in FY2024.¹⁰⁶

At the evidentiary hearing, GWA admitted that it overstated its Navy water purchases, but maintained that GCG's proposed adjustment to Navy water purchases, "corrected for

¹⁰² GCG Report, p. 42 (Oct. 22, 2021).

¹⁰³ GCG Report, p. 43 (Oct. 22, 2021).

¹⁰⁴ GCG Report, p. 43 (Oct. 22, 2021).

¹⁰⁵ GCG Report, pp. 43-44 (*quoting* Official Statement for Guam Waterworks Authority Series 2020A \$134,000,000 Bond Issue, p. 24) (Oct. 22, 2021).

¹⁰⁶ GCG Report, pp. 44-45 (Oct. 22, 2021).

purchase volumes reduced through the Water Loss Reduction program, should be implemented” instead. GCG disagreed and indicated that “GWA’s proposed Purchased Water Expense should be rejected,” substituting as an alternative its values: \$6,159,600 for FY2022 (as opposed to \$8,333,122); \$5,858,000 for FY2023 (as opposed to \$8,287,651); and \$5,568,000 for FY2024 (as opposed to \$8,268,710).¹⁰⁷

B. Salary and Benefits Expenses

The next adjustment concerned GWA’s request for \$29.6 million for salaries and benefits, which GCG contends is “double the average level of increases over the previous four fiscal years.”¹⁰⁸ GCG submitted that staffing is “far above” comparable mainland utilities “by a factor of five.”¹⁰⁹ Staffing, according to GCG, remains a “serious concern” because it represents close to forty percent (40%) of GWA’s operating expenses.¹¹⁰

According to GCG, “[n]o explanation was offered by GWA as to why this 14.7% increase was so much larger than the average increase of 7% for the period 2017 through 2021.”¹¹¹ With respect to capitalized labor costs, according to GCG, this too “significantly increased from \$3.6 million to \$4.5 million in one year.”¹¹²

Instead, GCG developed its own estimates, by adding two employees each year; and increasing Salaries and Benefits by 4%; and for capitalized labor, GCG applied an increase of 14.17% for FY2022 through FY2024.¹¹³ It rejected GWA’s proposal, citing that there was testimony to support any such proposed increase; and substituted, as an alternative, its values:

¹⁰⁷ GCG Report, p. 28 (Jan. 15, 2022).

¹⁰⁸ GCG Report, p. 29 (Oct. 22, 2021).

¹⁰⁹ GCG Report, p. 65 (Oct. 22, 2021).

¹¹⁰ GCG Report, p. 65 (Oct. 22, 2021).

¹¹¹ GCG Report, p. 37 (Oct. 22, 2021).

¹¹² GCG Report, p. 37 (Oct. 22, 2021).

¹¹³ GCG Report, pp. 40-41 (Oct. 22, 2021).

\$27,014,248 for FY2022 (as opposed to \$29,139,507); \$28,245,058 for FY2023 (as opposed to \$31,363,157); and \$29,531,110 for FY2024 (as opposed to \$31,950,457).¹¹⁴

In response, GWA rejected “the notion that reduced staffing levels, accomplished through GWA’s cost containment measures, may be sustained with minimal (2 positions per year) adjustment through the FY2022 – FY2024 period as proposed by GCG.”¹¹⁵ GWA contended that sustaining “current staffing levels effectively ignores the fact that new positions are required to provide staffing at the Northern District Wastewater Treatment Plant.”¹¹⁶ GWA further noted that GCG’s analysis amounted to a mere “extrapolation of FY2021 expenses—devoid of any attempt to understand GWA’s staffing needs—despite their having conducted a staffing study.”¹¹⁷ It added that “the salaries expense estimate included in GWA’s May 1 rate filing already included a \$2.5 million per year reduction from the CCU-approved budget amount.”¹¹⁸

GCG further recommended that the PUC undertake a “focused management audit” of GWA’s personnel levels to “define” staffing levels for fiscal years 2023 and 2024, and to do so prior to the FY2024 rate review.¹¹⁹

C. Contractual Expenses

Regarding contractual expenses, GCG maintained that such expenses should be based on FY2021 actual values, with a 3% annual increase for inflation for years FY2022 through FY2024.¹²⁰ GCG submitted that GWA did not provide any testimony or documentation

¹¹⁴ GCG Report, pp. 25-26 (Jan. 15, 2022).

¹¹⁵ Rothstein Testimony, p. 21 (Dec. 3, 2021).

¹¹⁶ Rothstein Testimony, p. 21 (Dec. 3, 2021).

¹¹⁷ Rothstein Testimony, p. 21 (Dec. 3, 2021).

¹¹⁸ Rothstein Testimony, pp. 21-22 (Dec. 3, 2021).

¹¹⁹ GCG Report, p. 65 (Oct. 22, 2021).

¹²⁰ GCG Report, p. 29 (Jan. 15, 2022).

supporting the increase in its contractual expenses.¹²¹ Accordingly, GCG found this expense to be unreasonable.¹²² Instead, GCG maintained that GWA’s contractual expense should increase annually by only 3%,¹²³ which is a little over \$100,000 per year; and substituted, as an alternative, its values: \$3,761,277 for FY2022 (as opposed to \$6,304,122); \$3,874,116 for FY2023 (as opposed to \$7,141,301); and \$3,990,339 for FY2024 (as opposed to \$7,519,569).

GWA rejected GCG’s position that the level of contractual expenses in FY2021 can be sustained another three years.¹²⁴ GWA contended that such action would significantly impact its service levels.¹²⁵

D. Affordability Program Expenses

As discussed in Section 12 above, GCG recommended deferring implementation of GWA’s proposed Customer Assistance Program.¹²⁶ It suggested that GWA more “fully define its Affordability Program (Program) and hold public hearings about the program so its customers understand: the reason for the Program; provide an overview of Program benefits and costs, seek input on how the program could be modified to better provide assistance to its economically challenged citizens, review the program considering Guam Law that requires all members of a customer calls be treated equally.”¹²⁷ Again, deferral of the program will save GWA \$5.25 million, according to GCG.¹²⁸

¹²¹ GCG Report, p. 29 (Jan. 15, 2022).

¹²² GCG Report, p. 48 (Oct. 22, 2021).

¹²³ GCG Report, p. 48 (Oct. 22, 2021).

¹²⁴ Rothstein Testimony, p. 22 (Dec. 3, 2021).

¹²⁵ Rothstein Testimony, p. 22 (Dec. 3, 2021).

¹²⁶ GCG Report, p. 69 (Oct. 22, 2021).

¹²⁷ GCG Report, p. 24 (Jan. 15, 2022).

¹²⁸ GCG Report, p. 37 (Jan. 15, 2022).

14. American Rescue Plan Act and GWA’s Rate Stabilization Funds

Next, GCG maintained that it had one revenue adjustment to GWA’s financial models, specifically the availability of American Rescue Plan Act (“ARPA”) funds of \$14.4 million. GCG submitted that “[t]he ARP funds should be used ahead of [Rate Stabilization Fund] funds to achieve the DSCR needed in each fiscal year”; and that RSF funds can be added as needed and the details of the implementation should be left largely to GWA management.”¹²⁹ GCG further submitted that \$5.3 million of ARPA funds could be used in FY2022, reducing GWA’s revenue requirement.¹³⁰

Moreover, according to GCG, it performed a *pro forma* calculation illustrating how “the RSF and APR funds can be used to provide the 1.30x coverage proposed by GWA for this proceeding and not require any rate increase through FY2024.”¹³¹ GCG found that “depending on the use of the RSF and APR funds discussed previously, sufficient revenues would be provided to meet the minimum level of DSC for . . . FY2022 and . . . FY2023 with no change in existing rates considering Staff adjustments.”¹³² In its analysis, GCG applied ARP and RSF funds for FY2022 through FY2024, “with a priority on using APR funds to achieve 1.30s DSC”; and the result, according to GCG, was zero “revenue deficiency from current rates” through FY2024.¹³³

GWA indicated that while ARPA funding and RSF reserves “may be used to buy-down near-term rate increases”, GWA contended that such use would be “short sighted in that it would leave GWA without adequate RSF reserves to respond to financial emergencies, to meet

¹²⁹ GCG Report, p. 36 (Jan. 15, 2022).

¹³⁰ GCG Report, p. 36 (Jan. 15, 2022).

¹³¹ GCG Report, p. 31 (Jan. 15, 2022).

¹³² GCG Report, p. 31 (Jan. 15, 2022).

¹³³ GCG Report, p. 31 (Jan. 15, 2022).

minimum debt service coverage thresholds, to pay for scheduled increases in debt service just outside the rate application window, or to survive the potential prolonged financial impacts of the pandemic.”¹³⁴ GWA expressed that its Updated Rate Plan “uses all ARPA funds within the rate application window to mitigate rate increases (as directed by the Governor), builds revenue capacity through proposed rate structure changes, and preserves RSF reserves to mitigate the FY2025 financial impact of the Commercial Paper take-out bonds”; and additionally results in a “smooth increase” by avoiding any “FY2025 rate shock.”¹³⁵

GCG recommended that GWA provide the PUC with semi-annual financial reports concerning its use of the RSF, to include both deposits and withdrawals.¹³⁶

15. Debt Service Coverage Ratio

In its submissions, GWA proposed a temporary relaxation of the PUC and CCU policies related to targeted debt service coverage ratio as a response to “the financial impacts of the pandemic.”¹³⁷ Specifically, GWA contended that decreasing the target ratio of 1.40x to 1.30x would “help ensure GWA does not fall into technical default while significantly moderating pressure on rate revenue requirements.”¹³⁸

In response, GCG indicated that it indeed recognized the “benefit” of relaxing the current debt service coverage ratio proposed by GWA.¹³⁹ In fact, GCG indicated that with no change in rates, GWA is projected to achieve a debt service coverage ratio of 1.3x for FY2022 through FY2024.

¹³⁴ Rothstein Testimony, p. 18 (Dec. 3, 2021).

¹³⁵ Rothstein Testimony, p. 18 (Dec. 3, 2021).

¹³⁶ GCG Report, p. 34 (Jan. 15, 2022).

¹³⁷ Bordallo Testimony, pp. 9-10 (May 1, 2021).

¹³⁸ Bordallo Testimony, pp. 9-10 (May 1, 2021).

¹³⁹ GCG Report, p. 11 (Oct. 22, 2021).

16. GWA's Rate Application Model

In these proceedings, there was much controversy related to GWA's Rate Application Model ("RAM"). GCG has argued throughout these proceedings that GWA's password protection of the RAM "limited" GCG's use.¹⁴⁰ GCG maintained that in other jurisdictions, such financial models are provided with "unrestricted access"; and it indicated that it was dissatisfied with GWA's presentation of the RAM.¹⁴¹ GWA maintained that "there is no user manual or narrative describing the effort, substituting instead comments in thousands of cells as a replacement for the manual" and recommended that "user manual be developed."¹⁴² GCG added that where the RAM is used in future proceedings, the Commission should require that documentation be provided with a "user manual", along with "specific testimony as to how the model was used to develop each section of the testimony."¹⁴³

GCG therefore requested that GWA remove "all proprietary interests in the RAM other than to GWA"; and that the Commission confirm that the RAM is the property of GWA on behalf of its customers.¹⁴⁴ GCG further requested that GWA's RAM be provided to those who request it, subject to the approval of the Commission and input from GWA management.¹⁴⁵ GCG contended that in the absence of these conditions, then the cost of developing the RAM should not be recovered as a regulatory asset.¹⁴⁶ GCG also recommended that GWA collaborate with the PUC's consultants to possibly enhance the features of the RAM.¹⁴⁷

¹⁴⁰ GCG Report, p. 21 (Oct. 22, 2021).

¹⁴¹ GCG Report, p. 21 (Oct. 22, 2021).

¹⁴² GCG Report, p. 20 (Jan. 15, 2022).

¹⁴³ GCG Report, p. 20 (Jan. 15, 2022).

¹⁴⁴ GCG Report, p. 37 (Jan. 15, 2022).

¹⁴⁵ GCG Report, p. 37 (Jan. 15, 2022).

¹⁴⁶ GCG Report, p. 37 (Jan. 15, 2022).

¹⁴⁷ GCG Report, p. 71 (Oct. 22, 2021).

17. Water Loss

In GWA’s Water Loss Study, GWA set forth its Water Loss Control Program, which is comprised of an island-wide “DMA-based water loss control approach with a view to providing a long-term . . . approach to monitoring and managing water losses within the GWA water supply and distribution network.”¹⁴⁸ According to GWA, a DMA (or District Metered Area) “is a discrete area of a water distribution network into which the flow of water entering or leaving the DMA is measured by flow meters. The DMA is typically formed by closing valves or disconnecting interconnections with the surrounding network such that all of the water entering or leaving the DMA can be measured at the DMA meter points.”¹⁴⁹ For instance, “[t]he net inflow volume into the DMA can be compared against the volume of metered sales to customers in the DMA to directly calculate the Non-Revenue Water (NRW) volume in the DMA”; and the same inflow volume can be examined “to quantify the volume of real, physical losses (leakage) within the DMA.”¹⁵⁰ Based on the data, GWA can “direct the leak detection and repair resources to those parts of the network where they will have most benefit.”¹⁵¹

According to GWA, the plan involves the installation of 36 DMAs that would cover “594 miles of main and 42,000 customer service connections.”¹⁵² These DMAs would “closely monitor” the level of water losses that could then be used to “direct proactive leak detection action into those DMAs where the level of losses is above the target level.”¹⁵³ GWA intends on utilizing DMAs to provide complete island-wide coverage of the entire water distribution

¹⁴⁸ GWA Phase 3 Water Loss Control Program Development, p. 1 (Mar. 2021).

¹⁴⁹ GWA Phase 3 Water Loss Control Program Development, p. 1 (Mar. 2021).

¹⁵⁰ GWA Phase 3 Water Loss Control Program Development, pp. 1-2 (Mar. 2021).

¹⁵¹ GWA Phase 3 Water Loss Control Program Development, p. 2 (Mar. 2021).

¹⁵² GWA Phase 3 Water Loss Control Program Development, p. 2 (Mar. 2021).

¹⁵³ GWA Phase 3 Water Loss Control Program Development, p. 2 (Mar. 2021).

network.¹⁵⁴ It intends on implementing a DMA monitoring and control system that would provide it with automated information on water loss levels for active leakage control.¹⁵⁵

Other activities include the implementation of a Proactive Leak Detection program that would survey the entire water distribution network for leaks 4 times a year.¹⁵⁶ GWA also intends on contracting technical assistance with a water loss control specialist company experienced in implementing DMAs.¹⁵⁷ This contractor would provide supervision of GWA's implementation of the DMA monitoring system, training for GWA's staff in comprehensive leak detection, and supervision of the water loss control program.¹⁵⁸

In its review of GWA's Water Loss study, GCG noted that the study presented encouraging strategies for reductions in water loss,¹⁵⁹ but that water losses have been "chronic and continue."¹⁶⁰ GCG stated that GWA's has certainly provided the PUC with an "approach" developed by its consultant; and that the "proposal" shows "significant improvements in results compared to the past efforts."¹⁶¹ GCG added that GWA should be supported for implementing this plan and "if GWA follows the guidelines WSO has outlined carefully . . . the Commission can expect to see improvements."¹⁶²

GCG recommended that GWA should provide the PUC with a quarterly report, to include the following: (1) quantity of non-revenue water and percentage for the quarter and the previous 12 months; (2) water loss programs that are underway and their status; (3) upcoming water loss

¹⁵⁴ GWA Phase 3 Water Loss Control Program Development, p. 75 (Mar. 2021).

¹⁵⁵ GWA Phase 3 Water Loss Control Program Development, p. 75 (Mar. 2021).

¹⁵⁶ GWA Phase 3 Water Loss Control Program Development, p. 75 (Mar. 2021).

¹⁵⁷ GWA Phase 3 Water Loss Control Program Development, p. 75 (Mar. 2021).

¹⁵⁸ GWA Phase 3 Water Loss Control Program Development, p. 75 (Mar. 2021).

¹⁵⁹ GCG Report, p. 12 (Oct. 22, 2021).

¹⁶⁰ GCG Report, p. 56 (Oct. 22, 2021).

¹⁶¹ GCG Report, p. 58 (Oct. 22, 2021).

¹⁶² GCG Report, p. 58 (Oct. 22, 2021).

programs that are scheduled; (4) any problems, delays, or other issues with any of the programs and proposed solutions for corrections; and (5) any barriers that could possibly negatively affect projected water loss targets.¹⁶³ GWA indicated in these proceedings that it should be permitted to proceed with the projects and programs indicated in the Water Loss study, including implementation of the DMA program; and that GWA and GCG should collaborate to develop and Water Loss Control reporting format consistent with industry standards.

18. Capital Financing Alternatives

In GWA’s Capital Financing Alternatives Study (“Financing Study”), GWA indicated that its Water Resources Master Plan “calls for capital improvement spending over the FY2018 to FY2037 . . . on the order of \$1.6 billion”¹⁶⁴ GWA submitted that this spending will be driven in “large part by prospective Consent Decree compliance requirements, along with water system improvements to address water losses and efforts to connect currently unserved populations.”¹⁶⁵ GWA further submitted that “[f]uture capital financing requirements may be conservatively estimated to warrant GWA securing approximately \$200 million in new money bond authorization from the Guam legislature for the 5-year period, FY2022 through FY2026.”¹⁶⁶ To support these activities, GWA’s Financing Study provides a comprehensive review of alternatives for capital financing.¹⁶⁷ In particular, the Financing Study examined credit enhancements, construction financing, and long-term debt instruments; and opportunities to enhance yields on invested debt issuance proceeds.¹⁶⁸

¹⁶³ GCG Report, p. 60 (Oct. 22, 2021).

¹⁶⁴ GWA GWA’s Capital Financing Alternatives Final Report, p. 1 (Mar. 2021).

¹⁶⁵ GWA GWA’s Capital Financing Alternatives Final Report, p. 1 (Mar. 2021).

¹⁶⁶ GWA GWA’s Capital Financing Alternatives Final Report, p. 1 (Mar. 2021).

¹⁶⁷ GWA GWA’s Capital Financing Alternatives Final Report, p. 1 (Mar. 2021).

¹⁶⁸ GWA GWA’s Capital Financing Alternatives Final Report, p. 2 (Mar. 2021).

According to GWA, the Financing Study “affirmed” the “practice of funding the Bond Indenture required Debt Service Reserve Fund through bond proceeds rather than through a third-party instrument (*e.g.* Surety or Letter of Credit).”¹⁶⁹ “The Study also notes the need to secure a recommended \$200 million of additional debt authorization to facilitate financing of GWA’s capital improvement program.”¹⁷⁰ GWA submitted, therefore, that legislation is needed to secure the \$200 million debt and Commercial Paper authority; and that it will need to continue to fund the required Debt Service Reserve Fund through bond proceeds and to improve investment performance; and that it should avoid capitalizing interest in structuring future bonds.¹⁷¹

In response, GCG found that GWA’s report illustrated that “the commercial paper program does have the potential to produce reduced interest expenses during the period it is in use.”¹⁷² GCG noted that currently GWA is authorized to “initiate the planning process” regarding the implementation of “a commercial paper program for the next bond financing,” which will certainly require legislative approval.¹⁷³ GCG ultimately recommended that GWA provide the PUC with “an update on the status of obtaining the necessary approvals to allow GWA to employ commercial paper for prospective capital financing.”¹⁷⁴

19. Cesspool and Septic Tank Elimination

In the Cesspool Study, GWA found that thirty-seven percent of its residential and commercial customers were not being charged for sewer service.¹⁷⁵ In addition, GWA believes

¹⁶⁹ Bordallo Testimony, p. 7 (May 1, 2021).

¹⁷⁰ Bordallo Testimony, p. 7 (May 1, 2021).

¹⁷¹ Bordallo Testimony, pp. 5-6 (May 1, 2021).

¹⁷² GCG Report, p. 13 (Oct. 22, 2021).

¹⁷³ GCG Report, p. 13 (Oct. 22, 2021).

¹⁷⁴ GCG Report, p. 19 (Oct. 22, 2021).

¹⁷⁵ GWA Cesspool and Septic Tank Elimination Study, p. 3 (Mar. 2021).

that 13% (thirteen percent) of customers in residential subdivisions in northern Guam that are connected to the sewer system are not being charged for such sewer service.¹⁷⁶ Accordingly, GWA intends to revise Guam law so that it will be authorized to require customers to connect to the public sewer system.¹⁷⁷ The report goes through a list of updates to both Guam’s sewage statutes and regulations that would mandate such public sewer connections.¹⁷⁸

Moreover, the approach identified in the report involves the investigations to identify customers who are connected to the sewer system but not being billed for such service, and identify buildings which are not connected to the sewer system.¹⁷⁹ GWA will also construct sewer mains near priority wells; and GWA will work with U.S. E.P.A., GHURA, and the U.S.D.A. to identify possible sources of funding for the projects and programs identified in GWA’s approach.¹⁸⁰

20. Status of EPA Proceedings

As recommended by GCG, GWA should provide a quarterly report to the Commission indicating the status of the U.S. E.P.A. proceedings.¹⁸¹

21. Future Filing Requirements

In these proceedings, GCG has accused GWA of being “nonresponsive” in providing documentation supporting its rate request.¹⁸² GCG maintained that if filings that lacked supporting testimony, documentation and working papers, along with passwords for protected files, were submitted before stateside public utility commissions, such filings would be

¹⁷⁶ GWA Cesspool and Septic Tank Elimination Study, p. 3 (Mar. 2021).

¹⁷⁷ GWA Cesspool and Septic Tank Elimination Study, p. 3 (Mar. 2021).

¹⁷⁸ GWA Cesspool and Septic Tank Elimination Study, pp. 3-13 (Mar. 2021).

¹⁷⁹ GWA Cesspool and Septic Tank Elimination Study, p. 25 (Mar. 2021).

¹⁸⁰ GWA Cesspool and Septic Tank Elimination Study, p. 25 (Mar. 2021).

¹⁸¹ GCG Report, p. 38 (Jan. 15, 2022).

¹⁸² GCG Report, p. 35 (Jan. 15, 2022).

considered “patently deficient” and thereby “rejected.”¹⁸³ Accordingly, GCG requested that the PUC order GWA, “under penalty of having its filing be declared patently deficient and rejected, to provide detailed explanations, documentation and support in its Rate-Path Years FY 2023 and FY 2024 (Phase 3) filings in Docket 19-08.”¹⁸⁴

In addition, GCG submitted that GWA should provide the PUC with information related to the following: the changing COVID-19 pandemic conditions; tourism, hotel water sales and overall customer water usage data for changes to demand forecast; additional analysis of volume data delivered though the failed Badger meters; the use of RSF monies in FY2022¹⁸⁵; the availability of ARP monies for use in GWA’s construction program and revenue requirements; workbooks and supporting information on salaries and wages, Navy water expense, O&M expenses, A&G expenses, and contractual expenses; update regarding rulings on the Affordability Program and implementation issues.¹⁸⁶

Further, GCG recommended that the Commission retain a “management consulting firm to undertake a focused management audit examining GWA Staffing levels and the deployment of best practices in certain areas of GWA operations.”¹⁸⁷ While not necessarily a filing requirement, GCG recommended that GWA consult with GCG to discuss possible refinements to the RAM, for instance in sections concerning revenue requirement, so as to better automate the processing of data and calculations.¹⁸⁸

GCG has asked the PUC to require GWA to submit information related to water usage data, use of grant money, water loss reporting, and updates on GWA’s efforts concerning its

¹⁸³ GCG Report, p. 35 (Jan. 15, 2022).

¹⁸⁴ GCG Report, p. 35 (Jan 15, 2022).

¹⁸⁵ GCG Report, p. 32 (Jan 15, 2022); GCG Report, p. 66 (Oct. 22, 2021).

¹⁸⁶ GCG Report, p. 33 (Jan 15, 2022); GCG Report, p. 66 (Oct. 22, 2021).

¹⁸⁷ GCG Report, p. 37 (Jan. 15, 2022).

¹⁸⁸ GCG Report, p. 37 (Jan. 15, 2022).

Water Loss Reduction projects.¹⁸⁹ GCG additionally recommended that GWA provide the PUC with a report detailing the status of the U.S. E.P.A. proceedings.¹⁹⁰

CONCLUSION AND RECOMMENDATIONS

GWA indicated on the record that if the PUC does not provide adequate rate relief, such action would be “poorly received by bond rating agencies, investors and the U.S. E.P.A. and may compromise GWA’s ability to raise capital on favorable terms and conduct Consent Decree negotiations.”¹⁹¹ And further, any “[i]nadequate rate relief in the face of general and pandemic induced declining revenues, and scheduled increases in debt service payments runs the disconcerting risk of a bond rating downgrade, as well as complications in securing a line-of-credit to support the planned Commercial Paper program.”¹⁹²

On the other hand, GCG repeatedly instructed that, based on its examination of the data, and “that even if the GWA’s analysis was adopted,” GCG concluded that “no rate relief for FY2022 is warranted and that a Rate Path with no rate increases in FY2023 and FY2024 would be sufficient to produce a [debt service] coverage of 1.3x.”¹⁹³ GCG further concluded that absent any rate increases, but instead implementing the adjustments identified in its testimony, GWA achieves a target coverage of 1.3x “in each one of the remaining years in the 5-Year Rate Plan—FY2022, FY2023, and FY2024”;¹⁹⁴ and therefore concluded, again, that no rate increases are required over the remainder of the 5-Year Rate Plan (FY2020 through FY2024).¹⁹⁵

¹⁸⁹ GCG Report, pp. 37-38 (Jan. 15, 2022).

¹⁹⁰ GCG Report, p. 38 (Jan. 15, 2022).

¹⁹¹ Rothstein Testimony, pp. 16-17 (Dec. 3, 2021).

¹⁹² Rothstein Testimony, p. 17 (Dec. 3, 2021).

¹⁹³ GCG Report, p. 17 (Jan. 15, 2022).

¹⁹⁴ GCG Report, p. 30 (Jan. 15, 2022).

¹⁹⁵ GCG Report, p. 30 (Jan. 15, 2022).

The testimony differed as to particular expenses projected through the remaining rate path years. The ALJ submitted that a reasonable projection of expenses for purchases of Navy Water, contracts, and salaries and benefits, also exists between the numbers propounded by GWA and GCG. Further, deferral of the GWA's Affordability Program potentially saves GWA \$5.25 million;¹⁹⁶ and reducing the debt service coverage ratio to 1.3x will result in even more savings. However, the ALJ was mindful too that GWA's revenues have dipped during this Covid-19 pandemic period; and that GWA has implemented certain cost containment measures. In addition, while not fully developed on the record in these proceedings, GWA will be expected to comply with U.S. E.P.A. Consent Decree requirements in the near future, and which may require significant funding for capital projects.

The ALJ understood that GWA has transferred \$1.2 million from its RSF account in order to ensure it maintains sufficient revenues to satisfy its debt service coverage requirements under its bond indenture. GWA had not yet received any ARPA funds from the Government of Guam, which the ALJ understands is currently reserved for GWA. Accordingly, based on these reasons, the ALJ recommended a 4% increase for the remainder of FY2022; and a 3.25% increase in FY2023.

For FY2024, the ALJ recommended a rate increase of 6.5%, which shall be subject the true-up process for GWA, and which filing requirements shall be refined through the collaboration between GWA and the PUC's consultants. Accordingly, GWA should file a FY2024 Comprehensive Review and Update and all other required rate material by May 1, 2023, with the implementation of any new rate by October 1, 2023.

¹⁹⁶ GCG Report, p. 37 (Jan. 15, 2022).

Regarding the use of a RAM, GWA should provide a fully executable version of its RAM that allows users to easily input data into the model without unreasonable restrictions; or in the alternative, provide training for PUC and its consultants on how to properly and fully utilize the RAM's capabilities. GWA shall further provide a basic "user manual", and corresponding testimony regarding how the model illustrates certain data and calculations.

Further, based on the record before the Commission and the foregoing discussions herein, the ALJ made the following additional recommendations to the Commission: Regarding the Legislative Surcharge, the ALJ recommends implementing the following rates, as proposed by GWA: 3.7% in FY2022; 3.5% in FY2023; and 3.4% in FY2024. Regarding the Navy's wastewater rate, GWA has agreed to align the Navy's wastewater rates to those of Government of Guam and airport accounts.¹⁹⁷ Accordingly, the ALJ recommended the authorization to modify the Navy's volumetric wastewater rate from \$12.80 to \$12.65 per kgal.

In addition, with respect to the redesign of GWA's rate structure, the ALJ recommended reviewing the new rate structure at a later time. With respect to GWA's proposed Affordability Program, or CAP, the ALJ recommended that this program should be examined and considered in a separate proceeding. GWA should work with ALJ and the PUC's consultants in more fully developing the program, obtaining any required legislative approvals or statutory amendments, and holding public hearings, so as to strengthen the government and public support for such a program. The first of such work sessions shall be scheduled in September, 2022.

Moreover, with respect to the issue concerning GWA's debt service coverage, the ALJ recommended that for its Five Year Financial Plan, GWA should be temporarily authorized to utilize a debt service coverage ratio of no less than 1.3x.

¹⁹⁷ Rothstein Testimony, p. 23 (Dec. 3, 2021).

With respect to water loss, GWA should be permitted to proceed with the projects and programs indicated in its Water Loss study, including implementation of the prescribed DMA program. GWA should also provide the PUC with quarterly reports which indicate: (1) the quantity of non-revenue water and percentage of such non-revenue water during the quarter, with a comparison of non-revenue water during the previous 12 months; (2) water loss programs that are underway and their status; (3) upcoming water loss programs that are scheduled; (4) any problems, delays, or other issues affecting the programs and proposed solutions for corrections.¹⁹⁸ The first of such report shall be submitted on September 30, 2022.

Regarding GWA's Commercial Paper Program, GWA should provide the PUC with an update on the status of obtaining the necessary approvals that would allow GWA to employ commercial paper for prospective capital financing. This update should be submitted to the PUC by September 30, 2022.

The recommendations made therein were intended to support GWA as it moves forward with critical capital improvement projects and to allow the agency to adopt policies that support GWA's long term strategic financial planning targets. The ALJ further expected GWA to continue its cost containment measures. The ALJ noted that while the recommendation made herein is to defer implementation of an affordability program and to defer redesigning GWA's rate structure at this time, the ALJ recognized GWA's concerns related to water affordability for its ratepayers, allowing GWA to ensure that all of its customers can afford these basic services.

The Commission hereby adopts the findings in the May 13, 2022 Findings of Fact and Conclusions of Law for Phase 2 Proceedings and therefore issues the following.

¹⁹⁸ GCG Report, p. 60 (Oct. 22, 2021).

ORDERING PROVISIONS

During this rate proceeding GWA represented that the Government of Guam would provide American Rescue Plan Act funds to GWA in the amount of \$12.4 million. The following provisions assume GWA's receipt of such funds. Accordingly, upon careful consideration of the record herein, and for good cause shown, on motion duly made, seconded and carried by the affirmative vote of the undersigned Commissioners, the Commission hereby ORDERS the following:

1. All rulings and orders of the ALJ in this proceeding are CONFIRMED and RATIFIED. All motions not heretofore granted or denied are hereby DENIED.

2. GWA is authorized to implement the following: Effective October 1, 2022, for FY2023, water and wastewater rates shall be subject to an across-the-board 5.5% increase; Effective October 1, 2023, for FY2024, water and wastewater rates shall be subject to an across-the-board 5.5% increase. There shall be no change in the Lifeline rates for FY2023 and FY2024.

3. GWA is authorized to implement the following rates for the Legislative Surcharge: 3.5% in FY2023; and 3.4% in FY2024.

4. GWA is authorized to modify the Navy's volumetric wastewater rate to align with the approved Government Account volumetric wastewater rate.

5. For its Five Year Financial Plan, GWA is temporarily authorized to utilize a debt service coverage ratio of no less than 1.3x.

6. A True-Up filing for FY2023 is not required.

7. No rate case filing for FY2024 shall be required; however, a True-Up projection for FY2024 shall be provided by June 1, 2023.

8. No rate structure changes to GWA's existing water and wastewater rates are authorized in this proceeding.

9. Regarding capitalized labor, GWA will implement the protocols contained in the March 2021 Capitalized Labor Expense Study filed in response to the January 17, 2020 Stipulation filed in this docket.

10. The Affordability Program ("CAP") as requested by GWA in this proceeding is deferred. GWA shall work to secure a source of local or federal funding for CAP while also securing any needed legislation.

11. GWA shall proceed with the projects and programs identified in its Water Loss study, including implementation of the prescribed DMA program. GWA shall provide the PUC with semi-annual reports using metrics prescribed by the AWWA Water Loss Control Committee, which specifically indicate: (1) Real Loss Reduction (MG) with a comparison of Real Loss Reduction (MG) during the previous twelve months; (2) Real Loss as a percentage of Water Supplied with a comparison of Real Loss as a percentage of Water Supplied during the previous 12 months; (3) Demand Metering Areas that are underway and their status; (4) upcoming Demand Metering Areas that are scheduled; (5) any problems, delays, or other issues affecting the programs and proposed solutions for corrections. For FY2022, this report shall be due within 60 days or by November 30, 2022.

12. GWA shall provide the PUC with an update on the status of obtaining the necessary approvals that would allow GWA to employ commercial paper for prospective capital financing. This update shall be submitted to the PUC by January 1, 2023.

13. GWA shall provide annual information to the PUC, under the guidance of an ALJ, in a format and schedule acceptable regarding all allocations of all grant monies received

and scheduled to be received. The report shall be due within 60 days after the end of each fiscal year.

14. GWA shall provide a report to the PUC, on or before January 1, 2023, detailing the status of the U.S. E.P.A. proceedings and investigations.

15. GWA indicated in this proceeding that \$11.4 million in the Rate Stabilization Fund would be made available through FY2024. GWA shall provide the PUC with a report by July 1, 2023 regarding the proposed uses of such funds.

16. This Commission shall continue to keep this docket open in order to oversee all proceedings and execution of the ordering provisions referenced in this Decision.

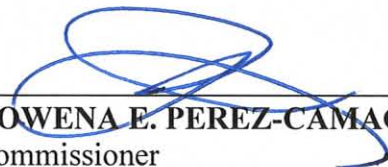
17. GWA is ordered to pay the Commission's regulatory fees and expenses, including, and without limitation, consulting and counsel fees and the fees and expenses of conducting hearings held in these proceedings. Assessment of the PUC's regulatory fees and expenses is authorized pursuant to 12 G.C.A. §§12103(b) and 12125(b), and Rule 40 of the Rules of Practice and Procedure before the Public Utilities Commission.

[SIGNATURES TO FOLLOW ON NEXT PAGE]

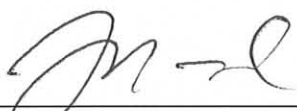
SO ORDERED this 22nd day of September, 2022.



JEFFREY C. JOHNSON
Chairman



ROWENA E. PEREZ-CAMACHO
Commissioner




JOSEPH M. MCDONALD
Commissioner

PEDRO GUERRERO
Commissioner

MICHAEL A. PANGELINAN
Commissioner



PETER MONTINOLA
Commissioner



DORIS FLORES BROOKS
Commissioner

P223046.JRA

RatingsDirect®

Summary:

Guam Waterworks Authority; Water/Sewer

Primary Credit Analyst:

Jenny Poree, San Francisco + 1 (415) 371 5044; jenny.poree@spglobal.com

Secondary Contact:

Chloe S Weil, San Francisco + 1 (415) 371 5026; chloe.weil@spglobal.com

Table Of Contents

Credit Highlights

Outlook

Credit Opinion

Related Research

Summary:

Guam Waterworks Authority; Water/Sewer

Credit Profile

US\$107.225 mil wtr and wastewtr sys rev rfdg bnds ser 2024A due 07/01/2043		
<i>Long Term Rating</i>	A-/Negative	New
US\$51.325 mil wtr and wastewtr sys rev rfdg bnds ser 2024B due 07/01/2035		
<i>Long Term Rating</i>	A-/Negative	New

Credit Highlights

- S&P Global Ratings assigned its 'A-' long-term rating to Guam Waterworks Authority's (GWA) approximately \$158 million series 2024AB water and wastewater system revenue refunding bonds.
- At the same time, S&P Global Ratings affirmed its 'A-' rating on GWA's outstanding bonds.
- The outlook is negative.

Security

The GWA pledge is on net revenue of the system and the revenue base derived solely from user charges, which are collected by, and flow directly to, the authority. There is no financial interplay between GWA and the Government of Guam (GovGuam) save for common fiduciary commitments, such as pension and postemployment obligations. GWA's governing board is independently elected, not appointed, so we do not view it to be a government-related entity. This, coupled with operating expense flexibility, limits GWA's exposure to GovGuam and in our view distinguishes its credit quality from GovGuam or its general obligation rating.

Credit overview

The rating reflects the substantial capital needs of the system, recently narrowing coverage, and management's use of rate stabilization funds (RSF) and American Rescue Plan Act (ARPA) funds for coverage sufficiency. Management implemented several positive operation improvements and continues to invest in the system, which we expect will improve its resiliency and efficiency. However, the remaining near-term capital plan is complex and largely mandated. Management has experience with projects that have unique climate and regulatory sensitivities, which we expect will support execution. Further, balancing necessary asset investments with rate affordability may pressure financial performance in our view. Given the tempered economic recovery and current market position, implementing the rate increases needed to maintain healthy financial performance may be difficult. The current rating assumes management and the Public Utility Commission (PUC) will take the steps necessary to increase rates to meet internal debt service and liquidity targets and replenish RSFs. The negative outlook reflects a one-in-three chance that the rating could be lowered, given the uncertainty around future financial performance.

The rating further reflects our view of the following:

- The territory's strategic value to the U.S. Department of Defense (DOD), which has the potential to stabilize any

volatility associated with the tourist sector as well as management's supportive relationship with the territory's PUC and history of pre-approved rate adjustments;

- Management's commitment to improving system reliability and resiliency;
- GWA's adequate financial profile, including healthy total available reserves and narrow coverage when not accounting for rate stabilization funds; and
- GWA's large and complex capital improvement program (CIP) through 2029, though this risk is somewhat mitigated by management's experience with similar capital projects and recent resolution regarding the pending consent decree.

Environmental, social, and governance

GWA has elevated environmental risk stemming from both exposure to physical risks, such as severe storms, and regulatory pressure associated with compliance mandates. Most recently, Typhoon Mawar struck Guam, primarily affecting electrical control equipment and generators. GWA fully restored water service to all 19 municipalities in just under a month. Joint resiliency and mitigation initiatives are being pursued with the Guam Power Authority, which we view as prudent risk management. GWA has also greatly improved its environmental stewardship. However, there are still opportunities to invest further. GWA recently finalized a consent decree that will primarily address collection system projects within the sewer system. Non-revenue water (NRW) remains high, caused by both distribution and storage leaks as well as meters that need to be replaced. There are several projects designed to further improve these metrics. These, in our view, are relevant to credit quality because corrective measures have the potential to not only influence the size of the long-term CIP but can also affect market position. We view GWA's governance risks as elevated relative to its peers, given its asset challenges and above-average NRW losses. We expect the capital plan to drive the need for future rate adjustments, which could increase social risks related to rate affordability, given the island's below-average income indicators. We view GWA's governance practices as neutral.

Outlook

The negative outlook reflects our view of GWA's narrow debt service coverage, use of one-time revenue to meet the rate covenant, and lack of an approved rate plan.

Downside scenario

Should GWA fail to meet forecasted coverage and replenish reserves, due to a slower than anticipated economic recovery, delayed approval of GWA's anticipated rate package, or unrealized expense reductions, we could lower the rating. If we believe rate-setting flexibility is becoming pressured or is diminished, we could also lower the rating.

Upside scenario

If GWA gets a rate package approved that returns coverage margins to past levels, consistent with projections, and will be sufficient to replenish reserves, we could return the outlook to stable. GWA still faces substantial capital requirements related to further regulatory mandates and the economy has not yet fully recovered from the tourism market's decline that began at the onset of the pandemic. We believe these factors heighten the potential downside risk during the two-year outlook horizon.

Credit Opinion

Enterprise risk

The GWA serves about 44,000 water and 31,000 sewer customers in the western Pacific about 3,800 miles southwest of Honolulu and 1,500 miles southeast of Tokyo. About 30% of the island is used by the U.S. military, including Andersen Air Force Base and Naval Base Guam. Tourist-driven visits are slowly recovering but international travel restrictions have been more enduring, resulting in hotel revenue remaining soft. Fiscal 2023 visitor arrivals through August were 551,876, 192% higher than fiscal 2022, but still below pre-pandemic levels. The military is a substantial stabilizing presence for Guam, with direct and indirect benefits to income and employment levels. The most recent appropriations bill included \$1.7 billion for the buildup on Guam. In addition, it included extending the Pacific Deterrence Initiative (PDI) through fiscal 2023, which included an additional \$11.5 billion in investments to support PDI objectives. In addition, there was an authorized \$1.0 billion to address unfunded military requirements. Median household effective buying income (MHHEBI) for Guam is significantly below the U.S. levels based on the latest available data (from 2019). Unemployment is low, likely due to the area's military activity, which boosts jobs in the construction sector. The authority does not depend on any one of its principal customers for operating revenue, but both the island's employment base and GWA's operating revenue remain exposed collectively to downturns in hotel occupancy and tourism.

Most of the customer base is residential but a significant portion of its revenue are from hotels and the military (just more than 20%). Income levels have improved but the poverty rate remains elevated, and we expect GWA to implement substantial rate increases to support the consent decree, operations, and existing debt service. While current rates are considered relatively affordable, they could pressure those at lower income levels. We expect rate setting to be an ongoing challenge, given GWA's current rates and demographic factors. Adopting adequate rates to maintain all-in sum sufficient coverage with operating revenue will be critical to maintaining the rating.

GWA's operational management assessment reflects the challenges regarding its key assets and risk exposure, as well as the supportive policies and practices management has put in place to improve system compliance and resilience:

- GWA's capital plan is largely mandated and relatively complex in nature. With respect to the water system, nonrevenue water (NRW) is extremely high at more than 60%. Management plans to reduce water loss through leak repairs, pressure zone realignment, and improved monitoring, which we view favorably as reducing water loss will likely also reduce expenditures. These NRW mitigation efforts will compete with regulatory-driven capital needs. As such, we believe NRW will remain elevated in the near-term as management balances its systems needs with rate affordability. With respect to the wastewater system, GWA and the US EPA recently entered into a consent decree, which requires the improvements to the collection system and other operational enhancements during the next 10 years. GWA's largest wastewater treatment plant was recently upgraded to secondary treatment. Recently completed projects and future capital plans are expected to improve reliability and compliance. While labor and supply chain challenges may present obstacles, we believe management has demonstrated the ability to execute these projects and the willingness to request rate increases to associated debt service. In the longer term, we expect per-and polyfluoroalkyl substances (PFAS) exposure and treatment to be a potential risk to the system, especially given several unique treatment and disposal limitations associated with GWA's geography. Climate-resilience projects are also expected to be critical to address sea level rise and physical risks associated with severe storms.

- Other organizational risks include cyber, labor, and elevated exposure to physical risks. Guam has standard cyber practices in place and is bolstering its cyber efforts through procurement of insurance and partnerships with the military and government. While there are some labor challenges, they are not dissimilar to the sector as a whole. Management reports that its senior management contracts are in place and stable.
- After years of uneven results, financial performance has been sound since the creation of the Consolidated Commission on Utilities (CCU), the authority's governing board. The authority also has a strong relationship with the Guam PUC, with several pre-approved rate increases passed since 2013, including 5% increases in 2020 and 2021. The PUC considered the comprehensive review and analytical studies as well as the requested rate increases for fiscals 2022-2024 but given the timing, no rate increase was ordered for fiscal 2022 and consideration of the proposed rate design structure changes was deferred. For 2023, a 5.5% increase was implemented and a 16.7% increase was effective in October 2023, which was less than the 27% initially requested. The next rate plan will be filed in March of 2024 and will be critical to meeting financial performance and credit quality, given GWA's escalating debt service and expectation of a new rate design.

Financial risk

As part of the 2020 rate order, the CCU refined GWA's internal DSC target to 1.40x for each of the two pre-approved rate increases in 2020 and 2021, and 1.50x thereafter. While the internal DSC targets afford GWA a measure of cushion above its 1.25x annual DSC rate covenant, actual coverage in 2022 and 2023 is below sum sufficiency without the use of rate stabilization funds, which is a credit risk. The 2024 forecast projects a lesser reliance on RSFs given the substantial rate increase. Management reports a commitment to restoring its RSFs beginning in 2025. We consider management achieving sum sufficient coverage without the use of reserves important to maintaining the rating.

GWA's established an operating and maintenance working capital reserve equivalent to 120 days' of operating expenses. This is in addition to the 2005 master indenture requirement of an operating reserve equivalent to at least 90 days' of budgeted operating expenses. As of July 2020, both of those designated but lawfully available reserves were funded above the minimum requirements, and combined reach just more than one year of budgeted operating expenses. Our projections assume GWA will draw down its cash to fund capital projects.

The 2025-2029 CIP is expected to be \$750 million-\$900 million and will include consent decree projects as well as projects related to emerging contaminants, such as PFAS, and selected water tank projects. GWA been successful in sharing costs for certain of its current and recently completed projects with the DOD for any influence that troop relocations have on the utility system, although we expect that future projects will be borne solely by GWA. We expect the consent decree will increase the capital plan's cost, but many collection projects associated with the consent decree are already included in the existing plan.

Financial management policies and internal targets lend themselves to predictability, continuity, and transparency toward historical and projected future financial information. GWA produces monthly unaudited financial statements that are available on its website. In addition to periodic updates to its utility system master plan, management also regularly updates its rate model to correlate it with the revenue requirements in its long-term financial plan and uses conservative assumptions when establishing its annual budget.

Related Research

Through The ESG Lens 3.0: The Intersection Of ESG Credit Factors And U.S. Public Finance Credit Factors, March 2, 2022

Ratings Detail (As Of February 2, 2024)		
Guam Waterworks Auth wtr and wastewtr ser 2013 due 07/01/2043		
<i>Unenhanced Rating</i>	A-(SPUR)/Negative	Affirmed
Guam Waterworks Auth wtr/wastewtr (NPPFG)		
<i>Unenhanced Rating</i>	A-(SPUR)/Negative	Affirmed
Guam Waterworks Auth WTRSWR		
<i>Long Term Rating</i>	A-/Negative	Affirmed
Guam Waterworks Auth WTRSWR		
<i>Long Term Rating</i>	A-/Negative	Affirmed
Guam Waterworks Auth WTRSWR		
<i>Long Term Rating</i>	A-/Negative	Affirmed
Guam Wtrwrks Auth wtr and wastewtr rev rfdg bnds		
<i>Long Term Rating</i>	A-/Negative	Affirmed

Many issues are enhanced by bond insurance.

Certain terms used in this report, particularly certain adjectives used to express our view on rating relevant factors, have specific meanings ascribed to them in our criteria, and should therefore be read in conjunction with such criteria. Please see Ratings Criteria at www.spglobal.com/ratings for further information. Complete ratings information is available to RatingsDirect subscribers at www.capitaliq.com. All ratings affected by this rating action can be found on S&P Global Ratings' public website at www.spglobal.com/ratings.

Copyright © 2024 by Standard & Poor's Financial Services LLC. All rights reserved.

No content (including ratings, credit-related analyses and data, valuations, model, software or other application or output therefrom) or any part thereof (Content) may be modified, reverse engineered, reproduced or distributed in any form by any means, or stored in a database or retrieval system, without the prior written permission of Standard & Poor's Financial Services LLC or its affiliates (collectively, S&P). The Content shall not be used for any unlawful or unauthorized purposes. S&P and any third-party providers, as well as their directors, officers, shareholders, employees or agents (collectively S&P Parties) do not guarantee the accuracy, completeness, timeliness or availability of the Content. S&P Parties are not responsible for any errors or omissions (negligent or otherwise), regardless of the cause, for the results obtained from the use of the Content, or for the security or maintenance of any data input by the user. The Content is provided on an "as is" basis. S&P PARTIES DISCLAIM ANY AND ALL EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, FREEDOM FROM BUGS, SOFTWARE ERRORS OR DEFECTS, THAT THE CONTENT'S FUNCTIONING WILL BE UNINTERRUPTED OR THAT THE CONTENT WILL OPERATE WITH ANY SOFTWARE OR HARDWARE CONFIGURATION. In no event shall S&P Parties be liable to any party for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including, without limitation, lost income or lost profits and opportunity costs or losses caused by negligence) in connection with any use of the Content even if advised of the possibility of such damages.

Credit-related and other analyses, including ratings, and statements in the Content are statements of opinion as of the date they are expressed and not statements of fact. S&P's opinions, analyses and rating acknowledgment decisions (described below) are not recommendations to purchase, hold, or sell any securities or to make any investment decisions, and do not address the suitability of any security. S&P assumes no obligation to update the Content following publication in any form or format. The Content should not be relied on and is not a substitute for the skill, judgment and experience of the user, its management, employees, advisors and/or clients when making investment and other business decisions. S&P does not act as a fiduciary or an investment advisor except where registered as such. While S&P has obtained information from sources it believes to be reliable, S&P does not perform an audit and undertakes no duty of due diligence or independent verification of any information it receives. Rating-related publications may be published for a variety of reasons that are not necessarily dependent on action by rating committees, including, but not limited to, the publication of a periodic update on a credit rating and related analyses.

To the extent that regulatory authorities allow a rating agency to acknowledge in one jurisdiction a rating issued in another jurisdiction for certain regulatory purposes, S&P reserves the right to assign, withdraw or suspend such acknowledgment at any time and in its sole discretion. S&P Parties disclaim any duty whatsoever arising out of the assignment, withdrawal or suspension of an acknowledgment as well as any liability for any damage alleged to have been suffered on account thereof.

S&P keeps certain activities of its business units separate from each other in order to preserve the independence and objectivity of their respective activities. As a result, certain business units of S&P may have information that is not available to other S&P business units. S&P has established policies and procedures to maintain the confidentiality of certain non-public information received in connection with each analytical process.

S&P may receive compensation for its ratings and certain analyses, normally from issuers or underwriters of securities or from obligors. S&P reserves the right to disseminate its opinions and analyses. S&P's public ratings and analyses are made available on its Web sites, www.spglobal.com/ratings (free of charge), and www.ratingsdirect.com (subscription), and may be distributed through other means, including via S&P publications and third-party redistributors. Additional information about our ratings fees is available at www.spglobal.com/usratingsfees.

STANDARD & POOR'S, S&P and RATINGSDIRECT are registered trademarks of Standard & Poor's Financial Services LLC.

Rating Action: Moody's assigns Baa2 to Guam Waterworks Authority's Series 2024A&B revenue refunding bonds; outlook stable

02 Feb 2024

New York, February 02, 2024 – Moody's Investors Service has assigned Baa2 ratings to Guam Waterworks Authority's (GWA) planned issuance of \$69.3 million Water and Wastewater System Revenue Refunding Bonds, Series 2024A and \$44.4 million Water and Wastewater System Revenue Refunding Bonds, Series 2024B. GWA had about \$614 million of water and wastewater revenue bonds outstanding at the end of fiscal 2023. The outlook is stable.

RATINGS RATIONALE

The Baa2 rating incorporates the enterprise's adequate financial position and debt service coverage despite lower revenue collections in the years following the pandemic. GWA maintained stable finances through steady rate increases and the use of its rate stabilization fund over the last two years. The rating also incorporates the vulnerability of system finances to volatile energy costs; the need for increased capital spending to meet regulatory requirements; the territory's small and concentrated economy, low resident income levels and very high exposure to physical climate risks, reflected in the authority's E-4 environmental issuer profile score; and the inherent linkages between the authority and the general credit quality of the Government of Guam (Baa3 stable). The bonds benefit from strong legal provisions, including a 1.25 times rate covenant and debt service reserve required to be funded at maximum annual debt service.

RATING OUTLOOK

The stable outlook reflects GWA's strong liquidity position and track record of obtaining approval for and enacting needed rate increases. GWA will continue to be challenged by volatile energy costs and increasing capital needs to meet regulatory requirements, but these challenges are mitigated by strong system management and close coordination with the US Environmental Protection Agency to determine the timing of capital projects.

FACTORS THAT COULD LEAD TO AN UPGRADE OF THE RATINGS

- A trend of strong financial performance coupled with an improvement in the general credit quality of the Government of Guam
- Significant improvement of resident income levels

FACTORS THAT COULD LEAD TO A DOWNGRADE OF THE RATINGS

- Operating deficits leading to lower debt service coverage and liquidity
- New regulatory requirements that significantly increase system capital needs and debt levels
- Deterioration of the general credit quality of the Government of Guam

LEGAL SECURITY

The water and wastewater revenue bonds are payable from gross revenue of the authority's water and wastewater enterprise.

USE OF PROCEEDS

Proceeds of the Series 2024A&B bonds will be used to refund certain outstanding water and wastewater revenue bonds for debt service savings.

PROFILE

The Guam Waterworks Authority provides water and wastewater services to the Territory of Guam. It is a public corporation of the territory organized under territorial statutes.

METHODOLOGY

The principal methodology used in these ratings was US Municipal Utility Revenue Debt Methodology published in April 2022 and available at <https://ratings.moody.com/rmc-documents/386721>. Alternatively, please see the Rating Methodologies page on <https://ratings.moody.com> for a copy of this methodology.

REGULATORY DISCLOSURES

For further specification of Moody's key rating assumptions and sensitivity analysis, see the sections Methodology Assumptions and Sensitivity to Assumptions in the disclosure form. Moody's Rating Symbols and Definitions can be found on <https://ratings.moody.com/rating-definitions>.

For ratings issued on a program, series, category/class of debt or security this announcement provides certain regulatory disclosures in relation to each rating of a subsequently issued bond or note of the same series, category/class of debt, security or pursuant to a program for which the ratings are derived exclusively from existing ratings in accordance with Moody's rating practices. For ratings issued on a support provider, this announcement provides certain regulatory disclosures in relation to the credit rating action on the support provider and in relation to each particular credit rating action for securities that derive their credit ratings from the support provider's credit rating. For provisional ratings, this announcement provides certain regulatory disclosures in relation to the provisional rating assigned, and in relation to a definitive rating that may be assigned subsequent to the final issuance of the debt, in each case where the transaction structure and terms have not changed prior to the assignment of the definitive rating in a manner that would have affected the rating. For further information please see the issuer/deal page for the

respective issuer on <https://ratings.moodys.com>.

The ratings have been disclosed to the rated entity or its designated agent(s) and issued with no amendment resulting from that disclosure.

These ratings are solicited. Please refer to Moody's Policy for Designating and Assigning Unsolicited Credit Ratings available on its website <https://ratings.moodys.com>.

Regulatory disclosures contained in this press release apply to the credit rating and, if applicable, the related rating outlook or rating review.

The Global Scale Credit Rating(s) discussed in this Credit Rating Announcement was(were) issued by one of Moody's affiliates outside the EU and UK and is(are) endorsed for use in the EU and UK in accordance with the EU and UK CRA Regulation.

Please see <https://ratings.moodys.com> for any updates on changes to the lead rating analyst and to the Moody's legal entity that has issued the rating.

Please see the issuer/deal page on <https://ratings.moodys.com> for additional regulatory disclosures for each credit rating.

Pisei Chea

Lead Analyst

State Ratings

Moody's Investors Service, Inc.

Zionsville

JOURNALISTS: 1 212 553 0376

Client Service: 1 212 553 1653

Henrietta Chang

Additional Contact

State Ratings

JOURNALISTS: 1 212 553 0376

Client Service: 1 212 553 1653

Releasing Office:

Moody's Investors Service, Inc.

250 Greenwich Street

New York, NY 10007

U.S.A

JOURNALISTS: 1 212 553 0376

Client Service: 1 212 553 1653

© 2024 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved.

CREDIT RATINGS ISSUED BY MOODY'S CREDIT RATINGS AFFILIATES ARE THEIR CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND MATERIALS, PRODUCTS, SERVICES AND INFORMATION PUBLISHED BY MOODY'S (COLLECTIVELY, "PUBLICATIONS") MAY INCLUDE SUCH CURRENT OPINIONS. MOODY'S DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT OR IMPAIRMENT. SEE APPLICABLE MOODY'S RATING SYMBOLS AND DEFINITIONS PUBLICATION FOR INFORMATION ON THE TYPES OF CONTRACTUAL FINANCIAL OBLIGATIONS ADDRESSED BY MOODY'S CREDIT RATINGS. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS, NON-CREDIT ASSESSMENTS ("ASSESSMENTS"), AND OTHER OPINIONS INCLUDED IN MOODY'S PUBLICATIONS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S PUBLICATIONS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. AND/OR ITS AFFILIATES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS DO NOT COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS, ASSESSMENTS AND OTHER OPINIONS AND PUBLISHES ITS PUBLICATIONS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS, AND PUBLICATIONS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS OR PUBLICATIONS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER.

ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED,

REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS ARE NOT INTENDED FOR USE BY ANY PERSON AS A BENCHMARK AS THAT TERM IS DEFINED FOR REGULATORY PURPOSES AND MUST NOT BE USED IN ANY WAY THAT COULD RESULT IN THEM BEING CONSIDERED BENCHMARK.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the credit rating process or in preparing its Publications.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY CREDIT RATING, ASSESSMENT, OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and

commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any credit rating, agreed to pay to Moody's Investors Service, Inc. for credit ratings opinions and services rendered by it fees ranging from \$1,000 to approximately \$5,000,000. MCO and Moody's Investors Service also maintain policies and procedures to address the independence of Moody's Investors Service credit ratings and credit rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold credit ratings from Moody's Investors Service, Inc. and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at www.moody.com under the heading "Investor Relations — Corporate Governance — Director and Shareholder Affiliation Policy."

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657 AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors.

Additional terms for Japan only: Moody's Japan K.K. ("MJKK") is a wholly-owned credit rating agency subsidiary of Moody's Group Japan G.K., which is wholly-owned by Moody's Overseas Holdings Inc., a wholly-owned subsidiary of MCO. Moody's SF Japan K.K. ("MSFJ") is a wholly-owned credit rating agency subsidiary of MJKK. MSFJ is not a Nationally Recognized Statistical Rating Organization ("NRSRO"). Therefore, credit ratings assigned by MSFJ are Non-NRSRO Credit Ratings. Non-NRSRO Credit Ratings are assigned by an entity that is not a NRSRO and, consequently, the rated obligation will not qualify for certain types of treatment under U.S. laws. MJKK and MSFJ are credit rating agencies registered with the Japan Financial Services Agency and their registration numbers are FSA Commissioner (Ratings) No. 2 and 3 respectively.

MJKK or MSFJ (as applicable) hereby disclose that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by MJKK or MSFJ (as applicable) have, prior to assignment of any credit rating, agreed to pay to MJKK or MSFJ (as applicable) for credit ratings opinions and services rendered by it fees ranging from JPY100,000 to approximately JPY550,000,000.

MJKK and MSFJ also maintain policies and procedures to address Japanese regulatory requirements.

I MINA 'TRENTAI SIETTE NA LIHESLATURAN GUÅHAN
2024 (SECOND) Regular Session

Bill No. _____-37 ()

Introduced by:

AN ACT TO (1) AMEND §14235 TO CHAPTER 14, TITLE 12, TO TITLE 5, GUAM CODE ANNOTATED, RELATIVE TO CREATING A COMMERCIAL PAPER PROGAM FOR THE BENEFIT OF THE GUAM WATERWORKS AUTHORITY, (2) APPROVE THE TERMS AND CONDITIONS OF THE ISSUANCE OF GUAM WATERWORKS AUTHORITY REVENUE BONDS, AND (3) AUTHORIZE GUAM WATERWORKS AUTHORITY TO OBTAIN LOANS FROM TIME TO TIME UNDER THE WATER INFRASTRUCTURE FINANCE AND INNOVATION ACT OF 2014 (WIFIA) PROGRAM, AND RELATED MATTERS

1 **BE IT ENACTED BY THE PEOPLE OF GUAM.**

2 **Section 1. Legislative Findings and Policy.** [to come]

3 **Section 2.** §14235 of Chapter 14, Title 12, Guam Code Annotated is hereby
4 amended and restated as follows:

5 “§14235. Short Term Borrowing; **Commercial Paper Program; Refunding Bonds;**
6 **Revenue Bonds.**

7 (a) Pursuant to the agency of GEDA, the Board may at any time or from time to
8 time, by resolution adopted by a majority of the members of the Board, authorize the
9 Authority to incur indebtedness, including lines-of-credit, with the approval of *I*

1 *Maga'lahi* (the Governor), for any lawful purpose for any period not exceeding ten (10)
2 years evidenced by contract with any person. Any such indebtedness shall be incurred
3 subject and subordinate to any contractual obligation of the Authority to the holders of
4 any bonds or to any lenders who have made loans on a senior basis and the principal
5 thereof and interest thereon may be repaid:

6 (1) from revenues; or

7 (2) if incurred for a purpose for which bonds may be issued,
8 from revenues or from the proceeds of sale of bonds.

9 ~~The total cumulative amount borrowed pursuant to this Section shall not exceed~~
10 ~~Thirty Million Dollars (\$30,000,000.00).~~ Notwithstanding any other provision of law, the
11 indebtedness specified herein shall not be subject to taxation by the government of Guam.

12 (b) Approval of Guam Waterworks Authority Short Term Indebtedness. *I*
13 *Liheslaturan Guåhan*, pursuant to § 50103 of Chapter 50, Title 12, Guam Code
14 Annotated, hereby approves the terms and conditions of short term debt to be issued by
15 the Guam Waterworks Authority (GWA) pursuant to § 14235, Article 2, Chapter 14, Title
16 12, Guam Code Annotated, in one (1) or more series or issues (together with any related
17 reimbursement obligations); provided that the issuance, terms and conditions of the debt,
18 the indenture or loan agreement pursuant to which the bonds are to be issued, and any
19 reimbursement agreement shall have been approved by the Guam Public Utilities
20 Commission, and further provided that such debt may be issued in the principal amount
21 necessary to fund GWA's required operating account and operating reserve account
22 balances, to pay past due operating expenses incurred by GWA, to provide interim
23 financing for a portion of the costs of the moratorium project as defined in § 14241(g),
24 Article 2, Chapter 14, Title 12, Guam Code Annotated, and to pay expenses incurred in
25 connection with the issuance of such debt not already included in an existing

1 appropriation for or in the regular budget of any government agency or instrumentality
2 or public corporation providing any service in connection with the issuance of such
3 bonds, but not to exceed an aggregate principal amount of Thirty Million Dollars
4 (\$30,000,000). Such debt shall have a final maturity not later than ten (10) years after its
5 date of issuance, shall bear interest at such rate or rates and be sold for such price or prices
6 as may be approved by the Guam Public Utilities Commission, and shall have such other
7 terms and conditions as are consistent with the requirements and limitations provided in
8 said § 14235.

9 **(c) Approval of Guam Waterworks Authority Commercial Paper Program. I**
10 **Liheslaturan Guåhan, pursuant to § 50103 of Chapter 50, Title 12, Guam Code**
11 **Annotated, hereby approves the terms and conditions of a borrower or financing**
12 **program referred to as commercial paper CP to be issued by GWA pursuant to §**
13 **14235(a), Article 2, Chapter 14, Title 12, Guam Code Annotated. From time to time**
14 **the CP may be issued in one (1) or more series or issues (together with any related**
15 **reimbursement obligations); provided that the issuance, terms and conditions of the**
16 **CP, the indenture, trust agreement and/or issuing and paying agent agreement**
17 **pursuant to which the CP is to be issued, and any reimbursement agreement, dealer**
18 **agreement and/or issuing and paying agreement shall have been approved by the**
19 **Guam Public Utilities Commission and the Guam Consolidated Commission on**
20 **Utilities, and further provided that such CP may be issued in the principal amount**
21 **from time to time necessary to provide interim financing for projects identified in**
22 **GWA's Capital Improvement Program, to fund GWA's required operating account**
23 **and operating reserve account balances, to pay operating expenses incurred by**
24 **GWA, and to pay expenses incurred in connection with the issuance of such CP but**
25 **not to exceed an aggregate principal amount of outstanding at any time of Three**

1 **Hundred Million Dollars (\$300,000,000.00). Such CP shall have a final maturity not**
2 **later than 270 days after its date of issuance, shall bear interest at such rate or rates**
3 **and be sold for such price or prices in such parameters as may be approved by the**
4 **Guam Public Utilities Commission and the Guam Consolidated Commission on**
5 **Utilities, and shall have such other terms and conditions as are consistent with the**
6 **requirements and limitations provided in said § 14235; provided, however, that**
7 **principal of and interest on CP may be paid with “rolling” CP from time to time.**

8 **(d) Approval of Guam Waterworks Authority Refunding Bonds to Refinance**
9 **Commercial Paper. *I Liheslaturan Guåhan*, pursuant to § 50103 of Chapter 50, Title**
10 **12, Guam Code Annotated, hereby approves the issuance and sale GWA of fixed**
11 **rate revenue bonds in one or more series or issues from time to time to refinance**
12 **outstanding CP issued pursuant to Section 14235(c) of Article 2, Chapter 14, Title**
13 **12, Guam Code Annotated; provided that the issuance, terms and conditions of the**
14 **refinancing bonds shall have been approved by the Guam Public Utilities**
15 **Commission and the Guam Consolidated Commission on Utilities, and that the sale**
16 **of the bonds shall be approved by the Board of Directors of GEDA; and further**
17 **provided that such refinancing bonds shall have a principal amount sufficient to**
18 **provide funds for the payment of all CP to be refinanced thereby (the “prior CP”)**
19 **and in addition for the payment of all expenses incident to the calling, retiring or**
20 **paying of such prior CP and the issuance of such refinancing bonds, including:**

21 **(i) the difference in amount between the par value of the refinancing**
22 **bonds and any amount less than par for which the refinancing bonds are sold;**

23 **(ii) any amount necessary to be made available for the payment of**
24 **interest upon such refinancing bonds from the date of sale thereof to the date**

1 **of payment of the prior CP or to the date upon which the prior CP will be paid**
2 **pursuant to the call thereof or agreement with the holders thereof;**

3 **(iii) the premium, if any, necessary to be paid in order to call or retire**
4 **the prior CP and the interest accruing thereon to the date of the call or**
5 **retirement; and**

6 **(iv) any additional amount needed to provide for a deposit to the debt**
7 **service reserve in connection with the issuance of the refinancing bonds;**

8 **and further provided that such refinancing bonds shall be issued in compliance with**
9 **the provisions of Chapter 14 of Title 12 of the Guam Code Annotated, and further**
10 **provided that all obligation of the Authority to pay debt service on, and the**
11 **redemption price of, the prior CP shall be discharged concurrently with the issuance**
12 **of the refinancing bonds.**

13 **Section 3. Approval of Guam Waterworks Authority Revenue Bonds.**

14 (a) The Guam Legislature, *I Liheslaturan Guåhan*, pursuant to Section 50103
15 of Title 12 of the Guam Code Annotated, hereby approves the issuance and sale by the
16 Authority of revenue bonds pursuant to Article 2, Chapter 14, Title 12, Guam Code
17 Annotated (the “Act”) in one or more series or issues, from time to time, issued privately
18 or through the public capital markets; provided that the issuance, terms and conditions of
19 the bonds shall have been approved by the Guam Public Utilities Commission, and further
20 provided that such bonds shall have a principal amount not to exceed Seven Hundred
21 Eighty Million Dollars (\$780,000,000.00), shall have maturity dates not to exceed [forty
22 (40)] years from the respective issuance dates thereof, shall bear interest at such rate or
23 rates and shall be sold for such price or prices as shall result in a net yield to the
24 bondholders not exceeding ten percent ([10.00]%) per annum for fixed rate bonds sold
25 through the public capital markets, and shall be issued and sold in the manner, for the

1 purposes and subject to the requirements and limitations provided in Article 2, Chapter
2 14, Title 12, Guam Code Annotated. In order to be able to take advantage of any current
3 or future federally subsidized bond program, net yield to the bondholders shall be
4 calculated by subtracting any interest subsidy amounts to be received from the United
5 States in connection with such bonds from the amount of interest to be paid to
6 bondholders. In addition, such bonds shall be issued for the purpose of [(1) financing
7 capital improvement projects necessary for compliance with regulatory enforcement
8 actions, including any Consent Decree entered into between the Authority and the U.S.
9 Environmental Protection Agency and U.S. Department of Justice; (2) financing capital
10 improvement projects referenced in the Authority's 20-year master plan, 5-year Financial
11 Plan and capital improvement program or other studies contemplating additional capital
12 improvement projects from time to time], (3) financing capitalized interest with respect
13 to the bonds, (4) funding a reserve fund deposit with respect to the bonds, and/or (5)
14 paying expenses relating to the authorization, sale and issuance of such new bonds,
15 including without limitation, printing costs, costs of reproducing documents, credit
16 enhancement fees, underwriting, legal, feasibility, financial advisory and accounting fees
17 and charges, fees paid to banks or other financial institutions providing credit
18 enhancement, costs of credit ratings and other costs, charges and fees in connection with
19 the issuance, sale and delivery of the bonds.

