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BENJAMIN CRUZ <speaker@senatorbjcruz.com>

CCU MEETING JANUARY 23 / MEETING MATERIALS

2 messages

Bernadette Lou Sablan <l.sablan@gpagwa.com> Tue, Jan 23, 2018 at 4:03 PM
To: "Andy Niven (ndynvn@yahoo.com)" <ndynvn@yahoo.com>, Angelica Perez <aperez@amibrokers.com>, Ann Borja - GWA <annborja@guamwaterworks.org>, "Annmarie Muna (amuna@ambrokers.com)" <amuna@ambrokers.com>, Artemio S Perez <aperez@gpagwa.com>, BENJAMIN CRUZ <speaker@senatorbjcruz.com>, "Cameron Mulka (cimiculka@guampdn.com)" <cimiculka@guampdn.com>, "Charlene Calvo (charlene.calvo@ipehq.com)" <charlene.calvo@ipehq.com>, Chilang F Unpingco <cfejeran@gpagwa.com>, "Fred Horecky (horeckylaw@teleguam.net)" <horeckylaw@teleguam.net>, "Gaynor Delano (gdumat-ol@guam.gannett.com)" <gdumat-ol@guam.gannett.com>, Gilda Mafnas <gildam@guamwaterworks.org>, Governor's Office <joy.unpingco@guam.gov>, "Greg P. Cruz" <gpcruz@guamwaterworks.org>, Heidi Ballendorf <heidi@guamwaterworks.org>, "Jams Y Kim (pacguam@gmail.com)" <pacguam@gmail.com>, "Jeff Johnson (jeffcharjohnson@hotmail.com)" <jeffcharjohnson@hotmail.com>, Jennifer G Sablan <jsablan@gpagwa.com>, "Jessica Peterson (webmaster@theguamguide.com)" <webmaster@theguamguide.com>, "Jessy Gogue (ocp.mayor@gmail.com)" <ocp.mayor@gmail.com>, "Joe John Mantanona (joejohnmantanona@gmail.com)" <joejohnmantanona@gmail.com>, "John O'Connor (john@postguam.com)" <john@postguam.com>, "John Reigel (jriegel@brwncald.com)" <jriegel@brwncald.com>, Joyce N Sayama <jsayama@gpagwa.com>, Karla Tydingco <ktydingco@guamwaterworks.org>, "Louella Losinio (louella@postguam.com)" <louella@postguam.com>, Manny Apuron <mapuron@guamwaterworks.org>, "Maripaz N. Perez" <mnperez@gpagwa.com>, "Michael White (whitema@cdmsmith.com)" <whitema@cdmsmith.com>, "Nestor Licanto (nestor@kuam.com)" <nestor@kuam.com>, "PDN Newsroom (news@guampdn.com)" <news@guampdn.com>, "Peter Montinola (peter@isuguam.com)" <peter@isuguam.com>, Selma HG Blas <sblas@gpagwa.com>, "Telena Nelson (senatortcnelson@gmail.com)" <senatortcnelson@gmail.com>, "Therese Terlaje (senatorterlajeguam@gmail.com)" <senatorterlajeguam@gmail.com>

Hi everyone,

Attached is the pdf file for tonight's CCU meeting.

Best,

Lou

B. Lou Sablan

Board Secretary

Consolidated Commission on Utilities

Admin Asst., Legal Counsel, GPA

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http://guamwaterworks.org/

GL#34-18_1438

Speaker Benjamin J.F. Cruz

JAN 23 2018

Time: 5:11

Received By

2018 JAN 23 PM 5:26

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12453K

BENJAMIN CRUZ <speaker@senatorbjcruz.com>
To: 34th Guam Legislature Clerks <clerks@guamlegislature.org>
Cc: Rennae Meno <rennae@guamlegislature.org>

1/23/18	1/23/18	Consolidated Commission on Utilities	CCU MEETING JANUARY 23 / MEETING MATERIALS. *emailed

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OFFICE OF SPEAKER BENJAMIN J.F. CRUZ

Committee on Appropriations and Adjudication

I Mina'trentai Kuattro na Liheslaturan Guåhan

Guam Congress Building | 163 Chalan Santo Papa | Hagatna, GU 96910

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CONSOLIDATED COMMISSION ON UTILITIES
Guam Power Authority | Guam Waterworks Authority
P.O. Box 2977 Hagatna, Guam 96932 | (671) 648-3002 | guamccu.org

Regular Board Meeting
CCU Conference Room, Gloria B. Nelson Public Service Building
5:30 p.m., January 23, 2018

AGENDA

1. CALL TO ORDER

2. APPROVAL OF MINUTES

3. COMMUNICATIONS
   - 3.1 Public Comments (2 min. per person)

4. NEW BUSINESS
   - 4.1 GPA
   - 4.1.1 GM Report Update
   - 4.1.2 Financials
   - 4.1.3 Resolution 2018-01 Power Purchase Agreement Phase II Renewables
   - 4.1.4 Resolution 2018-02 Bond Refinancing Savings Utilization
   - 4.1.5 Resolution 2018-03 Piti Substation 115kV GIS Major Maintenance

   - 4.2 GWA
   - 4.2.1 GM Report Update
   - 4.2.2 Financials
   - 4.2.3 Resolution 11-FY2018 Creation of Leak Detection Series of Positions
   - 4.2.4 Resolution 12.FY2018 Change Order #4 Northern/Southern Guam Reservoir Design Services
   - 4.2.5 Resolution 13-FY2018 ConstrMgmt Contract for Sta.Rosa, Sinifa and Sta Rita Tank Upgrade
   - 4.2.6 Resolution 14-FY2018 Change Order for Design Svcs Agat-Sta Rita WaterTreatment Plant
   - 4.2.7 Resolution 15-FY2019 Change Order Line Replacement Phase IV Project

5. OLD BUSINESS

6. ANNOUNCEMENTS
   - 6.1 Next CCU Meetings: GWA Work Session - Feb 20; GPA Work Session - Feb 22; CCU Meeting – Feb 27

7. EXECTUVE SESSION
   - 7.1 Litigation Matter

8. ADJOURNMENT

CONSOLIDATED COMMISSION ON UTILITIES
Guam Power Authority | Guam Waterworks Authority
P.O. Box 2977 Hagatna, Guam 96932 | (671) 648-3002 | guamccu.org

Regular Board Meeting
CCU Conference Room, Gloria B. Nelson Public Service Building
5:30 p.m., December 7, 2017

MINUTES

1. CALL TO ORDER

The Chairman called the regular meeting of December 7, 2017 to order at 5:36 p.m. He announced that all five (5) Commissioners were present and that there was a quorum.

Those present included:

Commissioners:

Joseph T. Duenas	CCU Chairman
Francis Santos	CCU Vice Chairman
George Bamba	CCU Secretary
Judith P. Guthertz	CCU Treasurer
Simon A. Sanchez	CCU Member

Executive Mgmt.:

Miguel Bordallo	GM / GWA
Melinda Camacho	GM (A) / GPA
John Cruz	AGMET / GPA
Tricee Limtiaco	AGMA / GPA
John Kim	CFO / GPA
Graham Botha	Staff Attorney / GPA
Kelly Clark	Staff Attorney / GWA

Management & Staff:

Ron Topasna	GWA
Art Perez	PIO / GPA
David Fletcher	GWA
Joyce Sayama	Mgmt. Analyst / GPA Ex. Office
Ann Borja	Mgmt. Analyst / GWA Ex. Office
Lou Sablan	Board Secretary / CCU

Guest:

Charlene Calvo	IP&E
Bill Chang	Brown & Caldwell

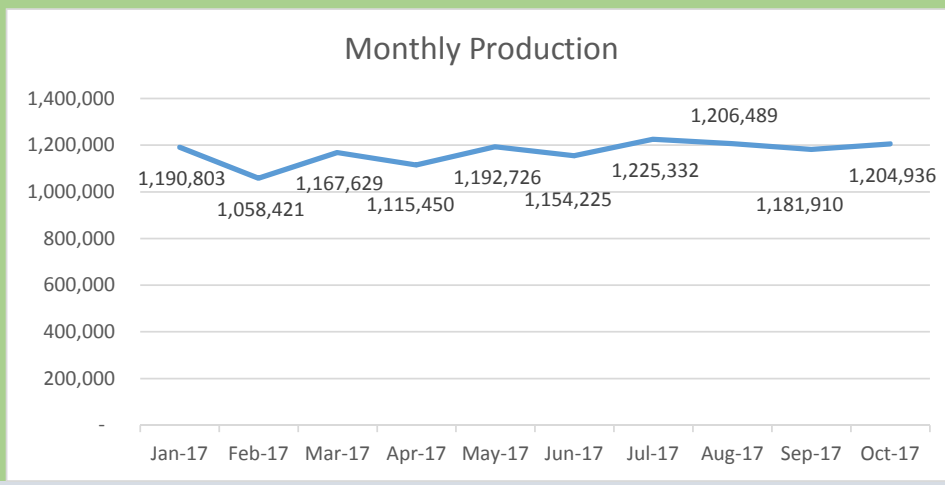
2. APPROVAL OF MINUTES

The Minutes of September 26, 2017 and November 22, 2017 were presented for approval.

Comm. Bamba motioned to approve the Minutes subject to verification & written correction; Comm. Santos seconded. There was no further discussion or objection and the motion passed.

3. PRODUCTION

Monthly Production Summary - November 2017



Deep Wells			34.7	MGD
Active wells =	92	of 120		
Avg days in operation =	28.54	days		
Total Production =	1,076,807	Kgals		
Springs			0.00	MGD
Avg days in operation =	0	days	*placed on standby	
Total Production =	0	Kgals		
Ugum Surface Water Plant			-	MGD
Avg days in operation =	30	days		
Total Production =		Kgals	*data pending	
Tumon Maui Well			-	MGD
Avg days in operation =	30	days		
Total Production =		Kgals	*data pending	
	1,076,807	Kgals	34.7	MGD

COMMUNICATIONS

3.1 **Public Comments** - None

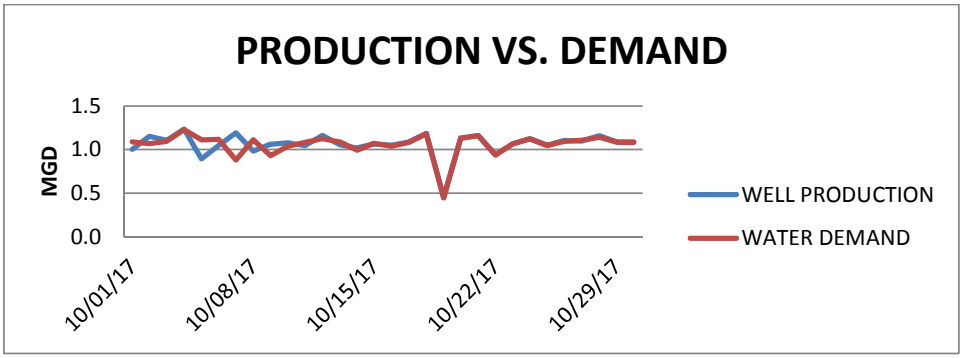
4. NEW BUSINESS

4.1 GWA

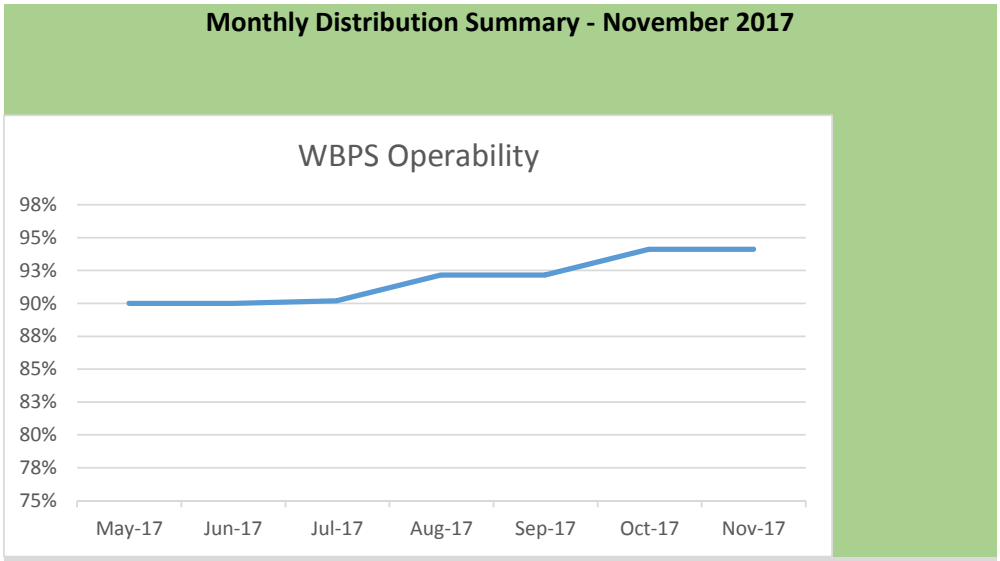
4.1.1 GM Report Update

GM Bordallo gave brief overview of operations:

Production

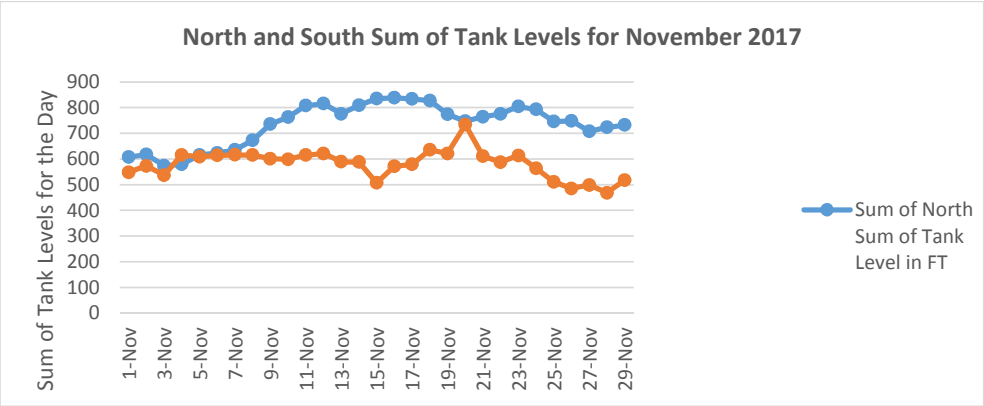


Distribution



Water Booster Pump Stations

District	No. of Stations	Total Pumps	Pumps Operating	% Operational
Northern	11	21	20	95.2%
Central	7	15	13	86.7%
Southern	7	15	15	100.0%
	25	51	48	94.1%

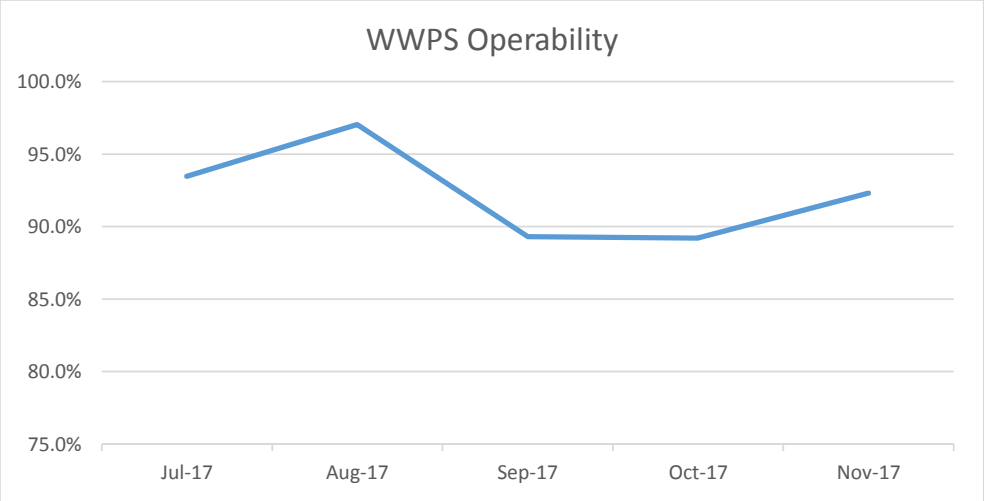


Water Collection

Monthly Collections Summary -November 2017

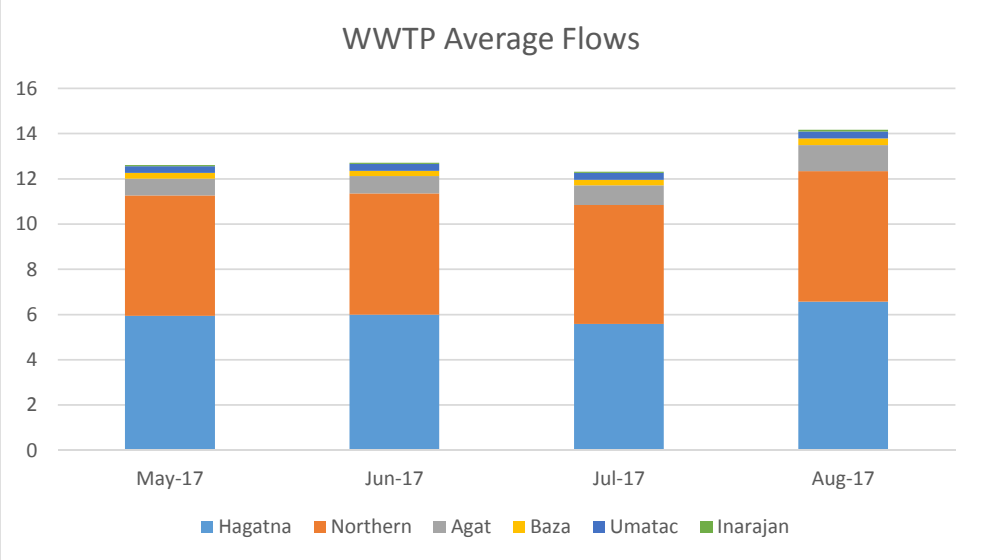
Wastewater Pump Stations

	District	No. of Stations	Total Pumps	Pumps Operating	% Operational
	Northern	22	52	48	92.3%
	Central	29	65	61	93.8%
	Southern	25	52	47	90.4%
		76	169	156	92.3%

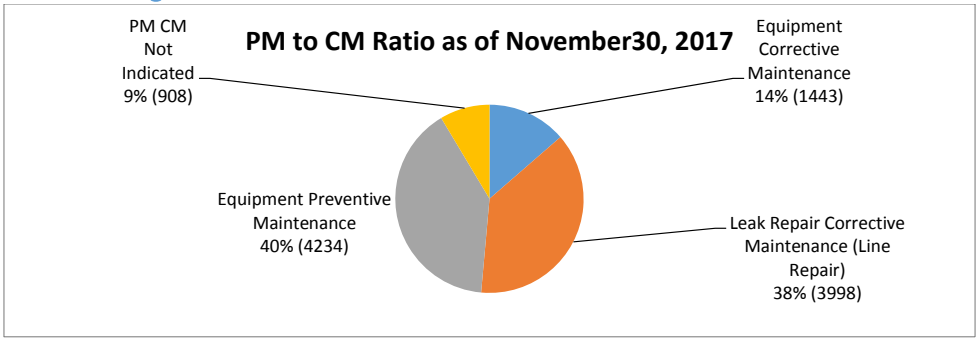


Water Treatment

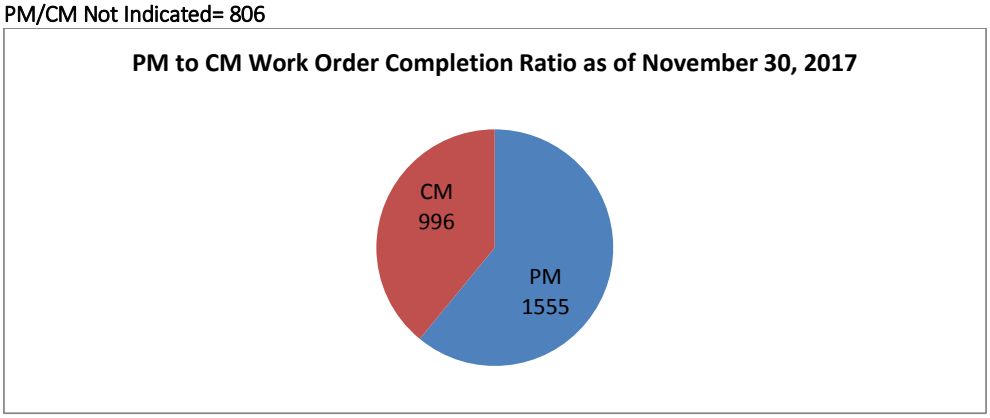
Monthly Wastewater Treatment Summary - August 2017				
WW Treatment Plants - Flows				
	Facility	**Avg. Daily Flows**	**Sludge (lbs)**	**Sludge Disp. ($)**
	Hagatna	6.57	694,420	$ 62,498
	Northern	5.77	690,200	$ 62,118
	Agat	1.16		
	Baza	0.29		
	Umatac	0.30		
	Inarajan	0.08		
		14.17	1,384,620	$ 124,616



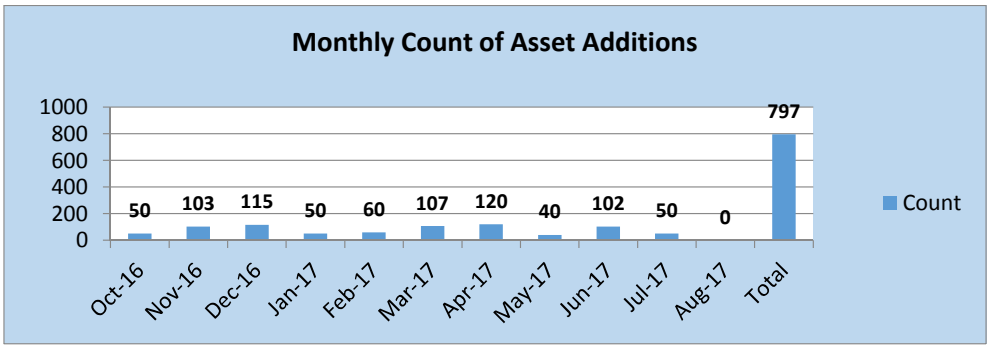
Asset Management



Equipment CM =1376
Leak Repair= 3722
Equipment PM=4176
PM/CM Not Indicated= 806



- **No new asset additions for November 2017**



On-Going Asset Management Activities

- Ongoing routine asset condition assessment for all water and wastewater assets and update asset registry.
  Goal: once a year for critical assets and every three years for non-critical.
- Risk identification based on asset condition
- Improved PM scheduling
- Establishment of an Asset Management System based on ISO 5500 standards through effective and efficient management of GWA assets.

Operational Issues

- Operations crew completed two additional sewer line replacement projects in Asan/Piti and Adelup.
- Permanent modifications to NAS-1 GAC Treatment System pending – schedule to be coordinated with DOE during non-school break
- Sewer connection program – initial pilot program on-going
  - Field verification of established GWA connections vs. septic systems in sample population completed
  - Data validation and correction on-going
  - Program analysis and recommendations – future action

Meters

NON-REGISTERING / LOW-REGISTERING METER PROJECT STATUS REPORT - January through October 2017

COMPLETED FIELD ACTIVITIES (POSTED IN CIS)	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	TOTAL:	OCT 2017 COMPLETED ACTIVITIES (Posting Pending)
GWA - Test Meter	30	9	9	371	745	87	393	743	1000	1007	4394	218
GWA - Meter Exchange	393	179	220	276	482	353	501	807	1526	1039	5776	39
GWA - Verify Zero Report	30	124	114	94	96	402	261	199	550	89	1959	165
GWA - Verify Low Usage	0	0	0	2	37	36	196	488	657	202	1618	135
TOTAL:	**453**	**312**	**343**	**743**	**1360**	**878**	**1351**	**2237**	**3733**	**2337**	13747	**557**

TESTING & BACKBILLING REPORT DATA												TOTAL AMOUNT - BACK BILLS
# OF METERS TESTED AS PER METER TEST FACILITY REPORTS:	345	350	144	252	305	210	302	397	1013	1130	**4448**	
# OF BACKBILLINGS APPLIED AS PER FINANCE REPORTS:	0	0	0	20	122	84	29	111	219	80	**665**	**$ 472,257.00**

PROJECT STAFFING DATA										
FIELD CREW PERFORMING CHANGE OUTS:	19	10	13	9	21	21	14	24	35	28
ADMIN STAFF TO CREATE AND POST FIELD ACTIVITIES IN CIS:	7	4	5	6	9	9	10	13	15	15
SUPPLY STAFF TO ISSUE MATERIALS / PROGRAM NEW METERS:	2	2	2	2	2	2	2	2	2	2
TEST FACILITY PERSONNEL TESTING METERS:	2	2	2	3	3	3	3	3	3	3
ACCOUNTANTS CALCULATING BACK BILLS:	0	0	0	2	3	2	2	3	3	2
TOTAL:	**30**	**16**	**20**	**17**	**32**	**32**	**26**	**39**	**52**	**45**

Marbo (Andy-South) Wells – Status

- GWA management has approved sketch from surveyor.
- Technical descriptions submitted to GSA for their review and approval.
- GWA GM and Counsel met with GSA in San Francisco to discuss GWA's retention of the three water wells
- Draft conveyance documents and exhibits have been submitted to GWA by GSA for review and comment by the end of the year.

One Guam Update

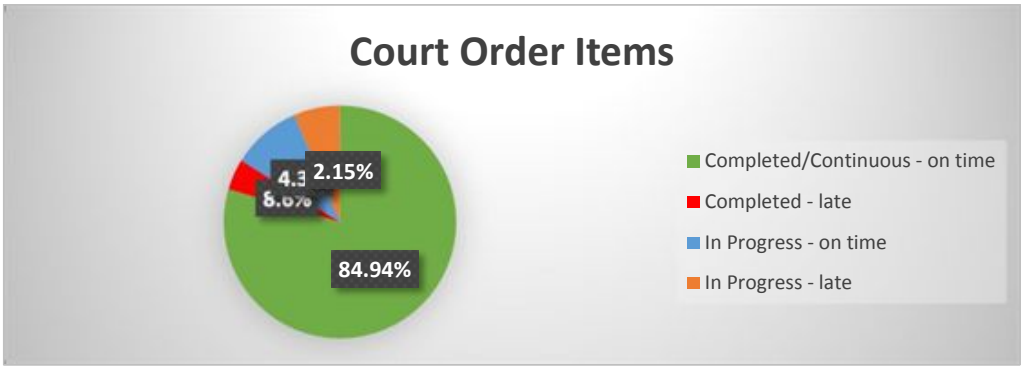
- Tumon Maui Well: Leaks from the vent shaft were observed during the inspection – GWA Engineering to assess correct method of repair and coordinate with Navy
- Santa Rosa Tank:
  - MOU for Santa Rosa Tank – in progress.
  - Still waiting for B&C to do the modelling; Tom Cruz will obtain the date on when.
- Agat Santa Rita WWTP: easement for new waterline to WWTP is pending confirmation of in-kind consideration in lieu of cash payment; Navy is evaluating GWA proposal.
- OEA Projects:
  - Chief Engineer Tom Cruz will email the project manager (Brown and Caldwell) for an update on the progress (sewer interceptor, wells & northern district).
  - Sewer Line Interceptor –
    - Going out for design-build this month; hope to have someone on contract the 1st quarter of next year.
    - Coordination with GPA and Navy on GPA renewables lease-site is needed before and during construction; construction sites overlap.
- For the Right-of-Entry, Navy RECO submitted a range of $2,045 to $3,425. DOD will draft a letter using $3,425 for GWA to submit to their Finance Section for payment. If the cost is less, the Navy will return the difference to GWA.
  - Observation wells – Navy is requesting the coordinates for the existing wells on the DoD property; Michael Pierson will assist to get them.
    - Installations. Generally the well is owned by the utility; but the land is owned by the military. DoD will work it out.
- December 1, 2017 – PMO for the OEA projects had a presentation for the One Guam Working Group
- Route 5 Sewer Line Replacement:
  - GWA's project is at the cutting of the asphalt. Miguel Bordallo stated that DPW asked GWA to do less repaving on Rt. 5 and more on Rt. 17.

- Navy has a sewer line replacement in the same area, and proposed possibly tying into GWA's line and sending the Navy flow from Naval Magazine and the Apra Heights area to the Agat-Santa Rita plant.
- It would be beneficial if the Navy could connect to GWA's system. Michael Pierson suggested to have design coordination meetings in general; will do so on this project for now since don't foresee any other projects in the near future that are in the same area.

- Training Collaboration: GPA is doing a SCADA training and invited GWA. Tom Cruz will ask if others can attend, then let Navy know.

Court Order Update

	Items	On-time Items Completed/Continuous	Items Delayed	Completed Late	Items on Schedule	Performance %
Court order total	93	79	2	8	4	97.8%



Status Information

- 2 items delayed
  - Cl Residual Monitors
  - Meters
- Final Date to complete all Court Order items is December 31, 2020.
- Overflow or Bypass events reported to USEPA:
  - Dededo Spill – Nov. 3, 2017
  - Hyatt Spill – Nov. 27, 2017

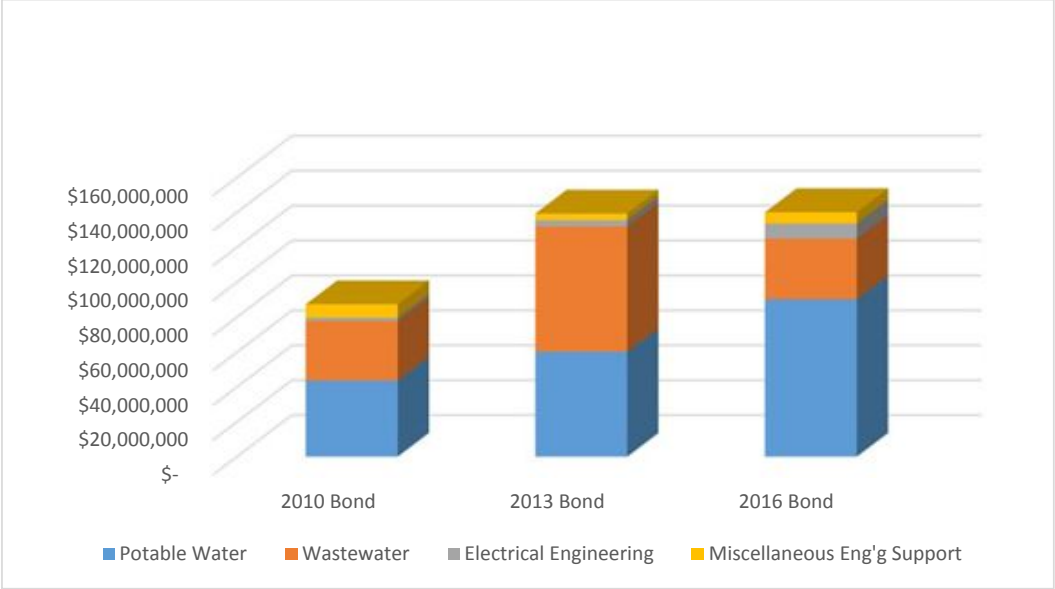
CIP Summary

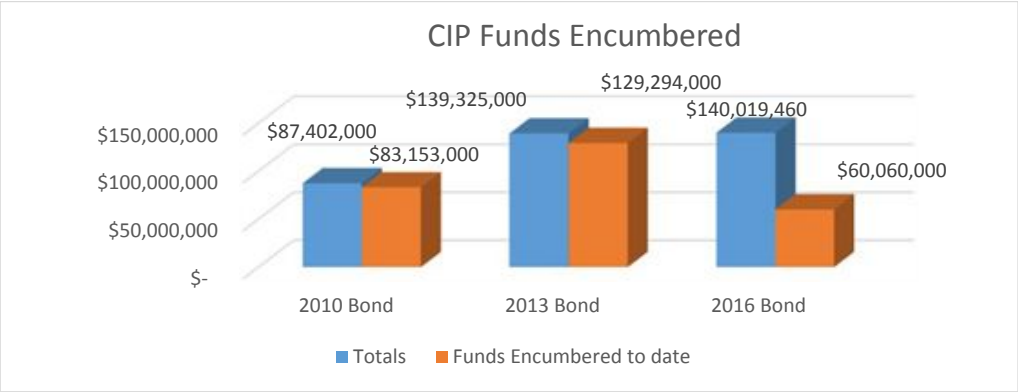
CIP Summary: Project Encumbrance

	2010 Bond		2013 Bond		2016 Bond			
	Funded	Complete	Funded	Complete	Funded	Complete	Total CIP Projects	%
Potable Water	28	17	21	7	20	0	35	49%
Wastewater	16	13	7	3	8	1	22	31%
Electrical Engineering	5	5	6	1	5	0	10	14%
Miscellaneous Eng'g Support	2	0	3	1	4	1	4	6%
Totals	51	35	37	12	37	2	71	100%
% of Total CIP by Fund Source	72%		52%		52%			

CIP Summary: Project Amounts

	2010 Bond		2013 Bond		2016 Bond			
	Funded	%	Funded	%	Funded	%	Total CIP Projects	%
Potable Water	$ 41,903,305	48%	$ 58,317,117	42%	$ 64,647,830	46%	$ 164,868,252	45%
Wastewater	$ 36,009,577	41%	$ 73,837,883	53%	$ 60,227,170	43%	$ 170,074,630	46%
Electrical Engineering	$ 1,748,118	2%	$ 3,395,000	2%	$ 8,750,000	6%	$ 13,893,118	4%
Miscellaneous Eng'g Support	$ 7,741,000	9%	$ 3,775,000	3%	$ 6,394,460	5%	$ 17,910,460	5%
Totals	$ 87,402,000	100%	$ 139,325,000	100%	$ 140,019,460	100%	$ 366,746,460	100%
Funds Encumbered to date	$ 83,153,000	95%	$ 129,294,000	93%	$ 60,060,000	43%		
% of Total CIP Funding	23.8%		38.0%		38.2%			





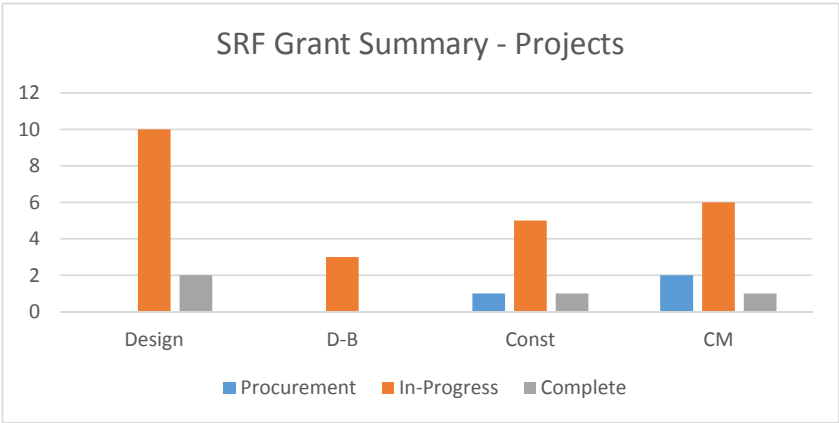
SRF Grant Summary

SRF Grant Summary - Projects

	Procurement	In-Progress	Complete	Totals	%
Design	0	10	2	12	39%
D-B	0	3		3	10%
Const	1	5	1	7	23%
CM	2	6	1	9	29%
Totals	3	24	4	31	
%	10%	77%	13%		

SRF Grant Summary - Contract Amounts

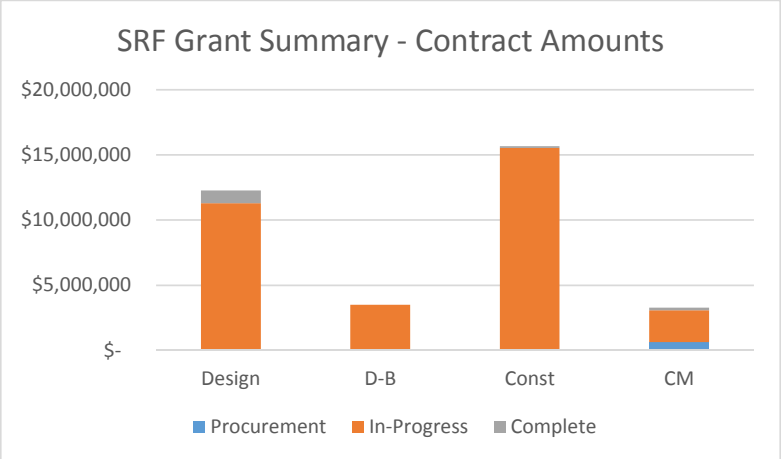
	Procurement	In-Progress	Complete	Totals	%
Design	$ -	$ 11,296,504	976,151	$ 12,272,655	35%
D-B	$ -	$ 3,502,453		$ 3,502,453	10%
Const		$ 15,535,155	$ 144,888	$ 15,680,043	45%
CM	$ 647,000	$ 2,428,714	$ 195,269	$ 3,270,983	9%
Totals	$ 647,000	$ 32,762,826	$ 1,316,308	$ 34,726,134	
%	2%	94%	4%		



OEA Grant Summary

- Grant application submitted for remainder of funding; OEA meeting schedule in early October

- NDWWTP Upgrades
  - Design underway – several tech memos expected for process design issues next week
  - Initial WW sampling and characterization study completed; some results were not useful due to improper dilution; additional work may be required.
- Outfall Diffuser
  - Final Design submitted to GWWIST – under review; bid documents to be released in December 2017
  - GWA procuring diving inspection team for outfall pipe verification
- Interceptor
  - Bridging Documents for Design-Build procurement being finalized; Multi-step procurement to be released in December 2017
- NGLA Monitoring Wells
  - Design in progress; Existing MW repair design under review; New MW installation design due March 2018



	Date (Target)	Date (Actual)	Status	Remarks
Project Funds Available	July-16	AUG-30-16	Completed	
Land Acquisition	Jan-17	Jan-17 (Compensation Pending)	Pending	Survey complete, appraisals complete – under review
Procure PM/CM Firm	Jan-17	Jan-17 (NTP Issued Feb 10th)	Completed	
Procure Design Firm	Jul-17		Completed	Contract issued; kickoff pending
Design -- 30/60/90/Final -- Review	Jun-18		On-target	Project design schedule under review by PM/CM
NEPA Analysis and Determination	Feb-17		Delayed	USEPA work on-going; procurement of contractor completed
Procure Construction Firm	Dec-18		On-target	
Construction Complete/Commence Operations	Nov-21		On-target	