20 (b) The Guam Legislature, *I Liheslaturan Guåhan*, pursuant to Section 50103
21 of Title 12 of the Guam Code Annotated, hereby approves the issuance and sale by Guam
22 Waterworks Authority of fixed rate revenue bonds in one or more series or issues to
23 refinance the outstanding revenue bonds of the Authority pursuant to Section 14226 of
24 Article 2, Chapter 14, Title 12, Guam Code Annotated, and Section (a) above; provided
25 that the issuance, terms and conditions of the refinancing bonds shall have been approved

1 by the Guam Public Utilities Commission and the Guam Consolidated Commission on
2 Utilities, and that the sale of the bonds shall be approved by the Board of Directors of
3 GEDA; and further provided that such refinancing bonds shall have a principal amount
4 sufficient to provide funds for the payment of all bonds to be refinanced thereby (the
5 “prior bonds”) and in addition for the payment of all expenses incident to the calling,
6 retiring or paying of such prior bonds and the issuance of such refinancing bonds,
7 including:

8 (i) the difference in amount between the par value of the refinancing
9 bonds and any amount less than par for which the refinancing bonds are sold;

10 (ii) any amount necessary to be made available for the payment of interest
11 upon such refinancing bonds from the date of sale thereof to the date of payment
12 of the prior bonds or to the date upon which the prior bonds will be paid pursuant
13 to the call thereof or agreement with the holders thereof;

14 (iii) the premium, if any, necessary to be paid in order to call or retire the
15 prior bonds and the interest accruing thereon to the date of the call or retirement;
16 and

17 (iv) any additional amount needed to provide for a deposit to the debt
18 service reserve in connection with the issuance of the refinancing bonds;

19 and further provided that such refinancing bonds shall have a final maturity not later than
20 the final maturity of the prior bonds, that such refinancing bonds shall be issued and sold
21 pursuant to the Authority’s existing bond indenture and in compliance with the provisions
22 of Chapter 14 of Title 12 of the Guam Code Annotated, and that (1) the present value of
23 debt service on the refinancing bonds shall be at least two percent (2%) less than the
24 present value of debt service on the bonds being refinanced, using the yield on the
25 refinancing bonds as the discount rate; and/or (2) the refunding or the prior bonds is

1 undertaken for restructuring purposes, including to provide cash flow relief; and further
2 provided that all obligation of the Authority to pay debt service on, and the redemption
3 price of, the prior bonds shall be discharged concurrently with the issuance of the
4 refinancing bonds, and thereafter, the prior bonds shall be payable solely from and
5 secured solely by an escrow established for such purpose in accordance with the
6 Authority's existing bond indenture.

7 (c) The Authority shall undertake its best efforts to cause a portion of any bonds
8 issued referenced above, to be offered for sale in Guam, as well as in other jurisdictions,
9 if and to the extent that such offer and any sales resulting from such offer do not increase
10 the cost to the Authority of issuing and repaying such bonds.

11 **Section 4. Approval of Guam Waterworks Authority WIFIA Loans.**

12 (a) *I Liheslaturan Guåhan*, pursuant to § 50103 of Chapter 50, Title 12, Guam
13 Code Annotated, hereby authorizes the Guam Waterworks Authority (GWA) to obtain
14 financial assistance from the United States Environmental Protection Agency, an agency
15 of the United States of America, acting by and through the Administrator of the
16 Environmental Protection Agency, with an address at 1200 Pennsylvania Avenue NW,
17 Washington, DC 20460 (the "WIFIA Credit Provider"), under the Water Infrastructure
18 Finance and Innovation Act, as amended by Section 1445 of the Fixing America's Surface
19 Transportation Act of 2015, as further amended by Section 5008 of the Water
20 Infrastructure Improvements For the Nation Act of 2016 and by Section 4201 of
21 America's Water Infrastructure Act of 2018 (collectively, as the same may be amended
22 from time to time, the "WIFIA Act"), which is codified as 33 U.S.C. §§ 3901-3914, in
23 one (1) or more series or issues of loans; provided that the issuance, terms and conditions
24 of the debt, the indenture or loan agreement (in either event, a "WIFIA Credit
25 Agreement") pursuant to which the loans are to be issued, and any shall have been

1 approved by the Guam Public Utilities Commission, and further provided that such loans
2 may be obtained in the principal amount necessary to fund any eligible GWA project
3 costs under the WIFIA Act including, but not limited to, financing capital improvement
4 projects referenced in GWA's master plan or other studies contemplating additional
5 capital improvement projects from time to time, but not to exceed an aggregate principal
6 amount of [Four Hundred Million] Dollars (\$[400,000,000]). Such loans shall each have
7 a final maturity not later than [thirty-five (35)] years after the first draw date applicable
8 to such loan or loans, shall bear interest at such rate or rates and be sold for such price or
9 prices as may be approved by the Guam Public Utilities Commission. In addition, any
10 such indebtedness may be incurred subject and subordinate or parity to any contractual
11 obligation of the Authority to the holders of any bonds and the principal thereof and
12 interest thereon may be repaid:

13 (1) from revenues; or

14 (2) if incurred for a purpose for which bonds may be issued, from revenues or from
15 the proceeds of sale of bonds, but may be on a parity with other subordinate obligations.

16 (b) *I Liheslaturan Guåhan*, pursuant to § 50103 of Chapter 50, Title 12, Guam
17 Code Annotated, hereby authorizes GWA to issue bond anticipation notes to be issued in
18 anticipation of the issuance of the loans referenced in Section (a) hereof and of the receipt
19 of the proceeds of issuance thereof, for the purposes for which such loans have been
20 authorized. The maximum principal amount of the notes shall not exceed an aggregate
21 principal amount of Seven Hundred Eighty Million] Dollars (\$780,000,000]) and,
22 provided that the issuance, terms and conditions of the bond anticipation notes shall have
23 been approved by the Guam Public Utilities Commission and the Guam Consolidated
24 Commission on Utilities, and that the sale of the bonds shall be approved by the Board of
25 Directors of GEDA. The authorization, issuance, and details of the notes shall be

1 governed by this chapter with respect to bonds insofar as the same may be applicable,
2 provided that:

3 (1) Each note, together with all renewals and extensions thereof, or
4 refundings thereof by other notes issued under this section, shall mature within
5 [five] years from the date of the original note; and

6 (2) Each note shall be secured proceeds from draws from the loan or loans
7 referenced in Section (a) hereof.

8 **Section 5. Severability.** If any provision of this Act or its application to any person
9 or circumstance is found to be invalid or contrary to law, such invalidity *shall* not affect
10 other provision or applications of this Act which can be given effect without the invalid
11 provisions or application, and to this end the provision of this Act are severable.”

12 **Section 6. Enactment.** This act *shall* become effective upon enactment.

THERESA G. ROJAS, ESQ.
Legal Counsel
Guam Waterworks Authority
Gloria B. Nelson Public Service Building
688 Route 15, Suite 304
Mangilao, Guam 96913
Telephone No: (671) 300-6848
Email: tgrojas@guamwaterworks.org

BEFORE THE GUAM PUBLIC UTILITIES COMMISSION

IN THE MATTER OF:

) GWA DOCKET NO. 24-05

**GUAM WATERWORKS AUTHORITY'S
FY 2025 – 2029 RATE APPLICATION
AND COMPREHENSIVE FINANCIAL
PLAN**

) **TESTIMONY OF JEANET BABAUTA
OWENS, P.E., ASSISTANT GENERAL
MANAGER OF ENGINEERING IN
SUPPORT OF GWA'S FY 2025 – 2029
FIVE-YEAR FINANCIAL PLAN AND
RATE INCREASE REQUEST**

TABLE OF CONTENTS

INTRODUCTION AND BACKGROUND..... 2

PURPOSE OF TESTIMONY 3

PROPOSED FIVE-YEAR CAPITAL IMPROVEMENT PROGRAM 3

CIP ACCOMPLISHMENTS TO DATE 10

1 INTRODUCTION AND BACKGROUND

2 **Q1. *Please state your name, occupation, and business address.***

3 A1. My name is Jeanet Babauta Owens. I am a registered Civil Engineer for the State of
4 California and currently working on a Comity License under the Guam Board of
5 Registration for Professional Engineers, Architects and Land Surveyors. I am the
6 Assistant General Manager of Engineering for the Guam Waterworks Authority located
7 at the Gloria B. Nelson Public Service Building, Route 15, Fadian, Mangilao, Guam
8 96913.

9
10 EDUCATION AND PROFESSIONAL HISTORY

11 **Q2. *Please describe your educational and professional history.***

12 A2. I have a Bachelor’s Degree and a Master’s Degree in Civil Engineering from California
13 State University, Los Angeles, with emphasis in Hydraulics, Water Resources, and
14 Geotechnical Engineering. I have a Construction Management Certification from the
15 University of California, Los Angeles Extension program. I am a Leadership in Energy
16 and Environmental Design (LEED) Accredited Professional from the United States Green
17 Building Council. I am a member of the American Society of Civil Engineers and the
18 American Water Works Association. I served as an Advisor for the Engineering
19 Leadership Certificate Program at the University of California, Santa Barbara. I am
20 serving in the University of Guam School of Engineering Advisory Council.

21
22 I have over 26 years of experience in both public and private sectors in all facets of Civil
23 Engineering from Environmental, Hydraulics, Water Conservation, Water Resources,
24 Geotechnical Engineering, and Transportation and Structural Engineering, and in all
25 phases of capital improvement projects from planning, environmental review, design, and
26 construction using a variety of project delivery methods. My experience includes
27 engineering and project/program management for private environmental, construction and
28 property development firms, and multiple positions in infrastructure and water resources

1 in the County of Los Angeles working closely with other cities, counties, state and federal
2 government agencies.

3
4 PURPOSE OF TESTIMONY

5 **Q3. *What is the purpose of your testimony in this proceeding?***

6 A3. I am testifying in support of the Guam Waterworks Authority’s petition for approval of
7 its proposed Five-Year Financial Plan and Capital Improvement Program for FY2025 –
8 FY2029 and will testify as to the development and contents of the Five-Year Capital
9 Improvement Program.

10
11 PROPOSED FIVE-YEAR CAPITAL IMPROVEMENT PROGRAM

12 **Q4. *Briefly describe the process used to develop the five-year Capital Improvement***
13 ***Program.***

14 A4. The five-year capital improvement plan development is rooted in the capital improvement
15 program outlined in the GWA 2018 Water Resources Master Plan Update (WRMPU)¹ as
16 adopted by the CCU. See (JBO Exhibit 1). The 2018 WRMPU was a comprehensive
17 evaluation of the GWA water and sewer systems and operational aspects that has been the
18 guiding document to make improvements to the GWA systems and to GWA’s functional
19 objectives. The 2018 WRMPU recommended necessary water, wastewater, and general
20 projects and presented a 20-year capital improvement program (CIP) with project scoring
21 and prioritization. It also laid out a 20-year funding plan beginning in 2018 and projected
22 needed funding to achieve CIP execution as described through a balance of revenue and
23 debt-financing. Additionally, the 2018 WRMP called for regular progress reviews (3-
24 years) and updates (5-years) of the WRMP on a going-forward basis. GWA commissioned
25 a 5-year review and update to the WRMP for 2023. This Interim WRMP Update will be
26 published in 2024, and is currently in the final stages of development, but the capital plan
27 update was integral to the development of the 5-year CIP in this petition.

28

¹ 2018 Water Resources Master Plan Update, Vol. 1, Section 11

1 **Q5. *What projects are included in the 5-year CIP?***

2 A5. The projects listed in the 5-year capital improvement program are unfunded projects
3 contained in the 2018 WRMPU, new projects identified to address deficiencies based on
4 updated evaluations of the sewer system and water system; new projects needed to meet
5 new regulations, such as drinking water regulations for emerging contaminants; and re-
6 prioritized projects and new projects as required by the Consent Decree negotiated
7 between and accepted by GWA and EPA/US Department of Justice (DOJ)². See (JBO
8 Exhibit 2).

9 The 5-year capital improvement program does not include all the CIP projects from the
10 2018 WRMPU; it was developed to include a reasonable, achievable, and affordable set
11 of projects that are essential to the continued safe and reliable operation of GWA systems
12 and delivery of safe, regulatory compliant, community water and sewer services with the
13 “GWA mission” in mind. The 5-year capital improvement program includes all the
14 Consent Decree projects mandated to be accomplished in this 5-year period, the projects
15 necessary to meet mandatory regulations, and the most critical projects to protect GWA
16 water sources and upgrade system components.

17 The 5-year capital improvement program includes some projects that were initially
18 planned to be funded prior to 2024 but were not due to funding limitations, shifting project
19 fund allocation necessitated by high construction costs, and delays forced by COVID
20 ramifications.

21
22
23 **Q6. *What are the proposed improvements in the five-year Capital Improvement Program?***

24 A6. The proposed Five-Year CIP is derived from both the 2018 Water Resources Master Plan
25 and the 2024 Interim Water Resources Master Plan Update³. See (JBO Exhibit 3). It
26 encompasses priority capital improvement projects mandated by the new 2024 Partial
27 Consent Decree, as well as water treatment initiatives aimed at addressing the EPA’s
28

² Consent Decree Calendar, Final Negotiated Version 2023-09-14

³ Draft 2024 Interim Water Resources Master Plan Update CIP List

proposed (and anticipated final) limits on emerging contaminant concerns for PFAS as well impending Guam EPA regulations for Dieldrin. Additionally, it includes supplementary projects for water storage tanks and sewer systems, as identified through the water and wastewater system model update. GWA is poised to embark on an ambitious CIP to address system renovation and upgrade requirements. Over the next five (5) years, the program is anticipated to incur substantial capital investments, primarily driven by the simultaneous completion of court-ordered projects, required Partial Consent Decree initiatives, and those projects essential for supporting the military buildup and reducing water loss.

GWA’s Capital Improvement Program is organized in four (4) key areas:

Capital Improvement Program Component	Total Costs	Percentage
Water Projects	\$433,680,480	48.26%
<i>Water Production</i>	\$ 102,754,617	11.43%
<i>Water Treatment</i>	\$101,884,505	11.34%
<i>Water Distribution</i>	\$203,109,517	22.60%
<i>Water Storage</i>	\$ 25,931,842	2.89%
Wastewater Projects	\$330,461,683	36.77%
<i>Wastewater Collection</i>	\$268,380,943	29.86%
<i>Wastewater Treatment</i>	\$62,080,740	6.91%
Electrical, Monitoring, Control Projects	\$36,437,196	4.05%
General Plant & Miscellaneous Projects	\$ 98,154,030	10.92%
Total CIP	\$ 898,733,389	100.0%

1) **Water Projects** estimated at \$433,680,480 primarily consist of the following improvements:

- UGUM Surface Water Treatment Plant to increase water production, storage, and resiliency
- Rehabilitation and repair of existing wells and installation of new wells
- Expansion of Santa Rita Springs impoundment to reduce reliance on Navy water

- 1 ▪ Treatment of water for PFAS and Emerging Contaminants per proposed federal/**local**
- 2 regulations
- 3 ▪ Replacement of undersized water pipes, asbestos-containing water pipes, and other
- 4 general water pipe replacement
- 5 ▪ Rehabilitation of booster pumps and valve stations in the distribution system to
- 6 improve pressure zone realignment and facilitate implementation of district metering
- 7 ▪ Replacement of up to 100 fire hydrants
- 8 ▪ Installation and maintenance of the Supervisory Control and Data Acquisition
- 9 (SCADA) system for water operations

10 2) **Wastewater Projects** estimated at \$ 330,461,683 focus on meeting the requirements of

11 the 2024 Partial Consent Decree:

- 12 ▪ Repair of gravity mains and replacement of up to thirty unique miles of pipe
- 13 ▪ Upsizing of pipes to accommodate peak flows for sewer capacity assurance
- 14 ▪ Assessment and analysis of force mains and gravity sewer capacity
- 15 ▪ Rehabilitation or replacement of prioritized force mains
- 16 ▪ Rehabilitation of prioritized lift stations including Ypao, Hagatna Main, and
- 17 Mamajanao
- 18 ▪ Repair, rehabilitation, or replacement of thirty-two (32) sewer pump stations
- 19 ▪ Installation and maintenance of the Supervisory Control and Data Acquisition
- 20 (SCADA) system for wastewater operations
- 21 ▪ Improvements to wastewater treatment plants including major equipment replacement
- 22 and other needed improvements

23

24 3) **Electrical, Monitoring and Control Projects** estimated at \$36,437,196 are based on

25 continued SCADA implementation:

- 26 ▪ Repair or replacement of control instrumentation as needed at all sites and plants
- 27 ▪ Specialized SCADA workforce development and training
- 28 ▪ Standardization of programming language, equipment, and wiring
- Utilization of the GPA fiber network, data leased lines, and GPA wireless network

- Implementation of additional physical and cyber-security measures

4) **General Plant & Miscellaneous Projects** estimated at \$98,154,030 include but may not be limited to the following:

- Replacement of GWA’s vehicle maintenance facility
- General capital repairs and upgrades (non-process) to its main water and wastewater systems facilities
- Improvements to the Upper Tumon Customer Campus, including the Customer Service building warehouse complex, Meter Test Facility, and Laboratory
- Enhancement of GWA’s Geographic Information System
- Enhancement/upgrades to engineering and planning systems such as Hydraulic water and wastewater modeling, project control, and project management systems
- Replacement of mobile equipment (heavy and light fleet)
- General Plant improvements,
- Implementation of Master Meter systems

Q7. *Why are these CIP improvements necessary?*

A7. The projects proposed in the capital improvement program are important and necessary to provide regular asset capital replacement and/or repair, and to address deficiencies identified from evaluations of the water system and sewer system to deliver reliable and safe drinking water and wastewater disposal, as documented and justified in the 2018 WRMP and 2024 Interim WRMP. In some cases, CIP projects are also necessary to meet new regulations (such as PFAS removal) and to comply with the terms of the new Partial Consent Decree. Without achieving these improvement projects, GWA will violate the terms of the Partial Consent Decree, face additional regulatory enforcement action, and fail to sustain Guam’s community water supply, storage, and distribution system, and Guam’s community sewer collection, transmission, treatment, and disposal systems.

1 In addition, these capital improvement projects are necessary to achieve level of service
2 goals and regulatory compliance and to address aging water system facilities that have
3 reached or surpassed their useful lives. Regulatory compliance is not discretionary and is
4 required under local and federal laws.

5 Approximately 25 percent (\$230,570,964) of the CIP is required to meet regulatory
6 compliance for emerging contaminants (i.e. PFAS, Dieldrin, etc.) with water production
7 and treatment required under the Safe Drinking Water Act (SDWA), and water storage
8 requirements for compliance with the 2011 Court Order⁴. See (JBO Exhibit 4).
9 Approximately 24 percent (\$211,402,973) is dedicated to reducing water loss with
10 prioritized replacements of aging water lines and booster pumps, district meter areas, leak
11 detection and the realignment of the pressure zones in the water system as required under
12 prior PUC (regulatory) Orders.

13
14 Regular capital maintenance and Asset Management make up approximately 12 percent
15 (\$106,776,549) of the requirements of both the 2011 Court Order and the 2024 Partial
16 Consent Decree. The General Plant Improvement required to maintain system facilities
17 for operation and maintenance in good working order includes major equipment
18 replacements and fleet replacements to maintain good utility management practices.
19 Capital improvements and capital maintenance projects are essential to protecting
20 employee safety, public safety, and overall environmental health and safety.

21
22 **Q8. *Does the Capital Improvement Program take into consideration the current U.S.***
23 ***District Court order and Partial Consent Decree and future regulatory priorities?***

24 **A8.** Yes. The current 5-year capital improvement program considers and actually prioritizes
25 the current U.S. District Court Order and Partial Consent Decree terms and conditions as
26 well as future regulatory priorities on emerging contaminants such as PFAS and dieldrin.
27
28

⁴ 2011 U.S. District Court Order in Civil Case No. 02-00035

1 Specifically, CIP projects required to meet 2024 Partial Consent Decree⁵ consist of the
2 following: See (JBO Exhibit 5).

- 3 • Wastewater collection system such as gravity main repair and replacement
4 program of up to thirty unique miles
- 5 • Sewer capacity assurance projects such as upsizing of pipe to accommodate peak
6 wet weather flows
- 7 • Force main assessment and sewer capacity analysis to prioritize the list of
8 rehabilitation and replacement of Force Mains
- 9 • Pump station rehabilitation for priority lift station projects such as Ypao, Hagatna
10 Main and Mamajanao
- 11 • Installation, retrofit, or replacement of Tier 1 pump stations and 50 percent of Tier
12 2 sewer pump stations
- 13 • Installation and maintenance of the supervisory control and data acquisition
14 (SCADA) system for the operation of water and wastewater systems
- 15 • Improvements to wastewater treatment plants
- 16 • Evaluation of alternatives by conducting an engineering study for upgrading or
17 relocating the Hagatna Wastewater Treatment plant

18
19 **Q9. *Does the Capital Improvement Program take into consideration the capital***
20 ***improvements recommended in any of the prior analytical studies under the***
21 ***comprehensive review & update in GWA docket 19-08?***

22 **A9.** Yes. The proposed Five-Year CIP considers the Septic Tank/Cesspool Elimination
23 Analytical Study dated May 2021 by dedicating approximately 6.5% or \$58,299,747 to
24 Septic/Cesspool System Reduction. Additionally, approximately 24 percent or
25 \$211,402,973 directly incorporates the recommendations of the Water Loss Control
26 Analytical Study which comprises capital improvement projects for District Metered Area
27 (DMA), Pressure Zone Realignment (PZR), direct proactive leak detection control
28

⁵ Partial Consent Decree filed in U.S. District Court in Civil No. 04-00004

1 measures and water line replacements required to reduce losses and complete the
2 remaining 15 of 36 DMAs that cover 594 miles of water mains island wide.

3
4 CIP ACCOMPLISHMENTS TO DATE

5 **Q10. What are GWA's accomplishments to date? Please describe ongoing projects.**

6 A10. Since the 2018 Water Resources Master Plan, GWA made noteworthy progress with
7 major accomplishments listed below:

- 8 • The construction and commissioning of the new Agat-Santa Rita wastewater treatment
9 plant.
- 10 • The construction and commissioning of the rehabilitated Umatac-Merizo wastewater
11 treatment plant.
- 12 • The construction of the Rt. 3 Sewer Interceptor rehabilitation project.
- 13 • The design and construction of the Northern District Wastewater Treatment Plant
14 (NDWWTP).
- 15 • The design and construction of the outfall for the NDWWTP.
- 16 • The construction of sixteen new water storage tanks.
- 17 • The rehabilitation of wells D-3, D,17, D-18, and D-22.
- 18 • The design for rehabilitation of wells A-2, A-7, A-12, D-5, and F-3.
- 19 • The construction of the Cross-Island Highway pipeline and Baza Gardens Sewer Pump
20 Station project to eliminate the wastewater discharge from the Baza Gardens Wastewater
21 Treatment Plant.
- 22 • The de-commissioning and abandonment of the Baza Gardens WWTP.
- 23 • The rehabilitation of a major sewer main on Rt. 4 in Hagatna.
- 24 • The rehabilitation of the sewer main on Macheche Road.
- 25 • The rehabilitation of a major sewer main on Rt. 1 from Asan to Adelup
- 26 • The design and construction for the sewer rehabilitation on Rt. 1 from Adelup to Hagatna.
- 27 • The construction of the replacement sewer main on Rt. 2 in Agat.
- 28 • The development of a Source Control Manual and proposed legislative amendments to
approve and execute an effective source control program.

- 1 • The development of a Backflow Prevention/Cross Connection Control program and
- 2 manual.
- 3 • The study of the Tumon Basin Sewer system.
- 4 • Replacement of 72 fire hydrants out of 410.

5 For ongoing and current projects, GWA continues to work to improve water loss
6 prevention, water supply reliability, source water protection, and utility-wide standards to
7 address growth due to economic development, tourism, and the pending military buildup.
8 In addition, GWA consistently addresses deteriorating infrastructure and emergency
9 preparedness for natural disasters. The current water projects include all the remaining
10 2011 Court Order projects such as Astumbo Tank No. 1, Kaiser Tank No.1 Improvement,
11 Manenggon Hills Tank No.2, Tamuning Tank No.2, UGUM No. 2, Pigua Merizo Tank,
12 Nimitz Hill Upper and Lower Tanks, Umatac Tank, and Malojloj tank.

13 The ongoing work also includes water loss measures such as the initial design of water
14 line replacement for undersize pipes, asbestos cement pipes, and general pipe
15 replacements and the construction of Pressure Zone Realignment Phase II. The overall
16 design and construction of the water loss projects are in the proposed Five-Year CIP.

17
18 The current water treatment projects are Granular Activated Carbon (GAC) system for
19 deep wells A-23 and A-25 to treat PFAS as well as the GAC system for deep wells D-17,
20 Y-15, and M-4 to treat Dieldrin. With the exception of these two CIPs, all of the water
21 treatment projects are listed in the proposed Five-Year CIP.

22 For Wastewater projects, we have initiated the design of a handful of 2024 Consent Decree
23 projects such as Hagatna Main sewer pump station and force main, design of Fujita sewer
24 pump station and force main, design of the Dungca Beach sewer, and design of Tumon
25 Hot Spots and Tamuning Hot Spots additives. All these projects require the proposed
26 Five-Year Plan to advance the work to construction. In addition, GWA is currently
27 working on Adacao Sewer and Water Improvements and Gilbreeze Sewer and Water
28 Improvements to reduce Septic/Cesspool Systems.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

Q11. Does this conclude your testimony?

A11. Yes.

I, Jeanet Babauta Owens, do hereby state and aver under penalty of perjury that the Written Testimony above in Support of the Requests for Approvals of the Guam Waterworks Authority Five-Year Financial Plan, Rate Increase Requests, and Capital Improvement Program for FY2025 – FY2029 submitted herewith is both truthful and accurate to the best of my knowledge.

Respectfully Submitted this 8th day of March 2024.



JEANET BABAUTA OWENS, P.E.
Assistant General Manager, Engineering

Section 11

Overall Capital Improvements Summary

Capital improvement projects are necessary for any utility to maintain systems in operational condition as the infrastructure ages and as expansion is required to service developing areas. Improvements can also be driven by a utility's desire and customer expectations for improved or additional services and to comply with current and prospective regulatory requirements.

Potential capital improvement projects were developed for GWA's general organizational requirements in WRMPU Volume 1, for the water system in Volume 2, and for the wastewater system in Volume 3. General projects include planned upgrades and expansions to GWA facilities such as:

- new fleet maintenance facility
- warehouse improvements
- purchase of unique vehicles required for GWA operations
- upgrades to computer systems and related software for systems such as hydraulic modeling software and asset management systems

Water system projects include:

- new pipelines
- replacement of small diameter and asbestos cement pipelines
- new water storage tanks
- refurbishments to the Ugum SWTP
- construction of new and refurbishment of existing wells

Wastewater projects include:

- new collection system pipelines
- refurbishment of existing sewer and force main pipelines
- lift station improvements
- WWTP refurbishments and upgrades

Each of the proposed projects was evaluated and ranked to assist GWA with prioritization over the 20-year planning period. The ranking is a non-economic evaluation that considers several operational parameters as described in Section 1. Cost estimates were developed for each potential project so that the economic requirements of the projects can also be considered for future CIP planning. A baseline 20-year CIP program was then developed considering the following factors:

- Project non-economic prioritization
- Estimated project costs and funding requirements
- Projected timing of the project with respect to capacity and development requirements

Each of these factors must be considered in developing the final implementation program to achieve the correct balance between project needs, available funding and system requirements. It is not practical to plan for projects if the necessary funding cannot be obtained or if it places an undue

burden on GWA's financial or staffing resources, particularly within the engineering department where many of these projects will originate. There are other recommendations described in this WRMP update that are not specific to CIP. These recommendations are described within each volume of the WRMPU.

11.1 Non-Economic Project Prioritization

This section presents a summary of the prioritization of recommended projects in this WRMPU. It is important to note that the scores provided for each project serve only to prioritize projects with respect to others in the same category (General System, Water System and Wastewater System). This method of scoring does not allow for a relative comparison between projects proposed in each volume of the WRMPU.

Table 11-1 presents a summary of the recommended projects and the non-economic project prioritization for the General System Improvements arranged from highest priority to lowest. Project Sheets for each of these recommended projects are included in Section 10.

Table 11-1. General System Improvements Project Prioritization (Non-Economic)		
Report Project Number	Report Project Name	Score out of 100
MP-Gen-Misc-09	Security and Resilience Program	100
MP-Gen-Misc-08	General Plant Improvements	94
MP-Gen-Misc-06	GPWA Fleet Maintenance Facility	90
MP-Gen-Misc-07	Mobile Equipment Replacement Program	90
MP-Gen-Misc-02B	WRMP Update (Interim Update)	87
MP-Gen-EE-01	SCADA Implementation Phase A2 - Initial Project Completion	80
MP-Gen-Misc-02A	WRMP Update (Comprehensive Update)	79
MP-Gen-Misc-05	GWA Infrastructure Improvements	78
MP-Gen-Misc-01	GWA Systems Planning	76
MP-Gen-Misc-03	Surveying and Property Delineation	73
MP-Gen-Misc-04	Information Technology Improvements	73
MP-Gen-EE-02	SCADA Implementation Phase B - Additional Sites	72
MP-Gen-EE-04	SCADA System Improvement Program	63
MP-Gen-EE-03	SCADA Implementation Phase C - Additional Instruments	59

The Security and Resilience Program, which is a continuation of work currently in progress by GWA, was identified as the top priority, followed by General Plant Improvements and projects associated with GWA maintenance vehicles and equipment. The majority of the remaining General System Improvements projects are recurring projects that require sustained funding to maintain the operational effectiveness of GWA.

Table 11-2 presents a summary of the recommended projects and the non-economic project ranking for the Water System Improvements from highest priority to lowest.

Table 11-2. Water System Improvement Project Prioritization (Non-Economic)

Report Project Number	Report Project Name	Score out of 100
MP-PW-Pipe-12	Rehabilitation and Replacement Program	100
MP-PW-Pipe-13	2-Inch Pipe Replacement Program	100
MP-PW-Tank-22	Existing Tank Assessment Inspections	100
MP-PW-Tank-23	Recurring Tank Inspections	100
MP-PW-Pipe-15	PRV Rehab and Replacement	99
MP-PW-Well-01	Well Rehabilitation Program	94
MP-PW-SWTP-02	Ugum SWTP Intake Modifications	93
MP-PW-SWTP-01	Ugum SWTP River Intake Cleaning Project	92
MP-PW-SWTP-03	Ugum SWTP Reliability Improvements	91
MP-PW-SWTP-04	Ugum SWTP 7-Year Improvement Project	90
MP-PW-Pipe-14	Asbestos Cement Pipe Replacement Program	88
MP-PW-Well-02	Well Equipment Overhaul Program	87
MP-PW-Pipe-16	Valve Exercise, Repair, and Replacement Program	85
MP-PW-Well-06	Well Repair Program	85
MP-PW-BPS-01	Rehabilitate and Replace BPSs	84
MP-PW-Well-03	Capacity Enhancement - Well Exploration Program	84
MP-PW-Well-04	Capacity Enhancement - Well Development and Construction Program	84
MP-PW-Tank-02A	Airport Tanks A	83
MP-PW-Tank-01	Agat-Umatac Tank	81
MP-PW-Tank-09B	Manenggon Hills Tanks B	79
MP-PW-Tank-10A	Nimitz Hill Tanks A	79
MP-PW-Tank-10B	Nimitz Hill Tanks B	79
MP-PW-Tank-17	Sinifa Tank	79
MP-PW-Tank-19	Umatac Subdivision Tank	79
MP-PW-Tank-18B	Ugum Tanks B	78
MP-PW-Misc-01	South Guam Water Supply Study	78
MP-PW-Tank-13	Piti Tank	77
MP-PW-Tank-21	Yigo Tanks	77
MP-PW-Misc-03	Hydrant Condition Assessment and Maintenance	77
MP-PW-Tank-03A	Astumbo Tanks A	76
MP-PW-Tank-07A	Kaiser Tanks A	76
MP-PW-Tank-08	Malojloj Tank	76
MP-PW-Tank-09A	Manenggon Hills Tanks A	76
MP-PW-Tank-12	Pigua Tank	76
MP-PW-Tank-14	Santa Ana Lower Tank	76
MP-PW-Tank-15	Santa Rita Tank	76

Table 11-2. Water System Improvement Project Prioritization (Non-Economic)		
Report Project Number	Report Project Name	Score out of 100
MP-PW-Tank-18A	Ugum Tanks A	76
MP-PW-Tank-20	Windward Hills Tank	76
MP-PW-Pipe-17	Cross Island Highway Piping	74
MP-PW-Well-05	Wellhead Protection Program	73
MP-PW-Misc-05	Leak Detection Assistance	73
MP-PW-Pipe-01	Astumbo Zone Piping	69
MP-PW-Pipe-02	Route 1 Astumbo Zone Piping	69
MP-PW-Pipe-03	Harmon Cliffline Piping to Route 1	69
MP-PW-Pipe-04	Hyundai Well Piping	69
MP-PW-Pipe-05	Kaiser Zone Looping	67
MP-PW-Pipe-06	Mangilao Pressure Zone Realignment	67
MP-PW-Pipe-07	Mataguac BPS Suction Piping	67
MP-PW-Pipe-08	Nimitz Lower BPS Piping	67
MP-PW-Pipe-09	Yigo, Santa Rosa Zone Realignment	67
MP-PW-Pipe-10	Miscellaneous Piping Projects	67
MP-PW-Pipe-11	Miscellaneous Piping Connections	67
MP-PW-Tank-11B	Tumon (Nissan) Tanks B	64
MP-PW-Tank-03B	Astumbo Tanks B	62
MP-PW-Misc-02	Master Meter Implementation and Ongoing Meter Replacement	62
MP-PW-Tank-07B	Kaiser Tanks B	61
MP-PW-Tank-16B	Santa Rosa Tanks B	61
MP-PW-Tank-02B	Airport Tanks B	60
MP-PW-Tank-04	Barrigada Tank	59
MP-PW-Misc-04	OneGuam Program	57
MP-PW-BPS-03	Route 15 BPS	54
MP-PW-BPS-02	Nimitz Hill Upper BPS	51

The highest priority projects within the water system were also recurring projects that will be completed annually or at regular intervals throughout the planning period. These projects include pipe rehabilitation and replacement, tank inspections and well rehabilitation. The following projects cover production improvements for the Ugum SWTP. These projects are necessary to improve the reliability and effectiveness of the water production systems.

Table 11-3 presents a summary of the recommended projects and the non-economic project prioritization with respect to the category of Wastewater System Improvements from highest priority to lowest.

Table 11-3. Wastewater System Improvement Project Prioritization (Non-Economic)

Report Project Number	Report Project Name	Score out of 100
MP-WW-FM-04	Hagåtña WWTP Force Main Rehabilitation/Replacement	100
MP-WW-Pump-01	Lift Station Rehabilitation/Replacement Program	93
MP-WW-Pump-02	Tumon Basin - Fujita Lift Station Analysis	93
MP-WW-Pipe-03	Route 1 Piti Pipe Rehabilitation/Replacement	92
MP-WW-Pipe-04	Southern Link Pump Station Pipe Rehabilitation/Replacement	91
MP-WW-Pipe-05	Gravity Pipe Rehabilitation/Replacement Program	90
MP-WW-Pipe-01	Route 1 Asan Force Main Rehabilitation/Replacement	89
MP-WW-FM-03	Septic/Cesspool System Reduction Program	87
MP-WW-Pipe-27	Force Main Rehabilitation/Replacement Program	87
MP-WW-FM-01	Agana Heights Pipe Replacement	86
MP-WW-Misc-02	I/I and SSES Assessments	86
MP-WW-Pipe-02	Barrigada Pump Station Pipe Rehabilitation/Replacement	85
MP-WW-Pipe-17	Mamajanao Capacity Replacement	85
MP-WW-Pipe-25	Piping Near Bayside Lift Station	85
MP-WW-Misc-04	Fats, Oils, and Grease Study	85
MP-WW-Pipe-24	Umatac-Merizo Capacity Replacement	83
MP-WW-Pipe-26	Finile Drive Rehabilitation - Agat	82
MP-WW-Misc-03	Miscellaneous Wastewater Improvements	82
MP-WW-Pump-03	Replacement of Former Navy Pump Station (Donut Hole)	80
MP-WW-WWTP-01	Hagåtña WWTP Primary Treatment Repair/Rehabilitation Program	77
MP-WW-Pipe-06	Northern District Route 1 Capacity Replacement - Phase 1	76
MP-WW-Pipe-11	Route 16 Capacity Replacement	76
MP-WW-Pipe-12	Barrigada Capacity Replacement	76
MP-WW-MH-01	Manhole Rehabilitation Program	76
MP-WW-WWTP-02	Hagåtña WWTP Secondary Treatment Upgrade	76
MP-WW-WWTP-04	Pago Socio WWTP Pump Station Conversion	76
MP-WW-Pipe-21	Baza Gardens Capacity Replacement - Phase 1	75
MP-WW-WWTP-03	Inarajan WWTP Repair/Rehabilitation Program	75
MP-WW-WWTP-06	Agat-Santa Rita WWTP Repair/Rehabilitation Program	74
MP-WW-Misc-01A	Update Wastewater Collection System Model (Major Update)	74
MP-WW-Pipe-20	Agat-Santa Rita Capacity Replacement - Phase 3	73
MP-WW-FM-02	Replace Yigo Lift Station Force Main	73
MP-WW-Pipe-08	Northern District Route 1 Capacity Replacement - Phase 3	72
MP-WW-Pipe-14	Dededo Capacity Replacement	72
MP-WW-Pipe-16	Yigo Capacity Replacement	72
MP-WW-Pipe-18	Agat-Santa Rita Capacity Replacement - Phase 1	72

Table 11-3. Wastewater System Improvement Project Prioritization (Non-Economic)

Report Project Number	Report Project Name	Score out of 100
MP-WW-Pipe-19	Agat-Santa Rita Capacity Replacement - Phase 2	72
MP-WW-Pipe-22	Baza Gardens Capacity Replacement - Phase 2	72
MP-WW-Misc-01B	Update Wastewater Collection System Model (Continued)	72
MP-WW-Pipe-07	Northern District Route 1 Capacity Replacement - Phase 2	71
MP-WW-Pipe-09	North Dededo Capacity Replacement - Phase 1	71
MP-WW-Pipe-10	North Dededo Capacity Replacement - Phase 2	71
MP-WW-Pipe-23	Baza Gardens Capacity Replacement - Phase 3	71
MP-WW-WWTP-05	Umatac-Merizo WWTP Repair/Rehabilitation Program	71
MP-WW-WWTP-07	Baza Gardens Cross Island Pipeline - Preliminary Treatment Equipment Repair and Rehabilitation Program	70
MP-WW-Pipe-13	Mangilao Capacity Replacement	69
MP-WW-WWTP-08	Northern District WWTP Completion	66
MP-WW-WWTP-09	Ocean Outfall Inspection Program	56

The highest priority projects in the Wastewater System primarily address critical pump stations, force main replacements and gravity sewer rehabilitation and replacement. These include the Hagåtña WWTP influent force main and recurring lift station improvements project. These are areas with known issues that should be addressed in the near future.

11.2 GWA Capital Improvement Plan

Based on the non-economic project prioritization, project timing as determined by the population projections and hydraulic modeling, and project cost estimates, a base CIP plan was developed for the 20-year planning period.

Table 11-4 shows the baseline program for future GWA planning for the overall system requirements, Table 11-5 indicates the same information for the water system and Table 11-6 for the wastewater system. The tables show the project number, title, total 20-year project cost and the projected time for completion. The costs presented in the tables are in 2017 dollars.

Table 11-4. GWA Capital Improvement Plan – Overall System Requirements

Project Number	Project Name	Cost (\$ in thousands)																				
		Total	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
MP-Gen-Misc-01	GWA Systems Planning	14,000	-	500	1000	500	1,000	500	1000	500	1,000	500	1,000	500	1,000	500	1,000	500	1,000	500	1,000	500
MP-Gen-Misc-02A	WRMP Update (Comprehensive Update)	5,200	-	-	-	-	1,300	-	-	-	-	1,300	-	-	-	-	1,300	-	-	-	-	1,300
MP-Gen-Misc-02B	WRMP Update (Interim Update)	800	-	-	200	-	-	-	-	200	-	-	-	-	200	-	-	-	-	200	-	-
MP-Gen-Misc-03	Surveying and Property Delineation	2,500	-	250	-	250	-	250	-	250	-	250	-	250	-	250	-	250	-	250	-	250
MP-Gen-Misc-04	Information Technology Improvements	4,000	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
MP-Gen-Misc-05	GWA Infrastructure Improvements	12,500	-	500	-	3,000	-	500	-	500	-	3,000	-	500	-	500	-	3,000	-	500	-	500
MP-Gen-Misc-06	GPWA Fleet Maintenance Facility	500	-	500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-Gen-Misc-07	Mobile Equipment Replacement Program	7,600	-	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
MP-Gen-Misc-08	General Plant Improvements	10,000	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
MP-Gen-Misc-09	Security and Resilience Program	2,700	-	100	100	100	300	100	100	100	100	300	100	100	100	100	300	100	100	100	100	300
MP-Gen-EE-01	SCADA Implementation Phase A2 – Initial Project Completion	12,814	414	1,000	1,000	2,600	2,600	2,600	2,600	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-Gen-EE-02	SCADA Implementation Phase B – Additional Sites	11416	-	-	-	-	-	600	600	2,554	2,554	2,554	2,554	-	-	-	-	-	-	-	-	-
MP-Gen-EE-03	SCADA Implementation Phase C – Additional Instruments	8,326	-	-	-	-	-	-	-	-	-	415	415	1,874	1,874	1,874	1,874	-	-	-	-	-
MP-Gen-EE-04	SCADA System Improvement Program	4,620	-	-	-	-	-	-	330	330	330	330	330	330	330	330	330	330	330	330	330	330
SCADA/Miscellaneous Totals		96,976	1,114	3,950	3,400	7,550	6,300	5,650	5,730	5,534	5,084	9,749	5,499	4,654	4,604	4,654	5,904	5,280	2,530	2,980	2,530	4,280

Table 11-5. GWA Capital Improvement Plan – Water System

Project Number	Project Name	Cost (\$ in thousands)																				
		Total	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
MP-PW-Pipe-01	Astumbo Zone Piping	4,850	-	-	-	-	368	4,482	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Pipe-02	Route 1 Astumbo Zone Piping	7,193	-	-	-	-	-	545	3,324	3,324	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Pipe-03	Harmon Cliffline Piping to Route 1	424	-	-	-	-	-	424	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Pipe-04	Hyundai Well Piping	547	-	-	547	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Pipe-05	Kaiser Zone Looping	306	-	-	306	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Pipe-06	Mangilao Pressure Zone Realignment	344	-	-	344	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Pipe-07	Mataguac BPS Suction Piping	733	-	-	-	733	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Pipe-08	Nimitz Lower BPS Piping	1,590	-	-	-	-	-	121	1,469	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Pipe-09	Yigo, Santa Rosa Zone Realignment	2,342	-	-	-	-	178	2,164	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Pipe-10	Miscellaneous Piping Projects	2,082	-	-	694	694	694	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Pipe-11	Miscellaneous Piping Connections	582	-	-	194	194	194	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Pipe-12	Rehabilitation and Replacement Program	75,585	-	5,000	-	4,140	3,093	-	1,676	1,676	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
MP-PW-Pipe-13	2-Inch Pipe Replacement Program	33,250	-	1,750	1,750	1,750	1,750	1,750	1,750	1,750	1,750	1,750	1,750	1,750	1,750	1,750	1,750	1,750	1,750	1,750	1,750	1,750
MP-PW-Pipe-14	Asbestos Cement Pipe Replacement Program	61,600	-	-	-	-	3,850	3,850	3,850	3,850	3,850	3,850	3,850	3,850	3,850	3,850	3,850	3,850	3,850	3,850	3,850	3,850
MP-PW-Pipe-15	PRV Rehab and Replacement	8,808	-	1,468	1,468	1,468	1,468	1,468	1,468	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Pipe-16	Valve Exercise, Repair, and Replacement Program	2,500	250	-	250	-	250	-	250	-	250	-	250	-	250	-	250	-	250	-	250	-
MP-PW-Pipe-17	Cross Island Highway Piping	1,666	-	-	-	127	1,539	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Tank-01	Agat-Umatac Tank	330	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Tank-02A	Airport Tanks A	11,900	-	-	5,950	5,950	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Tank-02B	Airport Tanks B	12,876	-	-	-	-	-	-	-	-	-	-	-	976	5,950	5,950	-	-	-	-	-	-
MP-PW-Tank-03A	Astumbo Tanks A	1,584	1,584	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Tank-03B	Astumbo Tanks B	9,612	-	-	-	-	-	-	-	-	-	-	-	728	4,442	4,442	-	-	-	-	-	-
MP-PW-Tank-04	Barrigada Tank	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Tank-07A	Kaiser Tanks A	1,716	-	1,716	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Tank-07B	Kaiser Tanks B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Tank-08	Malojloj Tank	990	990	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Tank-09A	Manenggon Hills Tanks A	1,716	-	1,716	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Tank-09B	Manenggon Hills Tanks B	9,612	728	4,442	4,442	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Tank-10A	Nimitz Hill Tanks A	479	-	37	221	221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Tank-10B	Nimitz Hill Tanks B	479	-	37	221	221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Tank-11B	Tumon (Nissan) Tanks B	9,612	-	-	-	-	-	-	-	-	-	-	-	728	4,442	4,442	-	-	-	-	-	-
MP-PW-Tank-12	Pigua Tank	990	-	990	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Tank-13	Piti Tank	8,870	-	672	4,099	4,099	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Tank-14	Santa Ana Lower Tank	990	-	990	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Tank-15	Santa Rita Tank	8,198	4,099	4,099	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Tank-16B	Santa Rosa Tanks B	8,870	-	-	-	-	-	-	-	-	-	-	-	672	4,099	4,099	-	-	-	-	-	-
MP-PW-Tank-17	Sinifa Tank	8,198	4,099	4,099	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Tank-18A	Ugum Tanks A	1,716	-	-	1,716	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Tank-18B	Ugum Tanks B	9,612	-	728	4,442	4,442	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Tank-19	Umatac Subdivision Tank	594	-	594	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Tank-20	Windward Hills Tank	990	990	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Tank-21	Yigo Tanks	1,716	1,716	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Tank-22	Existing Tank Assessment Inspections	428	214	214	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Tank-23	Recurring Tank Inspections	3,852	-	-	214	214	214	214	214	214	214	214	214	214	214	214	214	214	214	214	214	214



Table 11-5. GWA Capital Improvement Plan – Water System																					
Project Number	Project Name	Cost (\$ in thousands)																			
		Total	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
MP-PW-BPS-01	Rehabilitate and Replace BPSs	2,968	-	209	209	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
MP-PW-BPS-02	Nimitz Hill Upper BPS	48	-	48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-BPS-03	Route 15 BPS	1,136	-	-	-	-	-	-	86	1,050	-	-	-	-	-	-	-	-	-	-	-
MP-PW-SWTP-01	Ugum SWTP River Intake Cleaning Project	380	-	380	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-SWTP-02	Ugum SWTP Intake Modifications	2,297	174	2,123	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-SWTP-03	Ugum SWTP Reliability Improvements	1,980	-	150	1,830	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-SWTP-04	Ugum SWTP 7-Year Improvement Project	6,336	-	-	-	-	-	-	3,168	-	-	-	-	-	-	3,168	-	-	-	-	-
MP-PW-Well-01	Well Rehabilitation Program	52,272	-	-	440	5,368	440	5,368	440	5,368	440	5,368	440	5,368	440	5,368	440	5,368	440	5,368	440
MP-PW-Well-02	Well Equipment Overhaul Program	12,144	-	-	-	-	1,518	-	1,518	-	1,518	-	1,518	-	1,518	-	1,518	-	1,518	-	1,518
MP-PW-Well-03	Capacity Enhancement – Well Exploration Program	4,752	-	1,188	-	-	-	-	1,188	-	-	-	-	1,188	-	-	-	-	1,188	-	-
MP-PW-Well-04	Capacity Enhancement – Well Development and Construction Program	26,005	-	1,000	-	-	379	4,622	-	379	4,622	-	379	4,622	-	379	4,622	-	379	4,622	-
MP-PW-Well-05	Wellhead Protection Program	3,960	-	-	660	-	-	660	-	-	660	-	-	660	-	-	660	-	-	660	-
MP-PW-Well-06	Well Repair Program	13,090	350	1,274	1,274	1,274	1,274	1,274	1,274	1,274	1,274	1,274	1,274	-	-	-	-	-	-	-	-
MP-PW-Misc-01	South Guam Water Supply Study	450	450	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Misc-02	Master Meter Implementation and Ongoing Meter Replacement	4,404	-	734	734	734	734	734	734	-	-	-	-	-	-	-	-	-	-	-	-
MP-PW-Misc-03	Hydrant Condition Assessment and Maintenance	7,505	-	-	-	-	970	970	970	970	970	531	531	531	531	531	-	-	-	-	-
MP-PW-Misc-04	OneGuam Program	550	50	50	50	50	50	50	50	50	50	50	50	-	-	-	-	-	-	-	-
MP-PW-Misc-05	Leak Detection Assistance	1,540	-	-	385	-	-	-	-	385	-	-	-	-	385	-	-	-	-	385	-
Water System Totals		462,149	16,024	35,708	32,440	31,829	19,113	28,846	23,579	20,440	20,748	18,187	15,406	26,437	33,021	39,343	18,454	16,332	14,739	21,999	13,172

Table 11-6. GWA Capital Improvement Plan – Wastewater System

Project Number	Project Name	Cost (\$ in thousands)																				
		Total	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
MP-WW-Pipe-01	Gravity Pipe Rehabilitation/Replacement Program	25,962	-	-	173	4,516	5,346	177	6,186	-	33	203	978	-	3,027	1,913	1,913	1,497	-	-	-	-
MP-WW-Pipe-02	Barrigada Pump Station Pipe Rehabilitation/Replacement	5,425	-	-	-	-	411	5,014	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-WW-Pipe-03	Route 1 Piti Pipe Rehabilitation/Replacement	4,478	-	340	4,138	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-WW-Pipe-04	Southern Link Pump Station Pipe Rehabilitation/Replacement	711	54	657	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-WW-Pipe-05	Agana Heights Pipe Replacement	3,228	-	-	-	-	169	3,059	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-WW-Pipe-06	Northern District Route 1 Capacity Replacement - Phase 1	15,431	-	-	-	-	-	-	1,169	4,754	4,754	4,754	-	-	-	-	-	-	-	-	-	-
MP-WW-Pipe-07	Northern District Route 1 Capacity Replacement - Phase 2	14,579	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,105	6,737	6,737	-
MP-WW-Pipe-08	Northern District Route 1 Capacity Replacement - Phase 3	11,128	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	843	10,285
MP-WW-Pipe-09	North Dededo Capacity Replacement - Phase 1	9,803	-	-	-	-	-	-	-	-	-	-	743	4,530	4,530	-	-	-	-	-	-	-
MP-WW-Pipe-10	North Dededo Capacity Replacement - Phase 2	12,443	-	-	-	-	-	-	-	-	-	-	-	-	943	5,750	5,750	-	-	-	-	-
MP-WW-Pipe-11	Route 16 Capacity Replacement	7,539	-	-	-	-	-	-	571	3,484	3,484	-	-	-	-	-	-	-	-	-	-	-
MP-WW-Pipe-12	Barrigada Capacity Replacement	609	-	-	-	-	-	-	47	562	-	-	-	-	-	-	-	-	-	-	-	-
MP-WW-Pipe-13	Mangilao Capacity Replacement	2,142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	163	1,979	-
MP-WW-Pipe-14	Dededo Capacity Replacement	3,313	-	-	-	-	-	-	-	-	-	-	251	3,062	-	-	-	-	-	-	-	-
MP-WW-Pipe-16	Yigo Capacity Replacement	22,089	-	-	-	-	-	-	-	-	-	-	-	-	837	837	6,805	6,805	6,805	-	-	-
MP-WW-Pipe-17	Mamajanao Capacity Replacement	5,570	-	-	422	2,574	2,574	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-WW-Pipe-18	Agat-Santa Rita Capacity Replacement - Phase 1	3,012	-	-	-	-	-	-	-	-	229	2,783	-	-	-	-	-	-	-	-	-	-
MP-WW-Pipe-19	Agat-Santa Rita Capacity Replacement - Phase 2	4,093	-	-	-	-	-	-	-	-	-	310	3,783	-	-	-	-	-	-	-	-	-
MP-WW-Pipe-20	Agat-Santa Rita Capacity Replacement - Phase 3	5,940	-	-	-	-	-	-	-	-	-	450	2,745	2,745	-	-	-	-	-	-	-	-
MP-WW-Pipe-21	Baza Gardens Capacity Replacement - Phase 1	4,213	-	-	-	-	-	-	320	3,893	-	-	-	-	-	-	-	-	-	-	-	-
MP-WW-Pipe-22	Baza Gardens Capacity Replacement - Phase 2	2,612	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	198	2,414	-	-	-
MP-WW-Pipe-23	Baza Gardens Capacity Replacement - Phase 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-WW-Pipe-24	Umatac-Merizo Capacity Replacement	2,730	-	-	-	-	-	-	207	2,523	-	-	-	-	-	-	-	-	-	-	-	-
MP-WW-Pipe-25	Piping Near Bayside Lift Station	250	-	-	-	-	-	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-WW-Pipe-26	Finile Drive Rehabilitation - Agat	830	-	63	767	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-WW-Pipe-27	Septic/Cesspool System Reduction Program	78,967	-	-	-	-	397	5,238	5,238	5,238	5,238	5,238	5,238	5,238	5,238	5,238	5,238	5,238	5,238	5,238	5,238	5,238
MP-WW-MH-01	Manhole Rehabilitation Program	3,150	-	-	350	-	350	-	350	-	350	-	350	-	350	-	350	-	350	-	350	-
MP-WW-FM-01	Force Main Rehabilitation/Replacement Program	9,468	-	-	-	120	1,458	-	120	1,458	-	120	1,458	-	120	1,458	-	120	1,458	-	120	1,458
MP-WW-FM-02	Replace Yigo Lift Station Force Main	3,332	-	-	-	253	3,079	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-WW-FM-03	Route 1 Asan Force Main Rehabilitation/Replacement	2,298	174	2,124	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-WW-FM-04	Hagåtña WWTP Force Main Rehabilitation/Replacement	7,400	561	6,839	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Table 11-6. GWA Capital Improvement Plan – Wastewater System																						
Project Number	Project Name	Cost (\$ in thousands)																				
		Total	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
MP-WW-Pump-01	Lift Station Rehabilitation/Replacement Program	49,896	-	-	420	5,124	420	5,124	420	5,124	420	5,124	420	5,124	420	5,124	420	5,124	420	5,124	420	5,124
MP-WW-Pump-02	Tumon Basin - Fujita Lift Station Analysis	16,940	-	1,694	7,623	7,623	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-WW-Pump-03	Replacement of Former Navy Pump Station (Donut Hole)	1,320	-	100	1,220	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-WW-WWTP-01	Hagåtña WWTP Primary Treatment Repair/Rehabilitation Program	24,000	-	-	-	-	-	-	-	-	2,400	10,800	10,800	-	-	-	-	-	-	-	-	-
MP-WW-WWTP-02	Hagåtña WWTP Secondary Treatment Upgrade ^a	4,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,000
MP-WW-WWTP-03	Inarajan WWTP Repair/Rehabilitation Program	2,000	-	-	-	-	-	-	-	-	200	1,800	-	-	-	-	-	-	-	-	-	-
MP-WW-WWTP-04	Pago Socio WWTP Pump Station Conversion	3,138	-	-	-	238	2,900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-WW-WWTP-05	Umatac-Merizo WWTP Repair/Rehabilitation Program	4,500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	450	4,050	-	-	-
MP-WW-WWTP-06	Agat-Santa Rita WWTP Repair/Rehabilitation Program	13,500	-	-	-	-	-	-	-	-	-	-	-	-	-	1,350	6,075	6,075	-	-	-	-
MP-WW-WWTP-07	Baza Gardens Cross Island Pipeline - Preliminary Treatment Equipment Repair and Rehabilitation Program	2,500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	250	2,250	-	-	-	-
MP-WW-WWTP-08	Northern District WWTP Completion	17,000	-	-	-	8,500	8,500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-WW-WWTP-09	Ocean Outfall Inspection Program	600	-	-	150	-	-	-	-	150	-	-	-	-	150	-	-	-	-	-	150	-
MP-WW-Misc-01A	Update Wastewater Collection System Model (Major Update)	500	500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MP-WW-Misc-01B	Update Wastewater Collection System Model (Continued)	800	-	-	200	-	200	-	200	-	200	-	-	-	-	-	-	-	-	-	-	-
MP-WW-Misc-02	I/I and SSES Assessments	2,400	-	-	400	-	-	400	-	-	400	-	-	400	-	-	400	-	-	400	-	-
MP-WW-Misc-03	Miscellaneous Wastewater Improvements	7,128	-	1,188	-	1,188	-	1,188	-	1,188	-	1,188	-	1,188	-	-	-	-	-	-	-	-
MP-WW-Misc-04	Fats, Oils, and Grease Study	150	-	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wastewater System Totals		423,117	1,289	13,155	15,863	30,136	25,804	20,450	14,828	28,374	17,708	32,770	26,766	22,287	14,778	21,670	21,233	27,757	21,840	24,617	15,687	26,105

This page is intentionally left blank.

At the time of publication, GWA is engaged in a significant amount of CIP implementation financed primarily through GWA bond issuances. Additional funding is provided by OEA grants for projects associated with the military buildup, and US EPA SRF grant funding for other water and wastewater infrastructure improvement projects. These projects are summarized in Table 11-7. It is essential to consider these projects when evaluating future projects for GWA for the next 5 years as GWA will be engaged in the highest level of CIP execution in the history of the organization. When the current CIP projects are included with the proposed projects outlined in Tables 11-4, 11-5 and 11-6, spending for capital improvements is anticipated to exceed \$100 million from 2018 through 2022 with a peak of over \$135 million in 2019.

The major contributors to the high rate of CIP project implementation are the in-progress WWTP upgrades, infrastructure development required for the military build-up, and the new tank projects necessary to meet court order obligations. Following this intense period of development, annual CIP expenditures are expected to level off at approximately \$50 million annually until the work on the HWWTP secondary treatment upgrade is scheduled, shown for illustrative purposes here as beginning in 2034. The financial considerations are described in detail in Section 12.

Table 11-7. GWA Current Capital Improvement Program –with Funding Sources

Project Number	Project Name	Cost (\$ in thousands)					
		Total	2018	2019	2020	2021	2022
Current Project Totals (with GWA Funding Allocated)							
PW-05-07	Meter Replacement Program	2,000	2,000	-	-	-	-
PW-05-09	Leak Detection	100	100	-	-	-	-
PW-05-10	Potable Water System Planning	400	400	-	-	-	-
PW-05-15	Rehabilitation of Asan Springs Ground Reservoir	1,157	-	1,157	-	-	-
PW-09-02	Water Wells	500	500	-	-	-	-
PW-09-03	Water Distribution System Pipe Replacement	500	500	-	-	-	-
PW-09-11	Chaot Tank Site (MP-PW-Tank-05)	5,714	2,857	2,857	-	-	-
PW-09-11	Tumon (Nissan) Tank Site (MP-PW-Tank-11A)	8,198	4,099	4,099	-	-	-
PW-09-11	Santa Rosa Tank Site (MP-PW-Tank-16A)	8,198	4,099	4,099	-	-	-
PW-12-05	Tank Major Repair Yigo #1, Mangilao #2, Astumbo #1	500	500	-	-	-	-
PW-12-06	Hyundai Tank Site (MP-PW-Tank-06)	8,198	4,099	4,099	-	-	-
PW-14-01	Fire Hydrant Replacement Program	500	500	-	-	-	-
WW 09-01	Lift Station Upgrades	1,500	1,500	-	-	-	-
WW-09-06	WW Collection System Replacement/Rehabilitation Program	8,600	8,600	-	-	-	-
WW 11-03	Baza Gardens STP Replacement	1,146	1,146	-	-	-	-
WW 12-07	Umatac Merizo STP Replacement	16,000	16,000	-	-	-	-
EE 09-09	SCADA Pilot Project (Implementation Phase A-1)	2,500	2,500	-	-	-	-
MC-09-01 and MC 15-01	General Plant Improvements	1,200	1,200	-	-	-	-
Current Project Totals (GWA Funded Projects)		66,911	50,600	16,311	-	-	-
DoD/OEA Funded Projects							
CIP DoD-01	NDWWTP Secondary Treatment Capacity	134,800	20,500	38,100	38,100	38,100	-
CIP DoD-02	Northern Systems Wastewater System	30,000	4,000	13,000	13,000	-	-
CIP DoD-03	Rehabilitation and Monitoring Wells	4,500	4,500	-	-	-	-
DoD/OEA Funded Projects Totals		169,300	29,000	51,100	51,100	38,100	-
SRF Funded Projects							
S15-001/3-EPA	Tumon and Tamuning Hot Spots	7,700	3,000	4,700	-	-	-
S15-002-EPA	Asan-Adelup Route 1 Rehabilitation	6,700	3,350	3,350	-	-	-
S15-002-EPA	Route 1 Pipeline Rehabilitation - Hagåtña	4,410	-	-	3,000	1,410	-
S15-004-EPA	Route 2 Agat Sewer Replacement	5,000	2,500	2,500	-	-	-
S15-006-EPA	Route 4 Sewer Rehabilitation	6,820	4,500	2,320	-	-	-
W15-001-EPA	Groundwater Well Rehabilitation (F-3, A-2,A-7,A-12,D-5)	7,010	3,505	3,505	-	-	-
S15-004-EPA	Talofofo/Chalan Pago Pump Stations	2,793	2,000	793	-	-	-
S15-004-EPA	Water Hydraulic Model (SCADA at Barrigada Tanks)	1,475	1,475	-	-	-	-
SRF Funded Projects Totals		41,908	20,330	17,168	3,000	1,410	-
Total for GWA Current Capital Improvement Program		278,119	99,930	84,579	54,100	39,510	-

Table 11-8 provides a breakdown of project costs (in 2017 dollars) for the different systems and different subprojects within each system.

Table 11-8. CIP Summary				
Project Category	Number of New Projects	Estimated Cost WRMPU Proposed CIP	Number of Ongoing Projects	Estimated Cost Current/Ongoing CIP
Water System Improvements				
Pipeline Projects	17	\$204,402,000	2	\$2,500,000
Storage Tank and BPS Projects	30	\$120,082,000	5	\$30,808,000
Water Production Projects	10	\$123,216,000	3	\$8,667,000
Other Water System Projects/Studies	5	\$14,449,000	4	\$5,500,000
Total Water System Improvements	62	\$462,149,000	14	\$47,475,000
Wastewater System Improvements				
Gravity Sewer Projects	27	\$250,247,000	7	\$69,230,000
Force main Projects	4	\$22,498,000		
Lift Station Projects	3	\$68,156,000	2	\$4,293,000
Wastewater Treatment Facilities	9	\$71,238,000	3	\$151,946,000
Other Wastewater System Projects/Studies	5	\$10,978,000		
Total Wastewater System Improvements	48	\$423,117,000	12	\$225,469,000
General Systems Improvements				
General Facilities / Equipment Improvements	10	\$59,800,000	1	
SCADA / Electrical	4	\$37,176,000	2	\$5,175,000
Total General System Improvements	14	96,976,000	3	\$5,175,000
Total (rounded)	124	\$982,242,000	29	\$278,119,000

124 new capital improvements projects are planned in this WRMPU as shown in Table 11-8 and 29 major projects are currently in progress. The total cost of the 20-year CIP program including current and proposed projects is \$1.26 billion in 2017 dollars.