Sewer line connection from MCB to GWA infrastructure	Jul-19		On-target	
MCB Initial Operating Capability	Jul-22		On-target	

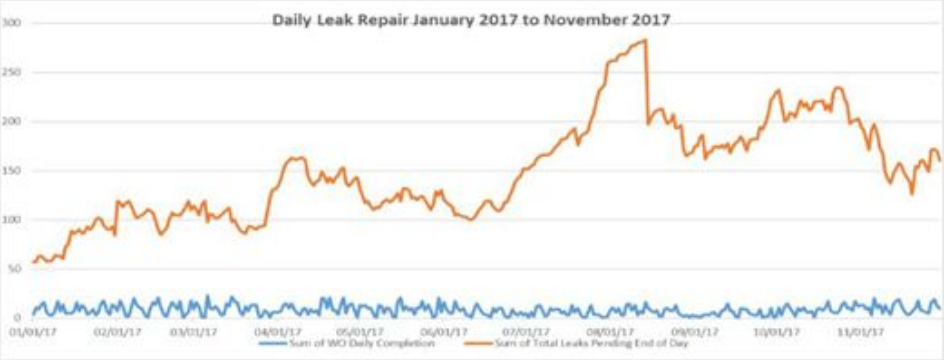
Land Acquisition Summary

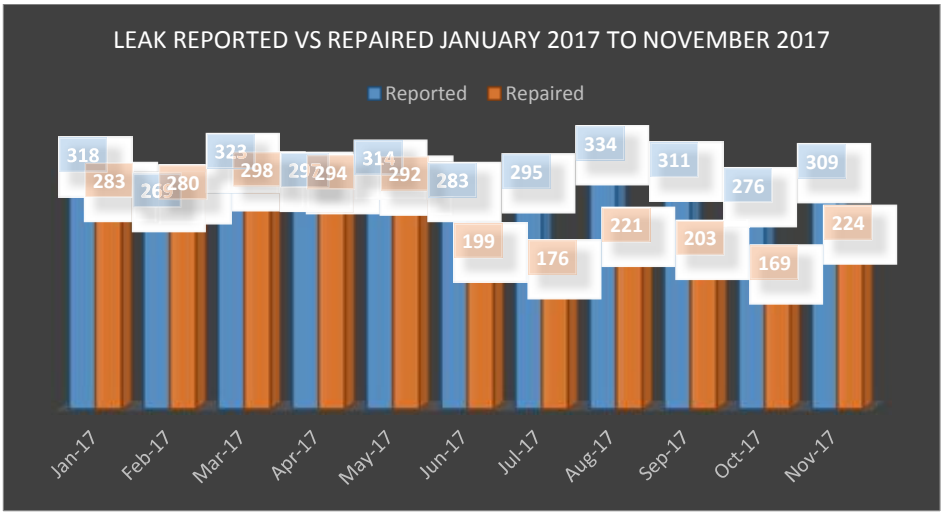
GWA Facility	Location	Gov. or Private Property	Land Acquisition Status
Tanks	Ugum	Private	TGE to draft Letter of Decision for private property owners 11/09/17
	Astumbo	Gov't. - CLTC	GWA and DLM working together on Land Registration process. Pending Notification of surrounding lot owner information from DLM
	Piti	Private	Letter of Intent for private property owners submitted to GWA Land Agent for review 11/01/17
Expansion of the Northern District Wastewater Treatment Plant (NDWWTP)	Dededo	Gov't - GALC	Lot Parceling Survey Map sent to DLM for final approval 11/20/17. GALC Appraisal Approval Letter Received 11/16/17
Deep Well	A-12	Private	Property ownership vested in GWA 10/16/17
	AG-12	Dept. of Agriculture/Manhita Farms	Land Registration Map submitted to DLM for review and comments 09/29/17. Land Registration Map submitted to DCA for review and corrections 11/20/17
	Y-8	Gov't. - CLTC	Parceling Map submitted to DLM for final approval 12/01/17.
Booster Pump Station	Agfayan	Private	GWA started land acquisition inquiry process on 11/18/16; 2nd follow up Letter of Intent sent out 11/16/17
Sewer Pump Stations	Property adjacent to Southern Link	Private	GWA started acquisition process on 12/23/2016. Property ownership vested in GWA 08/11/2017

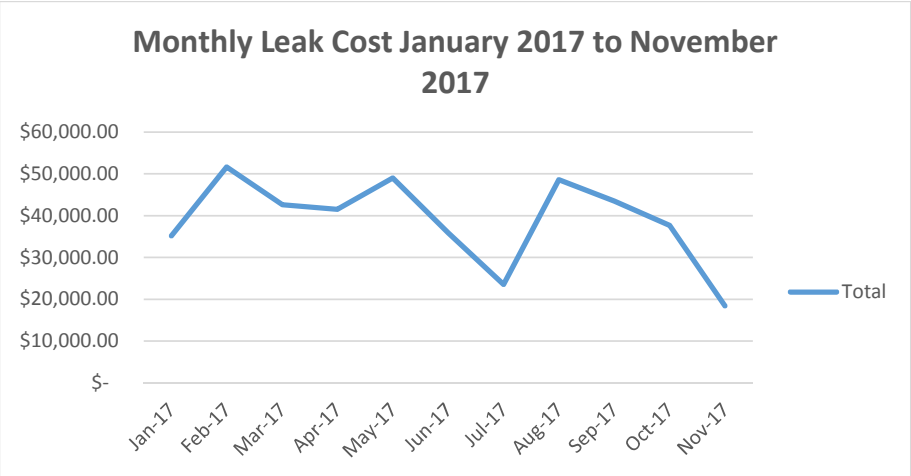
NRW – Update

- Water Audit update on-going
  - Production rates are being reviewed for accuracy and refined
  - Unmetered, Authorized uses are being quantified
  - Meter and billing inaccuracies are being reviewed and refined

Leak Repair Summary







Assumptions:

1. Leak rate = 4 gpm
2. Cost per kgal = $4.00

4.1.2 Financials - None

4.1.3 GWA Resolution 10-FY2018 (GPA Resolution 2017-46) Relative to November 24, 2017 Holiday

The Office of the Governor issued an executive order declaring Friday, November 24, 2017 a holiday for the Government of Guam. GPA and GWA solicited authorization from the CCU to follow the executive order from the Office of the Governor.

It was mentioned that this matter was poll voted and passed on Nov. 22 and only needs CCU ratification.

Comm. Guthertz moved to ratify the poll vote taken on Nov. 22; Comm. Bamba seconded. There was no further discussion or objection and the motion passed. The vote was unanimous.

There was a short recess before the meeting commenced with GPA matters.

4.2 GPA

4.2.1 GM Report Update

Acting GM Melinda Mafnas gave the GM report in the absence of GM John Benavente.

This report provides an update on key issues:

- Piti No. 7 Power Plant, a 40 MW combustion turbine generating unit built and operated by Taiwan Electrical and Mechanical Engineering Services, Inc. (TEMES), was successfully transferred to GPA on December 5th, 2017 after 20 years of operation under TEMES. GPA Generation began shadowing TEMES operations in June 2017 in preparation for the transfer. Along with GPA employees, GPA has contracted professional services for about $220K to assist in the management, operation and maintenance of the plant. **The annual cost reduction of the takeover is about $5 Million.**

- A legislative hearing on GPA's bond refunding was held on December 4th. The bill was passed by the legislature, transmitted to the Acting Governor and signed into law on Tuesday, December 5, 2017. The bill is now Public Law 139-34. The PUC approved the bond refunding at their meeting on December 5th. The refinancing is scheduled for next week, December 12th in New York.

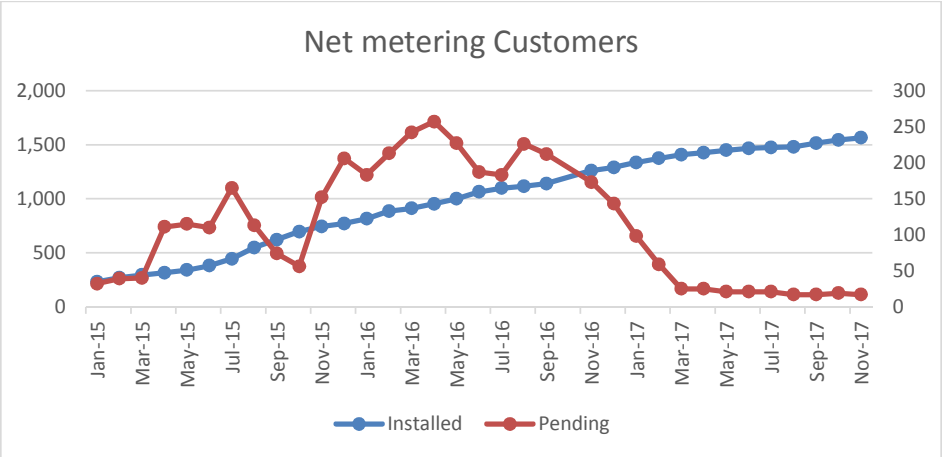
1. **Generation Capacity Summary:**

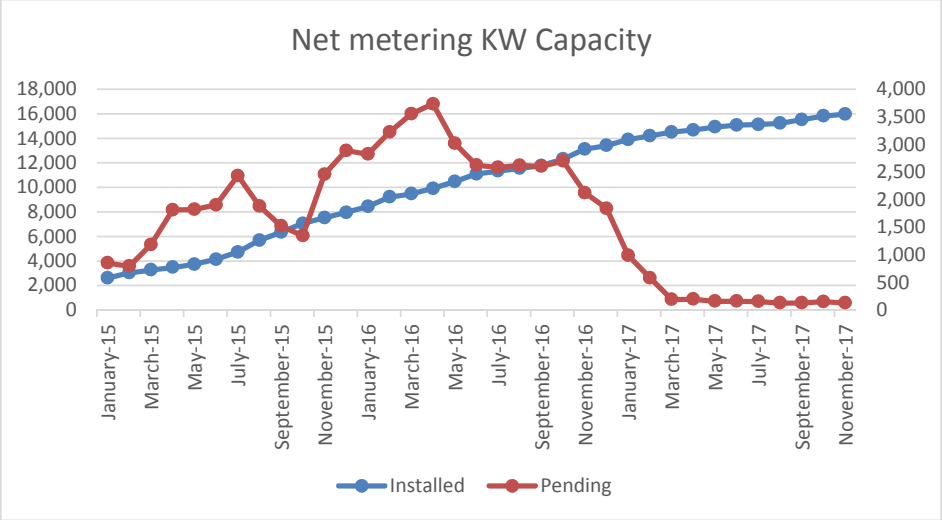
	Projected December 2017 Reserve
Generating Units:	
CABRAS 1	64
CABRAS 2	60
MEC 8	44
MEC 9	44
AGGREKO	36
MEDIUM SPEED DIESELS (10 Units)	24
YIGO CT	20
MACHECHE CT	20
TEMES CT	39
DEDEDO CT1	20
DEDEDO CT2	20
AVAILABLE CAPACITY	**391**
EXPECTED PEAK DEMAND (Highest to date in CY 2017 was 261 MW)	**248**
GPA SYSTEM RESERVE (20 MW Greater than two largest units)	**143**

2. **Net Metering Summary Ending November 2017:**

Description:	Count	Kw
Active	1,565	15,963
Pending	17	129
Totals:	1,582	16,092

Service:	**Count**	**KW**	**Kw/Customer**
Residential	1,487	13,349	9.0
Others	95	2,744	28.9
Total:	1,582	16,093	10.2
% Residential	**94.0%**	**82.9%**	
Estimated 12 Months Revenue Impact:	**$2,962,981**		





3. Renewable Energy Production Summary thru Nov. 2017

Energy Production

Energy Production Source:	Kwh	Oil Barrels Avoided	Fuel Cost Avoided
NRG Total Production beginning Aug 2015	105,512,378	176,915	$9,730,350
Net Metering Estimated Production beginning Jan 2015	50,632,364	84,897	$4,669,316
Wind Power Production beginning Jan 2016	866,010	1,452	$79,863
Renewables Total:	**157,010,752**	**263,264**	**$14,479,529**
System Heat Rate Kwh / Gal	14.2		
System Fuel $/Bbl.	$55.00		

4. Demand Side Management (DSM) Program as of Nov 30th:

Description	FY16	FY17	FY18 As of Nov 30	Total to Date
Regular/OT Pay	$11,348.80	$22,256.00	$3,081.38	$36,686.18
Other Contractual	$28,278.50	$73,010.05		$101,288.55
Paid Rebates-Split AC	$154,700.00	$557,275.00	$227,550.00	$939,525.00
Paid Rebates-Central AC	$3,400.00	$8,200.00	$800.00	$12,400.00
Paid Rebates-Washer/Dryer	$2,800.00	$7,425.00	$400.00	$10,625.00
Total Expenses	**200,527.30**	**$668,166.05**	**$231,831.38**	**$1,100,524.73**

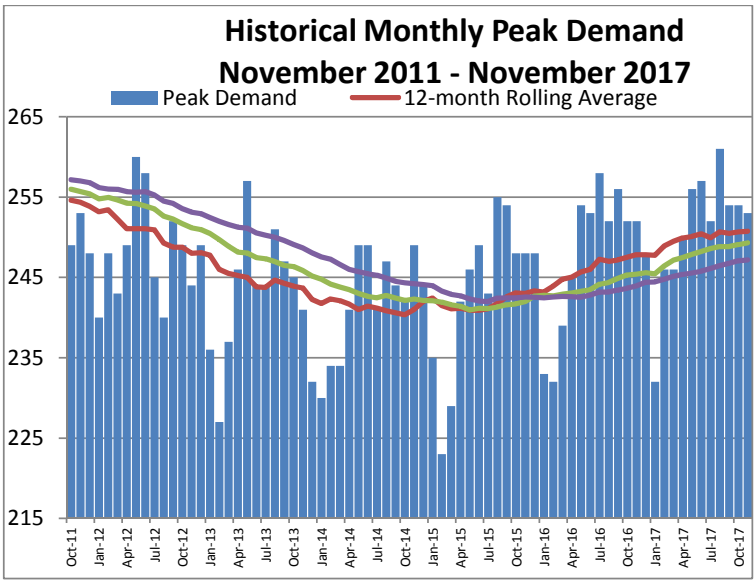
3. **Phase II Renewables:** No updates from the OPA since the October 24th thru 26th hearings.

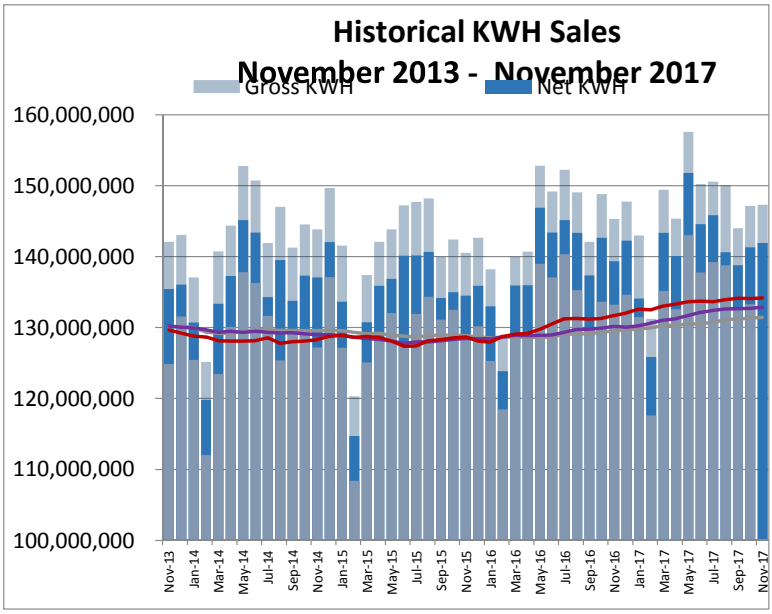
4. **PUC Agenda**: On November 30, 2017 PUC approved GPA Docket 18-02, Procurement for 180MW Power Plant with revisions to not limit the fuel source or technology

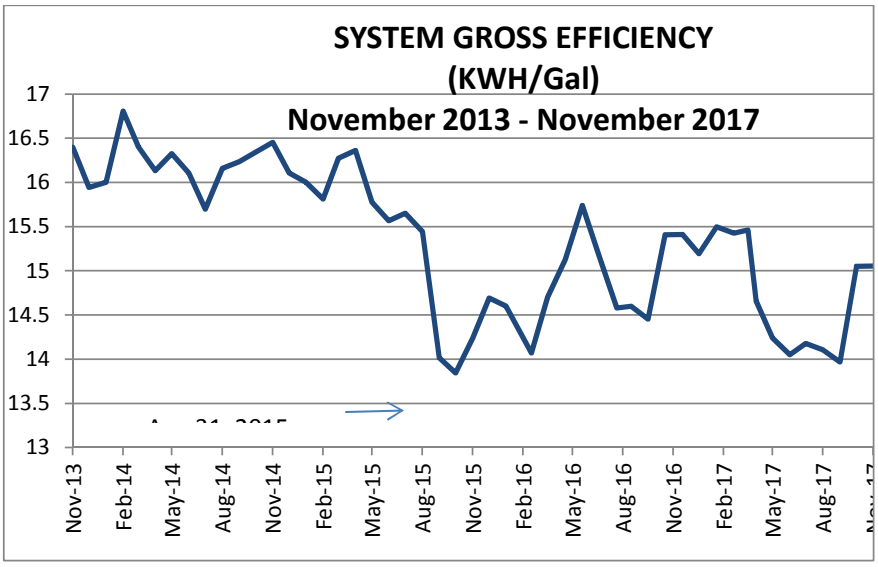
5. **Key Performance Indicators:** The following pages provide updated information thru November 2017.

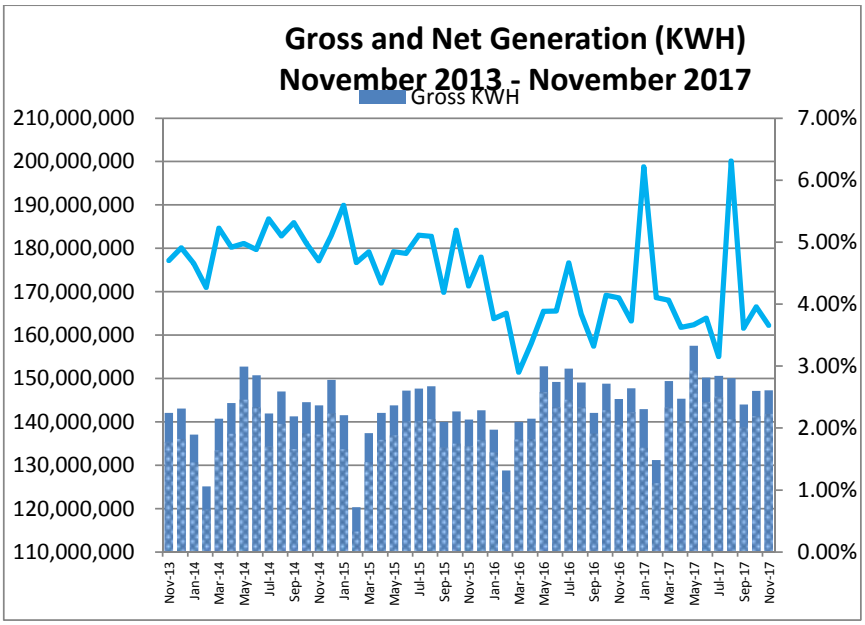
Legal Counsel shared that the OPA case with Shanghai Electric ruled in favor of GPA and thanked Jennifer Sablan for her part in explaining to the OPA the process.

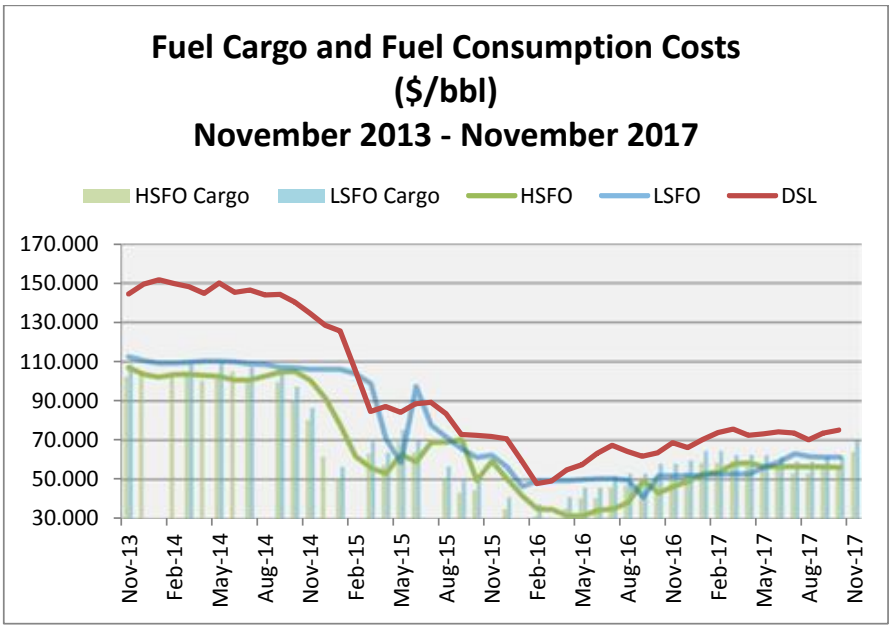
Comm. Santos asked if GPA has any recourse to penalize vendors who for no valid reason cause delays by filing protests. Legal Counsel said at this time the law does not permit this type of action.


Historical Monthly Peak Demand
November 2011 - November 2017
Peak Demand
12-month Rolling Average
265
255
245
235
225
215
Oct-11
Jan-12
Apr-12
Jul-12
Oct-12
Jan-13
Apr-13
Jul-13
Oct-13
Jan-14
Apr-14
Jul-14
Oct-14
Jan-15
Apr-15
Jul-15
Oct-15
Jan-16
Apr-16
Jul-16
Oct-16
Jan-17
Apr-17
Jul-17
Oct-17


Historical KWH Sales
November 2013 - November 2017
Gross KWH
Net KWH
160,000,000
150,000,000
140,000,000
130,000,000
120,000,000
110,000,000
100,000,000
Nov-13
Jan-14
Mar-14
May-14
Jul-14
Sep-14
Nov-14
Jan-15
Mar-15
May-15
Jul-15
Sep-15
Nov-15
Jan-16
Mar-16
May-16
Jul-16
Sep-16
Nov-16
Jan-17
Mar-17
May-17
Jul-17
Sep-17
Nov-17


SYSTEM GROSS EFFICIENCY
(KWH/Gal)
November 2013 - November 2017
17
16.5
16
15.5
15
14.5
14
13.5
13
Nov-13
Feb-14
May-14
Aug-14
Nov-14
Feb-15
May-15
Aug-15
Nov-15
Feb-16
May-16
Aug-16
Nov-16
Feb-17
May-17
Aug-17


Gross and Net Generation (KWH)
November 2013 - November 2017
Gross KWH
210,000,000
200,000,000
190,000,000
180,000,000
170,000,000
160,000,000
150,000,000
140,000,000
130,000,000
120,000,000
110,000,000
7.00%
6.00%
5.00%
4.00%
3.00%
2.00%
1.00%
0.00%
Nov-13
Jan-14
Mar-14
May-14
Jul-14
Sep-14
Nov-14
Jan-15
Mar-15
May-15
Jul-15
Sep-15
Nov-15
Jan-16
Mar-16
May-16
Jul-16
Sep-16
Nov-16
Jan-17
Mar-17
May-17
Jul-17
Sep-17
Nov-17



4.2.2 **Financials** – None

4.2.3 **Resolution 2017-47 LEAC Adjustment**

The Guam Public Utilities Commission (GPUC) has established a Tariff under which the Guam Power Authority (GPA) is allowed to recover its fuel costs and fuel related costs under a factor which is reset and trued up every (6) six months through the Levelized Energy Adjustment Clause (LEAC). For the LEAC period covered from February 1, 2017 through July 31, 2017, GPA requested for the first time a phased in approach in increasing the secondary LEAC rate of $0.105051/kWh in anticipation of stabilized prices in the fuel market. During this period, however, GPA recognized a $14M under-recovery of fuel costs as market fuel prices rose instead.

GPA for the second time requested that the LEAC rate be increased by 50% recovery in the latest LEAC period ending January 31, 2018 to $0.11718/kWh to alleviate the impact on ratepayers, again the fuel under-recovery continued to increase to a total of $16.0M as of October 31, 2017.

The market price of fuel in the initial filing for the current period was projected to be $55.38/bbl for the (6) six-month period ending January 31, 2018, the current projection for the same period is $58.19/bbl and the projected price of fuel for the period ending July 31, 2018 is $65.78/bbl. For the current LEAC period covered from February 1, 2018 to July 31, 2018, GPA requests the secondary LEAC rate of $0.150824/kWh which is again 75% of the full recovery rate of $0.161859.

GPA has determined that in a phase-in approach the LEAC factor for secondary voltage service customers as well as alternative voltage customers will need to be increased from $0.0.11718/kWh to $0.150824/kWh, an increase in the total bill *by 15.6% or about a $33.11 increase on a 1000 kWh power bill*, in order to recover 75% of the projected under-recovery. The increase will take effect February 1, 2018 thru July 31, 2018

Comm. Santos motioned to approve Resolution 2017-47 for discussion; Comm. Guthertz seconded.

In discussion CFO John Kim mentioned that the LEAC projections that were filed with the PUC in June vs. actual fuel expenses is different – the fuel prices went up.

Comm. Sanchez commented that based on this scenario, management has been missing the projections for more than a year. He asked the CFO to do the same graph for FY16 and FY15. If we are constantly under projecting then something is not right. The chairman said we have to narrow the gap between projections and actuals as much as possible.

The CFO said the current cost is $66 per barrel with the premium and based on this, with 50% recovery the LEAC factor would be 13.9 cents, 75% recovery 15 cents and 100% recovery 16 cents. This translates to a LEAC increase per kWh hour of .2-cents, 3-cents, and 4-cents respectively. By January 31 the projected under recovery will be $18.5M. By implementing a 75% recovery factor it will leave an under recover balance of $7.1M which management is recommending at this time.

Comm. Sanchez asked if the $18.5M under recovery will be the highest in LEAC history and the CFO said yes.
It was mentioned that GPA used for insurance proceeds and CFO responded $4.6M was used in August 2016.

The CFO also provided the history of under recovery since 20

Comm. Sanchez asked status of GPA's cash flow adding that this high under recovery must be affecting the agency a little. CFO responded yes – the agency is beginning to feel the pinch. Comm. Sanchez asked management to report on the overall impact – what is GPA giving up to absorb the under recovery of $15M which is supposed to be spent on something. Acting GM Mafnas said that is correct and the first to be impacted is CIP's. Comm. Sanchez added that he saw in one of the earlier reports that CIP is budgeted and $100M and this is ultimately what suffers due the under recovery of LEAC.

On the motion there was no further discussion or objection and the motion passed.

4.2.4 Resolution 2017-48 ULSD Contract Extension

If approved, the contract extensions will supply up to 895,066 barrels (37,592,772 gallons) from January 2018 to December 2018 from Mobil and IP&E. Under the current contracts, Mobil has been delivering to all sites except for Tenjo power plant which is supplied by IP&E. Daily consumption ranges from approximately 1,000 barrels to up to 6,000 barrels a day. The estimated premium fees for the one-year contract extension is $10,922,124 and the estimated cost of fuel less premium fees, consistent with the LEAC average ULSD cost is approximately $66,503,374. The funding source would be LEAC.

Comm. Santos motioned to approve the resolution for discussion; Comm. Santos seconded.

In discussion, Comm. Bamba announced that he would like to be recused from voting on this matter; the Chairman acknowledged.

It was also mentioned that this matter is vital for continued uninterrupted service.

On the motion there was no further discussion or objection. The vote was (4) ayes and (1) abstention and the motion passed.

4.2.5 Resolution 2017-49 LED Streetlight

This matter was tabled.

5. OLD BUSINESS - None

6. ANNOUNCEMENTS

6.1 Next CCU Meetings:

The Chairman said that the CCU 2018 Calendar is ready and asked the Board Secretary Lou Sablan to distribute to the Commission. He said the calendar lists proposed meeting dates and off Island conference dates for 2018 and asked the Commissioners to review and comment / edit.

In addition, he announced the Ribbon Cutting for the new GWA Laboratory on Dec. 13th and the Ground Breaking for a new GWA well on Dec. 15 and invited all Commissions who are still on island to please attend.

He also said that GPA Legal Counsel has asked for Executive Session to discuss a litigation matter.

He then called for a 10-minute recess before resuming in Executive Session. It was 6:29 p.m.

The meeting was resumed at 6:45 pm in Executive Session

7. EXECTUVE SESSION

7.1 Litigation Matter

This matter was discussed.

8. ADJOURNMENT

There was no further business to bring before the Commission and the meeting was adjourned at 7:20 p.m.

\\s\\
bls

Attested:

_____ _____

JOSEPH T. DUENAS, Chairman J. GEORGE BAMBA, Secretary

GUAM POWER AUTHORITY
ATURIDÅT ILEKTRESEDÅT GUAHAN
P.O.BOX 2977 • AGANA, GUAM U.S.A. 96932-2977

TO: **Consolidated Commission on Utilities**

FROM: **General Manager**

DATE: **January 23, 2018**

SUBJECT: **General Manager's Report**

1. **Generation System Update:**

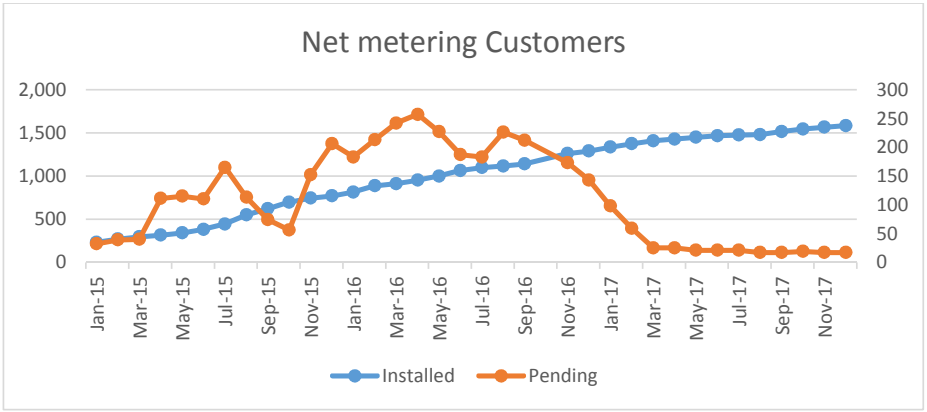
- The following summarizes the expected situation for January 2018. The peak demand in January 2018 has been 240MW compared to the highest peak demand in January 2017 of 232MW. This increase seems to indicate the system peak demand and therefore its energy sales will continue to increase in 2018.

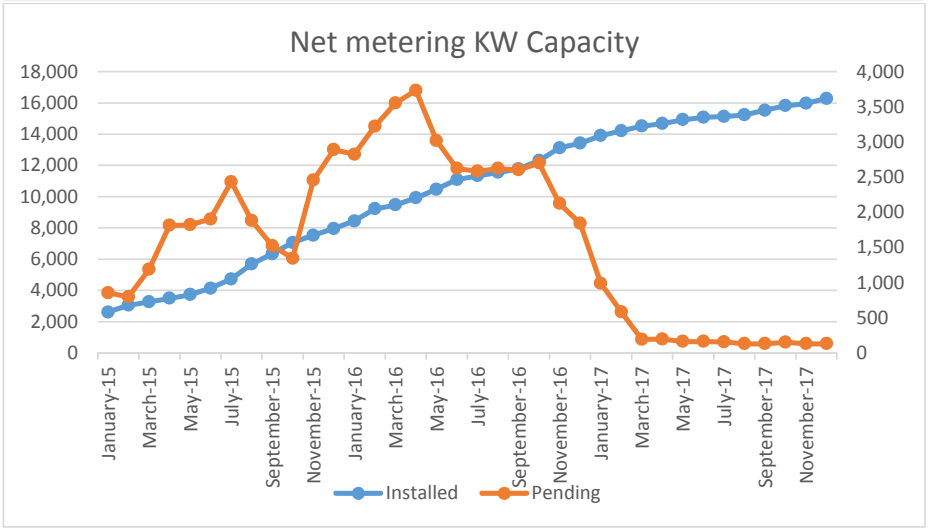
▪ **January 2018 Capacity Available:**	**384 MW**
▪ **January 2018 Projected Demand**	**242 MW**
▪ **Available Reserve Margin**	**142 MW**
▪ **Two Largest Units Capacity**	**117 MW**
▪ **Reserve less two largest units**	**25 MW**

This table is provided to show that without a new power plant, GPA will not be able to meet load growth by 2022. Furthermore, as shown, because we lack adequate base load capacity, GPA's fuel related cost to provide additional energy to new customers will continue to drive its total energy cost higher because energy production would come from costlier less efficient standby units. The lack of new units which could work with intermittent renewables will result in limited solar PV additions into the grid thereby limiting cost saving opportunities.

Summary of System Generating Capacity With No New Baseload:					**With New 180MW**
Description	**FY 2015**	**FY2017**	**FY2018**	**FY2021**	**FY2022**
Baseload MW Capacity	299	208	208	208	268
Emergency/Standby Capacity	120	200	200	200	200
Total MW Capacity	**419**	**408**	**408**	**408**	**468**
Peak MW Demand	249	261	266	283	283
Reserve Margin	170	147	142	125	185
Total Two Largest Units	132	120	120	120	88
Reserve Less Two Largest Units	**38**	**27**	**22**	**5**	**97**
% Baseload Capacity	**71.4%**	**51.0%**	**51.0%**	**51.0%**	**57.3%**
% Energy from Baseload	98.0%	80.0%	62.2%	62.2%	72.6%
% Energy from Renewables	0.0%	3.5%	3.5%	26.4%	26.4%
% Energy from Emergency/Peaker	**2.0%**	**16.5%**	**16.5%**	**11.4%**	**1.0%**

2. Net metering Summary Ending December 2017:





Estimated Net Metering Impact FY2009 to FY2017:

Fiscal Year	Amount
FY 2009	$1,657
FY 2010	$8,483
FY 2011	$18,177
FY 2012	$58,546
FY 2013	$278,025
FY 2014	$352,157
FY 2015	$856,921
FY 2016	$2,200,795
FY 2017	$2,828,835
Total:	**$6,603,596**

The continued growth in sales from non-net metering customers has mitigated revenue decline due to net metering customers

3. Renewable Energy Production Summary Thru December 2017:

Energy Production Source:	Kwh Production	Oil Barrels Avoided	Fuel Cost Avoided
NRG Total Production beginning Oct 2015	107,114,628	179,097	$9,850,362
Net Metering Estimated Production beginning Jan 2015	50,302,831	84,107	$4,625,896
Wind Power Production beginning Jan 2016	790,121	1,321	$72,660
Renewables Total:	**158,207,580**	**264,526**	**$14,548,918**
System Heat Rate Kwh/Gal	14.2		
System Fuel $/Bbl	$55.00		

4. Demand Side Management (DSM) Program Expenses Thru December 31, 2017:

All Expenses – Fiscal Year

Description	FY16	FY17	FY18 as of December'17	Total to Date
Regular/OT Pay	$11,348.80	$22,256.00	$4,690.09	$38,294.89
Other Contractual	$28,278.50	$73,010.05	0.0	$101,288.55
Paid Rebates–Split AC	$154,700.00	$557,275.00	$336,025.00	$1,048,000.00
Paid Rebates–Central AC	$3,400.00	$8,200.00	$800.00	$12,400.00
Paid Rebates–Washer/Dryer	$2,800.00	$7,425.00	$1,800.00	$12,025.00
Total Expenses	200,527.30	$668,166.05	$343,315.09	$1,212,008.44

2

5. **Phase II Renewables:** The OPA has upheld GPA's decision for the award of 120MW of solar PV to KEPCO and Hanwha. A subsequent protest filed in the Superior Court of Guam was subsequently withdrawn. GPA can now proceed obtaining CCU and PUC approvals for the two 60 MW contracts. I ask the CCU and the PUC to expedite their awards in consideration of the substantial delays that have occurred. These two renewable contracts will provide substantial savings to the ratepayers through LEAC.

6. **Phase III Renewables Bid**: The bid has been issued. The bid request is for about 40MW of solar PV renewables to be constructed on Navy leased land. The energy produced would be stored in batteries during the day and released at nighttime to meet peak time load. The bid price opening date for acceptable proposals is set for April 17, 2018.

7. **USEPA Consent Decree:** We met with the USEPA Region 9 Acting Administrator on December 18th. The meeting was an opportunity for us to update the administrator on progress made towards compliance. Work continues towards a consent decree which may be completed within the next six months.

8. **2010 Bonds Re-financed:** The 2010 bonds were successfully re-financed in December and has resulted in an annual debt service payment reduction of $501,236.00. We would like to thank everyone for their work in achieving the savings for our ratepayers. GPA would like to inform the Legislature of the intended use of the debt service reduction within 60 days after refinancing.

   Final Par Amount of Refunding Bonds: $148,670,000
   Final Par Amount of Refunded Bonds: $150,440,000 (i.e., all outstanding)
   Total Cash Flow Savings: $11,528,439
   Average Annual Cash Flow Savings: $501,236 (PUC minimum: $300,000)
   Net Present Value Savings: $7,777,917
   NPV Savings / Refunded Par Amount: 5.17% (Legislative minimum: 2%)
   All-In True Interest Cost: 4.12% (PUC maximum 4.32%)
   All thresholds required by the various approvals of the various agencies have been met.