Sixty-two new projects are associated with the water system with a total estimated cost of \$509 Million, 48 are for the wastewater system with a total estimated cost of \$648 million and 14 are for the overall GWA system infrastructure with a total estimated cost of \$102 million. The higher cost for the wastewater system projects is due primarily to the higher capital cost of the wastewater treatment projects required, particularly the Northern District and Umatac WWTP upgrades.

Section	Task	EPA Approval Required?	Confirmed final negotiated timing	YEAR 1				YEAR 2				YEAR 3				YEAR 4				YEAR 5				YEAR 6				YEAR 7				YEAR 8				YEAR 9				YEAR 10				YEAR 11				YEAR 12			
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
V.A.17	submit to EPA a list of all Force Main segments in its entire Wastewater Collection System	No	within 60 days of Effective Date; EPA accepted	<< FM Inventory																																															
V.A.18	Complete a Force Main condition assessment for the Force Mains identified in Table A	No	Within three (3) years of the Effective Date	<< Start this FM Assess't Report work ASAP after FM inventory																																															
V.A.19	Force Main Assessment Report	Yes	Within three-and-a-half (3.5) years of the Effective Date	FM Assessment Report >>																																															
V.A.20	Force Main Action Plan	Yes	within 6 months of EPA approval of FM Assessment Report	Assumes 3-mo review and 6-mo to develop >>																																															
V.A.21	Force Main Action Plan Implementation (25% of total LF)	No	within nine (9) years of the Effective Date	This work can begin prior to this start date >> <<Assumes 3-mo EPA Approval, then start FM Action Plan Implementation																																															
V.A.22	Force Main Spill Contingency Plan	Yes	within 6 months of Effective Date	<<FM Spill Contingency plan																																															
V.A.22.a	FM info																																																		
V.A.22.b	Spill Response Procedures																																																		
V.A.22.c	Equip't, parts, supplies																																																		
V.A.23	Force Main O&M program	Yes	Within two (2) years of the Effective Date	<< FM O&M Program																																															
V.A.24	Pump stations: Scope of Work																																																		
V.A.25	Pump stations priority projects: Ypao, Hagatna Main, Mamajanao	No	Within 2-yr's of Eff.Date for Hagatna Main; within 3-yr's of Eff. Date for Ypao & Mamajanao	<< Hagatna Main SPS >> << Ypao and Mamajanao SPSs >>																																															
V.A.26	Sewage Pump stations: Tiers																																																		
V.A.27	Sewage Pump stations work plans preliminary design schedule	Yes																																																	
V.A.27.a	Tier 1 Pump Station Preliminary Work Plan	Yes	within 1-year of Effective Date	<< Tier 1 SPS Work Plan																																															
V.A.27.b	Tier 2 Pump Station Preliminary Work Plan	Yes	five (5) years of the Effective Date	<< Tier 2 SPS Work Plan																																															
V.A.27.c	Tier 3&4 Pump Station Preliminary Work Plan	Yes	within ten (10) years of the Effective Date	<< Tier 3 & 4 SPS Work Plan																																															
V.A.28	Pump Station Work plan components																																																		
V.A.29	Sewage pump station condition assessment	No (review and comment)	Per approved work plan																																																
V.A.30	Completion of tier 1&2 projects																																																		
V.A.30.a	Tier 1 Projects	No	within 7 years of Effective Date	Approval w/in 3-mos >> << Design and Construction of Tier 1 SPS Projects: Six (6) Design-Bid-Build packages from minimum of two (2) A-E Teams Pkgs 1A & 1B >> Design (12m) Bid (6m) Build (30m) Pkgs 1C & 1D >> Design (12m) Bid (6m) Build (30m) Pkgs 1E & 1F >> Design (12m) Bid (6m) Build (30m)																																															
V.A.30.b	Tier 2 Projects	No	50% completion w/in 10 years of Effective Date	Assumes EPA Approval w/in 3-mos >> <<Design and Construction of Tier 2 SPS Projects: Five (5) Design-Bid-Build packages Pkg 2A >> Design (12m) Bid (6m) Build (30m) Pkg 2B >> Design (12m) Bid (6m) Build (30m) Pkg 2C >> Design (12m) Bid (6m) Build (30m) Pkg 2D >> Design (12m) Bid (6m) Build (30m) Pkg 2E >> Design (12m) Bid (6m) Build (30m)																																															
V.A.30.c	25% of Tier 2 Projects under contract	No	within 10 years of Effective Date; EPA Rejected-																																																
V.A.31	Sewage pump station acceptance criteria																																																		
V.B.	Hagatna WWTP																																																		
V.B.32.	Hagatna WWTP Secondary Treatment Feasibility Study	Yes	within 7 years of effective date	<< Procure A/E Services and conduct Feasibility Study >>																																															

JBO EXHIBIT 3

Master Plan Project No	Project	Total Cost (FY23 \$)	Annual Project?	5-yr CIP					Balance to fund FY2030-2037	
				2024 CIP	2025	2026	2027	2028		2029
Water Production, Treatment, Distribution, and Storage										
Water Production Program				\$158,727,154						
MP-PW-SWTP-01	Ugum SWTP River Intake Cleaning Project	\$490,044	No							
MP-PW-SWTP-02	Ugum SWTP Intake Modifications	\$2,962,186	No							
MP-PW-SWTP-03	Ugum SWTP Reliability Improvements	\$2,553,386	No							
MP-PW-Well-01	Well Rehabilitation	\$67,409,392	Every 2 Years	\$9,014,155	\$7,582,640	\$7,885,945	\$16,402,766	\$717,966		\$33,958,830
MP-PW-Well-02	Well Equipment Overhaul	\$15,660,768	Every 2 Years	\$3,387,737	\$3,523,247	\$5,038,243	\$3,810,744	\$2,476,983		
MP-PW-Well-03	Capacity Enhancement – Well Exploration	\$6,128,127	Every 5 Years	\$1,347,268	\$1,401,159	\$1,457,206	\$1,393,828	\$1,576,114		
MP-PW-Well-04	Capacity Enhancement – Well Development and Construction	\$33,535,760	Every 3 Years	\$11,119,180				\$618,430		\$28,684,878
MP-PW-Well-05	Wellhead Protection	\$5,106,772	Every 3 Years	\$500,000	\$594,880	\$618,675	\$643,422	\$669,159	\$948,989	\$1,489,170
MP-PW-Well-06	Well Repair	\$16,880,719	Annual (for 10 Years)	\$811,200	\$956,134	\$994,380	\$1,998,883	\$3,285,965		\$11,625,147
MP-PW-SW-01	Santa Rita Spring Impoundment Expansion	\$8,000,000	No			\$5,061,888	\$4,094,505			
SUBTOTAL				\$29,597,345	\$19,143,743	\$20,113,701	\$24,275,381	\$9,624,448		
Water Treatment Program				\$205,170,835						
MP-PW-Well-08	Emerging Contaminants Water Treatment Design & Construction (3@ \$33.33M)	\$100,000,000	No	\$2,704,000	\$6,749,184	\$7,019,151	\$7,299,917	\$10,122,552		\$86,989,928
MP-PW-Well-09	Emerging Contaminants Well Transmission Mains Design & Construction	\$65,000,000	No	\$2,163,200	\$5,624,320	\$5,849,293	\$6,083,265	\$10,122,552		\$46,264,700
MP-PW-Well-10	Emerging Contaminants Well Pumps & Booster Stations	\$30,000,000	No	\$2,163,200	\$4,499,456	\$7,019,151	\$7,299,917	\$7,591,914		\$1,876,995
MP-PW-Well-07	Emerging Contaminants Water Treatment Evaluation	\$2,000,000	No	\$2,000,000						
MP-PW-SWTP-04	Ugum SWTP 7-Year Improvement Project	\$8,170,835	Every 7 Years	\$1,767,515	\$1,838,216	\$1,911,744	\$1,988,214	\$2,067,743		
SUBTOTAL				\$8,797,915	\$18,711,176	\$21,799,340	\$22,671,313	\$29,904,761		
Water Distribution - System Improvement Program				\$263,100,456						
MP-PW-Pipe-01	Astumbo Zone Piping	\$6,254,506	No			\$1,407,094	\$5,853,510			
MP-PW-Pipe-02	Route 1 Astumbo Zone Piping	\$9,276,013	No			\$760,177	\$4,821,835	\$5,014,708		
MP-PW-Pipe-03	Harmon Cliffline Piping to Route 1	\$546,786	No			\$591,403				
MP-PW-Pipe-04	Hyundai Well Piping	\$705,405	No			\$762,966				
MP-PW-Pipe-06	Mangilao Pressure Zone Realignment	\$443,619	No			\$479,818				
MP-PW-Pipe-07	Mataguac BPS Suction Piping	\$945,269	No			\$1,022,403				
MP-PW-Pipe-08	Nimitz Lower BPS Piping	\$2,050,446	No			\$168,773	\$2,130,949			
MP-PW-Pipe-09	Yigo, Santa Rosa Zone Realignment	\$3,020,217	No			\$248,278	\$3,139,125			
MP-PW-Pipe-10	Miscellaneous Piping Projects	\$2,684,924	No	\$1,527,478			\$1,354,048			
MP-PW-Pipe-11	Miscellaneous Piping Connections	\$750,541	No			\$162,357	\$168,851	\$175,605	\$182,629	\$189,935
MP-PW-Pipe-12	Piping Rehabilitation and Replacement	\$97,473,579	Annual			\$10,239,146	\$10,648,711	\$22,149,320	\$8,158,707	\$60,898,290
MP-PW-Pipe-13	2-Inch Pipe Replacement	\$42,878,832	Annual	\$200,000		\$11,209,847	\$11,892,212	\$12,319,234	\$2,855,547	\$5,792,720
MP-PW-Pipe-14	Asbestos Cement Pipe Replacement	\$79,438,678	Annual			\$13,962,142	\$14,520,628	\$25,169,088	\$6,282,204	\$25,666,743
MP-PW-Pipe-15	PRV Rehab and Replacement	\$11,358,699	Annual (for 6 Years)			\$2,047,595	\$2,129,498	\$2,214,679	\$2,303,266	\$2,395,396
MP-PW-Pipe-16	Valve Exercise, Repair, and Replacement	\$3,223,972	Every 2 Years			\$784,586	\$489,582	\$848,608	\$529,531	\$407,935
MP-PW-Pipe-17	Cross Island Highway Piping	\$2,048,970	No							\$2,696,305
SUBTOTAL				\$7,028,355	\$49,698,069	\$52,522,710	\$62,653,069	\$20,289,725		
Water Distribution - Booster Pump Station Improvement Program				\$11,813,343						
MP-PW-BPS-01	Rehabilitate and Replace BPSs	\$3,827,500	Annual			\$3,512,155	\$226,295	\$235,347	\$244,761	
MP-PW-BPS-01.A	Brigade Booster Pump Improvement	\$6,458,970	No	\$1,914,231		\$4,915,590				
MP-PW-BPS-02	Nimitz Hill Upper BPS	\$61,900	No			\$69,629				
MP-PW-BPS-03	Route 15 BPS	\$1,464,973	No			\$1,713,811				
SUBTOTAL				\$8,427,745	\$69,629	\$1,940,107	\$235,347	\$244,761		
Water Storage Tank Improvement Program				\$76,315,571						
MP-PW-Tank-02A.1	Airport Tanks A.1	\$2,125,000	No							\$2,796,355
MP-PW-Tank-08	Maloloj Tank	\$2,275,000	No			\$1,380,871	\$1,122,959			
MP-PW-Tank-09A	Manenggon Hills Tanks A	\$3,125,000	No			\$2,393,510	\$1,025,949			
MP-PW-Tank-10A	Nimitz Hill Tanks A	\$617,713	No			\$51,608	\$320,585	\$333,409		
MP-PW-Tank-10B	Nimitz Hill Tanks B	\$617,713	No			\$51,608	\$320,585	\$333,409		
MP-PW-Tank-13	Piti Tank	\$11,438,654	No			\$937,319			\$6,688,508	\$5,017,420
MP-PW-Tank-15	Sinifa Tank [formerly Santa Rita Tank]	\$10,572,050	No						\$6,688,508	\$5,110,476
MP-PW-Tank-18A	Ugum Tanks A	\$3,125,000	No							\$4,112,287
MP-PW-Tank-22	Existing Tank Assessment Inspections	\$551,944	No					\$167,881	\$174,596	\$275,644
MP-PW-Tank-23	Recurring Tank Inspections	\$4,967,497	Annual			\$845,726	\$879,555	\$914,737	\$951,326	\$349,193
MP-PW-Tank-24	Agfayan Tank (1M gal)	\$12,300,000	No							\$16,185,961
MP-PW-Tank-25	Asan Tank (1M gal)	\$12,300,000	No							\$16,185,961
MP-PW-Tank-26	Sinajana Tank (1M gal)	\$12,300,000	No							\$16,185,961
SUBTOTAL				\$5,660,642	\$3,669,633	\$1,581,554	\$1,119,207	\$13,900,805		
Wastewater Collection and Treatment				\$ 390,098,154						
Wastewater Collection - Gravity Piping Projects				\$ 36,828,339						
MP-WW-Pipe-01	Gravity Pipe Rehabilitation/Replacement	\$3,348,031	Y	\$223,099		\$6,550,964	\$8,065,171	\$277,710	\$10,093,952	\$15,287,762
MP-WW-Pipe-01	Gravity Main Acute Defects Rehab or Replacement (3 miles)	\$11,160,103								\$4,405,780
MP-WW-Pipe-01	Gravity Main Rehab/Replacement (10 unique miles)	\$22,320,205								\$14,685,934
MP-WW-Pipe-01	Gravity Main Rehab/Replacement (20 unique miles)									\$29,371,868
MP-WW-Pipe-02	Barrigada Pump Station Pipe Rehabilitation/Replacement	\$6,996,020	N	\$1,000,000		\$6,744,707				
MP-WW-Pipe-03	Route 1 Piti Pipe Rehabilitation/Replacement	\$5,774,779	N							\$7,599,215
MP-WW-Pipe-05	Agana Heights Pipe Replacement	\$4,162,793	N							\$5,477,952
MP-WW-Pipe-06	Rt. 1 Dededo (Northern District Route 1 Capacity Replacement) Phase 1	\$19,899,647	N	\$970,000	\$581,392	\$6,896,210	\$7,172,059	\$7,458,941		
MP-WW-Pipe-07	Rt. 1 Dededo (Northern District Route 1 Capacity Replacement) Phase 2	\$18,800,917	N							\$24,740,724
MP-WW-Pipe-09	North Dededo Capacity Replacement - Phase 1	\$12,641,840	N						\$1,212,384	\$15,040,384
MP-WW-Pipe-11	Route 16 Capacity Replacement	\$9,722,211	N							\$12,793,766
MP-WW-Pipe-12	Barrigada Capacity Replacement	\$785,360	N							\$1,033,480
MP-WW-Pipe-14	Dededo Capacity Replacement	\$4,272,408	N					\$409,567		\$5,083,235
MP-WW-Pipe-17	Mamajanao Capacity Replacement	\$7,183,010	N	\$1,500,000		\$2,658,739	\$3,883,231			
MP-WW-Pipe-18	Rt. 12 at Rt. 2 (Agat-Santa Rita Capacity Replacement) Phase 1	\$3,884,242	N			\$345,478	\$4,366,477			
MP-WW-Pipe-19	Rt. 12 at Rt. 2 (Agat-Santa Rita Capacity Replacement) Phase 2 (first priority)	\$5,278,287	N	\$1,000,000		\$4,812,492				
MP-WW-Pipe-20	Rt. 12 at Rt. 2 (Agat-Santa Rita Capacity Replacement) Phase 3	\$7,660,158	N				\$706,042	\$4,479,130		\$3,256,913
MP-WW-Pipe-21	Baza Gardens Capacity Replacement - Phase 1	\$5,433,038	N							\$7,149,508
MP-WW-Pipe-24	Umatac-Merizo Capacity Replacement - Rt. 4 (PS17 to PS14)	\$3,520,578	N	\$985,305		\$2,851,837				
MP-WW-Pipe-25	Piping Near Bayside Lift Station	\$322,397	N	\$322,397						
MP-WW-Pipe-26	Finile Drive Rehabilitation - Agat	\$1,070,359	N							\$1,408,519
MP-WW-Pipe-27	Septic/Cesspool System Reduction	\$78,967,000	Y	\$350,000	\$13,152,256	\$13,759,899	\$11,923,273	\$12,400,204	\$7,064,114	\$26,736,120
MP-WW-Pipe-28	CCTV Inspection, Assessment, Documentation, & Reporting	\$2,683,420	N			\$2,902,387				
MP-WW-Pipe-29	Gravity Main Condition Assessment Report	\$100,000	N				\$112,486			
MP-WW-Pipe-30	Future Gravity Main Rehabilitation and Replacement Plan	\$91,496,330	Annually (yr. 10-20)			\$10,292,093	\$10,703,776	\$11,131,928	\$11,577,205	\$62,890,127
MP-WW-Pipe-31	Gravity Main Work Plan									
MP-WW-Pipe-32	Capacity Assurance Report	\$50,000	No	\$50,000						
MP-WW-Pipe-33	Clean all mains [5 year rotation; 60 miles per year]	\$21,972,160	Y			\$1,697,506	\$1,765,407	\$1,836,023	\$1,909,464	\$1,985,842
MP-WW-Pipe-34	"Hot Spot" Cleaning	\$58,502	Y			\$63,276				
MP-WW-Pipe-35	Route 1 - Phase 1 (Route 4 Agana to Route 30 Tamuning)	\$18,757,071	No							\$24,683,026
MP-WW-Pipe-36	Route 1 - Phase 2 (Route 30 Tamuning to Route 10A Airport Road)	\$12,445,823	No							\$16,377,854
MP-WW-Pipe-37	Route 1 - Phase 3 (JFK Highschool to DPW)	\$5,269,260	No							\$6,933,987
MP-WW-MH-01	Manhole Rehabilitation	\$4,062,205	Every 2 Years			\$488,187	\$507,714	\$528,023	\$549,144	\$571,109
SUBTOTAL				\$18,885,004	\$56,952,548	\$44,457,034	\$38,799,909	\$37,393,304		
Wastewater Collection - Forcemain Projects				\$ 36,413,172						
MP-WW-FM-01	Force Main Rehabilitation/Replacement [25%]	\$12,209,828					\$7,141,886	\$7,427,561		
MP-WW-FM-02	Replace Yigo Lift Station Force Main	\$4,296,910				\$4,647,538				
MP-WW-FM-03	Route 1 Asan Force Main Rehabilitation/Replacement	\$2,963,475		\$1,000,000		\$2,123,695				
MP-WW-FM-04	Hagåtña WWTP Force Main Rehabilitation/Replacement	\$9,542,958		\$1,750,000		\$8,428,863				
MP-WW-FM-05	Force Main Action Plan and Implementation [75%]	\$1,500,000				\$1,622,400				\$161,070,05
MP-WW-FM-06	Force Main Inventory and Mapping	\$500,000								\$657,966
MP-WW-FM-07	Force Main Assessment Report	\$4,225,000		\$100,000		\$4,569,760				
MP-WW-FM-08	Prepare a force main spill contingency plan	\$200,000				\$13,760				
MP-WW-FM-09	Prepare a force main operation and maintenance program including preventive	\$200,000				\$216,320				
MP-WW-FM-11	Force Main Operation and Maintenance Program	\$200,000				\$216,320				
SUBTOTAL				\$ 22,554,977	\$ -	\$ 7,141,886	\$ 7,427,561	\$ -		
Wastewater Collection - Lift/Pump Station Projects				\$ 45,744,117						
MP-WW-Pump-01	Lift Station Rehabilitation/Replacement - Comprehensive improvements to all sewage	\$10,000,000				\$2,249,728	\$2,339,717	\$2,433,306	\$2,530,638	\$587,709
MP-WW-Pump-02	Tumon Basin - Fujita Lift Station	\$21,845,636				\$3,96				

1 TODD KIM
Assistant Attorney General
2 Environment & Natural Resources Division
United States Department of Justice
3 BETHANY ENGEL
4 KAYCI G. HINES
5 Environmental Enforcement Section
6 Environment & Natural Resources Division
United States Department of Justice
7 P.O. Box 7611
Washington, D.C. 20044-7611
8 Tel: 202-514-6892
9 Fax: 202-514-0097
Email: Bethany.Engel@usdoj.gov

10 SHAWN N. ANDERSON
United States Attorney
11 Districts of Guam and the NMI
12 MIKEL W. SCHWAB
Assistant United States Attorney
13 Suite 500, Sirena Plaza
14 108 Hernan Cortez
Hagåtña, Guam 96910
15 Telephone: 671-472-7332
16 Attorneys for the United States of America

17
18 IN THE DISTRICT COURT OF GUAM

19)
20 UNITED STATES OF AMERICA,)
21)
Plaintiff,)
22)
v.)
23)
GUAM WATERWORKS AUTHORITY and)
24 the GOVERNMENT OF GUAM,)
25)
Defendants.)
26)
27)
28)

Civil Action No. 24-00004

PARTIAL CONSENT DECREE

TABLE OF CONTENTS

1 I. JURISDICTION AND VENUE 2
2 II. APPLICABILITY 3
3 III. OBJECTIVES 4
4 IV. DEFINITIONS 4
5 V. COMPLIANCE REQUIREMENTS 11
6 VI. REPORTING REQUIREMENTS 41
7 VII. STIPULATED PENALTIES 45
8 VIII. FORCE MAJEURE 52
9 IX. DISPUTE RESOLUTION 54
10 X. INFORMATION COLLECTION AND RETENTION 56
11 XI. EFFECT OF SETTLEMENT/RESERVATION OF RIGHTS 58
12 XII. COSTS 60
13 XIII. NOTICES 60
14 XIV. EFFECTIVE DATE 62
15 XV. RETENTION OF JURISDICTION 62
16 XVI. MODIFICATION 62
17 XVII. TERMINATION 63
18 XVIII. PUBLIC PARTICIPATION 64
19 XIX. SIGNATORIES/SERVICE 65
20 XX. INTEGRATION 66
21 XXI. FINAL JUDGMENT 66
22 XXII. HEADINGS 66
23 XXIII. APPENDICES 67
24
25
26
27
28

1 Plaintiff United States of America, on behalf of the United States Environmental
2 Protection Agency (“EPA”), has filed a complaint in this action concurrently with the lodging of
3 this Consent Decree (the “Complaint”), alleging that Guam Waterworks Authority (“GWA” or
4 “Defendant”) violated the conditions and limitations of GWA’s National Pollutant Discharge
5 Elimination System (“NPDES”) permits EPA issued to GWA pursuant to Section 402 of the
6 Clean Water Act (“CWA” or “Act”), 33 U.S.C. § 1342.

8 GWA, a public corporation, owns and operates a publicly owned treatment works
9 (“POTW”) that collects, treats, and disposes of sanitary sewage for the Territory of Guam
10 including certain U.S. military installations. The Complaint alleges that GWA is violating the
11 Act by discharging untreated sewage from its Wastewater Collection System in violation of its
12 NPDES permits. The Complaint also alleges that GWA is violating the Act by discharging
13 sewage from its Northern District Wastewater Treatment Plant (“Northern District WWTP”) and
14 Agaña/Hagåtña Wastewater Treatment Plant (“Hagåtña WWTP”) in violation of its NPDES
15 permits. The Parties acknowledge that in 2022, GWA upgraded its Northern District WWTP to
16 secondary treatment technology to address certain of these alleged violations. The Parties also
17 acknowledge that GWA has initiated several other actions specified herein in Section V
18 (Compliance Requirements).
19
20

21 GWA has alleged certain hardships and provided documentation to the United States,
22 detailing its financial hardship and other limitations on its ability to make infrastructure
23 improvements due to Guam regulatory, labor, and construction-related constraints.
24

25 The Government of Guam (“Guam”) is joined as a statutory defendant in this action
26 pursuant to CWA Section 309(e), 33 U.S.C. § 1319(e), and shall be liable for payment of any
27 judgment or any expenses incurred as a result of complying with any judgment entered against
28

1 GWA, to the extent that Guam’s laws and regulations prevent GWA from raising revenues
2 needed to comply with such judgment.

3 Defendants do not admit any liability to the United States arising out of the transactions
4 or occurrences alleged in the Complaint.

5 The Parties recognize, and the Court by entering this Consent Decree finds, that this
6 Consent Decree has been negotiated by the Parties in good faith and will avoid litigation among
7 the Parties regarding certain relief with respect to the claims alleged in the Complaint, and that
8 this Consent Decree is fair, reasonable, and in the public interest.

9 The Parties agree that certain further relief to address the claims alleged in the Complaint
10 shall be addressed in a future consent decree or by litigation, including but not limited to
11 implementation of the approved Force Main Action Plan, completion of Tier 2, 3, and 4 Pump
12 Station Projects, Gravity Main Replacement or Rehabilitation of at least 35 additional “unique
13 miles,” additional wet and dry flow monitoring for the Tumon Basin, and upgrading the Hagåtña
14 WWTP to secondary treatment. The Parties intend to reengage in negotiations regarding the
15 remaining injunctive relief and payment of an appropriate civil penalty no later than seven (7)
16 years following the Effective Date of this Consent Decree.

17 NOW, THEREFORE, before the taking of any testimony, without the adjudication or
18 admission of any issue of fact or law except as provided in Section I (Jurisdiction and Venue),
19 and with the consent of the Parties, IT IS HEREBY ADJUDGED, ORDERED, AND DECREED
20 as follows:

21
22
23
24
25 **I. JURISDICTION AND VENUE**

26 1. This Court has jurisdiction over the subject matter of this action, pursuant to
27 28 U.S.C. §§ 1331, 1345, and 1355, and Section 309(b) and (e) of the Act, 33 U.S.C. § 1319(b)
28 and (e), and over the Parties. Venue lies in this District pursuant to CWA Section 309(b), 33

1 U.S.C. § 1319(b), and 28 U.S.C. §§ 1391(b) and (c) and 1395(a), because GWA is located in this
2 judicial district, and the violations alleged in the Complaint are alleged to have occurred in this
3 judicial district. For purposes of this Decree, or any action to enforce this Decree, Defendants
4 consent to the Court's jurisdiction over this Decree and any such action and over Defendants and
5 consent to venue in this judicial district.

6
7 2. For purposes of this Consent Decree, Defendants agree that the Complaint states
8 claims upon which relief may be granted pursuant to CWA Section 309(b), 33 U.S.C. § 1319(b).

9 3. EPA has notified the Government of Guam of this action under CWA Section
10 309(b), 33 U.S.C. § 1319(b).

11 **II. APPLICABILITY**

12 4. The obligations of this Consent Decree apply to and are binding upon the United
13 States and upon GWA, and any successors, assigns, or other entities or persons otherwise bound
14 by law, and upon Guam and its representatives and any successors, assigns, or other entities or
15 persons otherwise bound by law, when liability is incurred pursuant to Section 309(e) of the Act,
16 33 U.S.C. § 1319(e).

17
18 5. No transfer of ownership or operation of GWA's POTW, whether in compliance
19 with the procedures of this Paragraph or otherwise, shall relieve GWA of its obligation to ensure
20 that the terms of the Decree are implemented. At least thirty (30) Days prior to such transfer,
21 GWA shall provide a copy of this Consent Decree to the proposed transferee and shall
22 simultaneously provide written notice of the prospective transfer, together with a copy of the
23 proposed written agreement, to EPA and the United States, in accordance with Section XIII
24 (Notices). Any attempt to transfer ownership or operation of the POTW without complying with
25 this Paragraph constitutes a violation of this Decree.

26
27
28 6. GWA shall provide a copy of this Consent Decree to all officers, employees, and

1 agents whose duties might reasonably include compliance with any provision of this Decree, as
2 well as to any contractor retained to perform work required under this Consent Decree. GWA
3 shall condition any such contract upon performance of the work in conformity with the terms of
4 this Consent Decree.

5 7. In any action to enforce this Consent Decree, GWA shall not raise as a defense
6 the failure by any of their officers, directors, employees, agents, or contractors to take any
7 actions necessary to comply with the provisions of this Consent Decree.
8

9 III. OBJECTIVES

10 8. It is the goal of the Parties to eliminate Sanitary Sewer Overflows and for GWA
11 to achieve compliance with its NPDES Permits. In entering into this Consent Decree, the Parties
12 intend to further the objectives set forth in the Act, to set out measures that GWA will implement
13 to reduce the frequency and impact of Sanitary Sewer Overflows, especially through the
14 reduction of inflow and infiltration, and to take preliminary measures for the construction of
15 secondary treatment upgrades to the Hagåtña WWTP as set forth in this Consent Decree to
16 comply with GWA's NPDES Permit's effluent limitations regulating discharges from that
17 WWTP.
18
19

20 IV. DEFINITIONS

21 9. Terms used in this Consent Decree that are defined in the Act or in regulations
22 promulgated pursuant to the Act shall have the meanings assigned to them in the Act or such
23 regulations, unless otherwise provided in this Decree. Whenever the terms set forth below are
24 used in this Consent Decree, the following definitions shall apply:
25

26 "Act" or "CWA" shall mean the Clean Water Act, 33 U.S.C. §§ 1251-1388.

27 "Acute Defect" shall mean any NASSCO pipeline assessment certification program
28 Grade 5 rating for Gravity Mains or any failure in an asset that presents an imminent risk of an

1 SSO.

2 “Bypass,” as defined by 40 C.F.R. § 122.41(m), shall mean the intentional diversion of
3 waste streams from any portion of a Wastewater Treatment Plant.

4 “Complaint” shall mean the Complaint filed by the United States in this action.

5 “Consent Decree” or “Decree” shall mean this Decree and all Appendices attached hereto
6 (listed in Section XXIII).

7
8 “Consequence of Failure” or “COF” shall mean the outcome of an asset failure if a
9 failure should occur.

10 “Consequence of Failure Score” or “COF Score” shall mean a numerical value of 1 to 5
11 assigned to an asset based on an analysis of the consequence of an asset failure. Calculating
12 consequence of failure involves obtaining information about an asset’s original design, material,
13 installation, and operating parameters in conjunction with an assessment or estimate of its
14 potential impact to human health, the environment, and economy were the asset to fail. Criteria
15 factors can be given a score ranging from 1 (low impact of failure) to 5 (high impact of failure)
16 and a weight, which allow some factors to be given more importance than others.

17
18
19 “Day” shall mean a calendar day unless expressly stated to be a business day. In
20 computing any period of time under this Consent Decree, where the last day would fall on a
21 Saturday, Sunday, or federal holiday, the period shall run until the close of business of the next
22 business day.

23 “Defendants” shall mean Guam Waterworks Authority and the Government of Guam.

24
25 “Depth to diameter (d/D) ratio” shall mean the depth of height of water within the pipe
26 segment divided by the inner diameter of the pipe segment.

27 “EPA” shall mean the United States Environmental Protection Agency and any of its
28

1 successor departments or agencies.

2 “Effective Date” shall have the definition provided in Section XIV.

3 “Facility” shall mean GWA’s “treatment works” or “Publicly Owned Treatment Works”
4 or “POTW”, as those terms are defined in 33 U.S.C. § 1292(2)(a) and 40 C.F.R. § 403.3(q).

5 “Flow Model” shall mean the hydrologic and hydraulic model that: (a) takes inputs
6 relating to weather conditions and the Wastewater Collection System’s operating parameters;
7 and (b) predicts flows in the Wastewater Collection System and Wastewater Treatment Plants.

8 “FOG” shall mean fats, oils, and grease, which are animal- and plant-derived substances
9 that may solidify or become viscous due to temperature and other factors.

10 “Food Service Establishment” or “FSE” shall mean any facility or lessor to a facility
11 preparing and/or serving food for commercial use or sale, including but not limited to,
12 restaurants, coffee shops, public or private school cafeterias, lunchrooms, luncheonettes, lunch-
13 counters, in-plant or employee eating establishments, bars, cafes, taverns, sandwich stands, drink
14 stands, temporary food service establishments, mobile food service establishments, food
15 preparation kitchens, any cafeteria or similar facility and any other eating establishment with
16 food preparation such as organizations, clubs, boardinghouses, guesthouses, or concessions
17 within any public market that gives or sells food or beverages to the public, guests, patrons or
18 employees, as well as kitchens in which food is prepared on the premises for serving elsewhere,
19 including cafeteria functions, home manufacturers and caterers, and home food industries, and
20 food packaging, meat processing, and meat packing facilities.

21 “Force Main” shall mean any pipe that receives, contains, and conveys, under pressure,
22 wastewater from the discharge side of a pump.

23 “Gravity Main” shall mean any pipe that receives, contains, and conveys wastewater,
24
25
26
27
28

1 which is not normally under pressure, but is intended to flow unassisted under the influence of
2 gravity.

3 “Grease Removal Device” or “GRD” shall mean a concrete, fiberglass, or fiberglass-
4 reinforced plastic structure designed to separate and retain grease and oil from the wastewater
5 stream. GRDs are multiple-compartment units with inlet and outlet baffles and/or T-pipes, and
6 inspection ports.
7

8 “GWA” shall mean the Guam Waterworks Authority.

9 “Infiltration” shall mean water other than wastewater that enters a Wastewater Collection
10 System during wet weather conditions from the ground through such means as defective pipes,
11 pipe joints, connections, or manholes.
12

13 “Inflow” shall mean water other than wastewater that enters a Wastewater Collection
14 system during wet weather conditions from illicit or unpermitted sources other than Infiltration,
15 such as, but not limited to, roof leaders, foundation drains, yard drains, area drains, drains from
16 springs and swampy areas, manhole covers, cross connections between sanitary sewers and
17 storm sewers, catch basins, cooling towers, storm water, surface runoff, street wash waters, or
18 drainage.
19

20 “Inflow and Infiltration” or “I&I” shall mean all water from both Infiltration and Inflow
21 without distinguishing the source.
22

23 “Lateral” shall mean that portion of a Gravity Main lateral line that is owned by GWA
24 and located between: (i) the Gravity Main and (ii) either the property line of a residence or
25 business, or the boundary of an established easement.

26 “Likelihood of Failure” or “LOF” shall mean the statistical probability that defects could
27 cause an asset to fail, inhibiting its ability to effectively convey Municipal Sewage based on the
28

1 observed or estimated condition of the asset.

2 “Likelihood of Failure Score” or “LOF Score” shall mean a numerical value of 1 to 5,
3 assigned to an asset based on the observed or estimated condition of the asset. Calculating
4 likelihood of failure involves obtaining information about an asset’s original design, material,
5 installation, and operating parameters in conjunction with an assessment or estimate of its
6 potential current condition. Criteria factors can be given a score ranging from 1 (good) to 5
7 (poor) and a weight, which allow some factors to be given more importance than others.
8

9 “Municipal Sewage” shall mean domestic, commercial, and industrial wastewaters.

10 “NASSCO” shall mean the National Association of Sewer Service Companies.

11 “NPDES Permit” or “Permit” as used herein shall mean the National Pollutant Discharge
12 Elimination System Permits issued to GWA for the Facility (Permit Numbers GU0020087,
13 GU0020222, GU0020141, GU0020273), or any successor permit(s).
14

15 “Paragraph” shall mean a portion of this Decree identified by an Arabic numeral.

16 “Parties” shall mean the United States, GWA, and the Government of Guam.

17 “Power Supply” shall mean an electrical power supply system for a Pump Station in
18 which the sizing, design, and installation of the system complies with National Electric Code
19 requirements; all electrical components, panels and enclosures shall be listed by Underwriter’s
20 Laboratory and/or rated by the National Electrical Manufacturer’s Association (“NEMA”) as
21 appropriate for Pump Stations; all electrical components, panels and enclosures shall be
22 protected from physical damage by the 100 year flood, all electrical control panels shall be
23 enclosed in protective enclosure panels that are NEMA rated for harsh, corrosive environments,
24 and wastewater pumping stations should remain fully operational during the 25 year flood.
25

26 “Professional Engineer” shall mean a Professional Engineer registered on Guam pursuant
27
28

1 to the requirements of the National Council of Examiners for Engineers and Surveyors or
2 equivalent international organization standards as approved by EPA in the appropriate discipline
3 (e.g., civil, mechanical, electrical) for the work being undertaken.

4 “Preferred Operating Region” or “POR” shall mean the range of flows over which a
5 pumped flow is highly controllable and is established by the pump manufacturer in accordance
6 with ANSI/HI 9.6.3 Rotodynamic (Centrifugal and Vertical) Pumps – Guideline for Allowable
7 Operating Region. Within this range, the service life of the pump is not significantly affected by
8 hydraulic loads, vibration, or flow separation.

9
10 “Pretreatment Standard” shall mean general Pretreatment Standards in 40 C.F.R. Part
11 403, categorical Pretreatment Standards, local limits, and State and local law.

12
13 “Publicly Owned Treatment Works” or “POTW” shall mean the treatment works, as
14 defined in 33 U.S.C. § 1292(2)(a) and 40 C.F.R. § 403.3(q), that is owned and operated by
15 GWA.

16 “Pump Station” shall mean facilities comprised of pumps that lift wastewater to a higher
17 hydraulic grade line, including all related electrical, mechanical, and structural systems necessary
18 to the operation of that Pump Station.

19
20 “Rehabilitation” or “Rehabilitate” shall mean:

21 a. For Gravity Mains: the renewal or reconstruction of a Gravity Main from node to
22 node, including all manholes and Laterals connected to the Gravity Main;

23 b. For Pump Stations: the renewal or reconstruction of a Pump Station;

24 c. For Force Mains: the renewal or reconstruction of a Force Main pipe segment;

25
26 “Repair” shall mean:

27 a. For Gravity Mains: the work of fixing a portion of a Gravity Main that does not
28

1 result in Rehabilitation of the Gravity Main;

2 b. For Pump Stations: the work of fixing a portion of a Pump Station that does not
3 result in Rehabilitation of the Pump Station;

4 c. For Force Mains: the work of fixing a portion of a Force Main that does not result
5 in Rehabilitation of the Force Main;

6 “Replace” or “Replacement” shall mean:
7

8 a. For Gravity Mains: the work of demolishing a Gravity Main and installation of a
9 new Gravity Main in its place, including all manholes and Laterals connected to the Gravity
10 Main;

11 b. For Pump Stations: the work of demolishing an entire Pump Station, including the
12 wet well, and installation of a new Pump Station in its place;

13 c. For Force Mains: the work of demolishing a Force Main and installation of a new
14 Force Main in its place;
15

16 “Sanitary Sewer Overflow” or “SSO” shall mean an overflow, spill, diversion, or release
17 of wastewater from or caused by GWA’s Wastewater Collection System, except that the term
18 “SSO” does not include wastewater backups into buildings caused solely by a blockage or other
19 malfunction in a building lateral that is privately owned.
20

21 “Section” shall mean a portion of this Decree identified by a Roman numeral.

22 “State,” as defined in 33 U.S.C. § 1362(3), shall mean the Territory of Guam.

23 “Ten States Standards” shall mean the *Recommended Standards for Wastewater*
24 *Facilities, Policies for the Design, Review, and Approval of Plans and Specifications for*
25 *Wastewater Collection and Treatment Facilities, 2014 Edition* or any revisions thereof.
26

27 “United States” shall mean the United States of America, acting on behalf of EPA.
28

1 “Wastewater Collection System” shall mean all parts of the wastewater collection system
2 owned or operated by GWA that are intended to convey Municipal Sewage to GWA’s
3 Wastewater Treatment Plants, including, without limitation, sewers, pipes, Gravity Mains, Pump
4 Stations, lift stations, manholes, Force Mains, and appurtenances associated with each of the
5 above.

6 “Wastewater Treatment Plant” or “WWTP” shall mean that portion of GWA’s POTW
7 that is designed to provide treatment (including recycling and reclamation) of Municipal Sewage
8 and industrial waste.
9

10 **V. COMPLIANCE REQUIREMENTS**

11 10. Implementation of Compliance Requirements. GWA shall implement the
12 compliance requirements in this Section in accordance with Section III (Objectives) of this
13 Decree and by the deadlines set forth herein.
14

15 A. WASTEWATER COLLECTION SYSTEM

16 11. Gravity Main Condition Assessment. GWA shall complete a closed-circuit
17 television (“CCTV”) inspection and submit a Gravity Main Condition Assessment Report
18 regarding all of its Gravity Mains in accordance with the following schedule:
19

20 a. Within 210 days of the Effective Date, as an interim milestone, GWA
21 shall complete CCTV inspection of all Gravity Mains in GWA’s Wastewater Collection System,
22 except for pipe segments that are inaccessible for CCTV inspection, which are identified in
23 Appendix A. For pipe segments identified in Appendix A, GWA shall conduct pipe inspections
24 utilizing acoustic-based sewer pipe assessment technology. GWA shall not use CCTV
25 recordings completed before January 1, 2013. If any of the pipe segments identified in Appendix
26 A become accessible for CCTV inspection, GWA shall complete CCTV inspection of those pipe
27 segments within 30 Days and report on that inspection in the next semi-annual report.
28

1 b. Within nine (9) months of the Effective Date, GWA shall complete and
2 document an assessment of each CCTV inspection for all Gravity Mains in GWA’s Wastewater
3 Collection System in accordance with NASSCO standards. For the pipe segments identified in
4 Appendix A, GWA shall complete and document an assessment of each acoustic-based pipe
5 segment inspection and compare the results with the assessment based on CCTV inspection of
6 the Wastewater Collection System in accordance with good engineering practices.
7

8 c. Within eighteen (18) months of the Effective Date, as an interim
9 milestone, GWA shall submit to EPA for review and approval a Gravity Main Condition
10 Assessment Report that evaluates, at a minimum, NASSCO rating, failure mode, Likelihood of
11 Failure, Consequence of Failure, criticality analysis, and remaining useful life of all Gravity
12 Mains in GWA’s Wastewater Collection System, and recommends Gravity Main Repair,
13 Rehabilitation, and Replacement based upon those evaluations and good engineering practices.
14

15 12. Gravity Main Repair, Rehabilitation, and Replacement Program. GWA shall
16 implement a Gravity Main Repair, Rehabilitation, and Replacement program in accordance with
17 this Paragraph.
18

19 a. Acute Defects. As a compliance milestone, GWA shall Repair,
20 Rehabilitate, or Replace Gravity Main segments or assets with Acute Defects as soon as possible,
21 but no later than 18 month(s) after GWA identifies the Acute Defect for GWA in-house Repair,
22 Rehabilitation, or Replacement, and no later than 24 months after GWA identifies the Acute
23 Defect for a Repair, Rehabilitation, or Replacement to be performed by external contractors.
24

25 b. Rehabilitation or Replacement. As a compliance milestone, GWA shall
26 Rehabilitate or Replace a total of thirty “unique miles” of Gravity Mains within ten (10) years of
27 the Effective Date. Rehabilitation or Replacement Work completed up to one (1) year prior to
28

1 lodging of this Consent Decree may be credited toward the mileage milestones. As interim
2 milestones, GWA shall Rehabilitate or Replace:

3 i. at least ten “unique miles” by September 1, 2027;

4 ii. at least twenty “unique miles” by September 1, 2030;

5 c. Work Plan. Within the earlier of three (3) months of the EPA’s approval
6 of the Gravity Main Condition Assessment Report or twenty-four (24) months of the Effective
7 Date, as an interim milestone, GWA shall submit a Gravity Main Work Plan to EPA, for review
8 and approval, that organizes all necessary Gravity Main Repair, Rehabilitation, and Replacement
9 work recommended in its Gravity Main Condition Assessment Report into an appropriate
10 prioritization list that prioritizes work with the goal of preventing SSOs and limiting I&I: Acute
11 Defect, short-term, or long-term. GWA shall include in the Gravity Main Work Plan a schedule
12 for all Acute Defect and Short-Term Gravity Main Repair, Rehabilitation and Replacement work
13 for the next five years based on its prioritization list. GWA shall schedule all Acute Defect work
14 in accordance with Paragraph 12.a.

15 d. Annual Evaluation. GWA shall evaluate its Gravity Main Work Plan
16 prioritization list and work schedule as needed, but not less than annually. The annual evaluation
17 shall be submitted to EPA for its information and shall be completed by September 30 of each
18 calendar year. Any modifications to the work schedules are subject to EPA review and approval.

19 13. a. Long-Term Gravity Main Plan. Within nine (9) years of the Effective
20 Date, as a compliance milestone, GWA shall submit to EPA for review and approval a Long-
21 Term Gravity Main Plan that: (i) sets out a schedule for the design and construction of all
22 necessary Long-Term Gravity Main Rehabilitation and Replacement work in its Gravity Main
23 Work Plan prioritization list; (ii) meets the capacity criterion established in the Storm Technical
24
25
26
27
28

1 Memorandum dated January 4, 2023 (the “Storm Technical Memorandum”); and (iii) proposes
2 an annual commitment of Gravity Main mileage of at least three (3) miles per year for
3 Rehabilitation or Replacement. GWA’s Long-Term schedule and work shall take into account
4 the Capacity Assurance Program and GWA’s Capacity Evaluation Report and Flow Model in
5 Paragraph 14.b, below. GWA shall provide the associated cost estimates for all work under the
6 Plan with as much specificity as possible.
7

8 b. Capacity Assurance Program. GWA’s POTW shall not exceed the
9 POTW’s design capacity. All pipe segments in GWA’s Gravity Mains shall meet the capacity
10 criterion established in the Storm Technical Memorandum. Based on the Flow Model results
11 and the Capacity Evaluation Report results, GWA shall develop and submit as part of its Long-
12 Term Gravity Main Plan a Capacity Assurance Program (“CAP”). The CAP shall include a plan
13 and schedule, for EPA review and approval, for work necessary to ensure that GWA’s
14 Wastewater Collection System and POTW will have adequate capacity.
15

16 14. Capacity Evaluation Report. Within eighteen (18) months of the Effective Date,
17 as an interim milestone, GWA shall complete a Capacity Evaluation Report that identifies
18 current or potential future flow bottlenecks within the Wastewater Collection System. The
19 Capacity Evaluation Report shall:
20

- 21 a. Include a hydraulic assessment;
22 b. Include a Flow Model for GWA’s POTW, including both the Wastewater
23 Collection System and WWTPs, that is calibrated according to the Chartered Institution of Water
24 and Environmental Management (CIWEM) Code of Practice for the Hydraulic Modelling of
25 Urban Drainage Systems Version 01 and is consistent with the Storm Technical Memorandum.
26 The Flow Model calibration shall incorporate: (i) new data gathered through December 31, 2022;
27
28

1 (ii) physical changes to the Wastewater Collection System and changes to capacity at the POTW
2 through December 31, 2022; (iii) additional wet and dry flow monitoring for the Central Basin;
3 and (iv) Flow Model verification. As part of the Capacity Evaluation Report, GWA shall
4 provide a detailed Flow Model calibration description that: (i) details how the Flow Model was
5 calibrated in accordance with CIWEM best practices; (ii) summarizes the data used to calibrate
6 the Flow Model; and (iii) describes the confidence of the Flow Model;
7

8 c. Identify, at a minimum, the hydraulic capacities of the POTW, and
9 compare those capacities to existing and future projected average and peak flows in dry and wet
10 weather; and

11 d. Identify those portions of the POTW that are expected to cause or
12 contribute to SSOs or prohibited Bypasses at the WWTPs under existing and future projected
13 average and peak flows in dry and wet weather, and prioritize those portions, under current or
14 projected future conditions, to meet the capacity criterion in the Storm Technical Memorandum.
15

16 15. Capacity Assurance Projects. Within seven (7) years of the Effective Date, as a
17 compliance milestone, GWA shall complete necessary Rehabilitation, Replacement or sewer
18 pipe upsizing to assure adequate capacity for peak wet weather flows at the Wastewater
19 Collection System locations identified in subparagraphs 15.a-e of this Paragraph and any other
20 critical capacity-limited segments in the Wastewater Collection System identified in GWA's
21 Capacity Evaluation Report submitted to EPA pursuant to Paragraph 14 (collectively, "Capacity
22 Assurance Projects"). GWA shall ensure each Capacity Assurance Project assures adequate pipe
23 capacity, meaning that pipe segments have a depth to diameter (d/D) ratio meeting the capacity
24 criterion established in the Storm Technical Memorandum.
25
26

27 a. Route 12 at Route 2;
28

1 b. Marine Corps Drive between Route 4 and Highway 6;

2 c. Barrigada Pump Station;

3 d. Route 1 (Dededo). GWA shall complete the Northern District Capacity
4 Replacement – Phase 1 project along the highlighted pipe segments in Appendix B, and submit a
5 proposed schedule for the remaining Route 1 projects for EPA review and approval;

6 e. Route 4 (between Pump Station 18 and Pump Station 14).

7
8 16. Capacity Assurance Report. After completing all of the Capacity Assurance
9 Projects listed above in Paragraph 15, GWA shall incorporate those Capacity Assurance Projects
10 into GWA’s Flow Model and shall recalibrate the Flow Model using best industry practices.

11 Within six (6) months of completion of the projects in Paragraph 15, as an interim milestone,
12 GWA shall submit a Capacity Assurance Report to EPA to evaluate whether the capacity
13 projects remedied the capacity issues at each of the locations listed in Paragraph 15.a-e, and to
14 identify any other capacity bottlenecks within the Wastewater Collection System, particularly
15 those locations in need of Rehabilitation, Replacement, or sewer pipe upsizing to assure capacity.

16 The Capacity Assurance Report shall include a proposed schedule, which shall be subject to
17 EPA’s review and approval, to implement Rehabilitation, Replacement, and improvement
18 projects to address any identified capacity issues.
19
20

21 17. Force Main Inventory. Within 60 days of the Effective Date, as an interim
22 milestone, GWA shall submit to EPA a list of all Force Main segments in its entire Wastewater
23 Collection System that identifies each segment’s location, properties (flow rate, pipe material,
24 diameter, length, installation date, etc.), known condition, last inspection date, and type of
25 inspection conducted. Together with this list, GWA shall submit to EPA a GIS map that
26 includes the locations of all Force Mains.
27
28

1 18. Force Main Condition Assessment. Within three (3) years of the Effective Date,
2 as an interim milestone, GWA shall complete a Force Main condition assessment for the Force
3 Mains identified in Table A, below. As part of the Force Main condition assessment, GWA shall
4 ensure that the condition assessment steps detailed below are performed for all Table A Force
5 Mains, valves, air relief valves, drains, connections, fittings and appurtenances associated with
6 the Force Main, and is conducted, stamped, and certified by a Professional Engineer. At a
7 minimum, GWA shall:

9 a. Inspect and determine functionality;
10 b. Identify defects such as inoperable valves, exposed corrosion, leaks,
11 cracks, or other conditions that could contribute to the failure of the Force Main;

12 c. Evaluate all metallic (cast iron, ductile iron, steel, etc.) and concrete Force
13 Mains, fittings, and appurtenances to determine whether corrosion protective measures are
14 necessary. Appropriate corrosion protective measures include:

15 i. Targeted pipeline/component replacement;
16 ii. Adding protective coatings;
17 iii. Installing an internal pipe lining; and
18 iv. Adding targeted cathodic protection.

19 d. Conduct an external pipe inspection of the exterior of each Force Main at
20 each location where the pipe segment is exposed to assess structural damage and the integrity of
21 protective coatings using visual inspection and technology suitable to the particular pipe to
22 identify possible defects such as leaks, cracks, corrosion, erosion, pinholes, coating damage,
23 delamination or any other conditions that could contribute to the failure of the Force Main. For
24 purposes of this Paragraph, suitable technology shall be no less than ultrasonic testing, magnetic
25
26
27
28

1 flux leakage, or broadband electromagnetic testing, or a technology that EPA and GWA agree is
2 equivalent to those technologies in terms of its ability to meet the stated objectives of inspection
3 and assessment. The requirements of subparagraph d of this Paragraph do not apply to Force
4 Mains that are, as of the Effective Date, in the engineering design phase of a construction
5 project;

6
7 e. Conduct pressure testing evaluations on all segments of Table A Force
8 Mains that have a LOF greater than 3.4, using accepted engineering methods suitable for each
9 pipe to identify possible defects or any other conditions that could contribute to the failure of the
10 Force Main. The purpose of the pressure testing evaluation is to determine if the design,
11 construction, and materials are sufficient to withstand the maximum predicted transient pressures
12 that may be expected to occur under normal, peak flow, and emergency (shut-down and start-up)
13 conditions. This evaluation shall include, but not necessarily be limited to, (i) a review of
14 available pressure data, and (ii) an evaluation using actual pressure measurements of the transient
15 pressures that occur during the range of anticipated operating conditions. Any actual pressure
16 measurements shall be limited to the range of operating conditions that is both prudent and
17 practicable. GWA shall follow up on observed conditions that are likely to be a source of
18 leakage. The methodologies employed will be appropriate to the type of condition and location
19 of the suspected leakage. The requirements of subparagraph e of this Paragraph do not apply to
20 Force Mains that are, as of the Effective Date, in the engineering design phase of a construction
21 project;

22
23 f. Identify the extent to which defects affect the performance of the Force
24 Main, through performance indicators such as unusual noise, vibrations, pipe and pipe joint
25 leakage and displacement, valve arrangement and leakage, lift station operation and
26
27
28

1 performance, discharge pump rates and pump speed, and pump suction and discharge pressures;

2 g. Review operating data, such as operating pressures, pump run times, and
3 flow rates, as well as reports of physical inspections, which can reveal reduced Force Main
4 capacity and other performance issues to determine if there is an actual or potential significant
5 reduction in capacity; and

6 h. Determine the Force Main's probable time of failure for the following four
7 failure modes based on the information gathered in subparagraphs a-f of this Paragraph:
8 condition or structural failure, end of useful life, capacity, and not meeting an established level of
9 service.
10

11 19. Force Main Assessment Report. Within three-and-a-half (3.5) years of the
12 Effective Date, as an interim milestone, for each Force Main that was assessed pursuant to
13 Paragraph 18, GWA shall submit to EPA, for review and approval, a Force Main Assessment
14 Report that:
15

16 a. Describes the method and extent of each assessment conducted under
17 Paragraph 18, including valve, exposed fitting, and exposed appurtenance inspections; corrosion
18 protection evaluations; external pipe inspections; pressure testing evaluations; and leak detection
19 tests. The report must provide a narrative of approach and methodology for inspections,
20 inspection locations and, in an appendix to the report, provide the field data collected pursuant to
21 Paragraph 18.
22

23 b. Describes the results of each assessment for each Force Main conducted
24 pursuant to inspections referenced in Paragraph 18, including valve, exposed fitting, and exposed
25 appurtenance inspections; corrosion evaluations; external pipe inspections, pressure testing
26 evaluations, and leak detection tests;
27
28

1 c. Identifies, and quantifies, where practicable, observed or measured
2 conditions such as leaks, cracks, corrosion, erosion, pinholes, coating delamination, joint
3 deflections, pipe deformation, wall-thinning, or any other conditions that could contribute to the
4 failure of the Force Main;

5 d. Includes an inventory of all pipe segments with observed conditions and
6 photo documentation of Force Main defects whenever possible;

7 e. Includes a summary of defects that affect the performance of the Force
8 Main, through performance indicators such as unusual noise, vibrations, pipe and pipe joint
9 leakage and displacement, valve arrangement and leakage, lift station operation and
10 performance, discharge pump rates and pump speed, and pump suction and discharge pressures;

11 f. Includes a description of each Force Main's failure modes, and the
12 probable time of failure, based on the information gathered through the assessments conducted
13 pursuant to Paragraph 18; and

14 g. Based on Force Main condition assessments, identifies pipe segments that
15 leak or are cracked, broken, or ruptured (or have the potential to leak, crack, break, or rupture
16 within the next ten (10) years), or are experiencing (or have the potential to experience) a
17 significant reduction in capacity or other conditions that could lead to Force Main failure. GWA
18 shall identify Force Main capacity issues and other performance issues that result in an actual or
19 potential significant reduction in capacity.
20
21
22
23

24 **Table A: Force Mains for Condition Assessment**

Force Main Lift Station	Basin	Diameter (inches)	Length (feet)	Material	Installation Year	LOF Score (1 to 5)	COF Score (1 to 5)
Hagåtña Main	Hagåtña	24	2,724	Reinforced concrete	1965	Known poor condition	4.9
Asan	Hagåtña	12	2,993	Cast iron	1971	Known poor	2.8

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

						condition	
Bayside	Hagåtña	6	646	ACP	1966	5	3.6
Pago Double Shaft	Hagåtña	8	2,474	ACP	1973	4.9	3.2
Mamajanao	Hagåtña	14	1,186	Unknown	1971	3.2	4.4
Barrigada	Hagåtña	14	6,078	ACP	1978	3.9	3.1
Mangilao	Hagåtña	10	2,739	ACP	1974	4.5	2.8
Piti	Hagåtña	9.1	4,336	ACP	1971	4.5	2.6
Tai Mangilao	Hagåtña	8	1,618	ACP	Unknown	3.4	2.7
Pump Station No. 17	Umatac-Merizo	6	2,840	Ductile iron	1980	3.9	2.3
Paseo De Oro	Hagåtña	6	686	ACP	1967	5	1.8
Dairy Road	I Hagåtña	6	3,616	Ductile iron	1983	3.1	2.5
Pump Station No. 16	Umatac-Merizo	6	1,095	Ductile Iron	1980	3.1	2.5
Maite	Hagåtña	4	393	Unknown	1971	3.2	1.7
Harmon	Hagåtña	6	2,260	Unknown	1972	3.2	1.5
Fujita	Tumon	18	7,154	Ductile iron	1992	3	3.7
Route 16	Northern District	30	5,741	Unknown	1989	2.1	5
Yigo	Northern District	16	3,077	Polyethylene	1973	2.8	3.5
Chaligan	Agat-Santa Rita	16	6,352	Ductile iron	1995	2.6	3.1
Ypao	Hagåtña	7.3	1,741	PVC	Unknown	1.7	3.9
Inarajan Main	Inarajan	8	3,893	Unknown	1984	2.7	2.9
Southern Link	Northern District	36	4,311	Ductile iron	1992	2.6	2.9
New Chaot	Hagåtña	20	2,319	PVC	1989	1.7	2.9
Gaan	Agat-Santa Rita	16	10,125	PVC	1995	1.7	2.9
Alupang Cove	Hagåtña	6	905	PVC	1991	1.7	2.8

1 20. Force Main Action Plan. Within six (6) months of EPA approval of the Force
2 Main Assessment Report, as an interim milestone, GWA shall submit to EPA, for review and
3 approval, a Force Main Action Plan consistent with the Force Main Condition Assessment that:

4 a. Prioritizes necessary Force Main upgrades;
5 b. Includes a schedule for design and implementation of interim Force Main
6 improvement projects where asset failure is likely to occur before Repair, Rehabilitation, or
7 Replacement is complete;

8 c. Includes a schedule for design and implementation of Repair,
9 Rehabilitation, Replacement, and improvement projects employing methodologies appropriate to
10 the condition and location of the Force Main;

11 d. Requires the installation of corrosion protective measures for metallic
12 (cast iron, ductile iron, steel, etc.) and concrete Force Mains, fittings, and appurtenances that lack
13 adequate corrosion protection or could be subject to corrosion; and includes a schedule for future
14 Force Main condition assessments with an explanation of GWA's Force Main prioritization and
15 scheduling decisions.
16
17
18

19 21. Implementation of the Force Main Action Plan. As a compliance milestone,
20 GWA shall complete construction addressing at least 25% of the linear feet of Force Mains
21 addressed in the approved Force Main Action Plan within nine (9) years of the Effective Date.
22 GWA will be allowed to include Force Main projects completed after the Effective Date for
23 Force Mains listed in Table A. The Force Main Action Plan shall be consistent with the Force
24 Main Condition Assessment in that it will prioritize work at Force Mains that are failing or are
25 most likely to fail.
26

27 22. Force Main Spill Contingency Plan. Within six (6) months of the Effective Date,
28

1 as an interim milestone, GWA shall submit to EPA, for review and approval a Force Main Spill
2 Contingency Plan for all Force Mains that establishes measures and procedures to respond to a
3 Force Main spill event in order to minimize discharges to surface waters, prevent public
4 exposure to the spilled wastewater, and return the Force Main to full service as rapidly as
5 possible. The Force Main Spill Contingency Plan shall include the following sections:

6
7 a. Force Main Information. The Force Main information section shall
8 contain salient information about the Force Mains including location, diameter, length, material,
9 elevations, design flows and pressures, fittings, parallel force mains, location of waterways, and
10 a vicinity map of the Force Main, including nearby Gravity Mains and Pump Stations that may
11 be used for diversion of flows in the event the Force Main is damaged.

12
13 b. Spill Response Procedures. The spill response procedures section shall
14 include a list of the actions that GWA anticipates taking in the event of a Force Main spill,
15 including tankering and diversion of flows within the system. This section shall describe the
16 resources GWA will have available to deploy in the event of a Force Main spill, the staff
17 notification procedures, and anticipated response times, with the goal being to restore service to
18 the customer as soon as possible.

19
20 c. Equipment, Parts, and Supplies. The equipment, parts, and supplies
21 section shall include a list of the equipment, parts, and supplies needed to implement the Plan,
22 including response and repair equipment, spare parts, and supplies that can be used in the event
23 of a Force Main failure. The response equipment shall include portable pumps, hose or piping,
24 sand bags (or equivalent barrier/diversion devices), and pipe plugs. The supplies shall include
25 replacement pipe, valves, and repair kits. The list shall identify the location of all such
26 equipment, parts, and supplies.
27
28

1 23. Force Main Operation and Maintenance Program. Within two (2) years of the
2 Effective Date, as an interim milestone, GWA shall submit to EPA, for review and approval a
3 Force Main Operations and Maintenance (“O&M”) Program that establishes written preventive
4 operations and maintenance schedules and procedures for all Force Mains. The Force Main
5 O&M Program shall be integrated into the GWA Asset Management Program, and
6 Computerized Maintenance Management System (CMMS) and shall include:
7

8 a. Preventative maintenance schedules for the inspection, periodic service,
9 and calibration of force main instrumentation, such as flow meters, liquid level sensors, alarm
10 systems, elapsed time meters, remote monitoring equipment, and air release valves;

11 b. Inspection and maintenance of sulfide and corrosion protection systems;
12 and
13

14 c. An annual systematic method of reviewing Force Main operational data,
15 which at a minimum includes pump run times, discharge pump rates and pump speed, pump
16 suction and discharge pressures, flow rates, and performance indicators (including excessive
17 noise, vibrations, and leakage), all of which can reveal reduced Force Main performance issues.
18

19 24. Pump Stations: Scope of Work. GWA shall complete all improvement work,
20 which may include Repair, Rehabilitation, Replacement, and relocation, for each of its Pump
21 Stations necessary to ensure reliability, functionality, and adequate capacity and satisfy each of
22 the acceptance criteria set forth in Paragraph 31.

23 25. Pump Station priority projects. Within the number of years from the Effective
24 Date specified after each pump station below, as compliance milestones, GWA shall complete all
25 necessary improvements to the three Pump Stations in the most critical need of work: the Ypao
26 (three (3) years), Hagåtña Main (two (2) years), and Mamajanao (three (3) years) Pump Stations
27
28

(the “Pump Station Priority Projects”). All work, including any start-up activities and any related O&M training for field personnel, shall be completed by these deadlines.

26. Sewage Pump Stations: Tiers. Except for the Pump Station Priority Projects identified in Paragraph 25, GWA’s entire inventory of Pump Stations has been organized into four tiers: Tiers 1, 2, 3 and 4 set forth in Table B below.

Table B: Pump Station Tiers¹

<u>Tier 1</u>	<u>Tier 2</u>	<u>Tier 3</u>	<u>Tier 4</u>
1. Alupang Cove (C) 2. Astumbo #1 (N) 3. Astumbo #2 (N) 4. Bayside (N) 5. Dairy Road (C) 6. Ejector Station No. 2 (S) 7. Fujita (N) 8. Harmon (N) 9. Inarajan Main (S) 10. Inarajan Lift Station (S) 11. Machanao (N) 12. Mongmong Toto (C) 13. Pago Double Shaft (C) 14. Piti (C) 15. Pump Station No. 13 (S) 16. Pump Station No. 16 (S) 17. Pump Station No. 17 (S) 18. Pump Station No. 19 (S) 19. Pump Station No. 20 (S) 20. Route 16 (N) 21. Southern Link (N) (22) Talafofo (S) (23) Yigo (N)	1. Asan (C) 2. Barrigada (C) 3. Commercial Port (C) 4. Ejector Station No. 3 (S) 5. Ejector Station No. 6 (S) 6. Latte Heights Double Trouble (N) 7. Latte Heights Submarine (N) 8. Latte Plantation (N) 9. Latte Sun Rise (N) 10. Maite (C) 11. Mangilao (C) 12. Namo Yona (C) 13. New Chaot (C) 14. Pagachao (S) 15. Paseo De Oro (N) 16. Pump Station No. 11 (S) 17. Reyes (S) 18. Tai Mangilao (C) 19. Toto Garden (C)	1. Agat Chaligan Taleyfac (Chaligan) (S) 2. Cabras Island (C) 3. Casamiro (C) 4. Chalan Pago Pump Station 3 (C) 5. Chalan Pago Pump Station 5 6. Dero Road (C) 7. Ejector Station No. 4 (S) 8. Ejector Station No. 5 (S) 9. Ejector Station No. 7 (S) 10. Leyang (C) 11. Main Trunk Line (S) 12. Ordot (C) 13. Pacific Latte (N) 14. PGD (N) 15. Pump Station No. 12 (S) 16. Pump Station No. 14 (S) 17. Pump Station No. 15 (S) 18. Pump Station No. 18 (S) 19. Sinajana (C) 20. Zero Down PS (N)	All Pump Stations not included as Pump Station priority projects or Tiers 1, 2, and 3.

27. Sewage Pump Stations: Preliminary Work Plans. For each tier and beginning with Tier 1, as an interim milestone, GWA shall develop and submit to EPA for review and

¹ The district for each Pump Station is noted in parentheses: Northern (N), Central (C), and Southern (S).

1 approval a preliminary design schedule that prioritizes Pump Station improvements based on
2 current known conditions of each Pump Station within that tier (“Pump Station Preliminary
3 Work Plans”). GWA shall submit the Pump Station Preliminary Work Plans in accordance with
4 the following schedule:

5 a. Tier 1 Pump Station Preliminary Work Plan within one year of the
6 Effective Date;

7 b. Tier 2 Pump Station Preliminary Work Plan within five (5) years of the
8 Effective Date;

9 c. Tier 3 and Tier 4 Pump Station Preliminary Work Plan within ten (10)
10 years of the Effective Date.
11

12 28. GWA shall include in each Pump Station Preliminary Work Plan:

13 a. an estimated scope of work for each Pump Station based on the known
14 condition and a corresponding conceptual design in accordance with the acceptance criteria set
15 forth in Paragraph 31;
16

17 b. a schedule for a Pump Station condition assessment performed in
18 accordance with Paragraph 29; and
19

20 c. a proposed schedule of key implementation dates for each Pump Station
21 within the tier, to include, at a minimum, execute design contract, complete condition
22 assessment, issue a notice to proceed with design, execute construction contract, issue a notice to
23 proceed with construction, complete construction, all in accordance with Paragraph 30.
24

25 d. GWA may propose, based on worsening conditions at any Pump Station
26 from those that existed as of the Effective Date of this Consent Decree or for which land
27 acquisition is required, a change in Tier designation or substitution of Pump Station between
28

1 Tiers, for EPA review and approval with the Preliminary Work Plan provided that (i) if GWA
2 proposes a tier change, GWA may only propose changing a Pump Station from a higher priority
3 tier to a lower priority tier by one tier (*e.g.*, GWA may not propose changing a Pump Station
4 from Tier 1 to Tier 3); and (ii) if GWA's Pump Station change proposal is based on GWA's
5 acquisition of land, GWA must include in its request to EPA a commitment to resolve the land
6 acquisition issue within a specific time period.
7

8 29. Sewage Pump Stations: Condition Assessments. GWA shall assess the condition
9 of each Pump Station through observation, direct inspection, investigation, and monitoring.
10 GWA shall use the data and information from the condition assessment to identify structural and
11 operational issues, evaluate the overall performance of the system, update its Pump Station asset
12 condition profiles, and assess the rate of deterioration of Pump Station assets. As interim
13 milestones, GWA shall complete and submit Pump Station condition assessments to EPA for
14 review and comment, in accordance with the schedules established within each Pump Station
15 Preliminary Work Plan tier. GWA shall ensure that each condition assessment is conducted,
16 stamped, and certified by a Professional Engineer, and include the following:
17

- 18 a. Review of existing condition assessment information and prior studies;
- 19 b. Review of existing operations plans, operational data, and asset
20 management data;
- 21 c. Interviews with operations, maintenance, and engineering staff;
- 22 d. Review of available engineering drawings;
- 23 e. Pump Station inspections that include structural, mechanical, electrical,
24 and civil assessments, and utilize up-to-date industry standard technologies, tools, and practices;
25
26
27 and
28

1 f. For each pump: designed horsepower, power demands, designed flows,
2 installation date, and Preferred Operating Region;

3 g. For each Pump Station: average flows, overall power demand, and overall
4 wet well capacity.

5
6 For any associated Pump Station, the Force Main Condition Assessment completed under
7 Paragraph 18 can be utilized as part of the Pump Station condition assessment to the extent that
8 the information therein remains accurate and valid.

9
10 30. Completion of Tier 1 and 2 Projects. Based on the Pump Station condition
11 assessments, GWA shall complete all improvement work set forth in the Pump Station
12 Preliminary Work Plan for Tier 1 and 50% of the improvement work set forth in the Pump
13 Station Preliminary Work Plan for Tier 2, each as a compliance milestone, including any start-up
14 activities and any related O&M training for field personnel, in accordance with the following
15 schedule:

- 16
17 a. Tier 1 Projects within seven (7) years of the Effective Date; and
18 b. 50% completion of Tier 2 Projects within ten (10) years of the Effective
19 Date.

20 31. Sewage Pump Station Acceptance Criteria. For GWA to designate Pump Station
21 projects complete under Paragraph 30, the Pump Station project must satisfy each criterion listed
22 in this Paragraph and be designed and constructed to conform with good engineering practice
23 and the Ten States Standards, including practices to improve climate change resiliency of the
24 Pump Stations. As applicable, resilience considerations should be consistent with EPA's
25 Creating Resilient Water Utilities initiative, such as the Resilient Strategies Guide for Water
26 Utilities. When GWA determines that a Pump Station project has satisfied all of the acceptance
27 criteria and standards in this Paragraph, GWA shall certify in a semi-annual report submitted
28

1 pursuant to Paragraph 48 that the Pump Station project is complete according to Paragraph 30:

2 a. Emergency Operations. GWA shall install, and operate as necessary, at all
3 Pump Stations a continuous standby power supply in the form of a fuel-operated standby
4 generator system. GWA shall design this standby generator system as part of all Pump Stations
5 to supply the same amount of electrical power to the Pump Station (including all pumps,
6 controls, alarms, and support systems) as supplied by the utility company. Such emergency
7 operation systems shall comply with the Ten States Standards, including Chapter 47.
8

9 b. Screening baskets, comminutors, or grit removal devices. GWA shall
10 install and operate screening baskets, comminutors, or grit removal devices to remove and/or
11 comminute grit and large solids contained in the wastewater before it is pumped.
12

13 c. Proper site security and safety measures. GWA shall take all reasonable
14 measures to maintain safe Pump Station sites, ensure that site perimeter fencing is intact, and
15 prevent site access for trespassers, especially access to confined spaces.
16

17 d. Emergency action sheets. GWA shall update and post emergency action
18 sheets at each Pump Station that provide a set of standard operating procedures outlining the
19 steps an operator would take under a given scenario. GWA shall establish emergency action
20 sheets for the following Pump Station scenarios: power failure; backup power failure; emergency
21 response to an SSO; high-level alarm; and pre- and post-storm response. Each emergency action
22 sheet shall contain standard operating procedures that include: response time, response
23 personnel, chain of notification, response equipment, response procedures with order of
24 operations, safety precautions, and close-out procedures.
25

26 e. Backflow prevention devices. GWA shall install backflow prevention
27 devices to protect potable water sources from cross-contamination from wastewater backflow.
28

1 f. Alarms and SCADA systems. GWA shall install and maintain alarms,
2 controls, and supervisory control and data acquisition (SCADA) systems and integrate all alarms
3 and controls to the SCADA system to provide remote status monitoring of its pumping
4 operations from an off-site location, and to the extent practicable, remote control of its pumping
5 operations from an off-site location. GWA shall ensure that the SCADA system continuously
6 monitors, reports, and transmits the following information:
7

- 8 i. Daily operating hours for each sewage pump;
- 9 ii. Number of pump starts for each sewage pump;
- 10 iii. Wet well level with high- and low-level alarm set points;
- 11 iv. Flow (instantaneous and average);
- 12 v. Discharge pressure with high- and low-level alarm set points; and
- 13 vi. Minimum digital inputs, including high-water level alarm in wet
14 well, drywell flooding, intrusion alarm, Alternating Current Pump Station power failure, Direct
15 Current low battery, and remote signal failure alarm.
16

17 g. Adequate pumping capacity and redundancy. GWA shall ensure that there
18 is pump redundancy at each Pump Station. The minimum number of pumps per station shall be
19 two. GWA shall ensure pumping capacity and redundancy complies with the Ten States
20 Standards, Chapter 42.31.h
21

22 h. Adequate wet-well capacity. GWA shall ensure that newly-constructed,
23 Replacement, or Rehabilitated Pump Station wet-well volume is sufficient for anticipated wet-
24 weather peak hourly flow conditions and coordinated with pump sizing for the station. GWA
25 shall ensure each newly-constructed, Replacement, or Rehabilitated Pump Station wet-well
26 complies with the Ten States Standards, Chapter 42.6.
27
28

1 i. Corrosion protection. GWA shall Replace all Pump Station equipment,
2 including wet-well and valve equipment, rendered inoperable from corrosion, and provide Pump
3 Station equipment with adequate corrosion protection. GWA shall ensure corrosion protection
4 complies with the Ten States Standards, Chapter 42.25.

5 j. Adequate electrical panels, lighting, and Power Supply. GWA shall
6 ensure that each Pump Station has adequate electrical panels, lighting, and Power Supply.
7

8 k. Force Mains. GWA shall ensure Force Mains leaving the Pump Station
9 are in proper working condition and comply with the Ten States Standards, Chapter 49. For any
10 associated Pump Station, work completed pursuant to the Force Main Action Plan can be utilized
11 as part of the Pump Station Rehabilitation process to the extent that the information therein
12 remains accurate and valid.
13

14 l. Pumps. GWA shall ensure each pump is installed and operates within the
15 Preferred Operating Region under normal operating conditions and normal daily flow conditions.
16 GWA shall consider whether each Rehabilitated pump needs a variable frequency drive based on
17 a cost-benefit analysis. GWA shall ensure each type of pump within its system has a complete
18 repair kit and the necessary spare parts to resume pump service. GWA shall ensure each pump
19 complies with the Ten States Standards, Chapter 42.3.
20

21 m. Valves. GWA shall ensure all Pump Station valves are installed and in
22 good working condition. Each wastewater pump shall have isolation valves to permit the
23 removal or maintenance of the pumps and check valves without affecting the operation of
24 remaining pumps. Each Pump Station shall have sufficient valves to permit the proper operation
25 and maintenance of the Pump Station during normal, peak, and bypass conditions. Each valve
26 shall be rated for use with raw, unscreened wastewater, and shall be designed for its function and
27
28

1 installation location, as well as the normal and maximum operating pressures expected at the
2 Pump Station. GWA shall ensure valves comply with the Ten States Standards, Chapter 42.5.

3 n. Computerized Maintenance Management System (“CMMS”). GWA shall
4 enter all equipment assets, spare parts, preventative maintenance procedures, and a recurring
5 maintenance schedule for all Pump Station assets into GWA’s CMMS in accordance with
6 GWA’s asset management program. The manufacturer’s documented operation and
7 maintenance procedure shall be incorporated into the specific preventative maintenance for each
8 asset.
9

10 o. Operational testing and performance period. GWA shall ensure
11 that each Pump Station completes the operational testing and performance period successfully.
12

13 p. Operational Testing. For operational testing, GWA shall operate
14 and monitor the Pump Station for five (5) consecutive Days. During operational testing, GWA
15 shall demonstrate Pump Station operation on automatic control without equipment or control
16 failure and with sewage tie-in. The Pump Station mechanical equipment, electrical/control
17 systems, and emergency power equipment shall operate without failure during the operational
18 testing.
19

20 q. Performance Period. For a Pump Station to be considered
21 operational and successfully complete the performance period, all Pump Station equipment and
22 operational systems, including all control, alarm, and SCADA systems, shall operate without
23 failure for six (6) months and shall not result in any SSOs caused by a Pump Station failure
24 within that time period.
25

26 B. HAGÁTÑA WWTP

27 32. Hagátña WWTP Secondary Treatment Feasibility Study. Within seven (7) years
28 of the Effective Date, as a compliance milestone, GWA shall submit to EPA for review and

1 approval a feasibility study for secondary treatment upgrades to the Hagåtña WWTP that will
 2 include analyses of design options, alternative locations, climate change and sea level rise, and
 3 planning level construction cost estimates and construction timelines. The feasibility study must
 4 conform with good engineering practice and the Ten States Standards, including practices to
 5 improve climate change resiliency of the secondary treatment upgrades to the Hagåtña WWTP.
 6 As applicable, resilience considerations should be consistent with EPA’s Creating Resilient
 7 Water Utilities initiative, such as the Resilient Strategies Guide for Water Utilities.
 8

9 33. Hagåtña WWTP Interim Effluent Limits and Monitoring Requirements. Until
 10 GWA achieves and demonstrates compliance with secondary treatment standards of the Clean
 11 Water Act, as defined by 40 C.F.R. Part 133, and any effluent limitations for TSS and BOD set
 12 forth in GWA’s applicable NPDES Permit for the Hagåtña WWTP, GWA shall achieve
 13 compliance with interim effluent limits and monitoring requirements for wastewater discharges
 14 from the Hagåtña WWTP set forth below in Table C. This Consent Decree shall not affect the
 15 force or effect of any other effluent limitations, or monitoring and reporting requirements, or any
 16 other terms and conditions of the applicable NPDES Permit(s).
 17
 18

19 **Table C: Hagåtña WWTP Interim Effluent Limits**

20

Interim Discharge Limitations					Monitoring Requirements	
Discharge Parameter	Average Monthly	Average Weekly	Maximum Daily	Units	Frequency	Sample Type
Biochemical Oxygen Demand (5-day)	97	140	--	mg/L	Weekly	24-hour composite
	4,911	7,055	--	lbs/day		
	Average monthly percent removal shall not be less than 33%			%		
Total Suspended Solids	64	125	--	mg/L	Weekly	24-hour composite
	2,827	5,500	--	lbs/day		
	Average monthly percent removal shall not be less than 50%			%		

21
22
23
24
25
26
27
28

1 C. OPERATION & MAINTENANCE REQUIREMENTS

2 34. Cleaning. Beginning on the Effective Date, as an interim milestone, GWA shall
3 clean 60 “unique miles” of Gravity Mains in each year, which is approximately 20 percent of
4 GWA’s Gravity Mains. In calculating the number of “unique miles” each year, GWA shall
5 count each individual pipe segment cleaned in that year, but shall not count an individual pipe
6 segment multiple times even if that pipe segment was subject to repeated cleaning in that year.
7 GWA shall clean its entire Gravity Main system every 5 years. This obligation shall terminate
8 upon Termination of the Consent Decree.
9

10 35. Hot Spot Cleaning. As an interim milestone, GWA shall implement a Hot Spot
11 Cleaning Program, as conditionally approved by EPA on July 11, 2019, with the focus on
12 repeated, routine cleaning of sewer locations that have a history of blockages, FOG and grit
13 build-up, and SSOs.
14

15 36. SSO Response Plan. GWA shall implement an SSO Response Plan as approved
16 by EPA on September 9, 2020. The SSO Response Plan shall include, but not be limited to,
17 standard operating procedures for timely response to SSOs, spill containment, site security, site
18 cleanup, a standard method for the estimation of spill volumes, public notification, and reporting
19 requirements. For any repeat SSO or SSO greater than 1,000 gallons from a Gravity Main, the
20 SSO Response Plan shall require GWA to conduct a CCTV inspection downstream of the SSO
21 location for purposes of determining the cause of the SSO.
22

23 37. SSO and Bypass Reporting Requirements. Within thirty (30) Days after the end
24 of each calendar-year quarter (i.e., by January 30, April 30, July 30, and October 30) after the
25 Effective Date, until termination of the Consent Decree, GWA shall submit to EPA and Guam
26 EPA a summary of all SSOs and Bypasses that occurred during the quarter.
27

28 a. For each SSO, the reports shall provide: (a) a map showing the locations

1 of all SSOs occurring in the previous quarter in relation to the locations of drinking water wells
2 and Pump Stations; (b) the start and end date and time of each SSO; (c) the location of each SSO
3 including address, village, and manhole numbers; (d) the structure(s) from which each SSO
4 emerged (e.g., manhole, broken pipe, wet well, indoor plumbing, Lateral cleanout, etc.); (e) the
5 pipe size, length, and material; (f) the estimated volume of each SSO including gross volume,
6 amount recovered, and amount not recovered; (g) the cause of each SSO; (h) whether each SSO
7 entered a particular water of the United States, and if so, the name of the water body and whether
8 it entered via storm drains or other man-made conveyances; (i) the results and analysis of any
9 post-SSO CCTV results; and (j) the actions GWA took to control the SSO and prevent future
10 SSOs at the same location.
11

12
13 b. For each Bypass, the reports shall provide: (a) the name of the treatment
14 facility and the part(s) of the facility bypassed; (b) the start and end date and time of the Bypass;
15 (c) a detailed explanation of the cause(s), and all available photographs, videos, and maps that
16 would aid in explaining its cause(s); (d) if a Bypass was in response to a storm event, local rain
17 gauge data for that event; (e) the following flows: Bypass; facility influent; and facility effluent;
18 and a description of how they were determined, including any calculations; (f) the results of any
19 samples taken of the Bypass or receiving water, or an explanation of why sampling was not
20 conducted; (g) the dates that GWA provided verbal and written notifications of the Bypass to
21 EPA and Guam EPA; and (h) the actions GWA took to control the Bypass and prevent future
22 Bypasses.
23

24
25 38. Asset Management. Within six (6) months of the Effective Date, as an interim
26 milestone, GWA shall develop and implement an Asset Management Program, including a
27 complete and regularly updated asset registry; routine condition assessments; preventive
28

1 maintenance schedules for all assets; and a system for maintenance tracking. GWA's Asset
2 Management Program shall meet the standards of the "International Standard ISO 55001 - Asset
3 management – Management systems – Requirements" (2014 edition or any subsequent revision).
4 GWA shall integrate the data from the Asset Management Program into GWA's long- and short-
5 term planning processes, including GWA's official capital improvement plan.

6
7 **D. PRETREATMENT PROGRAM**

8 39. **Industrial Pretreatment Program.** As a compliance milestone, GWA shall
9 implement and enforce an Industrial Pretreatment Program that complies with 40 C.F.R. Part
10 403, and is approved by the Guam Legislature and by EPA.

11 a. Within nine (9) months of the Effective Date, as an interim milestone,
12 GWA shall submit to EPA, for review and comment, a proposed Industrial Pretreatment
13 Program. As part of the Industrial Pretreatment Program, GWA shall:

14
15 i. Submit a revised sewer use ordinance that provides GWA with the
16 authority to enforce the requirements of Sections 307(b) and (c) and 402(b)(8) of the Act, 33
17 U.S.C. §§ 1317(b) and (c), 1342(b)(8), and any regulations implementing those Sections;

18
19 ii. Identify and locate all possible Industrial Users, that might be
20 subject to the Pretreatment Program consistent with 40 C.F.R. § 403.8(f)(6);

21
22 iii. Conduct a technically-based local limit evaluation as required by
23 40 C.F.R. § 403.8(f)(4) and, if required, develop technically-based local limits as required in 40
24 C.F.R. § 403.5. This local limit evaluation shall include the analyses necessary to determine the
25 maximum headworks loadings for the Northern District and Hagåtña WWTPs and the maximum
26 pollutant levels protection of the Wastewater Collection System, as well as the method of
27 allocating allowable loadings to the Industrial Users (as defined in 40 C.F.R. § 403.3(j)), a
28 schedule of public hearings and outreach, and the ordinance adoption procedure;

1 iv. Implement control mechanisms (such as permits) to ensure that
2 Industrial Users comply with applicable Pretreatment Standards and requirements consistent with
3 40 C.F.R. § 403.8(f);

4 v. Develop and implement an enforcement response plan that
5 contains detailed procedures indicating how GWA will investigate and respond to instances of
6 Industrial User noncompliance in accordance with 40 C.F.R. § 403.8(f)(5);

7 vi. Develop a sampling program to sample and analyze the effluent of
8 its Industrial Users in accordance with 40 C.F.R. § 403.8(f)(2)(v);

9 vii. Conduct inspections and surveillance activities of Significant
10 Industrial Users, as defined in 40 C.F.R. § 403.3(v), at least once annually in order to identify,
11 independent of information supplied by the Industrial User, noncompliance with applicable
12 Pretreatment Standards in accordance with 40 C.F.R. § 403.8(f)(2)(v); and
13

14 viii. Demonstrate that GWA has sufficient resources and qualified
15 personnel to carry out the Industrial Pretreatment Program in accordance with 40 C.F.R. §
16 403.8(f)(3).
17

18 b. Within six (6) months of receipt of EPA's comments on the proposed
19 Industrial Pretreatment Program, GWA shall develop and submit to the Guam Legislature for
20 approval pursuant to Guam's Administrative Adjudication Act an Industrial Pretreatment
21 Program that complies with 40 C.F.R. Part 403 and addresses EPA's comments.
22

23 c. Within thirty (30) Days of the Guam Legislature's approval of the Part
24 403-compliant Industrial Pretreatment Program, GWA shall submit that program to EPA for
25 final review and approval.
26

27 40. Fats, Oils, and Grease Control Program. Within six (6) months of EPA's
28

1 approval of the FOG control program manual, GWA shall develop and submit to the Guam
2 Legislature for approval pursuant to Guam’s Administrative Adjudication Act a comprehensive
3 FOG control program to minimize the potential of SSOs caused by FOG that complies with 40
4 C.F.R. Part 403. GWA shall, as a compliance milestone, implement and enforce the Part 403-
5 compliant FOG control program approved by the Guam Legislature. Within 90 Days of the
6 Effective Date, as an interim milestone, GWA shall submit to EPA, for review and approval, a
7 FOG control program manual. The FOG control program shall meet the following requirements:
8

9 a. A Food Service Establishment shall not discharge its wastewater into the
10 Wastewater Collection System without a GWA permit issued in accordance with Guam
11 Administrative Rules and Regulations (“GAR”) Title 28 and the FOG control program manual;
12

13 b. At a minimum, GWA shall conduct an annual inspection of each GRD at
14 each FSE to verify that a properly-sized GRD has been installed, is operating, and has been
15 maintained in compliance with GAR Title 28 and the FOG control program manual. GWA’s
16 annual inspections shall include physical inspection, including coring, of the GRD and review of
17 both GRD maintenance and grease hauling logs;
18

19 c. For any FSE or other GRD permittee that has failed to properly install,
20 operate, and maintain a GRD, the FOG control program shall include an enforcement response
21 plan; and
22

23 d. For any FSE not served by a GRD, GWA shall require the FSE to obtain a
24 permit and install, operate, and maintain a properly-sized GRD that meets the requirements of
25 GAR Title 28 and the FOG control program manual.

26 E. APPROVAL OF DELIVERABLES/PERMITS

27 41. Approval of Deliverables. After review of any plan, report, or other item that is
28 required to be submitted for EPA’s review and approval pursuant to this Consent Decree, EPA

1 shall in writing: (a) approve the submission; (b) approve the submission upon specified
2 conditions; (c) approve part of the submission and disapprove the remainder; or (d) disapprove
3 the submission. EPA will use its best efforts to expeditiously review and take action on
4 deliverables that GWA submits.

5 42. If the submission is approved pursuant to Paragraph 41, GWA shall take all
6 actions required by the plan, report, or other document, in accordance with the schedules and
7 requirements of the plan, report, or other document, as approved. If the submission is
8 conditionally approved or approved in part pursuant to Paragraph 41(b) or (c), GWA shall, upon
9 written direction from EPA, take all actions required by the approved plan, report, or other item
10 that EPA determines are technically severable from any disapproved portions, subject to GWA's
11 right to dispute only the specified conditions or the disapproved portions, under Section IX
12 (Dispute Resolution).
13

14 43. If the submission is disapproved in whole or in part pursuant to Paragraph 41(c)
15 or (d), the GWA shall, within thirty (30) Days or such other time as the Parties agree to in
16 writing, correct all deficiencies and resubmit the plan, report, or other item, or disapproved
17 portion thereof, for approval, in accordance with the preceding Paragraphs. If the resubmission
18 is approved in whole or in part, GWA shall proceed in accordance with the preceding Paragraph.
19

20 44. Any stipulated penalties applicable to the original submission, as provided in
21 Section VII (Stipulated Penalties), shall accrue during the 30-Day period or other specified
22 period, but shall not be payable unless the resubmission is untimely or is disapproved in whole or
23 in part; provided that, if the original submission was so deficient as to constitute a material
24 breach of GWA's obligations under this Decree, the stipulated penalties applicable to the original
25 submission shall be due and payable notwithstanding any subsequent resubmission.
26
27
28

1 45. If a resubmitted plan, report, or other item, or portion thereof, is disapproved in
2 whole or in part, EPA may again require the submitting Defendant to correct any deficiencies, in
3 accordance with the preceding Paragraphs, or may itself correct any deficiencies, subject to
4 Defendant's right to invoke Dispute Resolution and the right of EPA to seek stipulated penalties
5 as provided in the preceding Paragraphs.
6

7 46. In the event of unforeseen contingencies, GWA may make a written request to
8 EPA to change any schedule or deadline in any approved or conditionally approved submission.
9 Any such request must be submitted at least sixty (60) Days prior to the applicable deadline and
10 must include a proposed schedule or deadline, the basis for the request, and how GWA intends to
11 meet the proposed schedule or deadline, including supporting documentation. EPA will approve,
12 approve with conditions, or disapprove the request. If EPA approves or conditionally approves
13 the request, the new schedule or deadline will be applicable as of the date of EPA's approval or
14 conditional approval. Any dispute regarding EPA's decision on a request made under this
15 Paragraph shall be subject to Dispute Resolution pursuant to Section IX (Dispute Resolution).
16 Changes to milestones, schedules, or deadlines set forth in this Consent Decree may only be
17 made through a modification pursuant to Section XVI (Modification).
18
19

20 47. Permits. Where any obligation under this Section requires GWA to obtain a
21 federal, State, or local permit or approval, GWA shall submit timely and complete applications
22 and take all other actions necessary to obtain all such permits or approvals. GWA may seek
23 relief under the provisions of Section VIII (Force Majeure) for any delay in the performance of
24 any such obligation resulting from a failure to obtain, or a delay in obtaining, any permit or
25 approval required to fulfill such obligation, if GWA has submitted timely and complete
26 applications and has taken all other actions necessary to obtain all such permits or approvals.
27
28

VI. REPORTING REQUIREMENTS

1
2 48. Semi-annual Report. By January 31st and July 31st of each year after the Effective
3 Date of this Consent Decree, until termination of this Decree pursuant to Section XVII, GWA
4 shall submit to EPA by email a complete and accurate semi-annual report for the preceding six
5 months that shall address: the status of any construction activities; the status of all injunctive
6 relief compliance requirements set forth in Section V, including Paragraph references and
7 completion dates; completion of milestones; problems encountered or anticipated, together with
8 implemented or proposed solutions; a list of all required permits and the status of those permit
9 applications; operation and maintenance updates; and reports to Guam EPA. More specifically,
10 each of the semi-annual reports shall include:
11

12 a. A discussion of the completion of milestones in the Pump Station work
13 plans in the form of a list that identifies by Pump Station name and project, satisfaction of the
14 acceptance criteria in Paragraph 31, and the completion date for all Pump Station improvements
15 scheduled in the applicable Pump Station Preliminary Work Plans.
16

17 b. A statement of the number of miles of Gravity Mains that GWA has
18 Rehabilitated and Replaced in the previous six months, in accordance with Paragraph 12.b. For
19 each Gravity Main Rehabilitated or Replaced, GWA shall provide the following information:
20 (1) the pipe identification number; (2) whether the pipe was Rehabilitated or Replaced; (3) the
21 length of the Gravity Main claimed as credit towards the mileage requirements and the length of
22 Rehabilitation or Replacement performed; (4) the pipe material; (5) the diameter of the pipe;
23 (6) the original installation date of the Gravity Main at issue; (7) the most recent condition
24 assessment of the Gravity Main prior to its Rehabilitation or Replacement; (8) a map depicting
25 the location of each Gravity Main Rehabilitated or Replaced; (9) the average annual rate of
26 Gravity Main Rehabilitation based on a two (2) year rolling average, the number of feet of
27
28

1 Gravity Mains Rehabilitated, and the cumulative total feet of Gravity Main Rehabilitated since
2 the Effective Date; (10) the number of manholes associated with Rehabilitated Gravity Mains
3 and the number of manholes Rehabilitated; (11) the number of Laterals reconnected in
4 association with Gravity Main Rehabilitation and Replacement; (12) if GWA did not achieve its
5 Rehabilitation requirement in Paragraph 12.b, an explanation of why it did not achieve the
6 Rehabilitation requirement and a description of what changes to the work will be made in order
7 to correct the deficiency and achieve the Rehabilitation requirement in GWA's subsequent fiscal
8 years; (13) the Rehabilitation budget and dollars spent on Gravity Main Rehabilitation; (14) the
9 Gravity Main Rehabilitation projects targeted to be completed in GWA's next fiscal year; and
10 (15) an explanation of any revisions that were made to GWA's financial planning associated
11 with future Gravity Main Rehabilitation and Replacement projects.
12

13
14 c. A list of all deliverables submitted to EPA and a description of the work
15 performed pursuant to all deliverables submitted to the United States and approved or
16 commented on by EPA, as well as a list of deliverables submitted to the United States but not yet
17 approved or commented on by EPA.
18

19 d. The feet of Gravity Mains cleaned and percent of feet of Gravity Mains in
20 the Wastewater Collection System cleaned as part of the routine and hot spot cleaning programs
21 set forth in Paragraphs 34 and 35, reporting both unique footage and total footage (i.e., including
22 repeat cleanings) and the feet of Gravity Mains in the hot spot cleaning program and the range of
23 cleaning frequencies.
24

25 e. A description of the activities to Repair, Rehabilitate, or Replace Acute
26 Defects pursuant to Paragraph 12.a, including the number of Acute Defects found; the number of
27 Acute Defects Repaired, Rehabilitated, and Replaced; and for Acute Defects that were not
28

1 Repaired, Rehabilitated, or Replaced within 18 or 24 months from identification, as applicable,
2 an explanation of why they were not Repaired, Rehabilitated, or Replaced and description of the
3 actions or a schedule to Repair, Rehabilitate, or Replace the Acute Defect(s) as soon as possible.

4 f. A summary of the systematic review, pursuant to Paragraph 23.c, of Force
5 Main operating data, which at a minimum includes pump run times, discharge pump rates and
6 pump speed, pump suction and discharge pressures, flow rates, and performance indicators
7 (including excessive noise, vibrations, and leakage), all of which may have revealed Force Main
8 performance issues.
9

10 g. A description of any non-compliance with the requirements of this
11 Consent Decree that occurred during the reporting period and an explanation of the violation's
12 likely cause and of the remedial steps taken, or to be taken, to prevent or minimize such
13 violation. If GWA violates, or has reason to believe that it may violate, any requirement of this
14 Consent Decree, GWA shall notify the United States of such violation and its likely duration, in
15 writing, within ten (10) business days of the Day GWA first becomes aware of the violation,
16 with an explanation of the violation's likely cause and of the remedial steps taken, or to be taken,
17 to prevent or minimize such violation. If any event occurs, or may occur, that might delay the
18 performance of any obligation under this Consent Decree, GWA shall provide notice orally or by
19 electronic transmission to EPA and the United States, within 72 hours or two (2) business days
20 of when GWA first knew that such event might cause a delay, whichever period of time is
21 longer. Within seven (7) Days thereafter, GWA shall provide in writing to EPA an explanation
22 and description of the reasons for the delay; the anticipated duration of the delay; all actions
23 taken or to be taken to prevent, minimize or mitigate the delay or the effect thereof, and a
24 schedule for implementation of any such measures; and a statement as to whether, in the opinion
25
26
27
28

1 of GWA, such event may cause or contribute to an endangerment to public health, welfare or the
2 environment.

3 h. Whenever any violation of this Consent Decree or any of the applicable
4 NPDES Permits or any other event affecting GWA's performance under this Consent Decree, or
5 the performance of its POTW, may pose an immediate threat to the public health or welfare or
6 the environment, GWA shall notify EPA orally and by e-mail as soon as possible, but no later
7 than 24 hours after GWA first knew of the violation or event. If the cause of a violation or event
8 cannot be fully explained at the time the report is due, GWA shall so state in the report. GWA
9 shall investigate the cause of the violation or event and shall then submit an amendment to the
10 report, including a full explanation of the cause of the violation or event, within thirty (30) Days
11 of the Day GWA becomes aware of the cause of the violation or event. Nothing in this
12 Paragraph relieves GWA of its obligation to provide the notice required by Section VIII (Force
13 Majeure).

14 49. Annual Meeting. At a mutually agreeable date in March of each year after the
15 Effective Date, the Parties shall meet, either in person or via teleconference, to review GWA's
16 compliance with the requirements of the Consent Decree and to discuss the status of the work
17 being performed by GWA pursuant to the Decree and interim milestones and compliance
18 milestones set forth in the Decree. Two weeks before the scheduled annual meeting, GWA shall
19 provide EPA a proposed agenda addressing issues to be discussed.

20 50. Each report submitted by GWA under this Section shall be signed by an official
21 of GWA and include the following certification:

22 I certify under penalty of law that this document and all
23 attachments were prepared under my direction or supervision in
24 accordance with a system designed to assure that qualified
25 personnel properly gather and evaluate the information submitted.

1 Based on my inquiry of the person or persons who manage the
2 system, or those persons directly responsible for gathering the
3 information, the information submitted is, to the best of my
4 knowledge and belief, true, accurate, and complete. I have no
5 personal knowledge that the information submitted is other than
6 true, accurate, and complete. I am aware that there are significant
7 penalties for submitting false information, including the possibility
8 of fine and imprisonment for knowing violations.

9 This certification requirement does not apply to emergency or similar notifications where
10 compliance would be impractical.

11 51. The reporting requirements of this Consent Decree do not relieve GWA of any
12 reporting obligations required by the Act or implementing regulations, or by any other federal,
13 State, or local law, regulation, permit, or other requirement.

14 52. Any information provided pursuant to this Consent Decree may be used by the
15 United States in any proceeding to enforce the provisions of this Consent Decree and as
16 otherwise permitted by law.

17 **VII. STIPULATED PENALTIES**

18 53. GWA shall be liable for stipulated penalties to the United States for violations of
19 this Consent Decree as specified below, unless excused under Section VIII (Force Majeure). A
20 violation includes failing to perform any obligation required by the terms of this Decree,
21 including any work plan or schedule approved under this Decree, according to all applicable
22 requirements of this Decree and within the specified time schedules established by or approved
23 under this Decree.

24 54. Interim Effluent Limits. The following stipulated penalties shall accrue per
25 violation for each violation of an interim effluent limit or monitoring requirement established
26 pursuant to Paragraph 33 (a violation of a weekly or monthly average limit, or a monitoring
27 requirement, shall be considered a single violation):
28

Penalty Per Violation

Period of Noncompliance

\$500..... Daily Maximum Limit or Monitoring Requirement

\$1,000..... Weekly Average Limit

\$1,500..... Monthly Average Limit

55. Gravity Main Rehabilitation or Replacement. GWA’s failure to meet a target to Rehabilitate or Replace Gravity Mains pursuant to Paragraph 12.b shall result in a stipulated penalty as follows:

Feet Not Completed

Penalty Per Foot

Up to and including 5000 feet

\$6

Over 5000 feet

\$12

56. For failure to clean the required minimum miles of Gravity Mains in any year as set forth in Paragraph 35, GWA shall be liable for a stipulated penalty of \$3,500 per mile below the annual performance requirement.

57. SSOs.

a. For each SSO that reaches waters of the United States, GWA shall pay a stipulated penalty in the amount of \$750 for SSOs under 1,000 gallons, \$1,000 for SSOs between 1,000 and 10,000 gallons, \$4,000 for SSOs between 10,000 and 100,000 gallons, and \$10,000 for SSOs over 100,000 gallons. For each SSO that does not reach waters of the United States, GWA shall pay a stipulated penalty in the amount of \$200 for SSOs under 1,000 gallons, \$750 for SSOs between 1,000 and 10,000 gallons, \$3,000 for SSOs between 10,000 and 100,000 gallons, and \$8,000 for SSOs over 100,000 gallons. Notwithstanding the foregoing, GWA shall not be liable for stipulated penalties under this Paragraph if GWA demonstrates that an SSO was caused by vandalism or a contractor not working for GWA; and GWA demonstrates that it has used all reasonable measures to prevent said SSO and properly respond, including limiting public contact.

1 b. For failure to respond to an SSO in accordance with the SSO Response
2 Plan after approval by EPA pursuant to Paragraph 37, GWA shall pay a stipulated penalty of
3 \$1,000 per SSO.

4 58. Compliance Milestones.

5 a. The following stipulated penalties shall accrue per violation per Day for
6 each violation of the compliance milestones identified in subparagraph b of this Paragraph.
7

<u>Penalty Per Violation Per Day</u>	<u>Period of Noncompliance</u>
\$750.....	1 st through 30 th Day
\$1,000.....	31 st through 60 th Day
\$1,500.....	61 st Day and beyond

8 b. List of Compliance Milestones.

- 9 (1) Failure to Repair, Rehabilitate, or Replace Acute Defects pursuant to Paragraph 12.a.
10 (2) Failure to submit a Long-Term Gravity Main Plan pursuant to Paragraph 13.a.
11 (2) Failure to complete Capacity Assurance Projects pursuant to Paragraph 15.
12 (3) Failure to complete implementation of the Force Main Action Plan pursuant to
13 Paragraph 21.
14 (4) Failure to complete any Pump Station Priority Project pursuant to Paragraph 25, or
15 failure to complete any Pump Station improvement work pursuant to Paragraph 30.
16 (5) Failure to submit a feasibility study for secondary treatment upgrades to the Hagåtña
17 WWTP pursuant to Paragraph 32.
18 (6) Failure to implement an approved Industrial Pretreatment Program pursuant to
19 Paragraph 39.
20 (7) Failure to implement an approved FOG control program pursuant to Paragraph 40.

21 59. Interim Milestones.
22
23
24
25
26
27
28

1 a. The following stipulated penalties shall accrue per violation per Day for
 2 each violation of the requirements identified in subparagraph b of this Paragraph.

<u>Penalty Per Violation Per Day</u>	<u>Period of Noncompliance</u>
\$500.....	1 st through 30 th Day
\$750.....	31 st through 60 th Day
\$1,000.....	61 st Day and beyond

7 b. List of Interim Milestones.

8 (1) Failure to complete CCTV inspections, failure to assess CCTV inspections, or failure
 9 to submit a Gravity Main Condition Assessment Report pursuant to Paragraph 11.

10 (2) Failure to submit a Gravity Main Work Plan pursuant to Paragraph 2.c.

11 (3) Failure to submit a Capacity Evaluation Report pursuant to Paragraph 15.

12 (4) Failure to submit a Capacity Assurance Report pursuant to Paragraph 16.

13 (5) Failure to submit a Force Main inventory pursuant to Paragraph 17.

14 (6) Failure to complete a Force Main condition assessment pursuant to Paragraph 18.

15 (7) Failure to submit:

- 16 • a Force Main Assessment Report pursuant to Paragraph 19;
- 17 • a Force Main Action Plan pursuant to Paragraph 20;
- 18 • a Force Main Spill Contingency Plan pursuant to Paragraph 22;
- 19 • a Force Main O&M Program pursuant to Paragraph 23.

20 (8) Failure to submit Pump Station Preliminary Work Plans pursuant to Paragraph 27.

21 (9) Failure to submit Pump Station condition assessments pursuant to Paragraph 29.

22 (10) Failure to clean 60 “unique miles” of Gravity Mains annually pursuant to Paragraph

23 34.

24 (11) Failure to implement the Hot Spot Cleaning Program pursuant to Paragraph 35.

1 (12) Failure to develop and implement the Asset Management Program pursuant to
2 Paragraph 38.

3 (13) Failure to submit a proposed Industrial Pretreatment Program pursuant to Paragraph
4 39.

5 (14) Failure to submit a FOG control program manual pursuant to Paragraph 4040.

6
7 60. Reporting and Implementation Requirements. The following stipulated penalties
8 shall accrue per violation per Day for each violation of the reporting requirements of Paragraph
9 37 (SSO and Bypass reporting) or Section VI (Reporting Requirements), and for each failure to
10 implement any deliverable approved or conditionally approved pursuant to Section V.E
11 (Approval of Deliverables/Permits) that is not specifically listed in Paragraph 58.b (Compliance
12 Milestones) or 59.b (Interim Milestones):
13

<u>Penalty Per Violation Per Day</u>	<u>Period of Noncompliance</u>
\$500.....	1st through 30th Day
\$1,000.....	31st through 60th Day
\$1,250.....	61st Day and beyond

14
15
16
17
18 61. Stipulated penalties under this Section shall begin to accrue on the Day after
19 performance is due or on the Day a violation occurs, whichever is applicable, and shall continue
20 to accrue until performance is satisfactorily completed or until the violation ceases. Stipulated
21 penalties shall accrue simultaneously for separate violations of this Consent Decree.

22 62. GWA shall pay any stipulated penalty within thirty (30) Days of receiving the
23 United States' written demand.

24 63. The United States may, in the unreviewable exercise of its discretion, reduce or
25 waive stipulated penalties otherwise due it under this Consent Decree.

26 64. Stipulated penalties shall continue to accrue as provided in Paragraph 61, during
27
28

1 any Dispute Resolution, but need not be paid until the following:

2 a. If the dispute is resolved by agreement of the Parties or by a decision of
3 EPA that is not appealed to the Court, GWA shall pay accrued penalties determined to be owing,
4 together with interest, to the United States within thirty (30) Days of the Effective Date of the
5 agreement or the receipt of EPA's decision or order.

6 b. If the dispute is appealed to the Court and the United States prevails in
7 whole or in part, GWA shall pay all accrued penalties determined by the Court to be owing,
8 together with interest, within sixty (60) Days of receiving the Court's decision or order, except as
9 provided in subparagraph c of this Paragraph.
10

11 c. If any Party appeals the District Court's decision, GWA shall pay all
12 accrued penalties determined to be owing, together with interest, within fifteen (15) Days of
13 receiving the final appellate court decision.
14

15 65. GWA shall pay stipulated penalties owing to the United States by FedWire
16 Electronic Funds Transfer ("EFT") to the DOJ account, in accordance with instructions provided
17 to GWA by the Financial Litigation Unit ("FLU") of the United States Attorney's Office for the
18 District of Guam after the Effective Date. The payment instructions provided by the FLU will
19 include a Consolidated Debt Collection System ("CDCS") number, which GWA shall use to
20 identify all payments required to be made in accordance with this Consent Decree. The FLU
21 will provide the payment instructions to:
22

23 Taling M Taitano
24 Chief Financial Officer
25 Guam Waterworks Authority
26 Ste 200, Gloria B. Nelson Public Service Building
27 688 Route 15
28 Mangilao, Guam 96913
(671) 300-6860
tmtaitano@guamwaterworks.org

1 on behalf of GWA. GWA may change the individual to receive payment instructions on its
2 behalf by providing written notice of such change to DOJ and EPA in accordance with Section
3 XIII (Notices).

4 66. At the time of payment, GWA shall send notice that payment has been made: (i)
5 to EPA via email at cinwd_acctsreceivable@epa.gov or via regular mail at EPA Cincinnati
6 Finance Office, 26 W. Martin Luther King Drive, Cincinnati, Ohio 45268; and (ii) to DOJ via
7 email or regular mail in accordance with Section XIII; and (iii) to EPA in accordance with
8 Section XIII. Such notice shall state that the payment is for stipulated penalties owed pursuant to
9 the Consent Decree in *United States v. Guam Waterworks Authority and Government of Guam*,
10 shall state the violation(s) for which the penalties are being paid, and shall reference the civil
11 action number, CDCS Number and DOJ case number DJ 90-5-1-1-11696.

12
13
14 67. If GWA fails to pay stipulated penalties according to the terms of this Consent
15 Decree, GWA shall be liable for interest on such penalties, as provided for in 28 U.S.C. § 1961,
16 accruing as of the date payment became due. Nothing in this Paragraph shall be construed to
17 limit the United States from seeking any remedy otherwise provided by law for GWA's failure to
18 pay any stipulated penalties.

19
20 68. The payment of penalties and interest, if any, shall not alter in any way
21 Defendant's obligation to complete the performance of the requirements of this Consent Decree.

22 69. Non-Exclusivity of Remedy. Stipulated penalties are not the United States'
23 exclusive remedy for violations of this Consent Decree. Subject to the provisions of Section XI
24 (Effect of Settlement/Reservation of Rights), the United States expressly reserves the right to
25 seek any other relief it deems appropriate for GWA's violation of this Decree or applicable law,
26 including but not limited to an action against Defendant(s) for statutory penalties, additional
27
28

1 injunctive relief, mitigation or offset measures, and/or contempt. However, the amount of any
2 statutory penalty assessed for a violation of this Consent Decree shall be reduced by an amount
3 equal to the amount of any stipulated penalty assessed and paid pursuant to this Consent Decree.

4 **VIII. FORCE MAJEURE**

5 70. “Force majeure,” for purposes of this Consent Decree, is defined as any event
6 arising from causes beyond the control of GWA, of any entity controlled by GWA, or of GWA’s
7 contractors, that delays or prevents the performance of any obligation under this Consent Decree
8 despite best efforts of GWA to fulfill the obligation. The requirement that GWA exercise “best
9 efforts to fulfill the obligation” includes using best efforts to anticipate any reasonably
10 foreseeable potential force majeure event and best efforts to address the effects of any potential
11 force majeure event (a) as it is occurring and (b) following the potential force majeure, such that
12 the delay and any adverse effects of the delay are minimized to the maximum extent practicable.
13 “Force Majeure” does not include financial inability to perform any obligation under this
14 Consent Decree.
15

16
17 71. If any event occurs or has occurred that falls within Section VIII (Force Majeure)
18 of this Consent Decree that may delay the performance of any obligation under this Consent
19 Decree, GWA shall provide notice orally or by electronic transmission to EPA and the United
20 States, within 72 hours or two (2) business days of when GWA first knew that the alleged force
21 majeure event might cause a delay, whichever period of time is longer. Within seven (7) Days
22 thereafter, GWA shall provide in writing to EPA an explanation and description of the reasons
23 for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or
24 minimize the delay; a schedule for implementation of any measures to be taken to prevent or
25 mitigate the delay or the effect of the delay; GWA’s rationale for attributing such delay to a force
26 majeure event; and a statement as to whether, in the opinion of GWA, such event may cause or
27
28

1 contribute to an endangerment to public health, welfare or the environment. EPA may, in its
2 unreviewable discretion, extend the time for the written explanation. GWA shall include with
3 any notice all available documentation supporting the claim that the delay was attributable to a
4 force majeure. Failure to comply with the above requirements shall preclude GWA from
5 asserting any claim of force majeure for that event for the period of time of such failure to
6 comply, and for any additional delay caused by such failure. GWA shall be deemed to know of
7 any circumstance of which GWA, any entity controlled by GWA, or GWA's contractors knew or
8 should have known.
9

10 72. If EPA agrees that the delay or anticipated delay is attributable to a force majeure
11 event, the time for performance of the obligations under this Consent Decree that are affected by
12 the force majeure event will be extended by EPA for such time as is necessary to complete those
13 obligations. An extension of the time for performance of the obligations affected by the force
14 majeure event shall not, of itself, extend the time for performance of any other obligation. EPA
15 will notify GWA in writing of the length of the extension, if any, for performance of the
16 obligations affected by the force majeure event.
17

18 73. If EPA does not agree that the delay or anticipated delay has been or will be
19 caused by a force majeure event, EPA will notify GWA in writing of its decision.
20

21 74. If GWA elects to invoke the dispute resolution procedures set forth in Section IX
22 (Dispute Resolution), it shall do so no later than fifteen (15) Days after receipt of EPA's notice.
23 In any such proceeding, GWA shall have the burden of demonstrating by a preponderance of the
24 evidence that the delay or anticipated delay has been or will be caused by a force majeure event,
25 that the duration of the delay or the extension sought was or will be warranted under the
26 circumstances, that best efforts were exercised to avoid and mitigate the effects of the delay, and
27
28

1 that GWA complied with the requirements of Paragraphs 71 and 72. If GWA carries this burden,
2 the delay at issue shall be deemed not to be a violation by GWA of the affected obligation of this
3 Consent Decree identified to EPA and the Court.

4 **IX. DISPUTE RESOLUTION**

5 75. Unless otherwise expressly provided for in this Consent Decree, the dispute
6 resolution procedures of this Section shall be the exclusive mechanism to resolve disputes arising
7 under or with respect to this Consent Decree. Defendants' failure to seek resolution of a dispute
8 under this Section shall preclude Defendants from raising any such issue as a defense to an
9 action by the United States to enforce any obligation of Defendants arising under this Decree.
10

11 76. Informal Dispute Resolution. Any dispute subject to Dispute Resolution under
12 this Consent Decree shall first be the subject of informal negotiations. The dispute shall be
13 considered to have arisen when either Defendant sends the United States a written Notice of
14 Dispute. Such Notice of Dispute shall state clearly the matter in dispute. The period of informal
15 negotiations shall not exceed twenty (20) Days from the date the dispute arises, unless that
16 period is modified by written agreement by the relevant Parties. If the relevant Parties cannot
17 resolve a dispute by informal negotiations, then the position advanced by the United States shall
18 be delivered in writing and considered binding unless, within thirty (30) Days after the
19 conclusion of the informal negotiation period, the notifying Defendant invokes formal dispute
20 resolution procedures as set forth below.
21

22 77. Formal Dispute Resolution. The notifying Defendant shall invoke formal dispute
23 resolution procedures, within the time period provided in the preceding Paragraph, by serving on
24 the United States a written Statement of Position regarding the matter in dispute. The notifying
25 Defendant's Statement of Position shall not raise any issue not raised in its Notice of Dispute
26 described in Paragraph 76. The Statement of Position shall include, but need not be limited to,
27
28

1 any factual data, analysis, or opinion supporting the Defendant's position and any supporting
2 documentation relied upon by the Defendant.

3 78. The United States shall serve its Statement of Position within forty-five (45) Days
4 of receipt of the notifying Defendant's Statement of Position. The United States' Statement of
5 Position shall include, but need not be limited to, any factual data, analysis, or opinion
6 supporting that position and any supporting documentation relied upon by the United States.
7 The United States' Statement of Position shall be binding on the Defendant, unless the
8 Defendant files a motion for judicial review of the dispute in accordance with the following
9 Paragraph.
10

11 79. The notifying Defendant may seek judicial review of the dispute by filing with the
12 Court and serving on the United States, in accordance with Section XIII (Notices), a motion
13 requesting judicial resolution of the dispute. The motion must be filed within thirty (30) Days of
14 receipt of the United States' Statement of Position pursuant to the preceding Paragraph. The
15 motion shall contain a written statement of the notifying Defendant's position on the matter in
16 dispute, including any supporting factual data, analysis, opinion, or documentation, and shall set
17 forth the relief requested and any schedule within which the dispute must be resolved for orderly
18 implementation of the Consent Decree. The motion may not raise any issue not raised in GWA's
19 Statement of Position pursuant to Paragraph 77, unless the United States raises a new issue of
20 law or fact in its Statement of Position.
21

22 80. The United States shall respond to the notifying Defendant's motion within the
23 time period allowed by the Local Rules of this Court. The notifying Defendant may file a reply
24 memorandum, to the extent permitted by the Local Rules.
25

26 81. Standard of Review.
27
28

1 a. Disputes Regarding Schedules and Deadlines in Deliverables. In any
2 dispute for which the notifying Defendant seeks judicial review concerning the adequacy or
3 appropriateness of a schedule or deadline in a deliverable submitted for EPA's review and
4 approval, or for a schedule or deadline to which GWA seeks a change pursuant to Paragraph 476,
5 the notifying Defendant shall bear the burden of demonstrating by a preponderance of the
6 evidence that the notifying Defendant's position on the issues in dispute should prevail over the
7 United States' position because it is more consistent with the objectives of this Consent Decree.
8

9 b. Other Disputes. Judicial review of all other disputes shall be governed by
10 applicable principles of law.

11 82. The invocation of dispute resolution procedures under this Section shall not, by
12 itself, extend, postpone, or affect in any way any obligation of the Defendant(s) under this
13 Consent Decree, unless and until final resolution of the dispute so provides. Stipulated penalties
14 with respect to the disputed matter shall continue to accrue from the first Day of noncompliance,
15 but payment shall be stayed pending resolution of the dispute as provided in Paragraph 65. If the
16 notifying Defendant does not prevail on the disputed issue, stipulated penalties shall be assessed
17 and paid as provided in Section VII (Stipulated Penalties).
18
19

20 X. **INFORMATION COLLECTION AND RETENTION**

21 83. The United States and its representatives, including attorneys, contractors, and
22 consultants, shall have the right of entry into any facility covered by this Consent Decree, at all
23 reasonable times, upon presentation of credentials, to:
24

- 25 a. monitor the progress of activities required under this Consent Decree;
- 26 b. verify any data or information submitted to the United States in
27 accordance with the terms of this Consent Decree;
- 28 c. obtain samples and, upon request, splits of any samples taken by a GWA

1 or its representatives, contractors, or consultants;

2 d. obtain documentary evidence, including photographs and similar data; and

3 e. assess GWA's compliance with this Consent Decree.

4 84. Upon request, GWA shall provide EPA or its authorized representatives splits of
5 any samples taken by GWA. Upon request, EPA shall provide GWA splits of any samples taken
6 by EPA.
7

8 85. Until two years after the termination of this Consent Decree, GWA shall retain,
9 and shall instruct its contractors and agents to preserve, all non-identical copies of all documents,
10 records, or other information (including documents, records, or other information in electronic
11 form) in its or its contractors' or agents' possession or control, or that come into its or its
12 contractors' or agents' possession or control, and that document GWA's performance of its
13 obligations under this Consent Decree. This information-retention requirement shall apply
14 regardless of any contrary corporate or institutional policies or procedures. At any time during
15 this information-retention period, upon request by the United States, GWA shall provide copies
16 of any documents, records, or other information required to be maintained under this Paragraph.
17
18

19 86. At the conclusion of the information-retention period provided in the preceding
20 Paragraph, GWA shall notify the United States at least ninety (90) Days prior to the destruction
21 of any documents, records, or other information subject to the requirements of the preceding
22 Paragraph and, upon request by the United States, GWA shall deliver any such documents,
23 records, or other information to EPA. GWA may assert that certain documents, records, or other
24 information is privileged under the attorney-client privilege or any other privilege recognized by
25 federal law. If GWA asserts such a privilege, it shall provide the following: (a) the title of the
26 document, record, or information; (b) the date of the document, record, or information; (c) the
27
28

1 name and title of each author of the document, record, or information; (d) the name and title of
2 each addressee and recipient; (e) a description of the subject of the document, record, or
3 information; and (f) the privilege asserted by GWA. However, GWA may make no claim of
4 privilege or protection regarding any data regarding GWA's POTW, including all sampling,
5 analytical, monitoring, scientific, chemical or engineering data. The United States reserves the
6 right to challenge any claim of privilege regarding documents, records, or other information
7 created or generated pursuant to the requirements of this Consent Decree.
8

9 87. GWA may also assert that information required to be provided under this Section
10 is protected as Confidential Business Information ("CBI") under 40 C.F.R. Part 2. As to any
11 information that GWA seeks to protect as CBI, it shall follow the procedures set forth in 40
12 C.F.R. Part 2.
13

14 88. This Consent Decree in no way limits or affects any right of entry and inspection,
15 or any right to obtain information, held by the United States pursuant to applicable federal laws,
16 regulations, or permits, nor does it limit or affect any duty or obligation of either Defendant to
17 maintain documents, records, or other information imposed by applicable federal or State laws,
18 regulations, or permits.
19

20 **XI. EFFECT OF SETTLEMENT/RESERVATION OF RIGHTS**

21 89. This Consent Decree resolves only the civil claims of the United States for the
22 violations alleged in the Complaint filed in this action through the date of lodging of this Consent
23 Decree only with respect to the injunctive relief set forth in Section V (Compliance Measures).
24 The United States specifically reserves all rights to seek civil penalties for each of the violations
25 alleged in the Complaint and further injunctive relief for those alleged violations, including
26 implementation of the approved Force Main Action Plan, completion of Tier 2, 3, and 4 Pump
27 Station Projects, Gravity Main Replacement or Rehabilitation of at least 35 additional "unique
28

1 miles,” additional wet and dry flow monitoring for the Tumon Basin, and upgrading the Hagåtña
2 WWTP to secondary treatment.

3 90. The United States reserves all legal and equitable remedies available to enforce
4 the provisions of this Consent Decree. This Consent Decree shall not be construed to limit the
5 rights of the United States to obtain penalties or injunctive relief under the Act or implementing
6 regulations, or under other federal laws, regulations, or permit conditions, except as expressly
7 stated in Paragraph 89. The United States further reserves all legal and equitable remedies to
8 address any imminent and substantial endangerment to the public health or welfare or the
9 environment arising at, or posed by, GWA’s Facility, whether related to the violations addressed
10 in this Consent Decree or otherwise.
11

12 91. GWA reserves all legal and equitable defenses to enforcement of the provisions of
13 this Consent Decree, subject to the procedures set forth in Sections VIII (Force Majeure) and IX
14 (Dispute Resolution).
15

16 92. In any subsequent administrative or judicial proceeding initiated by the United
17 States for injunctive relief, civil penalties, other appropriate relief relating to the Facility or a
18 GWA’s violations, GWA shall not assert, and may not maintain, any defense or claim based
19 upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim preclusion,
20 claim-splitting, or other defenses based upon any contention that the claims raised by the United
21 States in the subsequent proceeding were or should have been brought in the instant case, except
22 with respect to claims that have been specifically resolved pursuant to Paragraph 89. Nothing in
23 this Consent Decree shall constitute an admission of any fact or of any liability, or a waiver of
24 any right, except as expressly stated herein.
25
26

27 93. This Consent Decree is not a permit, or a modification of any permit, under any
28

1 federal, State, or local laws or regulations. The Defendants are responsible for achieving and
2 maintaining complete compliance with all applicable federal, State, and local laws, regulations,
3 and permits; and the Defendants' compliance with this Consent Decree shall be no defense to
4 any action commenced by the United States pursuant to any such laws, regulations, or permits,
5 except as set forth herein. The United States does not, by its consent to the entry of this Consent
6 Decree, warrant or aver in any manner that Defendants' compliance with any aspect of this
7 Consent Decree will result in compliance with provisions of the Act, 33 U.S.C. §§ 1251-1388, or
8 with any other provisions of federal, State, or local laws, regulations, or permits.
9

10 94. Nothing in this Consent Decree limits the rights or defenses available under CWA
11 Section 309(e), 33 U.S.C. § 1319(e), in the event that the laws of the Territory, as currently or
12 hereafter enacted, may prevent GWA from raising the revenues needed to comply with this
13 Decree.
14

15 95. This Consent Decree does not limit or affect the rights of the Defendants or of the
16 United States against any third parties, not party to this Consent Decree, nor does it limit the
17 rights of third parties, not party to this Consent Decree, against the Defendants, except as
18 otherwise provided by law.
19

20 96. This Consent Decree shall not be construed to create rights in, or grant any cause
21 of action to, any third party not party to this Consent Decree.
22

23 XII. COSTS

24 97. The Parties shall bear their own costs of this action, including attorneys' fees,
25 except that the United States shall be entitled to collect the costs (including attorneys' fees)
26 incurred in any action necessary to collect any stipulated penalties due but not paid by GWA.
27

28 XIII. NOTICES

98. Unless otherwise specified in this Decree, whenever notifications, submissions, or

1 communications are required by this Consent Decree, they shall be made in writing and
2 addressed as follows:

3 As to the United States by email: eescdcopy.enrd@usdoj.gov
4 Re: DJ # 90-5-1-1-11696

5 As to the United States by mail: EES Case Management Unit
6 Environment and Natural Resources Division
7 U.S. Department of Justice
8 P.O. Box 7611
9 Washington, D.C. 20044-7611
10 Re: DJ # 90-5-1-1-11696

11 As to EPA by email: ***

12 As to EPA by mail: Section Chief
13 Water Section
14 Enforcement Division (ENF -*.*)
15 U.S. Environmental Protection Agency, Region IX
16 75 Hawthorne Street
17 San Francisco, CA 94105

18 As to GWA: Theresa G. Rojas, Esq.
19 Legal Counsel
20 Guam Waterworks Authority
21 Ste. 200, Gloria B. Nelson Public Service Building
22 688 Route 15
23 Mangilao, Guam 96913
24 tgrojas@guamwaterworks.org

25 As to Government of Guam: Graham Botha
26 Deputy Attorney General
27 Office of the Attorney General of Guam
28 590 S. Marine Corps Drive, Ste. 801
Tamuning, Guam 96913
gbotha@oagguam.org

Jeffrey Moots
Legal Counsel
Office of the Governor of Guam
PO Box 2950
Hagåtña, Guam 96932
jeffrey.moots@guam.gov

99. Any Party may, by written notice to the other Parties, change its designated notice

1 recipient or notice address provided above.

2 100. Notices submitted pursuant to this Section shall be deemed submitted upon
3 mailing or sending via email, unless otherwise provided in this Consent Decree or by mutual
4 agreement of the Parties in writing.

5 **XIV. EFFECTIVE DATE**

6 101. The Effective Date of this Consent Decree shall be the date upon which this
7 Consent Decree is entered by the Court or a motion to enter the Consent Decree is granted,
8 whichever occurs first, as recorded on the Court's docket.

9 **XV. RETENTION OF JURISDICTION**

10 102. The Court shall retain jurisdiction over this Consent Decree until termination of
11 the Consent Decree, for the purpose of resolving disputes arising under this Decree or entering
12 orders modifying this Decree, pursuant to Sections IX (Dispute Resolution) and XVI
13 (Modification), or effectuating or enforcing compliance with the terms of this Decree.

14 **XVI. MODIFICATION**

15 103. Nonmaterial modifications to this Consent Decree, including any attached
16 Appendices, made by agreement of the Parties must be in writing and are effective when signed
17 by the Parties. Material modifications to this Consent Decree, including any attached
18 Appendices, made by agreement of the Parties must be in a writing signed by the Parties, and are
19 effective upon approval by the Court.

20 104. Whether modifications are appropriately categorized as material or non-material
21 shall be decided on a case by case basis. If the parties cannot agree whether a particular
22 modification is material or non-material, the position of the United States will prevail.

23 105. Any request by Defendants for a modification pursuant to this Section XVI must
24 be accompanied by the basis for the request and a description of how GWA intends to comply
25
26
27
28

1 with the proposed modified requirement, schedule or deadline, along with any supporting
2 documentation. If applicable and appropriate to the modification request, a request for a
3 modification may be based, among other things, on: (a) an integrated plan developed in
4 accordance with Clean Water Act Section 402(s); or (b) a current Financial Capability
5 Assessment (based on EPA's Combined Sewer Overflows—Guidance for Financial Capability
6 Assessment and Schedule Development, referenced at EPA 832-B-97-004 and dated February of
7 1997, and EPA's Financial Capability Assessment Framework, dated November 24, 2014, or
8 subsequent versions thereof in effect on the Day that the request is submitted to EPA).

9
10 106. Any disputes concerning modification of this Decree shall be resolved pursuant to
11 Section IX (Dispute Resolution), provided, however, that, instead of the burden of proof
12 provided by Paragraph 81, the Party seeking the modification bears the burden of demonstrating
13 that it is entitled to the requested modification in accordance with Federal Rule of Civil
14 Procedure 60(b).
15

16 **XVII. TERMINATION**

17
18 107. After GWA has completed the requirements of Section V (Compliance
19 Requirements), has thereafter maintained continuous satisfactory compliance with this Consent
20 Decree for a period of not less than twelve (12) consecutive months, and has paid any accrued
21 stipulated penalties as required by this Consent Decree, GWA may serve upon the United States
22 a Request for Termination, stating that GWA has satisfied those requirements, together with all
23 necessary supporting documentation.
24

25 108. Following receipt by the United States of GWA's Request for Termination, the
26 Parties shall confer informally concerning the Request and any disagreement that the Parties may
27 have as to whether GWA has satisfactorily complied with the requirements for termination of
28 this Consent Decree. If the United States agrees that the Decree may be terminated, the Parties

1 shall submit, for the Court's approval, a joint motion or stipulation for termination of the Decree.

2 109. If the United States does not agree that the Decree may be terminated, GWA may
3 invoke Dispute Resolution under Section IX of this Consent Decree. However, GWA shall not
4 seek Dispute Resolution of any dispute regarding termination until sixty (60) Days after service
5 of its Request for Termination.
6

7 **XVIII. PUBLIC PARTICIPATION**

8 A. Consent Decree Lodging.

9 110. This Consent Decree shall be lodged with the Court for a period of not less than
10 thirty (30) Days for public notice and comment in accordance with 28 C.F.R. § 50.7. The United
11 States reserves the right to withdraw or withhold its consent if the comments regarding the
12 Consent Decree disclose facts or considerations indicating that the Consent Decree is
13 inappropriate, improper, or inadequate. The Defendants consent to entry of this Consent Decree
14 without further notice and agree not to withdraw from or oppose entry of this Consent Decree by
15 the Court or to challenge any provision of the Decree, unless the United States has notified the
16 Defendants in writing that it no longer supports entry of the Decree.
17

18 B. Public Outreach, Engagement, and Participation by GWA.

19 111. Fourteen (14) days prior to any public meeting held by the Guam's Consolidated
20 Commission on Utilities or Guam's Public Utilities Commission where projects required under
21 Section V (Compliance Requirements) of this Consent Decree may be discussed, GWA shall
22 post prominent notice on its website and social media pages of: (a) the time, date, and location of
23 the public meeting; (b) a list of the relevant meeting topics; and (c) a one (1) paragraph summary
24 of how the public may submit questions, comments, or concerns regarding the meeting topics to
25 GWA prior to the meeting. If any member of the public submits, at or before any such public
26 meeting, a comment regarding any of the projects required under Section V (Compliance
27
28

1 Requirements) of this Consent Decree, GWA shall consider and respond to such comments (i)
2 orally at the public meeting; and (ii) in writing within thirty (30) days of the public meeting.

3 Within thirty (30) days of sending (by e-mail or paper mailing) a written response to such public
4 commenter, GWA shall prominently post on its website (a) a summary of the public comment;
5 and (b) its written response to the comment.

6
7 112. GWA shall on at least a monthly basis (i) post, to each of its social media pages,
8 one (1) status update about GWA's progress or completion of projects required under Section V
9 (Compliance Requirements) of this Consent Decree; and (ii) briefly summarize, in its internal
10 weekly employee newsletter/update, a status update regarding progress or completion of projects
11 required under Section V (Compliance Requirements). GWA should aim to provide
12 informational or educational project updates for projects that have an impact on human health
13 and the environment, and are of interest to the public. GWA may use its discretion in selecting
14 compliance projects to include in said updates.

15
16 113. Nothing herein is intended to limit additional public outreach, engagement, or
17 participation by GWA, Guam's Consolidated Commission on Utilities, or Guam's Public
18 Utilities Commission.

19 20 **XIX. SIGNATORIES/SERVICE**

21 114. Each undersigned representative of the Defendants and the Assistant Attorney
22 General for the Environment and Natural Resources Division of the Department of Justice
23 certifies that he or she is fully authorized to enter into the terms and conditions of this Consent
24 Decree and to execute and legally bind the Party he or she represents to this document.