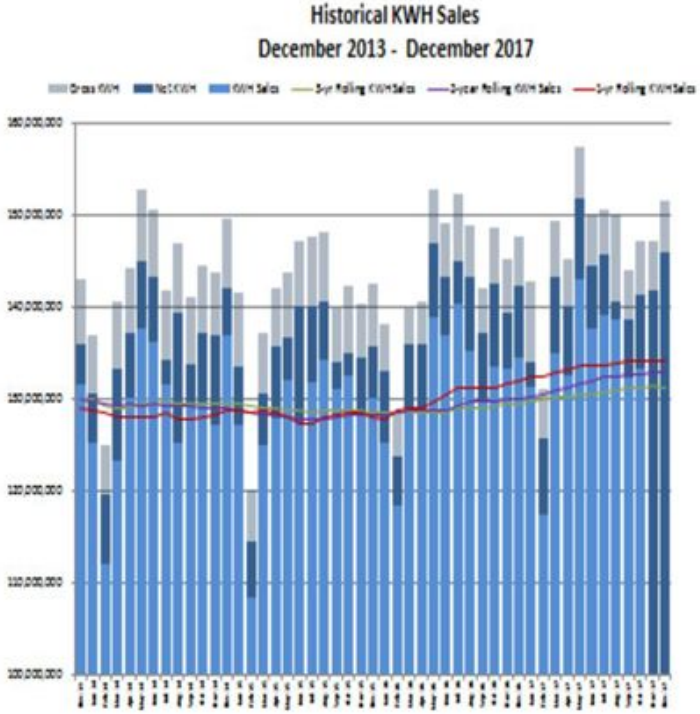
9. **January 2018 PUC Agenda:**
   - GPA Docket, LEAC adjustment for February 2018 thru July 2018 period

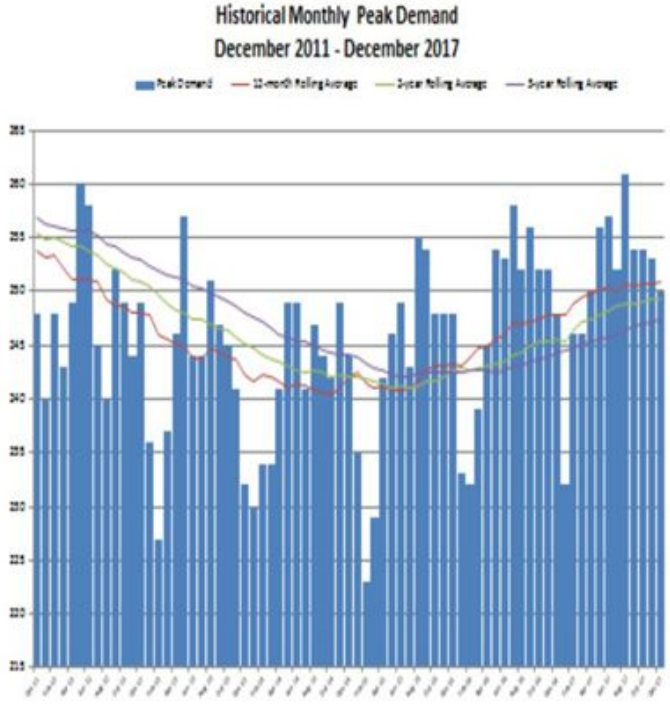
10. **New Power Plant Procurement:**
    a. GPA has issued the multi-step bid for the new power plant. GPA plans to have a short list of qualified bidders by early April. The successful short list will then be provided the technical specifications of the new plant for them to submit their proposal and price by this summer.

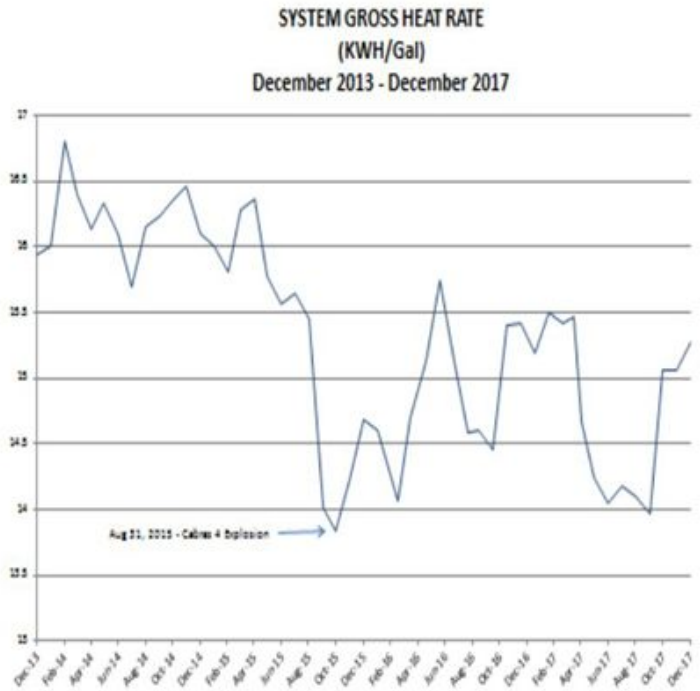
    b. The rezoning efforts for the land for the new power plant will continue. Senator Ada has introduced Bill-223-34 for this re-zoning which may have a public hearing at the end of January. GPA held a public meeting on January 5th at the Astumbo Senior Citizen Center and received some input from landowners in the vicinity of the proposed plant. The latest public meeting held was on January 17, 2018 at the Tamuning Senior Center. And just this morning we had a media briefing and Q& A, addressing our rezoning efforts for our proposed new 180 MW power plant.

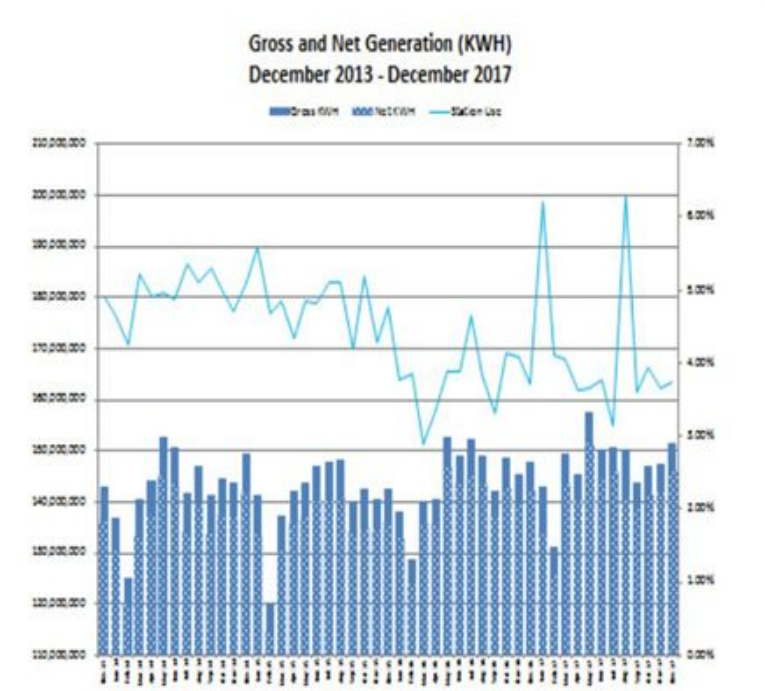
11. **Key Performance Indicators:** The following pages provide updated information thru December 2017.

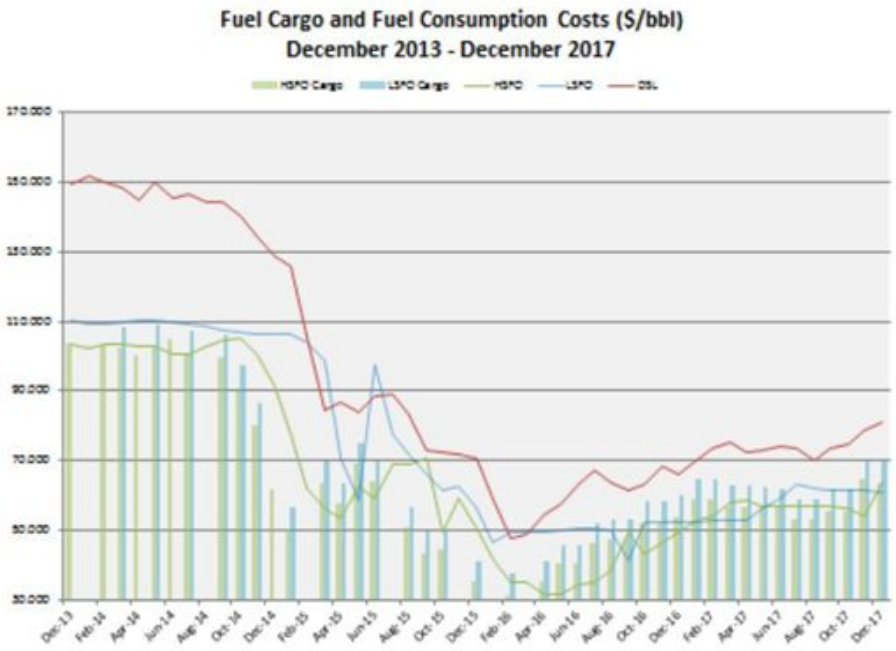
John M. Benavente, P.E.


Historical KWH Sales
December 2013 - December 2017


Historical Monthly Peak Demand
December 2011 - December 2017


SYSTEM GROSS HEAT RATE
(KWH/Gal)
December 2013 - December 2017
Aug 31, 2015 - Calpine 4 Explosion


Gross and Net Generation (KWH)
December 2013 - December 2017


Fuel Cargo and Fuel Consumption Costs ($/bbl)
December 2013 - December 2017
HSFO Cargo
LSFO Cargo
HSFO
LSFO
DSL
170.000
150.000
130.000
110.000
90.000
70.000
50.000
30.000
Dec-13
Feb-14
Apr-14
Jun-14
Aug-14
Oct-14
Dec-14
Feb-15
Apr-15
Jun-15
Aug-15
Oct-15
Dec-15
Feb-16
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Feb-17
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Aug-17
Oct-17
Dec-17

GUAM POWER AUTHORITY
ATURIDÅT ILEKTRESEDÅT GUAHAN
P.O.BOX 2977 • AGANA, GUAM U.S.A. 96932-2977

GUAM POWER AUTHORITY
FINANCIAL STATEMENT OVERVIEW
November 2017

Attached are the financial statements and supporting schedules for the month and fiscal year ended November 30, 2017.

Summary
The increase in net assets for the month ended was $2.1 million as compared to the anticipated net decrease of $0.2 million projected at the beginning of the year. The total kWh sales for the month were 2.96% more than projected and non-fuel revenues were $0.4 million more than the estimated amount. O & M expenses for the month were $4.9 million which was $1.2 million under our projections for the month. Other expenses for the month such as interest expense, IPP costs, (net of interest income and other income) totaled to $3.3 million, which was $0.7 million less than the projected amount. There were no other significant departures from the budget during the period.

Analysis

Description	Previous Month	Current Month	Target
Quick Ratio	2.19	2.03	2
Days in Receivables	39	41	52
Days in Payables	29	24	30
LEAC (Over)/Under Recovery Balance -YTD	$16,079,742	$15,977,766	$9,997,499
T&D Losses	4.87%	4.91%	7.00%
Debt Service Coverage	1.82	2.03	1.75
Long-term equity ratio	13%	13%	30 – 40%
Days in Cash	163	136	60

The Quick Ratio has been a challenge for GPA historically. However, over the last two fiscal years, the influx of cash has continued to improve this ratio. GPA has current obligations of approximately $68 million and approximately $138 million in cash and current receivables. Debt Service Coverage ratio is calculated using the methodology in use before the Fiscal Year 2002 change in accounting practice.

Financial Statement
November 2017
Significant Assumptions

The significant assumptions in the financial statements are as follows:

- Accrual cutoff procedures were performed at month end
- An inventory valuation is performed at year-end only
- Accounts Receivable includes accruals based on prior months' usage.

Prepared by:	Reviewed by:	Approved by:
Lenora M. Sanz Controller	John J.E. Kim Chief Financial Officer	John M. Benavente, P.E. General Manager

GUAM POWER AUTHORITY
(A COMPONENT UNIT OF THE GOVERNMENT OF GUAM)
Statements of Net Position
November 30, 2017 and September 30, 2017

	Unaudited November 2017	Unaudited September 2017	Change from Sept 30 2017
ASSETS AND DEFERRED OUTFLOWS OF RESOURCES			
Current assets:			
Cash and cash equivalents:			
Held by trustee for restricted purposes:			
Interest and principal funds	$ 6,934,525	$ 18,061,879	$ (11,127,354)
Bond indenture funds	55,135,417	56,907,535	(1,772,118)
Held by Guam Power Authority:			
Bond indenture funds	99,909,451	132,579,889	(32,670,438)
Self insurance fund-restricted	19,251,372	19,251,372	0
Energy sense fund	847,042	1,074,491	(227,449)
Total cash and cash equivalents	182,077,807	227,875,166	(45,797,359)
Accounts receivable, net	37,969,245	35,603,289	2,365,956
Total current receivables	37,969,245	35,603,289	2,365,956
Materials and supplies inventory	12,721,956	11,989,745	732,211
Fuel inventory	47,971,255	52,387,369	(4,416,114)
Prepaid expenses	8,537,469	682,814	7,854,655
Total current assets	289,277,732	328,538,383	(39,260,651)
Utility plant, at cost:			
Electric plant in service	1,038,301,752	1,037,419,517	882,235
Construction work in progress	20,814,931	18,382,414	2,432,517
Total	1,059,116,683	1,055,801,931	3,314,752
Less: Accumulated depreciation	(572,306,120)	(565,144,900)	(7,161,220)
Total utility plant	486,810,563	490,657,031	(3,846,468)
Other non-current assets:			
Investment - bond reserve funds held by trustee	48,520,609	48,576,863	(56,254)
Unamortized debt issuance costs	4,204,089	4,267,305	(63,216)
Total other non-current assets	52,724,698	52,844,168	(119,470)
Total assets	828,812,993	872,039,582	(43,226,589)
Deferred outflow of resources:			
Deferred fuel revenue	15,977,766	16,751,048	(773,282)
Unamortized loss on debt refunding	10,868,008	11,076,064	(208,056)
Pension	8,168,718	8,168,718	0
Unamortized forward delivery contract costs	610,798	637,358	(26,560)
Total deferred outflows of resources	35,625,290	36,633,188	(1,007,898)
	$ 864,438,283	$ 908,672,770	$ (44,234,487)

GUAM POWER AUTHORITY
(A COMPONENT UNIT OF THE GOVERNMENT OF GUAM)
Statement of Net Position, Continued
November 30, 2017 and September 30, 2017

	Unaudited November 2017	Unaudited September 2017	Change from September 30 2017
LIABILITIES, DEFERRED INFLOWS OF RESOURCES AND NET POSITION			
Current liabilities:			
Current maturities of long-term debt	$ 1,495,000	$ 1,780,000	$ (285,000)
Current obligations under capital leases	16,949,416	16,949,416	0
Accounts payable			
Operations	28,249,143	56,671,898	(28,422,755)
Others	4,077,812	5,425,336	(1,347,524)
Accrued payroll and employees' benefits	696,671	1,546,860	(850,189)
Current portion of employees' annual leave	2,450,762	2,324,895	125,867
Interest payable	5,456,028	15,065,830	(9,609,802)
Customer deposits	8,691,492	8,503,783	187,709
Total current liabilities	68,066,324	108,268,018	(40,201,694)
Regulatory liabilities:			
Provision for self insurance	19,550,977	19,550,977	0
Total regulatory liabilities	19,550,977	19,550,977	0
Long term debt, net of current maturities	588,622,376	590,568,862	(1,946,486)
Obligations under capital leases, net of current portion	26,307,404	30,343,708	(4,036,304)
Net Pension liability	63,611,305	64,596,253	(984,948)
DCRS sick leave liability	4,008,397	4,008,397	0
Employees' annual leave net of current portion	806,762	806,762	0
Customer advances for construction	372,489	369,180	3,309
Total liabilities	771,346,034	818,512,157	(47,166,123)
Deferred inflows of resources:			
Unearned forward delivery contract revenue	2,238,734	2,336,071	(97,337)
Pension	732,788	732,788	0
Total deferred inflows of resources	2,971,522	3,068,859	(97,337)
Commitments and contigencies			
Net Position:			
Net investment in capital assets	(43,280,096)	(43,869,737)	589,641
Restricted	6,977,996	15,232,832	(8,254,836)
Unrestricted	126,422,826	115,728,658	10,694,168
Total net position	90,120,726	87,091,754	3,028,972
	$ 864,438,283	$ 908,672,770	$ (44,234,487)

GUAM POWER AUTHORITY
(A COMPONENT UNIT OF THE GOVERNMENT OF GUAM
Statement of Revenues, Expenses and Changes in Net Assets

	November 30			Two Months Ended November 30		
	Unaudited 2017	Unaudited 2016	% of change Inc (dec)	Unaudited 2017	Unaudited 2016	% of change Inc (dec)
Revenues						
Sales of electricity	$ 29,227,453	$ 24,837,474	18	$ 58,788,473	$ 50,433,386	17
Miscellaneous	148,862	238,596	(38)	284,810	380,595	(25)
Total	29,376,315	25,076,070	17	59,073,283	50,813,981	16
Bad debt expense	(86,583)	(83,333)	4	(173,167)	(166,667)	4
Total revenues	29,289,732	24,992,737	17	58,900,116	50,647,314	16
Operating and maintenance expenses						
Production fuel	15,400,262	11,215,220	37	31,336,029	23,109,028	36
Other production	1,198,788	1,767,647	(32)	2,589,304	2,507,965	3
	16,599,050	12,982,867	28	33,925,333	25,616,993	32
Depreciation	3,555,395	3,591,495	(1)	7,173,251	7,123,795	1
Energy conversion cost	1,762,816	1,471,717	20	3,509,520	2,915,167	20
Transmission & distribution	973,211	1,060,844	(8)	1,851,723	1,928,985	(4)
Customer accounting	383,931	365,779	5	834,524	676,451	23
Administrative & general	2,298,971	2,273,712	1	4,731,550	4,013,586	18
Total operating and maintenance expenses	25,573,374	21,746,414	18	52,025,901	42,274,977	23
Operating income	3,716,358	3,246,323	14	6,874,215	8,372,337	(18)
Other income (expenses)						
Interest income	848,816	78,412	983	1,010,436	153,403	559
Interest expense and amortization	(2,684,978)	(2,796,800)	(4)	(5,438,405)	(5,607,036)	(3)
Bond issuance costs	76,827	76,827	0	153,654	153,654	0
Allowance for funds used during construction	280,938	323,272	(13)	546,585	646,466	(15)
Other expense	(118,010)	(4,291)	2,650	(122,313)	(8,582)	1,325
Total other income (expenses)	(1,596,407)	(2,322,580)	(31)	(3,850,043)	(4,662,095)	(17)
Income (loss) before capital contributions	2,119,951	923,743	129	3,024,172	3,710,242	(18)
Capital contributions	4,795	0	0	4,795	11,488	(58)
Increase (decrease) in net assets	2,124,746	923,743	130	3,028,967	3,721,730	(19)
Total net assets at beginning of period (restated)	87,995,975	79,858,316	10	87,091,754	77,060,329	13
Total net assets at end of period	$ 90,120,721	$ 80,782,059	12	$ 90,120,721	$ 80,782,059	12

GUAM POWER AUTHORITY
(A COMPONENT UNIT OF THE GOVERNMENT OF GUAM)
Statements of Cash Flows
Period Ended November 30, 2017

	Month Ended 11/30/2017	YTD Ended 11/30/2017
Increase(decrease) in cash and cash equivalents		
Cash flows from operating activities:		
Cash received from customers	$ 27,233,943	$ 56,526,307
Cash payments to suppliers and employees for goods and services	41,509,321	79,071,513
Net cash provided by operating activities	$ (14,275,378)	$ (22,545,206)
Cash flows from investing activities:		
Interest and dividends on investments and bank accounts	848,816	1,010,436
Net cash provided by investing activities	848,816	1,010,436
Cash flows from non-capital financing activities		
Interest paid on short term debt	(6,009)	(12,402)
Net cash provided by noncapital financing activities	(6,009)	(12,402)
Cash flows from capital and related financing activities		
Acquisition of utility plant	(2,315,801)	(3,326,777)
Principal paid on bonds and other long-term debt	-	(1,780,000)
Interest paid on bonds(net of capitalized interest)	280,938	(13,829,615)
Interest paid on capital lease obligations	(295,578)	(659,605)
Interest & principal funds held by trustee	(2,514,148)	11,127,354
Reserve funds held by trustee	(5,196)	56,254
Bond funds held by trustee	393,226	1,772,118
Principal payment on capital lease obligations	(2,044,607)	(4,036,304)
Grant from DOI/FEMA	4,795	4,795
Debt issuance costs/loss on defeasance	(225,743)	(451,486)
Net cash provided by (used in) capital and related financing activities	(6,722,114)	(11,123,266)
Net (decrease) increase in cash and cash equivalents	(20,154,684.54)	(32,670,438)
Cash and cash equivalents, beginning	120,064,136	132,579,889
Cash and cash equivalents-Funds held by GPA, November 30, 2017	**$ 99,909,451**	**$ 99,909,451**

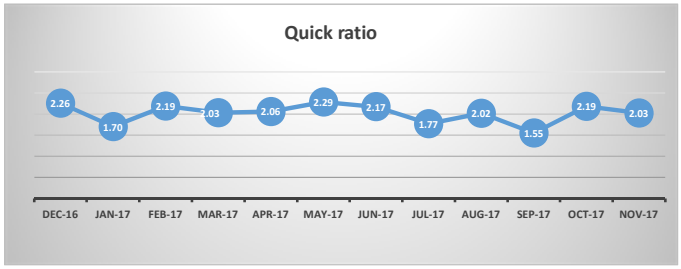
GUAM POWER AUTHORITY
(A COMPONENT UNIT OF THE GOVERNMENT OF GUAM)
Statements of Cash Flows, continued
Period Ended November 30, 2017

	Month Ended 11/30/2017	YTD Ended 11/30/2017
Reconciliation of operating earnings to net cash provided by operating activities:		
Operating earnings net of depreciation expense and excluding interest income	$3,716,358	$6,874,215
Adjustments to reconcile operating earnings to net cash provided by operating activities:		
Depreciation and amortization	3,555,395	7,173,251
Other expense	(41,183)	31,341
(Increase) decrease in assets:		
Accounts receivable	(2,056,430)	(2,365,956)
Materials and inventory	(472,583)	(732,211)
Fuel inventory	(7,118,068)	4,416,114
Prepaid expenses	(5,885,101)	(7,854,655)
Unamortized debt issuance cost	31,608	63,216
Deferred fuel revenue	101,976	773,282
Unamortized loss on debt refunding	104,028	208,056
Unamortized forward delivery contract costs	13,280	26,560
Increase (decrease) in liabilities:		
Accounts payable-operations	(3,366,354)	(28,422,755)
Accounts payable-others	(1,298,553)	(1,120,075)
Accrued payroll and employees' benefits	(1,217,665)	(850,189)
Net pension liability	(498,194)	(984,948)
Employees' annual leave	123,696	125,867
Customers deposits	77,772	187,709
Customer advances for construction	3,309	3,309
Unearned forward delivery contract revenue	(48,669)	(97,337)
Net cash provided by operating activities	**($14,275,378)**	**($22,545,206)**

Guam Power Authority
Financial Analysis
November-17

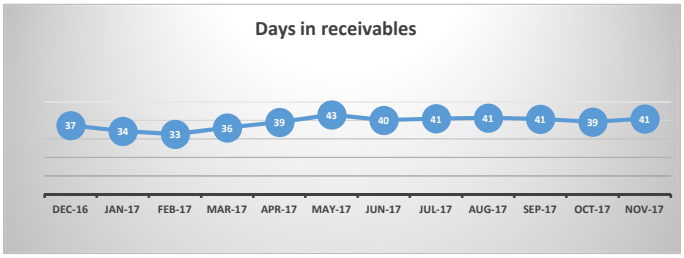
Quick Ratio

A	Reserve Funds Held by GPA	99,909,451
B	Current Accounts Receivable	38,112,594
C	Total Cash and A/R (A+B)	138,022,045
D	Total Current Liabilities	68,066,324
E	**Quick Ratio (F/G)**	**2.03**



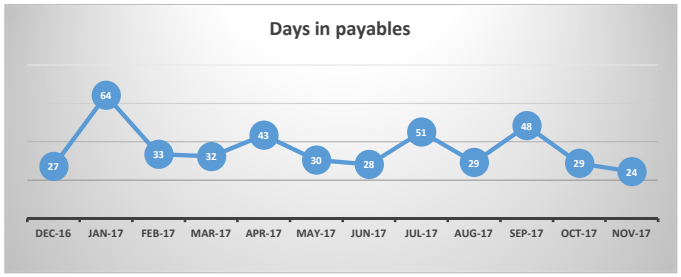
Days in Receivables

A	FY 18 Moving 12 Mos.-Actual	339,429,143
B	No. of Days	365
C	Average Revenues per day (A/B)	929,943
D	Current Accounts Receivable	38,112,594
E	**Days in Receivables (D/C)**	**41**



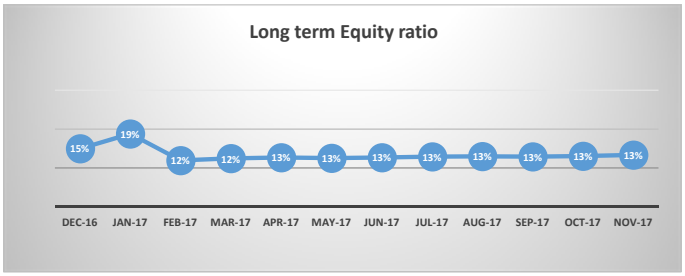
Days in Payables

A	FY 18 Moving 12 Months-Actual	483,659,728
B	No. of Days	365
C	Average Payables per day (A/B)	1,325,095
D	Current Accounts Payables	32,326,955
E	**Days in Payables (D/C)**	**24**



Long term equity ratio

A	Equity	$	90,120,726.00
B	Total Long term Liability	$	583,375,090.00
C	Total Equity and liability	$	673,495,816.00
D	**Long term equity ratio (A/C)**		**13%**

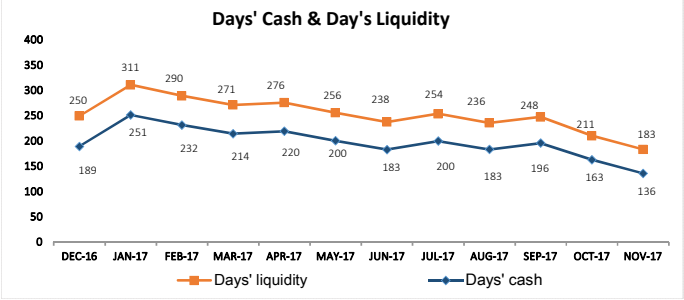


Days cash on hand

A	Unresctricted cash & cash equivalents	99,909
B	No. of Days -YTD	61
C	A x B	6,094,477
D	Total Operating expenses excluding depreciation	44,853
E	**Days cash on hand**	**136**

Days' Liquidity

A	Unresctricted cash , cash equivalents & revolving	134,909
B	No. of Days -YTD	61
C	A x B	8,229,477
D	Total Operating expenses excluding depreciation	44,853
E	**Days liquidity**	**183**



GPA 302
12/13/2017

GUAM POWER AUTHORITY
ACCRUED REVENUE
NOVEMBER 2017

	FOR THE MONTH ENDED NOVEMBER		TWO MONTHS ENDED NOVEMBER	
	2017	2016	2017	2016
KWH SALES:				
Residential	43,386,853	40,882,645	85,068,852	83,193,169
Small Gen. Non Demand	7,060,041	6,646,441	14,127,183	13,694,502
Small Gen. Demand	15,789,397	15,504,615	31,581,523	31,545,507
Large General	26,267,661	26,823,315	52,850,803	52,692,125
Independent Power Producer	93,823	87,525	186,067	177,844
Private St. Lights	35,042	52,271	68,893	101,556
Sub-total	92,632,817	89,996,812	183,883,321	181,404,704
Government Service:				
Small Non Demand	1,255,131	1,122,985	2,506,744	2,320,407
Small Demand	8,098,974	8,436,888	16,382,192	16,927,333
Large	6,550,623	6,094,610	12,968,877	12,496,697
Street Lighting	668,464	997,687	1,481,413	1,894,918
Sub-total	16,573,193	16,652,169	33,339,226	33,639,356
Total	109,206,010	106,648,982	217,222,547	215,044,060
U. S. Navy	26,837,883	26,586,150	52,083,303	51,811,452
GRAND TOTAL	136,043,893	133,235,131	269,305,850	266,855,512
REVENUE:				
Residential	$ 9,263,463	$ 7,455,636	$ 18,182,507	$ 15,228,496
Small Gen. Non Demand	$ 1,789,263	$ 1,481,078	$ 3,582,144	$ 3,070,004
Small Gen. Demand	$ 3,699,298	$ 3,195,499	$ 7,457,323	$ 6,492,705
Large General	$ 5,793,817	$ 5,084,685	$ 11,595,193	$ 9,984,762
Independent Power Producer	$ 20,053	$ 16,793	$ 39,797	$ 35,271
Private St. Lights	$ 25,471	$ 27,645	$ 50,721	$ 55,705
Sub-total	$ 20,591,366	$ 17,261,335	$ 40,907,686	$ 34,866,942
Government Service:				
Small Non Demand	$ 334,963	$ 268,355	$ 668,441	$ 552,892
Small Demand	$ 2,043,720	$ 1,851,599	$ 4,111,153	$ 3,708,525
Large	$ 1,583,988	$ 1,303,344	$ 3,130,434	$ 2,659,078
Street Lighting	$ 419,351	$ 512,699	$ 864,802	$ 949,837
Sub-total	$ 4,382,022	$ 3,935,996	$ 8,774,829	$ 7,870,332
Total	$ 24,973,388	$ 21,197,330	$ 49,682,515	$ 42,737,274
U. S. Navy	$ 4,254,065	$ 3,640,144	$ 9,105,958	$ 7,696,112
GRAND TOTAL	$ 29,227,453	$ 24,837,474	$ 58,788,473	$ 50,433,386
NUMBER OF CUSTOMERS:				
Residential	43,996	43,594	43,973	43,345
Small Gen. Non Demand	4,131	4,110	4,133	4,083
Small Gen. Demand	982	980	982	995
Large General	117	116	118	115
Independent Power Producer	3	3	3	3
Private St. Lights	527	519	529	529
Sub-total	49,756	49,322	49,737	49,069
Government Service:				
Small Non Demand	678	683	677	689
Small Demand	354	346	353	342
Large	47	45	47	45
Street Lighting	378	155	378	160
Sub-total	1,457	1,229	1,454	1,236
Total	51,213	50,551	51,191	50,305
US Navy	1	1	1	1
	51,214	50,552	51,192	50,306

GPA403
12/13/2017

GUAM POWER AUTHORITY
ACCRUED REVENUE

	TWELVE MONTHS ENDED	NOVEMBER 2017	OCTOBER 2017	SEPTEMBER 2017	AUGUST 2017	JULY 2017	JUNE 2017	MAY 2017	APRIL 2017	MARCH 2017	FEBRUARY 2017	JANUARY 2017	DECEMBER 2016
KWH SALES:													
Residential	508,211,285	43,386,853	41,682,000	41,491,015	44,434,719	45,094,364	45,699,553	46,940,445	42,105,054	40,911,781	35,936,337	39,423,550	41,105,614
Small General Non Demand	84,332,381	7,060,041	7,067,142	7,022,092	7,347,440	7,087,373	7,546,692	7,375,238	6,926,353	6,767,505	6,497,885	6,647,367	6,987,253
Small General Demand	190,086,941	15,789,397	15,792,127	15,509,408	16,488,257	15,839,125	16,853,701	16,415,592	15,638,177	16,300,307	13,890,958	15,535,910	16,033,983
Large General	314,731,908	26,267,661	26,583,141	25,432,034	27,038,013	27,119,633	26,399,095	27,209,329	25,771,823	26,173,462	23,699,969	26,550,140	26,487,608
Private Outdoor Lighting	459,745	35,042	33,851	76,532	33,324	35,412	36,199	31,956	34,275	34,097	32,325	36,736	39,997
Independent Power Producer	970,046	93,823	92,244	34,586	57,754	82,800	93,447	97,039	78,158	83,841	67,797	92,493	96,065
Sub-Total	1,098,792,306	92,632,817	91,250,505	89,565,666	95,399,508	95,258,706	96,628,687	98,069,599	90,553,840	90,270,993	80,125,270	88,286,197	90,750,519
Government Service:													
Small Non Demand	14,088,582	1,255,131	1,251,612	1,246,106	1,243,487	1,254,979	1,154,625	1,242,514	1,118,738	1,123,675	996,603	1,079,470	1,121,641
Small Demand	96,333,460	8,098,974	8,283,218	8,084,368	8,147,386	7,962,644	7,847,651	8,507,100	7,890,703	8,171,598	7,382,544	7,897,069	8,060,205
Large	75,370,148	6,550,623	6,418,254	6,493,449	6,520,699	6,219,351	6,043,966	6,712,069	6,145,212	6,340,287	5,654,767	6,032,854	6,238,617
Street Lighting (Agencies)	9,101,101	668,464	812,949	697,002	877,130	638,971	843,815	771,506	720,057	829,968	707,509	539,658	994,072
Sub-Total	194,893,292	16,573,193	16,766,033	16,520,925	16,788,702	16,075,944	15,890,058	17,233,190	15,874,710	16,465,529	14,741,423	15,549,052	16,414,534
Total	1,293,685,598	109,206,010	108,016,537	106,086,591	112,188,210	111,334,651	112,518,745	115,302,789	106,428,550	106,736,522	94,866,692	103,835,249	107,165,053
U.S. Navy	318,857,752	26,837,883	25,245,420	26,906,320	26,608,721	27,892,205	25,258,344	27,710,121	26,158,807	28,394,970	22,750,741	27,625,278	27,468,943
Grand Total	1,612,543,350	136,043,893	133,261,957	132,992,911	138,796,930	139,226,856	137,777,089	143,012,910	132,587,357	135,131,492	117,617,433	131,460,526	134,633,996
	-												
REVENUE:													
Residential	$ 103,555,988	$ 9,263,463	$ 8,919,044	$ 8,887,320	$ 9,762,810	$ 9,056,344	$ 9,109,920	$ 9,464,539	$ 8,447,732	$ 8,255,658	$ 7,648,484	$ 7,213,121	$ 7,527,553
Small General Non Demand	$ 20,552,872	$ 1,789,263	$ 1,792,881	$ 1,783,997	$ 1,902,660	$ 1,709,931	$ 1,790,832	$ 1,782,557	$ 1,661,818	$ 1,647,869	$ 1,650,380	$ 1,468,355	$ 1,572,329
Small General Demand	$ 43,034,135	$ 3,699,298	$ 3,758,026	$ 3,692,273	$ 3,964,157	$ 3,527,191	$ 3,704,661	$ 3,828,208	$ 3,333,389	$ 3,674,304	$ 3,310,305	$ 3,200,532	$ 3,341,792
Large General	$ 65,788,491	$ 5,793,817	$ 5,801,375	$ 5,643,059	$ 6,028,539	$ 5,589,484	$ 5,443,855	$ 5,621,797	$ 5,382,999	$ 5,370,285	$ 5,066,026	$ 4,998,015	$ 5,049,240
Private Outdoor Lighting	$ 301,973	$ 25,471	$ 25,250	$ 25,361	$ 25,094	$ 25,099	$ 25,329	$ 24,432	$ 25,014	$ 25,012	$ 24,793	$ 25,546	$ 25,575
Independent Power Producer	$ 215,558	$ 20,053	$ 19,744	$ 17,076	$ 14,804	$ 17,270	$ 19,157	$ 20,386	$ 16,006	$ 17,451	$ 15,045	$ 18,807	$ 19,759
Sub-Total	$ 233,449,018	$ 20,591,366	$ 20,316,320	$ 20,049,087	$ 21,698,063	$ 19,925,320	$ 20,093,753	$ 20,741,919	$ 18,866,957	$ 18,990,578	$ 17,715,032	$ 16,924,376	$ 17,536,247
Government Service:													
Small Non Demand	$ 3,628,558	$ 334,963	$ 333,478	$ 333,079	$ 332,325	$ 319,135	$ 297,031	$ 313,817	$ 289,279	$ 289,226	$ 258,835	$ 258,411	$ 268,979
Small Demand	$ 23,232,706	$ 2,043,720	$ 2,067,433	$ 2,050,292	$ 2,052,253	$ 1,907,628	$ 1,885,990	$ 1,985,615	$ 1,919,140	$ 1,956,670	$ 1,819,228	$ 1,746,554	$ 1,798,184
Large	$ 17,450,721	$ 1,583,988	$ 1,546,446	$ 1,575,080	$ 1,573,445	$ 1,424,292	$ 1,393,449	$ 1,572,201	$ 1,374,482	$ 1,454,690	$ 1,331,459	$ 1,286,951	$ 1,334,239
Street Lighting (Agencies)	$ 5,353,660	$ 419,351	$ 445,451	$ 436,808	$ 516,047	$ 418,012	$ 451,933	$ 439,403	$ 431,759	$ 447,332	$ 447,721	$ 351,576	$ 548,266
Sub-Total	$ 49,665,645	$ 4,382,022	$ 4,392,807	$ 4,395,259	$ 4,474,070	$ 4,069,066	$ 4,028,403	$ 4,311,036	$ 4,014,660	$ 4,147,918	$ 3,857,244	$ 3,643,492	$ 3,949,668
Total	$ 283,114,663	$ 24,973,388	$ 24,709,127	$ 24,444,346	$ 26,172,133	$ 23,994,386	$ 24,122,156	$ 25,052,955	$ 22,881,617	$ 23,138,496	$ 21,572,276	$ 20,567,868	$ 21,485,915
U.S. Navy	$ 56,314,480	$ 4,254,065	$ 4,851,893	$ 5,325,383	$ 5,019,382	$ 5,331,702	$ 4,458,411	$ 5,160,265	$ 4,283,028	$ 5,232,508	$ 3,632,683	$ 4,519,844	$ 4,245,316
Grand Total	$ 339,429,143	$ 29,227,453	$ 29,561,020	$ 29,769,728	$ 31,191,516	$ 29,326,087	$ 28,580,567	$ 30,213,220	$ 27,164,645	$ 28,371,004	$ 25,204,958	$ 25,087,712	$ 25,731,231
NUMBER OF CUSTOMERS:													
Residential	43,828	43,996	43,950	43,991	43,969	43,866	43,902	43,803	43,807	43,718	43,647	43,710	43,582
Small General Non Demand	4,131	4,131	4,134	4,127	4,134	4,131	4,145	4,130	4,137	4,128	4,119	4,127	4,125
Small General Demand	987	982	982	980	981	984	988	988	988	989	992	994	991
Large General	116	117	119	116	115	116	116	117	115	116	116	116	116
Private Outdoor Lighting	527	527	530	526	527	526	527	530	528	528	527	525	517
Independent Power Producer	3	3	3	3	3	3	3	3	3	3	3	3	3
Sub-Total	49,591	49,756	49,718	49,743	49,729	49,626	49,681	49,571	49,578	49,482	49,404	49,475	49,334
Government Service:													
Small Non Demand	680	678	676	675	678	678	677	684	684	684	682	684	680
Small Demand	349	354	351	353	351	352	349	346	347	348	347	347	346
Large	45	47	46	45	45	45	45	45	45	45	45	45	45
Street Lighting (Agencies)	290	378	377	297	297	297	297	293	290	272	271	211	205
Sub-Total	1,365	1,365	1,365	1,365	1,365	1,365	1,365	1,365	1,365	1,365	1,365	1,365	1,365
Total	50,956	51,121	51,083	51,108	51,094	50,991	51,046	50,936	50,943	50,847	50,769	50,840	50,699
U.S. Navy	1	1	1	1	1	1	1	1	1	1	1	1	1
Grand Total	50,957	51,122	51,084	51,109	51,095	50,992	51,047	50,937	50,944	50,848	50,770	50,841	50,700