25
26 115. This Consent Decree may be signed in counterparts, and its validity shall not be
27 challenged on that basis. The Defendants agree to accept service of process by the Court's
28 electronic filing service or by mail with respect to all matters arising under or relating to this

1 Consent Decree and to waive the formal service requirements set forth in Rules 4 and 5 of the
2 Federal Rules of Civil Procedure and any applicable Local Rules of this Court including, but not
3 limited to, service of a summons. The Defendants need not file an answer to the Complaint in
4 this action unless or until the Court expressly declines to enter this Consent Decree, in which
5 case Defendant's answer would be due 30 Days following the Court's order.
6

7 **XX. INTEGRATION**

8 116. This Consent Decree constitutes the final, complete, and exclusive agreement and
9 understanding among the Parties with respect to the settlement embodied in the Decree and
10 supersedes all prior agreements and understandings, whether oral or written, concerning the
11 settlement embodied herein. Other than deliverables that are subsequently submitted and
12 approved pursuant to this Decree, the Parties acknowledge that there are no representations,
13 agreements, or understandings relating to the settlement other than those expressly contained in
14 this Consent Decree.
15

16 **XXI. JUDGMENT**

17 117. Upon approval and entry of this Consent Decree by the Court, this Consent
18 Decree shall constitute a judgment of the Court as to the United States and the Defendants. The
19 Parties recognize that final resolution of the claims set forth in the Complaint will require further
20 remedial action.
21

22 **XXII. HEADINGS**

23 118. Headings to the Sections and Subsections of this Consent Decree are provided for
24 convenience and do not affect the meaning or interpretation of the provisions of this Consent
25 Decree.
26
27
28

XXIII. APPENDICES

1
2 119. The following Appendices are attached to and part of this Consent Decree:

3 “Appendix A” is a list of pipe segments that are inaccessible for CCTV
4 inspection; and

5 “Appendix B” is a map of the Sewer Capacity Assurance Projects, Route 1 –
6 Dededo.

7 Dated and entered this __ day of _____, 20__.

8
9 FRANCES M. TYDINGCO-GATEWOOD
10 CHIEF JUDGE
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

1 THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of *United States v.*
2 *Guam Waterworks Authority and the Government of Guam*, Civil No. 24-00004.

3 FOR THE UNITED STATES OF AMERICA:

4 TODD KIM
5 Assistant Attorney General
6 Environment and Natural Resources Division
7 U.S. Department of Justice

8 **BETHANY**
ENGEL Digitally signed by
BETHANY ENGEL
Date: 2024.01.30
16:57:07 -05'00'

9 Date

BETHANY ENGEL
KAYCI G. HINES
10 Environmental Enforcement Section
11 Environment and Natural Resources Division
12 U.S. Department of Justice
13 Washington, D.C. 20044-7611
14 Telephone: 202-514-6892

15 SHAWN N. ANDERSON
16 United States Attorney
17 Districts of Guam and the NMI

18 MIKEL W. SCHWAB
19 Assistant United States Attorney
20 Suite 500, Sirena Plaza
21 108 Hernan Cortez
22 Hagåtña, Guam 96910
23 Telephone: 671-472-7332
24
25
26
27
28

1 THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of *United States v.*
2 *Guam Waterworks Authority and the Government of Guam*, Civil No. 24-00004.

3 FOR THE U.S. ENVIRONMENTAL PROTECTION
4 AGENCY:

5
6 **SYLVIA QUA**

Digitally signed by SYLVIA
QUAST
Date: 2023.10.31 12:07:32
-07'00'

7 _____
Date

8 _____
SYLVIA QUA
Regional Counsel
U.S. Environmental Protection Agency, Region IX

9 OF COUNSEL:
10 JANET MAGNUSON
Assistant Regional Counsel
11 U.S. Environmental Protection Agency, Region IX
Office of Regional Counsel
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

1 THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of *United States v.*
2 *Guam Waterworks Authority and the Government of Guam*, Civil No. 24-00004 .

3 FOR THE U.S. ENVIRONMENTAL PROTECTION
4 AGENCY OFFICE OF ENFORCEMENT AND
5 COMPLIANCE ASSURANCE:

6
7
8 12/08/23

9 DATE

10
11 JOSEPH
12 THEIS

Digitally signed by
JOSEPH THEIS
Date: 2023.12.08
08:19:22 -05'00'

13 JOSEPH G. THEIS

14 Acting Director
15 Office of Civil Enforcement
16 Water Enforcement Division
17 U.S. Environmental Protection Agency

18
19
20 12/4/23

21 DATE

22
23 CHRISNA
24 BAPTISTA

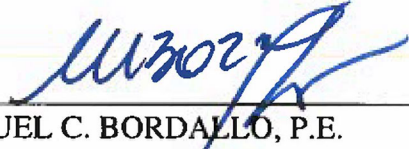
Digitally signed by
CHRISNA BAPTISTA
Date: 2023.12.04
14:53:42 -05'00'

25 CHRISNA BAPTISTA

26 Attorney Advisor
27 Office of Civil Enforcement
28 Water Enforcement Division
U.S. Environmental Protection Agency

1 THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of *United States*
2 *v. Guam Waterworks Authority and the Government of Guam*, Civil No. 24-00004.

3
4 FOR THE GUAM WATERWORKS AUTHORITY:

5
6 

7 _____
Date

8 _____
MIGUEL C. BORDALLO, P.E.
9 General Manager
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

1 THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of *United States*
2 *v. Guam Waterworks Authority and the Government of Guam*, Civil No. 24-00004.

3 FOR THE GOVERNMENT OF GUAM:

4 *Joseph A. Guzman*

5 *lion*

6 _____
DOUGLAS B. MOYLAN

7 ATTORNEY GENERAL OF GUAM

8
9
10 *10/23/23*
Date

11 _____
Date

12 _____
LOU LEON GUERRERO

13 GOVERNOR OF GUAM
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

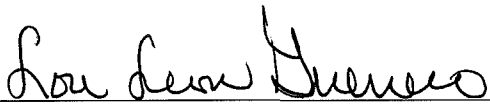
1 THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of *United States v.*
2 *Guam Waterworks Authority and the Government of Guam*, Civil No. 24-00004..

3 FOR THE GOVERNMENT OF GUAM:

4
5
6 _____
Date

_____ DOUGLAS B. MOYLAN
ATTORNEY GENERAL OF GUAM

7
8
9
10 10/24/23
Date

_____ 
LOURDES A. LEON GUERRERO
GOVERNOR OF GUAM

APPENDIX A

This Appendix A specifies the areas listed in the following table as inaccessible for the CCTV inspection required under Paragraph 11 of this Decree:

Location	Location Description	Reason for inaccessibility
Agaña Heights	Fonte River: approximately 2290 LF	no access road through jungle
Tamuning	Dungca Beach shoreline: approximately 3200 LF	no access road on shoreline
Sinajana-Agaña Heights	Chaot: approximately 7640 LF	only partial access on unimproved U.S. Department of Defense easement through jungle
Yona	Baza Gardens: approximately 4800 LF	no access road through jungle
Dededo	Wettengel: approximately 4200 LF	no access road through jungle
Merizo	off of Joseph A. Cruz St: approximately 1500 LF	no access road through jungle
Mangilao	Wetlands behind baseball field: approximately 2455 LF	no access road to line through wetlands
Asan	Lower Nimitz Estates-Asan Park: approximately 3200 LF	no access road through jungle
Tiyan	Former Naval Air Station north and south of air operations area: XXXX LF	No easements/roads through returned private property
Nimitz Hill	Former Navy Family Housing subdivision: 10,240	No access road through jungle, along steep hillside
Agat	Agat Village Subdivision: 2940 LF	Sewer line runs behind/ between homes no access road, heavily vegetated

Figure 7: Mangilao - Wetlands behind baseball field

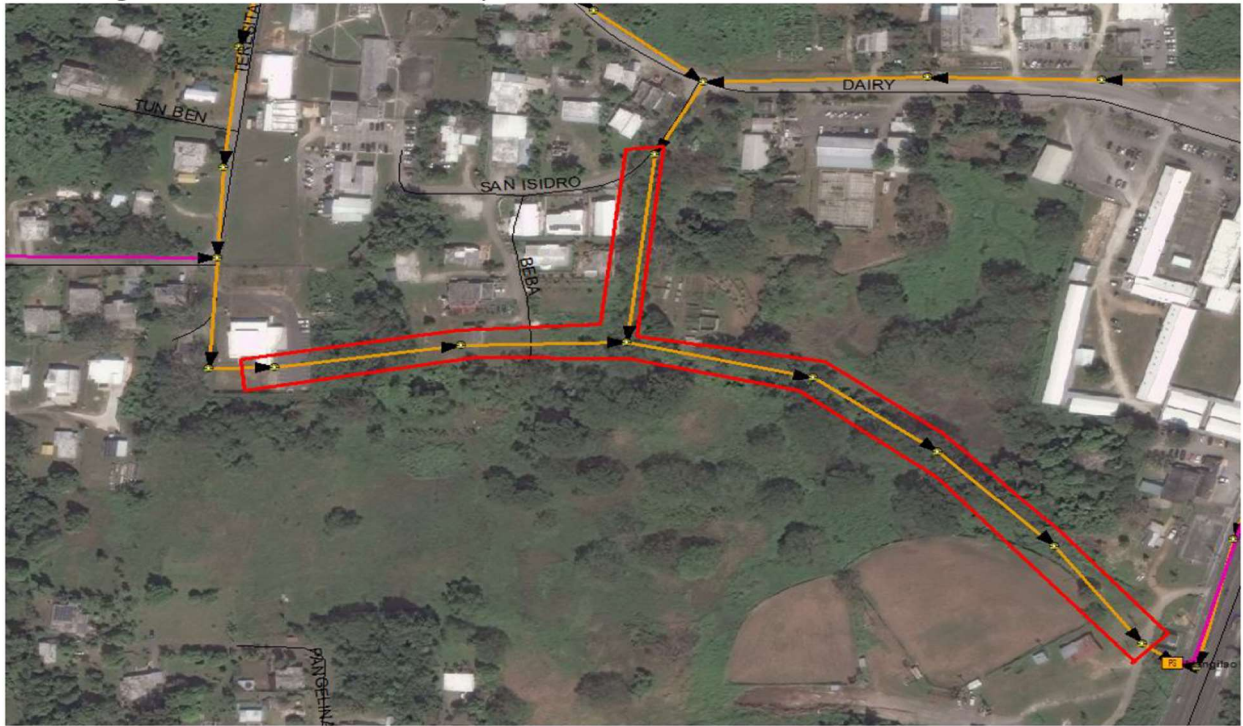


Figure 8: Asan - Lower Nimitz Hill

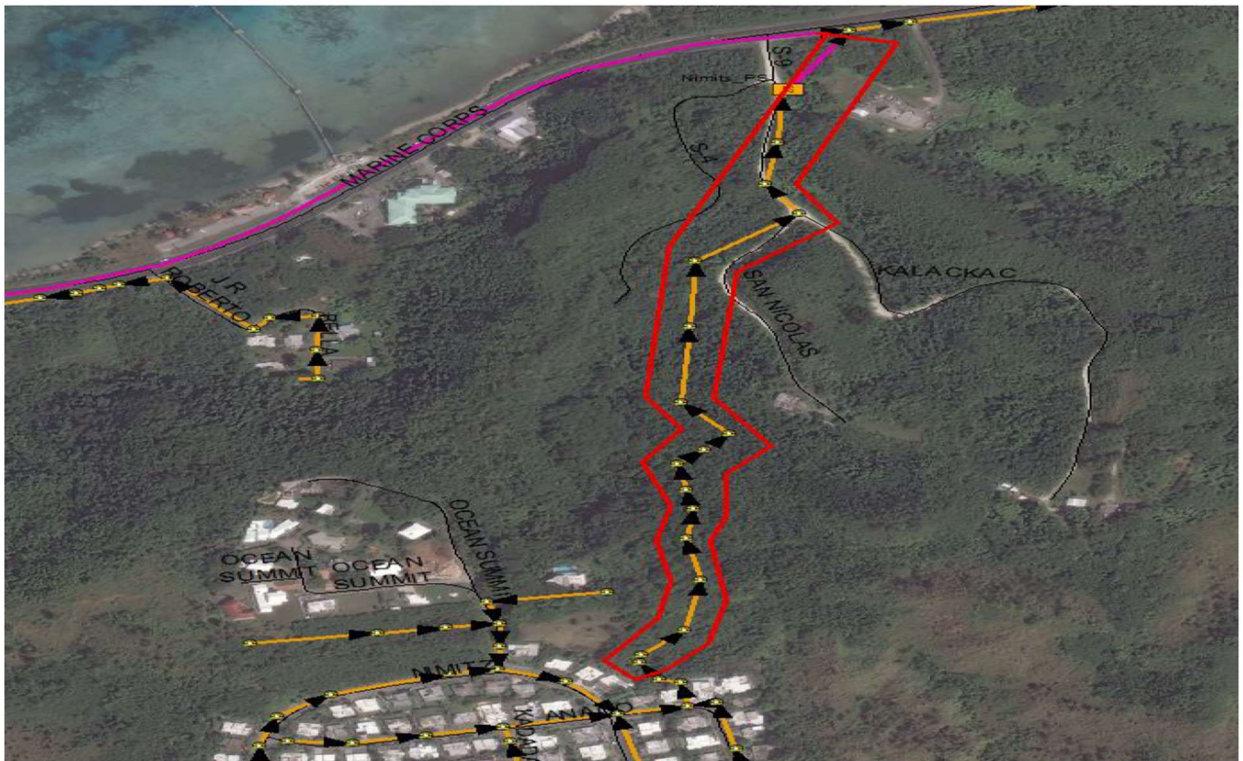


Figure 9: Tiyan - Former Naval Air Station

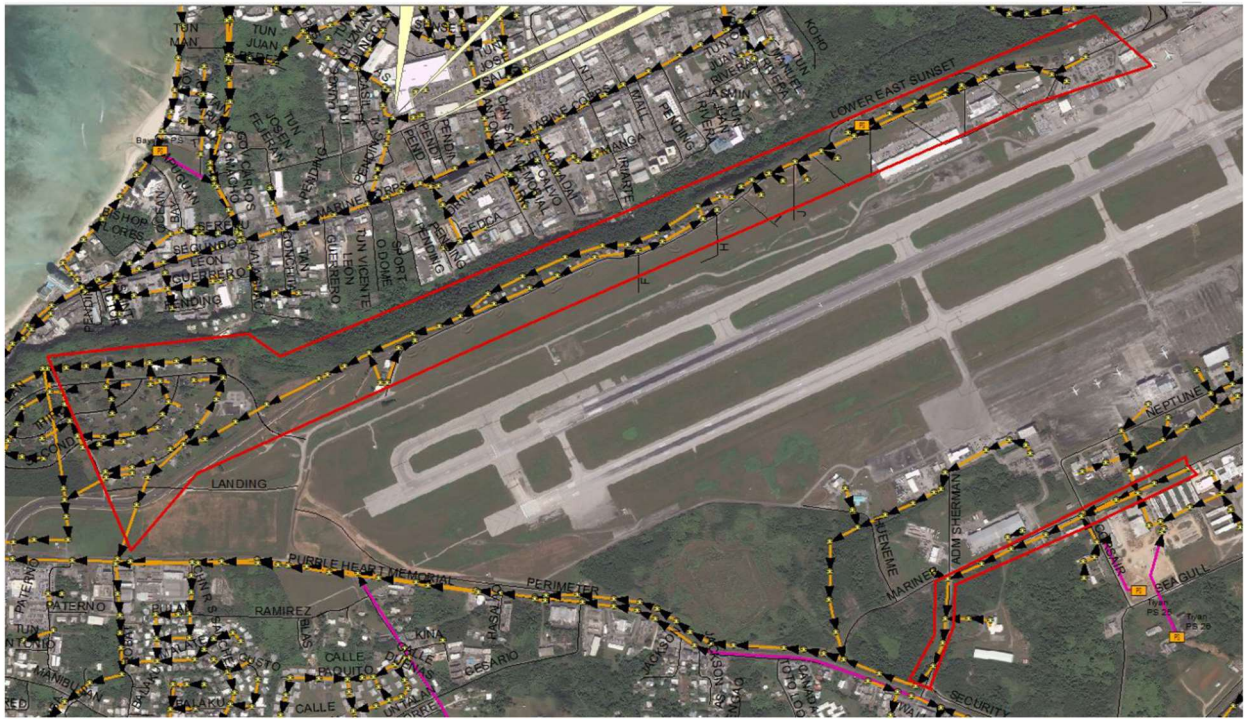


Figure 10: Asan - Nimitz Hill Former Navy Family Housing

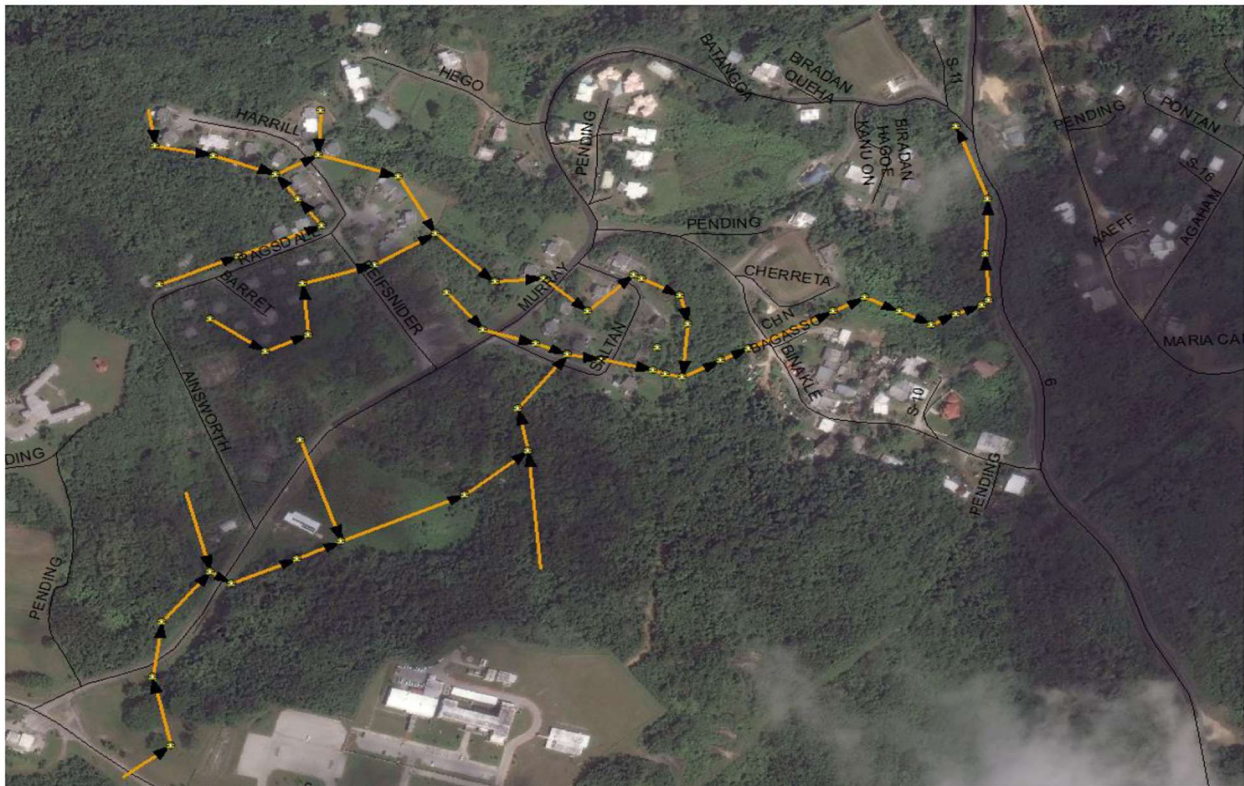
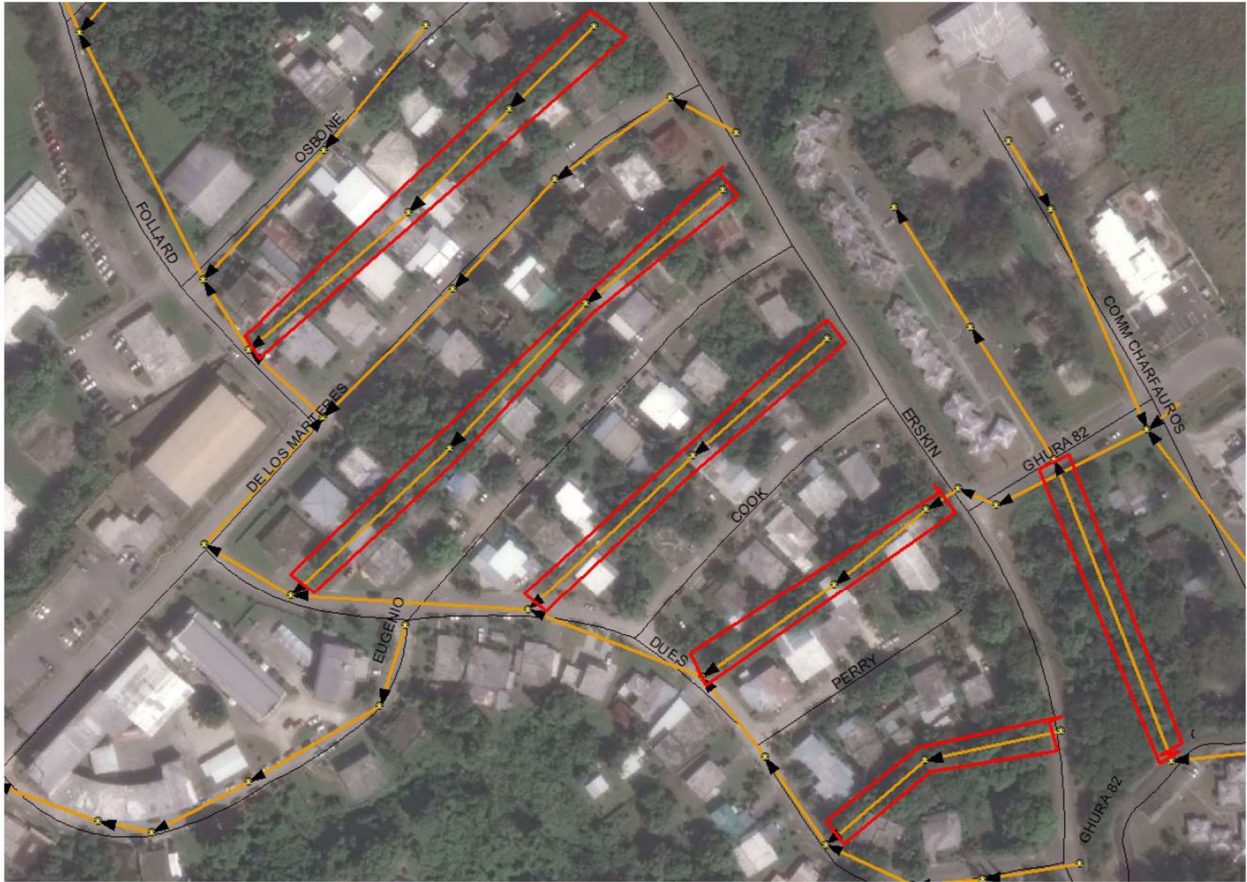


Figure 11: Agat - Agat Village Subdivision



APPENDIX B





Sewer Capacity Projects – Route 1 - Dededo

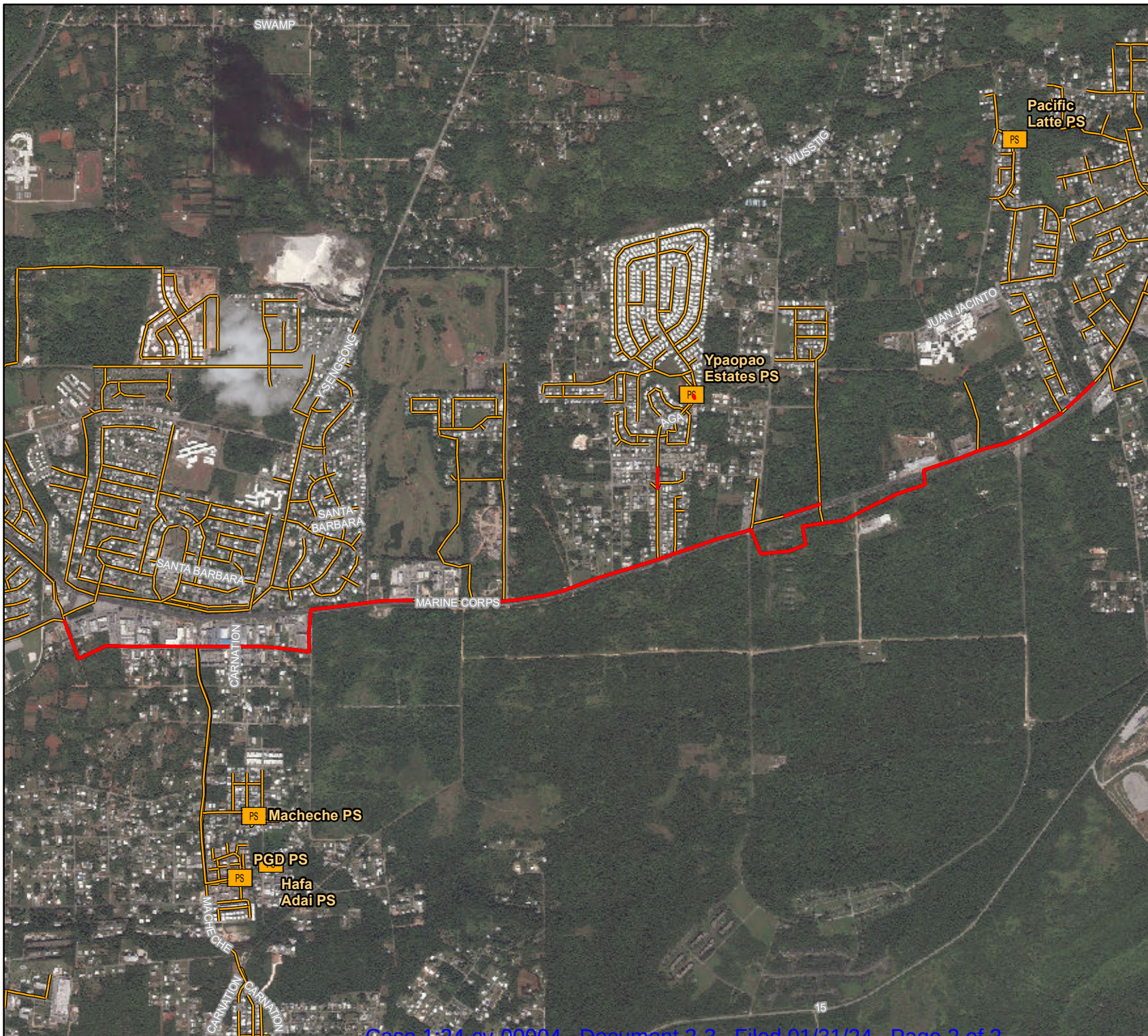
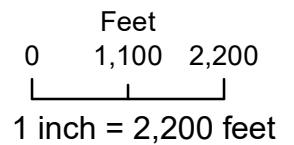
Sewer Capacity Assurance Projects Route 1 - Dededo



Location Map
not to scale

Legend

-  Wastewater Treatment Plant
-  Wastewater Pump Station
-  Sewer Line
-  Preliminary Project Location



1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

IN THE DISTRICT COURT OF GUAM

UNITED STATES OF AMERICA,)
)
 Plaintiff,)
)
 v.)
)
 GUAM WATERWORKS AUTHORITY)
 and the GOVERNMENT OF GUAM,)
)
 Defendants.)
 _____)

Civil Case No. 02-00035

**ORDER FOR PRELIMINARY
RELIEF RE: DEADLINES FOR
OUTSTANDING PROJECTS
UNDER THE AMENDED
STIPULATED ORDER**

TABLE OF CONTENTS

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

I. DEFINITIONS 6

II. COMPLIANCE REQUIREMENTS 8

III. REPORTING REQUIREMENTS 38

IV. NOTICES 42

V. DISPUTE RESOLUTION 44

VI. EFFECT OF ORDER 46

VII. RETENTION OF JURISDICTION 48

VIII. APPENDIX 48

1 Plaintiff United States of America, on behalf of the United States Environmental
2 Protection Agency (“EPA”), filed a Complaint in this action on December 20, 2002, against
3 Defendant Guam Waterworks Authority (“GWA”) and the Government of Guam under the
4 Clean Water Act, 33 U.S.C. §§ 1251-1387 (the “CWA”), and the Safe Drinking Water Act, 42
5 U.S.C. §§ 300f - 300j-26 (the “SDWA”). Pl.’s Compl., ECF No. 1. GWA is a public
6 corporation and an agency within the Government of Guam that has the authority to produce,
7 treat, transmit, store, distribute, and sell water on Guam, and also has the authority to collect,
8 treat, and dispose of wastewater on Guam. GWA owns and operates a Publicly Owned
9 Treatment Works (“POTW”), as defined in 33 U.S.C. § 1292(2)(A), that includes five
10 wastewater treatment plants (“WWTP”) on Guam that are subject to the conditions and
11 limitations contained in National Pollutant Discharge Elimination System (“NPDES”) permits
12 issued by EPA pursuant to the CWA, and a wastewater collection and conveyance system
13 (“Wastewater Collection System”) to transport sewage to the WWTPs. GWA also owns and
14 operates three Public Water Systems that supply drinking water for the majority of the
15 population of Guam: the Northern, Central, and Southern Systems.

16
17
18
19
20 In the Complaint, the United States sought injunctive relief and the appointment of a
21 receiver pursuant to section 504 of the CWA, 33 U.S.C. § 1364, and section 1431(a) of the
22 SDWA, 42 U.S.C. § 300i(a), to address the imminent and substantial endangerment to the health
23 and welfare of persons presented by: (1) the numerous and repeated discharges of untreated and
24 inadequately treated wastewater from GWA’s POTW, resulting in elevated levels of fecal
25 coliform bacteria in both surface waters and drinking water wells on Guam; and (2) serious
26 deficiencies in GWA’s Public Water Systems, causing contaminated water to be served to the
27
28

1 public. The United States also sought both civil penalties and injunctive relief under CWA
2 section 309(b) and (d), 33 U.S.C. § 1319(b) and (d), for violations of the CWA and the terms and
3 conditions of applicable NPDES permits, and under SDWA 1414(b), 42 U.S.C. § 300g-3(b), for
4 violations of the SDWA and the National Primary Drinking Water Regulations. The
5 Government of Guam is identified in the Complaint as a defendant as required by CWA section
6 309(e), 33 U.S.C. § 1319(e).
7

8
9 In June 2003, the Parties agreed that entry of a Stipulated Order for Preliminary Relief
10 would be the most appropriate way to require the immediate implementation of short-term
11 projects and initial planning measures by GWA and the Government of Guam (jointly
12 “Defendants”) to begin to address issues of compliance at GWA’s POTW and three Public Water
13 Systems (the “Facilities”). Stip. Order, ECF. No. 17. The Parties agreed to two modifications to
14 the June 2003 Stipulated Order; the court entered an Order amending the Stipulated Order for
15 Preliminary Relief on October 25, 2006 (as amended, the “Stipulated Order”). Stip. Order, ECF.
16 Nos. 40, 41.
17

18
19 In June 2003, the Parties contemplated entering into a further stipulation to address
20 additional compliance issues after Defendants’ completion of the initial planning measures set
21 out in the Stipulated Order. Although the initial planning measures are now completed, GWA
22 has not completed several of the projects required by the Stipulated Order.
23

24
25 In an Order dated November 18, 2010, this court directed the Parties to work together to
26 draft a proposed plan to require GWA to complete the projects outstanding from the Stipulated
27 Order. Order, ECF No. 136. The court ordered the Parties to file a proposed plan by December
28 15, 2010. *Id.* at 2. If the Parties were unable to reach an agreement on a proposed plan, the

1 Parties were directed to file separate briefs setting forth the projects, a scope of work for each
2 project, and a schedule to complete each project. *Id.* Pursuant to the court's Order, the Parties
3 attempted to negotiate a proposed plan to submit to the court. After these attempts were
4 unsuccessful, the United States and GWA submitted separate briefs to the court on December 15,
5 2010. Pl.'s Br. ECF No.139; Def.'s Br, ECF No. 140.

7 In an Order dated March 9, 2011, the court directed the Parties to meet with Magistrate
8 Judge Manibusan on March 16, 2011, and to work collaboratively to set workable deadlines with
9 respect to outstanding projects under the Stipulated Order. Order, ECF. No. 145. The court
10 ordered the Parties to file an amended Stipulated Order by March 31, 2011. *Id.* If the parties
11 were unable to reach an agreement, the Magistrate Judge would file a report and
12 recommendation to the court on a timetable for the court to adopt. *Id.*

15 Pursuant to the court's Order, the Parties continued their efforts to negotiate an
16 agreement on the outstanding projects under the Stipulated Order. On March 31, 2011, the
17 Parties advised the court that they had reached an impasse in their settlement attempts. Rpt. and
18 Recom. ECF No. 154 at 1. After a hearing on April 28, 2011, the Magistrate Judge issued a
19 Report and Recommendation regarding the deadlines for the outstanding projects on July 7,
20 2011. *Id.*, As provided in the Magistrate Judge's Report and Recommendation, failure to file
21 written objections within 14 days from service shall bar an aggrieved party from attacking the
22 Report and Recommendation. *Id.* at 7.

25 NOW THEREFORE, after consideration of the Magistrate Judge's Report and
26 Recommendation, and each Party's response thereto, the court hereby adopts the Report and
27 Recommendation and ORDERS the following PRELIMINARY RELIEF:

1 **I. DEFINITIONS**

2 1. Terms used in this Order that are defined in the CWA, SDWA, or in regulations
3 promulgated pursuant to the CWA or SDWA, shall have the meanings assigned to them in those
4 statutes or regulations, unless otherwise provided in this Order. Whenever the terms set forth
5 below are used in this Order, the following definitions shall apply:
6

7 (a) “Biosolids” shall mean non-hazardous sewage sludge, as defined in 40 C.F.R.
8 § 503.9. Sewage sludge that is hazardous, as defined in 40 C.F.R. § 261.3, must be disposed of
9 in accordance with the Solid Waste Disposal Act, as amended, 42 U.S.C. §§ 6901 - 6992k (also
10 known as the Resource Conservation and Recovery Act or RCRA).
11

12 (b) “Bypass,” as defined by 40 C.F.R. § 122.41(m), shall mean the intentional
13 diversion of waste streams from any portion of a wastewater treatment facility.
14

15 (c) “Complaint” shall mean the Complaint filed by the United States in this action.

16 (d) “Day” shall mean a calendar day unless expressly stated to be a business day. In
17 computing any period of time under this Order, where the last day would fall on a Saturday,
18 Sunday, federal holiday, or a holiday on Guam, the period shall run until the close of business of
19 the next business day.
20

21 (e) “Defendants” shall mean GWA and the Government of Guam.

22 (f) “EPA” shall mean the United States Environmental Protection Agency and any of
23 its successor departments or agencies.
24

25 (g) “Effective Date” shall mean the date upon which this Order is entered by the
26 court as recorded on the court’s docket.

27 (h) “Excessive Infiltration/Inflow” or “Excessive I/I” shall mean the quantities of
28

1 infiltration/inflow (“I/I”) that can be eliminated from the sanitary sewer system in a cost-
2 effective manner, as determined by a cost-effectiveness analysis that compares the costs of
3 correcting the I/I with the total costs of transporting and treating the I/I.
4

5 (i) “Facilities” shall mean GWA’s Publicly Owned Treatment Works and three
6 Public Water Systems.

7 (j) “GWA” shall mean Guam Waterworks Authority.

8 (k) “Independent Contractor” shall mean a licensed contractor who has not been
9 employed by GWA in the three-year period prior to March 1, 2011.
10

11 (l) “Independent Professional Engineer” shall mean a licensed professional engineer
12 who has not been employed by GWA in the three-year period prior to March 1, 2011.

13 (m) “Infiltration,” as defined by 40 C.F.R. § 35.2005(b)(20), shall mean water, other
14 than wastewater, that enters the sanitary sewer system (including sewer service connections and
15 foundation drains) from the ground through such means as defective pipes, pipe joints,
16 connections, or manholes.
17

18 (n) “Inflow,” as defined by 40 C.F.R. § 35.2005(b)(21), shall mean water other than
19 wastewater that enters the sanitary sewer system (including sewer service connections) from
20 sources such as, but not limited to, roof leaders, cellar drains, yard drains, drains from springs
21 and swampy areas, manhole covers, clean-out caps on laterals, cross connections between storm
22 drains and sanitary sewers, catch basins, cooling towers, storm waters, surface runoff, street
23 wash waters, or drainage.
24

25 (o) “Paragraph” shall mean a portion of this Order identified by an Arabic numeral.

26 (p) “Parties” shall mean the United States, GWA, and the Government of Guam.
27
28

1 (q) "Section" shall mean a portion of this Order identified by a Roman numeral.

2 (r) "SSO" or "Sanitary Sewer Overflow" shall mean an overflow, spill, diversion, or
3 release of wastewater from or caused by the GWA's Wastewater Collection System, except that
4 the term "SSO" does not include wastewater backups into buildings caused solely by a blockage
5 or other malfunction in a building lateral that is privately owned.

7 (s) "Stipulated Order" shall mean the Stipulated Order for Preliminary Relief
8 entered by the court on June 5, 2003, as amended by stipulation and approved and filed by the
9 court on October 25, 2006.

11 (t) "Unauthorized Bypass" shall mean a Bypass that violates any condition in, or is
12 not authorized by, GWA's NPDES permits.

13 (u) "United States" shall mean the United States of America, acting on behalf of
14 EPA.

16 (v) "Wastewater Collection System" shall mean all parts of the wastewater collection
17 system owned or operated by GWA that are intended to convey domestic, commercial or
18 industrial wastewater to GWA's wastewater treatment plants, including, without limitation,
19 sewers, pipes, pump stations, lift stations, manholes or maintenance holes, force mains, and
20 appurtenances associated with each of the above.

22 **II. COMPLIANCE REQUIREMENTS**

23 **A. WASTEWATER PROJECTS**

24 2. Northern District Wastewater Treatment Plant ("WWTP") Interim Primary Treatment
25 Upgrades. By September 30, 2012, GWA shall complete construction of interim primary
26 treatment improvements at the Northern District WWTP and achieve consistent compliance with
27
28

1 the interim effluent limits set forth in Table 1 in subparagraph 3.a. Within 30 Days after
 2 completing construction of the interim primary improvements, GWA shall provide notification
 3 to EPA and the United States pursuant to Paragraph 35 of this Order.
 4

5 3. Interim Effluent Limits for the Northern District WWTP.

6 a. By no later than September 30, 2012, GWA shall comply with the following
 7 requirements and interim effluent limits in Table 1 for flow rate, Biochemical Oxygen Demand
 8 (5 day) (“BOD5”), and Total Suspended Solids (“TSS”) for wastewater discharges from the
 9 Northern District WWTP.
 10

Northern District WWTP - Table 1					
Interim Discharge Limitations				Monitoring Requirements	
Parameter	Average Monthly	Maximum Daily	Units	Minimum Frequency	Sample Type
Flow	6	6; report ^{1/}	mgd	continuous	
Biochemical Oxygen Demand (5 day)	85 4,256	170 8,512	mg/L lbs/da y	daily	composite

25 ^{1/} Until GWA completes the interim primary treatment upgrades at the Northern District WWTP
 26 pursuant to Paragraph 2, the flow limit shall remain at 6 million gallons per day (“mgd”) as a
 27 daily maximum as required by GWA’s NPDES permit. The daily maximum flow limit of 6 mgd
 28 shall no longer apply after GWA completes construction of the interim primary treatment
 improvements but GWA shall continue to report each month the daily maximum flow.

Total Suspended Solids	50	100	mg/L	daily	composite
	2,504	5,008	lbs/da y		

(1) After three months of continuous compliance with the average monthly limits in Table 1 in subparagraph 3.a., GWA may request from EPA the limits in Table 2 below. GWA shall submit in its request to EPA, for review and approval in accordance with Paragraph 30 of this Order, (i) a report signed by an Independent Professional Engineer certifying that the Northern District WWTP has the capacity to treat an average monthly flow of 7.5 mgd in compliance with the following BOD5 and TSS limits, and (ii) documentation that shows at least three months of continuous compliance with the average monthly limits in Table 1 in subparagraph 3.a.

Northern District WWTP - Table 2					
Interim Discharge Limitations				Monitoring Requirements	
Parameter	Average Monthly	Maximum Daily	Units	Minimum Frequency	Sample Type
Flow	7.5	report	mgd	continuous	
Biochemical Oxygen Demand (5 day)	85 5,320	170 10,640	mg/L lbs/da y	daily	composite

Total Suspended Solids	50	100	mg/L	daily	composite
	3,129	6,258	lbs/day		

(2). After three months of continuous compliance with the approved average monthly limits set forth in Table 2 in subparagraph 3.a.(1) and with average monthly flows of at least 6.5 mgd, GWA may request from EPA the limits in Table 3 below. GWA shall submit in its request to EPA, for review and approval in accordance with Paragraph 30 of this Order, (i) a report signed by an Independent Professional Engineer certifying that the Northern District WWTP has the capacity to treat an average monthly flow of 9 mgd in compliance with the following BOD5 and TSS limits, and (ii) documentation that shows at least three months of continuous compliance with the average monthly limits in Table 2 in subparagraph 3.a.(1).

Northern District WWTP - Table 3					
Interim Discharge Limitations				Monitoring Requirements	
Parameter	Average Monthly	Maximum Daily	Units	Minimum Frequency	Sample Type
Flow	9	report	mgd	continuous	
Biochemical Oxygen Demand (5 day)	85 6,384	170 12,768	mg/L lbs/day	daily	composite

Total Suspended Solids	50	100	mg/L	daily	composite
	3,755	7,510	lbs/day		

b. GWA shall comply with the requirements and interim effluent limits for flow rate, TSS, and BOD5 for the Northern District WWTP as set forth in subparagraph 3.a. or, as applicable, subparagraph 3.a.(1) or 3.a.(2), notwithstanding any final effluent limitations for flow rate, TSS and BOD5 set forth in GWA's applicable NPDES permit for the Northern District WWTP; provided, however, that this Order shall not affect the force or effect of any other effluent limitations, or monitoring and reporting requirements, or any other terms and conditions of its applicable NPDES permit.

c. Within 90 Days after the Effective Date, GWA shall commence effluent monitoring for wastewater discharges from the Northern District WWTP. For one year, GWA shall monitor the effluent each calendar-year quarter (four samples total) for the parameters listed in Appendix A, including conventional and nonconventional compounds, metals, cyanide, phenols, organic compounds, and whole effluent toxicity. GWA shall report the results to EPA in the Quarterly Reports submitted pursuant to Paragraph 31.a.

4. Northern District WWTP Interim Sludge and Biosolids Management.

a. By December 31, 2011, GWA shall submit to EPA, for review and approval in accordance with Paragraph 30 of this Order, a proposed Sludge Management Plan for solids produced at the Northern District WWTP. The Plan shall include a schedule for full implementation of the Plan for: (i) dewatering WWTP solids by no later than September 30,

1 2012, and (ii) adequate stabilization and dewatering of the WWTP solids by no later than
2 September 30, 2014. The Plan shall include at a minimum: (1) estimates of the average and
3 maximum daily solids produced at the WWTP under current conditions and conditions projected
4 to exist when interim primary treatment improvements are completed; (2) whether the solids
5 produced will be stabilized at the Northern District WWTP or transported off-site for
6 stabilization; (3) the maximum capacity that GWA has to transport solids for treatment off-site;
7 (4) if solids will be treated off-site, address and evaluate the following issues: (i) how such
8 solids will be stored prior to transport; (ii) where treatment will be done; (iii) how much
9 treatment capacity is available; (iv) whether GWA's implementation of the proposed Plan will
10 have an adverse impact on the performance of GWA's other WWTP; and (v) how GWA will
11 dispose of solids; and (5) if solids will be treated on-site, address the following issues: (i) how
12 much treatment capacity is available; (ii) what new facilities or upgrades to existing facilities
13 will be required; (iii) when and how these new facilities or upgrades will be completed; and (iv)
14 how GWA will dispose of solids. GWA shall implement the Sludge Management Plan as
15 approved.
16
17
18

19
20 b. In each Quarterly Report submitted to EPA pursuant to Paragraph 31, GWA shall
21 report sludge management activities, including, but not limited to, the amount of solids produced
22 and/or applied to drying beds, solids transported off-site, and solids treated on-site.

23 c. By September 30, 2012, GWA shall repair or replace the solids handling facilities
24 at the Northern District WWTP in accordance with the approved plan and ensure that solids
25 generated by the WWTP are adequately dewatered to comply with the sludge and biosolids
26 requirements in 40 C.F.R. Part 503.
27
28

1 d. By September 30, 2014, GWA shall fully implement the approved Sludge
2 Management Plan and ensure that solids generated by the WWTP are adequately stabilized and
3 dewatered to comply with the sludge and biosolids requirements in 40 C.F.R. Part 503.

4
5 5. Agana WWTP Primary Treatment Upgrades. By June 30, 2013, GWA shall complete
6 primary treatment improvements at the Agana WWTP, achieve consistent compliance with the
7 WWTP's NPDES permit, and comply with the sludge and biosolids requirements in 40 C.F.R.
8 Part 503. To achieve consistent compliance, GWA shall complete the following improvements
9 and any additional WWTP repairs, rehabilitation or improvements, such as the use of chemically
10 enhanced treatment.
11

12 a. By September 30, 2011, GWA shall submit to EPA, for review and comment, a
13 proposed scope of work and schedule, describing all improvements required to achieve
14 consistent compliance. The scope of work and schedule shall include, but not be limited to,
15 improvements to septage handling, grit and fats/oil/grease ("FOG") removal, and solids
16 handling, as set forth below in subparagraphs 5.b., 5.c. and 5.d.
17

18 b. By no later than June 30, 2013, GWA shall construct and have in service a
19 septage handling facility located at the Agana WWTP or another location to be determined by
20 GWA. GWA shall meet the following interim compliance milestones:
21

22 (1) by December 31, 2011, GWA shall execute a design contract and issue a
23 notice to proceed with design; and
24

25 (2) by June 30, 2012, GWA shall execute a construction contract and issue a
26 notice to proceed with construction.

27 c. By no later than June 30, 2013, GWA shall construct and have in service grit and
28

1 FOG removal systems at either the Agana WWTP or the Agana sewage pump station. GWA
2 shall meet the following interim compliance milestones:

3 (1) by December 31, 2011, GWA shall execute a design contract and issue a
4 notice to proceed with design; and

5 (2) by June 30, 2012, GWA shall execute a construction contract and issue a
6 notice to proceed with construction.

7
8 d. By June 30, 2013, GWA shall repair the solids handling facilities at the Agana
9 WWTP, ensure that solids generated by the WWTP are adequately stabilized and dewatered at
10 the Agana WWTP, and comply with the sludge and biosolids requirements in 40 C.F.R. Part 503.

11
12 e. By May 31, 2013, GWA shall submit to EPA an operations and maintenance
13 (“O&M”) plan for primary treatment operations at the Agana WWTP. The plan shall include
14 O&M procedures for all major systems of the WWTP from the headworks to the outfall and
15 sludge processing facilities.

16
17 f. Within 90 Days after the Effective Date, GWA shall commence effluent
18 monitoring for wastewater discharges from the Agana WWTP. For one year, GWA shall
19 monitor the effluent each calendar-year quarter (four samples total) for the parameters listed in
20 Appendix A, including conventional and nonconventional compounds, metals, cyanide, phenols,
21 organic compounds, and whole effluent toxicity. GWA shall report the results to EPA in the
22 Quarterly Reports submitted pursuant to Paragraph 31.a.

23
24 6. Agana WWTP Effluent Backsurge. By June 30, 2013, GWA shall prevent the backsurge
25 of effluent flow from the Agana WWTP’s outfall. By December 31, 2011, GWA shall submit to
26 EPA, for review and comment, a proposed plan and schedule to address the effluent backsurge
27
28

1 issues. Until the effluent backsurge is addressed, GWA shall continuously monitor flows
2 discharged through the old outfall, as required by the WWTP's NPDES permit.

3
4 7. Infiltration/Inflow Analyses and Sewer System Evaluation Surveys. GWA shall conduct
5 Infiltration/Inflow ("I/I") Analyses for all portions of its sanitary sewer system tributary to the
6 Agana, Agat-Santa Rita, Baza Gardens, and Umatac-Merizo WWTPs. For the portions of those
7 basins of its sanitary sewer system determined to be subject to "Excessive I/I" as defined in this
8 Order, GWA shall also conduct Sewer System Evaluation Surveys ("SSES"). GWA shall
9 conduct a separate I/I Analysis and SSES for each sanitary sewer system tributary to each of the
10 four WWTPs. These I/I Analyses and SSES shall be conducted in accordance with sound
11 engineering judgment and with the guidance provided in the appropriate sections of the
12 *Handbook: Sewer System Infrastructure Analysis and Rehabilitation*, EPA/625/6-91/030, 1991;
13 *Existing Sewer Evaluation and Rehabilitation*, WEF MOP FD-6, 1994; and the National
14 Association of Sewer Service Companies ("NASSCO") "Manual of Practice."
15

16
17 8. I/I Analyses and SSES Work Plan. Within 180 Days after the Effective Date, GWA shall
18 develop and submit for EPA's review and approval in accordance with Paragraph 30 of this
19 Order, an I/I Analysis and SSES work plan that provides the anticipated activities,
20 implementation schedule and completion date, work products, and interrelationship with GWA's
21 Capital Improvement Program planning efforts for the analyses described below in
22 subparagraphs 8.a. through 8.d. After EPA's approval of the work plan, GWA shall perform the
23 following I/I Analyses and SSESs.
24
25

26 a. Flow and Rainfall Data. GWA shall collect concurrent wastewater flow and
27 rainfall data for purposes of conducting its I/I Analyses required in this Paragraph. GWA shall
28

1 collect wastewater flow data utilizing continuous-recording Doppler-type flow meters (or a
2 similar method approved by EPA) capable of (i) measuring flow depth and flow velocity
3 simultaneously, and (ii) calculating flow rate from these data. GWA shall collect rainfall data
4 utilizing continuous-recording rain gauges. At least one rain gauge shall be installed in the area
5 tributary to each wastewater flow meter. When feasible, GWA shall select small-to-moderate
6 wet weather events that do not cause Sanitary Sewage Overflows (“SSOs”), but do not result in
7 less than 0.1 inch per hour of rainfall intensity during the main part of the storm event.
8
9

10 b. I/I Analysis for Agat-Santa Rita, Baza Gardens, and Umatac-Merizo WWTPs
11 (collectively, the “Southern WWTPs”). Within 540 Days after the Effective Date, GWA shall
12 complete I/I Analyses of the Southern WWTPs. For these I/I Analyses, the subject sewer system
13 shall be subdivided into a single drainage basin for each WWTP. Flow metering with concurrent
14 rainfall measurement conforming to the requirements of subparagraph 8.a. shall be performed for
15 each individual drainage basin to establish current dry-weather and wet-weather wastewater flow
16 rates generated within that drainage area. Treatment plant influent flow meters may be used for
17 flow data collection provided that they are fully functional, including during power outages, and
18 yield wastewater flow rate data comparable in accuracy to portable flow meters conforming to
19 subparagraph 8.a. Flow metering and concurrent rainfall data collected within the past five years
20 may be utilized in lieu of collecting new flow and rainfall data provided that the flow metering
21 and concurrent rainfall data collection effort conform to all requirements of subparagraph 8.a.
22 Through analysis and comparison of dry-weather flow data, wet-weather flow data, and rainfall
23 data, GWA shall determine whether each individual drainage area is likely subject to Excessive
24 I/I.
25
26
27
28

1 c. I/I Analysis for the Agana WWTP. Within 900 Days after the Effective Date,
2 GWA shall complete the I/I Analysis of the sanitary sewer systems tributary to the Agana
3 WWTP. For this I/I Analysis, the sanitary sewer system shall be subdivided into individual
4 drainage sub-basins. Flow metering with concurrent rainfall measurement conforming to the
5 requirements of subparagraph 8.a. shall be performed for each individual drainage area to
6 establish current dry-weather and wet-weather wastewater flow rates generated within that
7 drainage area. Flows from upstream tributary areas shall be deducted to determine the
8 infiltration and/or inflow likely to be entering the sanitary sewer system from sources lying
9 within each drainage area. Flow metering and concurrent rainfall data collected within the past
10 five years may be utilized in lieu of collecting new flow and rainfall data provided that the flow
11 metering and concurrent rainfall data collection effort conformed to all requirements of
12 subparagraph 8.a. Through analysis and comparison of dry-weather flow data, wet-weather flow
13 data, and rainfall data, GWA shall determine whether each individual drainage area is likely
14 subject to Excessive I/I.

15
16
17
18 d. SSES for the Southern WWTPs. Within 540 Days after the Effective Date, GWA
19 shall perform an SSES for the sanitary sewer systems tributary to the Southern WWTPs found to
20 likely have Excessive I/I under subparagraph 8.b. The SSES shall specifically identify: (i) the
21 areas within each individual drainage basin having Excessive I/I that are causing and/or
22 contributing to recurring wet weather SSOs, overloading of WWTPs, and/or Bypasses at the
23 WWTPs; (ii) sources of I/I within the individual drainage basin suspected to have Excessive I/I
24 rates, together with a quantification of the amount; (iii) recurring wet weather SSOs and/or
25 Bypasses at the WWTPs within each individual drainage basin; (iv) storm water cross-
26
27
28

1 connections and unauthorized connections; and (v) degraded pipes, manholes, and structures of
2 the sanitary sewer system that permit Excessive I/I to enter the sanitary sewer system. The SSES
3 shall include: (i) additional flow monitoring to isolate sources of I/I; (ii) smoke testing;
4 (iii) visual inspections of pipes and manholes; (iv) night flow isolation; (v) closed circuit
5 television (“CCTV”) inspection to identify sewers in need of repair, rehabilitation, or
6 replacement; (vi) dyed water flooding of storm drainage pipes and ditches within 20 feet of or
7 crossing sanitary sewers or sanitary sewer laterals concurrently with CCTV; and (vii) building
8 inspections.
9

10
11 e. SSES for the Agana WWTP. Within 900 Days after the Effective Date, GWA
12 shall perform an SSES for each individual drainage basin tributary to the Agana WWTP found to
13 likely have Excessive I/I under subparagraph 8.c. GWA’s SSES shall conform to the
14 requirements of subparagraph 8.d. Within 960 Days after the Effective Date, GWA shall submit
15 to EPA for review and comment a plan to address the problems identified in the SSES conducted
16 pursuant to this subparagraph, including the repair, rehabilitation or replacement of all
17 Wastewater Collection System assets that permit Excessive I/I to enter the sanitary sewer
18 system.
19
20

21 9. Agat-Santa Rita WWTP Interim Measures. GWA shall complete the following interim
22 measures at the Agat-Santa Rita WWTP.

23 a. Within 60 Days after the Effective Date, GWA shall submit to EPA a list of each
24 time that GWA bypassed wastewater from the Agat-Santa Rita WWTP and discharged without
25 treatment in the last three calendar years (2008, 2009, and 2010), including the date and volume
26 of wastewater bypassed.
27
28

1 b. Within 180 Days after the Effective Date, GWA shall repair or replace the
2 Agat-Santa Rita WWTP's influent flow meter, calibrate the flow meter, report to EPA on the
3 actions taken to improve the flow meter, and ensure that the repaired or replaced flow meter
4 accurately measures flow as required by the NPDES permit for the Agat-Santa Rita WWTP.
5

6 c. Within 180 Days after the Effective Date, GWA shall submit to EPA, for review
7 and approval in accordance with Paragraph 30 of this Order, a report evaluating near-term
8 measures that address disinfection, solids handling, and prohibited Bypasses. The report shall be
9 prepared by an Independent Professional Engineer and shall: (i) describe the alternative
10 measures evaluated, the methodology and criteria used, and the findings of the evaluation; (ii)
11 recommend specific remedial measures and include a proposed schedule to implement the
12 remedial measures; and (iii) address the following elements:
13

14 (1) Disinfection. The report shall examine measures to disinfect and
15 dechlorinate wastewater flows at the WWTP prior to discharge.
16

17 (2) Solids Handling. The report shall examine the repair or replacement of
18 the solids handling facilities, process changes, or other alternatives at the WWTP to ensure that
19 solids are dewatered at the WWTP and to enable GWA to achieve compliance at the WWTP
20 with the sludge and biosolids requirements in 40 C.F.R. Part 503. The report shall propose an
21 expeditious schedule to implement any upgrades or process changes by no later than 180 Days
22 after EPA's approval.
23

24 (3) Bypass reduction. The report shall examine alternatives to mitigate the
25 impact and reduce the volume of wastewater that is bypassed around the WWTP, including, but
26 not limited to, wastewater storage, targeted pipe replacement, source control (such as the
27
28

1 elimination of inflow sources to the sanitary sewer system), and partial treatment of wet weather
2 flows. The report shall include a program to eliminate illicit discharges of roof, yard, and road
3 drainage to the sanitary sewer system in conjunction with the management of storm water runoff
4 to be diverted from the sanitary sewer system. The report shall recommend measures for GWA
5 to implement that would enable GWA to achieve and maintain a seventy-five percent (75%)
6 percent reduction in the frequency and volume of wastewater bypassed around the WWTP as
7 compared to the average number and volume of wastewater Bypass events in the last three
8 calendar years (2008, 2009, and 2010).
9
10

11 d. Within 180 Days after EPA's approval of the report submitted pursuant to
12 subparagraph 9.c., GWA shall implement the approved disinfection and chlorination measures in
13 subparagraph 9.c.(1) and shall comply with the bacteria and chlorine residual effluent limitations
14 of its NPDES permit.
15

16 e. Within 180 Days after EPA's approval of the report submitted pursuant to
17 subparagraph 9.c., GWA shall implement the approved solids handling measures in
18 subparagraph 9.c.(2) and shall comply with the sludge and biosolids requirements in 40 C.F.R.
19 Part 503.
20

21 f. Within 180 Days after EPA's approval of the report submitted pursuant to
22 subparagraph 9.c., GWA shall implement the approved measures in subparagraph 9.c.(3) to
23 mitigate the impact of wastewater that is bypassed from the WWTP and discharged without
24 treatment. In each Annual Report submitted pursuant to Paragraph 31.c., GWA shall measure
25 the percent reduction in Bypasses at the Agat-Santa Rita WWTP by comparing the total number
26 and volume of wastewater Bypass events in the last calendar year with the average number and
27
28

1 volume of wastewater Bypass events in the prior three-year period.^{2/}

2 10. Agat-Santa Rita Wastewater Systems Evaluation. By December 31, 2013, GWA shall
3 complete an evaluation of the Agat-Santa Rita WWTP, collection system, and/or conveyance
4 system, submit a report to EPA documenting the findings of the evaluation, and submit to EPA,
5 for review and approval in accordance with Paragraph 30 of this Order, a plan with a schedule to
6 implement any proposed improvements to the Agat-Santa Rita WWTP, collection system, and/or
7 conveyance system. GWA shall evaluate upgrades to the Agat-Santa Rita WWTP, collection
8 system, and/or conveyance system that will achieve compliance with the WWTP's NPDES
9 permit and eliminate Bypasses at the WWTP. The evaluation shall take into account any
10 relevant results from I/I analyses and SSESs surveys conducted pursuant to Paragraph 8, and the
11 wastewater impacts, flow volumes, and pollutant loadings associated with the anticipated
12 population growth through year 2035. The evaluation shall examine options for inflow and
13 infiltration control, conveyance of peak flows, storage of peak flows, and treatment plant
14 capacity. The report shall describe the upgrades evaluated, methodology and criteria used, and
15 findings of the evaluation. GWA shall submit a plan that identifies improvements that GWA
16 will implement to achieve compliance with the WWTP's NPDES permit and eliminate Bypasses
17 at the WWTP and a schedule for completing the improvements.

18 11. Agat-Santa Rita Wastewater Systems Upgrade. By December 31, 2016, GWA shall
19 complete the improvements identified in the approved plan required by Paragraph 10, achieve
20 consistent compliance with the Agat-Santa Rita WWTP's NPDES permit, eliminate Bypasses at
21

22
23
24
25
26
27 ^{2/} For example, in the Annual Report for calendar year 2011, the total number and volume of
28 wastewater Bypass events in 2011 will be compared to the average number and volume of
wastewater Bypass events in 2008, 2009, and 2010.

1 the WWTP, ensure that solids generated by the WWTP are adequately stabilized and dewatered
2 at the Agat-Santa Rita WWTP, and comply with the sludge and biosolids requirements in 40
3 C.F.R. Part 503. GWA shall also meet the following interim compliance milestones.
4

5 a. By June 30, 2014, GWA shall execute a design contract and issue a notice to
6 proceed with the design.

7 b. By June 30, 2015, GWA shall execute a construction contract and issue a notice
8 to proceed with construction.
9

10 12. Baza Gardens WWTP Interim Measures. GWA shall complete the following interim
11 measures at the Baza Gardens WWTP:

12 a. Within 180 Days after the Effective Date, GWA shall submit to EPA a report,
13 prepared by an Independent Professional Engineer, assessing the structural integrity of the Baza
14 Gardens WWTP, and identifying critical repairs required to prevent the failure of the treatment
15 units or ancillary structures needed to allow operator access to the Baza Gardens WWTP during
16 the next ten years.
17

18 b. Within 540 Days after the Effective Date, GWA shall complete the repair of any
19 structural deficiencies that would prevent continued operation of the Baza Gardens WWTP for
20 an additional ten years or until such time that the Baza Gardens WWTP has been rehabilitated or
21 replaced and placed in full operation.
22

23 c. Within 180 Days after the Effective Date, GWA shall submit to EPA, for review
24 and approval in accordance with Paragraph 30 of this Order, a report that examines the repair or
25 replacement of the solids handling facilities, process changes, or other alternatives at the WWTP
26 to ensure that solids generated by the WWTP are dewatered at the WWTP to enable GWA to
27
28

1 comply with the sludge and biosolids requirements in 40 C.F.R. Part 503. The report shall
2 propose an expeditious schedule to implement any upgrades or process changes by no later than
3 365 Days after EPA's approval.
4

5 d. Within 365 Days after EPA's approval of the report in subparagraph 12.c., GWA
6 shall implement the approved solids handling measures and shall comply with the sludge and
7 biosolids requirements in 40 C.F.R. Part 503.
8

9 13. Baza Gardens Wastewater Systems Evaluation. By April 30, 2014, GWA shall complete
10 an evaluation of the Baza Gardens WWTP, collection system, and/or conveyance system, submit
11 a report to EPA documenting the findings of the evaluation, and submit to EPA, for review and
12 approval in accordance with Paragraph 30 of this Order, a plan with a schedule to implement any
13 proposed improvements to the Baza Gardens WWTP, collection system, and/or conveyance
14 system. GWA shall evaluate upgrades to the Baza Gardens WWTP, collection system, and/or
15 conveyance system that will achieve compliance with the WWTP's NPDES permit. The
16 evaluation shall take into account any relevant results from I/I analyses and SSESs conducted
17 pursuant to Paragraph 8; the wastewater impacts, flow volumes, and pollutant loadings
18 associated with the anticipated population growth through year 2035; and the effluent disposal
19 options available to GWA. The report shall describe the upgrades evaluated, methodology and
20 criteria used, and findings of the evaluation. GWA shall submit a plan that identifies
21 improvements to achieve compliance with the WWTP's NPDES permit, including I/I control,
22 conveyance of peak flows, storage of peak flows, and treatment plant capacity.
23
24
25

26 14. Baza Gardens Wastewater Systems Upgrade. By April 30, 2018, GWA shall complete
27 the improvements identified in the approved plan required by Paragraph 13 and achieve
28

1 consistent compliance with the Baza Gardens WWTP's NPDES permit, ensure that solids
2 generated by the WWTP are adequately stabilized and dewatered at the Baza Gardens WWTP,
3 and comply with the sludge and biosolids requirements in 40 C.F.R. Part 503. GWA shall also
4 meet the following interim compliance milestones.
5

6 a. By October 31, 2015, GWA shall execute a design contract and issue a notice to
7 proceed with the design.
8

9 b. By October 31, 2016, GWA shall execute a construction contract and issue a
10 notice to proceed with construction.

11 15. Umatac-Merizo Wastewater Systems Evaluation. By December 31, 2013, GWA shall
12 complete an evaluation of the Umatac-Merizo WWTP, collection system, and/or conveyance
13 system, submit a report to EPA documenting the findings of the evaluation, and submit to EPA,
14 for review and approval in accordance with Paragraph 30 of this Order, a plan with a schedule to
15 implement any proposed improvements to the Umatac-Merizo WWTP, collection system, and/or
16 conveyance system. GWA shall evaluate upgrades to the Umatac-Merizo WWTP, collection
17 system, and/or conveyance system that will achieve compliance with the WWTP's NPDES
18 permit. The evaluation shall take into account any relevant results from infiltration/inflow
19 analyses and sanitary sewer evaluation surveys conducted pursuant to Paragraph 8; the
20 wastewater impacts, flow volumes, and pollutant loadings associated with the anticipated
21 population growth through year 2035; and the effluent disposal options available to GWA. The
22 report shall describe the upgrades evaluated, methodology and criteria used, and findings of the
23 evaluation. GWA shall submit a plan that identifies improvements to achieve compliance with
24 the WWTP's NPDES permit, including inflow/infiltration control, conveyance of peak flows,
25
26
27
28

1 storage of peak flows, and treatment plant capacity.

2 16. Umatac-Merizo Wastewater Systems Upgrade. By December 31, 2018, GWA shall
3 complete the improvements identified in the approved plan required by Paragraph 15 and
4 achieve consistent compliance with the Umatac-Merizo WWTP's NPDES permit. GWA shall
5 also meet the following interim compliance milestones.
6

7 a. By June 30, 2016, GWA shall execute a design contract and issue a notice to
8 proceed with the design.
9

10 b. By June 30, 2017, GWA shall execute a construction contract and issue a notice
11 to proceed with construction.

12 17. Sewer Cleaning. GWA shall conduct sanitary sewer system cleaning as follows: (i) clean
13 each gravity main sewer in GWA's Wastewater Collection System at least once every five years;
14 (ii) clean at least 55 "unique miles" of gravity main sewer in each calendar year^{3/} in addition to
15 any additional repeat cleaning (Hot Spot Cleaning) required pursuant to Paragraph 18 to address
16 recurring blockages or partial blockages caused by grit, FOG, and/or other materials; and (iii)
17 provide details in each Annual Report regarding the total number of gravity sewer lines cleaned
18 in the past year, the number of gravity sewer lines subject to repeated cleaning, and the number
19 of "unique miles" cleaned in the prior year. In calculating the number of "unique miles" per
20 year, GWA shall count each individual pipe segment cleaned in the year but shall not count an
21 individual pipe segment multiple times even if it was subject to repeated cleaning in that year.
22 The cleaning activities may be coordinated with the CCTV inspections required by Paragraph 19
23 below.
24
25
26

27 _____
28 ^{3/} For calendar year 2011, GWA shall clean at least 30 miles of gravity main sewer.