GPA 303
12/13/2017

GUAM POWER AUTHORITY
ACCRUED REVENUE
November 30, 2017

RATE	NUMBER NUMBER OF CUSTOMERS	KWH SALES	TOTAL REVENUE AMOUNT	TOTAL REVENUE C/KWH	BASE RATE REVENUE C/KWH	BASE RATE REVENUE AMOUNT	AVERAGE PER CUSTOMER KWH	AVERAGE PER CUSTOMER REVENUE	NON-FUEL C/KWH	NON-FUEL AMOUNT	FUEL C/KWH	FUEL AMOUNT
Month												
R Residential	43,996	43,386,853	$ 9,263,463	$ 21.35	$ 21.35	$ 9,263,463	986.15	$ 210.55	$ 9.5791	$ 4,156,049	$ 11.7718	$ 5,107,414
G Small Gen. Non Demand	4,131	7,060,041	$ 1,789,263	$ 25.34	$ 25.34	$ 1,789,263	1,709.04	$ 433.13	$ 13.5717	$ 958,169	$ 11.7718	$ 831,094
J Small Gen. Demand	982	15,789,397	$ 3,699,298	$ 23.43	$ 23.43	$ 3,699,298	16,078.82	$ 3,767.11	$ 11.6611	$ 1,841,210	$ 11.7679	$ 1,858,087
P Large General	117	26,267,661	$ 5,793,817	$ 22.06	$ 22.06	$ 5,793,817	224,509.93	$ 49,519.81	$ 10.3448	$ 2,717,346	$ 11.7120	$ 3,076,471
I Independent Power Producer	3	93,823	$ 20,053	$ 21.37	$ 21.37	$ 20,053	31,274.28	$ 6,684.39	$ 9.9929	$ 9,376	$ 11.3805	$ 10,678
H Private St. Lights	527	35,042	$ 25,471	$ 72.69	$ 72.69	$ 25,471	66.49	$ 48.33	$ 60.9171	$ 21,346	$ 11.7718	$ 4,125
Sub-Total	49,756	92,632,817	$ 20,591,366	$ 22.23	$ 22.23	$ 20,591,366	1,861.74	$ 413.85	$ 10.4752	$ 9,703,497	$ 11.7538	$ 10,887,869
Government Service:												
S Small Non Demand	678	1,255,131	$ 334,963	$ 26.69	$ 26.69	$ 334,963	1,851.23	$ 494.05	$ 14.9157	$ 187,211	$ 11.7718	$ 147,752
K Small Demand	354	8,098,974	$ 2,043,720	$ 25.23	$ 25.23	$ 2,043,720	22,878.46	$ 5,773.22	$ 13.4625	$ 1,090,325	$ 11.7718	$ 953,395
L Large	47	6,550,623	$ 1,583,988	$ 24.18	$ 24.18	$ 1,583,988	139,374.96	$ 33,701.87	$ 12.5502	$ 822,117	$ 11.6305	$ 761,871
F Street Lighting (Agencies)	378	668,464	$ 419,351	$ 62.73	$ 62.73	$ 419,351	1,768.42	$ 1,109.40	$ 50.9618	$ 340,661	$ 11.7718	$ 78,690
Sub-Total	1,457	16,573,193	$ 4,382,022	$ 26.44	$ 26.44	$ 4,382,022	11,374.88	$ 3,007.57	$ 14.7245	$ 2,440,314	$ 11.7160	$ 1,941,708
												$ 12,829,577
U.S. Navy	1	26,837,883	$ 4,254,065	$ 15.85	$ 15.85	$ 4,254,065			$ 6.2724	$ 1,683,380	$ 9.5786	$ 2,570,685
TOTAL	51,214	136,043,893	$ 29,227,453	$ 21.48	$ 21.48	$ 29,227,453	2,656.38	$ 570.69	$ 10.1638	$ 13,827,192	$ 11.3201	$ 15,400,262
Two Months Ended November 2017												
R Residential	43,828	85,068,852	$ 18,182,507	$ 21.37	$ 21.37	$ 18,182,507	1,940.95	$ 414.86	$ 9.6021	$ 8,168,372	$ 11.7718	$ 10,014,135
G Small Gen. Non Demand	4,131	14,127,183	$ 3,582,144	$ 25.36	$ 25.36	$ 3,582,144	3,420.07	$ 867.21	$ 13.5846	$ 1,919,120	$ 11.7718	$ 1,663,024
J Small Gen. Demand	987	31,581,523	$ 7,457,323	$ 23.61	$ 23.61	$ 7,457,323	32,011.00	$ 7,558.74	$ 11.8451	$ 3,740,877	$ 11.7678	$ 3,716,447
P Large General	116	52,850,803	$ 11,595,193	$ 21.94	$ 21.94	$ 11,595,193	454,630.56	$ 99,743.59	$ 10.2284	$ 5,405,766	$ 11.7111	$ 6,189,427
I Independent Power Producer	3	186,067	$ 39,797	$ 21.39	$ 21.39	$ 39,797	62,022.27	$ 13,265.73	$ 10.0133	$ 18,631	$ 11.3754	$ 21,166
H Private St. Lights	527	68,893	$ 50,721	$ 73.62	$ 73.62	$ 50,721	130.85	$ 96.34	$ 61.8512	$ 42,611	$ 11.7718	$ 8,110
Sub-Total	49,591	183,883,321	$ 40,907,686	$ 22.25	$ 22.25	$ 40,907,686	3,707.97	$ 824.89	$ 10.4933	$ 19,295,377	$ 11.7533	$ 21,612,309
Government Service:												
S Small Non Demand	680	2,506,744	$ 668,441	$ 26.67	$ 26.67	$ 668,441	3,686.39	$ 983.00	$ 14.8939	$ 373,352	$ 11.7718	$ 295,089
K Small Demand	349	16,382,192	$ 4,111,153	$ 25.10	$ 25.10	$ 4,111,153	46,906.78	$ 11,771.38	$ 13.3235	$ 2,182,674	$ 11.7718	$ 1,928,479
L Large	45	12,968,877	$ 3,130,434	$ 24.14	$ 24.14	$ 3,130,434	286,605.01	$ 69,180.86	$ 12.5086	$ 1,622,220	$ 11.6295	$ 1,508,214
F Street Lighting (Agencies)	290	1,481,413	$ 864,802	$ 58.38	$ 58.38	$ 864,802	5,100.99	$ 2,977.80	$ 46.6050	$ 690,413	$ 11.7718	$ 174,389
Sub-Total	1,365	33,339,226	$ 8,774,829	$ 26.32	$ 26.32	$ 8,774,829	24,425.83	$ 6,428.84	$ 14.6034	$ 4,868,659	$ 11.7164	$ 3,906,171
U.S. Navy	1	52,083,303	$ 9,105,958	$ 17.48	$ 17.48	$ 9,105,958			$ 6.3137	$ 3,288,409	$ 11.1697	$ 5,817,549
TOTAL	50,957	269,305,850	$ 58,788,473	$ 21.83	$ 21.83	$ 58,788,473	5,284.93	$ 1,153.68	$ 10.1938	$ 27,452,445	$ 11.6359	$ 31,336,028
Twelve Months Ended November 2017												
R Residential	43,828	508,211,285	$ 103,555,988	$ 20.38	$ 20.38	$ 103,555,988	11,595.47	$ 2,362.76	$ 9.6173	$ 48,875,990	$ 10.7593	$ 54,679,999
G Small Gen. Non Demand	4,131	84,332,381	$ 20,552,872	$ 24.37	$ 24.37	$ 20,552,872	20,416.17	$ 4,975.68	$ 13.6157	$ 11,482,473	$ 10.7555	$ 9,070,400
J Small Gen. Demand	987	190,086,941	$ 43,034,135	$ 22.64	$ 22.64	$ 43,034,135	192,671.96	$ 43,619.36	$ 11.9172	$ 22,652,995	$ 10.7220	$ 20,381,140
P Large General	116	314,731,908	$ 65,788,491	$ 20.90	$ 20.90	$ 65,788,491	2,707,371.25	$ 565,922.50	$ 10.2872	$ 32,377,210	$ 10.6158	$ 33,411,281
I Independent Power Producer	3	970,046	$ 215,558	$ 22.22	$ 22.22	$ 215,558	323,348.65	$ 71,852.53	$ 11.3710	$ 110,304	$ 10.8504	$ 105,254
H Private St. Lights	527	459,745	$ 301,973	$ 65.68	$ 65.68	$ 301,973	873.21	$ 573.55	$ 56.0669	$ 257,764	$ 9.6160	$ 44,209
Sub-Total	49,591	1,098,792,306	$ 233,449,018	$ 21.25	$ 21.25	$ 233,449,018	22,156.90	$ 4,707.45	$ 10.5349	$115,756,736	$ 10.7111	$ 117,692,282
Government Service:												
S Small Non Demand	680	14,088,582	$ 3,628,558	$ 25.76	$ 25.76	$ 3,628,558	20,718.50	$ 5,336.11	$ 15.0891	$ 2,125,834	$ 10.6663	$ 1,502,724
K Small Demand	349	96,333,460	$ 23,232,706	$ 24.12	$ 24.12	$ 23,232,706	275,829.52	$ 66,521.71	$ 13.4884	$ 12,993,879	$ 10.6285	$ 10,238,827
L Large	45	75,370,148	$ 17,450,721	$ 23.15	$ 23.15	$ 17,450,721	1,665,638.63	$ 385,651.29	$ 12.5753	$ 9,478,043	$ 10.5780	$ 7,972,678
F Street Lighting (Agencies)	290	9,101,101	$ 5,353,660	$ 58.82	$ 58.82	$ 5,353,660	31,338.08	$ 18,434.41	$ 48.2047	$ 4,387,155	$ 10.6197	$ 966,505
Sub-Total	1,365	194,893,292	$ 49,665,645	$ 25.48	$ 25.48	$ 49,665,645	142,787.69	$ 36,387.31	$ 14.8722	$ 28,984,910	$ 10.6113	$ 20,680,734
U.S. Navy	1	318,857,752	$ 56,314,480	$ 17.66	$ 17.66	$ 56,314,480			$ 6.2836	$ 20,035,848	$ 11.3777	$ 36,278,632
TOTAL	50,957	1,612,543,350	$ 339,429,143	$ 21.05	$ 21.05	$ 339,429,143	31,644.97	$ 6,661.05	$ 10.2185	$164,777,494	$ 10.8308	$ 174,651,649

GPA-318 **ENERGY ACCOUNT** **FOR INTERNAL USE ONLY**

318Nov17 **FY 2018 Versus FY 2017**

	November 2017		November 2016		Y T D 2018		Y T D 2017		MOVING TWELVE MONTHS	
Gross Generation										
Number of days in Period	**30**		**30**		**61**		**31**		**365**	
Peak demand	**253**		**252**		**254**		**252**		**261**	
Date	**11/02/17**		**11/29/16**		**10/30/17**		**11/29/16**		**08/01/17**	
	KWH	**% change**	**KWH**	**% change**	**KWH**	**% change**	**KWH**	**% change**	**KWH**	**% change**
Energy Account:										
Kilowatt hours GPA:										
Cabras 1 & 2	57,338,000		71,563,000		119,026,000		149,047,000		664,972,000	
Cabras No. 3	0		0		0		0		0	
Cabras No. 4	0		0		0		0		0	
MEC (ENRON) Piti 8 (IPP)	27,335,600		28,433,800		50,919,900		57,298,000		313,255,600	
MEC (ENRON) Piti 9 (IPP)	28,379,300		26,278,700		57,749,600		48,727,500		317,084,400	
TEMES Piti 7 (IPP)	2,012,977		193,149		4,643,899		335,106		51,290,162	
Tanguisson 2	0		0		0		0		0	
Tanguisson 1	0		0		0		0		0	
Diesels/CT's & Others:							0			
MDI 10MW	19,125		118,128		21,414		240,699		2,038,342	
NRG Solar Dandan	3,613,520		3,244,077		6,919,392		6,910,550		43,199,644	
Dededo CT #1	76,760		0		361,890		0		7,485,190	
Dededo CT #2	19,700		0		50,610		0		5,883,202	
Macheche CT	4,739,241		685,377		9,830,798		685,377		64,712,976	
Yigo CT (Leased)	3,535,184		2,576,774		6,272,060		6,014,144		41,633,863	
Tenjo	3,257,440		1,036,000		6,940,210		1,730,970		50,666,720	
Talofofo 10 MW	595,800		213,960		867,390		371,620		19,267,160	
Aggreko	17,452,799		10,908,995		31,391,437		22,615,297		182,222,680	
Wind Turbine*	32,389		50,870		38,379		78,164		347,410	
Orote	0		0		0		0		0	
Marbo	0		0		0		0		0	
	148,407,834		**145,302,829**		**295,032,978**		**294,054,426**		**1,764,059,349**	
Ratio to last year		102.14		102.12		100.33		**101.95**		**102.17**
Station use	5,373,165		5,960,827		11,164,219		12,119,650		64,939,565	
Ratio to Gross generation		3.62		4.10		3.78		4.12		**3.68**
Net send out	143,034,669		139,342,002		283,868,759		281,934,776		1,699,119,784	
Ratio to last year		102.65		102.26		100.69		**102.10**		**102.25**
KWH deliveries:										
Sales to Navy (@34.5kv)	**26,837,883**		**26,586,150**		**52,083,303**		**51,811,452**		**318,857,754**	
Ratio to last year		100.95		103.11		100.52		**97.61**		**100.64**
GPA-metered	**116,196,786**		**112,755,852**		**231,785,456**		**230,123,324**		**1,380,262,030**	
Ratio to last year		103.05		102.06		100.72		**103.16**		**103.40**
Power factor adj.	0		0		0		0		0	
Adjusted	116,196,786		112,755,852		231,785,456		230,123,324		1,380,262,030	
GPA KWH Accountability:										
Sales to civilian customers-accrual basis	**109,206,010**		**106,648,982**		**217,222,547**		**215,044,060**		**1,293,685,599**	
Ratio to last year		102.40		103.86		101.01		**103.43**		**102.40**
GPA use-KWH	264,996		243,741		541,901		525,752		3,160,387	
Unaccounted For	6,725,780		5,863,129		14,021,008		14,553,512		83,416,044	
Ratio to deliveries		5.79		5.20		6.05		6.32		6.04
Ratio to Gross Generation		4.53		4.04		4.75		4.95		4.73
Ratio to Net Send Out		4.70		4.21		4.94		5.16		4.91

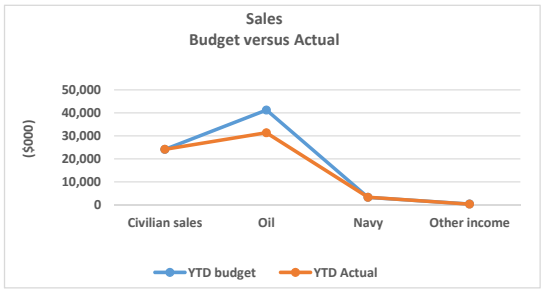
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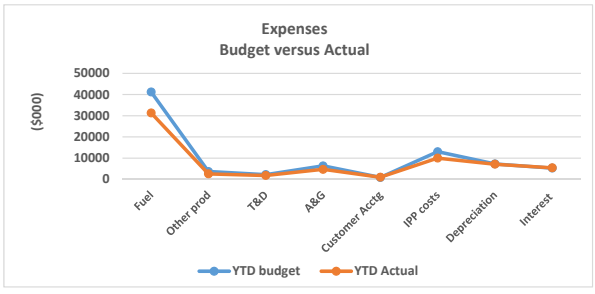
Guam Power Authority
Fuel Consumption
FY 2018

Description	November 2017 BARRELS	November 2017 AMOUNT	YEAR-TO-DATE BARRELS	YEAR-TO-DATE AMOUNT	MOVING 12 MONTHS BARREL S	MOVING 12 MONTHS AMOUNT
FUEL FURNISHED:						
NAVY:						
Diesel	0	0	0	0	0	0
Low Sulfur	0	0	0	0	0	0
	0	**0**	**0**	**0**	**0**	**0**
GPA:						
RFO	162,397	$8,733,195	282,070	$ 15,466,399	1,494,410	$ 82,379,941
Diesel	61,914	$4,860,187	117,943	$ 9,055,590	856,194	$ 62,137,212
Low Sulfur	6,379	$392,096	60,508	$ 3,719,400	473,275	$ 27,707,235
Deferred Fuel Costs	0	$101,976	0	$ 773,282	0	$ (13,345,715)
Fuel Adjustments	0	-$9,121		$ (9,121)	0	$ (212,502)
Fuel Handling Costs	0	$1,321,930	0	$ 2,330,480	0	$ 15,985,612
	230,689	**$15,400,262**	**460,521**	**$ 31,336,029**	**2,823,880**	**$ 174,651,783**
IWPS:						
GPA RFO	162,397	$8,733,195	282,070	$ 15,466,399	1,494,410	$ 82,379,941
Diesel	61,914	$4,860,187	117,943	$ 9,055,590	856,194	$ 62,137,212
Low Sulfur	6,379	$392,096	60,508	$ 3,719,400	473,275	$ 27,707,235
Deferred Fuel Costs	0	$101,976	0	$ 773,282	0	$ (13,345,715)
Fuel Variance	0	-$9,121	0	$ (9,121)		$ (212,502)
Fuel Handling Costs	0	$1,321,930	0	$ 2,330,480	0	$ 15,985,612
	230,689	**$15,400,262**	**460,521**	**$ 31,336,029**	**2,823,880**	**$ 174,651,783**
AVERAGE COST/Bbl.						
GPA RFO		**$53.78**		**$54.83**		**$55.13**
Diesel		**$78.50**		**$76.78**		**$72.57**
Low Sulfur		**$61.47**		**$61.47**		**$58.54**
AS BURNED						
Cabras 1 & 2						
RFO	89,743	$ 4,830,304	158,375	$ 8,684,892	930,886	$ 51,503,897
Low Sulfur	4,005	$ 246,369	37,556	$ 2,308,775	188,831	$ 11,036,143
Diesel	75	$ 5,462	93	$ 6,772	2,788	$ 185,985
	93,823	$ 5,082,134	196,024	$ 11,000,439	1,122,505	$ 62,726,025
Cabras 3 & 4						
RFO	0	$ -	0	$ -	0	$ -
Low Sulfur	0	$ -	0	$ -	0	$ -
Diesel	0	$ -	0	$ -	0	$ -
	0	$ -	0	$ -	0	$ -
MEC (Piti Units 8&9)						
RFO	72,654	$ 3,902,890	123,695	$ 6,781,507	563,525	$ 30,876,044
Low Sulfur	2,374	$ 145,727	22,951	$ 1,410,625	284,444	$ 16,671,091
Diesel	0	$ -	0	$ -	40	$ 2,194
	75,027	$ 4,048,617	146,646	$ 8,192,132	848,008	$ 47,549,329
Diesel & CT's - GPA:						
MDI Dsl	27	$ 1,772	31	$ 2,013	3,250	$ 207,027
Macheche CT	10,225	$ 800,923	21,071	$ 1,603,935	140,292	$ 10,249,112
Yigo CT	7,228	$ 565,187	12,646	$ 979,321	86,413	$ 6,251,342
Talofofo 10 MW	987	$ 76,481	1,435	$ 108,877	32,321	$ 2,323,922
Aggreko	32,063	$ 2,504,359	57,363	$ 4,379,819	330,262	$ 23,773,335
Tenjo	5,673	$ 459,627	12,008	$ 953,600	88,254	$ 6,582,397
TEMES (IPP)	5,153	$ 407,965	11,711	$ 890,313	129,616	$ 9,401,597
GWA Generators	36	$ 4,259	236	$ 27,790	715	$ 84,137
	61,839	$ 4,854,726	117,851	$ 9,048,817	853,367	$ 61,949,033
Deferred Fuel Costs	0	$ 101,976		$ 773,282		$ (13,345,715)
Adjustment		$ (9,121)		$ (9,121)		$ (212,502)
Fuel Handling Costs	0	$ 1,321,930		$ 2,330,480		$ 15,985,612
TOTAL	**230,689**	**$ 15,400,262**	**460,521**	**$ 31,336,029**	**2,823,880**	**$ 174,651,783**

Statement of operations
Comparison-Budget versus Actual
For the month and year to date ended November 30, 2017

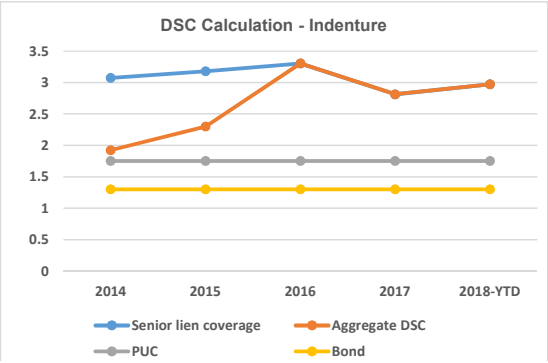
	Budget	Actual November-17	Variance	YTD Budget	YTD Actual	Variance
KwH Sales-Civilian	109,084	109,206	-122	218,167	217,223	944
Non-fuel yield	$ 0.105729	$ 0.111203	$ (0.005474)	$ 0.110301	$ 0.111241	$ (0.000939)
KwH Sales-Navy	27,135	26,838	297	54,271	52,083	2,188
Non-fuel yield	$ 0.061774	$ 0.062710	$ (0.000936)	$ 0.060066	$ 0.063130	$ (0.003064)
Operating revenue						
Civilian sales	$ 11,867	$ 12,144	$ (277)	$ 24,064	$ 24,164	$ (100)
Oil	20,300	15,400	4,900	41,227	31,336	9,891
Navy	1,584	1,683	(99)	3,260	3,288	(28)
Other income	169	149	20	338	285	54
	33,920	29,376	4,544	68,890	59,073	9,817
Bad debts expense	87	87	0	173	173	0
Total operating revenues	$ 33,833	$ 29,289	$ 4,544	$ 68,716	$ 58,900	$ 9,817
Operating expenses:						
Production fuel	$ 20,300	$ 15,400	$ 4,899	$ 41,227	$ 31,336	$ 9,891
O & M expenses:						
Other production	1,878	1,199	679	3,704	2,589	1,115
Transmission distribution	1,160	973	187	2,242	1,852	390
Administrative expense	2,688	2,299	389	6,374	4,732	1,643
Customer accounting	369	384	(15)	729	835	(106)
	6,095	4,855	1,240	13,049	10,007	3,042
IPP costs	1,635	1,763	(128)	3,270	3,510	(239)
Depreciation	3,635	3,555	80	7,270	7,173	97
	31,665	25,573	6,091	64,816	52,026	12,790
Operating income	$ 2,168	$ 3,716	$ (1,548)	$ 3,900	$ 6,874	$ (2,973)
Other revenue (expenses):						
Investment income	99	849	(750)	197	1,010	(813)
Interest expense	(2,657)	(2,685)	28	(5,314)	(5,438)	125
AFUDC	61	281	(220)	122	547	(425)
Bond issuance costs/Other expenses	135	(41)	176	269	31	238
Net income before capital contribution	(195)	2,119	(2,315)	(825)	3,024	(3,850)
Grants from the U.S. Government	-	5	(5)	-	5	(5)
Increase (decrease) in net assets	$ (195)	$ 2,124	$ (2,320)	$ (825)	$ 3,028	$ (3,855)

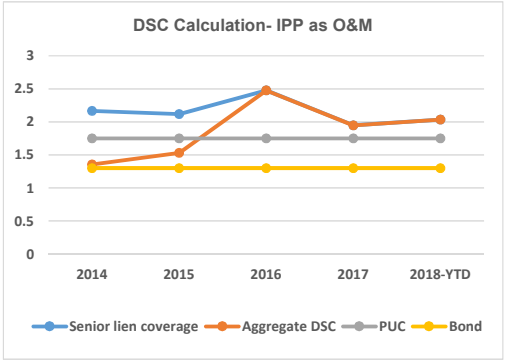




Guam Power Authority
Debt service coverage
November 30, 2017

	2014	2015	2016	2017	YTD 11/30/2017
Operating revenues					
Sales	434,462	366,185	306,896	331,071	58,788
Miscellaneous	2,156	4,775	2,294	2,245	285
Total revenues	436,618	370,960	309,190	333,316	59,073
Bad debts expense	178	959	990	472	173
Total operating revenues	436,440	370,001	308,200	332,844	58,900
Operating expenses					
Production fuel	271,175	204,136	146,340	166,425	31,336
Other production	19,305	20,079	15,789	17,784	2,589
Energy conversion costs	20,632	18,404	16,800	19,935	3,510
Transmission and distribution	12,950	11,170	10,721	11,704	1,852
Customer accounting	3,821	3,780	4,502	4,284	835
Admin and General	28,393	21,908	28,846	26,798	4,732
Total Expenses	356,276	279,477	222,998	246,930	44,853
Operating income	80,164	90,524	85,202	85,914	14,047
Interest/Other income (expenses)	157	256	(1,188)	(32)	888
Debt service and lease payments					
IPP lease payments	23,084	26,622	20,790	20,796	3,465
Capital lease payments-Aggreko	-	-	-	5,609	1,246
2014 bonds	-	-	10	5,084	848
2012 bonds	17,455	17,096	17,098	17,449	2,848
2010 senior bonds	7,999	7,999	7,999	7,999	1,334
2010 subordinate	15,193	9,605	-	-	-
Total Debt service-bonds	40,647	34,700	25,106	30,532	5,029
Total Debt service and capital lease	63,731	61,322	45,896	56,937	9,741
Debt service coverage (DSC) calculation-indenture					
Senior lien coverage	3.16	3.62	3.35	2.81	2.97
Aggregate debt service coverage	1.98	2.62	3.35	2.81	2.97
Debt service coverage (DSC) calculation-IPP as O&M					
Senior lien coverage	2.25	2.56	2.52	1.95	2.03
Aggregate debt service coverage	1.41	1.85	2.52	1.95	2.03