1 18. Hot Spot Identification, Inspection, and Cleaning. By 180 Days after the Effective Date,
2 GWA shall submit to EPA, for review and approval in accordance with Paragraph 30 of this
3 Order, a proposed Hot Spot Cleaning Plan, which shall detail: (1) the process for identifying pipe
4 segments in the Hot Spot Cleaning Program, including (i) all pipes where SSOs caused by
5 blockages have occurred in the past five years, (ii) all pipes where recurring grit and/or Fat, Oil
6 and Grease (“FOG”) build-up is known to occur, and (iii) all pipes to be cleaned at one-month,
7 three-month, six-month, and one-year intervals; (2) the process by which pipes are added to or
8 removed from the Hot Spot Cleaning Program; and (3) the process for evaluating how each pipe
9 in the Hot Spot Cleaning Program should be addressed to prevent SSOs. Upon EPA’s approval,
10 GWA shall implement the program.
11

12
13 19. CCTV Inspection Program. Within two years after the Effective Date, GWA shall
14 complete a CCTV inspection and assessment of at least forty percent (40%) percent of its gravity
15 sanitary sewers mains. GWA shall complete a CCTV inspection and assessment of all of its
16 gravity sanitary sewers mains within five years after the Effective Date. GWA shall use the
17 results from the critical sewer assessment rating in GWA’s 2006 Water Resources Master Plan
18 and other planning documents to plan the first two years of CCTV inspections. In prioritizing
19 inspections, GWA shall classify as high priority all gravity mains within 1,000 feet of a potable
20 water supply well or within the groundwater protection zone. Beginning on January 30, 2012,
21 and annually thereafter, GWA shall report the total miles and the locations of the gravity sewers
22 inspected by CCTV during the previous year.
23
24

25
26 20. Sewer Hook-up Program. GWA shall maintain its sewer hook-up program and initiate
27 new efforts to connect residents to the GWA sewer system, including the following measures:
28

- 1 a. continue the existing sewer hook-up revolving fund program for residents
2 currently required to connect to the Wastewater Collection System;
3
4 b. provide funding to expand and ensure the viability of the existing program; and
5
6 c. at EPA's request, provide a report describing the number of new connections and
7 the balance of the program's revolving fund.

8 GWA reserves the right to identify alternative funding sources and methods for the program.

9 **B. PUBLIC WATER SYSTEM PLANNING AND IMPROVED OPERATIONS &**
10 **MAINTENANCE ("O&M")**

11 21. Upgrade Groundwater Chlorination System Project. Within 540 Days after the Effective
12 Date, GWA shall complete construction of the Upgrade of Groundwater Chlorination System
13 Project (U.S. EPA Grant XP-97931501-2).

14
15 22. Chlorine Residual Monitors and Alarms and/or Automatic Shutoff of Wells. Within 180
16 Days after the Effective Date, GWA shall submit a proposed plan to EPA, for review and
17 approval in accordance with Paragraph 30 of this Order, detailing how GWA will design,
18 acquire, install, maintain, and operate at all wells both: (i) continuous chlorine residual monitors
19 and (ii) alarms and/or automatic shutoff systems when there is a loss of chlorine residual. The
20 chlorination dosage levels and the chlorine residual analyzers and monitoring shall meet, at a
21 minimum, all requirements under the new Groundwater Rule ("GWR"), 40 C.F.R. §§ 141.400 -
22 141.405, including the treatment technique requirements, 40 C.F.R. § 141.403, and, in addition
23 to the reporting requirements in 40 C.F.R. § 141.31, the reporting and recordkeeping
24 requirements in 40 C.F.R. § 141.405. Upon EPA's approval of the plan, GWA shall install
25 continuous chlorine residual monitors and alarms and/or automatic shutoff systems at all existing
26
27
28

1 wells in accordance with the following schedule:

2 a. within 540 Days after the Effective Date at high risk wells located near sewage
3 pumping stations, ponding basins, injection wells, or other known possible sources of fecal
4 contamination, or with a history of regular fecal contamination, including at a minimum the
5 following wells: A-5, A-6, A-23, A-25, A-29, A30, A-31, A-32, Y-3, Y-9; Y-15, F-13, D-7,
6 D-19, and MJ-1;
7

8 b. within two years after the Effective Date at moderate risk wells with any history
9 of fecal contamination, including at a minimum the following wells: D-4, D-27, F-11, A-2, A-3,
10 A-7, A-10, A-12, A-14, A-15, M-1, M-5, M-17A, EX-11, D-13, D-17, D-21, D-22, Y-2, F-2, and
11 F-10; and
12

13 c. within three years after the Effective Date at all other wells with no history of
14 fecal contamination.
15

16 GWA shall operate the analyzers and report to EPA and Guam EPA as required under the GWR,
17 40 C.F.R. §§ 141.31, 141.405.

18 23. Water Meters. GWA shall ensure comprehensive water metering in the Public Water
19 Systems by implementing the following:
20

21 a. Within 180 Days after the Effective Date, GWA shall submit to EPA a detailed
22 plan and schedule to ensure that each known connection to its water supply system has an
23 accurate and accessible water meter. Information on each meter shall be entered into GWA's
24 GIS and into an asset inventory system. Pursuant to the plan, GWA shall ensure that all known
25 connections to the water system are metered within two years after the Effective Date.
26

27 b. Within 180 Days after the Effective Date, GWA shall submit to EPA a detailed
28

1 plan and schedule to develop and implement a water meter repair and maintenance program.

2 **C. PUBLIC WATER SYSTEM CAPITAL IMPROVEMENT PROGRAM PROJECTS**

3
4 24. Construction and Inspection of Ugum Water Treatment Plant. Within one year after the
5 Effective Date, GWA shall complete construction of the Ugum Water Treatment Plant, including
6 conversion of the plant to a membrane filtration system, replacement of the control systems, and
7 installation of a Supervisory Control and Data Acquisition (“SCADA”) system, as well as other
8 improvements to achieve consistent compliance with SDWA requirements, performance
9 standards, and the plant’s NPDES permit. By at least 60 Days before the scheduled completion
10 of construction of the Ugum Water Treatment Plant, GWA shall submit to EPA, for review and
11 approval in accordance with Paragraph 30 of this Order, the name and qualifications of an
12 Independent Contractor with experience in water treatment plant design, construction and
13 operation who is qualified to inspect all processes, equipment, and facilities at the plant,
14 including pumping, all treatment process including, but not limited to, chemical addition,
15 membrane filtration, disinfection, and all liquid and solid waste stream treatment, recycle and
16 disposal processes, equipment, and facilities. After completion of construction and prior to
17 startup, GWA’s Independent Contractor shall perform an inspection of all components of the
18 plant. The Independent Contractor shall identify any deficiencies in the plant in a written report.
19 Within 60 Days after the inspection, GWA shall provide a copy of the written report to EPA and
20 Guam EPA and shall submit to EPA, for review and approval in accordance with Paragraph 30
21 of this Order, a plan and schedule to correct the deficiencies identified in the report. The
22 deficiencies shall be corrected no later than 90 Days after EPA’s approval of the plan and
23 schedule. After GWA corrects these deficiencies, the Independent Contractor shall certify the
24
25
26
27
28

1 acceptability of the completed project.

2 25. Perform Operations Assessment and Provide Operator Training and Contractor

3 Assistance During Start-up. By at least 60 Days before the scheduled completion of the

4 construction of the Ugum Water Treatment Plant, GWA shall submit to EPA, for review and

5 approval in accordance with Paragraph 30 of this Order, a plan to perform an operations

6 assessment and provide operator training and start-up procedures for the plant. This plan shall

7 include the name and qualifications of an Independent Contractor, with experience in water

8 treatment plant design and operation, who is qualified to assess the operation of the plant and

9 assist GWA in start-up procedures. GWA may retain the same Independent Contractor used in

10 the plant inspection in Paragraph 24. The operations assessment and operator training program

11 shall commence prior to start-up and continue through the start-up period. GWA shall ensure

12 that contractor assistance is available throughout the start-up period and for a period of at least

13 one year following start-up or until plant operation can proceed without external assistance,

14 whichever is longer.

15 26. O&M Plan and Procedures for Ugum Water Treatment Plant. By at least 90 Days before

16 the scheduled start-up, GWA shall submit to EPA and Guam EPA, for review and comment, a

17 proposed O&M plan for the Ugum Water Treatment Plant. GWA may, where appropriate,

18 incorporate provisions from existing O&M manuals. This plan shall include, but not be limited

19 to, the following elements:

- 20 a. O&M procedures for all major components and systems of the plant, from the
- 21 intake to the finished water storage, including all equipment such as pumps, valves, pipes, filters,
- 22 compressors, electrical controls, chemical addition equipment, process monitoring equipment, all
- 23
- 24
- 25
- 26
- 27
- 28

1 treatment processes and associated facilities and equipment, with a special emphasis on newly
2 installed membrane filters, waste stream treatment and disposal, and other new treatment
3 components. The O&M plan shall include procedures for all aspects of operation and process
4 control, including: chemical addition; monitoring of key parameters; operation and maintenance
5 of all associated equipment; use and handling of all chemicals, including chemical storage,
6 chemical addition, and associated equipment and appurtenances; management and processing of
7 all wastes, including wastewater, waste sludge, and any other wastes; and the finished water
8 storage facilities. The O&M procedures shall be of sufficient detail such that the water treatment
9 plant operators can fully operate and maintain all components of the plant under all operating
10 conditions;

11
12
13 b. The development of monthly operating reports to demonstrate regulatory
14 compliance under federal and State regulations and requirements;

15
16 c. Spare parts inventory procedures, including identification of parts to maintain on-
17 site and parts to maintain at off-site locations; and

18
19 d. Staffing levels and training plans to ensure that the plant is fully staffed with
20 qualified personnel, including the number of staff, position titles, required experience, water
21 treatment or other certification levels required for all operation and maintenance personnel, and
22 professional experience grades required for plant operating personnel.

23 27. Ugum Water Treatment Plant Operation and Maintenance. Within one year after the
24 Effective Date, GWA shall achieve compliance at the Ugum Water Treatment Plant with the
25 SDWA, the Guam SDWA, regulations promulgated pursuant to those statutes, and the plant's
26 NPDES permit. GWA shall implement the O&M plan and procedures for the Ugum Water
27
28

1 Treatment Plant developed in accordance with Paragraph 26. GWA shall maintain spare parts as
2 required in the procedures and make timely repairs when needed. GWA shall modify the O&M
3 manuals as necessary to ensure consistent compliance. GWA shall ensure that the plant is
4 sufficiently staffed for all shifts with operators who have appropriate certifications, experience,
5 and training.

7 28. Sinajana Water Transmission Line. GWA shall complete construction of the Sinajana
8 Water Transmission Line to ensure the reliable delivery of chlorinated water in the Northern
9 Public Water System.

11 a. Within 180 Days after the Effective Date, GWA shall complete construction of
12 the Sinajana Water Transmission Line, which has been designed to receive water from several
13 wells in the Northern Public Water System and to reliably deliver water to storage tanks for
14 chlorination.

16 b. Within 180 Days after the Effective Date, GWA shall provide to EPA, for review
17 and comment, an engineering and hydraulic evaluation/assessment report. The report shall:
18 (i) detail improvements needed for any additional facilities (such as booster pumps, additional
19 water lines, chlorination facilities, and storage tanks) to provide subsequent distribution of water
20 in a manner that ensures adequate disinfectant level, pressure, and flow are maintained in the
21 distribution system service area; (ii) include an assessment of the Agana Heights and Chaot
22 storage tanks, which are currently out of service and determined by GWA to require complete
23 replacement, and recommend the appropriate tank sizes and locations required to ensure
24 adequate disinfection, adequate pressure at all locations in the distribution system served by the
25 wells connected to the Sinajana Water Transmission Line, and sufficient storage capacity to meet
26
27
28

1 all water storage needs; and (iii) include a plan and schedule to implement the improvements
2 identified in the report.

3
4 c. Within 540 Days after the completion of the engineering and hydraulic
5 evaluation/assessment report required by subparagraph 28.b., GWA shall complete construction
6 and start-up of the Sinajana Water Transmission Line and other improvements (including the
7 replacement and possible relocation of the Agana Heights and Chaot storage tanks) identified by
8 the report to ensure that adequate disinfectant level, pressure, and flow are maintained in the
9 distribution system service area.
10

11 d. Pursuant to the schedules set out in this subparagraph, GWA shall provide
12 monitoring plans to EPA, for review and approval in accordance with Paragraph 30 of this
13 Order, that ensure adequate flow, pressure, and disinfection is maintained in the distribution
14 system service area.
15

16 (1) At least 90 Days prior to the scheduled completion of construction
17 required in subparagraph 28.a. above, GWA shall submit a plan indicating how it will monitor
18 flows, pressure, tank water levels, and chlorine throughout the distribution system service area.
19 Upon approval, for one year following completion of construction and initial start-up, GWA
20 shall monitor flows, pressure, tank water levels, and chlorine throughout the service area in
21 accordance with the approved plan.
22

23 (2) At least 180 Days prior to the scheduled completion of construction
24 required in subparagraph 28.c. above, GWA shall submit a plan indicating how it will monitor
25 flows, pressure, tank water levels, and chlorine throughout the distribution system service area.
26 Upon approval, for one year following completion of construction and initial start-up, GWA
27
28

1 shall monitor flows, pressure, tank water levels, and chlorine throughout the service area in
2 accordance with the approved plan.

3
4 e. As part of its Quarterly and Annual Reports, GWA shall describe the status of the
5 engineering and hydraulic assessment/evaluation and the implementation of the necessary
6 improvements, and shall include monitoring data for the distribution system service area as
7 required by subparagraph 28.d.

8
9 29. Storage Tank/Reservoir Repair, Rehabilitation, Replacement, and Relocation Program.

10 GWA has completed the assessment of the following six of its storage tanks: Agana Heights,
11 Piti, Chaot, Astumbo #1, Yigo #1, and Mangilao #1. GWA shall follow the procedures set out in
12 this Paragraph to complete the assessment and necessary repair, rehabilitation, replacement, and
13 relocation of all of its 29 storage tanks.

14
15 a. Hydraulic Analysis.

16 (1) Within 90 Days after the Effective Date, GWA shall provide to EPA, for
17 review and approval in accordance with Paragraph 30 of this Order, a plan and schedule to
18 perform a hydraulic analysis that assesses the proper size and location of GWA's storage tanks.

19 The hydraulic analysis shall evaluate each service area to identify deficiencies that impact the
20 short- and long-term storage and pressure needs of that service area. GWA's plan shall ensure
21 that a hydraulic analysis of all service areas is completed no later than one year after EPA
22 approves the plan. Upon EPA's approval, GWA shall implement the approved plan and
23 schedule.
24

25
26 (2) Within 540 Days after the Effective Date, GWA shall submit to EPA, for
27 review and comment, a report describing the hydraulic analysis, methodology, findings, and
28

1 recommendations on the proper size and location of GWA's storage tanks. The
2 recommendations shall address deficiencies that impact GWA's short and long term storage
3 needs in each service area.
4

5 b. Assessment and Repair, Rehabilitation, Replacement, and/or Relocation.

6 (1) Within 90 Days after EPA's approval of the plan under subparagraph
7 29.a.(1), GWA shall provide to EPA, for review and comment, procedures to operate and
8 monitor water transmission and distribution in order to minimize service disruptions while GWA
9 assesses and repairs, rehabilitates, replaces, and/or relocates each tank.
10

11 (2). Within 540 Days after the Effective Date, GWA shall submit to EPA, for
12 review and approval in accordance with Paragraph 30 of this Order, a schedule to assess the
13 storage capacity, structure, and safety of each storage tank, and complete the necessary
14 improvements, which may include repair, rehabilitation, replacement, and/or relocation of each
15 storage tank. The improvements shall address structural deficiencies and safety issues as well as
16 the findings from the hydraulic analysis completed in subparagraph a., such as inadequate
17 storage and pressure.
18

19 (3) Within 540 Days after the Effective Date, GWA shall complete
20 construction of at least one new storage tank with a minimum capacity of two million gallons in
21 the Barrigada area to replace or increase the storage volume of the Barrigada storage tanks (*i.e.*,
22 Barrigada #1, Barrigada #2, and Barrigada #3).
23

24 (4) The following seven tanks were ranked by GWA to have a severe need:
25 Malolaj Elevated Tank, Yigo Elevated, Hyundai, Santa Rosa/Yigo, Santa Rita, Astumbo #2, and
26 Yona Pulantat tanks/reservoirs. Within five years after the Effective Date, after taking into
27
28

1 account the conclusions of the hydraulic analysis performed under subparagraph 29.a., GWA
2 shall assess and complete construction (*i.e.*, repair, rehabilitate, replace or relocate) of at least
3 seven additional storage tanks/reservoirs.^{4/} These prioritized tanks shall include all of the seven
4 tanks ranked to have a severe need unless the hydraulic analysis demonstrates that one or more
5 of these “severe need” tanks is no longer needed in its service area or that other tanks should be
6 prioritized for repair, rehabilitation, replacement or relocation.
7

8 (5) Within five years after the Effective Date, after taking into account the
9 conclusions of the hydraulic analysis performed under subparagraph 29.a., GWA shall assess all
10 remaining storage tanks/reservoirs.
11

12 (6). After completion of the assessment conducted pursuant to subparagraph
13 29.b.(5), the Parties shall meet and confer to set an expedited schedule to repair, rehabilitate,
14 replace or relocate all remaining tanks according to the following schedule: (i) by no later than
15 seven years after the Effective Date, GWA shall complete construction (*i.e.*, repair, rehabilitate,
16 replace or relocate) of at least ten additional storage tanks/reservoirs; and (ii) by no later than
17 December 31, 2020, GWA shall complete construction (*i.e.*, repair, rehabilitate, replace or
18 relocate) of the remaining storage tanks/reservoirs.
19
20

21 c. As part of its Quarterly and Annual Reports, GWA shall describe the status of the
22 plan, assessment findings of each water storage tank/reservoir, and status and description of
23 repairs, replacements, and/or relocations required for each tank/reservoir.
24
25

26
27 ^{4/} These seven tanks shall be in addition to the Barrigada tank constructed pursuant to
28 subparagraph 29.b.(3). of this Paragraph and the Chaot and Agana Heights tanks constructed
pursuant to Paragraph 28.

1 **III. REPORTING REQUIREMENTS**

2 30. Approval of Reports, Plans, and Other Deliverables. After review of any plan, report, or
3 other item that is required to be submitted for EPA’s review and approval pursuant to this Order,
4 EPA shall in writing approve the submission, approve the submission upon specified conditions,
5 approve part of the submission and disapprove the remainder, or disapprove the submission.
6

7 a. If the submission is approved, Defendants shall take all actions required by the
8 plan, report, or other document, in accordance with the schedules and requirements of the plan,
9 report, or other document, as approved.
10

11 b. If the submission is conditionally approved or approved only in part, Defendants
12 shall, upon written direction from EPA, take all actions required by the approved plan, report, or
13 other item that EPA determines are technically severable from any disapproved portions, subject
14 to Defendants’ right to dispute only the specified conditions or the disapproved portions.
15

16 c. If the submission is disapproved in whole or in part, Defendants shall, within 45
17 Days or such other time as the Parties agree to in writing, correct all deficiencies and resubmit
18 the plan, report, or other item, or disapproved portion thereof, for approval.
19

20 d. If the resubmission is approved in whole or in part, Defendants shall proceed in
21 accordance with subparagraphs 30.a. and 30.b. above.

22 e. If a resubmitted plan, report, or other item, or portion thereof, is disapproved in
23 whole or in part, EPA may again require Defendants to correct any deficiencies, in accordance
24 with subparagraph 30.c., or may itself correct any deficiencies, subject to Defendants’ right to
25 invoke dispute resolution and the right of EPA to seek imposition of penalties.
26

27 31. Required Reports. GWA shall submit the following reports:
28

1 a. Quarterly Report. Within 30 Days after the end of each calendar-year quarter
2 (*i.e.*, by January 30, April 30, July 30, and October 30) after the Effective Date of this Order,
3 until termination of the court's Order, GWA shall submit a Quarterly Report for the preceding
4 calendar-year quarter that shall include the status of any construction or compliance measures;
5 completion of milestones; problems encountered or anticipated, together with implemented or
6 proposed solutions; status of permit applications; effluent monitoring data required by Paragraph
7 3, subparagraph 3.c., and Paragraph 5, subparagraph 5.f.; and the status of any programs for
8 which a Quarterly Report is due pursuant to this Order.
9

10
11 (1) The Quarterly Reports shall not be subject to EPA's approval pursuant to
12 Paragraph 30 above.

13
14 (2) Each Quarterly Report shall also include a description of any non-
15 compliance with the requirements of this Order and an explanation of the violation's likely cause
16 and of the remedial steps taken, or to be taken, to prevent or minimize such violation. If the
17 cause of a violation cannot be fully explained at the time the report is due, GWA shall so state in
18 the report. GWA shall investigate the cause of the violation and shall then submit an amendment
19 to the report, including a full explanation of the cause of the violation, within 30 Days after the
20 Day GWA becomes aware of the cause of the violation.
21

22 b. SSO and Bypass Report. Within 30 Days after the end of each calendar-year
23 quarter (*i.e.*, by January 30, April 30, July 30, and October 30) after the Effective Date, until
24 termination of the court's Order, GWA shall submit to EPA and Guam EPA a summary of all
25 SSOs and Bypasses that occurred during the previous quarter.
26

27 (1) For each SSO, the reports shall provide: (a) a map showing the locations
28

1 of all SSOs occurring in the previous quarter in relation to the locations of drinking water wells
2 and sewage pump stations; (b) the start and end date and time of each SSO; (c) the location of
3 each SSO including address, village, and manhole numbers; (d) the structure(s) from which each
4 SSO emerged (*e.g.*, manhole, broken pipe, wet well, indoor plumbing, lateral cleanout, etc.); (e)
5 the pipe size, length, and material; (f) the estimated volume of each SSO including gross volume,
6 amount recovered, and amount not recovered; (g) the cause of each SSO; (h) whether each SSO
7 entered a particular water of the United States, and if so, the name of the water body and whether
8 it entered via storm drains or other man-made conveyances; (i) the results and analysis of any
9 post-SSO CCTV results; and (j) the actions GWA took to control the SSO and prevent future
10 SSOs at the same location.

13 (2) For each Bypass, the reports shall provide: (a) the name of the treatment
14 facility and the part(s) of the facility bypassed; (b) the start and end date and time of the Bypass;
15 (c) a detailed explanation of the cause(s), and all available photographs, videos, and maps that
16 would aid in explaining its cause(s); (d) if a storm event caused the Bypass, local rain gauge data
17 for that event; (e) the following flows: Bypass; facility influent; and facility effluent; and a
18 description of how they were determined, including any calculations; (f) the results of any
19 samples taken of the Bypass or receiving water, or an explanation of why sampling was not
20 conducted; (g) the dates that GWA provided verbal and written notifications of the Bypass to
21 EPA and Guam EPA; and (h) the actions GWA took to control the Bypass and prevent future
22 Bypasses.

26 (3) If an SSO or Bypass is reported by someone other than a member of
27 GWA's inspection crew and a GWA inspector determines, upon inspection, that an SSO or
28

1 Bypass is occurring, the initial timing of the SSO or Bypass, for purposes of determining the
2 volume of the discharge, shall commence at the date and time that GWA received the report of
3 the SSO or Bypass event.
4

5 c. Annual Report. After the Effective Date, GWA shall submit an Annual Report to
6 EPA regarding the status of each project required by Paragraphs 2 through 29 of Section II
7 (Compliance Requirements) of this Order. The Annual Report shall be due on January 30
8 (covering the previous January 1 to December 31).
9

10 (1) For projects that are completed, the Annual Report shall state whether the
11 project was completed by the applicable deadline.

12 (2) For projects that have not been completed, the Annual Report shall briefly
13 describe the status of the project, including whether the project remains on schedule for
14 completion by the applicable deadline or the anticipated completion date. If any projects
15 identified in Paragraphs 2 through 29 are not completed by the applicable deadline, subsequent
16 Annual Reports shall continue to set forth the status of these uncompleted projects until each
17 project is completed.
18

19 (3) The Annual Reports shall not be subject to EPA's approval pursuant to
20 Paragraph 30 of this Order.
21

22 32. Whenever any violation of this Order or of any applicable NPDES permits or any other
23 event affecting GWA's performance under this Order, or the performance of its Facilities, may
24 pose an immediate threat to the public health or welfare or the environment, GWA shall notify
25 EPA orally or by electronic or facsimile transmission as soon as possible, but no later than 24
26 hours after GWA first knew of the violation or event. This procedure is in addition to the
27
28

1 requirements set forth in the preceding Paragraph.

2 33. All reports shall be submitted to the persons designated in Section IV (Notices) of this
3 Order.

4
5 34. Each report submitted by Defendants under this Section shall be signed by an official of
6 the submitting party and include the following certification:

7 I certify under penalty of law that this document and all
8 attachments were prepared under my direction or supervision in
9 accordance with a system designed to assure that qualified
10 personnel properly gather and evaluate the information submitted.
11 Based on my inquiry of the person or persons who manage the
12 system, or those persons directly responsible for gathering the
13 information, the information submitted is, to the best of my
14 knowledge and belief, true, accurate, and complete. I am aware
15 that there are significant penalties for submitting false information,
16 including the possibility of fine and imprisonment for knowing
17 violations.

18 This certification requirement does not apply to emergency or similar notifications where
19 compliance would be impractical.

20 **IV. NOTICES**

21 35. Unless otherwise specified herein, whenever notifications, submissions, or
22 communications are required by the court's Order, they shall be made in writing, shall be sent
23 via express mail or similar service with return receipt requested, or, in the alternative, by both
24 fax and e-mail, and addressed as follows:

25 To the United States:

26 Chief, Environmental Enforcement Section
27 (Attn: Robert Mullaney)
28 U.S. Department of Justice
301 Howard Street, Suite 1050
San Francisco, CA 94105
Re: DOJ No. 90-5-1-1-07942

1 Fax: (415) 744-6476
2 E-mail: robert.mullaney@usdoj.gov

3 and

4 Gary Hess, ORC-2
5 U.S. Environmental Protection Agency
6 75 Hawthorne Street
7 San Francisco, CA 94105
8 Fax: (415) 947-3570
9 E-mail: hess.gary@epa.gov

10 To EPA:

11 Fatima Ty, EPA Clean Water Program Enforcement Section
12 U.S. Environmental Protection Agency
13 75 Hawthorne Street
14 San Francisco, CA 94105
15 Fax: 415-947-3545
16 E-mail: Ty.Fatima@epa.gov

17 To GWA:

18 Samuel J. Taylor
19 Guam Waterworks Authority
20 578 North Marine Corps Drive
21 Tamuning, Guam 96913
22 Fax: (671) 646-2335
23 E-mail: staylor@guamwaterworks.net

24 Martin Roush
25 GWA General Manager
26 Guam Waterworks Authority
27 578 North Marine Corps Drive
28 Tamuning, Guam 96913
29 Fax: (671) 646-2335
30 e-mail: gmcus@guamwaterworks.org

31 Paul Kemp
32 Compliance and Safety Officer
33 Guam Waterworks Authority
34 578 North Marine Corps Drive
35 Tamuning, Guam 96913
36 Fax: (671) 646-2335

1 e-mail: paulkemp@guamwaterworks.org

2 To Government of Guam:

3 Kathy A. Fokas
4 J. Patrick Mason
5 Office of the Attorney General
6 278 West O'Brien Drive
7 Hagatna, Guam 96910
8 Fax: (671) 472-2493
9 E-mail: kfokas@guamattorneygeneral.com
10 pmason@guamattorneygeneral.com

11 36. Any Party may, by written notice to the other Parties, change its designated notice
12 recipient or notice address, fax number or e-mail that are provided above.

13 37. Notices submitted by express mail pursuant to this Section shall be deemed submitted
14 upon mailing, unless otherwise provided in this Order or by mutual agreement of the Parties in
15 writing. If notices are sent electronically, they shall be deemed submitted upon transmission, but
16 a notice is not effective if the sending Party learns that it did not reach the Party to be notified.
17 Notwithstanding the sender's receipt of a successful delivery notification, a recipient that fails to
18 receive the submission may request delivery by other means. Such a request does not affect the
19 timeliness of the original submission.

20 **V. DISPUTE RESOLUTION**

21 38. Unless otherwise expressly provided for in this Order, the dispute resolution procedures
22 of this Section shall be the exclusive mechanism to resolve disputes arising under or with respect
23 to this Order. GWA's failure to seek resolution of a dispute under this Section shall preclude
24 GWA from raising any such issue as a defense to an action by the United States to enforce any
25 obligation of GWA arising under this Order.
26

27 39. Informal Dispute Resolution. Any dispute subject to Dispute Resolution under this Order
28

1 shall first be the subject of informal negotiations. The dispute shall be considered to have arisen
2 when GWA sends the United States a written Notice of Dispute. Such Notice of Dispute shall
3 state clearly the matter in dispute. The period of informal negotiations shall not exceed 20
4 Days from the date the dispute arises, unless that period is modified by written agreement. If the
5 Parties cannot resolve a dispute by informal negotiations, then the position advanced by the
6 United States shall be considered binding unless, within 30 Days after the conclusion of the
7 informal negotiation period, GWA invokes formal dispute resolution procedures as set forth
8 below.
9

10
11 40. Formal Dispute Resolution. GWA shall invoke formal dispute resolution procedures,
12 within the time period provided in the preceding Paragraph 39, by serving on the United States a
13 written Statement of Position regarding the matter in dispute. The Statement of Position shall
14 include, but need not be limited to, any factual data, analysis, or opinion supporting GWA's
15 position and any supporting documentation relied upon by GWA.
16

17 41. The United States shall serve its Statement of Position within 45 Days after receipt of
18 GWA's Statement of Position. The United States' Statement of Position shall include, but need
19 not be limited to, any factual data, analysis, or opinion supporting that position and any
20 supporting documentation relied upon by the United States. The United States' Statement of
21 Position shall be binding on GWA, unless GWA files a motion for judicial review of the dispute
22 in accordance with the following Paragraph 42.
23

24 42. GWA may seek judicial review of the dispute by filing with the Court and serving on the
25 United States, in accordance with Section IV (Notices) of this Order, a motion requesting
26 judicial resolution of the dispute. The motion must be filed within 10 working Days after receipt
27
28

1 of the United States' Statement of Position pursuant to the preceding Paragraph 41. The motion
2 shall contain a written statement of GWA's position on the matter in dispute, including any
3 supporting factual data, analysis, opinion, or documentation, and shall set forth the relief
4 requested and any schedule within which the dispute must be resolved for orderly
5 implementation of this Order.
6

7 43. The United States shall respond to GWA's motion within the time period allowed by the
8 Local Rules of this Court. GWA may file a reply memorandum, to the extent permitted by the
9 Local Rules.
10

11 44. Standard of Review

12 a. Disputes Concerning Matters Accorded Record Review. Except as otherwise
13 provided in this Order, in any dispute brought under Paragraph 40 pertaining to the adequacy or
14 appropriateness of plans, procedures to implement plans, schedules or any other items requiring
15 approval by EPA under this Order, the adequacy of the performance of work undertaken
16 pursuant to this Order, and all other disputes that are accorded review on the administrative
17 record under applicable principles of administrative law, GWA shall have the burden of
18 demonstrating, based on the administrative record, that the position of the United States is
19 arbitrary and capricious or otherwise not in accordance with law.
20

21
22 b. Other Disputes. Except as otherwise provided in this Order, in any other dispute
23 brought under Paragraph 40, GWA shall bear the burden of demonstrating that its position
24 complies with this Order and better furthers the objectives of the Order.
25

26 **VI. EFFECT OF ORDER**

27 45. This Order for Preliminary Relief is a partial remedy for the civil claims of the United
28

1 States for the violations alleged in the Complaint filed in this action, and does not resolve the
2 civil claims of the United States for civil penalties and other injunctive relief for the violations
3 alleged in the Complaint in this action.
4

5 46. Upon the Effective Date of this Order for Preliminary Relief , the Stipulated Order, as
6 amended on October 25, 2006, is terminated and of no further force or effect. However, this
7 Order for Preliminary Relief does not resolve any claims of the United States for stipulated
8 penalties for violations of the Stipulated Order prior to its termination.
9

10 47. This Order for Preliminary Relief shall not be construed to prevent or limit the rights of
11 the United States to obtain (i) penalties or injunctive relief under the CWA, the SDWA, or
12 implementing regulations, or under other federal laws, regulations, or permit conditions, or (ii)
13 all legal and equitable remedies to address any imminent and substantial endangerment to the
14 public health or welfare or the environment arising at, or posed by, GWA's Facilities, whether
15 related to the violations addressed in this Order or otherwise.
16

17 48. This Order for Preliminary Relief is not a permit, or a modification of any permit, under
18 any federal, State, or local laws or regulations. Defendants are responsible for achieving and
19 maintaining complete compliance with all applicable federal, State, and local laws, regulations,
20 and permits; and Defendants' compliance with this Order shall be no defense to any action
21 commenced pursuant to any such laws, regulations, or permits, except as set forth herein.
22

23 49. This Order for Preliminary Relief in no way limits or affects any right of entry and
24 inspection, or any right to obtain information, held by the United States pursuant to applicable
25 federal laws, regulations, or permits, nor does it limit or affect any duty or obligation of GWA to
26 maintain documents, records, or other information imposed by applicable federal or state laws,
27
28

1 regulations, or permits.

2 **VII. RETENTION OF JURISDICTION**

3
4 50. The court shall retain jurisdiction over this case until termination of this Order, for the
5 purpose of resolving disputes arising under this Order, or effectuating or enforcing compliance
6 with the terms of this Order.

7 **VIII. APPENDIX**

8
9 51. The following appendix is attached to and part of this Order: “Appendix A” is a list of
10 effluent monitoring requirements for the Northern District WWTP and the Agana WWTP
11 pursuant to Paragraph 3, subparagraph (3), and Paragraph 5, subparagraph (6).

12 **SO ORDERED.**



/s/ Frances M. Tydingco-Gatewood
Chief Judge
Dated: Nov 10, 2011

1 **APPENDIX A**

2 Effluent Monitoring Requirements for the Northern District WWTP and the Agana WWTP

3
4 Conventional and Nonconventional Compounds:

- 5 Ammonia (As N)
6 Chlorine (Total Residual, TRC)
7 Dissolved Oxygen
8 Total Kjeldahl
9 Nitrogen (TKN)
10 Nitrate plus Nitrite Nitrogen
11 Oil and Grease
12 Phosphorus (Total)
13 Total Dissolved
14 Solids (TDS) temperature
15 Cyanide
16 Total Phenolic Compounds
17 Hardness (As CaCO₃)

18 Metals (Total Recoverable):

- 19 Antimony
20 Arsenic
21 Beryllium
22 Cadmium
23 Chromium
24 Copper
25 Lead
26 Mercury
27 Nickel
28 Selenium
29 Silver
30 Thallium
31 Zinc

32 Volatile Organic Compounds:

- 33 Acrolein
34 Acrylonitrile
35 Benzene
36 Bromoform
37 Carbon Tetrachloride

- 1 Chlorobenzene
- 2 Chlorodibromo-methane
- 3 Chloroethane
- 4 2-chloro-ethylvinyl
- 5 Ether
- 6 Chloroform
- 7 Dichlorobromo-methane
- 8 1,1-dichloroethane
- 9 1,2-dichloroethane
- 10 Trans-1,2-dichloro-ethylene
- 11 1,1-dichloroethylene
- 12 1,2-dichloropropane
- 13 1,3-dichloro-propylene
- 14 Ethylbenzene
- 15 Methyl Bromide
- 16 Methyl Chloride
- 17 Methylene Chloride
- 18 1,1,2,2-tetrachloro-ethane
- 19 Tetrachloro-ethylene
- 20 Toluene
- 21 1,1,1-trichloroethane
- 22 1,1,2-trichloroethane
- 23 Trichlorethylene
- 24 Vinyl Chloride
- 25 Acid-extractable Compounds:
- 26 P-chloro-m-cresol
- 27 2-chlorophenol
- 28 2,4-dichlorophenol
- 29 2,4-dimethylphenol
- 30 4,6-dinitro-o-cresol
- 31 2,4-dinitrophenol
- 32 2-nitrophenol
- 33 4-nitrophenol
- 34 Pentachlorophenol
- 35 Phenol
- 36 2,4,6-trichlorophenol
- 37 Base-neutral Compounds:
- 38 Acenaphthene
- 39 Acenaphthylene
- 40 Anthracene

1 Benzidine
2 Benzo(a)anthracene
3 Benzo(a)pyrene
4 3,4 Benzo-fluoranthene
5 Benzo(ghi)perylene
6 Benzo(k)fluoranthene
7 Bis (2-chloroethoxy)
8 Methane
9 Bis (2-chloroethyl)-ether
10 Bis (2-chloroiso-propyl)
11 Ether
12 Bis (2-ethylhexyl) Phthalate
13 4-bromophenyl Phenyl Ether
14 Butyl Benzyl Phthalate
15 2-chloronaphthalene
16 4-chlorophenyl Phenyl Ether
17 Chrysene
18 Di-n-butyl Phthalate
19 Di-n-octyl Phthalate
20 Dibenzo(a,h) Anthracene
21 1,2-dichlorobenzene
22 1,3-dichlorobenzene
23 1,4-dichlorobenzene
24 3,3-dichlorobenzidine
25 Diethyl Phthalate
26 Dimethyl Phthalate
27 2,4-dinitrotoluene
28 2,6-dinitrotoluene
1,2-diphenylhydrazine
19 Fluoranthene
20 Fluorene
21 Hexachlorobenzene
22 Hexachlorobutadiene
23 Hexachlorocyclopentadiene
24 Hexachloroethane
25 Indeno(1,2,3-cd)pyrene
26 Isophorone
27 Naphthalene
28 Nitrobenzene
N-nitrosodi-n-propylamine
N-nitrosodi- Methylamine
N-nitrosodi-phenylamine
Phenanthrene
Pyrene

1 1,2,4-trichlorobenzene

2 Whole Effluent Toxicity (Chronic):

3 Sperm Cell Toxicity Tests Using the Sea Urchin (*Arbacia punctulata*), (*Strongylocentrus*
4 *Purpuratus*) or (*Tripneustes Gratilla*); (Fertilization Test Method 1008.0)

5 Sheepshead Minnow (*Cyprinodon variegatus*) Larval Survival and Growth Toxicity Tests

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

THERESA G. ROJAS, ESQ.
 Legal Counsel
 Guam Waterworks Authority
 Gloria B. Nelson Public Service Building
 688 Route 15, Suite 304
 Mangilao, Guam 96913
 Telephone No: (671) 300-6848
 Email: tgrojas@guamwaterworks.org

BEFORE THE GUAM PUBLIC UTILITIES COMMISSION

<p>IN THE MATTER OF:</p> <p>GUAM WATERWORKS AUTHORITY’S FY 2025 – 2029 RATE APPLICATION AND COMPREHENSIVE FINANCIAL PLAN</p>	<p>) <u>GWA DOCKET NO. 24-05</u></p> <p>)</p> <p>) TESTIMONY OF CHRISTOPHER M. BUDASI, ASSISTANT GENERAL MANAGER OF ADMINISTRATION IN SUPPORT OF GWA’S FY 2025 – 2029 FIVE-YEAR FINANCIAL PLAN AND RATE INCREASE REQUEST</p>
--	--

TABLE OF CONTENTS

INTRODUCTION AND BACKGROUND.....	2
PURPOSE OF TESTIMONY.....	3
COMPOSITION OF GWA’S WORKFORCE.....	3
EXISTING WORKFORCE CHALLENGES.....	6
GWA STRATEGIC PAY PLAN.....	11
SALARY AND BENEFITS EXPENDITURE FORECAST.....	15
CUSTOMER ASSISTANCE PROGRAM PROGRESS.....	18
INFORMATION TECHNOLOGY EXPENDITURE FORECAST.....	19

1 INTRODUCTION AND BACKGROUND

2 **Q1. *Please state your name, occupation, and business address.***

3 A1. My name is Christopher M. Budasi. I am the Assistant General Manager of Administration
4 and Support for the Guam Waterworks Authority (GWA), located at the Gloria B. Nelson
5 Public Service Building, Route 15, Fadian, Mangilao, Guam. I hereby affirm that the
6 following testimony is true and accurate.

7
8 **Q2. *Please describe your educational and professional history.***

9 A2. I have a Bachelor of Arts Degree in both Economics and Management and Government
10 from Beloit College, Beloit, Wisconsin.

11 I have over 31 years of management experience in both the private and public sector in
12 Guam. Prior to entering public service, I spent most of my career (seventeen years) in the
13 health care industry. In 1992, I began my career working for FHP as a mid-level manager
14 progressing to my last position with TakeCare Insurance Company as the Director of
15 Underwriting and Risk Management, Global Infrastructure and Operations, Business
16 Systems and Informatics and Administrator of the FHP Vision Center.

17
18 In 2009, I accepted the Director position of the Office of Finance and Budget (OFB) at
19 the Guam Legislature. While at the OFB, I led the annual development of the billion-
20 dollar Government of Guam fiscal year budget also known as the General Appropriations
21 Act. Other primary functions performed included evaluating legislative proposals for
22 fiscal effect, analyzing, and evaluating territorial programs and oversight monitoring of
23 state agencies' budgets and programs.

24 In late 2013, I accepted a position at the Judiciary of Guam overseeing the financial
25 operations of the third branch of government. As the Finance Administrator, I led the
26 adoption of new processes and technology required for the financial and case management
27 systems to modernize back-office operations. The position also required program design,
28 implementation, and evaluation to meet the needs of Court Patrons.

1 In October 2018, I accepted my current position with the GWA. My position, the Assistant
2 General Manager of Administration and Support, plans and directs all the administrative,
3 technical, and logistical support services for GWA. I have direct oversight and
4 responsibility for Customer Service, Human Resources, Procurement, and Information
5 Technology operations.

6
7 **PURPOSE OF TESTIMONY**

8 **Q3. *What is the purpose of your testimony in this proceeding?***

9 A3. I am testifying to address questions related to the GWA workforce, customer assistance
10 program update and information technology investments as part of GWA’s fourth five-
11 year financial plan and rate increase request.

12
13 **COMPOSITION OF GWA’S WORKFORCE**

14 **Q4. *What is the current composition of GWA’s workforce?***

15 A4. As of February 23, 2024, GWA employs 360 people in five different areas within the
16 organization:

17

	Count	Percent
Operations and Maintenance	198	55%
General Administration	87	24%
Engineering	30	8%
Compliance and Safety	20	6%
<u>Finance</u>	<u>25</u>	<u>7%</u>
Total	360	100%

18
19
20
21
22

23 The are a total of 19 management positions within the organization or 5% of employees.
24 GWA participates in the American Water Works Association (AWWA) Annual
25 Benchmarking Survey which includes further breaking down the entire workforce into
26 subcategories that support either water or wastewater operations. For example,
27
28

Engineering FTEs are assigned based on job assignments. Using this methodology, 53% of the workforce supports water operations and 47% supports wastewater operations.

	Water	Wastewater
Water Supply	26	0
Water Treatment	3	0
Water Transmission and Distribution	44	0
Wastewater Collection	0	44
Wastewater Treatment	0	30
Engineering	11	7
Utility Planning	6	6
Lab Service / Compliance	8	9
Customer Service / Call Center	11	12
Customer Billing	4	3
Metering	15	0
Finance	13	12
Human Resources	3	4
Information Technology	5	5
Fleet	5	6
Legal / Administration	20	19
Safety	1	2
<u>Other</u>	<u>15</u>	<u>11</u>
Total	190	170

Demographics:

GENDER	Count	Percent
Male	250	69%
<u>Female</u>	<u>110</u>	<u>31%</u>
Total	360	100%

AGE	Count	Percent
Younger than 25	42	12%
25 to 29	56	15%
30 to 34	61	17%
35 to 39	29	8%
40 to 44	46	13%
45 to 49	40	11%
50 to 54	36	10%
55 to 59	32	9%
60 to 61	6	2%
62 to 69	9	2%
<u>Older than 69</u>	<u>3</u>	<u>1%</u>
Total	360	100%

Three percent (3%) of the GWA workforce is eligible for retirement.

Q5. How many employees are certified water and/or wastewater operators?

A5. The Water and Wastewater Operator's Mandatory Certification Act, outlined in Chapter 52 of Title 10 of the Guam Code Annotated (10 GCA), establishes regulations for the certification of individuals responsible for the operation of potable water supply systems and wastewater facilities in Guam.

As of February 27, 2024, GWA has 91 employees that have obtained 127 operator certification licenses.

Water Treatment Operator - Level I	16
Water Treatment Operator - Level II	2
Water Treatment Operator - Level III	1
Water Treatment Operator - Level IV	2
Water Distribution System Operator - Level I	23
Water Distribution System Operator - Level II	8
Water Distribution System Operator - Level III	14

1	Water Distribution System Operator - Level IV	1
2	Wastewater Collection System Operator - Level I	12
3	Wastewater Collection System Operator - Level II	4
4	Wastewater Collection System Operator - Level III	12
5	Wastewater Collection System Operator - Level IV	8
6	Wastewater Treatment Operator - Level I	13
7	Wastewater Treatment Operator - Level II	6
8	Wastewater Treatment Operator - Level III	1
9	<u>Wastewater Treatment Operator - Level IV</u>	<u>4</u>
10	Total	127

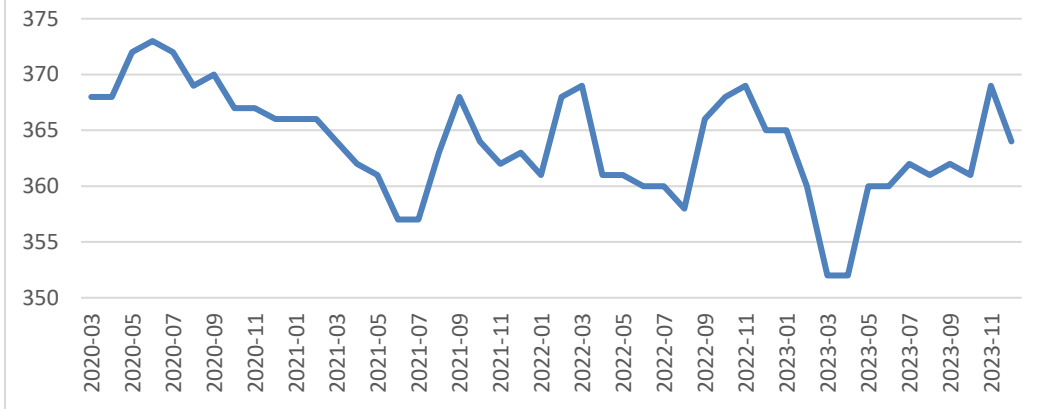
11 EXISTING WORKFORCE CHALLENGES

12 **Q6. *What is GWA's primary challenge with its workforce?***

13 A6. Since the start of the COVID-19 pandemic in March 2020, GWA staffing levels initially
 14 declined due to a hiring freeze implemented in response to a steep decline in revenues
 15 caused by a sharp decline in visitor arrivals. Low hotel occupancy rates forced hotels to
 16 close or reduce capacity which in turn reduced the demand for GWA water and wastewater
 17 services.

18 From March 2020 to July 2021 (17 months), GWA lost 16 FTEs through attrition. In
 19 August 2021, GWA ended the hiring freeze and since that time has struggled to grow its
 20 workforce due to high turnover rates.

**Guam Waterworks Authority
Total Employees
March 2020 to December 2023**



The main factors contributing to the high turnover rates are a tight job market, the military buildup, and the availability of higher-paying jobs elsewhere. Despite being an essential service provider, GWA faces challenges in retaining employees due to its relatively low pay scale compared to other water utilities and industries on and off-island.

GWA’s turnover ratio data for FY2020 to FY2024:

	Separated	Turnover Ratio
FY2020	7	1.89%
FY2021	38	10.47%
FY2022	43	11.79%
FY2023	49	13.56%
FY2024 (projected)	62	17.33%

The high demand for workers, fueled by Guam's economic growth and the expansion of the military presence, has created increased competition for skilled workers. Many employees have left GWA for higher wages and better benefits offered by other employers, primarily the federal government and its contractors.

The COVID-19 pandemic and military build-up have also contributed to an escalation in the cost of living which has been a contributing factor to Guam residents (employees)

1 relocating to the U.S. Mainland where higher paying jobs are available and living
2 expenses are lower.

3 **Guam Waterworks Authority**
4 **Employee Separation Data - FY2021 to FY2024**

	FY21	FY22	FY23	FY24	Grand Total	Total Percentage
Fed, Fed Contractor	5	9	14	14	42	26.9%
Relocation off-island	1	4	9	6	20	12.8%
Government of Guam	2	7	9	2	20	12.8%
Retirement	9	10	5	1	25	16.0%
Adverse Action	14	5	2	2	23	14.7%
Unknown	5	5	3	1	14	9.0%
Private Sector	1	1	7	0	9	5.8%
Deceased	1	2	0	0	3	1.9%
Grand Total	38	43	49	26	156	100.0%

5
6
7
8
9
10
11
12 GWA has experienced an average turnover rate of 11.9% during the last three complete
13 fiscal years (FY2024 turnover ratio projecting 17.3%). Separations not due to adverse
14 action or retirement were primarily due to employees seeking higher pay with other
15 organizations. During that period, 26.9% went to work for the federal government or
16 federal contractor, 13% relocated off-island, 13% transferred to another government of
17 Guam agency and 6% obtained employment in the private sector.

18
19 There's a noticeable upward trend in employees separating in FY2023 and FY2024 for
20 employment with the federal government or its contractors. Off-island relocations also
21 increased significantly in FY2023 and FY2024.

22 Another factor putting pressure on GWA wages expense is due to the Government of
23 Guam implementing an across the board 22% increase to its General Pay Plan in FY2023.
24 The primary reason was “to have a more competitive compensation structure to enable
25 recruitment and retention of the best candidates and employees.¹”
26
27
28

¹ <https://governor.guam.gov/wp-content/uploads/2023/02/23.01-31-23-DOA-GPP-1.pdf>; page 1, second paragraph.

1 In summary, the disparity in pay scales between GWA and other sectors exacerbates the
2 issue of turnover. Employees continue to seek employment opportunities that offer more
3 competitive compensation packages, especially as the cost of living continues to rise.

4 As a result, GWA has struggled to maintain a stable workforce, leading to challenges in
5 effectively delivering its essential services to the community. To address this issue, GWA
6 is proposing to revise its compensation and benefits structure to improve competitiveness
7 in the job market and retain talented employees. Implementing strategies such as salary
8 adjustments, performance incentives, and professional development opportunities could
9 help mitigate turnover and ensure the continuity of operations for GWA.

10
11 **Q7. *How do GWA's salaries compare to the overall water utility industry?***

12 A7. In March 2023, Alan Searle and Associates completed a market review study based on
13 U.S. water utility salaries in 2022 that compared the existing GWA 2017 Certified
14 Technical Professional (CTP) strategic pay scale for all positions. See (CB Exhibit 1).
15 The update concluded that the salary levels established in 2017 have regressed on average
16 from the 20th market percentile to the 5th market percentile compared to U.S. water
17 utilities.

18
19 **Q8. *What were the conclusions and recommendations of the 2022 market review study?***

20 A8. **Study Conclusions**

- 21 1) Market reviews – lack of regular market reviews contributed to GWA falling behind
22 prevailing market wages.
- 23 2) Inflation in the United States – the current rate of U.S. inflation is the highest in 40
24 years and is exceeding salary growth.
- 25 3) Industry salary trends - National salary growth within the U.S. is approximately 3%
26 annually (average). Salary growth within the utilities industry is currently trending
27 more than 3% annually.
- 28

- 1 4) Methodology – previous GWA salary migrations (2008, 2017 and 2020) were
2 implemented at the range minimum salary which is five percent lower than the range
3 maximum.²
- 4 5) Competitive Recruitment – recruitment for selected positions is becoming
5 increasingly competitive, especially in technical positions such as engineers,
6 information technology, SCADA technicians and water and wastewater operators.
- 7 6) Rewarding qualifications – GWA is vulnerable to the dynamics of a changing
8 workforce that require certified technical and professional qualifications, especially
9 in technical positions such as engineers, information technology, SCADA
10 technicians and water and wastewater operators.
- 11 7) Target market percentile – 96.4% of GWA employees are paid below the market
12 midpoint or 50th market percentile.

13 **Study Recommendations**

14 The study recommends regular market reviews and subsequent salary migrations until
15 GWA employees reach the prevailing water utility market wage midpoint of 50%. The
16 recommended methodology for salary migrations is to use range maximums which will
17 move salaries closer to the midpoint than if range minimums are used. In addition, for
18 hard to fill positions other tools such as above step recruitment and awarding higher pay
19 for professional certifications should be considered for attracting and retaining personnel.
20 CB Exhibit 1 is the Alan Searle study findings and proposed pay scale at the 20th market
21 percentile. Additionally, the water sector in the United States is facing notable wage
22 pressure, as highlighted by findings from the 2023 survey conducted by AWWA³. Across
23 utilities of varying sizes, compensation rates are rising at levels surpassing initial
24 projections. According to AWWA's Water and Wastewater Utility Compensation Survey,
25

26 ²For each migration option, an implementation range is generated for every position. The range is five 1% sub steps.
27 In comparing salaries, GWA has historically used the range minimum value as the comparator. Implementing at the
28 range maximum will be 4% higher and closer to the target migration percentile or midpoint. For additional
information see pages 29 to 35 in CB Exhibit 1

³ <http://tinyurl.com/2023-AWWA-Survey>

1 conducted annually, the period from 2022 to 2023 saw significant increases in salaries
2 across the board: 6.7% for large utilities, 3.9% for medium-sized utilities, and 7.9% for
3 small utilities. Moreover, the survey revealed projections for 2024 indicate further salary
4 increases, averaging around 4% for executives, managers, supervisors, and staff. The
5 survey results align with the Alan Searle findings and informally explains what GWA is
6 experiencing with continually higher turnover rates for the last several years.

7 GWA STRATEGIC PAY PLAN

8
9 **Q9. Does the FY2025 – FY2029 five-year financial plan and rate increase request include
10 any of the 2022 market review study recommendations?**

11 A9. Yes, GWA's included a strategic pay plan that is designed to improve the Authority's
12 competitiveness, both locally in Guam and within the broader water utility industry. This
13 initiative aims to not only elevate employee satisfaction but also foster performance
14 excellence, drive higher productivity, and cultivate a deeper sense of loyalty and
15 commitment to GWA's objectives and overall success.

16 GWA's strategic pay plan will adjust salaries using the range maximum over the next six
17 years up to the 50th market percentile to incentivize and retain top-performing employees
18 and reduce turnover rates. The recommended implementation schedule for GWA annual
19 structural pay adjustments is:

20 FY2024 – 20th Market Percentile (MP)

21 FY2025 – 30th MP

22 FY2026 – 35th MP

23 FY2027 – 40th MP

24 FY2028 – 45th MP

25 FY2029 – 50th MP

1 **Q10. What is the total cost of the strategic pay plan and what is its impact on the requested**
2 **rate increase?**

3 A10. The migration implementation is spread out over 5 fiscal years to minimize the overall
4 impact to the requested rate increase. The annual allocations will gradually bring
5 employees' salaries up to the target market percentiles. The overall cost also includes
6 adjustments to Medicare and Retirement benefits which are calculated as a percentage of
7 the salary increments. The breakdown of cumulative costs per fiscal year is as follows:

8	FY2025 – 30 th MP	\$1,265,199
9	FY2026 – 35 th MP	\$445,935
10	FY2027 – 40 th MP	\$73,948
11	FY2028 – 45 th MP	\$160,720
12	<u>FY2029 – 50th MP</u>	<u>\$193,431</u>
13	Total	\$8,846,451

14 The Strategic Pay Plan's salary migration cost contribute to the rate increases outlined in
15 the 5-year Financial Plan, which constitute a portion of the total 71.5% increase. The direct
16 impact to the calculation of annual rate increases is as follows:

18	Fiscal Year	Rate Increase due to Salary Migration
19	2025	2.25%
20	2026	3.50%
21	<u>2027</u>	<u>1.00%</u>
22	Total	6.75%

23 The rate increases components needed to implement the Strategic Pay Plan are allocated
24 within the initial three fiscal years of the 5-year Financial Plan.
25
26
27
28

1 **Q11. *The total cost of implementing the strategic pay plan is substantial, is it really***
2 ***necessary? What other alternative options are there?***

3 A11. As discussed earlier, the constant churn of employee turnover negatively affects GWA
4 operations and increases costs. Constant turnover has resulted in the loss of valuable
5 institutional knowledge about GWA's systems, processes, and infrastructure. The
6 employees hired to replace experienced personnel require an extensive amount of training
7 before they are productive and not considered a safety risk. Lack of institutional
8 knowledge also hinders the efficient operation of the utility and impedes decision-making
9 processes.

10
11 Guam law requires certain GWA employees to obtain certifications to ensure that water
12 and wastewater treatment facilities comply with state and federal regulations. U.S. EPA
13 has also asserted the same requirements in court actions. GWA continues to lose certified
14 water and wastewater operators which may result in lapses in compliance, leading to fines,
15 penalties, or legal action.

16 High turnover also results in increased financial and opportunity costs for recruiting and
17 onboarding new employees, including advertising, application evaluations, interviewing,
18 drug testing, background checks, facility tour transportation rental and instructor led
19 training. These expenses and human resources could be allocated to other operational
20 needs and projects. Additionally, turnover leads to higher expenses for overtime pay,
21 temporary staffing and a sense of instability and uncertainty within the workforce. High
22 turnover has also reduced employee morale and decreased employee engagement and
23 motivation.

24 Implementing the proposed Strategic Pay Plan reduces the likelihood of employees
25 leaving for better-paying opportunities and preserves institutional knowledge and
26 continuity in operations. By migration and aligning salaries up to the market midpoint,
27 GWA will be able to attract and retain top talent and enhance its reputation as an employer
28

1 of choice. The current market trend in Guam is that the federal government and its
2 contractors are the employer of choice.

3 Studies show that when employees feel their salaries are fair and equitable and aligned
4 with industry standards, it fosters a positive work environment, boosts morale, and
5 increases overall job satisfaction.

6 An alternative to enacting the proposed strategic pay plan could involve outsourcing
7 services currently performed by GWA employees to third-party contractors.

8
9 In 2006, the GWA initiated a Performance Management Contract (PMC) with Veolia
10 Water Guam, LLC (Veolia). This agreement tasked Veolia with the operation,
11 maintenance, and repair of GWA's wastewater treatment plants, wastewater lift stations,
12 and wastewater collection system.

13 The PMC was structured so that GWA employees maintained their civil service
14 protections and other benefits and no GWA employees were laid off because of the
15 agreement. Veolia's main PMC tasks were overseeing the operation of the wastewater
16 system, providing technical expertise and training, fast tracking procurement of parts and
17 repair/renovation of equipment and facilities. From January 2007 to December 2013,
18 GWA spent more than \$7.6 million on management fees. Total payments to Veolia over
19 the course of the contract exceeded \$26.2 million. Veolia had 8 full time employees in
20 Guam supporting the PMC which cost more than \$1 million a year for management fees.

21 Hiring a third-party contractor to augment GWA's workforce for water and wastewater
22 operations would be prohibitively expensive, surpassing the cost associated with
23 implementing the Strategic Pay Plan. Moreover, drawbacks of this approach include the
24 loss of direct control over critical operations and decision-making processes, difficulty
25 holding the contractor accountable and responsible for performance outcomes, loss of
26 institutional knowledge and resistance from employees and labor union.

In conclusion, while the total cost of implementing the Strategic Pay Plan is substantial, a review of alternative options highlights the significant shortcomings of hiring a third-party contractor to supplement the GWA workforce. History has shown that this approach incurs significant costs, making it less viable compared to implementing the Strategic Pay Plan. Relying on overtime and temporary staffing is not a sustainable strategy for maintaining efficient water and wastewater operations. Ultimately, these methods prove to be more costly than implementing the Strategic Pay Plan, as they incur high expenses related to constant turnover and the recruitment of new employees. Overall, while alternatives exist, implementing the Strategic Pay Plan offers the best and most comprehensive solution to address turnover and retention challenges at GWA.

SALARY AND BENEFITS EXPENDITURE FORECAST

Q12. *The salaries and benefits expense line increases by 36.5% in FY2029 compared to the FY2024 approved budget. What are the factors driving the increase?*

A12.

Row Labels	FY24						5-Year Financial Plan Total
	Approved Budget	FY25	FY26	FY27	FY28	FY29	
Salary	\$20,771,716	\$22,184,123	\$23,598,885	\$24,552,828	\$25,650,653	\$26,710,927	\$122,697,416
Holiday	\$274,396	\$443,682	\$471,978	\$491,057	\$513,013	\$534,219	\$2,453,948
Overtime	\$657,715	\$1,331,047	\$1,415,933	\$1,473,170	\$1,539,039	\$1,602,656	\$7,361,845
Night Differential	\$195,997	\$221,841	\$235,989	\$245,528	\$256,507	\$267,109	\$1,226,974
Retirement	\$5,607,710	\$6,433,396	\$6,843,677	\$7,120,320	\$7,438,689	\$7,746,169	\$35,582,251
Medicare	\$284,196	\$321,670	\$342,184	\$356,016	\$371,934	\$387,308	\$1,779,113
Medical	\$1,727,628	\$2,737,280	\$2,824,640	\$2,868,320	\$2,926,560	\$3,066,918	\$14,423,718
Dental	\$104,145	\$134,933	\$139,239	\$141,393	\$144,263	\$147,134	\$706,963
Life	\$81,744	\$78,208	\$80,704	\$81,952	\$83,616	\$85,280	\$409,760
Grand Total	\$29,705,247	\$33,886,181	\$35,953,228	\$37,330,583	\$38,924,275	\$40,547,721	\$186,641,987
Total Increase YOY	\$0	\$4,180,934	\$2,067,047	\$1,377,355	\$1,593,692	\$1,623,446	\$10,842,474
Increase YOY	0.0%	14.1%	6.1%	3.8%	4.3%	4.2%	
FTE Count	376	376	388	394	402	410	

As previously discussed, the Strategic Pay Plan represents a significant expense, accounting for 19.7% of the \$10.8 million increase.

Annual Increase to Salary and Benefits - Five Year Financial Plan FY 25 to FY29							
	FY25	FY26	FY27	FY28	FY29	5-Year Financial Plan Total	5-Year Financial Plan Total
Salary Migration	\$977,407	\$380,292	\$66,623	\$142,413	\$170,093	\$1,736,826	16.02%
Retirement-salary migration	\$275,298	\$62,517	\$6,976	\$17,436	\$22,227	\$384,455	3.55%
Medicare-salary migration	\$12,494	\$3,126	\$349	\$872	\$1,111	\$17,952	0.17%
Subtotal	\$1,265,199	\$445,935	\$73,948	\$160,720	\$193,431	\$2,139,234	19.73%
Annual Pay for Performance	\$435,000	\$447,706	\$460,784	\$474,244	\$488,096	\$2,305,831	21.27%
Additional FTE	\$0	\$586,764	\$426,536	\$481,169	\$402,085	\$1,896,554	17.49%
Holiday	\$169,286	\$28,295	\$19,079	\$21,957	\$21,205	\$259,823	2.40%
Overtime	\$673,333	\$84,886	\$57,237	\$65,870	\$63,616	\$944,941	8.72%
Night Differential	\$25,844	\$14,148	\$9,539	\$10,978	\$10,603	\$71,112	0.66%
Retirement	\$550,388	\$347,763	\$269,667	\$300,933	\$285,252	\$1,754,004	16.18%
Medicare	\$24,979	\$17,388	\$13,483	\$15,047	\$14,263	\$85,160	0.79%
Medical	\$1,009,652	\$87,360	\$43,680	\$58,240	\$140,358	\$1,339,291	12.35%
Dental	\$30,788	\$4,306	\$2,153	\$2,871	\$2,871	\$42,989	0.40%
Life	-\$3,536	\$2,496	\$1,248	\$1,664	\$1,664	\$3,536	0.03%
Total	\$4,180,934	\$2,067,047	\$1,377,355	\$1,593,692	\$1,623,446	\$10,842,474	100.00%

The largest increase is the annual pay for performance increments at 21.7% followed by the hiring of additional employees at 17.5%. The increase in hiring additional employees is phased in by adding 12 in FY2026, 6 in FY2027, and 8 in FY2028 and FY2029. The purposeful phasing to full employment in FY2029 assumes that the implementation of the Strategic Pay Plan will increase retention of existing employees and eliminate the hiring deficit that has been experienced by GWA over the last four fiscal years.

Increases to Holiday, Overtime and Night Differential pay, Medicare and Retirement benefits are all a function of a fixed percentage of overall salary increases.⁴ Retirement accounts for 16% of the \$10.8 million increase. Overtime is 8.7% of the increase. The last significant increase is medical insurance which accounts for 12.4% overall increase.

In FY2024, the government of Guam made the decision to move from a fully insured plan to self-insurance. Article 3, Group Benefits of Title 4 of the Guam Code Annotated (4

⁴ The budget methodology for salary and benefits as a fixed percentage of salaries is discussed in more detail in the testimony of GWA Chief Budget Officer Yvonne M. Cruz.

1 GCA) mandates that GWA participate in the Government of Guam Group Health
2 Insurance Program.

3 Notwithstanding any authority granted in each entity's enabling legislation to procure
4 separate health insurance coverage, all entities in the Executive Branch, including
5 autonomous and semi-autonomous agencies, public corporations and authorities, shall
6 participate in the Government of Guam Group Health Insurance Program.

7
8 The Governor of Guam, in consultation with the Department of Administration,
9 determines how much the government contributes toward the cost of medical and dental
10 insurance. The result of the FY2024 government contribution negatively impacted GWA
11 because in the previous fiscal year, the majority of GWA employees were enrolled with
12 the fully insured carrier that had the lowest employer contributions. The other fully insured
13 carrier had much higher government contributions. When the government opted for self-
14 insurance, the number of insurance providers effectively went from two options to one
15 which created a scenario where government contributions were normalized into one set
16 compared to two the year before. This effectively caused the government contribution rate
17 to increase substantially for the majority of GWA employees.

18
19 **Q13. *What measures are being taken to adequately staff GWA despite the high turnover ratio***
20 ***over the last several years?***

21 A13. GWA has 52 open recruitments as of February 23, 2024. The majority of the recruitments
22 (75%) are for Operations positions.

**GWA Open Recruitments
as of 02/23/2024**

	Number	Percentage
Operations	39	75.00%
Engineering	6	11.54%
Compliance and Safety	4	7.69%
Administration	1	1.92%
Finance	1	1.92%
Office of the General Manager	1	1.92%
Grand Total	52	100.00%

CB Exhibit 2 is a detailed list of the 52 positions currently under recruitment. The list is a combination of openings due to vacancies and needed new positions. Combining the number of recruitments with the existing 360 full-time employees (FTE) is 412 potential employees. As discussed earlier, GWA projects that the active FTE count will be at 376 by the end of FY2024 and FY2025. The number of FTEs will gradually increase until reaching 410 in FY2029.

GWA is using the strategy of maintaining a large number of open recruitments to effectively manage the recurring high turnover rates. This ensures a continuous supply of qualified candidates to fill vacant positions in a timely manner. Once the Strategic Pay Plan is approved, funded and implemented then GWA should begin to realize better employee retention rates which will reduce the number of open recruitments.

CUSTOMER ASSISTANCE PROGRAM PROGRESS

Q14. *Is GWA planning to pursue authorization from the Guam Legislature for a Customer Assistance Program?*

A14. GWA is working with its oversight chair at the Guam Legislature to craft legislation to establish Customer Assistance Programs (CAPs) which will provide financial and other forms of assistance to eligible ratepayers. The legislation includes provisions for income eligibility standards, financial assistance, and other forms of support, such as water

1 conservation inspections, rebates for water-conserving fixtures, and addressing chronic
2 problems such as repairing or replacing leaking pipes.

3 The establishment of this program is viewed as essential for the public welfare and aligns
4 with industry recommendations for water utility management. It will be introduced as
5 companion legislation that authorizes GWA to sell bonds, use tax-exempt commercial
6 paper program, and apply for and secure a WIFIA loan to provide multiple options for
7 financing GWA's capital improvement program (see testimony of Jeanet Babauta
8 Owens).

9
10 Establishing a customer assistance program is important because the proposed GWA 5-
11 year financial plan requires a large, compounded rate increase to fund capital
12 improvements. A legislatively authorized CAP will help mitigate financial hardships,
13 promote equity, and ensure that low-income households will have access to clean water
14 at an affordable price.

15
16 **Q15. *Does the U.S. Environmental Protection Agency support the implementation of a CAP?***

17 A15. The U.S. Environmental Protection Agency (EPA) supports the implementation of CAPs
18 by water utilities as part of their efforts to ensure equitable access to clean and safe
19 drinking water. EPA recognizes the importance of CAPs in addressing affordability
20 challenges faced by low-income households and other vulnerable populations.
21 EPA encourages water utilities to develop CAPs that provide financial assistance,
22 payment options, and other support mechanisms to help customers maintain access to
23 essential water services. These programs are seen as critical for promoting public health,
24 environmental justice, and sustainable water management.

25 **INFORMATION TECHNOLOGY EXPENDITURE FORECAST**

26 **Q16. *Are there any significant Information Technology investments included in the 5-year***
27 ***Financial Plan?***
28

1 A16. Yes, there are two main information technology investments planned during the next 5-
2 year financial plan. The first investment is a complete migration and consolidation to the
3 cloud for productivity tools, collaboration platforms, email services and phone systems.
4 The second investment is the implementation of Oracle Fusion Procurement Cloud which
5 is built on a scalable and flexible cloud-based architecture, allowing GWA to customize,
6 streamline and digitize its procurement operations, especially in capital improvement
7 projects.

8
9
10 **Microsoft 365**

11 GWA currently uses a several different information technology platforms and tools that
12 are not integrated which creates inefficiency for end users, high administrative costs and
13 higher probability and risk for product end of life. GWA will transition to a Microsoft 365
14 cloud services platform.

15 Transitioning the workforce from traditional software installed on personal computers to
16 Microsoft 365 involves moving from on-premises software solutions to cloud-based
17 services provided by Microsoft. There are several benefits to migrating to Microsoft 365
18 such as scalability, cost savings, flexibility, accessibility and improved security and
19 compliance. In addition, GWA will consolidate the following tools and platforms used
20 today into one solution provider:

- 21 1) Shortel phone system
- 22 2) Annual conference bridge subscription
- 23 3) 26 subscriber phone lines
- 24 4) Local Telco VoIP Hosted PBX service
- 25 5) Enterprise Antivirus software subscription
- 26 6) Hosted email service subscription
- 27 7) Oracle Content Management Cloud subscription
- 28 8) Google Mobile Device Management subscription

1 9) GoToMeeting subscription

2 This is not an all-inclusive list of tools and platforms that will be consolidated.

3
4 Migrating to Microsoft 365 will provide long term cost savings compared to maintaining
5 multiple subscription service providers, traditional software licenses and on-premises
6 infrastructure. The subscription-based pricing models (Microsoft 365 Government G5)
7 offered through Federal GSA pricing will allow GWA to consolidate services to avoid
8 escalating annual costs from multiple providers and benefit from predictable, pay-as-you-
9 go Federal GSA contract pricing.

10 GWA already uses a cloud-based Enterprise Resource Planning (ERP) system but uses
11 on-premises software and file sharing solutions for productivity tools. The migration to
12 Microsoft 365 in the cloud allows software and files to be accessed from anywhere with
13 an internet connection, enabling remote work and collaboration. Employees will also have
14 the flexibility to work from various devices, including desktops, laptops, tablets, and
15 smartphones, enhancing productivity and efficiency.

16
17 Microsoft 365 in the cloud also offers robust collaboration features, such as real-time co-
18 authoring in Microsoft Office applications, SharePoint file sharing and integrated
19 communication tools like Microsoft Teams. These features facilitate seamless
20 collaboration among team members, regardless of their physical location.

21 One of the most important features that GWA will use with Microsoft 365 is improved
22 Security and Compliance. Microsoft 365 provides built-in security features, data
23 encryption, threat detection, and compliance tools to help protect sensitive information
24 such as Personal Identifiable Information.

25 Protecting PII is crucial for privacy and security reasons, as cyber criminals are constantly
26 trying to gain unauthorized access to information so it can be sold/used for identity and
27 financial theft, fraud, or extortion. Title 10, Chapter 31A of the Guam Code Annotated
28

1 (GCA), also known as the Guam Personal Information Protection Act (GPIPA) outlines
2 various requirements and provisions for the collection, use, disclosure, and protection of
3 personal information by businesses and government agencies operating in Guam. It
4 establishes standards for data security, breach notification, and consumer rights regarding
5 their personal information. The migration to Microsoft 365 Government G5 will ensure
6 digital compliance with the GPIPA.

7 Other major benefits that will be achieved by migrating to Microsoft 365 include
8 automatically applied updates and patches, seamless integration with other cloud services
9 and interconnected tools and services to streamline business processes and workflows.

10 The Microsoft 365 Government G5 subscription also includes Microsoft Phone System –
11 Cloud PBX. Cloud PBX enables employees to make and receive calls from anywhere with
12 an internet connection, providing total flexibility for remote work and seamless
13 communication across different locations or devices. Users can initiate calls directly from
14 Outlook, Teams, and SharePoint and access voicemail, call history, and contacts within
15 these familiar interfaces. Cloud PBX also integrates voice calling, video conferencing,
16 instant messaging into a unified platform.

17 Migrating to Microsoft 365 Cloud PBX will enable GWA to modernize its
18 communications infrastructure, improve flexibility and mobility, enhance collaboration,
19 and achieve cost efficiencies while leveraging the products high availability and
20 reliability, with Microsoft's redundant data centers and robust security measures to protect
21 against downtime and data loss.

22 Migrating to Microsoft 365 will clearly modernize GWA's IT infrastructure, increase
23 productivity, enhance collaboration, and achieve cost efficiencies while leveraging the
24 power and convenience of cloud-based technology.
25
26
27
28

1 **Oracle Fusion Procurement Cloud**

2 GWA is implementing Oracle Fusion Procurement Cloud which seamlessly integrates
3 with JD Edwards EnterpriseOne, GWA’s ERP system. This integration eliminates data
4 silos, improves data accuracy, and enhances collaboration across different functions
5 within the organization.

6 As a capital-intensive organization, GWA needs a streamlined procurement process.
7 Fusion Procurement Cloud provides a unified platform for managing all procurement
8 processes, including sourcing, purchasing, and supplier management. This streamlines
9 operations by integrating various functions of the process into one cohesive system, most
10 notably, the supplier portal.

11 The supplier portal provides effective supplier management with tools for supplier
12 onboarding, performance monitoring, and collaboration, enabling GWA engineering to
13 work closely with suppliers to ensure quality, reliability, and compliance by enforcing
14 procurement policies, automating approval workflows, and providing audit trails. Overall,
15 Oracle Fusion Procurement Cloud is an important investment for GWA because it
16 optimizes and digitizes the procurement process, drives efficiency and cost savings,
17 mitigates risks, and improves supplier interaction.
18
19
20
21
22
23
24
25
26
27
28

1 **Q17. Does this conclude your testimony?**

2 A17. Yes

3
4 I, Christopher M. Budasi, do hereby state and aver under penalty of perjury that the
5 Written Testimony above in Support of the Requests for Approvals of the Guam Waterworks
6 Authority Five-Year Financial Plan, Rate Increase Requests, and Capital Improvement Program
7 for FY2025 – FY2029 submitted herewith is both truthful and accurate to the best of my
8 knowledge.

9
10 **RESPECTFULLY** submitted this 8th day of March 2024.

11
12
13 By:



Digitally signed by Christopher M.
Budasi
Reason: I attest to the accuracy and
integrity of this document
Date: 2024.03.08 12:14:09 +10'00'

14 **CHRISTOPHER M. BUDASI**
15 Assist General Manager of Administration
16
17
18
19
20
21
22
23
24
25
26
27
28

CB EXHIBIT 1

CONSOLIDATED COMMISSION ON UTILITIES



Presentation to CCU - 24th October, 2023





ALAN SEARLE & ASSOCIATES

GPA - Guam Power Authority

GWA - Guam Waterworks Authority

GIAA - Guam International Airport Authority

PAG - Port Authority of Guam *

GCC - Guam Community College

UOG - University of Guam

GVB - Guam Visitors Bureau



COMPENSATION MODEL

What are the critical components ?





COMPENSATION MODEL

What are the critical components ?

- A. Internal Equity
- B. External Equity



COMPENSATION MODEL

What are the critical components ?

- A. Internal Equity - *internally equitable*
- B. External Equity - *externally competitive*



COMPENSATION MODEL

What are the critical components ?

A. Internal Equity	80%	} Gov. Guam
B. External Equity	20%	



COMPENSATION MODEL

What are the critical components ?

A. Internal Equity	20%	} A.S & Assoc
B. External Equity	80%	



COMPENSATION MODEL

What are the critical components ?

- A. Internal Equity 20%
 - B. External Equity 80%
 - C. Pay Schedule / Implementation Ranges
- Regression Analysis
-
- A light blue curved arrow originates from the 20% and 80% values and points towards the text "Regression Analysis".

STRUCTURED & TRANSPARENT



COMPENSATION MODEL

A. Internal Equity





JOB EVALUATION

Criteria - 12 Factors

1	Education	7	Work Environment
2	Experience	8	Physical Demands
3	Complexity	9	Discretionary Decisions
4	Scope of Work	10	Contacts
5	Problem Solving	11	Authority Exercised
6	Supervision Received	12	Supervisory Responsibility



JOB EVALUATION

Results

GPA - 260 positions

- Range 225 to 1854 points (Av. 758)

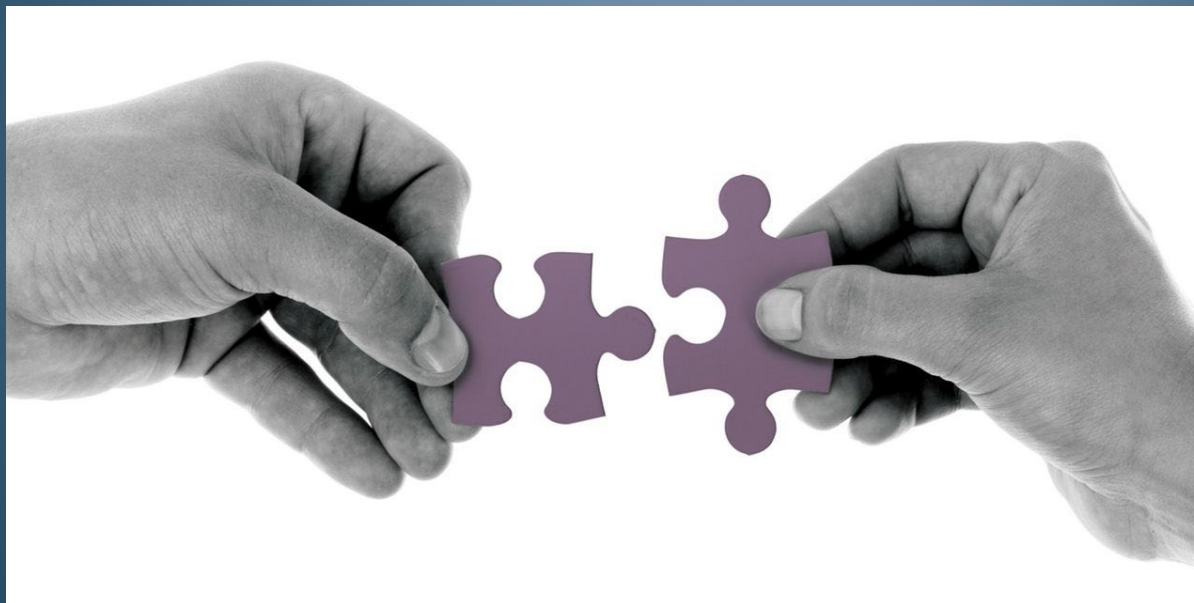
GWA - 216 positions

- Range 223 to 1854 points (Av. 768)



COMPENSATION MODEL

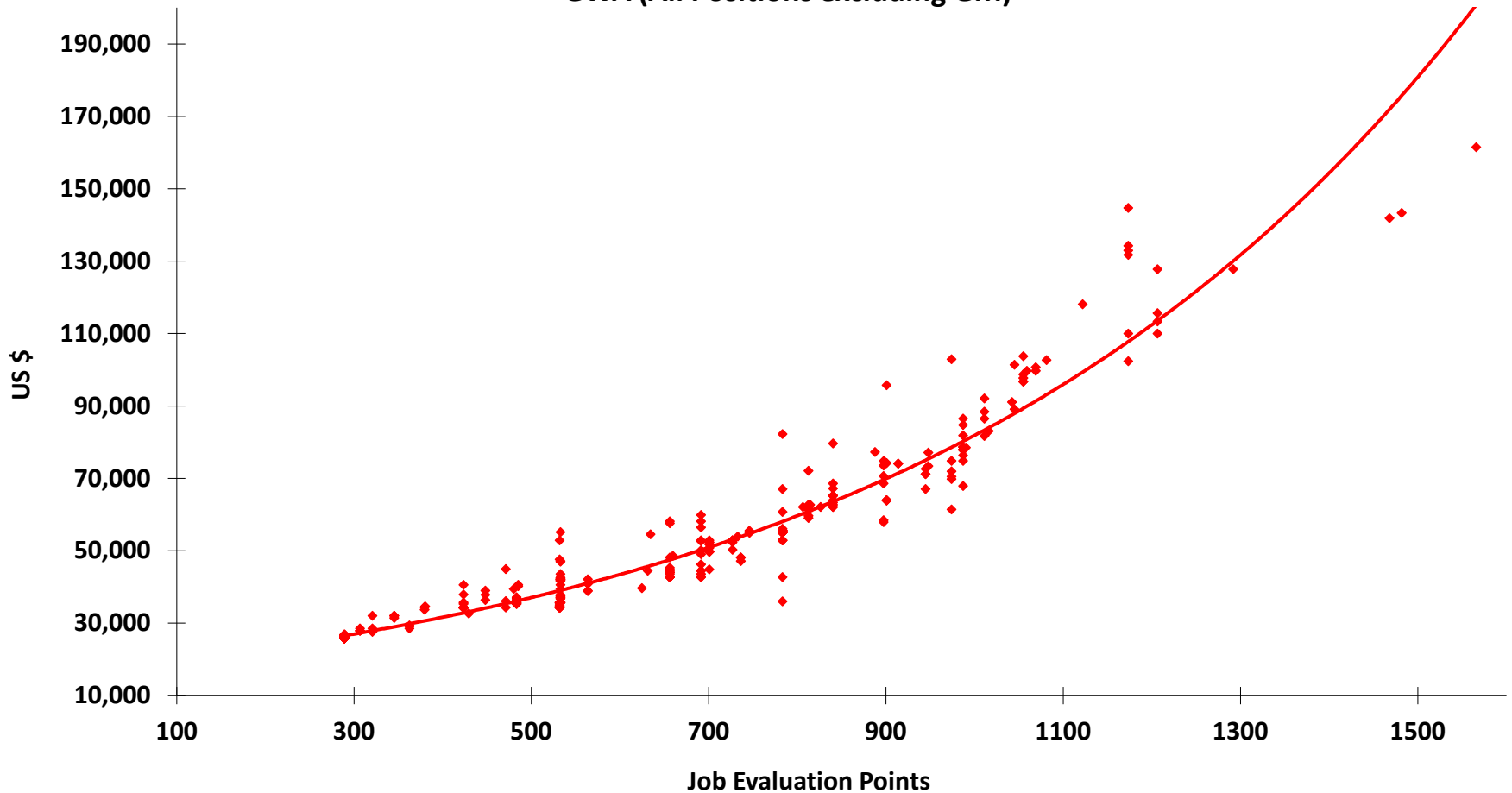
Regression Analysis - Internal





REGRESSION ANALYSIS - GWA

**Base Salary Regression
GWA (All Positions excluding GM)**





COMPENSATION MODEL

B. External Equity





MARKET DATA SOURCES

U.S. Mainland

1. American Public Power Association
2. American Water Works Association
3. U.S. Bureau of Labor Statistics
4. U.S. Department of Labor



MARKET DATA SOURCES

U.S. Mainland

5. U.S. Federal Government
6. Web Based Compensation Data
7. U.S. Utility Recruitment Companies
8. U.S. Utility Company Websites



MARKET DATA - Results

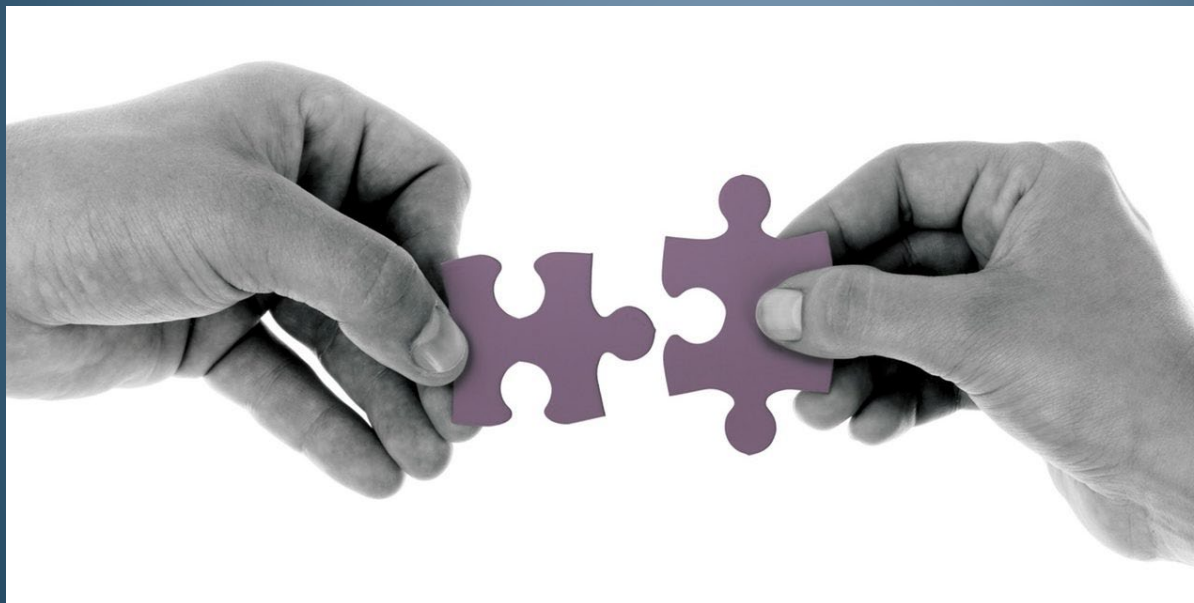
Appendix A : Pages 1 - 10 (Handout)

- Market Percentiles (5th - 95th)
- GPA - 260 positions
- GWA - 216 positions
- Data Includes Unclassified Positions



COMPENSATION MODEL

Regression Analysis - Int. + Ext.





REGRESSION ANALYSIS

Appendix B : Page 11 (Handout)

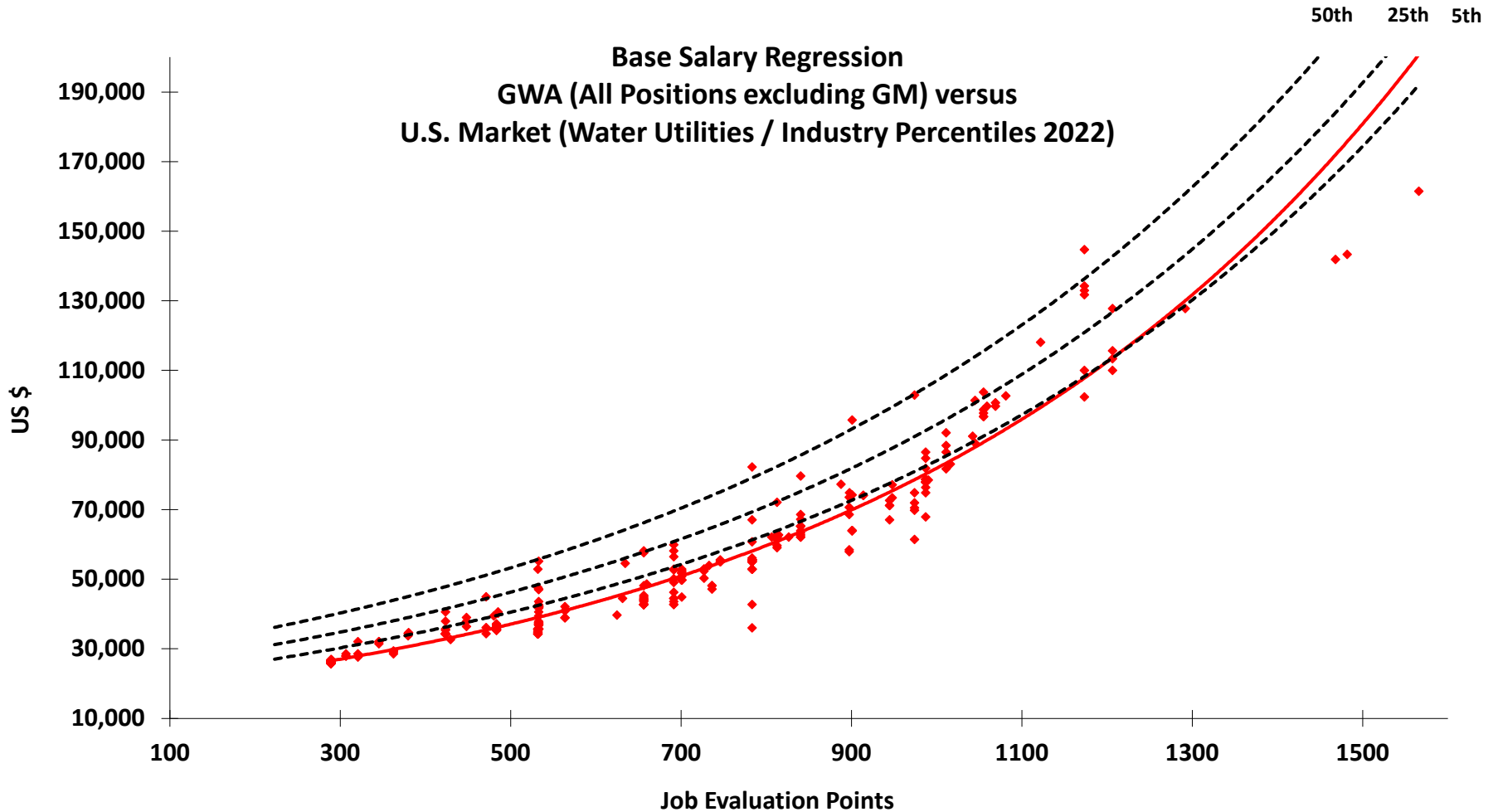
- All positions (excluding GM's)
- Both utilities approximate the 5th market percentile (2022 market data)
- Exponential regression line (average)



REGRESSION ANALYSIS - GWA

APPENDIX B

Base Salary Regression
GWA (All Positions excluding GM) versus
U.S. Market (Water Utilities / Industry Percentiles 2022)





**Before examining the cost
results the following are
seven factors impacting
GPA & GWA's
current market position
(5th market percentile / 2022)**



1. MARKET REVIEWS

I cannot over emphasize the importance of conducting regular market reviews in order to confirm and monitor market Position

Appendix A : Pages 1 - 10 (Handout)



The Basic Premise :

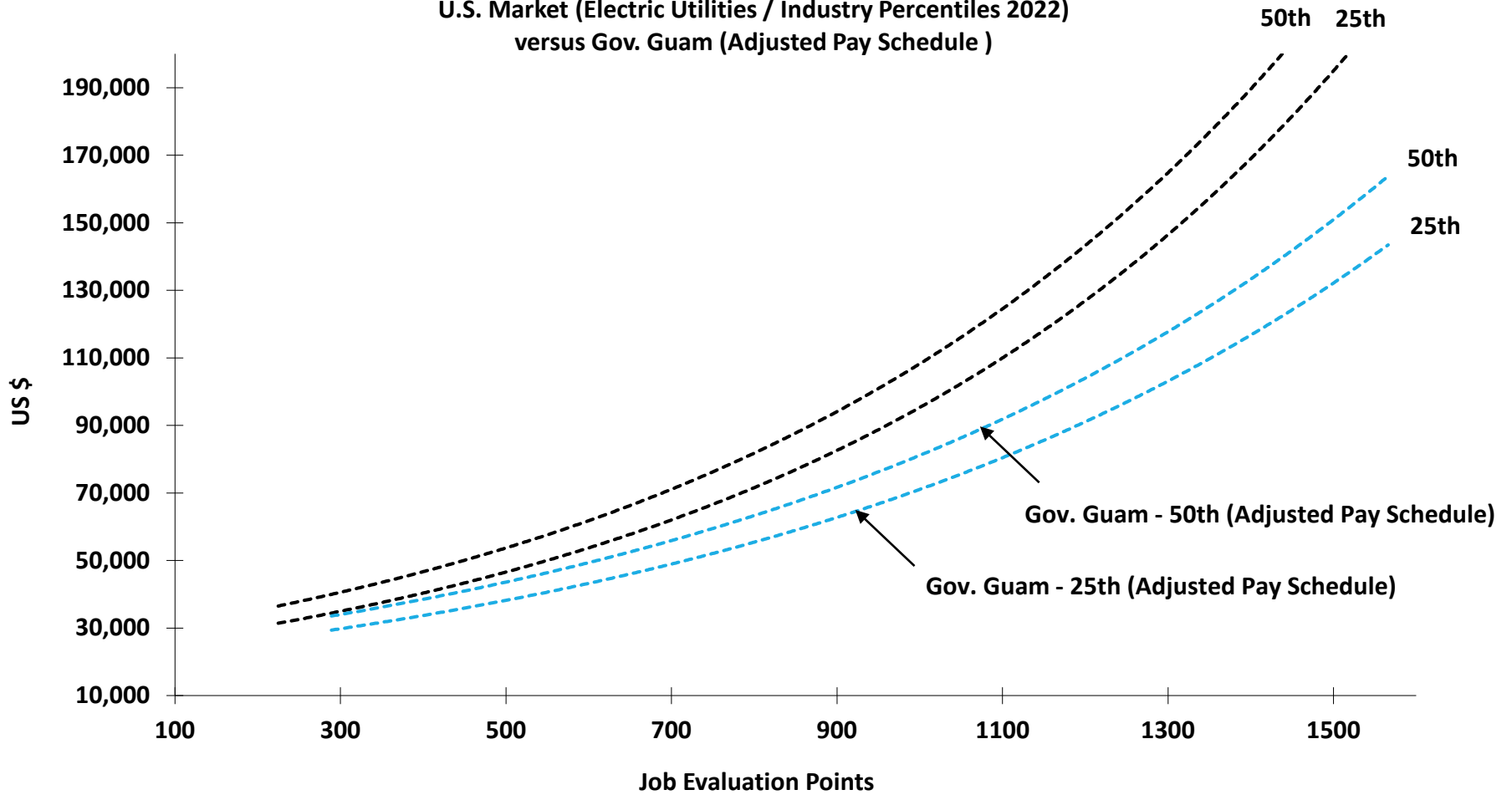
“you cannot make strategic decisions on pay unless you know your true market position”

c.f. Gov. Guam - 22% increase



REG. - Utilities v's Gov. Guam

Base Salary Regression
U.S. Market (Electric Utilities / Industry Percentiles 2022)
versus Gov. Guam (Adjusted Pay Schedule)





2. U.S. INFLATION

The current rate of inflation in the U.S. (the highest in 40 years) is exceeding salary growth



U.S. Inflation Rates : 2008 - 2022

September 2023 - 3.7%





3. INDUSTRY SALARY TRENDS

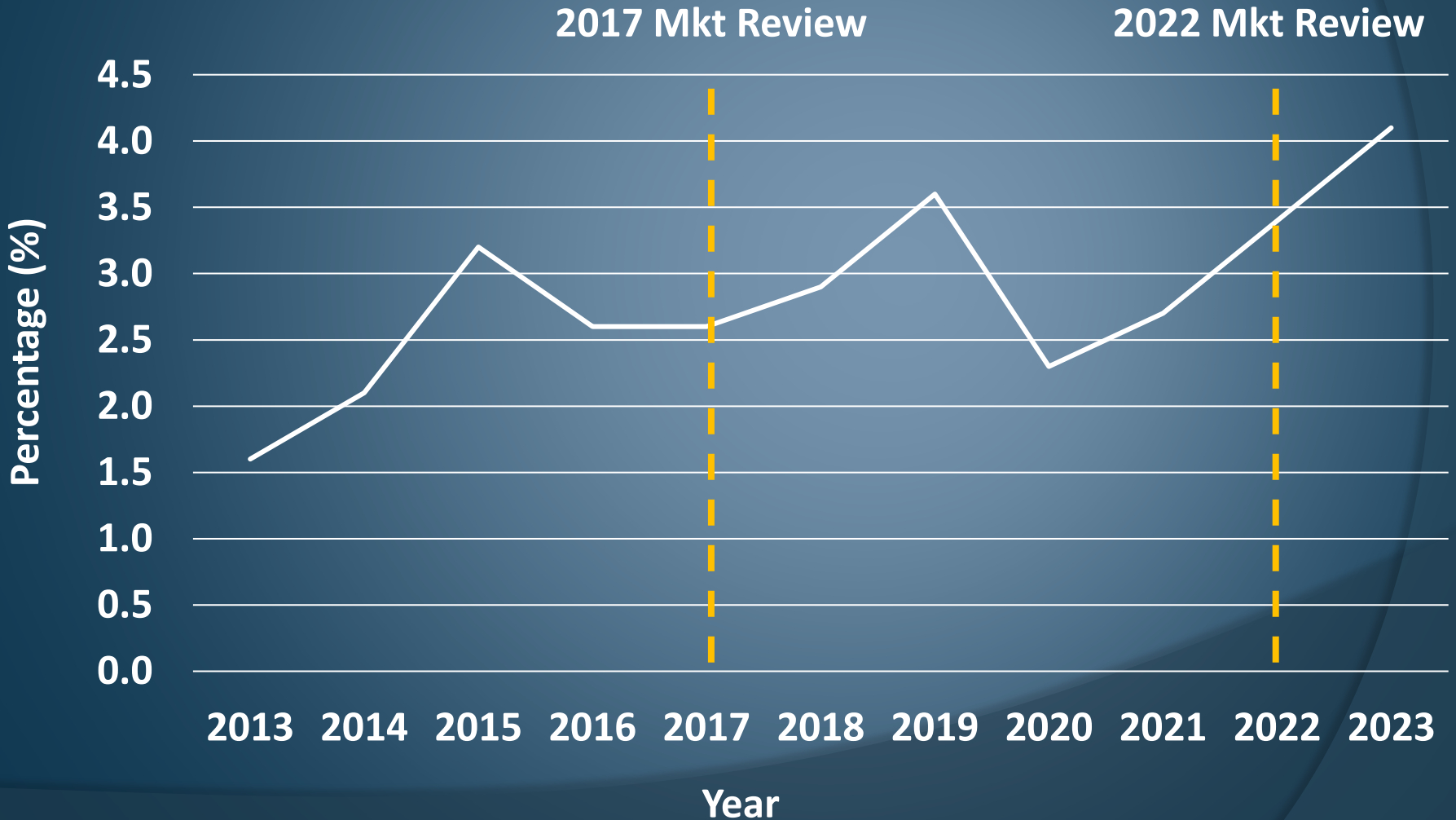
National salary growth within the U.S. is approximately 3% annually (average)

Salary growth within the utilities industry is currently trending in excess of 3% annually



BLS - Change in Total Compensation

Utilities : 2013 - 2023





4. METHODOLOGY

(Imp. Range Comparator)

For each cost option an implementation range is generated for every position.

In comparing salaries we have historically used the range minimum value as the comparator.



e.g. Line Electrician II

Grade I (15th Market Percentile)

	6				7	
D	A	B	C	D	A	B
44,483	44,927	45,377	45,830	46,289	46,752	47,219



e.g. Line Electrician II

Grade I (15th Market Percentile)

	6				7	
D	A	B	C	D	A	B
44,483	44,927	45,377	45,830	46,289	46,752	47,219



Range Minimum



Range Maximum



e.g. Line Electrician II

Grade I (15th Market Percentile)

	6				7	
D	A	B	C	D	A	B
44,483	44,927	45,377	45,830	46,289	46,752	47,219

Comparator Value (Costings Historically)



e.g. Line Electrician II

Grade I (15th Market Percentile)

	6				7	
D	A	B	C	D	A	B
44,483	44,927	45,377	45,830	46,289	46,752	47,219



True 15th Market
Percentile Value



Recent History :

Market review conducted in 2017

2017 - migrated to ~~15th~~ (10th) mkt percentile

2020 - migrated to ~~20th~~ (15th) mkt percentile



Current Costing / Moving Forward



	7				8	
D	A	B	C	D	A	B
46,289	46,752	47,219	47,691	48,168	48,650	49,136



Range Minimum

True Market
Percentile Value



Range Maximum



5. COMPETITIVE RECRUITMENT

Recruitment (for selected positions) is becoming increasingly competitive e.g. Engineering, IT, Scada, technical position etc



NAVFAC - Guam

Base Salary (hires from U.S. mainland)

12.62 % - COLA (tax free)

15.95% - Locality Pay (taxable)

12.38% - Non Foreign Post Diff. (taxable)

"Show me the Money"



How do we counter this ?

One option is migrating to a higher market percentile (which is what this review is about) but there are also other options worth exploring :



How do we counter this ?

One option is migrating to a higher market percentile (which is what this review is about) but there are also other options worth exploring :

1. Above Step Recruitment
2. Migrating selected positional groups



1. Above Step Recruitment

We may need to re-examine the wording of this policy, but the tool nonetheless, is there to be used by each General Manager re : hard to fill positions

Note : Use Appendix B to explore options



2. Migrating selected positional groups

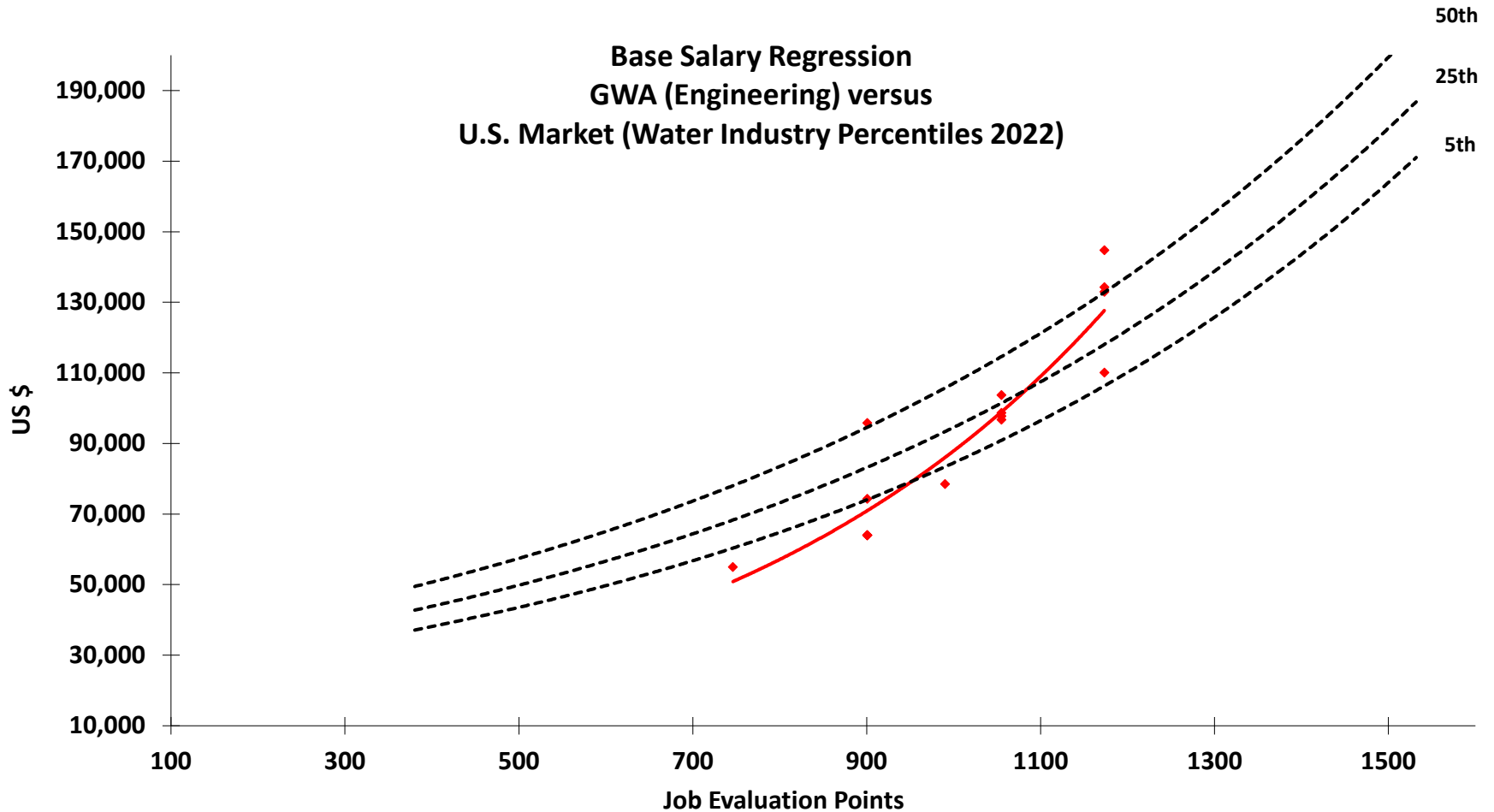
Where a selected positional group is under pressure re : attraction & retention the option is there for that group to be positioned at a higher market percentile



REGRESSION - GWA Engineering

APPENDIX C

**Base Salary Regression
GWA (Engineering) versus
U.S. Market (Water Industry Percentiles 2022)**





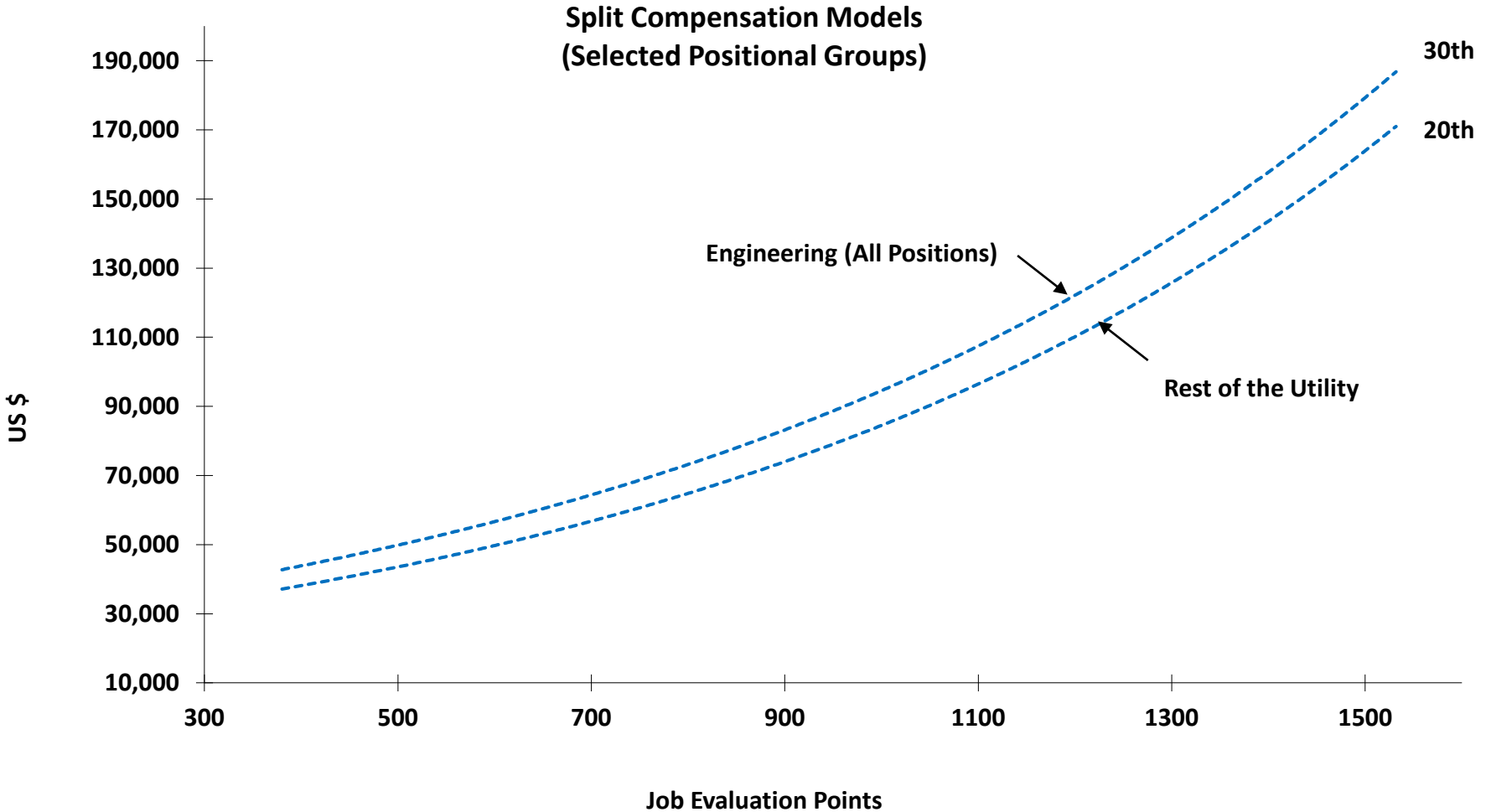
Action :

As an option we could migrate e.g. Engineering (and/or any other vulnerable positional group) to a higher market percentile

Note : Use Appendix B to explore options



Split Compensation Models





6. REWARDING QUALIFICATIONS

Recognition and reward for certified, technical and professional qualifications

Both GPA / GWA are vulnerable to the dynamics of a changing workforce

i.e. older / retiring staff perhaps unwilling to learn / acquire new skills etc



Example :

The first challenge is to identify the key qualifications of all CTP positions

Once completed the CTP position could have both a range minimum value plus a differential sub-step value in recognition of the qualification



e.g. Engineer Supervisor

	3				4	
D	A	B	C	D	A	B
118,330	119,513	120,709	121,916	123,135	124,366	125,610



Range Min



Range Min

		5				6
C	D	A	B	C	D	A
126,866	128,135	129,416	130,710	132,017	133,337	134,671



PE Qualification



7. TARGET MARKET PERCENTILE

It makes sense that the base salary target (for all positions) should be the 50th market percentile c.f. U.S. Utilities Market

Note : the 50th market percentile represents the market average



Strategy (Prevailing Market) :

For employees < 50th increments would continue to added to base salary

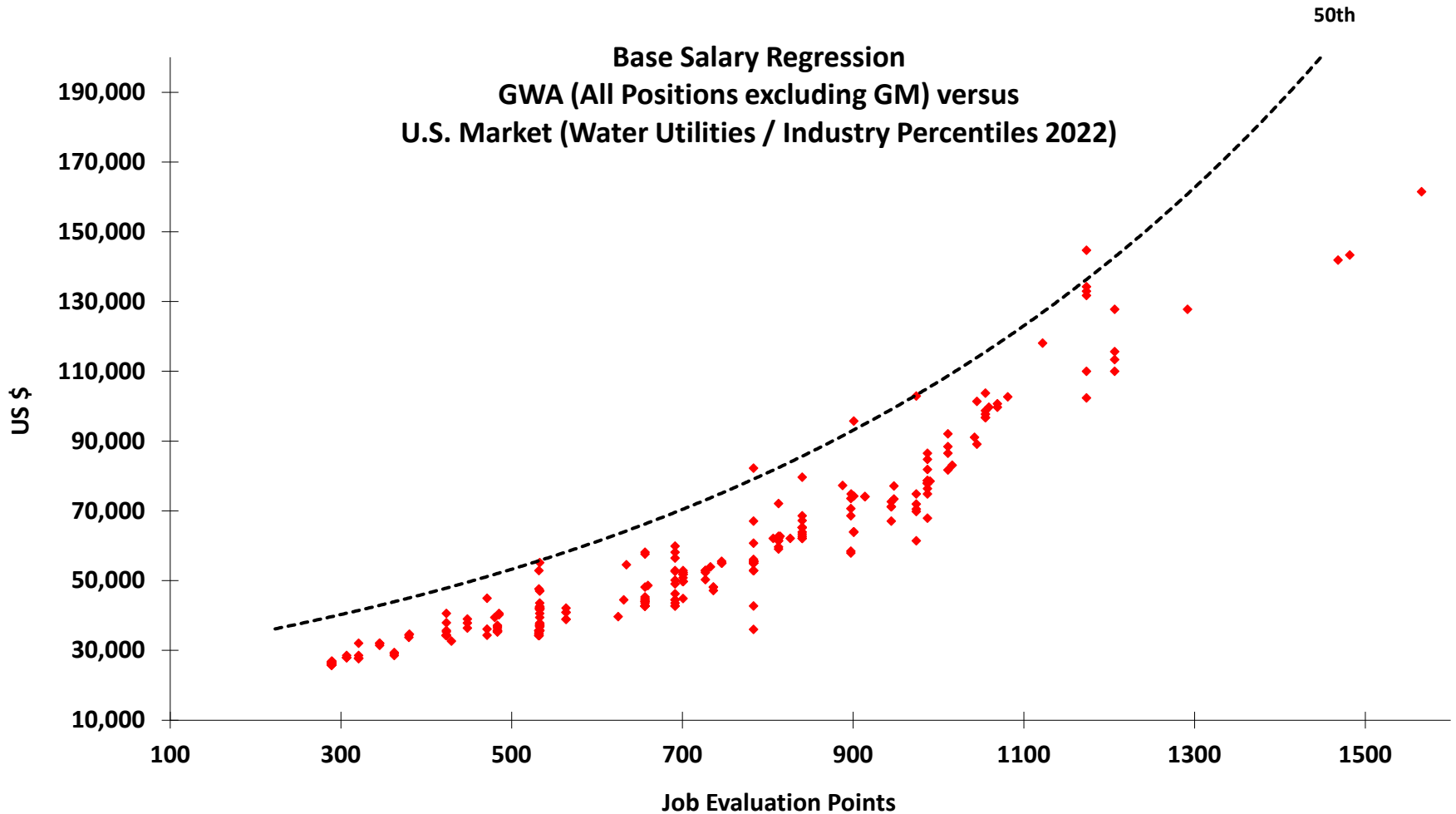
For employees > 50th increments could be paid out as a lump sum payment as opposed to the amount being added to base salary
(Note : until market catches up)



REGRESSION ANALYSIS - GWA

APPENDIX B

**Base Salary Regression
GWA (All Positions excluding GM) versus
U.S. Market (Water Utilities / Industry Percentiles 2022)**



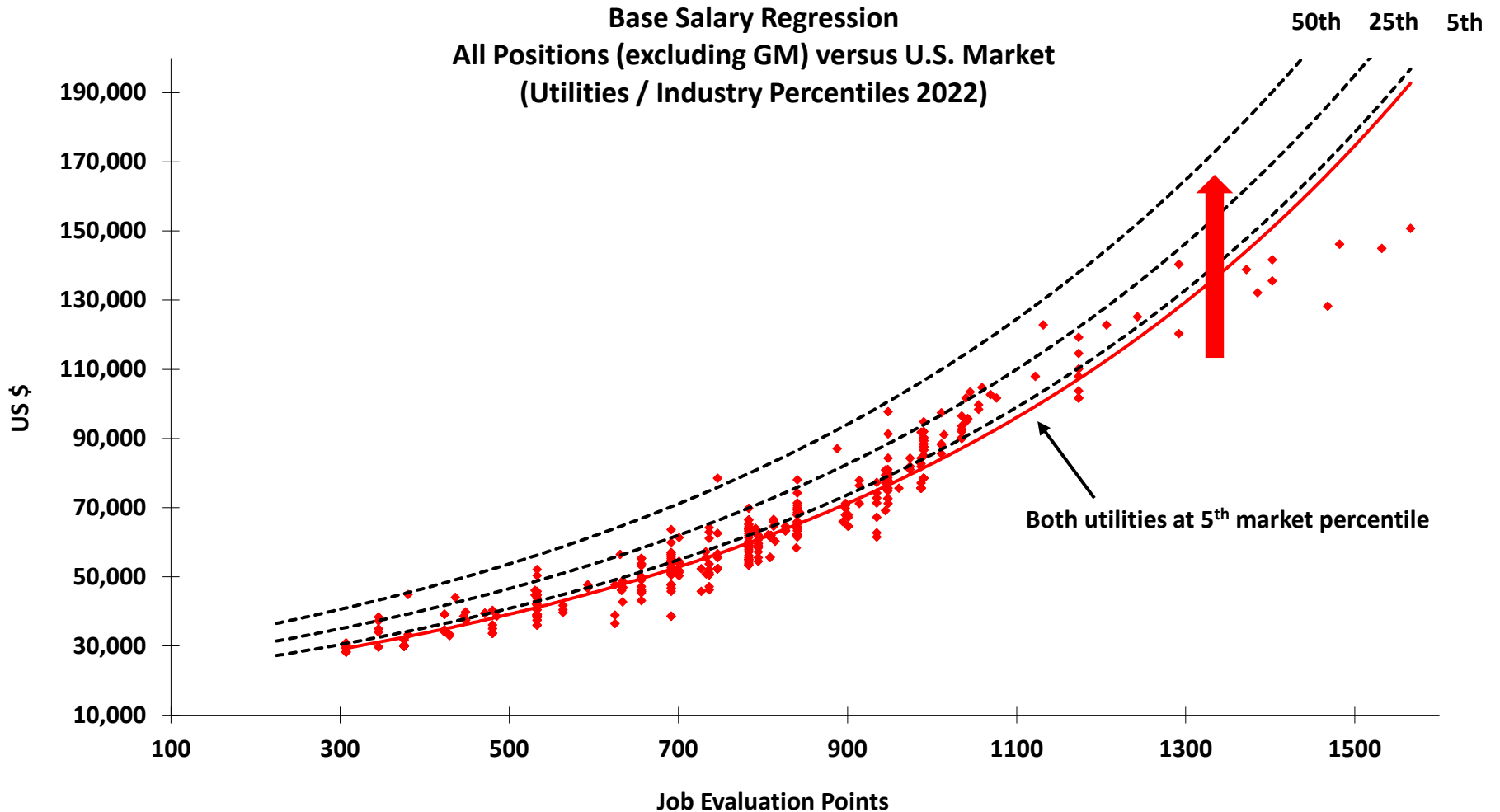


GPA / GWA - COST RESULTS





STRUCTURAL ADJUSTMENT





GPA / GWA - COST RESULTS

- We examined five (5) cost options : migrating both utilities to the : 10th, 15th, 20th, 25th & 30th market percentiles
- Results based on 2022 market data
- We understand both utilities are on a two (2) year budget cycle with \$2m per annum being set aside for structural adjustments in base salary



GPA / GWA - COST RESULTS

- Each cost result (in the handout) is based on migrating the utility from the current staffing pattern
- Additional cost results are presented in the following slides but are contingent on PFP being paid annually



GWA Cost Results - Two Options





GWA - Cost Summary

Option 1

F/Y24	2,353,776	20 th
F/Y25	779,429	30 th
TOTAL	<u>\$ 3,133,205</u>	

Option 2

F/Y24	2,946,431	25 th
F/Y25	179,417	30 th
TOTAL	<u>\$ 3,125,848</u>	



GWA Implementation - Option 1

F/Y24 - Migrate to 20th after F/Y23 PFP is paid (Sep 2024)

	No Emp.	% Emp.	Cost (\$)
Current Emp. < 20th	325	88.6	2,335,970
Current Emp. > 20th	42	11.4	17,806
	367	100.0	2,353,776

F/Y25 - Migrate to 30th after F/Y24 PFP is paid (Sep 2025)

	No Emp.	% Emp.	Cost (\$)
Current Emp. < 30th	336	91.6	779,429
Current Emp. > 30th	31	8.4	N/A
	367	100.0	779,429



GWA Implementation - Option 2

F/Y24 - Migrate to 25th after F/Y23 PFP is paid (Sep 2024)

	No Emp.	% Emp.	Cost (\$)
Current Emp. < 25th	336	91.6	2,932,368
Current Emp. > 25th	31	8.4	14,063
	367	100.0	2,946,431

F/Y25 - Migrate to 30th after F/Y24 PFP is paid (Sep 2025)

	No Emp.	% Emp.	Cost (\$)
Current Emp. < 30th	301	82.0	179,417
Current Emp. > 30th	66	18.0	N/A
	367	100.0	179,417



GWA - Cost Summary

Option 1

F/Y24	2,353,776	20 th
F/Y25	779,429	30 th
TOTAL	<u>\$ 3,133,205</u>	

Option 2

F/Y24	2,946,431	25 th
F/Y25	179,417	30 th
TOTAL	<u>\$ 3,125,848</u>	

**20th Market Percentile
2022 Market Data**

PAY GRADE	Step 1				Step 2				Step 3				Step 4				Step 5			
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
A	26,000	26,260	26,523	26,788	27,056	27,326	27,600	27,876	28,154	28,436	28,720	29,007	29,297	29,590	29,886	30,185	30,487	30,792	31,100	31,411
B	29,900	30,199	30,501	30,806	31,114	31,425	31,739	32,057	32,377	32,701	33,028	33,358	33,692	34,029	34,369	34,713	35,060	35,411	35,765	36,122
C	30,199	30,501	30,806	31,114	31,425	31,739	32,057	32,377	32,701	33,028	33,358	33,692	34,029	34,369	34,713	35,060	35,411	35,765	36,122	36,484
D	34,125	34,466	34,811	35,159	35,510	35,866	36,224	36,586	36,952	37,322	37,695	38,072	38,453	38,837	39,226	39,618	40,014	40,414	40,818	41,227
E	36,172	36,534	36,899	37,268	37,641	38,018	38,398	38,782	39,169	39,561	39,957	40,356	40,760	41,168	41,579	41,995	42,415	42,839	43,267	43,700
F	36,896	37,265	37,637	38,014	38,394	38,778	39,166	39,557	39,953	40,352	40,756	41,163	41,575	41,991	42,411	42,835	43,263	43,696	44,133	44,574
G	40,216	40,619	41,025	41,435	41,849	42,268	42,691	43,117	43,549	43,984	44,424	44,868	45,317	45,770	46,228	46,690	47,157	47,628	48,105	48,586
H	46,249	46,711	47,178	47,650	48,127	48,608	49,094	49,585	50,081	50,582	51,088	51,598	52,114	52,636	53,162	53,694	54,230	54,773	55,321	55,874
I	50,874	51,383	51,896	52,415	52,939	53,469	54,004	54,544	55,089	55,640	56,196	56,758	57,326	57,899	58,478	59,063	59,654	60,250	60,853	61,461
J	55,961	56,521	57,086	57,657	58,233	58,816	59,404	59,998	60,598	61,204	61,816	62,434	63,058	63,689	64,326	64,969	65,619	66,275	66,938	67,607
K	66,034	66,695	67,361	68,035	68,715	69,403	70,097	70,798	71,506	72,221	72,943	73,672	74,409	75,153	75,905	76,664	77,430	78,205	78,987	79,776
L	71,317	72,030	72,750	73,478	74,213	74,955	75,704	76,461	77,226	77,998	78,778	79,566	80,362	81,165	81,977	82,797	83,625	84,461	85,306	86,159
M	80,588	81,394	82,208	83,030	83,860	84,699	85,546	86,401	87,265	88,138	89,019	89,910	90,809	91,717	92,634	93,560	94,496	95,441	96,395	97,359
N	88,647	89,533	90,429	91,333	92,246	93,169	94,100	95,041	95,992	96,952	97,921	98,901	99,890	100,888	101,897	102,916	103,945	104,985	106,035	107,095
O	94,852	95,801	96,759	97,726	98,704	99,691	100,688	101,694	102,711	103,738	104,776	105,824	106,882	107,951	109,030	110,120	111,222	112,334	113,457	114,592
P	105,286	106,339	107,402	108,476	109,561	110,657	111,763	112,881	114,010	115,150	116,301	117,464	118,639	119,825	121,023	122,234	123,456	124,691	125,938	127,197
Q	115,815	116,973	118,142	119,324	120,517	121,722	122,939	124,169	125,411	126,665	127,931	129,211	130,503	131,808	133,126	134,457	135,802	137,160	138,531	139,917

**20th Market Percentile
2022 Market Data**

PAY GRADE	Step 1				Step 2				Step 3				Step 4				Step 5			
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
R	125,080	126,330	127,594	128,870	130,158	131,460	132,775	134,102	135,443	136,798	138,166	139,547	140,943	142,352	143,776	145,214	146,666	148,132	149,614	151,110
S	136,337	137,700	139,077	140,468	141,873	143,291	144,724	146,172	147,633	149,110	150,601	152,107	153,628	155,164	156,716	158,283	159,866	161,464	163,079	164,710
T	148,607	150,093	151,594	153,110	154,641	156,188	157,750	159,327	160,920	162,530	164,155	165,796	167,454	169,129	170,820	172,528	174,254	175,996	177,756	179,534
U	169,412	171,106	172,817	174,546	176,291	178,054	179,834	181,633	183,449	185,284	187,136	189,008	190,898	192,807	194,735	196,682	198,649	200,636	202,642	204,668
V	194,824	196,772	198,740	200,727	202,735	204,762	206,810	208,878	210,967	213,076	215,207	217,359	219,533	221,728	223,945	226,185	228,446	230,731	233,038	235,369
W	214,306	216,449	218,614	220,800	223,008	225,238	227,491	229,766	232,063	234,384	236,728	239,095	241,486	243,901	246,340	248,803	251,291	253,804	256,342	258,906
X	235,737	238,094	240,475	242,880	245,309	247,762	250,240	252,742	255,269	257,822	260,400	263,004	265,634	268,291	270,974	273,683	276,420	279,184	281,976	284,796
Y	259,311	261,904	264,523	267,168	269,840	272,538	275,264	278,016	280,796	283,604	286,440	289,305	292,198	295,120	298,071	301,052	304,062	307,103	310,174	313,276
Z	285,242	288,094	290,975	293,885	296,824	299,792	302,790	305,818	308,876	311,965	315,084	318,235	321,418	324,632	327,878	331,157	334,469	337,813	341,191	344,603

**20th Market Percentile
2022 Market Data**

PAY GRADE	Step 6				Step 7				Step 8				Step 9				Step 10			
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
A	31,725	32,042	32,363	32,686	33,013	33,343	33,677	34,013	34,354	34,697	35,044	35,395	35,748	36,106	36,467	36,832	37,200	37,572	37,948	38,327
B	36,484	36,849	37,217	37,589	37,965	38,345	38,728	39,115	39,507	39,902	40,301	40,704	41,111	41,522	41,937	42,356	42,780	43,208	43,640	44,076
C	36,849	37,217	37,589	37,965	38,345	38,728	39,115	39,507	39,902	40,301	40,704	41,111	41,522	41,937	42,356	42,780	43,208	43,640	44,076	44,517
D	41,639	42,055	42,476	42,901	43,330	43,763	44,200	44,642	45,089	45,540	45,995	46,455	46,920	47,389	47,863	48,341	48,825	49,313	49,806	50,304
E	44,137	44,579	45,024	45,475	45,929	46,389	46,852	47,321	47,794	48,272	48,755	49,242	49,735	50,232	50,735	51,242	51,754	52,272	52,795	53,322
F	45,020	45,470	45,925	46,384	46,848	47,316	47,790	48,267	48,750	49,238	49,730	50,227	50,730	51,237	51,749	52,267	52,789	53,317	53,850	54,389
G	49,072	49,562	50,058	50,559	51,064	51,575	52,091	52,611	53,138	53,669	54,206	54,748	55,295	55,848	56,407	56,971	57,540	58,116	58,697	59,284
H	56,432	56,997	57,567	58,142	58,724	59,311	59,904	60,503	61,108	61,719	62,337	62,960	63,589	64,225	64,868	65,516	66,171	66,833	67,502	68,177
I	62,076	62,696	63,323	63,957	64,596	65,242	65,895	66,554	67,219	67,891	68,570	69,256	69,948	70,648	71,354	72,068	72,789	73,517	74,252	74,994
J	68,283	68,966	69,656	70,352	71,056	71,766	72,484	73,209	73,941	74,680	75,427	76,181	76,943	77,713	78,490	79,275	80,067	80,868	81,677	82,494
K	80,574	81,380	82,194	83,016	83,846	84,684	85,531	86,386	87,250	88,123	89,004	89,894	90,793	91,701	92,618	93,544	94,480	95,424	96,379	97,342
L	87,020	87,890	88,769	89,657	90,554	91,459	92,374	93,297	94,230	95,173	96,124	97,086	98,057	99,037	100,027	101,028	102,038	103,058	104,089	105,130
M	98,333	99,316	100,309	101,312	102,326	103,349	104,382	105,426	106,480	107,545	108,621	109,707	110,804	111,912	113,031	114,161	115,303	116,456	117,621	118,797
N	108,166	109,248	110,340	111,444	112,558	113,684	114,820	115,969	117,128	118,300	119,483	120,677	121,884	123,103	124,334	125,577	126,833	128,102	129,383	130,676
O	115,738	116,895	118,064	119,245	120,437	121,641	122,858	124,086	125,327	126,581	127,846	129,125	130,416	131,720	133,038	134,368	135,712	137,069	138,439	139,824
P	128,469	129,754	131,051	132,362	133,685	135,022	136,372	137,736	139,113	140,505	141,910	143,329	144,762	146,210	147,672	149,148	150,640	152,146	153,668	155,204
Q	141,316	142,729	144,156	145,598	147,054	148,524	150,010	151,510	153,025	154,555	156,101	157,662	159,238	160,831	162,439	164,063	165,704	167,361	169,034	170,725

**20th Market Percentile
2022 Market Data**

PAY GRADE	Step 6				Step 7				Step 8				Step 9				Step 10			
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
R	152,621	154,147	155,689	157,246	158,818	160,406	162,010	163,630	165,267	166,919	168,589	170,274	171,977	173,697	175,434	177,188	178,960	180,750	182,557	184,383
S	166,357	168,020	169,701	171,398	173,112	174,843	176,591	178,357	180,141	181,942	183,762	185,599	187,455	189,330	191,223	193,135	195,067	197,017	198,987	200,977
T	181,329	183,142	184,974	186,823	188,692	190,579	192,484	194,409	196,353	198,317	200,300	202,303	204,326	206,369	208,433	210,517	212,623	214,749	216,896	219,065
U	206,715	208,782	210,870	212,979	215,109	217,260	219,432	221,627	223,843	226,081	228,342	230,625	232,932	235,261	237,614	239,990	242,390	244,814	247,262	249,734
V	237,722	240,100	242,501	244,926	247,375	249,849	252,347	254,871	257,419	259,993	262,593	265,219	267,871	270,550	273,256	275,988	278,748	281,536	284,351	287,194
W	261,495	264,110	266,751	269,418	272,112	274,833	277,582	280,358	283,161	285,993	288,853	291,741	294,659	297,605	300,581	303,587	306,623	309,689	312,786	315,914
X	287,644	290,520	293,426	296,360	299,324	302,317	305,340	308,393	311,477	314,592	317,738	320,915	324,124	327,366	330,639	333,946	337,285	340,658	344,065	347,505
Y	316,408	319,573	322,768	325,996	329,256	332,548	335,874	339,233	342,625	346,051	349,512	353,007	356,537	360,102	363,703	367,340	371,014	374,724	378,471	382,256
Z	348,049	351,530	355,045	358,596	362,181	365,803	369,461	373,156	376,888	380,656	384,463	388,308	392,191	396,113	400,074	404,074	408,115	412,196	416,318	420,481