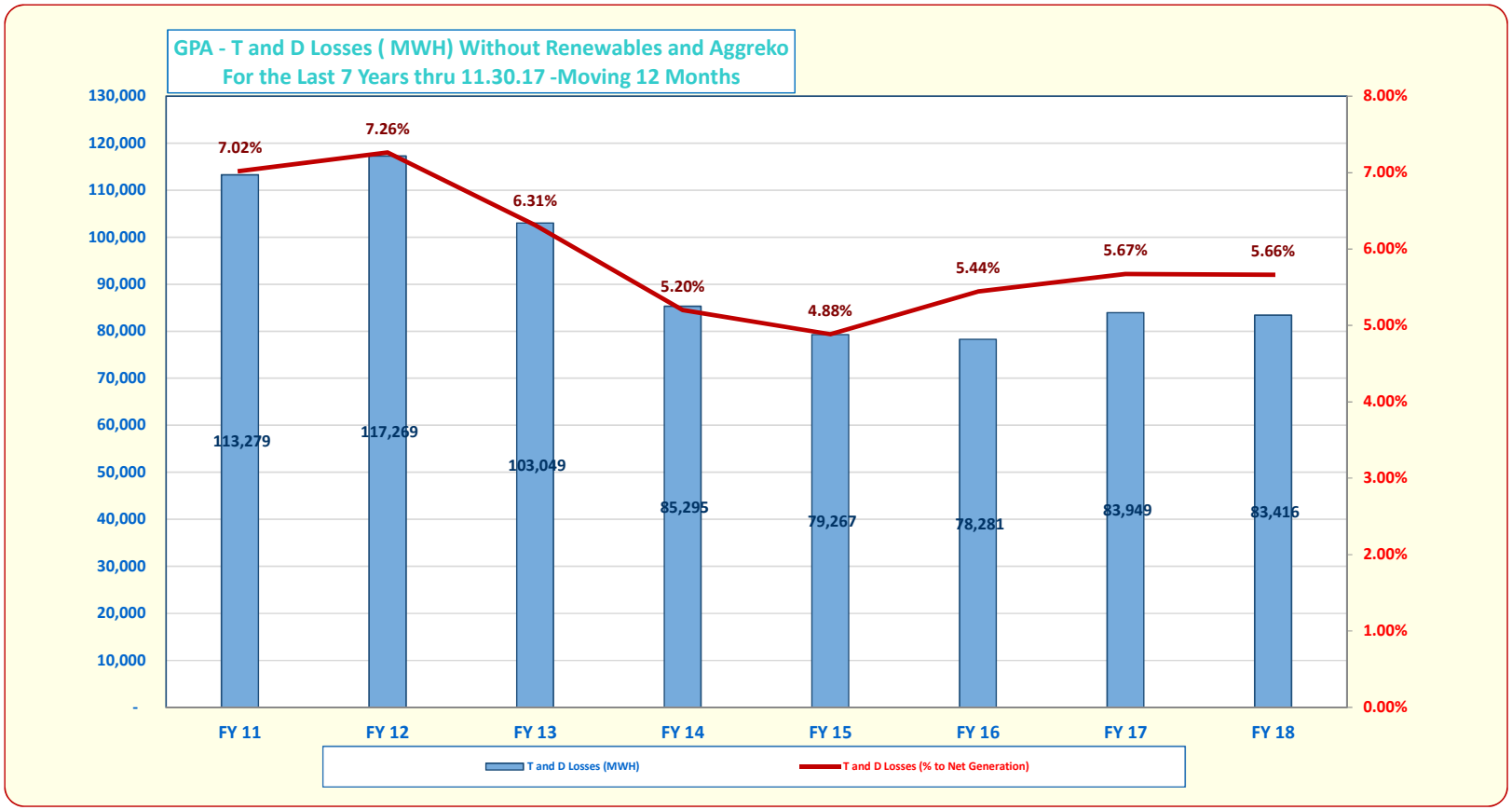


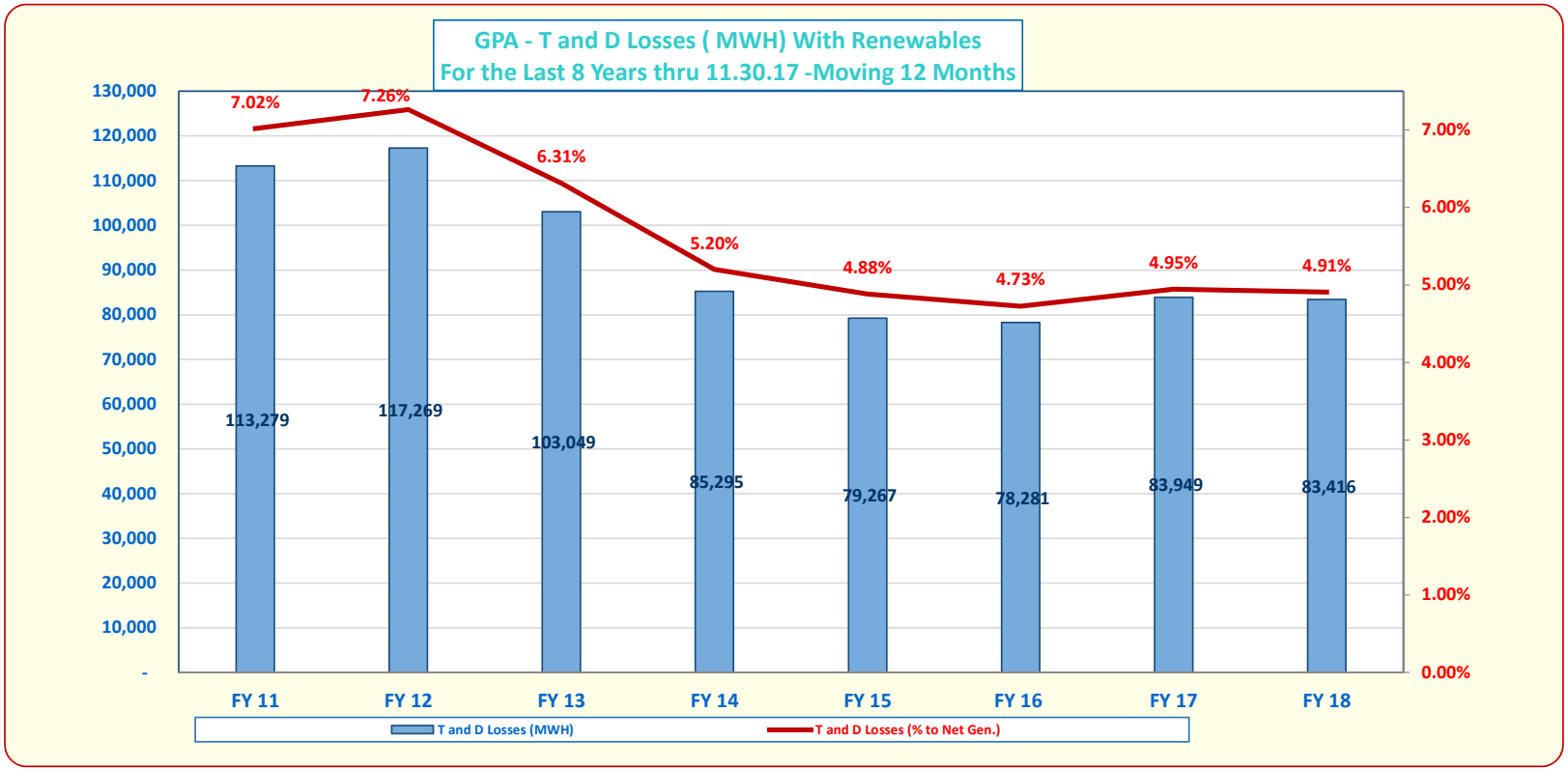


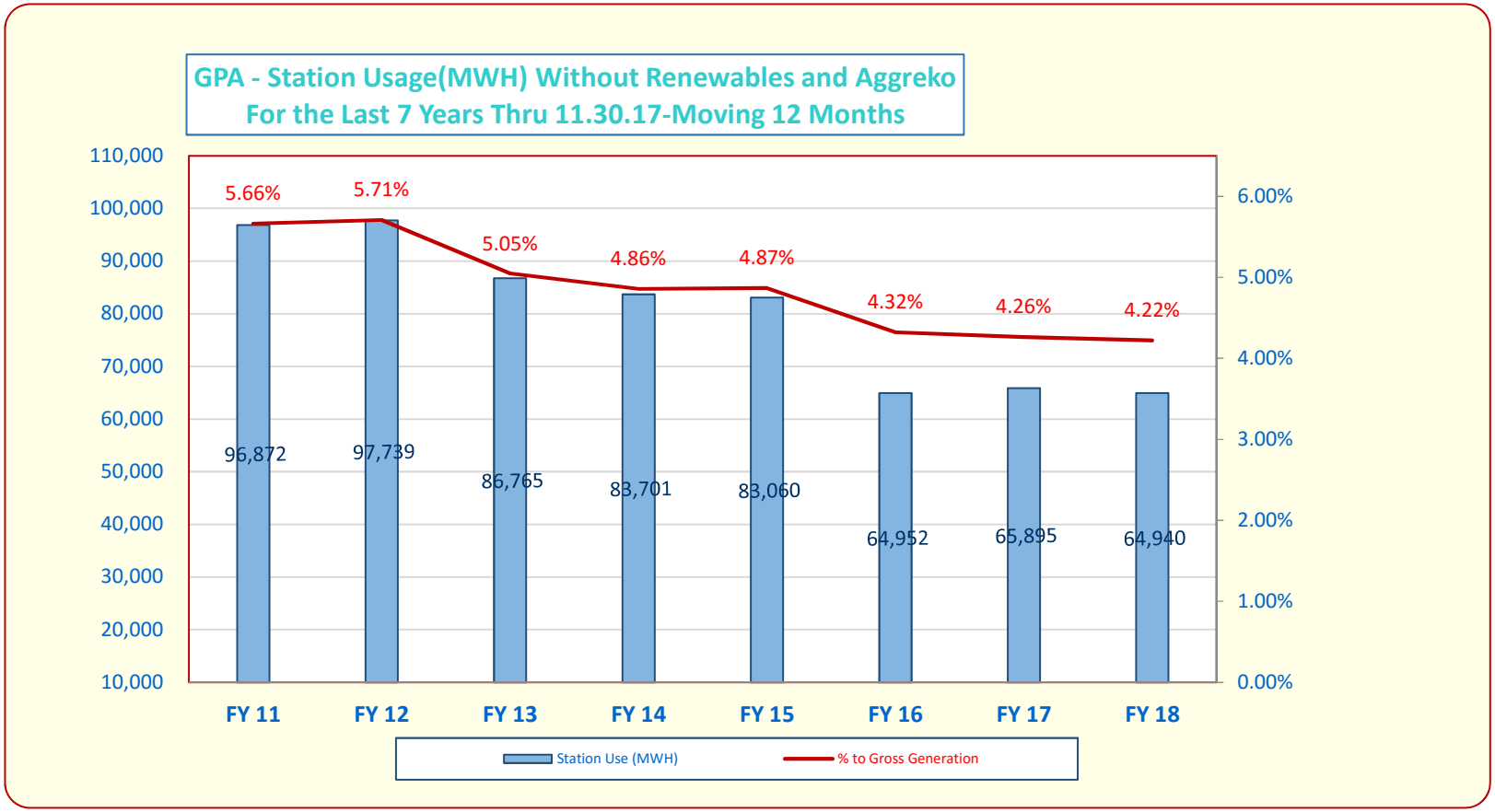
REVENUES-ACTUAL VS PROJECTIONS

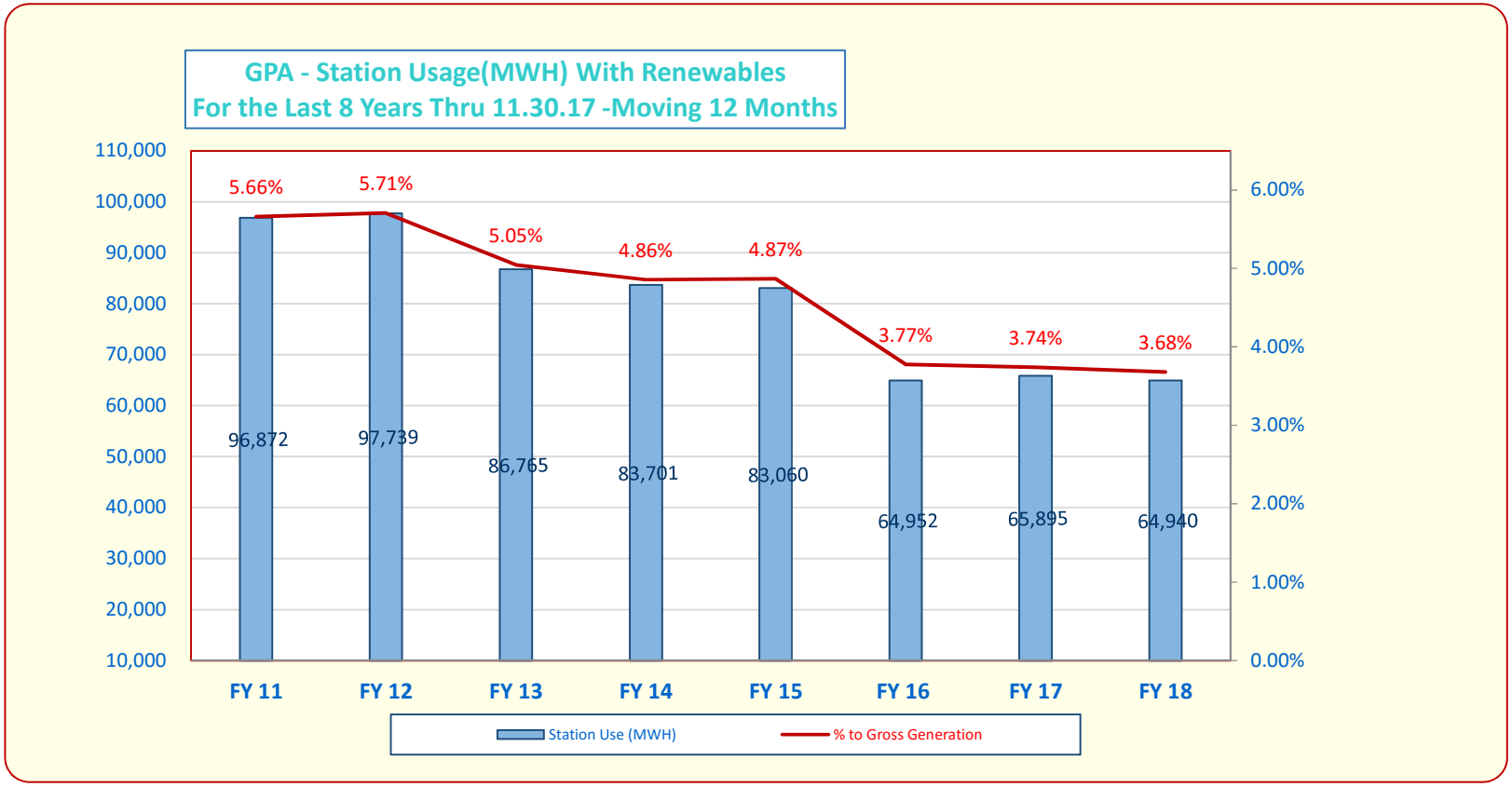
	MONTHLY - NOVEMBER 2017				YTD THRU 11/30/2017			
	PROJECTIONS	ACTUAL	VARIANCE	% VARIANCE	PROJECTIONS	ACTUAL	VARIANCE	% VARIANCE
KWH								
Residential	41,523,870	43,386,853	1,862,983	4.49%	83,803,137	85,068,852	1,265,716	1.51%
Small General-Non-Demand	6,676,862	7,060,041	383,179	5.74%	13,710,497	14,127,183	416,686	3.04%
Small General-Demand	15,731,719	15,789,397	57,677	0.37%	31,986,725	31,581,523	(405,201)	-1.27%
Large	26,928,656	26,267,661	(660,994)	-2.45%	53,941,738	52,850,803	(1,090,935)	-2.02%
Independent Power Producers	33,685	93,823	60,138	178.53%	67,475	186,067	118,591	175.75%
Private St. Lites	59,513	35,042	(24,472)	-41.12%	113,786	68,893	(44,893)	-39.45%
Sub-total	**90,954,305**	**92,632,817**	**1,678,512**	**1.85%**	**183,623,357**	**183,883,321**	**259,964**	**0.14%**
Government								
Small_Non Demand	1,025,409	1,255,131	229,722	22.40%	2,203,168	2,506,744	303,576	13.78%
Small-Demand	7,784,044	8,098,974	314,930	4.05%	15,929,697	16,382,192	452,496	2.84%
Large	5,983,459	6,550,623	567,164	9.48%	12,238,721	12,968,877	730,155	5.97%
Public St. Lites	749,720	668,464	(81,256)	-10.84%	1,585,546	1,481,413	(104,132)	-6.57%
Sub-total	**15,542,632**	**16,573,193**	**1,030,561**	**6.63%**	**31,957,131**	**33,339,226**	**1,382,095**	**4.32%**
Total-Civilian	**106,496,937**	**109,206,010**	**2,709,073**	**2.54%**	**215,580,488**	**217,222,547**	**1,642,059**	**0.76%**
USN	25,635,022	26,837,883	1,202,861	4.69%	52,770,472	52,083,303	(687,169)	-1.30%
Grand Total	**132,131,959**	**136,043,893**	**3,911,933**	**2.96%**	**268,350,961**	**269,305,850**	**954,889**	**0.36%**
					-	-		
Non-Oil Yield								
Residential	0.096203	0.095791	(0.000413)	-0.43%	0.096203	0.096021	(0.000183)	-0.19%
Small General-Non-Demand	0.136364	0.135717	(0.000647)	-0.47%	0.136364	0.135846	(0.000518)	-0.38%
Small General-Demand	0.119423	0.116611	(0.002813)	-2.36%	0.119423	0.118451	(0.000972)	-0.81%
Large	0.103705	0.103448	(0.000256)	-0.25%	0.103705	0.102284	(0.001421)	-1.37%
Independent Power Producers	0.117983	0.099929	(0.018054)	0.00%	0.117983	0.100133	(0.017850)	0.00%
Private St. Lites	0.454278	0.609171	0.154893	34.10%	0.454278	0.618512	0.164234	36.15%
Sub-total	**0.105631**	**0.104752**	**(0.000879)**	**-0.83%**	**0.105680**	**0.104933**	**(0.000748)**	**-0.71%**
Government					-			
Small_Non Demand	0.152255	0.149157	(0.003098)	-2.03%	0.152255	0.148939	(0.003315)	-2.18%
Small-Demand	0.135082	0.134625	(0.000457)	-0.34%	0.135082	0.133235	(0.001847)	-1.37%
Large	0.128102	0.125502	(0.002600)	-2.03%	0.128102	0.125086	(0.003016)	-2.35%
Public St. Lites	0.380746	0.509618	0.128871	33.85%	0.380746	0.466050	0.085304	22.40%
Sub-total	**0.145378**	**0.147245**	**0.001867**	**1.28%**	**0.145781**	**0.146034**	**0.000253**	**0.17%**
Total-Civilian	**0.111432**	**0.111201**	**(0.000231)**	**-0.21%**	**0.111625**	**0.111241**	**(0.000384)**	**-0.34%**
USN	0.061774	0.062724	0.000950	1.54%	0.061774	0.063137	0.001364	2.21%
Grand Total	**0.101798**	**0.101638**	**(0.000160)**	**-0.16%**	**0.101822**	**0.101938**	**0.000116**	**0.11%**
Non-Oil Revenues								
Residential	3,994,737	4,156,049	161,312	4.04%	8,062,146	8,168,372	106,226	1.32%
Small General-Non-Demand	910,485	958,169	47,684	5.24%	1,869,622	1,919,120	49,499	2.65%
Small General-Demand	1,878,731	1,841,210	(37,521)	-2.00%	3,819,955	3,740,877	(79,079)	-2.07%
Large	2,792,626	2,717,346	(75,280)	-2.70%	5,594,008	5,405,766	(188,243)	-3.37%
Independent Power Producers	3,974	9,376	5,401	135.91%	7,961	18,631	10,670	134.03%
Private St. Lites	27,036	21,346	(5,689)	-21.04%	51,690	42,611	(9,079)	-17.56%
Sub-total	**9,607,590**	**9,703,497**	**95,907**	**1.00%**	**19,405,382**	**19,295,377**	**(110,005)**	**-0.57%**
Government								
Small_Non Demand	156,123	187,211	31,088	19.91%	335,442	373,352	37,910	11.30%
Small-Demand	1,051,483	1,090,325	38,842	3.69%	2,151,812	2,182,674	30,862	1.43%
Large	766,493	822,117	55,624	7.26%	1,567,805	1,622,220	54,415	3.47%
Public St. Lites	285,453	340,661	55,208	19.34%	603,691	690,413	86,722	14.37%
Sub-total	**2,259,552**	**2,440,314**	**180,762**	**8.00%**	**4,658,750**	**4,868,659**	**209,909**	**4.51%**
Total-Civilian	**11,867,142**	**12,143,811**	**276,670**	**2.33%**	**24,064,132**	**24,164,036**	**99,904**	**0.42%**
USN	1,583,577	1,683,380	99,803	6.30%	3,259,841	3,288,409	28,568	0.88%
Grand Total	**13,450,719**	**13,827,192**	**376,473**	**2.80%**	**27,323,973**	**27,452,445**	**128,472**	**0.47%**
% of Total Revenues	39.85%	47.31%			39.86%	46.70%		
Oil Revenues								
Residential	6,379,406	5,107,414	(1,271,993)	-19.94%	12,874,866	10,014,135	(2,860,731)	-22.22%
Small General-Non-Demand	1,025,781	831,094	(194,687)	-18.98%	2,106,375	1,663,024	(443,351)	-21.05%
Small General-Demand	2,416,900	1,858,087	(558,812)	-23.12%	4,914,193	3,716,447	(1,197,746)	-24.37%
Large	4,137,110	3,076,471	(1,060,639)	-25.64%	8,287,191	6,189,427	(2,097,764)	-25.31%
Independent Power Producers	5,175	10,678	5,502	106.33%	10,366	21,166	10,799	104.18%
Private St. Lites	9,143	4,125	(5,018)	-54.88%	17,481	8,110	(9,371)	-53.61%
Sub-total	**13,973,516**	**10,887,869**	**(3,085,647)**	**-22.08%**	**28,210,472**	**21,612,309**	**(6,598,164)**	**-23.39%**
Government								
Small_Non Demand	157,536	147,752	(9,784)	-6.21%	338,478	295,089	(43,389)	-12.82%
Small-Demand	1,195,880	953,395	(242,485)	-20.28%	2,447,315	1,928,479	(518,836)	-21.20%
Large	919,252	761,871	(157,381)	-17.12%	1,880,262	1,508,214	(372,049)	-19.79%
Public St. Lites	115,181	78,690	(36,491)	-31.68%	243,591	174,389	(69,202)	-28.41%
Sub-total	**2,387,850**	**1,941,708**	**(446,142)**	**-18.68%**	**4,909,646**	**3,906,171**	**(1,003,476)**	**-20.44%**
Total-Civilian	**16,361,366**	**12,829,577**	**(3,531,789)**	**-21.59%**	**33,120,119**	**25,518,479**	**(7,601,639)**	**-22.95%**
USN	3,938,367	2,570,685	(1,367,682)	-34.73%	8,107,247	5,817,549	(2,289,698)	-28.24%
Grand Total	**20,299,732**	**15,400,262**	**(4,899,471)**	**-24.14%**	**41,227,366**	**31,336,028**	**(9,891,338)**	**-23.99%**
% of Total Revenues	60.15%	52.69%			60.14%	53.30%		
Grand Total								
Residential	10,374,143	9,263,463	(1,110,680)	-10.71%	20,937,012	18,182,507	(2,754,504)	-13.16%
Small General-Non-Demand	1,936,267	1,789,263	(147,003)	-7.59%	3,975,996	3,582,144	(393,852)	-9.91%
Small General-Demand	4,295,631	3,699,298	(596,333)	-13.88%	8,734,148	7,457,323	(1,276,825)	-14.62%
Large	6,929,737	5,793,817	(1,135,919)	-16.39%	13,881,200	11,595,193	(2,286,007)	-16.47%
Independent Power Producers	9,149	20,053	10,904	119.18%	18,327	39,797	21,470	117.15%
Private St. Lites	36,179	25,471	(10,707)	-29.60%	69,171	50,721	(18,450)	-26.67%
Sub-total	**23,581,106**	**20,591,366**	**(2,989,740)**	**-12.68%**	**47,615,854**	**40,907,686**	**(6,708,169)**	**-14.09%**
Government					-			
Small_Non Demand	313,659	334,963	21,304	6.79%	673,920	668,441	(5,479)	-0.81%
Small-Demand	2,247,363	2,043,720	(203,643)	-9.06%	4,599,127	4,111,153	(487,975)	-10.61%
Large	1,685,746	1,583,988	(101,758)	-6.04%	3,448,068	3,130,434	(317,634)	-9.21%
Public St. Lites	400,634	419,351	18,717	4.67%	847,281	864,802	17,520	2.07%
Sub-total	**4,647,402**	**4,382,022**	**(265,380)**	**-5.71%**	**9,568,396**	**8,774,829**	**(793,567)**	**-8.29%**
Total-Civilian	**28,228,508**	**24,973,388**	**(3,255,120)**	**-11.53%**	**57,184,251**	**49,682,515**	**(7,501,736)**	**-13.12%**
USN	5,521,943	4,254,065	(1,267,878)	-22.96%	11,367,088	9,105,958	(2,261,130)	-19.89%
Grand Total	**33,750,451**	**29,227,453**	**(4,522,998)**	**-13.40%**	**68,551,339**	**58,788,473**	**(9,762,866)**	**-14.24%**
	-	-	-					

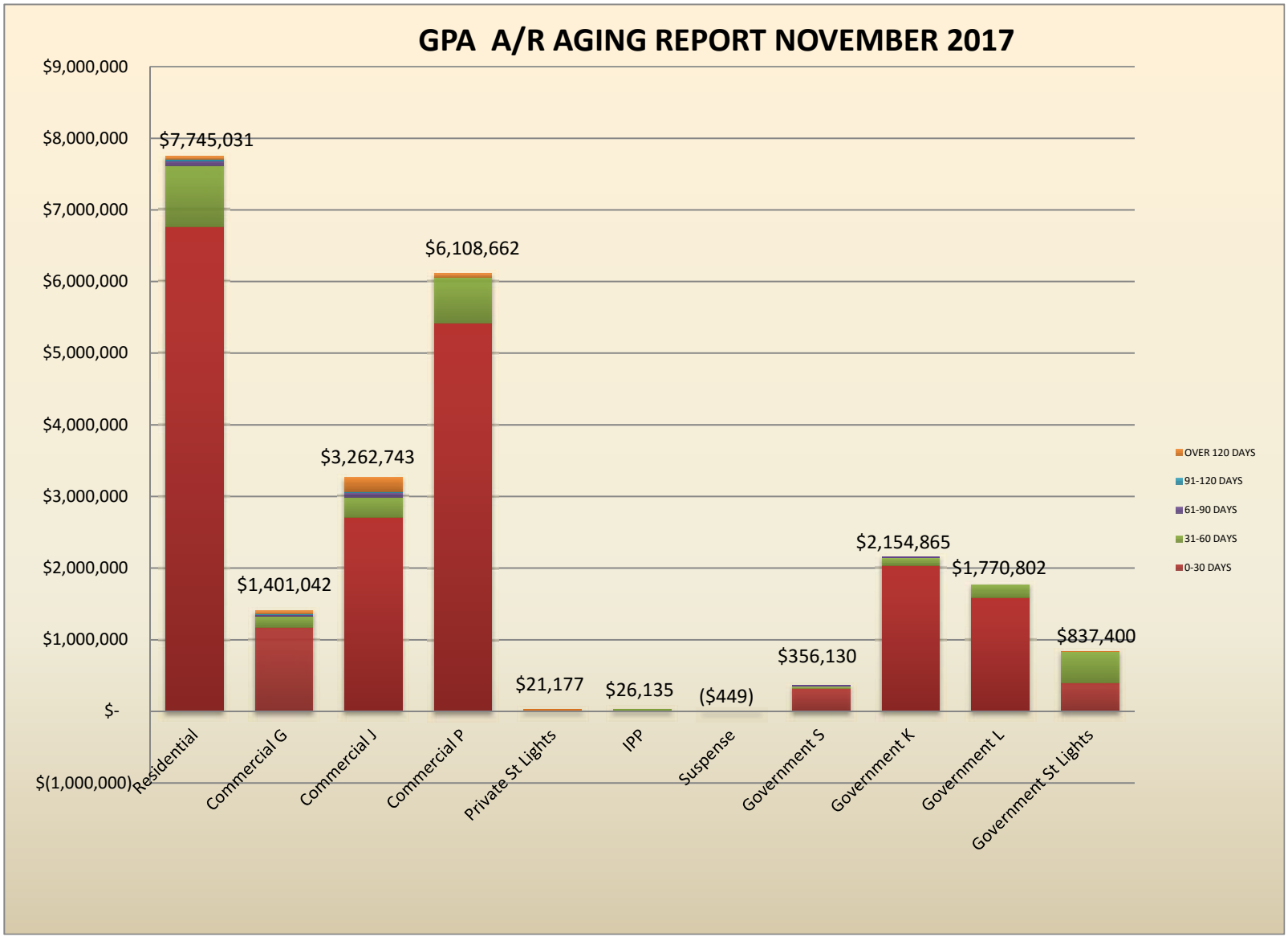
	YTD REVENUES - CURRENT YEAR VS PRIOR YEAR				MTD REVENUES - CURRENT YEAR VS PRIOR YEAR			
	ACTUALS - 2 MONTHS ENDED NOVEMBER 30				ACTUALS - MONTH ENDED NOVEMBER 30			
	2017	2016	VARIANCE	% VARIANCE	2017	2016	VARIANCE	% VARIANCE
KWH								
Residential	85,068,852	83,193,169	1,875,684	2.25%	43,386,853	42,310,523	1,076,330	2.54%
Small General-Non-Demand	14,127,183	13,694,502	432,681	3.16%	7,060,041	7,048,061	11,980	0.17%
Small General-Demand	31,581,523	31,545,507	36,016	0.11%	15,789,397	16,040,892	(251,496)	-1.57%
Large	52,850,803	52,692,125	158,677	0.30%	26,267,661	25,868,811	398,851	1.54%
Independent Power Producers	186,067	177,844	8,223	4.62%	93,823	90,319	3,504	3.88%
Private St. Lites	68,893	101,556	(32,663)	-32.16%	35,042	49,285	(14,243)	-28.90%
Sub-total	**183,883,321**	**181,404,704**	**2,478,618**	**1.37%**	**92,632,817**	**91,407,891**	**1,224,925**	**1.34%**
Government								
Small_Non Demand	2,506,744	2,320,407	186,336	8.03%	1,255,131	1,197,422	57,709	4.82%
Small-Demand	16,382,192	16,927,333	(545,141)	-3.22%	8,098,974	8,490,446	(391,471)	-4.61%
Large	12,968,877	12,496,697	472,180	3.78%	6,550,623	6,402,088	148,536	2.32%
Public St. Lites	1,481,413	1,894,918	(413,505)	-21.82%	668,464	897,232	(228,768)	-25.50%
Sub-total	**33,339,226**	**33,639,356**	**(300,130)**	**-0.89%**	**16,573,193**	**16,987,187**	**(413,994)**	**-2.44%**
Total-Civilian	**217,222,547**	**215,044,060**	**2,178,487**	**1.01%**	**109,206,010**	**108,395,078**	**810,932**	**0.75%**
USN	52,083,303	51,811,452	271,851	0.52%	26,837,883	25,225,302	1,612,581	6.39%
Grand Total	**269,305,850**	**266,855,512**	**2,450,338**	**0.92%**	**136,043,893**	**133,620,381**	**2,423,512**	**1.81%**
Non-Oil Yield								
Residential	0.096021	0.096437	-0.000416	-0.43%	0.095791	0.097097	-0.001306	-1.35%
Small General-Non-Demand	0.135846	0.137565	-0.001719	-1.25%	0.135717	0.138829	-0.003111	-2.24%
Small General-Demand	0.118451	0.119236	-0.000785	-0.66%	0.116611	0.118967	-0.002356	-1.98%
Large	0.102284	0.103305	-0.001022	-0.99%	0.103448	0.103170	0.000278	0.27%
Independent Power Producers	0.000000	0.114587	-0.114587	-100.00%	0.099929	0.120856	-0.020927	-17.32%
Private St. Lites	0.618512	0.461900	0.156612	33.91%	0.609171	0.482733	0.126438	26.19%
Sub-total	**0.104933**	**0.105724**	**-0.000791**	**-0.75%**	**0.104752**	**0.106103**	**-0.001350**	**-1.27%**
Government								
Small_Non Demand	0.148939	0.151661	-0.002721	-1.79%	0.149157	0.151012	-0.001855	-1.23%
Small-Demand	0.133235	0.132472	0.000763	0.58%	0.134625	0.132095	0.002530	1.92%
Large	0.125086	0.127201	-0.002115	-1.66%	0.125502	0.126175	-0.000672	-0.53%
Public St. Lites	0.466050	0.414642	0.051408	12.40%	0.509618	0.400595	0.109023	27.22%
Sub-total	**0.146034**	**0.147732**	**-0.001698**	**-1.15%**	**0.147245**	**0.145379**	**0.001866**	**1.28%**
Total-Civilian	**0.111241**	**0.112295**	**-0.001054**	**-0.94%**	**0.111201**	**0.112258**	**-0.001057**	**-0.94%**
USN	0.063137	0.061298	0.001839	3.00%	0.062724	0.060809	0.001915	3.15%
Grand Total	**0.101938**	**0.102394**	**-0.000456**	**-0.45%**	**0.101638**	**0.102545**	**-0.000907**	**-0.88%**
Non-Oil Revenues								
Residential	8,168,372	8,022,886	145,486	1.81%	4,156,049	4,108,219	47,830	1.16%
Small General-Non-Demand	1,919,120	1,883,882	35,238	1.87%	958,169	978,472	(20,303)	-2.07%
Small General-Demand	3,740,877	3,761,371	(20,494)	-0.54%	1,841,210	1,908,333	(67,123)	-3.52%
Large	5,405,766	5,443,367	(37,601)	-0.69%	2,717,346	2,668,883	48,463	1.82%
Independent Power Producers	18,631	20,379	(1,747)	-8.57%	9,376	10,916	(1,540)	-14.11%
Private St. Lites	42,611	46,909	(4,298)	-9.16%	21,346	23,791	(2,445)	-10.28%
Sub-total	**19,295,377**	**19,178,793**	**116,584**	**0.61%**	**9,703,497**	**9,698,615**	**4,883**	**0.05%**
Government								
Small_Non Demand	373,352	351,914	21,438	6.09%	187,211	180,825	6,387	3.53%
Small-Demand	2,182,674	2,242,398	(59,724)	-2.66%	1,090,325	1,121,544	(31,219)	-2.78%
Large	1,622,220	1,589,591	32,629	2.05%	822,117	807,780	14,336	1.77%
Public St. Lites	690,413	785,713	(95,300)	-12.13%	340,661	359,427	(18,766)	-5.22%
Sub-total	**4,868,659**	**4,969,616**	**(100,957)**	**-2.03%**	**2,440,314**	**2,469,575**	**(29,261)**	**-1.18%**
Total-Civilian	**24,164,036**	**24,148,408**	**15,627**	**0.06%**	**12,143,811**	**12,168,190**	**(24,378)**	**-0.20%**
USN	3,288,409	3,175,949	112,460	3.54%	1,683,380	1,533,914	149,466	9.74%
Grand Total	**27,452,445**	**27,324,358**	**128,088**	**0.47%**	**13,827,192**	**13,702,104**	**125,088**	**0.91%**
% of Total Revenues								
Oil Revenues								
Residential	10,014,135	7,205,610	2,808,525	38.98%	5,107,414	3,664,641	1,442,772	39.37%
Small General-Non-Demand	1,663,024	1,186,122	476,902	40.21%	831,094	610,454	220,640	36.14%
Small General-Demand	3,716,447	2,731,334	985,113	36.07%	1,858,087	1,388,873	469,214	33.78%
Large	6,189,427	4,541,395	1,648,032	36.29%	3,076,471	2,231,194	845,278	37.88%
Independent Power Producers	21,166	14,892	6,274	42.13%	10,678	7,562	3,115	41.19%
Private St. Lites	8,110	8,796	(686)	-7.80%	4,125	4,269	(144)	-3.37%
Sub-total	**21,612,309**	**15,688,149**	**5,924,159**	**37.76%**	**10,887,869**	**7,906,993**	**2,980,876**	**37.70%**
Government								
Small_Non Demand	295,089	200,977	94,111	46.83%	147,752	103,712	44,039	42.46%
Small-Demand	1,928,479	1,466,127	462,352	31.54%	953,395	735,383	218,012	29.65%
Large	1,508,214	1,069,487	438,726	41.02%	761,871	547,954	213,917	39.04%
Public St. Lites	174,389	164,125	10,264	6.25%	78,690	77,712	978	1.26%
Sub-total	**3,906,171**	**2,900,717**	**1,005,454**	**34.66%**	**1,941,708**	**1,464,762**	**476,946**	**32.56%**
Total-Civilian	**25,518,479**	**18,588,866**	**6,929,614**	**37.28%**	**12,829,577**	**9,371,754**	**3,457,822**	**36.90%**
USN	5,817,549	4,520,163	1,297,386	28.70%	2,570,685	2,522,054	48,631	1.93%
Grand Total	**31,336,028**	**23,109,029**	**8,227,000**	**35.60%**	**15,400,262**	**11,893,808**	**3,506,453**	**29.48%**
% of Total Revenues								
Grand Total								
Residential	18,182,507	15,228,496	2,954,011	19.40%	9,263,463	7,772,860	1,490,602	19.18%
Small General-Non-Demand	3,582,144	3,070,004	512,140	16.68%	1,789,263	1,588,926	200,337	12.61%
Small General-Demand	7,457,323	6,492,705	964,619	14.86%	3,699,298	3,297,206	402,091	12.19%
Large	11,595,193	9,984,762	1,610,431	16.13%	5,793,817	4,900,077	893,741	18.24%
Independent Power Producers	39,797	35,271	4,526	12.83%	20,053	18,478	1,575	8.52%
Private St. Lites	50,721	55,705	(4,984)	-8.95%	25,471	28,060	(2,589)	-9.23%
Sub-total	**40,907,686**	**34,866,942**	**6,040,744**	**17.33%**	**20,591,366**	**17,605,607**	**2,985,758**	**16.96%**
Government								
Small_Non Demand	668,441	552,892	115,549	20.90%	334,963	284,537	50,426	17.72%
Small-Demand	4,111,153	3,708,525	402,628	10.86%	2,043,720	1,856,926	186,793	10.06%
Large	3,130,434	2,659,078	471,355	17.73%	1,583,988	1,355,735	228,253	16.84%
Public St. Lites	864,802	949,837	(85,035)	-8.95%	419,351	437,139	(17,787)	-4.07%
Sub-total	**8,774,829**	**7,870,332**	**904,497**	**11.49%**	**4,382,022**	**3,934,337**	**447,686**	**11.38%**
Total-Civilian	**49,682,515**	**42,737,274**	**6,945,241**	**16.25%**	**24,973,388**	**21,539,944**	**3,433,444**	**15.94%**
USN	9,105,958	7,696,112	1,409,846	18.32%	4,254,065	4,055,968	198,097	4.88%
Grand Total	**58,788,473**	**50,433,386**	**8,355,087**	**16.57%**	**29,227,453**	**25,595,912**	**3,631,541**	**14.19%**


GPA - T and D Losses (MWH) Without Renewables and Aggreko
For the Last 7 Years thru 11.30.17 -Moving 12 Months
130,000
120,000
110,000
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
-
8.00%
7.00%
6.00%
5.00%
4.00%
3.00%
2.00%
1.00%
0.00%
7.02%
7.26%
6.31%
5.20%
4.88%
5.44%
5.67%
5.66%
113,279
117,269
103,049
85,295
79,267
78,281
83,949
83,416
FY 11
FY 12
FY 13
FY 14
FY 15
FY 16
FY 17
FY 18
T and D Losses (MWH)
T and D Losses (% to Net Generation)


GPA - T and D Losses (MWH) With Renewables
For the Last 8 Years thru 11.30.17 -Moving 12 Months
130,000
120,000
110,000
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
-
7.00%
6.00%
5.00%
4.00%
3.00%
2.00%
1.00%
0.00%
7.02%
7.26%
6.31%
5.20%
4.88%
4.73%
4.95%
4.91%
113,279
117,269
103,049
85,295
79,267
78,281
83,949
83,416
FY 11
FY 12
FY 13
FY 14
FY 15
FY 16
FY 17
FY 18
T and D Losses (MWH)
T and D Losses (% to Net Gen.)


GPA - Station Usage(MWH) Without Renewables and Aggreko
For the Last 7 Years Thru 11.30.17-Moving 12 Months
110,000
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
6.00%
5.00%
4.00%
3.00%
2.00%
1.00%
0.00%
5.66%
5.71%
5.05%
4.86%
4.87%
4.32%
4.26%
4.22%
96,872
97,739
86,765
83,701
83,060
64,952
65,895
64,940
FY 11
FY 12
FY 13
FY 14
FY 15
FY 16
FY 17
FY 18
Station Use (MWH)
% to Gross Generation


GPA - Station Usage(MWH) With Renewables
For the Last 8 Years Thru 11.30.17 -Moving 12 Months
110,000
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
6.00%
5.00%
4.00%
3.00%
2.00%
1.00%
0.00%
5.66%
5.71%
5.05%
4.86%
4.87%
3.77%
3.74%
3.68%
96,872
97,739
86,765
83,701
83,060
64,952
65,895
64,940
FY 11
FY 12
FY 13
FY 14
FY 15
FY 16
FY 17
FY 18
Station Use (MWH)
% to Gross Generation


GPA A/R AGING REPORT NOVEMBER 2017
$9,000,000
$8,000,000
$7,000,000
$6,000,000
$5,000,000
$4,000,000
$3,000,000
$2,000,000
$1,000,000
$-
$(1,000,000)
$7,745,031
$1,401,042
$3,262,743
$6,108,662
$21,177
$26,135
($449)
$356,130
$2,154,865
$1,770,802
$837,400
Residential
Commercial G
Commercial J
Commercial P
Private St Lights
IPP
Suspense
Government S
Government K
Government L
Government St Lights
OVER 120 DAYS
91-120 DAYS
61-90 DAYS
31-60 DAYS
0-30 DAYS

Approval of Power Purchase Agreement

KEPCO-LG-CNS Mangilao Solar, LLC

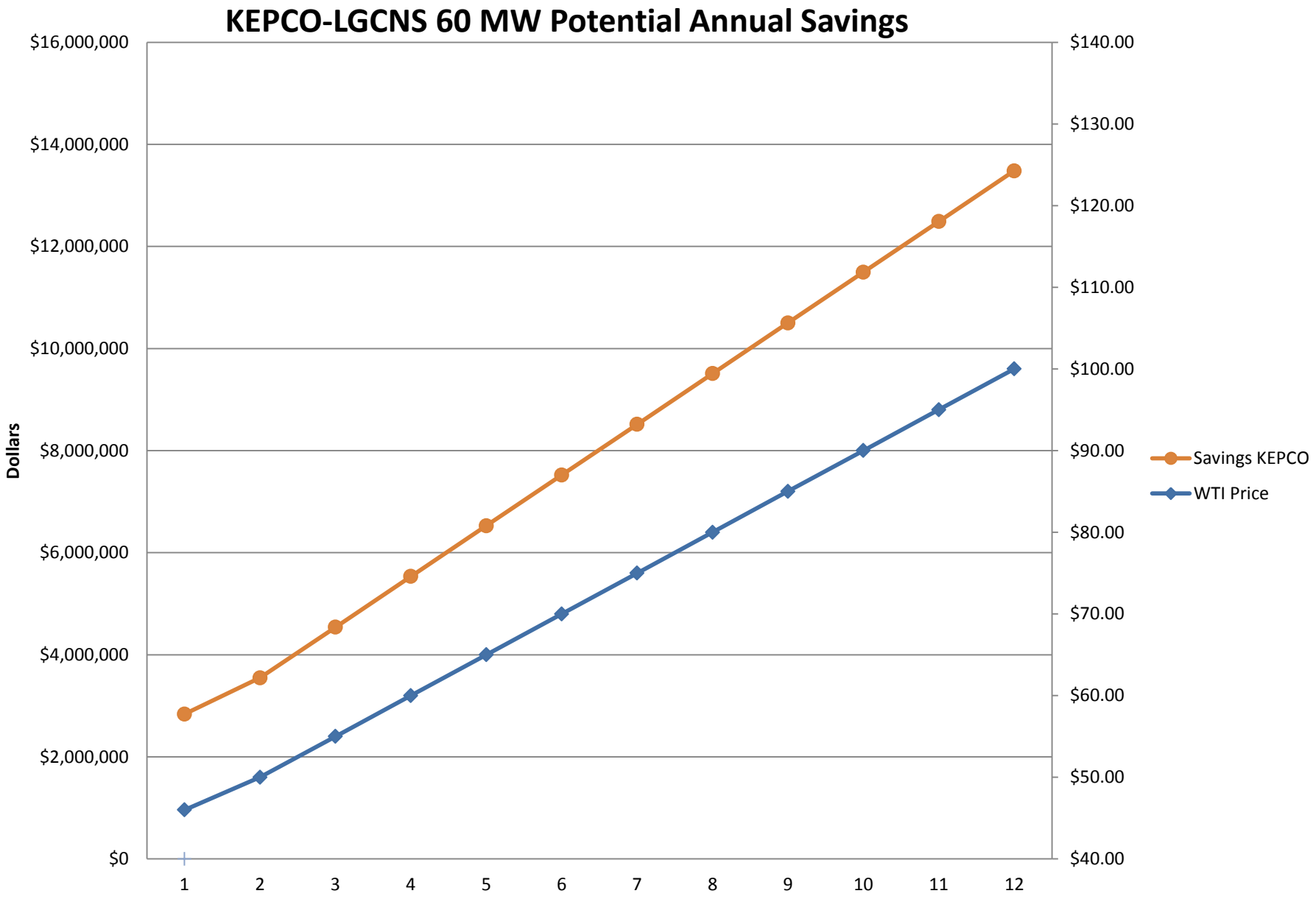
January 18, 2017

Requesting Approval - KEPCO-LG-CNS Mangilao Solar, LLC contract

- Award 60MW Power Purchase Agreement to KEPCO-LG-CNS Mangilao Solar, LLC which includes:
  - Two 30MW Solar Plants at Sasajyan
  - Install 32MW/32MWH ESS for Ramp Rate Control
  - Install 34.5 KV Underground Transmission Lines from Sasajyan (New Solar Plants) to Pagat Substation and Overhead Transmission Lines between Pagat and Macheche Substations
  - Install Differential Relays at GPA Substations as per System Impact Study (SIS) recommendation for system stability
  - Other Requirements Identified by Final SIS

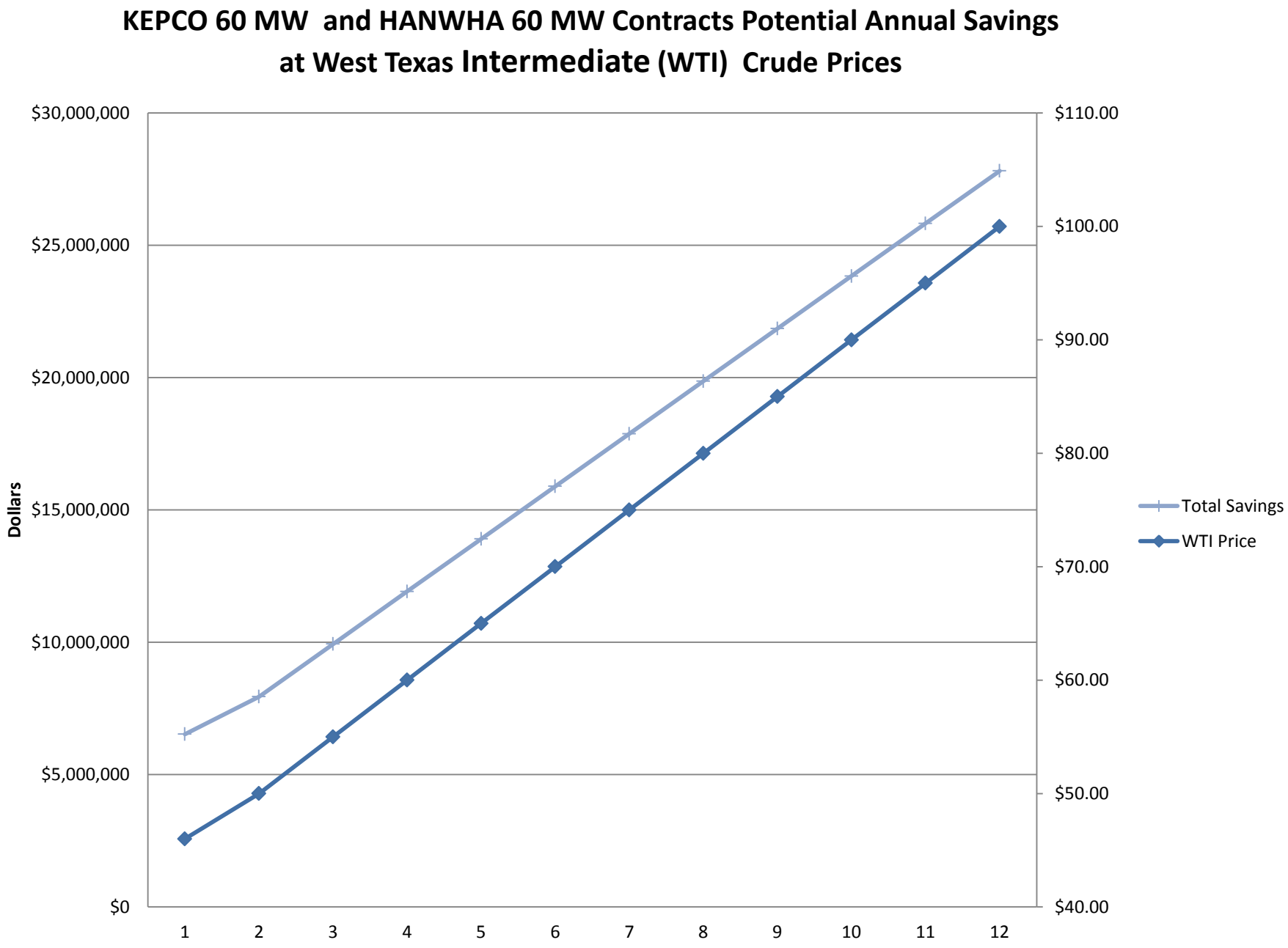
Power Purchase Agreement (PPA)

- Power Purchase agreement for KEPCO-LG-CNS Mangilao Solar, LLC for 60 MW of Solar PV
- 25 Year contract at starting price of $0.0855/KWH with an annual escalator of 1 %.
- With West Texas Crude at $65/ Barrel, savings estimated at about $6.5M annually
- Commercial Operation: Estimated Date April 2020
- Subject to PUC approval

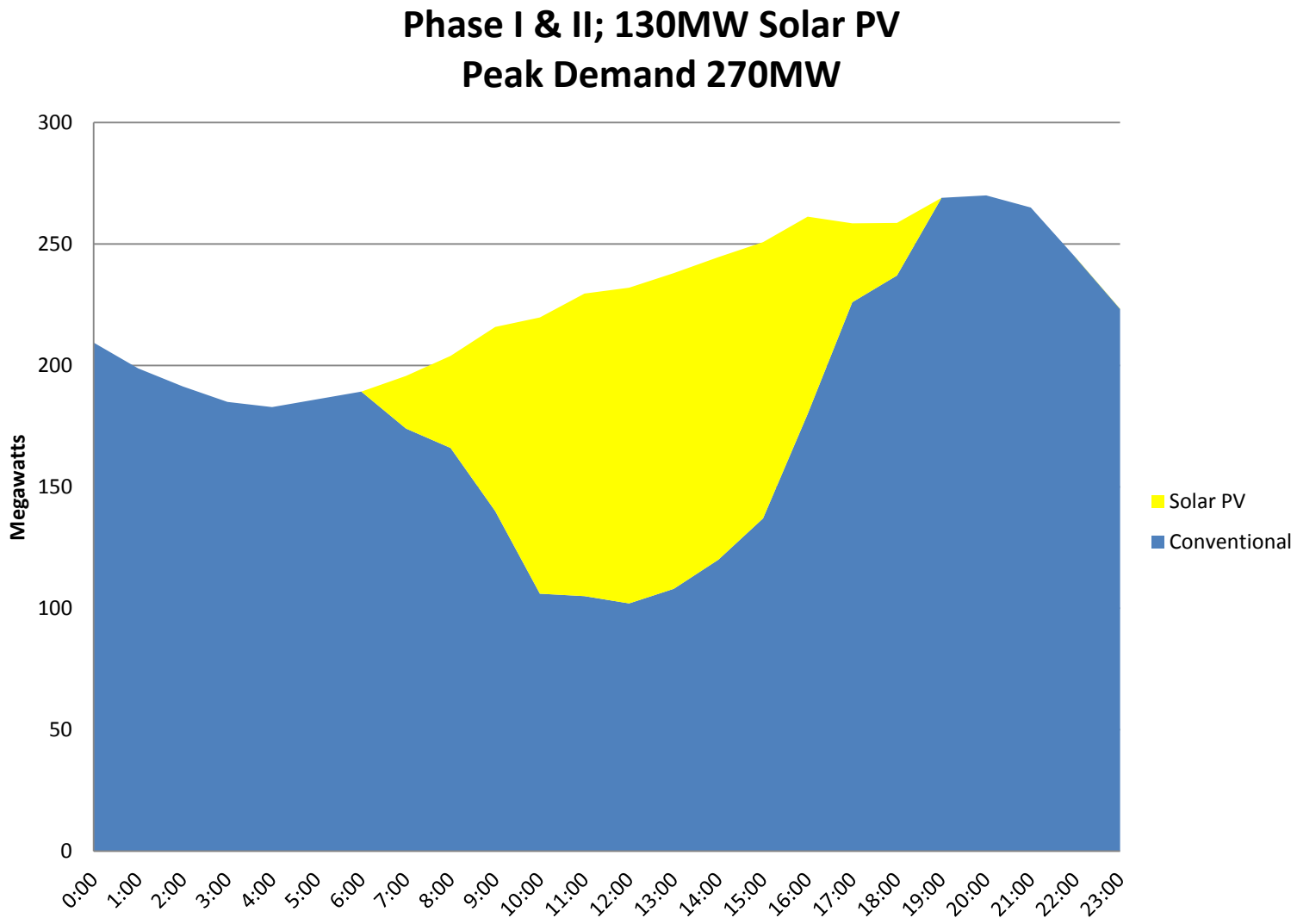

KEPCO-LGCNS 60 MW Potential Annual Savings
Dollars
$16,000,000
$14,000,000
$12,000,000
$10,000,000
$8,000,000
$6,000,000
$4,000,000
$2,000,000
$0
$140.00
$130.00
$120.00
$110.00
$100.00
$90.00
$80.00
$70.00
$60.00
$50.00
$40.00
1
2
3
4
5
6
7
8
9
10
11
12
Savings KEPCO
WTI Price

HANWHA 60 MW PPA Contract

- For CCU approval in February
- 60 MW contract at Dandan Site
- 25 Year Power Purchase Agreement
- 115 KV lines from Dandan to Apra Heights Substation to Piti Substation
- PPA nearing completion
- Annual savings with WTI at $65/Bbl. is about $7M


KEPCO 60 MW and HANWHA 60 MW Contracts Potential Annual Savings
at West Texas Intermediate (WTI) Crude Prices
Dollars
$30,000,000
$25,000,000
$20,000,000
$15,000,000
$10,000,000
$5,000,000
$0
$110.00
$100.00
$90.00
$80.00
$70.00
$60.00
$50.00
$40.00
1
2
3
4
5
6
7
8
9
10
11
12
Total Savings
WTI Price

Hourly System Dispatch



GUAM POWER AUTHORITY
ATURIDÅT ILEKTRESEDÅT GUAHAN
P.O.BOX 2977 • AGANA, GUAM U.S.A. 96932-2977

Issues for Decision

Resolution No. 2018-01:

RELATIVE TO APPROVAL OF THE PHASE II RENEWABLE ENERGY ACQUISITION POWER PURCHASED AGREEMENT FOR KEPCO-LG CNS MANGILAO SOLAR, LLC

What is the project's objective? Is it necessary and urgent?

GPA intends to meet its 2008 IRP goals and comply with Public Law 29-62 which sets renewable goals under the Renewable Portfolio Standards (RPS) with the Phase II projects. In January 2017 GPA obtained the price bids for GPA Multi-Step Bid No: GPA-070-16 for 60MW of Renewable Energy Resource capacity with ESS for ramp control. KEPCO-LG CNS Mangilao Solar, LLC., is one of the two (2) lowest responsive bidders (Hanwha Energy Corporation is the other one) with having two proposals for 30MW solar PV projects totaling 60 MW of solar PV capacity with ESS for ramp control. GPA and KEPCO-LG CNS Mangilao Solar, LLC have completed and agreed to commercial terms and conditions of the Power Purchase Agreements (PPA). GPA seeks approval to submit KEPCO-LG CNS Mangilao Solar, LLC's PPA to the PUC for their approval.

Where is the location?

The KEPCO_LGCNS 2x30MW solar projects are located at Sasajyan, Mangilao.

How much will it cost?

Please see attached table.

When will it be completed?

The Agreement is for 25 year term.

What is its funding source?

Funding source is LEAC.

KEPCO_LGCNS Price Proposal

Site A

Contract Year	Annual Price ($/MWH)	Guaranteed Net Annual Generation (MWH/YR)	Annual Price ($)
1	85.50	74,542.29	6,373,301.30
2	86.35	73,974.68	6,388,018.45
3	87.22	73,604.26	6,419,591.74
4	88.09	73,233.84	6,451,157.70
5	88.97	73,058.88	6,500,102.43
6	89.86	72,493.01	6,514,254.33
7	90.76	72,122.59	6,545,778.20
8	91.67	71,752.18	6,577,281.12
9	92.58	71,573.23	6,626,486.53
10	93.51	71,011.34	6,640,209.75
11	94.44	70,640.93	6,671,628.12
12	95.39	70,270.51	6,703,010.83
13	96.34	70,087.58	6,752,417.40
14	97.31	69,529.68	6,765,653.80
15	98.28	69,159.26	6,796,906.12

Contract Year	Annual Price ($/MWH)	Guaranteed Net Annual Generation (MWH/YR)	Annual Price ($)
16	99.26	68,788.84	6,828,106.93
17	100.25	68,601.94	6,877,649.88
18	101.26	68,048.01	6,890,337.29
19	102.27	67,677.59	6,921,358.30
20	103.29	67,307.18	6,952,310.69
21	104.33	67,116.29	7,001,919.62
22	105.37	66,566.34	7,013,991.65
23	106.42	66,195.92	7,044,711.02
24	107.49	65,825.51	7,075,343.38
25	108.56	65,630.64	7,124,941.98

Site B

Contract Year	Annual Price ($/MWH)	Guaranteed Net Annual Generation (MWH/YR)	Annual Price ($)
1	85.50	74,542.29	6,373,301.30
2	86.35	73,974.68	6,388,018.45
3	87.22	73,604.26	6,419,591.74
4	88.09	73,233.84	6,451,157.70
5	88.97	73,058.88	6,500,102.43
6	89.86	72,493.01	6,514,254.33
7	90.76	72,122.59	6,545,778.20
8	91.67	71,752.18	6,577,281.12
9	92.58	71,573.23	6,626,486.53
10	93.51	71,011.34	6,640,209.75
11	94.44	70,640.93	6,671,628.12
12	95.39	70,270.51	6,703,010.83
13	96.34	70,087.58	6,752,417.40
14	97.31	69,529.68	6,765,653.80
15	98.28	69,159.26	6,796,906.12

Contract Year	Annual Price ($/MWH)	Guaranteed Net Annual Generation (MWH/YR)	Annual Price ($)
16	99.26	68,788.84	6,828,106.93
17	100.25	68,601.94	6,877,649.88
18	101.26	68,048.01	6,890,337.29
19	102.27	67,677.59	6,921,358.30
20	103.29	67,307.18	6,952,310.69
21	104.33	67,116.29	7,001,919.62
22	105.37	66,566.34	7,013,991.65
23	106.42	66,195.92	7,044,711.02
24	107.49	65,825.51	7,075,343.38
25	108.56	65,630.64	7,124,941.98

CONSOLIDATED COMMISSION ON UTILITIES
Guam Power Authority | Guam Waterworks Authority
P.O. Box 2977 Hagatna, Guam 96932 | (671) 648-3002 | guamccu.org

RESOLUTION NO. 2018-01

RESOLUTION RELATIVE TO APPROVAL OF THE PHASE II RENEWABLE ENERGY ACQUISITION AWARD TO KEPCO-LG CNS MANGILAO SOLAR, LLC., FOR 60 MW OF RENEWABLE ENERGY CAPACITY

WHEREAS, in May 2016 GPA announced GPA Multi-Step Bid No: GPA- 070-16 for 60MW of Renewable Energy Resource capacity with ESS for ramp control; and

WHEREAS, in January 2017 GPA obtained the price bids and KEPCO-LG CNS Mangilao Solar, LLC., is one of the two (2) lowest responsive bidders (Hanwha Energy Corporation is the other bidder) providing two proposals for 30MW solar PV projects totaling 60 MW of solar PV capacity with ESS for ramp control; and

WHEREAS, the responsive bidders provided price proposals for the energy and ramp controls to include interconnection costs of each 30MW proposal. **Exhibit A** provides a summary of the energy price proposals which shows the first year price for KEPCO-LG CNS Mangilao Solar, LLC is $85.50/$/MWH; and

WHEREAS, GPA evaluates bidder's price proposal against GPA's variable operating costs primarily made up of fuel costs; and

WHEREAS, GPA has determined that KEPCO-LG CNS Mangilao Solar, LLC proposals would provide substantial savings to GPA over the term of the contracts based on current and projected LEAC rates; and

WHEREAS, the table below represents the projected savings of potential award case **Exhibit B** contains case summaries; and

CASE	Description	Project Size	5 Year Projected Savings On Current LEAC ($115/MWH)	5 Year Projected Savings on Projected LEAC	Present Value Utility Cost Savings thru Contract Term
1	KEPCO Proposal 1&2 (60MW)	60 MW	$ 20,470,866	$43,331,390	$90,301,058

RESOLUTION NO: 2018-01

WHEREAS, GPA considers renewable energy as an effective hedge against rising fuel oil prices; and

WHEREAS, the bid prices proposed are an excellent fuel hedge as the bidders' energy prices are fixed with escalations no more than 1% annually for all proposals. **Exhibit C** summarizes GPA historical LEAC; and

WHEREAS, renewable energy is sustainable energy and good for the island; and

WHEREAS, Public Law 29-62 sets renewable goals under the Renewable Portfolio Standards (RPS); and

WHEREAS, the award of 120MW contracts including Hanwha Energy Corporation 60 MW project is projected to increase GPA's ratio of renewable energy to sales up to 26% by 2020. **Exhibit D** is a projected RPS outlook; and

WHEREAS, KEPCO-LG CNS Mangilao Solar, LLC has concurred with GPA recommendations from the system impact study which is incorporated in the contract documents; and

WHEREAS, GPA would like to proceed with an approval to award KEPCO-LG CNS Mangilao Solar, LLC a total of 60MW of renewable energy capacity contract subject to PUC approval.

NOW, THEREFORE, BE IT RESOLVED, by the CONSOLIDATED COMMISSION ON UTILITIES, the GOVERNING BODY of the GUAM POWER AUTHORITY as FOLLOWS:

1. The CCU authorizes GPA to petition the PUC for approval to award Phase II Renewable Acquisition Bid of two 30MW proposals totaling 60MW to KEPCO-LG CNS Mangilao Solar, LLC as required under the PUC Procurement Protocol.
2. The CCU authorizes GPA to contract KEPCO-LG CNS Mangilao Solar, LLC for renewable energy subject to PUC approval.

RESOLVED, that the Chairman certifies and the Board Secretary attests to the adoption of this Resolution.

RESOLUTION NO: 2018-01

DULY AND REGULARLY ADOPTED AND APPROVED THIS 23RD DAY OF JANUARY 2018.

Certified by:	Attested by:
_____	_____
JOSEPH T. DUENAS	**J. GEORGE BAMBA**
Chairperson	Secretary
Consolidated Commission on Utilities	Consolidated Commission on Utilities

I, J. George Bamba, Secretary for the Consolidated Commission on Utilities (CCU), as evidenced by my signature above do certify as follows:

The foregoing is a full, true, and accurate copy of the resolution duly adopted at a regular meeting of the members of Guam Consolidated Commission on Utilities, duly and legally held at a place properly noticed and advertised at which meeting a quorum was present and the members who were present voted as follows:

Ayes: _____

Nays: _____

Absent: _____

Abstain: _____

EXHIBIT A

Summary of Bid Proposals

Contract Year	Proposal 1		Proposal 2	
	Annual Price ($/MWH)	Guaranteed Net Annual Generation (MWH/YR)	Annual Price ($/MWH)	Guaranteed Net Annual Generation (MWH/YR)
1	$ 85.50	74,542.29	$ 85.50	74,542.29
2	$ 86.35	73,974.68	$ 86.35	73,974.68
3	$ 87.22	73,604.26	$ 87.22	73,604.26
4	$ 88.09	73,233.84	$ 88.09	73,233.84
5	$ 88.97	73,058.88	$ 88.97	73,058.88
6	$ 89.86	72,493.01	$ 89.86	72,493.01
7	$ 90.76	72,122.59	$ 90.76	72,122.59
8	$ 91.67	71,752.18	$ 91.67	71,752.18
9	$ 92.58	71,573.23	$ 92.58	71,573.23
10	$ 93.51	71,011.34	$ 93.51	71,011.34
11	$ 94.44	70,640.93	$ 94.44	70,640.93
12	$ 95.39	70,270.51	$ 95.39	70,270.51
13	$ 96.34	70,087.58	$ 96.34	70,087.58
14	$ 97.31	69,529.68	$ 97.31	69,529.68
15	$ 98.28	69,159.26	$ 98.28	69,159.26
16	$ 99.26	68,788.84	$ 99.26	68,788.84
17	$ 100.25	68,601.94	$ 100.25	68,601.94
18	$ 101.26	68,048.01	$ 101.26	68,048.01
19	$ 102.27	67,677.59	$ 102.27	67,677.59
20	$ 103.29	67,307.18	$ 103.29	67,307.18
21	$ 104.33	67,116.29	$ 104.33	67,116.29
22	$ 105.37	66,566.34	$ 105.37	66,566.34
23	$ 106.42	66,195.92	$ 106.42	66,195.92
24	$ 107.49	65,825.51	$ 107.49	65,825.51
25	$ 108.56	65,630.64	$ 108.56	65,630.64

EXHIBIT B

Proposal Evaluation Summary

CASE	Description	Project Size	5 Year Projected Savings On Current LEAC ($115/MWH)	5 Year Projected Savings on Projected LEAC	Present Value Utility Cost Savings* thru Contract Term
1	KEPCO Proposal 1&2 (60MW)	60 MW	$ 20,470,866	$ 43,331,390	$ 90,301,058

CASE 1 - KEPCO Proposal 1&2 (60MW)

5 Year Sample Calculation of Project Costs & Savings

	Contract Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTALS
1	KEPCO Proposal 1 Energy Rate ($/MWH)	85.50	86.35	87.22	88.09	88.97	
2	Energy Guarantee (MWH)	74,542.29	73,974.68	73,604.26	73,233.84	73,058.88	
3	KEPCO Proposal 2 Energy Rate ($/MWH)	85.50	86.35	87.22	88.09	88.97	
4	Energy Guarantee (MWH)	74,542.29	73,974.68	73,604.26	73,233.84	73,058.88	
5	Phase II Energy Costs (60MW)	$12,746,603	$12,776,037	$12,839,183	$12,902,315	$13,000,205	**$ 64,264,343**
6	Current LEAC Rate[1] ($/MWH)	115	115	115	115	115	
7	Current Energy Costs	$17,144,727	$17,014,176	$16,928,980	$16,843,784	$16,803,542	$ 84,735,209
8	Proposed Savings	**$ 4,398,125**	**$ 4,238,139**	**$ 4,089,797**	**$ 3,941,469**	**$ 3,803,337**	**$ 20,470,866**
9							
10	Year	2019	2020	2021	2022	2023	TOTALS
	Projected LEAC Rate[2] ($/MWH)	122.27	140.02	154.63	154.03	159.65	
	Projected Energy Costs	$18,228,695	$20,716,064	$22,762,713	$22,560,701	$23,327,561	$ 107,595,733
11	Proposed Savings	**$ 5,482,092**	**$ 7,940,027**	**$ 9,923,529**	**$ 9,658,385**	**$10,327,356**	**$ 43,331,390**
12							
13							

STRATEGIST CASE SUMMARY

	Base Case (No Phase II)	Case 1 (60MW)	SAVINGS
Present Value Utility Cost[3] ($000)	6,896,417	6,806,116	90,301

Notes:

1. The Currrent LEAC is used in this case evaluation to demonstrate minimum savings potential with $115/MWH LEAC rate presently proposed for next LEAC period.

2. Projected LEAC is based on STRATEGIST software output that analyzes genernation costs for various generation resources and its operating characteristics. This LEAC is based on load and fuel forecasts done by LEIDOS in 2016.

3. Present Value Utility Cost is an evaluation of generation operating costs in the STRATEGIST software. This is used to determine cost impact of generation resources and their operation variables (efficiency, fuel costs, capacity, etc.) based on energy requirements.

EXHIBIT C
Historical LEAC Summary

EFFECTIVE DATES	FUEL RECOVERY RATE ($ per Kwh)
10/01/00	0.053613
04/01/01	0.053613
10/01/01	0.048625
04/01/02	0.042901
10/01/02	0.048831
04/01/03	0.048831
10/01/03	0.062333
04/01/04	0.059753
10/01/04	0.059753
01/01/00	0.073010
01/01/00	0.088918
01/01/00	0.098589
02/01/07	0.108893
08/13/07	0.123957
03/01/08	0.150467
06/01/08	0.170440
10/01/08	0.187750
12/01/08	0.171050
02/01/09	0.157630
05/01/09	0.136450
08/01/09	0.129670
02/01/10	0.150460
08/31/10	0.124650
02/01/11	0.161530
08/01/11	0.192220
02/01/12	0.191980
04/01/12	0.192310
02/01/13	0.209271
08/01/13	0.182054
02/01/14	0.172986
08/01/14	0.176441
11/01/14	0.146666
02/01/15	0.102054
08/01/15	0.104871
02/01/16	0.086613
08/01/16	0.086613
02/01/17	0.105051
08/01/17*	0.115725

**Proposed LEAC Rate*

EXHIBIT D

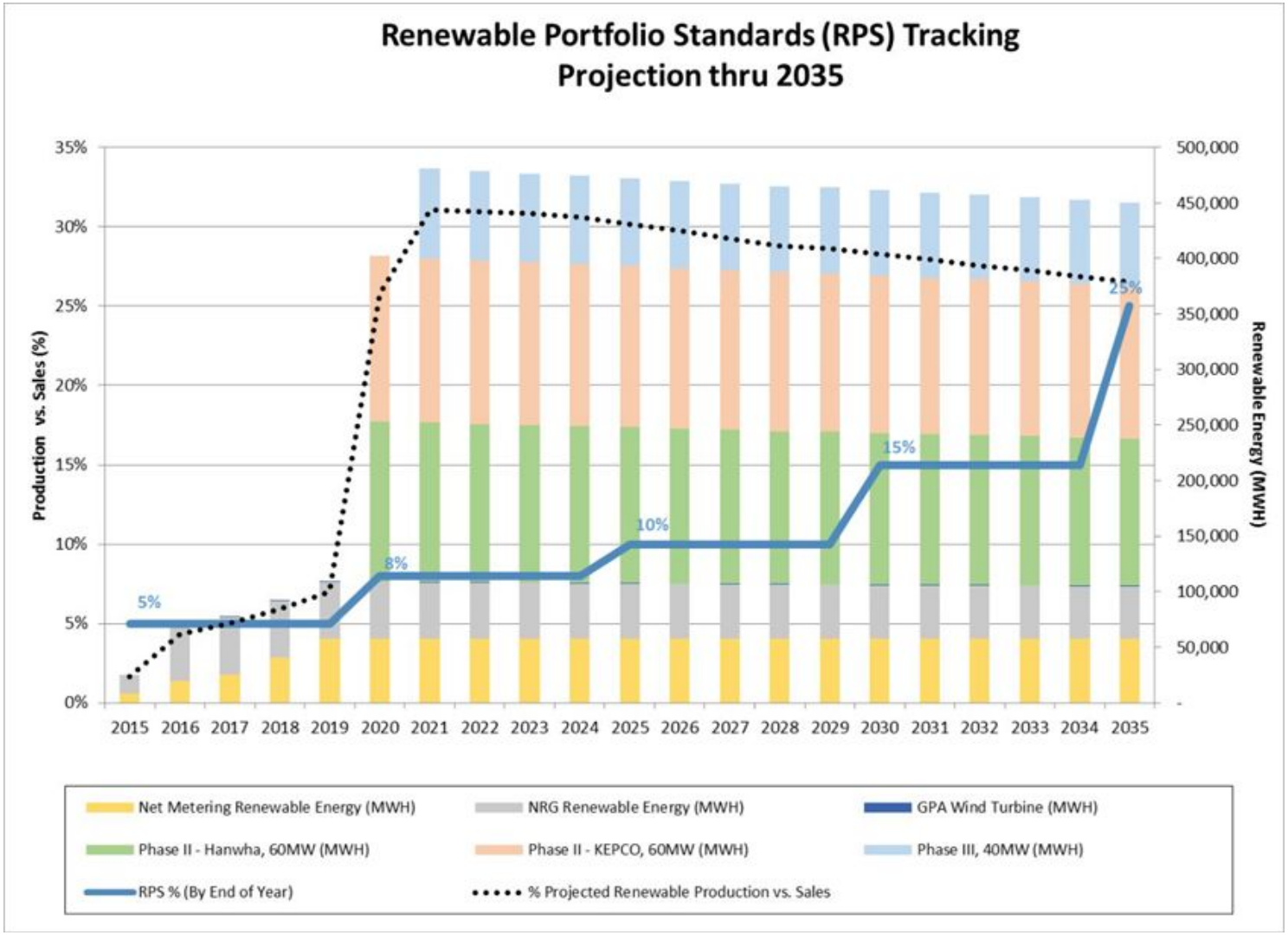
Projected Renewable Energy & Renewable Portfolio Standards (RPS) for 120 MW Phase II Award

	Net Metering Renewable Energy (MWH)	NRG Renewable Energy (MWH)	GPA Wind Turbine (MWH)	Phase II - Hanwha, 60MW (MWH)	Phase II - KEPCO, 60MW (MWH)	Phase III, 40MW (MWH)	Total Renewable Production (MWH)	GPA Total Sales (MWH)	% Projected Renewable Production vs. Sales	RPS % (By End of Year)
2015	8,034	17,597					25,630	1,536,927	2%	5%
2016	19,559	48,221	474				68,253	1,584,685	4%	5%
2017	25,271	51,627	482				77,380	1,546,044	5%	5%
2018	40,393	51,412	482				92,287	1,554,108	6%	5%
2019	57,629	51,133	482				109,244	1,557,331	7%	5%
2020	*57,629*	50,992	482	144,010	149,085		402,198	1,558,272	26%	8%
2021	*57,629*	50,601	482	143,662	147,949	80,510	480,834	1,547,800	31%	8%
2022	*57,629*	50,393	482	142,490	147,209	80,175	478,377	1,544,574	31%	8%
2023	*57,629*	50,083	482	141,730	146,468	79,740	476,131	1,544,540	31%	8%
2024	*57,629*	49,781	482	140,970	146,118	79,520	474,499	1,550,854	31%	8%
2025	*57,629*	49,599	482	140,612	144,986	78,911	472,219	1,566,472	30%	10%
2026	*57,629*	49,391	482	139,448	144,245	78,585	469,780	1,577,646	30%	10%
2027	*57,629*	49,122	482	138,688	143,504	78,102	467,527	1,597,005	29%	10%
2028	*57,629*	48,987	482	137,386	143,146	77,631	465,262	1,614,448	29%	10%
2029	*57,629*	48,612	482	137,560	142,023	77,348	463,654	1,620,517	29%	10%
2030	*57,629*	48,411	482	136,404	141,282	77,023	461,230	1,631,977	28%	15%
2031	*57,629*	48,147	482	135,642	140,541	76,604	459,045	1,644,069	28%	15%
2032	*57,629*	48,017	482	134,880	140,175	76,393	457,577	1,661,486	28%	15%
2033	*57,629*	47,649	482	134,504	139,059	75,808	455,131	1,670,464	27%	15%
2034	*57,629*	47,451	482	133,356	138,319	75,495	452,731	1,684,195	27%	15%
2035	*57,629*	47,191	482	132,592	137,578	75,083	450,555	1,698,373	27%	25%

Notes:

1. Sales is from 2016 forecast for 2017-2035 (LEIDOS Jan. 2016 Forecast)
2. Net Metering projection is from LEIDOS Forecast for 2017 thru 2019 and fixed thereafter
3. NRG (Phase I) production is based on contract guarantees from 2017 thru 2035
4. Phase II is based on Project Guarantees **for 120MW**. Phase III renewable projections are based NRG contract guarantees.
5. GPA wind turbine assumes average capacity factor since commissioning (20%) from 2017 thru 2035
6. DSM values are not included.

EXHIBIT E


Renewable Portfolio Standards (RPS) Tracking
Projection thru 2035
Production vs. Sales (%)
Renewable Energy (MWH)
35%
30%
25%
20%
15%
10%
5%
0%
500,000
450,000
400,000
350,000
300,000
250,000
200,000
150,000
100,000
50,000
-
5%
8%
10%
15%
25%
2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035
Net Metering Renewable Energy (MWH)
NRG Renewable Energy (MWH)
GPA Wind Turbine (MWH)
Phase II - Hanwha, 60MW (MWH)
Phase II - KEPCO, 60MW (MWH)
Phase III, 40MW (MWH)
RPS % (By End of Year)
% Projected Renewable Production vs. Sales

GPA Contract No. _____

RENEWABLE ENERGY
PURCHASE AGREEMENT

BETWEEN

GUAM POWER AUTHORITY
AND
KEPCO-LG CNS MANGILAO SOLAR, LLC

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RENEWABLE ENERGY
PURCHASE AGREEMENT
BETWEEN
GUAM POWER AUTHORITY
AND
KEPCO-LG CNS MANGILAO SOLAR, LLC

THIS RENEWABLE ENERGY PURCHASE AGREEMENT (the "Agreement"), effective as of last date set forth on the signature page hereto (the "Effective Date"), is entered into by and between and Guam Power Authority, ("GPA" or "Buyer") and KEPCO-LG CNS Mangilao Solar, LLC, ("Seller"). The purpose of this Agreement is to establish the terms and conditions under which Seller shall sell and GPA shall purchase Renewable Energy and associated Renewable Energy Credits ("RECs") and Environmental Attributes, as defined herein. In this Agreement, Seller and GPA may be individually referred to as a "Party" or collectively as the "Parties."

Recitals

WHEREAS, Seller desires to sell to GPA at the Delivery Point all of the Renewable Energy and associated RECs and Environmental Attributes from the Facility and GPA desires to buy the same from the Seller at the Delivery Point.

Therefore, for good and valuable consideration, including, without limitation, the covenants and agreements of the Parties contained in this Agreement, the receipt and sufficiency of which consideration is acknowledged, the Parties agree as follows:

ARTICLE ONE: DEFINITIONS

The following definitions apply to this Agreement:

1.1 "Actual Renewable Energy" means the actual energy output of the Facility (expressed in MWhs), measured at the Delivery Point, over any Production Measurement Period. Actual Renewable Energy shall be measured by the Seller Metering Equipment, and adjusted as applicable in accordance with Section 7.4.

1.2 "Affiliate" means, with respect to any party, any other party (other than an individual) that, directly or indirectly, through one or more intermediaries, controls, or is controlled by, or is under common control with, such party. For this purpose, "control" means the direct or indirect ownership of fifty percent (50%) or more of the outstanding capital stock or other equity interests having ordinary voting power.

1.3 "Agreement" has the meaning set forth in the initial paragraph above.

1.4 "Appraisal Price" means the average of three (3) appraisals of the market value of the Facility at the end of the Delivery Period, delivered by three (3) independent appraisers qualified by experience and expertise to determine the arms length market value of the Facility and assuming that energy and Environmental Attributes produced by the Facility will be sold at fair market value prices over the remaining economic useful life of the Facility. If the Parties do not agree on the independent appraisers then they shall be determined by arbitration in accordance with Section 12.9.

1.5 "Bankrupt" means with respect to any entity, such entity (i) files a petition or otherwise commences, authorizes or acquiesces in the commencement of a proceeding or cause of action under any bankruptcy, insolvency, reorganization or similar law, including but not limited to, under Chapter 11 or Chapter 9 of the United States Bankruptcy Code and Title III of Puerto Rico Oversight, Management and Economic Stability Act, or has any such valid petition filed or commenced against it, (ii) makes an assignment or any general arrangement for the benefit of creditors, (iii) otherwise becomes bankrupt or insolvent (however evidenced), (iv) has a liquidator, administrator, receiver, trustee, conservator or similar official appointed with respect to it or any substantial portion of its property or assets, or (v) is generally unable to pay its debts as they fall due.

1.6 "Bid Security" or "Bid Bond" means the $300,000.00, which is the amount of the security provided by Seller in connection with its initial bid to GPA for the Project prior to entering into the PPA.

1.7 "Business Day" means any day except a Saturday, Sunday, a Federal Reserve Bank holiday or an official Guam holiday. A Business Day shall open at 8:00 a.m. and close at 5:00 p.m. local time for the relevant Party's principal place of business. The relevant Party, in each instance unless otherwise specified, shall be the Party by whom the Notice or payment or delivery is to be received.

1.8 "Buyer" has the meaning set forth in the initial paragraph above.

1.9 "Buyout Payment" means, with respect to Seller's election not to re-build the Facility pursuant to Section 12.2, an amount equal to: Minimum Production x the number of Contract Years (or portion thereof) remaining in the Delivery Period x the Incremental Price~~,~~.

1.10 "Change Event" has the meaning set forth in Section 4.16(c).

1.11 "Claiming Party" has the meaning set forth in Section 4.11.

1.12 "Claims" means all claims or actions, threatened or filed and, whether groundless, false, fraudulent or otherwise, that directly or indirectly relate to the subject matter of an indemnity, and the resulting losses, damages, expenses, attorneys' fees and court costs, whether incurred by settlement or otherwise.

1.13 "COD Extension" has the meaning set forth in Section 4.2(a).

1.14 "COD Extension Payment" has the meaning set forth in Section 4.2(a).

1.15 "Commercially Reasonable" or "Commercially Reasonable Efforts" means, with respect to any purchase, sale, decision, or other action made, attempted or taken by a Party, such efforts as a reasonably prudent business would undertake for the protection of its own interest under the conditions affecting such purchase, sale, decision or other action, consistent with Good Utility Practices, including, without limitation, electric system reliability and stability or other regulatory mandates relating to renewable energy portfolio requirements, the cost of such action (including whether such cost is reasonable), the amount of notice of the need to take a particular action, the duration and type of purchase or sale or other action, and the commercial environment in which such purchase, sale, decision or other action occurs. "Commercially Reasonable" or "Commercially Reasonable Efforts" shall be reviewed and determined based upon the facts and circumstances known, or which could have been known with the exercise of reasonable efforts, at the time that a sale, purchase, or other action is taken and shall not be based upon a retroactive review of what would have been optimal at such time.

1.16 "Commercial Operation" has the meaning set forth in Section 4.1.

1.17 "Commercial Operation Date" or "COD" means the date that Commercial Operation of the Project has been achieved in accordance with Section 4.1.

1.18 "Confidential Information" means all information, whether written or oral, that is disclosed or otherwise available in connection with this Agreement or the performance by either Party of any of its duties hereunder, except any information which: (i) at the time of disclosure or thereafter is generally available to the public (other than as a result of a disclosure by any Party in violation of this Agreement); (ii) was available to any Party on a non-confidential basis from a source other than the Party hereto providing the Confidential Information, provided that such source is not bound by a confidentiality agreement that protected the Confidential Information and the Party receiving such Confidential Information is aware of such confidentiality agreement; or (iii) has been independently acquired or developed by any Party without violating any of its obligations under this Agreement.

1.19 "Contract Price" means the price in U.S. Dollars (unless otherwise provided for) rounded to the nearest $0.01, to be paid by GPA to Seller for the purchase of the Renewable Energy, as described in Appendix A.

1.20 “Contract Year” means the annual period, beginning on the Commercial Operation Date, and each annual period thereafter commencing on each anniversary of the Commercial Operation Date.

1.21 “Conventional Energy Resource” is an energy resource that is non-renewable in nature, such as natural gas, coal, oil, and uranium, or electricity that is produced with energy resources that are not Renewable Energy Resources.

1.22 “Credit Rating” means, with respect to any entity, the rating then assigned to such entity’s unsecured, senior long-term debt obligations (not supported by third party credit enhancements), or if such entity does not have a rating for its unsecured senior long-term debt obligations, then the rating then assigned to such entity as an issuer rating by S&P, Moody's or any other rating agency agreed by the Parties.

1.23 “Daily Delay Liquidated Damages” has the meaning set forth in Section 4.2(b).

1.24 “Defaulting Party” has the meaning set forth in Section 6.1.

1.25 “Deficiency Amount” has the meaning set forth in Section 4.8

1.26 “Delivery Period” means the period of delivery under this Agreement, commencing on the Commercial Operation Date and continuing for a Term of twenty-five (25) years, as such period may be extended in accordance with this Agreement.

1.27 “Delivery Point” means the point at which the Renewable Energy will be delivered and received, as specified in Section 2.1 herein, or such other delivery point as may be agreed to by the Parties.

1.28 “Development Security” means the security required to be posted by Seller during construction of the Facility prior to Commercial Operation Date, pursuant to Section 9.1. The Development Security shall be 50% of the total projected payment for the 1st Contract Year based on the Seller’s 1st Contract Year Contract Price and the Guaranteed Output for the first Contract Year. The amount of the Development Security is set out in Section 2.1.