**20th Market Percentile
2022 Market Data**

PAY GRADE	Step 11				Step 12				Step 13				Step 14				Step 15			
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
A	38,710	39,098	39,489	39,883	40,282	40,685	41,092	41,503	41,918	42,337	42,760	43,188	43,620	44,056	44,497	44,942	45,391	45,845	46,303	46,766
B	44,517	44,962	45,412	45,866	46,325	46,788	47,256	47,728	48,206	48,688	49,174	49,666	50,163	50,665	51,171	51,683	52,200	52,722	53,249	53,781
C	44,962	45,412	45,866	46,325	46,788	47,256	47,728	48,206	48,688	49,174	49,666	50,163	50,665	51,171	51,683	52,200	52,722	53,249	53,781	54,319
D	50,807	51,315	51,829	52,347	52,870	53,399	53,933	54,472	55,017	55,567	56,123	56,684	57,251	57,823	58,402	58,986	59,576	60,171	60,773	61,381
E	53,856	54,394	54,938	55,488	56,042	56,603	57,169	57,741	58,318	58,901	59,490	60,085	60,686	61,293	61,906	62,525	63,150	63,782	64,419	65,064
F	54,933	55,482	56,037	56,597	57,163	57,735	58,312	58,895	59,484	60,079	60,680	61,287	61,900	62,519	63,144	63,775	64,413	65,057	65,708	66,365
G	59,877	60,476	61,080	61,691	62,308	62,931	63,560	64,196	64,838	65,486	66,141	66,803	67,471	68,145	68,827	69,515	70,210	70,912	71,621	72,338
H	68,858	69,547	70,242	70,945	71,654	72,371	73,094	73,825	74,564	75,309	76,062	76,823	77,591	78,367	79,151	79,942	80,742	81,549	82,365	83,188
I	75,744	76,502	77,267	78,039	78,820	79,608	80,404	81,208	82,020	82,840	83,669	84,505	85,350	86,204	87,066	87,937	88,816	89,704	90,601	91,507
J	83,319	84,152	84,993	85,843	86,702	87,569	88,444	89,329	90,222	91,124	92,036	92,956	93,885	94,824	95,773	96,730	97,698	98,675	99,661	100,658
K	98,316	99,299	100,292	101,295	102,308	103,331	104,364	105,408	106,462	107,527	108,602	109,688	110,785	111,893	113,012	114,142	115,283	116,436	117,600	118,776
L	106,181	107,243	108,315	109,399	110,493	111,597	112,713	113,841	114,979	116,129	117,290	118,463	119,648	120,844	122,053	123,273	124,506	125,751	127,008	128,278
M	119,985	121,185	122,396	123,620	124,857	126,105	127,366	128,640	129,926	131,226	132,538	133,863	135,202	136,554	137,919	139,299	140,692	142,098	143,519	144,955
N	131,983	133,303	134,636	135,982	137,342	138,716	140,103	141,504	142,919	144,348	145,792	147,249	148,722	150,209	151,711	153,228	154,761	156,308	157,871	159,450
O	141,222	142,634	144,061	145,501	146,956	148,426	149,910	151,409	152,923	154,452	155,997	157,557	159,132	160,724	162,331	163,954	165,594	167,250	168,922	170,612
P	156,756	158,324	159,907	161,506	163,121	164,753	166,400	168,064	169,745	171,442	173,157	174,888	176,637	178,403	180,187	181,989	183,809	185,647	187,504	189,379
Q	172,432	174,156	175,898	177,657	179,434	181,228	183,040	184,871	186,719	188,586	190,472	192,377	194,301	196,244	198,206	200,188	202,190	204,212	206,254	208,317

**20th Market Percentile
2022 Market Data**

PAY GRADE	Step 11				Step 12				Step 13				Step 14				Step 15			
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
R	186,227	188,089	189,970	191,869	193,788	195,726	197,683	199,660	201,657	203,673	205,710	207,767	209,845	211,943	214,063	216,203	218,365	220,549	222,755	224,982
S	202,987	205,017	207,067	209,138	211,229	213,341	215,475	217,630	219,806	222,004	224,224	226,466	228,731	231,018	233,328	235,662	238,018	240,398	242,802	245,230
T	221,256	223,468	225,703	227,960	230,240	232,542	234,868	237,216	239,588	241,984	244,404	246,848	249,317	251,810	254,328	256,871	259,440	262,034	264,655	267,301
U	252,232	254,754	257,302	259,875	262,473	265,098	267,749	270,427	273,131	275,862	278,621	281,407	284,221	287,063	289,934	292,833	295,761	298,719	301,706	304,723
V	290,066	292,967	295,897	298,856	301,844	304,863	307,911	310,990	314,100	317,241	320,414	323,618	326,854	330,123	333,424	336,758	340,126	343,527	346,962	350,432
W	319,073	322,264	325,486	328,741	332,029	335,349	338,703	342,090	345,510	348,966	352,455	355,980	359,540	363,135	366,766	370,434	374,138	377,880	381,658	385,475
X	350,980	354,490	358,035	361,615	365,232	368,884	372,573	376,298	380,061	383,862	387,701	391,578	395,493	399,448	403,443	407,477	411,552	415,668	419,824	424,023
Y	386,078	389,939	393,839	397,777	401,755	405,772	409,830	413,928	418,068	422,248	426,471	430,735	435,043	439,393	443,787	448,225	452,707	457,234	461,807	466,425
Z	424,686	428,933	433,222	437,555	441,930	446,350	450,813	455,321	459,874	464,473	469,118	473,809	478,547	483,333	488,166	493,048	497,978	502,958	507,987	513,067

**20th Market Percentile
2022 Market Data**

PAY GRADE	Step 16				Step 17				Step 18				Step 19				Step 20			
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
A	47,234	47,706	48,184	48,665	49,152	49,644	50,140	50,641	51,148	51,659	52,176	52,698	53,225	53,757	54,294	54,837	55,386	55,940	56,499	57,064
B	54,319	54,862	55,411	55,965	56,525	57,090	57,661	58,238	58,820	59,408	60,002	60,602	61,208	61,820	62,439	63,063	63,694	64,331	64,974	65,624
C	54,862	55,411	55,965	56,525	57,090	57,661	58,238	58,820	59,408	60,002	60,602	61,208	61,820	62,439	63,063	63,694	64,331	64,974	65,624	66,280
D	61,995	62,614	63,241	63,873	64,512	65,157	65,808	66,467	67,131	67,803	68,481	69,165	69,857	70,556	71,261	71,974	72,693	73,420	74,155	74,896
E	65,714	66,371	67,035	67,705	68,382	69,066	69,757	70,455	71,159	71,871	72,589	73,315	74,048	74,789	75,537	76,292	77,055	77,826	78,604	79,390
F	67,028	67,699	68,376	69,060	69,750	70,448	71,152	71,864	72,582	73,308	74,041	74,782	75,529	76,285	77,048	77,818	78,596	79,382	80,176	80,978
G	73,061	73,792	74,530	75,275	76,028	76,788	77,556	78,331	79,115	79,906	80,705	81,512	82,327	83,150	83,982	84,822	85,670	86,527	87,392	88,266
H	84,020	84,860	85,709	86,566	87,432	88,306	89,189	90,081	90,982	91,892	92,811	93,739	94,676	95,623	96,579	97,545	98,520	99,506	100,501	101,506
I	92,422	93,346	94,280	95,223	96,175	97,137	98,108	99,089	100,080	101,081	102,092	103,113	104,144	105,185	106,237	107,299	108,372	109,456	110,551	111,656
J	101,664	102,681	103,708	104,745	105,792	106,850	107,919	108,998	110,088	111,189	112,301	113,424	114,558	115,704	116,861	118,029	119,210	120,402	121,606	122,822
K	119,964	121,164	122,375	123,599	124,835	126,083	127,344	128,618	129,904	131,203	132,515	133,840	135,179	136,530	137,896	139,275	140,667	142,074	143,495	144,930
L	129,561	130,857	132,165	133,487	134,822	136,170	137,532	138,907	140,296	141,699	143,116	144,547	145,993	147,453	148,927	150,417	151,921	153,440	154,974	156,524
M	146,404	147,868	149,347	150,840	152,349	153,872	155,411	156,965	158,535	160,120	161,721	163,338	164,972	166,622	168,288	169,971	171,670	173,387	175,121	176,872
N	161,045	162,655	164,282	165,924	167,584	169,259	170,952	172,662	174,388	176,132	177,893	179,672	181,469	183,284	185,117	186,968	188,837	190,726	192,633	194,559
O	172,318	174,041	175,781	177,539	179,314	181,108	182,919	184,748	186,595	188,461	190,346	192,249	194,172	196,114	198,075	200,055	202,056	204,077	206,117	208,179
P	191,273	193,185	195,117	197,068	199,039	201,029	203,040	205,070	207,121	209,192	211,284	213,397	215,531	217,686	219,863	222,062	224,282	226,525	228,790	231,078
Q	210,400	212,504	214,629	216,775	218,943	221,132	223,344	225,577	227,833	230,111	232,412	234,736	237,084	239,455	241,849	244,268	246,710	249,178	251,669	254,186

**20th Market Percentile
2022 Market Data**

PAY GRADE	Step 16				Step 17				Step 18				Step 19				Step 20			
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
R	227,232	229,504	231,799	234,117	236,458	238,823	241,211	243,623	246,060	248,520	251,005	253,515	256,051	258,611	261,197	263,809	266,447	269,112	271,803	274,521
S	247,683	250,160	252,661	255,188	257,740	260,317	262,920	265,549	268,205	270,887	273,596	276,332	279,095	281,886	284,705	287,552	290,428	293,332	296,265	299,228
T	269,974	272,674	275,401	278,155	280,936	283,746	286,583	289,449	292,343	295,267	298,219	301,202	304,214	307,256	310,328	313,432	316,566	319,732	322,929	326,158
U	307,771	310,848	313,957	317,096	320,267	323,470	326,705	329,972	333,271	336,604	339,970	343,370	346,804	350,272	353,774	357,312	360,885	364,494	368,139	371,820
V	353,936	357,476	361,050	364,661	368,307	371,990	375,710	379,467	383,262	387,095	390,966	394,875	398,824	402,812	406,841	410,909	415,018	419,168	423,360	427,593
W	389,330	393,223	397,155	401,127	405,138	409,190	413,281	417,414	421,588	425,804	430,062	434,363	438,707	443,094	447,525	452,000	456,520	461,085	465,696	470,353
X	428,263	432,545	436,871	441,240	445,652	450,108	454,610	459,156	463,747	468,385	473,069	477,799	482,577	487,403	492,277	497,200	502,172	507,193	512,265	517,388
Y	471,089	475,800	480,558	485,364	490,217	495,119	500,071	505,071	510,122	515,223	520,375	525,579	530,835	536,143	541,505	546,920	552,389	557,913	563,492	569,127
Z	518,198	523,380	528,614	533,900	539,239	544,631	550,078	555,578	561,134	566,745	572,413	578,137	583,918	589,758	595,655	601,612	607,628	613,704	619,841	626,040

Exhibit CB-2 GWA Open Recruitments as of February 23, 2024

Requisition #	Division	Job Type	Description	Total
1538	Operations	9.499	Trouble Dispatcher	1
1641	Operations	9.499	Trouble Dispatcher	1
1660	Operations	9.499	Trouble Dispatcher	1
1689	Operations	9.522	Equipment Operator II	1
1719	Operations	9.525	Equipment Operator Leader I	1
1663	Operations	9.526	Equipment Operator Leader II	1
1721	Operations	9.740	Water Meter Maint & Rep Wkr I	1
1599	Operations	10.161	Automotive Mechanic I	1
1630	Operations	10.175	Heavy Equipment Mechanic Lead	1
1643	Operations	10.208	Utility Trades Helper	1
1682	Operations	10.208	Utility Trades Helper	1
1684	Operations	10.208	Utility Trades Helper	1
1688	Operations	10.208	Utility Trades Helper	1
1690	Operations	10.208	Utility Trades Helper	1
1691	Operations	10.208	Utility Trades Helper	1
1693	Operations	10.208	Utility Trades Helper	1
1698	Operations	10.252	Water-Sewer Maint Worker II	1
1700	Operations	10.252	Water-Sewer Maint Worker II	1
1701	Operations	10.252	Water-Sewer Maint Worker II	1
1702	Operations	10.252	Water-Sewer Maint Worker II	1
1703	Operations	10.252	Water-Sewer Maint Worker II	1
1571	Operations	10.255	Water-Sewer Maint Wrkr Leader	1
1619	Operations	10.255	Water-Sewer Maint Wrkr Leader	1
1625	Operations	10.255	Water-Sewer Maint Wrkr Leader	1
1704	Operations	10.255	Water-Sewer Maint Wrkr Leader	1
1705	Operations	10.255	Water-Sewer Maint Wrkr Leader	1
1644	Operations	10.281	Electrician I	1
1694	Operations	10.282	Electrician II	1
1695	Operations	10.285	Electrician Leader	1
1626	Operations	10.287	Electrician Supervisor	1
1621	Operations	10.461	Plant Instrument Tech I	1
1708	Operations	10.880	Leak Detection Technician I	1
1716	Operations	10.880	Leak Detection Technician I	1
1710	Operations	10.881	Leak Detection Technician II	1
1712	Operations	10.881	Leak Detection Technician II	1
1714	Operations	10.881	Leak Detection Technician II	1
1709	Operations	10.882	Leak Detection Tech Leader	1
1713	Operations	10.882	Leak Detection Tech Leader	1
1715	Operations	10.882	Leak Detection Tech Leader	1
1594	Engineering	6.205	Construction Inspector I	1
1510	Engineering	6.222	Engineering Tech II	1
1512	Engineering	6.261	Associate Engineer	1
1511	Engineering	6.285	Junior Engineer	1
1533	Engineering	6.285	Junior Engineer	1
1717	Engineering	6.286	Project Engineer	1
1341	Compliance and Safety	4.242	Utility Compliance Inspect I	1
1342	Compliance and Safety	4.244	Utility Compliance Inspect Ldr	1
1699	Compliance and Safety	7.240	Utility Laboratory Tech I	1
1707	Compliance and Safety	7.242	Utility Laboratory Tech Leader	1
1687	Administration	1.445	Buyer I	1
1651	Finance	0.434	Utility Cashier I	1
1674	Office of the General Manager	2.360	Auditor I	1
Grand Total				52

1 INTRODUCTION AND BACKGROUND

2 **Q1. Please state your name, occupation and business address.**

3 A1. My name is Yvonne M Cruz. I am the Chief Budget Officer of the Guam Waterworks
4 Authority located at the Gloria B Nelson Public Service Building, Route 15, Fadian,
5 Mangilao, Guam.

6
7 **Q2. Please describe your education and professional history.**

8 A2. I graduated from the University of Guam in 1988 with a Bachelor of Arts Degree in
9 Communication. I worked for both private and government sectors in various capacities
10 to include journalism, public relations, executive assistant, program coordinator and
11 project analyst. These positions all included some degree of program development and
12 execution as well as budgeting and justification. While I have been employed with Guam
13 Waterworks Authority since 1998, I assumed the position of Chief Budget Officer in
14 August of 2008.

15
16 SCOPE AND PURPOSE OF TESTIMONY

17 **Q3. What is the purpose of your testimony in this proceeding?**

18 A3. I am testifying in support of the Guam Waterworks Authority’s petition for approval of
19 its proposed Five-Year Financial Plan and Capital Improvement Program for FY2025 –
20 FY2029. In this testimony, I will describe how the Operations & Maintenance (O&M)
21 budget was developed and provide information about the components of the O&M budget.

22
23 GWA BUDGET PROCESS

24 **Q4. Please describe the process used to develop the five-year operations and maintenance
25 budget in this Five-Year Financial Plan for FY2025 – FY2029.**

26 A4. To initiate the Operations and Maintenance budget process, GWA’s Budget Office issues
27 a Budget Call Memo to all Managers with specific budget templates and instructions. All
28

1 managers are asked to provide a Division Narrative that identifies their Levels of Service,
2 a list of activities that will support meeting their service levels and target measurements.

3 The budget templates provide worksheets listing the items/expenses for fiscal years 2025
4 and 2026 by expense categories as summarized in attached exhibits. For the ensuing fiscal
5 years an inflationary factor (usually 3%) is used for projections with exceptions for those
6 categories where values are known based on contracts, and/or best estimates. Managers
7 are requested to attach any supporting documents for their requests.

8 Each Division's respective Assistant General Manager reviews all business unit categories
9 within their purview and submits to the Budget Office for compilation.

10 Following submission and compilation of the requests, the budget numbers are further
11 vetted by the General Manager, Chief Financial Officer and Assistant Chief Financial
12 Officer for compilation and presentation to the Consolidated Commission on Utilities'
13 Budget Committee. The Budget Committee Chairman conducts a briefing for the other
14 Commission members, and further discussion and review of the details are part of the
15 CCU's monthly work sessions with approval to follow (upon satisfaction of any inquiries)
16 during the CCU's regular monthly meeting.

17 GWA's 5-year Rate Plan as approved by the CCU is then filed with the Public Utilities
18 Commission (PUC) as a petition to request rate increases as needed over the budget plan
19 period. After PUC action and/or inaction, the CCU will affirm the budget as amended
20 (dependent on PUC action on rates) before the start of the new fiscal year on October 1.

21 **Q5. *Please describe how GWA's operations and maintenance expenses were forecasted.***

22
23
24 **A5.** Forecasts of operations and maintenance expenses vary between costs categories and
25 consider known changes in operational requirements; scheduled repairs for preventive
26 and/or corrective maintenance; and adjustments for inflation.

1 In this submission, GWA incorporated several considerations in its budget assumptions:
2 the impact of the economy; recruitment and retention challenges; ongoing recovery from
3 the pandemic and Typhoon Mawar; new regulatory requirements; and unstable fuel costs.
4 In some cases, best estimates are provided as “place holders” when detailed data for
5 projections are not readily available at the time of budget preparations.

6 OPERATIONS AND MAINTENANCE BUDGET COMPONENTS

7 **Q6. *Please discuss projections related to utilities.***

8
9 A6. Considering that GWA has no control over the rates for these utility services, GWA’s
10 utilities expense projections are best estimates. Power purchases over the next 5 years are
11 based on an annual consumption projection of 61 million kilowatt-hours (kwh) for all
12 facilities and a combined average cost (agency-wide) of \$.42/kwh for FY2025 and
13 \$.39/kwh for FY2026 moving forward. The consumption projections use levels as
14 approved in FY2024. A slight reduction in cost is earmarked in FY2026 anticipating
15 increased fuel efficiencies upon operation of the new Ukudu power plant in FY2026.
16 GWA will continue to monitor the impact of the new plant at all facilities and reconcile
17 upon submission of required True-Up reports.

18 Water purchases from the Department of Defense use 550,000 kilo-gallons (Kgal) at
19 \$11/Kgal for water and 15,000 Kgal for sewer at \$31/Kgal. These rates are assumed to
20 remain unchanged throughout the plan period while forecasted consumption of water
21 shows gradual reductions year over year due to ongoing efforts to reduce water loss
22 through line replacements, district metered areas, and an aggressive leak detection
23 program.

24 **Q7. *How were projected salaries and benefits developed?***

25
26 A7. GWA is increasingly adversely affected by challenges with recruitment and retention of
27 technical and skilled workers due to better opportunities, pay and benefits elsewhere. This
28 plan involves migrating employee salaries up to the 50th market percentile over the next 5

1 years, with the intent of being in a stronger position to compete with the federal
2 government, its contractors and other private companies. Specific details addressing
3 GWA's manpower resources are further detailed in testimony by Christopher Budasi,
4 Assistant General Manager of Administration and Support.

5 Salaries are generated using GWA's existing staffing pattern with the most recent salary
6 for employees, plus a 2% increase to fund pay for performance adjustments due at the
7 start of the fiscal year. To determine migration costs, after pay for performance is applied
8 to the existing salary level, it is compared to the range maximum of the applicable market
9 percentile and slotted appropriately as long as the salary level does not exceed the
10 maximum range.

11 Premium pay amounts are based on a percentage of base salaries as has been practiced in
12 the past, and remains fairly consistent. Overtime is projected at 6%; night differential at
13 1% and holiday at 2%.

14 Insurance benefits were calculated based on the current average cost per enrollee for
15 medical, dental and life. Retirement and Medicare are budgeted at 29% and 1.45%
16 respectively.
17

18
19 **Q8. *What are the main components of administrative and general expenses (A&G) and how***
20 ***were they projected?***

21 A8. This cost category includes a variety of operating expenses that are not identified as
22 contractual services under the uniform system of accounts for water and wastewater
23 utilities approved by the National Association of Regulatory Utility Commissioners
24 (NARUC). These expenses comprise on average about 15% (inclusive of bad debt) of
25 GWA's total budget over the next 5 years.
26
27
28

1 These expenses include sludge removal, chemicals, materials and supplies, transportation,
2 communications, claims, insurance, training and travel, advertising, miscellaneous costs,
3 regulatory and the provision for bad debt.

4 Overall, from FY2024 to FY2025, there is a sharp increase of 40% in A&G costs driven
5 primarily by sludge removal, chemicals, training and travel and advertising. The
6 breakdown of increases by cost categories and line items are included as YMC Exhibit 1.

7
8 (i) Sludge Removal - Sludge removal is the expense to take the sludge from the
9 Wastewater Treatment Plants to the landfill. This also includes the landfill charges.
10 FY2024 budget in this category is underfunded; projected expenditures in this
11 category have been returned to the appropriate levels and adjusted for inflation. The
12 projections are based on 11.75 million gallons per day of sewage flow at the Northern,
13 Hagatna and Agat-Santa Rita treatment plants producing about 3,600 tons (combined)
14 of sludge annually at a cost of \$182.50/ton. The budget also provides additional
15 funding for the disposal of solids removed at the Ugum Water Treatment Plant from
16 backwash and sludge collector basins.

17 (ii) Chemicals - In combination with price increases for the cost of various treatment
18 chemicals, GWA must now purchase greater quantities of chemicals to address both
19 water and wastewater services. Additional water wells will require the use of granular
20 activated carbon (GAC), included in the category of water treatment chemicals to
21 address growing concerns over the levels of emerging contaminants found in certain
22 areas and anticipated regulatory changes in the Health Advisory Levels or Maximum
23 Contaminant Levels related to drinking water quality. Additionally, with new
24 regulatory requirements, GWA will have more treatment systems and must replace
25 the GAC more frequently than under prior advisory levels. GAC costs in the first year
26 are projected at \$1.4 million in comparison to FY2024's planned \$70,000 budget.

1 Chlorine costs are based on the treatment of about 39 million gallons per day of both
2 ground and surface water anticipating a 10% increase in cost for both 150lb and 1-ton
3 cylinders of chlorine.

4 Wastewater treatment and collection systems both reflect increases in chemical
5 requirements. New polymer options are also being studied for application to solids
6 processes at the Northern and Agat-Santa Rita wastewater treatment plants to reduce
7 the volume of chemical application required by the product currently in use at the 3
8 main treatment plants. On the collection side of wastewater, GWA is scheduled to
9 expand dosing applications of a chemical surfactant product aimed at reducing or
10 mitigating the level of fats, oil, and grease in sewage flows, in turn reducing system
11 blockages and overflows. GWA currently doses at 7 sites with planned increases of
12 up to 34 selected areas over the next 5-year period.

13
14 (iii) Training & Travel – Investing in our employees through training helps build a
15 knowledgeable and skill-based staff. The increases in this budget provide for
16 specialized training for employees either mandated by law or required to maintain
17 position certifications and licenses. It includes funding to bring trainers to Guam to
18 allow for greater employee participation in specific areas to include chlorination safety
19 training and pipeline assessments.

20 (iv) Advertising - This includes all costs for creative development, print-ready work,
21 maintenance and printing of all ads, social media pages, GWA’s website maintenance
22 and updates. Also captured in this expense category is GWA’s sponsorships for
23 activities in partnership with island sustainability efforts, the local chapter of the
24 American Water Works Association (AWWA) and other special promotions to
25 address Fats, Oil and Grease and other public outreach programs.
26
27
28

1 **Q9. *Please describe the components that make up contractual expenses and how they were***
2 ***forecasted.***

3 A9. In comparison to FY2024, contractual expenses increase overall by a projected 30% and
4 make up about 8% of GWA's total O&M expenses. Major increases in contractual costs
5 are reflected in Audit & Computer Maintenance as well as Other Contractual. Discussion
6 supporting GWA's technology budget is included in testimony from Christopher Budasi,
7 Assistant General Manager of Administration and Support. Line details that comprise the
8 various contractual costs are included in YMC Exhibit 2.

9 (i) Audit and Computer Maintenance - Besides auditing, financial consulting, rating
10 agencies fees, risk management, and well monitoring, a large part of this expense
11 category supports software subscriptions and technical support. In addition to
12 inflationary considerations, new expenses in this category include funding to upgrade
13 and expand GWA's Geographical Information System, and meter reading and testing
14 systems. Provisions are included to support the One Guam Water Resource
15 Information Program and other technical expertise provided to GWA's engineering
16 and operations support teams.

17 (ii) Other Contractual Expenses - The majority of this expense category is for the repair
18 and maintenance of equipment that requires specialized skills or equipment. Also
19 included are road restoration, trash pickup, security, janitorial services, drug testing,
20 leak detection, printing and copying, and various permitting requirements. The 38%
21 increase in these costs are attributable to leak detection services, lower cost repair and
22 maintenance needs for our various facilities and equipment as result of deferred
23 maintenance, damages from Typhoon Mawar, and routine wear and tear.

24 **Q10. *What are retiree expenses and how were they projected?***

25 A10. These expenses are generally covered by the Legislative surcharge of GWA's rate
26 structure. Projection of these expenses used the most current billing from the Guam
27
28

1 Retirement Fund and Department of Administration. These costs reflect a slight reduction
2 in the number of recipients of the Supplemental Annuity, which provides older Defined
3 Benefit (DB) retirees supplemental income if their annuity is below \$40,000 annually.
4 However, as previously highlighted under salaries and benefits, the government's share
5 for medical, dental and life benefits for all classes of retirees regardless of retirement plan
6 have significantly increased (on average about 22%). Overall, the projected increase from
7 FY2024 to FY2025 based on existing rates produces a 20% increase and then maintains a
8 3% inflationary adjustment moving forward. Details are reflected in YMC Exhibit 3.

9
10 **Q11. Does GWA's proposed Five-Year Financial plan and Capital Improvement Program**
11 **for FY2025 – FY2029 provide funding for compliance with regulatory requirements**
12 **including those in the recently filed Partial Consent Decree?**


13 A11. Yes. Funds are budgeted for GWA to remain in compliance with regulatory requirements.
14 The Capital Improvement Program funds requirements of the 2024 Partial Consent Decree
15 as discussed in the testimony of Miguel Bordallo, GWA's General Manager and Jeanet
16 Owens, Assistant General Manager of Engineering.

17
18 **Q12 Does this conclude your testimony?**

19 A12 Yes.

20 I, Yvonne M. Cruz, do hereby state and aver under penalty of perjury that the Written
21 Testimony above in Support of the Requests for Approvals of the Guam Waterworks Authority
22 Five-Year Financial Plan, Rate Increase Requests, and Capital Improvement Program for FY2025
23 – FY2029 submitted herewith is both truthful and accurate to the best of my knowledge.

24 **RESPECTFULLY** submitted this 8th day of March, 2024.

25
26 By:  2024.03.07
15:25:56 +10'00'
27
28 **YVONNE M. CRUZ**
Chief Budget Officer

YMC EXHIBIT 1

Guam Waterworks Authority
Administrative & General Expenses

Exhibit YMC -1

Expenses	Approved		PROJECTION				
	Unaudited	Budget	FY25	FY26	FY27	FY28	FY29
	FY2023	FY24	FY25	FY26	FY27	FY28	FY29
Sludge Removal	676,362	335,916	692,489	710,214	731,521	753,466	776,070
11 Sludge Removal	676,362	335,916	692,489	710,214	731,521	753,466	776,070
Chemical - Others	-	-	10,000	11,500	11,845	12,200	12,566
Chemicals - Accl 3	-	193,532	419,331	482,231	496,698	511,599	526,947
Chemicals - Alum Chlorhyd (ACH)	319,892	407,490	449,510	526,087	541,870	558,126	574,869
Chemicals - Anionic Polymer	74,606	61,479	89,073	102,434	105,507	108,672	111,933
Chemicals - Cationic Polymr	307,094	303,303	786,202	904,132	931,256	959,194	987,970
Chemicals - Chlorine	949,279	805,354	945,354	1,181,693	1,217,143	1,253,658	1,291,267
Chemicals - Citric Acid	-	15,000	1,040	1,300	1,339	1,379	1,421
Chemicals - Lab	22,309	44,470	57,193	60,053	61,854	63,710	65,621
Chemicals - Others	103,671	15,004	44,000	53,000	54,590	56,228	57,915
Chemicals - Poly Dad Mac	1,076	-	-	-	-	-	-
Chemicals - Sodium Hydroxide	505	1,700	-	-	-	-	-
Chemicals - Sulfuric Acid	-	2,000	12,480	15,600	16,068	16,550	17,047
Granular Activated Carbon	-	70,000	1,410,000	1,175,000	1,210,250	1,246,558	1,283,954
12 Chemicals	1,778,433	1,919,331	4,224,183	4,513,030	4,648,420	4,787,873	4,931,509
Asphalt, Cold Mix, Bedding San	107,457	120,000	184,843	195,834	207,690	220,151	242,167
Calibration Supplies	2,151	106,100	145,765	154,511	163,781	173,608	184,025
Chlorination Equipment	291,541	150,000	150,325	130,724	138,567	146,881	161,570
Cleaning supplies	29,728	46,950	50,751	53,796	57,024	60,445	64,072
Electrical	84,318	132,660	119,109	110,355	116,977	123,995	136,395
Equipment & Hand Tools	11,613	172,422	172,679	136,400	144,584	153,259	162,455
Field Support Supplies	33,341	47,560	49,074	36,118	38,285	40,582	43,017
Fire Hydrant Components	9,723	11,550	12,755	11,400	12,084	12,809	13,578
Gas Operated Equipment	6,801	41,100	57,289	60,726	64,369	68,232	72,325
Gas Operated Equipment - Parts & Supplies	1,572	12,465	11,114	11,780	12,487	13,236	14,031
Generator - Fuel	-	-	717	760	806	854	905
Generator - Repair & Maintenance	210,752	2,000	21,510	22,801	24,169	25,619	27,156
Hardware	62,445	80,806	82,890	87,863	93,135	98,723	108,596
Invty Recon-Physical Count	(15,325)	-	-	-	-	-	-
Laboratory Supplies	17,387	81,639	89,106	94,453	100,120	106,127	112,495
Maintenance and Repair - Building	2,334	41,350	38,831	32,681	34,642	36,720	38,924
Manhole Covers & Assembly	-	4,800	18,068	19,153	20,302	21,520	22,811
Meters and Meter Boxes	17,218	-	-	-	-	-	-
Office Equipment	21,167	83,966	104,016	110,257	116,872	123,884	131,317
Office Supplies	30,860	69,323	64,675	57,955	61,433	65,119	69,026
Paint & Supplies	1,507	16,500	36,940	39,156	41,506	43,996	46,636
Parts - Air Conditioning	9,282	15,358	15,416	16,340	17,321	18,360	19,462
Parts - Lab Equipment	19,998	35,500	59,870	63,462	67,270	71,306	75,584
Parts - SCADA System	20,724	40,000	88,550	93,863	99,495	105,464	116,011
Parts - Treatment Equipment	12,275	-	-	100,000	106,000	87,143	92,371
Parts & Supplies - Pumps	94,009	152,990	233,514	247,524	262,376	278,118	334,513
Plumbing	824,591	744,930	745,786	858,734	944,607	1,001,283	1,101,412
Safety Equipment	62	70,046	70,138	72,226	76,560	148,770	86,023
Safety Supplies	64,120	164,166	164,279	143,395	151,999	161,119	170,786
Tags, Seals, Copper Coins, Dyes	4,586	24,763	26,197	15,048	15,951	16,908	17,923
Uniforms	(97)	12,000	14,152	8,641	13,811	9,710	10,292
Valve Box & Cover	-	4,050	5,736	6,080	6,445	6,832	7,242
13 Materials & Supplies	1,976,136	2,484,994	2,834,093	2,992,139	3,210,667	3,440,777	3,683,118
Equipment Parts	1,676	27,000	33,832	37,215	40,937	45,030	49,533
Equipment Repair - Backhoes	4,250	10,000	11,264	12,391	13,630	14,993	16,492
Equipment Repair - Combination Pumper Truck	-	12,000	56,322	61,954	68,150	74,965	82,461
Equipment Repair - Cranes	14,598	10,000	37,548	41,303	45,433	49,977	54,974
Equipment Repair - Drill Rig	-	-	-	-	-	-	-
Equipment Repair - Dump Truck	1,258	5,000	18,774	20,651	22,717	24,988	27,487
Equipment Repair - Fleet	78,600	49,000	55,196	60,715	66,787	73,466	80,812
Equipment Repair - Light Equip	-	2,000	11,264	12,391	13,630	14,993	16,492
Equipment Repair - Tractor Mower	-	3,200	-	-	-	-	-
Equipment Repair - Tractors	995	5,000	18,774	20,651	22,717	24,988	27,487
Equipment Repair - Trailers	5,500	8,000	11,264	12,391	13,630	14,993	16,492
Equipment Repair - Vaccon Truc	-	-	9,012	9,913	10,904	11,994	13,194
Equipment Repair - Vactor Truc	1,551	12,000	15,019	16,521	18,173	19,991	21,990
Fleet Maintenance	-	3,000	-	-	-	-	-
Fuel and Lubricants - Equipmen	85,496	50,000	53,813	59,194	65,113	71,625	78,787
Fuel and Lubricants - Vehicles	236,693	294,160	235,270	258,797	284,676	313,144	344,458
Hazardous Waste Dposal	9,640	16,950	24,406	26,847	29,532	32,485	35,733
Tire Repair & Replacement	31,311	49,500	45,058	49,564	54,520	59,972	65,969
Towing & Lockout Services	2,100	3,000	3,755	4,130	4,543	4,998	5,497
Vehicle Lease	(29,900)	-	-	-	-	-	-
Vehicle parts	93,447	105,000	105,096	115,606	127,167	139,883	153,872
Vehicle Repair - A/C	20,635	32,700	44,458	48,904	53,794	59,174	65,091
Vehicle Safety Inspection	450	1,825	2,253	2,478	2,726	2,999	3,298
Vehicle Tracking Services	66,970	75,625	60,077	66,085	72,693	79,963	87,959
14 Transportation	625,271	774,960	852,456	937,702	1,031,472	1,134,619	1,248,081
Cellular	2,436	7,516	7,516	5,345	5,505	5,670	5,840
Internet Services	66,400	71,803	67,617	168,664	173,724	178,936	184,304
Radio/Pager	13,432	14,286	8,424	360	371	382	393
Telephone	32,099	65,267	49,193	64,199	66,125	68,108	70,152
Toll Charges	37	340	340	345	355	366	377
15 Communications	114,403	159,211	133,090	238,912	246,080	253,462	261,066
Claims -	-	-	-	-	-	-	-
Claims - Auto	-	20,000	50,000	51,500	53,045	54,636	56,275
Claims - Damaged Cable Lines	42,387	40,000	65,000	66,950	68,959	71,027	73,158
Claims - Personal Property	-	25,000	25,000	25,750	26,523	27,318	28,138
Claims - Sewer Overflows	-	80,000	80,000	82,400	84,872	87,418	90,041
Claims - Workers' Comp	9,797	14,000	25,000	25,750	26,523	27,318	28,138
Employee related	-	-	-	-	-	-	-
16 Claims	52,184	179,000	245,000	252,350	259,921	267,718	275,750
Insurance - Auto	49,353	48,000	49,000	49,000	49,000	50,470	51,984
Insurance - Crime	13,487	140,000	140,000	140,000	144,200	148,526	152,982
Insurance - Cyber	-	25,000	50,000	50,000	51,500	53,045	54,636
Insurance - D&O	27,750	28,000	28,000	28,000	28,840	29,705	30,596
Insurance - General Liability	213,483	215,000	216,000	216,000	222,480	229,154	236,029
Insurance - Property	1,475,604	1,480,000	1,480,000	1,480,000	1,524,400	1,570,132	1,617,236
Insurance - Self (Liability CI)	-	-	-	-	-	-	-
17 Insurance	1,779,677	1,936,000	1,963,000	1,963,000	2,021,890	2,082,547	2,145,023
Training	92,501	141,937	416,675	458,882	472,649	486,828	501,433
Travel	52,172	59,217	362,864	381,129	392,563	404,340	416,470
18 Training & Travel	144,673	201,154	779,539	840,011	865,212	891,168	917,903
Advertising	-	58,460	26,000	50,625	52,144	53,708	55,319
Print (Newspaper & Magazine)	-	2,510	-	-	-	-	-
Print Ads (Other)	3,250	7,580	29,500	30,825	31,750	32,702	33,683
Procurement Ads	22,481	29,375	41,167	41,167	42,402	43,674	44,984
Promotional Campaigns	29,375	3,600	69,600	68,600	70,658	72,778	74,961
Promotional/Event Supplies	438	2,100	12,000	-	-	-	-
Radio	-	-	-	-	-	-	-
Social Media Ads	39,840	25,250	86,100	89,400	92,082	94,844	97,690
TV & Video	-	2,510	-	-	-	-	-
Website Design & Maintenance	4,025	3,000	10,500	6,500	6,695	6,896	7,103
19 Advertising	99,408	134,385	274,867	287,117	295,730	304,602	313,740
Annual Dues-Prof Memberships	9,532	17,227	20,766	26,287	27,076	27,888	28,724
Bank Charges	12,585	6,000	6,000	7,200	7,416	7,638	7,868
Bank Charges - Sweep Fees	205	620	1,200	1,200	1,236	1,273	1,311
Banking Supplies	3,248	800	1,650	1,750	1,803	1,857	1,912
Bond Agent and Trustee Fees	113,226	125,000	155,000	155,000	159,650	164,440	169,373
CCU Administration	13,871	32,500	39,172	40,884	42,111	43,374	44,675
CCU Meeting Refreshments	6,699	5,000	6,600	6,798	7,002	7,212	7,428
CCU Stipends	28,500	30,000	30,000	30,000	30,900	31,827	32,782
Collection Fees	-	10,000	10,000	10,000	10,300	10,609	10,927
Coupon Charges	11,727	36,000	36,000	36,000	37,080	38,192	39,338
Courier Svc (Lab Anlys/Test)	23,856	60,000	50,000	52,500	54,075	5	

YMC EXHIBIT 2

**Guam Waterworks Authority
Contractual Expenses**

Exhibit YMC -2

Expenses	Unaudited FY2023	Approved Budget FY24	PROJECTION				
			FY25	FY26	FY27	FY28	FY29
Auditing Fees	75,000	77,000	79,000	85,000	87,550	90,177	92,882
Box.net (IT)	-	-	-	-	-	-	-
Consulting Services	364,620	474,100	1,144,366	1,134,366	1,168,396	1,203,448	1,239,552
Domain, Web Hosting, SSL	67,212	107,796	64,188	64,188	66,114	68,097	70,140
Financial Services	10,000	32,500	14,500	16,000	16,480	16,974	17,484
Gate.com (IT)	11,010	6,200	6,200	6,200	6,386	6,578	6,775
GIS Software	-	25,000	320,000	320,000	329,600	339,488	349,673
IaaS (Infrastructure as a Svc)	100,921	233,530	240,903	240,903	248,130	255,574	263,241
Internships	3,450	31,318	31,318	31,318	32,257	33,225	34,222
IT Maint - Cloud Services	-	-	-	-	-	-	-
IT Maint - Video Conference	-	-	-	-	-	-	-
IT Maint - Virtual Desktop Srv	4,414	-	-	-	-	-	-
Network Penetration Test	1,425	2,181	2,181	2,181	2,247	2,314	2,383
PaaS (Platform as a Service)	102,636	8,000	8,000	8,000	8,240	8,487	8,742
Rating Fee	15,000	15,000	15,000	15,000	15,450	15,914	16,391
Repository Fee	2,500	2,500	2,500	2,500	2,575	2,652	2,732
SaaS (Software as a Service)	98,823	135,430	138,382	145,882	150,258	154,766	159,409
SCADA Support (IT)	-	48,000	75,000	75,000	77,250	79,568	81,955
Software Maint - Antivirus	13,249	-	-	-	-	-	-
Software Maint - CC&B	450,833	506,150	506,150	506,150	521,334	536,974	553,084
Software Maint - Insight	59,931	-	-	-	-	-	-
Software Maint - Oracle(JDE)	88,678	99,032	109,658	132,960	136,949	141,057	145,289
Software Maint Infr Mgmt	333,130	12,028	14,500	14,500	14,935	15,383	15,845
Software Maint-Contract Coll	-	1,650	2,000	2,000	2,060	2,122	2,185
Software Maint-Element LIMS	-	11,700	11,700	12,285	12,654	13,033	13,424
Software Maintenance - Backup	2,423	9,052	9,500	9,500	9,785	10,079	10,381
Software Maintenance - Datamatic	-	8,041	4,000	4,000	4,120	4,244	4,371
Software Maintenance - Primavera	-	80,000	86,250	86,250	88,838	91,503	94,248
Software Maintenance - Reporti	-	25,000	15,000	15,000	15,450	15,914	16,391
Software Maintenance - WonderW	-	-	-	-	-	-	-
Software Maint-Forms Overlay	-	5,367	8,900	11,540	11,886	12,242	12,610
Software Maint-Orion Read Sy	-	5,000	34,500	34,500	35,535	36,601	37,699
Software Maint-Payroll/Tax	6,842	6,842	6,842	8,900	9,167	9,442	9,725
Software Maint-VMWare	3,959	-	-	-	-	-	-
Software Maint-WWW Modeling	11,219	11,540	23,080	43,540	44,846	46,192	47,577
Sys Support & Svc - Computer	32,669	9,300	98,847	102,347	105,417	108,580	111,837
Tech Support - Web & IVR Svs	-	-	5,000	5,000	5,150	5,305	5,464
24 Audit & Computer Maint.	1,859,943	1,989,257	3,077,463	3,135,008	3,229,058	3,325,930	3,425,708
Building Rental	555,337	579,165	644,772	681,372	701,813	722,868	744,554
Storage Rental	19,350	24,000	24,000	24,000	24,720	25,462	26,225
25 Building rental	574,687	603,165	668,772	705,372	726,533	748,329	770,779
Equip Rental - Backhoes	(14,343)	80,332	80,000	80,000	82,400	84,872	87,418
Equip Rental - CCTV	-	-	15,000	17,250	17,768	18,301	18,850
Equip Rental - Combo Pumper Tk	235,706	186,000	266,124	292,058	300,819	309,844	319,139
Equip Rental - Cranes	107,134	65,700	50,000	62,500	64,375	66,306	68,295
Equip Rental - Dump Truck	7,485	179,652	166,625	171,369	176,510	181,805	187,259
Equip Rental - Excavators	-	10,000	30,000	33,000	33,990	35,010	36,060
Equip Rental - Forklift	-	-	-	-	-	-	-
Equip Rental - Lifts	-	1,925	5,000	5,750	5,923	6,100	6,283
Equip Rental - Light Equip	76	2,500	11,368	12,623	13,002	13,392	13,794
Equip Rental - Other (Boat Rental)	1,900	7,000	-	-	-	-	-
Equip Rental - Tow Truck	-	4,500	-	-	-	-	-
Equip Rental - Tractors	-	-	-	-	-	-	-
Equip Rental - Trailers	101,319	20,182	20,000	20,000	20,600	21,218	21,855
Equip Rental - Vaccon Truck	-	-	-	-	-	-	-
Equip Rental - Vactor Truck	-	3,500	7,500	9,375	9,656	9,946	10,244
Equipment Rental - actor Truck	-	-	43,500	50,025	51,526	53,072	54,664
26 Equipment rental	439,277	561,291	695,117	753,950	776,568	799,865	823,861
Legal	619,291	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000
27 Legal	619,291	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000
Immuniz & Health Screenings	9,690	19,750	13,755	11,055	11,387	11,728	12,080
Lab Analysis	198,196	500,000	352,500	575,000	592,250	610,018	628,318
Underground Storage Tank	20,221	-	50,000	57,500	59,225	61,002	62,832
Water Quality Testing	4,135	6,200	10,000	10,500	10,815	11,139	11,474
28 Laboratory	232,242	525,950	426,255	654,055	673,677	693,887	714,704
Calibration Services	1,910	4,800	5,700	5,910	6,087	6,270	6,458
Courier Services	14,949	12,000	14,400	16,200	16,686	17,187	17,702
Drug Free Program	1,579	14,900	26,300	26,300	27,089	27,902	28,739
Equipment Certification	1,975	6,000	6,200	6,260	6,448	6,641	6,840
Ground Maintenance	97,967	105,500	115,000	118,450	122,004	125,664	129,434
Janitorial Services	-	52,000	60,000	64,750	66,693	68,693	70,754
Leak Detection	-	250,000	464,518	464,518	478,453	-	-
Machine Work & Fabrication	189,645	79,000	132,500	153,750	158,363	163,113	168,007
Operating License - TMW	-	500	-	-	-	-	-
Outreach Material	-	9,500	4,500	4,500	4,635	4,774	4,917
Permits - Cable Clearances	-	1,000	1,500	1,500	1,545	1,591	1,639
Permits - GTA Clearances	24,099	32,900	42,400	43,960	45,279	46,637	48,036
Permits - Highway Encroachment	650	800	1,900	1,900	1,957	2,016	2,076
Permits - Miscellaneous	15	950	950	1,500	1,545	1,591	1,639
Permits - Underground Strg	1,500	1,500	1,500	1,500	1,545	1,591	1,639
Permits - Well Driller's License	-	500	-	-	-	-	-
Permits - Well Operating	70,800	51,500	60,000	75,000	77,250	79,568	81,955
Printing & Copying	302,996	381,068	361,830	363,331	374,231	385,458	397,022
Pump & Motor Rewinding Svs	272,040	271,000	320,000	364,000	374,920	386,168	397,753
Renovations - Facility	-	10,000	50,000	57,500	59,225	61,002	62,832
Rep & Maint - Gas Op Equip	5,780	10,000	24,500	27,500	28,325	29,175	30,050
Repair & Maint - A/C	20,227	7,500	53,000	50,150	51,655	53,204	54,800
Repair & Maint - Backhoes	-	-	-	-	-	-	-
Repair & Maint - Building	9,120	35,500	80,000	87,850	90,486	93,200	95,996
Repair & Maint - CCTV	11,071	-	32,400	36,900	38,007	39,147	40,322
Repair & Maint - Chlorine Equipment	-	5,500	-	-	-	-	-
Repair & Maint - Combination Pumper Truck	-	-	-	-	-	-	-
Repair & Maint - Cranes	-	-	-	-	-	-	-
Repair & Maint - Dump Truck	-	-	-	-	-	-	-
Repair & Maint - Instrument	-	-	-	-	-	-	-
Repair & Maint - Light Equip	1,492	6,000	27,000	30,000	30,900	31,827	32,782
Repair & Maint - Office Equipment	510	1,250	12,500	12,500	12,875	13,261	13,659
Repair & Maint - Op Fac	11,500	18,000	320,000	323,550	333,257	343,254	353,552
Repair & Maint - Others	51,215	23,000	229,500	244,250	251,578	259,125	266,899
Repair & Maint - Sewer Lines	-	300,000	50,000	57,500	59,225	61,002	62,832
Repair & Maint - Tractor Mower	-	-	-	-	-	-	-
Repair & Maint - Tractors	-	-	-	-	-	-	-
Repair & Maint - Trailers	-	500	-	-	-	-	-
Repair & Maint - Vaccon Truck	-	-	-	-	-	-	-
Repair & Maint - Vactor Truck	-	-	-	-	-	-	-
Road Restoration	193,658	159,000	250,000	259,000	266,770	274,773	283,016
SCADA Maintenance	1,643	20,000	-	-	-	-	-
Security Services	404,879	348,664	366,097	366,097	377,080	388,393	400,044
Trash pickup	31,262	34,500	35,000	35,000	36,050	37,132	38,245
Underground Storage Tank	-	30,000	-	-	-	-	-
29 Other	1,722,483	2,284,832	3,149,196	3,301,126	3,400,160	3,009,358	3,099,639
Total Contractual	4,873,236	6,861,330	8,848,031	9,344,139	9,579,463	9,329,040	9,563,911

YMC EXHIBIT 3

Guam Waterworks Authority
 Retiree Supplemental Medical, Dental, Life and COLA

Exhibit YMC 3

	Unaudited FY2023	Approved Budget FY2024	PROJECTION				
			FY2025	FY2026	FY2027	FY2028	FY2029
SUPPLEMENTAL ANNUITY 1	254,060	289,442	262,756.00	241,735.52	222,396.68	204,604.94	188,236.55
No of Retirees	86	84	62	57	52	48	44
Annuity (\$) per retiree	2,963	3,446	4,238	4,238	4,238	4,238	4,238
	-1%	-2%	-26%	-8%	-8%	-8%	-8%
MEDICAL BENEFITS 2	2,633,235	2,750,527	3,531,147	3,673,452	3,821,492	3,975,498	4,135,711
No. of retirees	299	264	267	269	272	275	277
Average Benefit (\$) per retiree	10,539	10,855	13,243	13,640	14,050	14,471	14,905
Projected annual % increase in average benefits	3%	3%	22%	3%	3%	3%	3%
COLA 3	673,200	715,649	701,500	708,515	715,600	722,756	729,984
No. of retirees	323	328	305	308	311	314	317
Average Benefit (\$) per retiree	2,085	2,182	2,300	2,300	2,300	2,300	2,300
	6%	5%	5%	0%	0%	0%	0%
TOTAL MEDICAL, ANNUITY & COLA	\$ 3,560,495	\$ 3,755,618	\$ 4,495,403	\$ 4,623,703	\$ 4,759,489	\$ 4,902,860	\$ 5,053,931
			15%	3%	3%	3%	3%

1 **THERESA G. ROJAS, ESQ.**
2 Legal Counsel
3 Guam Waterworks Authority
4 Gloria B. Nelson Public Service Building
5 688 Route 15, Suite 304
6 Mangilao, Guam 96913
7 Telephone No: (671) 300-6848
8 Email: tgrojas@guamwaterworks.org

9
10 **BEFORE THE GUAM PUBLIC UTILITIES COMMISSION**

11 IN THE MATTER OF:

GWA DOCKET NO. 24-05

12 **GUAM WATERWORKS AUTHORITY'S**
13 **FY2025 -2029 RATE APPLICATION**
14 **AND COMPREHENSIVE FINANCIAL**
15 **PLAN**

16 **TESTIMONY OF THERESA G. ROJAS,**
17 **ESQ. LEGAL COUNSEL IN SUPPORT**
18 **OF GWA'S FY 2025 – 2029 FIVE-YEAR**
19 **FINANCIAL PLAN AND RATE**
20 **INCREASE REQUEST**

21
22 TABLE OF CONTENTS

23 INTRODUCTION AND BACKGROUND2
24 SCOPE AND PURPOSE OF TESTIMONY4
25 PFAS LITIGATION AND SETTLEMENTS.....4
26 OTHER LITIGATION.....9

1 INTRODUCTION AND BACKGROUND

2 **Q1. Please state your name, occupation and business address.**

3 A1. My name is Theresa G. Rojas. I am counsel for the Guam Waterworks Authority
4 (“GWA”) in the above-captioned matter. My business address is Gloria B Nelson Public
5 Service Building, Route 15, Fadian, Mangilao, Guam.

6
7 **Q2. Please describe your educational and professional history.**

8 A2. I have a Bachelors Degree from Gonzaga University, Spokane, WA., in Political Science
9 and Economics and a Juris Doctor from Western Michigan University, Thomas M. Cooley
10 Law School, Grand Rapids, MI. In 2003, I began my career in government and for six years
11 I worked as a management analyst conducting performance audits, financial audits, and
12 procurement appeal reviews for the Guam Office of the Public Auditor. In 2009, I resigned
13 as an Auditor III and as a Certified Government Financial Manager (“CGFM”) to attend
14 law school. As a law student, I served as an extern for the US DOJ, United States Attorney’s
15 Office, civil division for Guam, and as an intern law clerk for the Honorable Katherine A.
16 Maraman, Associate Justice of the Guam Supreme Court.

17 In 2012, I graduated *cum laude* above the top 15% of my law class and in 2013, I became a
18 member of the Guam Bar. I began my legal career in private practice first as in-house
19 counsel to a private finance company and second as an associate attorney in two separate
20 firms. The firm’s largest clients were local banks and the port utility. In 2015, I was
21 admitted to practice before the federal United States District Court for Guam. I returned to
22 the public sector in 2018 to practice criminal and family court defense for indigent persons
23 in need of services as an assistant public defender, and in 2021, I joined GWA as its general
24 counsel.

25 Prior to GWA, I served as adjunct faculty for the University of Guam teaching criminal law,
26 and I was appointed by Guam Bar and confirmed by the Guam Supreme Court to serve two
27 terms on the investigative panel from 2017 to 2019 for the Guam Bar Ethics Committee.
28

1 **Q3. *What professional qualifications enhance your testimony in this case?***

2 A3. Over the last decade, I have practiced civil collection, litigation, transactional, appellate
3 practice, criminal, and administrative law work and I have successfully argued, briefed,
4 and co-briefed both civil and criminal matters before the Supreme Court of Guam. In my
5 criminal practice, I have defended indigent clients charged with criminal misdemeanor
6 and felony crimes from first-appearance magistrate proceedings to trial. In the matters
7 before the Supreme Court of Guam where I have entered my appearance as counsel OR
8 have served as co-counsel the following cases have been reported:

- 9 ▪ CRA19-012: People of Guam v. Joshua Brandon Perez ***Argued***
10 ◦ Reported: 2021 Guam 18
- 11 ▪ CRA17-010: People of Guam v. Aldan ***Argued***
12 ◦ Reported: 2018 Guam 19
- 13 ▪ CVA17-028: Mendiola v. Ishizaki ***Argued***
14 ◦ Reported: 2019 Guam 26
- 15 ▪ CVA15-025: Port Authority of Guam v. Civil Service Commission, Josette Javellosa
16 ◦ Reported: 2018 Guam 9
- 17 ▪ CVA16-018: Port Authority of Guam v. Civil Service Commission, Jose B. Guevara,
18 ◦ Reported: 2018 Guam 1
- 19 ▪ CVA17-007: Port Transportation, Stevedore, and Terminal Employees v. Civil Service
20 Commission, Port Authority of Guam ***Argued***
21 ◦ Reported: 2018 Guam 18
- 22 ▪ CVA17-015 Port Authority of Guam v. Civil Service Commission, Frances Arriola
23 ◦ Reported: 2019 Guam 13
- 24 ▪ CVA17-014: Port Authority of Guam v. Guam YTK Corporation
25 ◦ Reported: 2019 Guam 12
- 26 ▪ CVA2014-026: Duenas v. Kallingal, P.C. ***Argued***
27 ◦ Reported – 2015 Guam 9
- 28 ▪ CVA2014-033: Lujan v. Rosario ***Argued***
 ◦ Reported – 2016 Guam 28

1 As counsel to GWA, I have also entered my appearance in the following cases below:

- 2 ■ *United States v. Government of Guam and the Guam Waterworks Authority*; United States District Court of Guam Civil Case No. CV 02-00035
- 3
- 4 ■ *Government of Guam Department of Land Management, Guam Waterworks Authority v. Core Tech International Corp., Younex Enterprises Corp.*; Superior Court of Guam CV 1198-18
- 5
- 6 ■ *United States v. Guam Waterworks Authority and Government of Guam*; United States District Court of Guam Civil Case No. CV24-00004
- 7

8 SCOPE AND PURPOSE OF TESTIMONY

9 **Q4. *What is the purpose of your testimony in this proceeding?***

10 A4. I am testifying in support of the Guam Waterworks Authority’s petition for approval of
11 its proposed *Financial Plan and Capital Improvement Program (FY 2025 – FY 2029)* and
12 to clarify and provide information about 1) proceeds GWA may receive in a National
13 Water Provider PFAS Settlement and 2) litigation costs related to GWA’s high-risk and
14 complex litigation challenging GWA’s ownership and title in its Northern District Waste
15 Water Treatment Plant before the Superior Court.

16 PFAS LITIGATION AND SETTLEMENTS

17 **Q5. *Is GWA a class member and a claimant in the National Water Provider Settlement class***
18 ***action lawsuit for PFAS?***

19 A5. Yes, GWA is a class member and a potential claimant in the highly publicized National
20 Water Provider class action PFAS water settlements. The settlements stem from a multi-
21 district Litigation class action suit (“MDL”) captioned as: *In Re Aqueous Film-Forming*
22 *Foams Products Liability Litigation* MDL 2873, U.S. District Court for the District of
23 South Carolina (Charleston), Civil Case No. (Master Docket No.):
24 2:18-mn-02873-RMG.
25
26
27
28

1 **Q6. *How did GWA come to be a class member and a claimant?***

2 A6. On September 4, 2019, the Consolidated Commission on Utilities (“CCU”) by Resolution
3 No. 42-FY2019 authorized GWA to join the national PFAS litigation as a “Plaintiff party”
4 to seek the recovery of any damages available believed to be caused by the introduction
5 of PFAS and its related substances into the environment and specific groundwater
6 sources.¹

7
8 On the recommendation of its Special Counsel, the government of Guam entered its
9 appearance as a plaintiff on behalf of GWA and the Territory of Guam to seek any and all
10 water and non-water recoveries against the manufacturers of PFAS and the manufacturers
11 of all *Aqueous Film-Forming Foam Products*. As a result, GWA became a co-client of
12 the same firm representing the government of Guam to safeguard Guam’s public water
13 resources and to advance the recovery of costs to respond to the contamination of its public
14 water systems. In late 2022, progress in the MDL’s “bellwether case” for water utilities
15 indicated settlement might occur and at the advice of its Special Counsel, GWA filed a
16 water provider fact sheet in the MDL in order to affirm its status as claimant and injured
17 party separate and apart from the government of Guam. GWA’s fact sheet filing confirmed
18 that GWA met eligible class member requirements for specific national water-provider
19 PFAS settlements.

20 **Q7. *What will the national water provider PFAS settlements resolve?***

21 A7. The national water provider PFAS settlements will resolve a portion of the injuries alleged
22 against specific defendants (“the settling defendants”) in the MDL strictly relating to the
23 contamination of drinking water in public water systems caused by PFAS and *Aqueous*
24 *Film-Forming Foam Products*.

25 All non-water claims for injuries not otherwise resolved by the settling defendants and
26 their specific Settlement Agreements have not been waived by the PFAS water settlements
27

28 ¹ See <https://guamccu.org/wp-content/uploads/2024/03/Resolution-42-FY2019-GovGuam-Litigation-re-PFAS.pdf>

1 and are still being pursued in the larger MDL class action suit where the government of
2 Guam remains a plaintiff. These include claims for injury against the environment (i.e.
3 soil) and public healthcare. Considering this, GWA through the government of Guam, or
4 as an eligible class member in future settlements, will continue to pursue claims against
5 all remaining defendants for the PFAS contamination of GWA’s water sources.

6 **Q8. *Among the numerous defendants listed in the MDL, which defendants have petitioned***
7 ***the court to enter into settlements?***

8 A8. As of summer 2023, only the 3M Company (“3M”) and the Dupont Entity² (“Dupont”)
9 companies have petitioned the court to enter settlement terms with eligible public water
10 class members. Among these two defendants, the court has only entered one Order to
11 confirm settlements for Dupont. A second Order to confirm the settlement terms for 3M
12 remains pending. Other named defendants in the MDL are not a party to the two
13 settlements and as mentioned above, GWA may continue to seek separate and additional
14 relief from these defendants for the same PFAS related harms and costs caused by PFAS
15 to GWA’s public water systems.

16
17 **Q9. *What have 3M and Dupont offered to settle their water-provider claims?***

18 A9. 3M has agreed to pay not less than \$10.5 billion but not more than \$12.5 billion and
19 Dupont has agreed to pay a total and maximum amount of \$1.185 billion in total settlement
20 amounts (the “Settlement Amount(s)”). According to GWA’s Special Counsel and based
21 upon submissions made to the court, the DuPont water provider settlement class is
22 projected to include over 14,000 public water systems while the 3M water provider
23 settlement class is projected to include over 12,000 public water systems. For both
24 Defendants, these amounts shall be subject to final approval of the settlement terms by the
25 Court and other conditions specified in the Settlement Agreement, and in no event shall
26 either the 3M or Dupont be required to pay any amount above the agreed to Settlement
27

28 ² The Dupont entities are individually named as the Chemours company, the Chemours company fc, LLC, DuPont
de Nemours, inc., Corteva, inc., and E.I. DuPont de Nemours and company n/k/a EIDP, inc.

1 Amounts which must include all costs, expenses, or incentive awards payable under the
2 Settlement Agreement.

3 Lastly, all settlement amounts for both the 3M and Dupont settlements are to be divided
4 among class members.

5
6 **Q10. *How much can GWA receive from the total settlement proceeds?***

7 A10. The allocated amount that each settlement class member will or can receive is not
8 determinable until the Claims Administrator analyzes all the claims submitted by the
9 claim deadlines. For 3M and Dupont claim deadlines were extended for several specific
10 reasons from May 2024 but have now been revised and set for July 10, 2024.
11 Notwithstanding, the amount GWA can receive from each settlement is still not
12 determinable as we explain below.

13
14 The process and tests that class members must comply with to submit eligible claims are
15 multifaceted and tedious and GWA along with all other eligible public water providers,
16 must test every eligible water source and system they own for PFAS. The testing is to
17 determine the number of water sources with PFAS detections within the system and their
18 levels of contamination. These tests are to be performed under uniform and approved
19 USEPA testing methods. The tests together with a reported and confirmed measurement
20 of the “max flow” for each water system, indicating the water system’s size, will produce
21 a score by the appointed settlement’s Special Master and Claims Administrator. The
22 settlement proceeds distributed will receive allocated awards based on those scores;
23 however, before any claims are filed no estimated allocation or ranges can be provided
24 since:

- 25 ■ the number of class participants who will file claims remains unknown;
- 26 ■ the extent and the numbers of the claims that can be validated and accepted is
27 unknown; and,

- the full extent of the flow rates and the levels of contamination for all impacted water sources for all potential claimants is unknown.

Considering the above, no reasonable assumptions nor good faith estimate can be known with which GWA can either rely or report any settlement amount to the PUC. Additionally, an estimate of when this information can be made available is also unknown. Per GWA's Special Counsel, the court has not imposed a time limit on the Special Master or Claims Administrator to complete their review to determine the outcome of individual claims and their payout value; and since GWA's draft filing from March 2024, the deadline to file all water provider claims was extended to July 2024, as well. These deadlines were not expected to change at that time which evidences deviations which may occur as a result of changed or modified court orders and decisions.

Q11. *Will GWA file a claim for both the 3M and Dupont settlements?*

A11. Yes, GWA will file a timely claim for both the 3M and the Dupont settlements. Currently, GWA's Safety and Compliance teams along with the GM, the Assistant General Manager for Compliance and Safety, and counsel have weekly meetings with the government of Guam's Special Counsel to ensure that all information, testing, requirements, and methods required under the claims process will and can be completed before the claim deadlines.

Q12. *If and once claims are approved, will GWA or the Government of Guam be paid directly and what does GWA know about the possible timeline for payment?*

A12. If claims are approved, GWA, as the claimant, will be paid all settlement proceeds directly. At this time, the exact timeline for payment is not known but as a general matter GWA has been informed that under the timing of payments under the 3M settlement, to class members with valid claims, 3M is required to make an initial payment after the settlement is final, and then subsequent payments annually for nine years, and on April 15 of each year. This is covered in section 6.7 of the 3M Settlement Agreement which is still being reviewed by the court. The Dupont settlement is silent on the timing of payments to

1 class members; however, the Dupont settlement does call for a lump sum payment to class
2 members so payments are not anticipated to be made in installments. Per GWA's Special
3 Counsel, GWA should anticipate to receive payments over approximately a 10-year
4 period for the 3M settlements, and it should anticipate receiving a lump sum in a shorter
5 term for the Dupont settlement; however, how soon any of these payments can be received
6 is unknown and highly caveated.

7 **OTHER LITIGATION**

8 **Q13. *What is the high-risk and complex litigation which GWA refers to under its legal***
9 ***contractual expenses category at Attachment A?***

10 A13. This is Superior Court of Guam CV1198-18: *Government of Guam Department of Land*
11 *Management, Guam Waterworks Authority v. Core Tech International Corp., Younex*
12 *Enterprises Corp.*

13
14 **Q14. *Should the continuing costs for this litigation be a concern and how will GWA keep the***
15 ***PUC informed?***

16
17 A14. In a December 19, 2023 Order, under PUC Docket GWA 24-01 the costs and basis for the
18 escalating attorney fees in this case were discussed and reviewed by the PUC's ALJ in
19 detail. In the referenced Order, the PUC required GWA to file a cost estimate on May 21st
20 of each year to ensure GWA remains on track and within its approvals before spending
21 over the contracted and approved amounts.

22 GWA's five-year plan has set a budget for this litigation; and at this time litigation costs
23 are not a concern. Since the advanced draft filing from March 2024, GWA has transmitted
24 its May 2024 report to the PUC detailing all outside legal expenses paid for this
25 litigation since December 2023. Per the PUC's specific Order in Docket 24-01, this
26 reporting shall continue each year thereafter until the litigation concludes to ensure the
27 litigation costs for GWA's outside counsels are tracked and properly budgeted.

1 Since the advanced draft filing, GWA has also taken steps to terminate the litigation
2 earlier. Following an adverse April 2024 Decision and Order, in May 2024, GWA orally
3 requested the Superior Court to sua sponte stay its proceedings and concurrently filed a
4 formal petition to the Supreme Court seeking permission for an interlocutory appeal to
5 review two lower court Decision and Orders to resolve the major legal disputes at issue in
6 this case.

7 In May 2024, the Governor, Legislature and Public Utilities Commission each filed
8 amicus briefs in the Guam Supreme Court, in support of GWA and Guam's public laws,
9 urging the Supreme Court to take GWA's appeal. These steps were taken so the disputes
10 in the law surrounding the passage of title and the interpretation of specific statutes and
11 public laws concerning the conveyance at issue could be reviewed in advance of and
12 averting any needed trial. All requests to the Superior Court and filing to Supreme Court
13 remain under advisement and review, respectively, as of the time of this filing.
14

15 **Q15. *Does this conclude your testimony?***

16 **A15. Yes.**

17 I, Theresa G. Rojas, do hereby state and aver under penalty of perjury that the Written
18 Testimony above in Support of the Requests for Approvals of the Guam Waterworks Authority
19 Five-Year Financial Plan, Rate Increase Requests, and Capital Improvement Program for FY2025
20 – FY2029 submitted herewith is both truthful and accurate to the best of my knowledge.
21

22 **RESPECTFULLY** submitted this 6th day of June 2024.

23
24
25 By:



THERESA G. ROJAS, ESQ.
Legal Counsel