1.29 “Early Termination Date” has the meaning set forth in Section 6.2.

1.30 “Effective Date” means the date first set forth above.

1.31 “Eligible Renewable Energy Resources" are applications of the following defined technologies that displace Conventional Energy Resources that could otherwise be used to provide electricity to GPA’s customers: biogas electricity generator, biomass electricity generator, fuel cells that use only renewable fuels, geothermal generator, hybrid wind and solar electric generator, landfill gas generator, solar electricity resources, wind generator and such other generally accepted Renewable Energy Resources.

1.32 “Emergency” means any abnormal interconnection or system condition (including, without limitation, equipment or transmission limitations and constraints caused by thermal limits, stability, voltage, or loop flows) that Buyer determines in accordance with Good Utility Practices: (a) requires automatic or immediate manual operation to prevent or limit loss of Buyer’s system or generation supply; (b) could adversely affect the reliability of the Buyer system or generation supply; (c) could adversely affect the reliability of any interconnected electric system; or (d) could otherwise pose a threat to public safety.

1.33 “Energy Storage System” shall mean the energy storage system described in Appendix C that is intergrated with the Project as part of the Facility.

1.34 “Environmental Attributes” means environmental characteristics that are attributable to Renewable Energy or the Project, including credits; credits towards achieving local, national or international renewable portfolio standards; green tags; Renewable Energy Credits; greenhouse gas or emissions reductions, credits, offsets, allowances or benefits; actual SO2, NOx, CO2, CO, Carbon, VOC, PM_{10}, mercury, and other emissions avoided; and any and all

other green energy or other environmental benefits associated with the generation of Renewable Energy (regardless of how any present or future law or regulation attributes or allocates such characteristics). Such Environmental Attributes shall be expressed in kWh or, as applicable in the case of emissions credits, in tonne equivalent or other allowance measurement. Environmental Attributes do not include Tax Benefits, or any energy, capacity, reliability, or other power attributes used by Seller to provide electricity services.

1.35 "EPC Contractor" means the contractor(s) under the engineering, procurement and construction contract for the Project.

1.36 "Event of Default" has the meaning set forth in Section 6.1.

1.37 "Excused Hours" means the hours in the applicable Production Measurement Period in which (i) Seller or Buyer has declared Force Majeure, (ii) Seller has initiated a Dispatch Down (as defined in Appendix G), or (iii) Seller's delivery to GPA of Renewable Energy is adversely affected as a result of failure by GPA to perform its obligations under this Agreement or the Interconnection Agreement, provided, however, if the Project is not able to generate Reneewable Energy during any hour of a Produciton Measurement Period due solely to Seller's failure to establish and maintain the "Voltage and Frequency Ride-Through Settings' set forth in Appendix C ("Voltage and Frequency Ride-Through Settings), such hours shall not constitute Excused Hours.

1.38 "Facility" means all of the following: the Project, as defined in Section 2.1 of this Agreement, the purpose of which is to produce Renewable Energy including Seller's Interconnection Facilities and Energy Storage System and all equipment and other tangible assets, land rights and contract rights owned by Seller and reasonably necessary for the construction, operation, and maintenance of the Project.

1.39 "Facility Capacity" has the meaning set forth in Section 2.1.

1.40 "Facility Test" has the meaning set forth in Section 4.1(e).

1.41 "Facility Debt" means the obligations of Seller or its Affiliates to any direct or indirect Facility lender pursuant to the Financing Documents, including without limitation, principal of, premium and interest on indebtedness, fees, expenses or penalties, amounts due upon acceleration, prepayment or restructuring, swap or interest rate hedging breakage costs and any claims or interest due with respect to any of the foregoing. Facility Debt does not include trade debt or obligations incurred in the ordinary course of business.

1.42 "FERC" means the Federal Energy Regulatory Commission or any successor government agency.

1.43 "Financing Arrangement Deadline" has the meaning set forth in Section 4.3.

1.44 "Financing Arrangement Provision Date" has the meaning set forth in Section 4.3.

1.45 "Financing Documents" means the loan and credit agreements, notes, bonds, indentures, security agreements, lease financing agreements, mortgages, deeds of trust, interest rate exchanges, swap agreements and other documents relating to the development, bridge, construction and/or permanent debt financing for the Facility (including any portfolio debt financing of which the Facility is included), including any credit enhancement, credit support, working capital financing, or refinancing documents, and any and all amendments, modifications, or supplements to the foregoing that may be entered into from time to time at the discretion of Seller and/or its Affiliates in connection with development, construction, ownership, leasing, operation or maintenance of the Facility.

1.46 "Forced Outage" means the shutdown or unavailability of the Facility, or a portion thereof other than as a Planned Outage, for reasons including, but not limited to, unanticipated equipment breakdown, human error, or Emergency conditions. A Forced Outage shall not include any Outage that may be deferred consistent with Good Utility Practices and without causing safety risk damage to equipment or additional costs.

1.47 "Forced Outage Notice" has the meaning set forth in Section 4.12(b).

1.48 “Force Majeure” means an event or circumstance which prevents one Party from performing its obligations under this Transaction, which event or circumstance was not anticipated as of the date the Transaction was agreed to, which is not within the reasonable control of, or the result of the negligence of, the Claiming Party, and which, by the exercise of due diligence, the Claiming Party is unable to overcome or avoid or cause to be avoided. So long as the requirements of the preceding sentence are met, a “Force Majeure” event may include, but shall not be limited to, flood, drought, military ordinances or archaeological discoveries at the Project site, change in applicable law or interpretation or application thereof-, failure or delay by any Governmental Authority in issuing any required permit, earthquake, storm, fire, lightning, epidemic, war, terrorism or riot. Notwithstanding the foregoing, Force Majeure shall not be based on (i) the loss of Buyer's markets; (ii) Buyer's inability economically to use or resell the Renewable Energy purchased hereunder; (iii) the loss or failure of Seller's supply, including materials or equipment, unless such loss or failure is caused by a Force Majeure event; (iv) the delay in or inability of Seller to obtain financing or economic hardship of any kind unless such delay or inability is caused by a Force Majeure Event; or (v) Seller's ability to sell the Renewable Energy at a price greater than the Contract Price or Buyer’s ability to purchase the Renewable Energy at a price less than the Contract Price; or (vi) strike or other labor dispute (other than strikes at a national, Guam or regional level). Neither Party may raise a claim of Force Majeure based in whole or in part on curtailment by a transmission provider unless such curtailment is due to "force majeure" or "uncontrollable force" or a similar term as defined under the transmission provider's tariff.

1.49 “Force Majeure Extension” has the meaning set forth in Section 4.2(c).

1.50 “Good Utility Practices” means any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result consistent with good business practices, economy, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method or act to the exclusion of all others, but rather to be generally accepted and consistently adhered to acceptable practices, methods, or acts.

1.51 “Governmental Authority” means any federal, territorial or local government body; any governmental, quasi-governmental, regulatory or administrative agency, commission, body or other authority exercising or entitled to exercise any administrative, executive, judicial, legislative, policy, regulatory or taxing authority or power; or any court or governmental tribunal.

1.52 “Governmental Charges” has the meaning set forth in Section 10.2.

1.53 “GPA” has the meaning set forth in the initial paragraph above.

1.54 “GPA Delay” means any delay by GPA in performing an obligation under this Agreement or under the Interconnection Agreement which results in a delay to Seller achieving COD.

1.55 “Guaranteed Output” has the meaning given in Section 4.8.

1.56 “Holdco” KEPCO-LG CNS Mangilao Holdings, a Delaware limited liability company.

1.57 “Incremental Price” has the meaning given in Appendix L.

1.58 “Independent Engineer” shall mean one of the engineering firms set forth in Appendix D hereto, and any other independent engineer or engineering firm, nationally recognized in the United States and having knowledge and expertise in the United States generation industry (including specifically the design and construction of utility scale solar photovoltaic power projects), and which is mutually agreed to by the Parties.

1.59 “Interconnection Agreement” means the agreement for interconnection service relating to the Facility between GPA and Seller, executed and delivered as of the Effective Date in the form attached hereto as Appendix J.

1.60 “Interest Rate” means, as applicable for any delayed payment hereunder, for any date, the lesser of (a) the per annum rate of interest equal to the prime lending rate as may from time to time be published in The Wall Street Journal under "Money Rates" on such day (or if not published on such day on the most recent preceding day on which published), plus two percent (2%) and (b) the maximum rate permitted by applicable law.

1.61 “kWh” means kilowatt hour.

1.62 “LEAC Rate” means the “Fuel Recovery Charge” (expressed in US$/MWh) as set forth in GPA’s most recent approved tariff in effect as of any date of determination of the LEAC Rate under this Agreement.

1.63 “Letter(s) of Credit” means one or more irrevocable, transferable standby letters of credit issued by a U.S. commercial bank or a foreign bank with a U.S. branch with such bank having a Credit Rating of at least A- from S&P or A3 from Moody's, in substantially the form set forth in Appendix F hereto; provided, however that such form may be modified by the issuing bank as long as such modifications are acceptable to the beneficiary in its reasonable discretion. Costs of a Letter of Credit shall be borne by the applicant for such Letter of Credit.

1.64 “Merger Event” means, with respect to a Party, that such Party consolidates or amalgamates with, or merges into or with, or transfers substantially all of its assets to another entity and (i) the resulting entity fails to assume all of the obligations of such Party hereunder or (ii) the benefits of any credit support provided pursuant to this Agreement fail to extend to the performance by such resulting, surviving or transferee entity of its obligations hereunder and such benefits are not replaced with equivalent credit support or (iii) the resulting entity’s Credit Rating upon the occurrence of the Merger Event is lower than that of such Party immediately prior to such action and is not supplemented by credit support such that the resulting entity’s credit is equal to or better than the predecessor enity.

1.65 “Minimum Production” has the meaning set forth in Section 4.8.

1.66 “Month” means a calendar Month. The term “Monthly” shall have a meaning correlative to a Month.

1.67 “Moody's” means Moody's Investor Services, Inc. or its successor.

1.68 “MW” or “MWh” means megawatt or megawatt hour, in each case rounded to the nearest whole MW or MWh.

1.69 “NAR” means the North American Renewables Registry.

1.70 “NAR Operating Procedures” means any and all guidelines, procedures, requirements and obligations established by the NAR, including the terms of use, operating procedures, and fee schedules, as such may be amended from time to time.

1.71 “Non-Defaulting Party” has the meaning set forth in Section 6.

1.72 "Notice” has the meaning set forth in Section 12.7.

1.73 “Notice to Proceed” means the written notice provided by Seller to the EPC Contractor to begin full (and not limited) procurement and construction activity at the Project site.

1.74 “Outage” means the period during which the Facility or a portion thereof is out of service.

1.75 “Outside Commercial Operation Date” has the meaning set forth in Section 4.2(b).

1.76 “Party” and “Parties” has the meaning set forth in the initial paragraph above.

1.77 “Planned Outage” means any Outage that is not a Forced Outage, and refers to the shutdown or unavailability of the Facility or a portion thereof for inspection or maintenance in accordance with an advance schedule.

1.78 “Production Measurement Period” has the meaning set forth in Section 4.8.

1.79 “Project” has the meaning set forth in Section 2.1.

1.80 “QRE” means the Qualified Reporting Entity as such term is defined in the NAR Operating Procedures.

1.81 “Quantity” means the actual quantity of Renewable Energy sold by Seller and purchased by and delivered to GPA pursuant to this Agreement. The Quantity shall be measured based on the metered data from the Seller Metering Equipment at the Delivery Point.

1.82 “Renewable Energy” means energy derived from a Renewable Energy Resource.

1.83 “Renewable Energy Credit” (“REC”) means the unit created to track kWh derived from an Eligible Renewable Energy Resources or kWh equivalent of Conventional Energy Resources displaced by Renewable Energy Resources.

1.84 “Renewable Energy Resource” means an energy resource that is replaced rapidly by a natural, ongoing process and that is not nuclear or fossil fuel.

1.85 “Replacement Price” means the price at which GPA, acting in a commercially reasonable manner, purchases electricity in place of Renewable Energy.

1.86 “S&P” means the Standard & Poor's Rating Group (a division of McGraw-Hill, Inc.) or its successor.

1.87 “SCADA” means “supervisory control and data acquisition” and shall refer to that category of software application program that can be used to gather data from the Facility remotely in real time in order to monitor Facility equipment and conditions.

1.88 “Schedule,” "Scheduled” or "Scheduling” means the actions of Seller, Buyer and/or their designated representatives, of notifying, requesting and confirming to each other the quantity and type of Renewable Energy to be delivered on any given day or days during the Delivery Period at a specified Delivery Point.

1.89 “Scheduled Commercial Operation Date” has the meaning set forth in Section 4.2(a).

1.90 “Seller” has the meaning set forth in the initial paragraph above.

1.91 “Seller Failure” has the meaning set forth in Section 5.1.

1.92 “Seller Failure Damages” has the meaning set forth in Section 5.1.

1.93 “Seller’s Interconnection Facilities” means Seller’s equipment as specified in the Interconnection Agreement.

1.94 “Seller Metering Equipment” means all metering equipment and data processing equipment used to measure the Quantity delivered to the Delivery Point.

1.95 “Shortfall Damages” has the meaning set forth in Section 4.8.

1.96 “Study” means the Renewable IFB System Impact Study [(insert date & study contractor)].

1.97 "Tax Benefits" means Renewable Energy related tax credits or other benefits, including those established under Section 45 and Section 48 of the Internal Revenue Code, as amended, or any similar or successor provision of the Internal Revenue Code.

1.98 "Term" has the meaning set forth in Section 12.1.

1.99 "Termination Damages" has the meaning set forth in Section 4.4.

1.100 "Test Energy" means non-firm Renewable Energy generated by the Facility prior to the Commercial Operation Date, subject to immediate interruption, fluctuations or reduction/increase with no prior Notice, due to unit performance.

1.101 "Transaction" means the transaction relating to the purchase or sale of Renewable Energy and Environmental Attributes as contemplated in this Agreement.

1.102 "Unit Contingent" means that the Renewable Energy is intended to be supplied from the Facility as it is produced.

1.103 "Weather Hours" means the total hours in any Production Measurement Period, as applicable, in which the Facility is derated as a result of cumulative weather conditions which are outside historical average conditions for any applicable Month during the Production Measurement Period in which the deration occurs, calculated in accordance with Appendix K.

ARTICLE TWO: COMMERCIAL TERMS

2.1 Commercial Terms.

The following commercial terms apply to the Transaction that is the subject of this Agreement, each as more fully described herein:

Buyer: GPA	**Seller:** KEPCO-LG CNS Mangilao Solar, LLC
Project: KEPCO-LG CNS Mangilao Solar Project	
Delivery Point: Seller's meter located on the Project site at the interconnection with the transmission line extending from the Project site to GPA's Pagat substation	
Guaranteed Output (MWhs): **As set forth in the sixth column of Appendix A**	**Estimated Annual Production (Minimum Production): (MWhs):** **As Set forth in the third column of Appendix A**
	Facility Capacity (MWs): 60 MW during the first Contract Year
Delivery Period: 25 Contract Years	**Contract Price ($/MWh):** See Appendix A
Renewable Energy Type: Unit Contingent (solar) and associated RECs	**Development Security:** $6,054,636
Day(s) of week: Monday through Sunday, including NERC holidays	**Hours:** Hour Ending 0100 – Hour Ending 2400, Monday through Sunday Chamorro Standard Time (CHST), Guam time
Commercial Operation Date: No later than the Scheduled Commercial Operation Date, subject to the extension provisions set forth in Article Four.	
Test Energy: Seller agrees to sell and Buyer agrees to purchase all Test Energy from the Facility. Test Energy Period shall be up to 6 months. The price of such Test Energy for the first month shall be the higher of the Year 1 Contract Price set out in Appendix A and the then-current LEAC Rate. The price of such Test Energy for the second month up to sixth month shall be the Year 1 Contract Price set out in Appendix A. Test Energy shall be delivered in accordance with the Scheduling provisions contained herein. Both Parties agree that Seller will use Commercially Reasonable Efforts to pre-schedule the Test Energy, but Buyer shall nonetheless be obligated to accept all Test Energy up to sixty (60) MW per hour of Test Energy. Seller shall provide to Buyer all RECs and other Environmental Attributes associated with the Test Energy produced by the Facility in accordance with Section 4.16.	

ARTICLE THREE: REPRESENTATIONS AND WARRANTIES

3.1 Mutual Representations and Warranties.

On the Effective Date of this Agreement, each Party represents and warrants to the other Party that:

(a) It is duly organized, validly existing and in good standing under the laws of the jurisdiction of its formation;

(b) It has all regulatory authorizations necessary for it to legally perform its obligations under this Agreement (other than permits or regulatory authorizations to be obtained by Seller for the construction, operation or maintenance of the Facility, which Seller reasonably anticipates it will be able to obtain in due course);

(c) The execution, delivery and performance of this Agreement are within its powers, have been duly authorized by all necessary action and do not violate any of the terms and conditions in its governing documents, any contracts to which it is a party or any law, rule, regulation, order or the like applicable to it, and the Agreement constitutes its legally valid and binding obligation enforceable against it in accordance with its terms, subject to any equitable defenses.

(d) It is not Bankrupt and there are no proceedings pending or being contemplated by it or, to its knowledge, threatened against it which would result in it being or becoming Bankrupt;

(e) There is not pending or, to its knowledge, threatened against it or any of its Affiliates any legal proceedings that could materially adversely affect its ability to perform its obligations under this Agreement;

(f) No Event of Default or potential Event of Default with respect to it has occurred and is continuing and no such event or circumstance would occur as a result of its entering into or performing its obligations under this Agreement; and

(g) It is acting for its own account, has made its own independent decision to enter into this Agreement and as to whether this Agreement is appropriate or proper for it based upon its own judgment, is not relying upon the advice or recommendations of the other Party in so doing, and is capable of assessing the merits of and understanding, and understands and accepts, the terms, conditions and risks of this Agreement;

3.2 Seller Representations and Warranties.

Seller affirmatively represents and warrants to GPA that:

(a) On the Effective Date of this Agreement, or in due course as required in accordance with the Scheduled Commercial Operation Date, Seller has (or reasonably expects to have in due course), good defensible title, or valid and effective leasehold rights in the case of leased property, to the Facility, free and clear of all liens, charges, claims, pledges, security interests, equities and encumbrances of any nature whatsoever other than the lien of current taxes not delinquent, liens, charges, claims, pledges, security, interests, equities and encumbrances relating to Facility Debt as provided for herein, or that are permitted by the Facility Debt, or that in the aggregate do not materially detract from or interfere with the ability of Seller to deliver the Quantity of the Renewable Energy;

(b) All acts necessary to the valid execution, delivery and performance of this Agreement by Seller have or will be taken and performed as required under Seller's ordinances, operating agreement, or other regulations including, but not limited to (i) the valid authority of the person executing this Agreement to bind Seller and (ii) the Term of this Agreement does

not extend beyond any limitation applicable to Seller imposed by relevant governing documents and applicable law; and

(c) Seller will have at the time of sale, title to and ownership of the RECs and Environmental Attributes sold hereunder.

3.3 GPA Representations and Warranties.

GPA represents and warrants that the board of directors of GPA has made all certifications required by the Guam Public Utilities Commission and the Guam legislature in order for GPA to execute this Agreement.

ARTICLE FOUR: PERFORMANCE REQUIREMENTS

4.1 Commercial Operation.

Seller shall achieve Commercial Operation of the Project no later than the Scheduled Commercial Operation Date, except to the extent such date is extended pursuant to Section 4.2, in which case Commercial Operation shall occur on or prior to the Outside Commercial Operation Date. Commercial Operation shall be achieved as of the date on which Seller certifies to Buyer in writing that each of the following conditions precedent has been satisfied or waived in writing by the Parties, as applicable ("Commercial Operation"):

(a) Seller shall have obtained all governmental and regulatory authorizations, including any applicable permits, required for the construction, ownership, operation and maintenance of the Project and for the sale of the Renewable Energy therefrom (except for any permits or authorizations typically obtained after Commercial Operation and that Seller reasonably believes will be obtained in due course);

(b) Seller and Buyer shall have entered into the Interconnection Agreement;

(c) Seller shall have established SCADA information and real time data feed to enable GPA to view parameters or data points that relate to Facility availability, Renewable Energy data and other actual resource data for the Facility;

(d) Seller shall be capable of delivering the Renewable Energy from the Facility to GPA at the Delivery Point.

(e) Seller shall perform at its cost a capacity test in accordance with the protocol outlined in Appendix I to determine the capacity of the Facility ("Facility Test"). GPA shall receive the entire Renewable Energy from the Facility during such test as contemplated in Section 2.1. Renewable Energy deliveries during testing shall be measured at the Delivery Point.

GPA shall use all available Commercially Reasonable Efforts to assist Seller in achieving the Scheduled Commercial Operation Date. Seller shall present to GPA a certificate executed by its duly executed officer, and by an Independent Engineer as to items (d) and (e), verifying that each of the foregoing conditions has been satisfied or waived in writing by the Parties and Commercial Operation shall be deemed to have occurred upon the delivery of such certificate to GPA unless GPA objects to such certificate on the grounds that the condition has not been satisfied within ten (10) Business Days of delivery thereof and such objections are either agreed by Seller or resolved in favor of GPA pursuant to Section 12.9 hereof. Upon any acceptance or deemed acceptance of Seller's certificate by GPA, all conditions, set forth above shall no longer be a condition precedent to Commercial Operation of the Project. If the Commercial Operation Date does not occur on or before the Outside Commercial Operation Date, as such date may be extended in accordance with Section 4.2 herein; either Party shall have the right to terminate the Agreement upon written Notice to the other Party. In the event of such termination by either Party, GPA shall be entitled to Termination Damages set forth in Section 4.4; provided, however, that in accordance with Section 4.2(c), GPA shall not be entitled to such Termination Damages if the Outside Commercial Operation Date is not achieved due to a Force Majeure event or a GPA Delay.

4.2 Extension of Commercial Operation Date.

(a) Planned Extension. The Parties agree that the Commercial Operation Date is expected to occur on or before March 31, 2020 ("Scheduled Commercial Operation Date"). Seller may elect to extend the Commercial Operation Date beyond the Scheduled Commercial Operation Date (the "COD Extension") by paying GPA for such extension (the "COD Extension Payment"). The COD Extension Payment shall be in the amount of fifty percent (50%) of the daily Shortfall Damages (based on ninety percent (90%) of the Minimum Production for the first Contract Year) per day for each day (or portion thereof) after but not including the date of the COD Extension until, but not including, the date on which the

Project actually achieves Commercial Operation. To extend the Commercial Operation Date, Seller must, as early as reasonably possible, but in no event later than fourteen (14) days prior to the first day of the proposed extension, provide GPA with Notice of its election to extend the Commercial Operation Date along with an estimate of the duration of the extension. The COD Extension Payment is in addition to and not to be considered part of the Development Security, and shall be paid to GPA in arrears on a monthly basis after Scheduled Comercial Operation Date. Seller's request to extend the Commercial Operation Date shall not be valid unless proper Notice and payment are timely received by GPA. No Event of Default shall be deemed to have occurred with respect to Seller's extension as provided herein, and GPA shall not have the right to terminate the Agreement or to receive Termination Damages with respect to such extension so long as Seller has provided the Notice, estimation and payment as provided in this Section 4.2(a). Seller may further extend the Commercial Operation Date beyond the original COD Extension, subject to the foregoing Notice, estimation and payment terms applicable to the original COD Extension.

Seller shall be entitled to a prompt refund, without interest, of any portion of the COD Extension Payment held by GPA which exceeds the amount required to cover the number of days by which the Commercial Operation Date was actually extended. In no event may Seller extend the Commercial Operation Date by more than six (6) months through the payment of the COD Extension Payment, except as provided in Section 4.2(b). In the event that the Project does not achieve Commercial Operation on or before the expiration of any COD Extension period as provided herein, either Party shall have the right to terminate the Agreement upon written Notice to the other, subject to any further extension rights pursuant to Sections 4.2(b) or (c) below. In the event of such termination by either Party in accordance with this provision, GPA shall be entitled to Termination Damages as set forth in Section 4.4 as its sole and exclusive remedy, subject to Section 4.2(c).

(b) Unplanned Extension/Additional Planned Extension. In the event that (i) the Project does not achieve Commercial Operation by the Scheduled Commercial Operation Date and Seller fails to provide sufficient Notice and/or payment in order to extend the Commercial Operation Date as provided in Section 4.2(a), or (ii) the Commercial Operation Date shall not have occurred within the six (6) months extension period provided under Section 4.2(a), then Seller may still extend the Commercial Operation Date by paying GPA damages ("Daily Delay Liquidated Damages"). The Daily Delay Liquidated Damages shall be in the amount of one hundred percent (100%) of the Shortfall Damages (based on ninety percent (90%) of the Minimum Production for the first Contract Year) per day for each day (or portion thereof) after but not including the earlier of the dates set forth in sub-clauses (i) or (ii) above, or until, but not including, the date on which the Project actually achieves Commercial Operation, and shall be payable on a monthly basis in arrears within ten (10) Business Days following receipt of an invoice from GPA for any such Daily Delay Liquidated Damages. No Event of Default shall be deemed to have occurred with respect to Seller's extension as provided herein and GPA shall not have the right to terminate the Agreement with respect to such extension or to receive Termination Damages so long as Seller has extended the Commercial Operation Date and pays the Daily Delay Liquidated Damages as provided in this Section 4.2(b).

In the event that the Project does not achieve Commercial Operation on or before twelve (12) months from the Scheduled Commercial Operation Date (as extended pursuant to this Agreement, the "Outside Commercial Operation Date"), then either Party shall have the right to terminate the Agreement upon written Notice to the other, subject to any further extension rights pursuant to Section 4.2(c) below. In the event of such termination by either Party in accordance with this provision, GPA shall be entitled to Termination Damages as set forth in Section 4.4 as its sole and exclusive remedy, subject to Section 4.2(c).

(c) Force Majeure and GPA Delay Extension. The Scheduled Commercial Operation Date and the Outside Commercial Operation Date shall also be extended, without payment or other penalty, on a day-for-day basis for each day of delay caused by reason of Force Majeure (a "Force Majeure Extension") or by reason of GPA Delay. Any Force Majeure Extension or GPA Delay shall also extend the period of any planned or unplanned extensions pursuant to Sections 4.2(a) or (b) on a day-for-day basis for each day during the Force Majeure Extension or GPA Delay, and Seller shall not be required to pay any COD Extension Payments or Daily Delay Liquidated Damages, as applicable, for any days during the Force Majeure Extension or GPA Delay. Notwithstanding any other provision in this Agreement, if, due solely to a Force Majeure event, the Project does not achieve Commercial Operation on or before the Outside Commercial Operation Date, then the Parties by mutual agreement may terminate this Agreement without penalty or further obligation to either Party, and after one hundred and eighty (180) days following the Outside Commercial Operation Date, either Party may unilaterally terminate this Agreement without penalty or further obligation to either Party. For the sake of clarity, (i) in the event of any such termination, GPA shall not be entitled to Termination Damages, and (ii) Seller shall be entitled to any remedies available under Section 6.3 in the case of delays caused by GPA Delays, including reimbursement for (i) the cost of network upgrades and interconnection costs incurred by Seller, (ii) costs incurred under construction, equipment and other contracts entered into in connection with the development and construction of the Facility, and (iii) Seller's costs and expenses in connection with the Facility and its performance under this Agreement.

4.3 Financing Arrangement Deadline.

Seller shall make Commercially Reasonable Efforts to (i) secure a third party financing sufficient for the successful completion of the Project as soon as practicable, and (ii) procure a binding credit agreement for such financing be executed no later than one (1) year after the Effective Date (the "Financing Arrangement Deadline") unless extended by written agreement of the Parties. Seller shall provide GPA with a copy of the executed credit agreement within three (3) Business Days after the execution of such credit agreement (the date on which GPA receives such copy is hereinafter referred to as the "Financing Arrangement Provision Date").

In the event that Seller fails to procure the execution of a binding credit agreement by the Financing Arrangement Deadline, GPA may terminate the Agreement and shall be entitled to Termination Damages set forth in Section 4.4 as its sole and exclusive remedy unless such Financing Arrangement Deadline is extended under other provisions of this Agreement, including Section 4.11.

4.4 Termination Damages.

Prior to the Commercial Operation Date, Seller may terminate this Agreement at any time for its convenience. GPA shall be entitled to termination damages, payable solely from the Bid Security or the Development Security established in Section 9.1 (as applicable) ("Termination Damages"), in the amounts set forth in the table below, if: (a) subject to the last sentence of this Section 4.4, Seller terminates the Agreement prior to the Commercial Operation Date for any reason other than: (i) a Force Majeure event (ii) a GPA Delay, or (iii) an Event of Default by GPA; and/or (b) GPA terminates the Agreement as a result of Seller failing to achieve the Commercial Operation Date on or prior to the Scheduled Commercial Operation Date, as the same may have been extended pursuant to Section 4.2, and subject to Section 4.2. The Termination Damages are designed to help compensate GPA for, among other things, transactions that it did not consummate because it relied on this Agreement with Seller, and GPA's potential failure to meet its applicable renewable energy portfolio requirements and do not constitute a penalty payment. Accordingly, Seller shall pay to GPA, in cash or from the Development Security, Termination Damages in the following amounts, based upon when the termination occurs:

Up to Financing Arrangement Provision Date:	100% of the Bid Security
Up to Six (6) months after Financing Arragement Provision Date:	50% of the Development Security
Twelve (12) months after Financing Arrangement Provision Date from Six (6) months after Financing Provision Date:	75% of Development Security
Twelve (12) months after Financing Arragement Provision Date forward:	100% of Development Security

No later than five (5) Business Days after the Financing Arrangement Provision Date, GPA shall return the Bid Security to Seller, to the extent GPA has not validly claimed the Bid Security in respect of Termination Damages on or prior to Financing Arrangement Provision Date. Notwithstanding the foregoing, in the event that Seller terminates this Agreement for any reason prior to the posting date for the Development Security as set forth in Section 9.1 herein, then Seller shall owe GPA no Termination Damages and such termination shall be without penalty to Seller.

4.5 Seller's and Buyer's Obligations.

Subject to Appendix H, Seller shall sell and deliver, or cause to be delivered, and GPA shall purchase and receive, or cause to be received, all Renewable Energy generated by the Facility, at the Delivery Point, and GPA shall pay Seller the Contract Price for such Quantity of Renewable Energy as measured by the Seller Metering Equipment at the Delivery Point; provided that for quantities of Renewable Energy in excess of 105% of the Estimated Annual Production, as shown in the third column of Appendix A, which are not make-up quantities for delivery deficiencies in prior Production Measurement Periods pursuant to Section 4.[8], the price payable by GPA shall be the lower of the Contract Price and the LEAC Rate. For Seller's failure to deliver Renewable Energy as required hereunder, GPA's remedies shall be as set forth in Section 4.8. For GPA's failure to purchase and receive Renewable Energy as required hereunder, Seller's damages and remedies shall be set forth in Appendix K. Seller shall be responsible for any costs or charges imposed on or associated with the Renewable Energy or its delivery up to the Delivery Point. GPA shall be responsible for any costs or charges imposed on or associated with Renewable Energy or its receipt at and from the Delivery Point. Title to and risk of loss of Renewable Energy from the Facility delivered to the Delivery Point shall transfer to GPA at the Delivery Point. Seller warrants that it will deliver to Buyer Renewable Energy free and clear of all liens, security interests, claims and encumbrances or any interest therein or thereto by any person arising prior to the Delivery Point. Notwithstanding the foregoing Seller's obligation to supply and sell, and GPA's obligation to accept and purchase, Renewable Energy shall be limited to such Renewable Energy that is actually deliverable from the Facility to the Delivery Point during such period.

4.6 Operation of Facility.

Seller shall operate and maintain the Facility in accordance with Good Utility Practices.

4.7 [Reserved].

4.8 Minimum Production.

The Facility is expected to produce a minimum number of MWhs of Renewable Energy in each one (1) Contract Year period as set forth in the third column of Appendix A (such annual MWh production is the "Minimum Production"). Seller during the Delivery Period shall (i) during each such Contract Year period, deliver to GPA at least ninety percent (90%) of the Minimum Production (which calculated amounts are set forth in the fourth column of Appendix A), and for any consecutive five (5) Contract Years during the Delivery Period, deliver to GPA at least ninety five percent (95%) of the aggregate Minimum Production (which calculated amounts are set forth in the sixth column of Appendix A) during such period (any such time period a "Production Measurement Period" and each such guaranteed amount of delivered Renewable Energy during any Production Measurement Period, the "Guaranteed

Output"). Any shortfall of Renewable Energy deliveries to Buyer from the applicable Guaranteed Output during a Production Measurement Period shall be deemed a "Deficiency Amount".

GPA shall be entitled to receive damages for any Deficiency Amount ("Shortfall Damages") which are not due to Excused Hours or Weather Hours (except, in the case of Weather Hours, as set forth below). GPA shall calculate such Shortfall Damages in accordance with Appendix L.

For purposes of clarity, if Actual Renewable Energy for any given Production Measurement Period is less than the Guaranteed Output for that period (even if due to Excused Hours or Weather Hours), there shall be a "shortfall", and Seller shall be entitled to deliver to GPA energy in that amount in subsequent Performance Measurement Periods, and this Agreement may be extended as necessary for a period of up to six (6) months in order to provide Seller with the opportunity to deliver Renewable Energy to Buyer up to the amount of the Deficiency Amount that would not otherwise be eligible for sale to Buyer under this Agreement. There shall be no Shortfall Damages owing to GPA for-any Performance Measurement Period unless such Actual Renewable Energy is less than the Guaranteed Output amount for that Performance Measurement Period, and such shortfall is not due to Excused Hours or Weather Hours.

In the event Shortfall Damages are due for a Production Measurement Period of five (5) rolling Contract Years, then such Shortfall Damages shall be reduced by the amount of any Shortfall Damages previously paid for any Contract Year during such five (5) year Production Measurement Period. Seller's payment of Shortfall Damages shall be Seller's sole liability and obligation, and GPA's sole right and remedy, with respect to Seller's failure to deliver the Guaranteed Output during any Production Measurement Period.

To the extent any Deficiency Amount is due to Weather Hours, Seller's sole liability and GPA's sole remedy shall be to deliver thereafter Renewable Energy equal to such Deficiency Amount attributable to Weather Hours, calculated in accordance with Appendix K (which includes a sample calculation for a hypothetical Production Measurement Period). Deficiency Amount due to Weather Hours shall not be penalized.

During any Contract Year, all Renewable Energy delivered by Seller to GPA in excess of the Guaranteed Output shall be credited against makeup of any outstanding Deficiency Amounts(the "Make-up Renewable Energy"), with oldest Deficiency Amounts made up first.

However, if there is no outstanding Deficency Amount, Renewable Energy in excess of the Guaranteed Output shall be carried forward for five (5) consecutive years in order to make up future shortfall, or if there is any remaing amount of Renewable Energy after making up the outstanding Deficiency Amount, such remaing amount shall be carried forward for five (5) consecutive years in order to make up future shortfall (the "Carry-forward Renewable Energy").

Seller shall be entitled to sell, and GPA shall purchase the Make-up Renewable Energy, during any remaining Production Measurement Period during the Delivery Period. The price for the Make-up Renewable Energy shall be the Contract Price in effect at time of the supply of such Make-up Renewable Energy.

To the extent any Deficiency Amount is due to Excused Hours, Seller shall be excused from any liability with respect thereto.

4.9 Facility Testing.

In addition to the Facility Test referenced in Section 4.1(e), the capacity of the Facility shall be tested during each Contract Year during the Delivery Period (the "Annual Facility Test"). Seller shall notify GPA of the specific date on which it intends to conduct the Annual Facility Test at least ten (10) Business Days in advance and shall permit GPA to be present at such test. GPA shall have the right to receive copies of the results of the Annual Facility Test, which shall be conducted in accordance with the protocol set forth in Appendix I. Any dispute regarding the results of the Annual Facility Test shall be resolved as set forth in Section 12.9 of this Agreement. GPA shall receive, in accordance with Section 4.5, the entire Renewable Energy from the Facility during any Annual Facility Test or re-test. Renewable Energy deliveries during testing shall be measured at the Delivery Point.

4.10 Scheduling.

Seller agrees to supply at the Delivery Point all Renewable Energy produced by the Project, net of Renewable Energy self generated and consumed at the Facility and net of any generation losses prior to the Delivery Point, up to the Facility Capacity, in accordance with the scheduling and coordination procedures set out in Appendix H. GPA agrees to take at the Delivery Point all Renewable Energy tendered by Seller in accordance with the foregoing sentence.

The Schedules and estimates provided pursuant to Appendix H shall be made by Seller in good faith and based on information available to it at such time, but in no event shall such Schedules be binding on Seller nor shall Seller be liable for any inaccuracies in such Schedules.

4.11 Force Majeure.

To the extent either Party is prevented by Force Majeure from carrying out, in whole or part, its obligations under this Transaction and such Party (the "Claiming Party") gives Notice and details of the Force Majeure to the other Party promptly upon the occurrence of the Force Mejeure event, then the Claiming Party shall be excused from the performance of its obligations with respect to such Transaction (other than the obligation to make payments then due or becoming due hereunder). The Claiming Party shall exercise Commercially Reasonable Efforts to remedy the Force Majeure with all reasonable dispatch. The non-Claiming Party shall not be required to perform or resume performance of its corresponding obligations to the Claiming Party (other than the obligation to make payments then due or becoming due hereunder) until the Claiming Party resumes its performance. If the Force Majeure event extends for three hundred and sixty-five (365) days, either Party may terminate this Agreement without further obligation by either Party, except as to costs and liabilities incurred prior to the termination date and obligations under the Agreement which survive termination by nature of the obligation.

4.12 Facility Outages and Maintenance Scheduling.

(a) Planned Outages. Seller shall provide written Notice to GPA prior to conducting any Planned Outages of the Facility. Within ninety (90) days prior to the Commercial Operation Date, as the same may be extended in accordance with the provisions of Section 4.2, and on or before the first day of each subsequent Contract Year, Seller shall provide GPA with a schedule of such proposed Planned Outages in accordance with Appendix H. The proposed Planned Outages schedule shall be submitted electronically to GPA, using a reasonably acceptable format provided by GPA. Such format is subject to change from time-to-time during the Term of this Agreement by agreement of the Parties, but will generally describe the nature of the Outage, the expected duration, and any other pertinent information that will assist GPA in planning for the decreased output and/or availability of the Facility as a result of the Outage.

GPA shall promptly review Seller's proposed schedule and may request modifications within thirty (30) days of GPA's receipt of such schedule. Changes to the schedule may be requested by either Party and each Party shall make Commercially Reasonable Efforts to accommodate such changes, provided further that Seller shall have no obligation to agree to GPA's proposed modifications or revisions to any Planned Outage schedule.

(b) Forced Outages. In the event of any Forced Outage, Seller shall promptly notify GPA of the same. Seller shall as quickly as practicable notify GPA verbally and shall then, within twenty-four (24) hours thereafter, provide written Notice to GPA of the Forced Outage (the "Forced Outage Notice"). The Forced Outage Notice shall be submitted electronically to GPA, using a reasonably acceptable format provided by GPA. Such format is subject to change from time-to-time during the Term of this Agreement by agreement of the Parties, but will generally describe the nature of the Outage, the expected duration, and any other pertinent information that will assist GPA in planning for the decreased output and/or availability of the Facility as a result of the Outage. Seller shall return the Facility to service as soon as possible, consistent with Good Utility Practices, after the Forced Outage ceases to exist.

(c) GPA Parts Inventory. To the extent GPA maintains an inventory of parts or components that are used or useful in the Facility and provided it can prudently do so under its own ordinary course operating practices and restrictions, GPA shall cooperate with Seller in a Commercially Reasonable manner by making such parts or components available to Seller at its request during the period of time Seller is obtaining replacement parts or components for the Facility in order to maximize output of Renewable Energy. If Seller obtains a replacement part or component from GPA, it shall at GPA's option either replace such part or component with the new part or component ordered by Seller or return the borrowed part or component to GPA at such time as Seller obtains the replacement. Seller shall bear the installation, transportation and labor charges relating to GPA's replacement parts or components, and if the parts or components are returned to GPA then Seller shall reimburse GPA for any damage to such parts or components while in Seller's possession.

4.13 Operating Status Reports.

From the Effective Date of this Agreement, through the date of Commercial Operation, Seller shall provide GPA with Monthly reports regarding material data pertaining to the operation of the Facility. The operations data is generally identified as performance, Outage, and risk data and shall be sent electronically to GPA using a reasonably acceptable format provided by GPA. The operations data report format may be modified by agreement of the Parties from time-to-time during the Term of this Agreement.

4.14 Resource Quality Reporting: Forecasting.

Seller shall provide to GPA at its request copies of non-proprietary resource quality data in Seller's possession that could reasonably be expected to affect, in any material manner, the operation and/or productivity of the Facility, whether produced, compiled or otherwise generated by Seller or any third party in a Commercially Reasonable manner, so that GPA can evaluate the expected performance of the Facility. Seller shall provide such data as it is produced or otherwise made available to Seller. Upon Commercial Operation of the Facility, to the extent generated or procured by Seller, Seller shall also provide to GPA Monthly and day-ahead forecasting information for the Facility. Such information shall be in a format agreed to by the Parties and include, among other things: Seller's forecasts for the performance of the Facility based on Facility specifications, weather-based forecasting, and weather-related studies. Such information, which will be used by GPA solely for evaluation, Scheduling, and other purposes related to this Agreement, shall be provided as available. In no event shall the data and/or information provided to GPA pursuant to this Section 4.14 be binding upon Seller, nor shall Seller be liable for any penalties, charges or other damages based on the inaccuracy of such data or information.

4.15 Permit Violations.

Seller shall at all times during the Term of this Agreement maintain and comply in all material respects with all applicable permits for the development, ownership and maintenance of the Facility.

4.16 Delivery of RECs and Environmental Attributes.

(a) Use of North American Renewables Registry. At least ten (10) days prior to COD, Seller shall transfer to GPA the authority to create, own and transfer all Environmental Attributes associated with the Renewable Energy produced by the Facility, by executing and delivering the form entitled "Generator Owner's Designation of Responsible Party" published by NAR, wherein Seller shall designate GPA as the "responsible party" for all matters relating to the creation, ownership, and transfer of RECs and Environmental Attributes from the Facility. Thereafter, GPA shall be responsible for all obligations relating to creating and transferring RECs and Environmental Attributes from the Facility and Seller shall have no further obligations or liabilities with respect thereto, provided, however, that Seller shall reimburse to GPA its costs of creating and maintaining the NAR account and NAR's fees charged to transfer the RECs and Environmental Attributes, up to an aggregate maximum amount of $5,000 per annum. In the event this Agreement is terminated or suspended for any reason, the Parties agree to each consent to the termination of such designation in accordance with NAR procedures.

(b) GPA Registration as a QRE. GPA shall be the QRE for the Facility as required by NAR and shall comply with any and all NAR Operating Procedures relating to the registration and operation as a QRE and the reporting of generation data from the Facility to NAR. As the QRE, each month upon receipt of an invoice and associated interval metering data from Seller in accordance with Section 7.5 herein, GPA shall report such data to NAR within three (3) Business Days following receipt of such data. The Parties shall cooperate to ensure that the Seller Metering Equipment and the resulting interval metering data meet the NAR requirements for metering equipment and generation data.

(c) Change Event. During the Term, in the event that (i) the NAR Operating Procedures are amended or changed such that it becomes impossible for the Parties to utilize NAR as the REC tracking method and/or for GPA to continue as "responsible party" for purposes of creating, owning and transferring RECs and Environmental Attributes attributable to the Facility; (ii) the fees or charges imposed by NAR on either Seller or GPA to utilize the NAR REC tracking system are materially increased such that use of the NAR REC tracking system becomes uneconomic or infeasible; or (iii) the NAR REC tracking system is eliminated (each one individually, a "Change Event"), then the Parties shall promptly negotiate in good faith to reform the terms of this Agreement in order to give effect to the original intention of the Parties to the extent reasonable under the circumstances, including utilizing an alternative method for transferring RECs to GPA, but in no case shall Seller's cost with respect thereto exceed $5,000 per annum.

4.17 Allowable GPA Curtailment Interim Period.

For any day during the contract term prior to January 1, 2022, GPA will be allowed to curtail the Seller's output due to low loads which may impact stable operations of the GPA electric grid system. GPA will not be required to pay for any curtailments during this period. This will be defined in the Interconnection Agreement.

4.18 Energy Shifting.

Subject to Seller's ability for energy shifting, GPA shall accept Sellers' shifted energy due to any curtailment caused by GPA and GPA shall pay the Contract Price for each MWh delivered. Both parties shall discuss and mutually agree to any increase in additional energy in excess of 105% of the Estimated Annual Production to be delivered to GPA which may be delivered as shifted energy. However, the maximum capacity output of the plant shall not exceed 60MW. GPA and Seller shall mutually agree to a process for scheduling and dispatching any energy shifting 30 days prior to the facility's Commercial Operation Date.

4.19 Ramp Rate Control Performance.

During the Delivery Period, Seller shall cause the Energy Storage System to comply with the performance guarantees for ramp rate control set forth on Appendix C (the "Ramp Rate Control Performance Guarantees"). If the Energy Storage System fails to meet the Ramp Rate Control Performance Guarantees over the time periods set forth in Appendix C, GPA may provide written notice to Seller of the failure to meet the Ramp Rate Control Performance Guarantees and a request for Seller to take steps needed for the Energy Storage System to meet the Ramp Rate Control Performance Guarantees. In response to such a notice, Seller shall, within two (2) weeks from the date of such notice, provide GPA with a written remedial action plan that provides a detailed description of Seller's course of action and plan to meet the Ramp Rate Control Performance Guarantees and shall take steps to implement such remedial action within six (6) months of the date of such action plan; provided, however, GPA shall not be entitled to such a remedial action plan if the failure to achieve the Ramp Rate Control Performance Guarantees is due to a Force Majeure event, GPA Delay or an Event of Default by GPA. Seller's sole obligation with respect to any deficiency in the Ramp Rate Control Performance Guarantees is to follow its remedial action plan.

If ramp rate is greater than 3 MW/minute seller shall reduce plant output until ramp rate is less than 3 MW/minute. If system issues remain, GPA reserves the right to restrict Seller's plant output until seller restores operation with a ramp rate less than 3 MW/minute. The Interconnection Agreement shall define conditions for Seller's plant reduction and implementation of GPA's restrictions.

ARTICLE FIVE: SELLER FAILURE

5.1 Seller Failure.

In the event Seller fails to deliver to GPA any Quantity of Renewable Energy to which GPA is entitled in accordance with the terms of this Agreement and instead sells such Quantity of Renewable Energy to which GPA is entitled to a third party in violation of this Agreement ("Seller Failure"), then Seller shall pay to GPA the "Seller Failure Damages," which shall mean the positive difference, if any, between the Replacement Price and the Contract Price for the period of such Seller failure, times such Quantity of Renewable Energy. GPA shall calculate the Seller Failure Damages and shall provide to Seller an invoice for such amount, including a written statement explaining in reasonable detail the calculation of such amount. Seller shall pay the Seller Failure Damages not later than ten (10) days following its receipt of such an invoice from GPA. If the Replacement Price is less than the Contract Price, then the Seller Failure Damages are deemed to be zero. The Seller Failure Damages represent the sole and exclusive remedy for Seller's failure as described herein, except as provided in Section 6.1(h).

ARTICLE SIX: EVENTS OF DEFAULT; REMEDIES

6.1 Events of Default.

An "Event of Default" shall mean, with respect to a Party (a "Defaulting Party"), the occurrence of any of the following:

(a) The failure to make, when due, any payment required pursuant to this Agreement if such failure is not remedied within ten (10) days after written Notice;

(b) Any representation or warranty made by such Party herein is false or misleading in any material respect when made or when deemed made or repeated, if such failure is not remedied within thirty (30) Business Days after written Notice, or such longer time, not to exceed ninety (90) Business Days, as is reasonably required to remedy such failure, provided the Defaulting Party is employing Commercially Reasonable Efforts to achieve the remedy;

(c) The failure to perform any material covenant or obligation set forth in this Agreement (except to the extent constituting a separate Event of Default and except for such Party's obligations to deliver or receive the Renewable Energy, the remedies for which are provided in Article Five) if such failure is not remedied within thirty (30) Business Days after written Notice, or such longer time, not to exceed ninety (90) Business Days, as is reasonably required to remedy such failure, provided the Defaulting Party is employing Commercially Reasonable Efforts to achieve the remedy;

(d) Such Party becomes Bankrupt (or if the Bankruptcy is involuntary, the failure of such Party to achieve dismissal of the Bankruptcy within ninety (90) days);

(e) A Merger Event occurs with respect to such Party;

(f) If during the Term of this Agreement there have occurred three (3) or more Seller Failures as that term is used in Section 5.1;

(g) With respect to Seller, a material permit violation occurs and such violation is not remedied within thirty (30) Business Days after Notice by either GPA or the relevant permitting authority, or such longer time~~,~~ as is reasonably required to remedy such failure, provided the Defaulting Party is employing Commercially Reasonable Efforts to achieve the remedy; and

(h) With respect to Seller, failure to maintain the Development Security and failure to reinstate the same within thirty (30) Business Days after Seller's receipt of written Notice thereof from GPA.

6.2 Declaration of an Early Termination Date.

If an Event of Default with respect to a Defaulting Party shall have occurred on or after the Commercial Operation Date and be continuing, the other Party (the "Non-Defaulting Party") shall have the right but not the obligation to: (i) designate a day, no earlier than the day such Notice is effective and no later than twenty (20) days after such Notice is effective, as an early termination date ("Early Termination Date") to accelerate all amounts owing between the Parties and to liquidate and terminate this Agreement between the Parties; (ii) withhold any payments due to the Defaulting Party under this Agreement as setoff against termination costs and liabilities as determined herein (and until such amounts are determined); and (iii) suspend its performance under this Agreement.

6.3 Suspension of Performance and Other Remedies.

Except as otherwise expressly provided in this Agreement, if an Event of Default shall have occurred and be continuing, the Non-Defaulting Party, upon written Notice to the Defaulting Party, shall have the right (i) to suspend performance under this Agreement; and (ii) to the extent an Event of Default shall have occurred and be continuing to exercise any remedy available at law or in equity including any specific remedies set forth in this Agreement; provided, however, that any damages shall include only the direct actual damages incurred by the Non-Defaulting Party as provided in Section 8.1, and Seller's aggregate total liability hereunder shall not exceed the amounts set forth in Section 4.4 prior to the Commercial Operation Date.

ARTICLE SEVEN: PAYMENT AND NETTING

7.1 Billing Period.

Unless otherwise specifically agreed upon by the Parties, the calendar Month shall be the standard period for all payments under this Agreement. No later than the tenth (10^{th}) day after the end of each Month, each Party will render to the other Party an invoice (in the case of Seller, such invoice being rendered in accordance with Section 7.5) for the payment obligations of the non-invoicing Party, if any, incurred hereunder during the preceding Month.

7.2 Timeliness of Payment.

Unless otherwise agreed by the Parties, all invoices under this Agreement shall be due and payable in accordance with each Party's invoice instructions on or before the later of the twentieth (20th) day of each Month, or if later the tenth (10th) day after receipt of the invoice or, if such day is not a Business Day, then on the next Business Day. Each Party will make payments by electronic funds transfer, or by other mutually agreeable method(s), to the account designated by the other Party. Any amounts not paid by the due date will be deemed delinquent and will accrue interest at the Interest Rate, such interest to be calculated from and including the due date to but excluding the date the delinquent amount is paid in full.

7.3 Disputes and Adjustments of Invoices.

A Party may, in good faith, dispute the correctness of any invoice or any adjustment to an invoice, rendered under this Agreement or adjust any invoice for any arithmetic or computational error within twelve (12) Months of the date the invoice, or adjustment to an invoice, was rendered. In the event an invoice or portion thereof, or any other claim or adjustment arising hereunder, is disputed, payment of the undisputed portion of the invoice shall be required to be made when due, with Notice of the objection given to the other Party. Any invoice dispute or invoice adjustment shall be in writing and shall state the basis for the dispute or adjustment. Except as otherwise provided in this Agreement, payment of the disputed amount shall not be required until the dispute is resolved. Upon resolution of the dispute, any required payment shall be made within two (2) Business Days of such resolution along with interest accrued at the Interest Rate from and including the due date to but excluding the date paid. Inadvertent overpayments shall be returned upon request or deducted by the Party receiving such overpayment from subsequent payments, with interest accrued at the Interest Rate from and including the date of such overpayment to but excluding the date repaid or deducted by the Party receiving such overpayment. Any dispute with respect to an invoice is waived unless the other Party is notified in accordance with this Section 7.3 within twelve (12) Months after the invoice is rendered or any specific adjustment to the invoice is made. If an invoice is not rendered within twelve (12) Months after the close of the Month during which performance of a Transaction occurred, the right to payment for such performance is waived.

7.4 Metering and Other Facilities.

Seller shall be responsible, at its sole expense, for providing the Seller Metering Equipment in accordance with Good Utility Practices. In accordance with the terms of the Interconnection Agreement, the Seller may elect to have GPA provide Seller with the Seller Metering Equipment; provided, however, the cost of such meters shall be borne solely by Seller at no cost to GPA. Seller shall be solely responsible for operating, maintaining, and repairing the Seller Metering Equipment at its own expense throughout the Term of this Agreement. Seller shall inspect and test the Seller Metering Equipment upon its installation and at least once every year at Seller's expense. Seller shall give GPA reasonable advance Notice of any test, and promptly provide GPA with the results of any such test. GPA may observe the test and conduct its own tests, at GPA's expense, to verify Seller's procedures and results. GPA shall give Seller reasonable advance Notice of any such test, and may observe the tests. GPA shall provide Seller with the results of any test by GPA promptly upon receipt of the results. Access by GPA for any such testing shall be in compliance with Section 12.4.

Upon an inaccurate read of the Seller Metering Equipment or if Seller knows of any inaccuracy or material defect in Seller Metering Equipment, Seller shall notify GPA in writing within forty-eight (48) hours of such defect. Seller shall be solely responsible for adjusting, repairing, replacing or recalibrating such metering device as near as practicable to a condition of zero (-0-) error, and for paying any expenses associated with such adjustment, repair,

replacement or recalibration. If a metering device fails to register or is found upon testing to be inaccurate, an adjustment will be made correcting all measurements by the inaccurate or defective metering device in the following manner:

(a) In the event that an adjustment factor cannot be reliably calculated, the Parties shall use the measurements from GPA-owned meters if they are installed, fully operational and calibrated in accordance with Good Utility Practices. If for any reason the measurements cannot be obtained from GPA -owned meters, the Parties shall use data from Seller's computer monitoring system to determine the relevant measurements. If Seller's computer monitoring system is found to be inaccurate by more than two (2) percent, the Parties shall estimate the amount of the necessary adjustment using the site meteorological information for the period of the inaccuracy based upon deliveries of Renewable Energy delivered to GPA at the Delivery Point from the Facility during periods of similar operating conditions when the Seller Metering Equipment was registering accurately. The adjustment will be made for the period during which inaccurate measurements were made.

(b) If the Parties cannot agree on the actual period during which the inaccurate measurements were made, the period during which the measurements are to be adjusted will be the shorter of: (1) the last one-half of the period from the last previous test of the metering device to the test that found the metering device to be defective or inaccurate; or (2) the one hundred and eighty 180-day period immediately preceding the test that found the metering device to be defective or inaccurate.

(c) Upon determination of corrected measurements, the required payment adjustment shall be made according to the procedures set forth in Section 7.3.

7.5 Invoices.

Seller shall maintain and read the Seller Metering Equipment for measuring the Renewable Energy delivered hereunder. For review purposes, Seller shall furnish GPA with a written invoice reflecting the Contract Price; interval data from the Seller Metering Equipment used to calculate that invoice; and any other charges due, within ten (10) Business Days after Seller reads the Seller Metering Equipment. Such invoices may be furnished to GPA by facsimile transmission or by such other method as the Parties agree.

ARTICLE EIGHT: LIMITATIONS

8.1 Limitation of Remedies, Liability and Damages.

EXCEPT AS SET FORTH HEREIN, THERE ARE NO WARRANTIES BY EITHER PARTY UNDER THIS AGREEMENT, INCLUDING WARRANTEES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND ANY AND ALL IMPLIED WARRANTIES ARE DISCLAIMED. THE PARTIES CONFIRM THAT THE EXPRESS REMEDIES AND MEASURES OF DAMAGES PROVIDED IN THIS AGREEMENT SATISFY THE ESSENTIAL PURPOSES HEREOF. FOR BREACH OF ANY PROVISION FOR WHICH AN EXPRESS REMEDY OR MEASURE OF DAMAGES IS PROVIDED HEREIN, SUCH EXPRESS REMEDY OR MEASURE OF DAMAGES SHALL BE THE SOLE AND EXCLUSIVE REMEDY AND THE OBLIGOR'S LIABILITY SHALL BE LIMITED AS SET FORTH IN SUCH PROVISION AND ALL OTHER REMEDIES OR DAMAGES AT LAW OR IN EQUITY ARE WAIVED. IF NO REMEDY OR MEASURE OF DAMAGES IS EXPRESSLY PROVIDED HEREIN OR IN A TRANSACTION, THE OBLIGOR'S LIABILITY SHALL BE LIMITED TO DIRECT ACTUAL DAMAGES ONLY, SUCH DIRECT ACTUAL DAMAGES SHALL BE THE SOLE AND EXCLUSIVE REMEDY AND ALL OTHER REMEDIES OR DAMAGES AT LAW OR IN EQUITY ARE WAIVED. UNLESS EXPRESSLY HEREIN PROVIDED, NEITHER PARTY SHALL BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL, PUNITIVE, EXEMPLARY OR INDIRECT DAMAGES, LOST PROFITS OR OTHER BUSINESS INTERRUPTION DAMAGES, BY STATUTE, IN TORT OR CONTRACT, UNDER ANY INDEMNITY PROVISION OR OTHERWISE. IT IS THE INTENT OF THE PARTIES THAT THE LIMITATIONS HEREIN IMPOSED ON REMEDIES AND THE MEASURE OF DAMAGES BE WITHOUT REGARD TO THE CAUSE OR CAUSES RELATED THERETO, INCLUDING THE NEGLIGENCE OF ANY PARTY, WHETHER SUCH NEGLIGENCE BE SOLE, JOINT OR CONCURRENT, OR ACTIVE OR PASSIVE. TO THE EXTENT ANY DAMAGES REQUIRED TO BE PAID HEREUNDER ARE LIQUIDATED, THE PARTIES ACKNOWLEDGE THAT THE DAMAGES ARE DIFFICULT OR IMPOSSIBLE TO DETERMINE, OR OTHERWISE OBTAINING AN ADEQUATE REMEDY IS INCONVENIENT AND THE DAMAGES CALCULATED HEREUNDER CONSTITUTE A REASONABLE APPROXIMATION OF THE HARM OR LOSS.

Notwithstanding the foregoing, if GPA is the Defaulting Party, the Parties agree that the actual damages recoverable to Seller hereunder on account of an Event of Default by GPA shall include loss of Tax Benefits on a grossed up after tax basis, using the highest applicable United States marginal personal income tax rate.

Any assets transferred to GPA as required by the Interconnection Agreement shall require a one year warranty on all construction work and extension of any manufacturer warranties from the transfer of such assets.

ARTICLE NINE: CREDIT AND COLLATERAL REQUIREMENTS

9.1 Development Security.

In order to secure Seller's obligations prior to Commercial Operation of the Facility, Seller shall post a Letter of Credit or cash in the amount of $6,054,636 (the "Development Security"). The Development Security shall be held by GPA as security for Seller's obligations prior to the Commercial Operation Date under the Agreement. To the extent permitted under Section 4.4, GPA may draw on the Development Security at any time prior to the Commercial Operation Date, but only in the amounts and according to the schedule set forth in Section 4.4. Seller shall post the Development Security in accordance with the following terms and conditions:

(a) Seller shall post the Development Security within ten (10) Business Days from the date when a binding credit agreement is executed pursuant to Section 4.3 but no later than the Finanicng Arrangement Deadline.

(b) If the Development Security is posted as a Letter of Credit, it shall be in substantially the form attached hereto as Appendix F, respectively with such changes thereto as may be approved by Buyer and Seller in their reasonable discretion.

(c) Any Development Security posted in cash shall bear simple interest at a rate equal to the Interest Rate. The calculation and payment of any such interest shall be made in accordance with the procedure specified in Section 9.3 of this Agreement.

9.2 Forfeiture of Development Security.

In the event that the Commercial Operation Date does not occur on or before the Scheduled Commercial Operation Date, as extended pursuant to the terms of this Agreement, and to the extent Seller does not remit any COD Extension Payment or Daily Delay Liquidated Damages payment when due pursuant to Section 4.2, then GPA shall be entitled to proceed against the Development Security in accordance with the terms thereof, to the extent of the amount(s) due and owing from time to time under Section 4.2. If the Development Security is exhausted up to the limits in Section 4.4 and further-payments are due, then GPA shall be entitled to terminate this Agreement as its sole and exclusive remedy if Seller otherwise refuses to pay the amount due, and Seller shall have no further liability for damages hereunder. Seller acknowledges and agrees that forfeiture of all or a portion of the Development Security, as provided herein, represents reasonable compensation to GPA for, among other things, transactions that it did not consummate because it relied on this Agreement with Seller, and GPA's potential failure to meet its applicable renewable energy portfolio requirements as a result of Seller's failure to achieve Commercial Operation by the Scheduled Commercial Operation Date. Notwithstanding the foregoing, if Seller terminates this Agreement prior to the Commercial Operation Date for the sole purpose of selling the Renewable Energy to a third party, GPA shall be entitled to both the Development Security and any other remedies available at law or in equity to the extent that GPA's actual damages exceed the value of the Development Security.

9.3 Return of Development Security.

Concurrently with the achievement of the Commercial Operation Date or the earlier termination of the Agreement pursuant to Section 4.2, GPA shall return to Seller any remaining portion of the Development Security still held by GPA and to which GPA has no claim pursuant to the terms of this Agreement. If the Development Security was posted as a Letter of Credit, GPA shall return the Letter of Credit to Seller and Seller shall be entitled to immediately cancel such Letter of Credit. If the Development Security was posted in cash, GPA shall return to Seller the balance of the Development Security, together with daily interest at the Interest Rate, from and including the date that the Development Security was posted until, but not including, the date on which the Development Security is returned by GPA.

9.4 Grant of Subordinated Security Interest/Remedies.

To secure its obligations under this Agreement, Seller hereby agrees to cause a subordinated security interest in, and lien on one hundred percent (100 %) of membership interest in Holdco, a Delaware limited liability company, which owns all of membership interest in Seller, to be effective upon the return of the Development Security on the Commercial Operation Date as provided in Section 9.3 above (the "GPA Lien"), to be granted to GPA, and Seller agrees to cause such action as GPA reasonably requires in order to perfect GPA's Lien and all proceeds resulting therefrom or from the liquidation thereof. to be taken. Concurrently with the issuance of the GPA Lien, GPA shall enter into such subordination, inter-creditor and other agreements with the senior Facility lenders as they may reasonably require (the "Subordination Documents"). The GPA Lien shall be deemed to terminate automatically upon the termination of the Agreement, and GPA shall take such actions as are reasonably required by Seller to terminate the GPA Lien and return to Seller any collateral associated with the GPA Lien

ARTICLE TEN: GOVERNMENTAL CHARGES

10.1 Cooperation.

Each Party shall use Commercially Reasonable Efforts to implement the provisions of and to administer this Agreement in accordance with the intent of the Parties to minimize all taxes, so long as neither Party is materially adversely affected by such efforts.

10.2 Governmental Charges.

Seller shall pay or cause to be paid all taxes imposed by any Government Authority ("Governmental Charges") on or with respect to the Renewable Energy, Environmental Attributes or this Agreement arising prior to the Delivery Point. GPA shall pay or cause to be paid all Governmental Charges on or with respect to the Renewable Energy, Environmental Attributes, or this Agreement at and from the Delivery Point. All other tax or income taxes on the sale of the Renewable Energy by Seller hereunder and are, therefore, the responsibility of the Seller). In the event Seller is required by law or regulation to remit or pay Governmental Charges, which are GPA's responsibility hereunder, GPA shall promptly reimburse Seller for such Governmental Charges. If GPA is required by law or regulation to remit or pay Governmental Charges which are Seller's responsibility hereunder, GPA may deduct the amount of any such Governmental Charges from the sums due to Seller under Article Seven of this Agreement. Nothing shall obligate or cause a Party to pay or be liable to pay any Governmental Charges for which it is exempt under the law.

ARTICLE ELEVEN: ASSIGNMENT

11.1 Buyer Assignment.

Buyer may not assign this Agreement or assign or delegate its rights and obligations under this Agreement, in whole or in part, without Seller's consent, not to be unreasonably withheld.

11.2 Seller Assignment.

Seller may perform any of the following, without the consent of the Buyer (1) transfer, pledge, encumber, or assign this Agreement or the accounts, revenues, or proceeds hereof, in connection with any financing or other financial arrangements for the Facility, (2) transfer or assign this Agreement to any of its Affiliates in connection with a transfer of the Facility to such Affiliate, (3) transfer or assign this Agreement to any person or entity succeeding to all or substantially all of the assets of such Party; provided, that Seller provides Buyer prior notice of any such transfer or assignment and, with respect to any transfer to an Affiliate of Seller, (A) the creditworthiness of such Affiliate is equal to or superior to the creditworthiness of Seller as of the Effective Date and (B) such Affiliate enters into an assignment and assumption agreement, in form and substance reasonably satisfactory to Buyer, pursuant to which Affiliate assumes all of Seller's obligations hereunder and otherwise agrees to be bound by the terms of this Agreement. Seller agrees that it will provide written notice to Buyer of any assignment of this Agreement by Seller within five (5) Business Days of the date of such assignment.

Except as stated above, neither this Agreement nor any of the rights, interests and obligations hereunder shall be assigned by Seller without the prior written consent of Buyer, which consent shall not be unreasonably withheld. Any assignment of this Agreement in violation of the foregoing shall be, at the option of Buyer, void.

11.3 Liability After Assignment.

A Party's assignment or transfer of rights or obligations pursuant to this Article 11 shall relieve said Party from any liability and financial responsibility for the performance thereof arising after any such transfer or assignment.

11.4 Transfers of Ownership.

Subject to any rights of first offer or refusal under this Agreement, during the Term, Seller shall not sell, transfer, assign or otherwise dispose of its interest in the Facility to any third-party absent (1) a transfer of this Agreement to such third-party and (2) Seller entering into an assignment and assumption agreement for this Agreement, in form and substance reasonably satisfactory to Buyer, with such third-party.

11.5 Successors and Assigns.

This Agreement and all of the provisions hereof are binding upon, and inure to the benefit of, the Parties and their respective successors and permitted assigns.

11.6 Collateral Assignment by Seller.

In the event that Seller pursuant to Section 11.2 (1) transfers, pledges, encumbers or collaterally assigns this Agreement to Seller's lenders, Seller shall provide written notice to Buyer of such transfer, pledge, encumbrance or assignment, including the address of Seller's lenders. In connection with any financing or refinancing of the Facility, including tax equity financing, Buyer at Seller's request shall negotiate in good faith with Seller and Seller's lenders and financing parties to agree upon reasonable direct agreements, estoppels, opinions and other customery documentation to support the financing(s) with respect to this Agreement, which shall be in form and substance reasonably agreed to by Buyer, Seller and Seller's financing parties. The direct agreement shall include (but not be limited to) provisions substantially as follows:

(a) The Parties shall not amend or modify this Agreement in any material respect without the prior written consent of the Seller's financing parties;

(b) Prior to exercising its right to terminate this Agreement as a result of an Event of Default by Seller, Buyer shall give notice of such Event of Default by Seller to the administrative agent of Seller's lenders of Seller's financing parties, which Buyer has been provided written notice of; and

(c) Seller's lenders or financing parties shall have the right, but not the obligation, to cure an Event of Default on behalf of Seller in accordance with the provisions of this Agreement, provided that Seller's lenders or financing parties shall be provided an additional forty-five (45) days, from the end of the cure periods provided pursuant to Section 6.1, to effect a cure of such Event of Default.

ARTICLE TWELVE: MISCELLANEOUS

12.1 Term of Agreement.

The Term of this Agreement shall commence on the Effective Date and shall remain in effect for the duration of the Delivery Period, as set forth in Section 2.1, unless earlier terminated by either Party in accordance with this Agreement herein (the "Term"); provided, however, that such termination shall not affect or excuse the performance of either Party under any provision of this Agreement that by its terms survives any such termination.

12.2 Insurance.[3]

At all times during the Term of this Agreement, Seller shall maintain at its own expense insurance policies for the Facility and its tangible assets in such amounts and against such risks and losses as are consistent with Good Utility Practices and those policies listed below. Such insurance policies shall be maintained only with insurers rated at least A- VII by MVI Best or comparable ratings agency.

- Commercial General Liability with limits of $1,000,000 including products, completed operations, and contractual for this Agreement. GPA shall be an additional insured. Seller shall grant a waiver of subrogation in favor of GPA.

- Commercial Auto Liability in the amount of $1,000,000 combined single limit for bodily injury and property damage. GPA shall be an additional insured. Seller shall grant a waiver of subrogation in favor of GPA.

- Excess Liability with limits of $5,000,000. GPA shall be an additional insured. Seller shall grant a waiver of subrogation in favor of GPA.

- Workers Compensation and Employers Liability with statutory limits and $1,000,000/$1,000,000/$1,000,000 respectively. Seller shall add a waiver of subrogation endorsement in favor of GPA.

- Pollution Liability, when applicable, with limits for $5,000,000. GPA is to be an additional insured. Seller shall grant a waiver of Subrogation in favor of GPA**.**

- Builder's Risk or Installation Floater, when applicable, is to be furnished by Contractor.

- Property insurance that will keep the premises, property, improvements, structures, and machinery and equipment on the premises insured, at a minimum, against with an all risk property policy for full replacement value as determined from time to time. Such insurance shall be issued by financially responsible insurers duly authorized to do business in Guam, and shall contain the standard form of waiver of subrogation. Nothing contained herein shall be construed as creating any liability or responsibility on the part of GPA for the adequacy of insurance coverage on the premises. As to any insurable risks of loss or damage to the premises not required to be insured hereunder, Seller shall bear the cost of the same. Seller shall be deemed to be self-insured as to the deductible or co-insurance amount applicable to such insurance coverage and shall pay any deductible or co-insurance amount applicable in the event of such loss or damage.

At all times after achieving COD, Seller may discontinue or otherwise cancel each of the aforementioned policies, except the following insurance policies, which shall be maintained with the limits set forth below:

- Commercial General Liability with limits of $1,000,000.00 including products, completed operations, and contractual for this Agreement. GPA shall be an additional insured. Seller shall grant a waiver of subrogation in favor of GPA.

- Excess Liability with limits of $3,000,000.00. GPA shall be an additional insured. Seller shall grant a waiver of subrogation in favor of GPA.

- Property insurance that will keep the premises, property, improvements, structures, and machinery and equipment on the premises insured, at a minimum, against with an all risk property policy for full replacement value as determined from time to time. Such insurance shall be issued by any financially responsible insurer duly authorized to do business in Guam, and shall contain the standard form of waiver of subrogation. Nothing contained herein shall be construed as creating any liability or responsibility on the part of GPA for the adequacy of insurance coverage on the premises. As to any insurable risks of loss or damage to the premises not required to be insured hereunder, Seller shall bear the cost of the same. Seller shall be deemed to be self-insured as to the deductible or co- insurance amount applicable to such insurance coverage and shall pay any deductible or co-insurance amount applicable in the event of such loss or damage.

- Seller is also required to carry Business Interruption and Extra Expense insurance in the amount of $1,000,000.00.

If the Facility is lost or damaged due to a casualty, Seller shall re-build the Facility promptly and in a commercially reasonable manner; provided, however, (i) if the time to re-build the Facility would result in less than five (5) years remaining in the Delivery Period then (A) Seller shall have the option in lieu of re-building the Facility to pay to GPA the Buyout Payment and terminate this Agreement with no further costs or penalties, or (B) if Seller nevertheless elects to re-build the Facility, then GPA shall reimburse Seller for any deductibles payable by Seller under its property insurance (not to exceed $500,000), and (ii) regardless of when the casualty event occurs, if Seller re-builds the Facility, then the Delivery Period shall be extended for the greater of one (1) year or two (2) times the length of the interruption of the sale of Renewable Energy (pro rated based on the Minimum Production for partial interruptions) after the end of the Term, and the Contract Price shall be the price in effect, without escalation, at the end of the Term.

Within ten (10) Business Days after receipt of a request for the same from GPA, Seller shall deliver to GPA a certificate of insurance for any or all policies maintained in accordance with this Section 12.2, which certificate shall include at least the following information: (i) the name of the insurance company, policy number and expiration date; and (ii) the coverage and limits on coverage, including the amount of deductibles or self-insured retentions.

Seller shall furnish certificates of insurance and waiver of subrogation endorsements to GPA prior to commencement of construction of the Facility showing evidence of such coverage, including the statement to the effect that cancellation or termination of the insurance shall not be effective until at least thirty (30) days after receipt of written Notice to GPA. At all times Seller's insurance shall be primary and non-contributory to any other insurance that may be carried by GPA. The statement of limits of insurance coverage shall not be construed as in any way limiting the Seller's liability under this Agreement. GPA shall be an additional insured on all liability coverage and certificates of insurance shall clearly indicate such.

12.3 Indemnity.

To the extent permitted by law, each Party shall indemnify, defend and hold harmless the other Party from and against any Claims arising from or out of any event, circumstance, act or incident first occurring or existing during the period when control and title to the Renewable Energy and Environmental Attributes is vested in such Party, unless a Claim is due to such Party's willful misconduct or gross negligence. To the extent permitted by law, each Party shall indemnify, defend and hold harmless the other Party against any Governmental Charges for which such Party is responsible under Article Ten. Notwithstanding anything to the contrary contained in this Agreement, no individual

representative of either Party shall have any personal liability to the other Party as a result of the breach of any representation, warranty, covenant or agreement contained herein.

12.4 Site Access and Inspection of Records.

Seller shall provide GPA with reasonable access to the Facility site for purposes of review and inspection during regular business hours within a reasonable time after a request for the same is made by GPA to Seller. During such reviews and inspections, GPA representatives shall be permitted to review such records relating to the Facility and reasonably related to the performance of this Agreement, including Facility maintenance and operations logs. GPA shall have access to the Facility site for the limited purposes described herein, but Seller shall at all times remain responsible and liable for the control and operation of the Facility and the Facility site. GPA representatives shall follow Seller's safety procedures when accessing the Facility site and shall conduct themselves in a manner that will not interfere with the operation of the Facility. Seller will provide GPA with information about such safety procedures to enable GPA to comply with this requirement.

12.5 Audit.

Subject to Section 7.3, each Party has the right, at its sole expense and during normal working hours, to examine copies of the records of the other Party to the extent reasonably necessary to verify the accuracy of any statement, charge or computation made pursuant to this Agreement.

12.6 Confidentiality.

The Parties will make Commercially Reasonable Efforts to safeguard Confidential Information against disclosure by employing the same means to protect such Confidential Information as that Party uses to protect its own non-public, confidential or proprietary information, and otherwise in accordance with the provisions of this Section 12.6. Specifically, no receiving Party shall itself, or permit its employees, consultants and/or agents to disclose to any person, corporation or other entity the Confidential Information without the prior written consent of the Party providing the Confidential Information, except a receiving Party may distribute the Confidential Information to its and its Affiliates' board members, officers, employees, agents, consultants, actual or potential investors, actual or potential purchasers, Facility lenders, and others who have a need for such Confidential Information in connection with the Transaction.

The Parties acknowledge, however, that a Party may need to disclose the Confidential Information in connection with its regulatory filings or to otherwise satisfy its governmental and regulatory requirements. In the event that a Party intends to disclose any of the Confidential Information to its regulatory authorities including, but not limited to, the Guam Public Utilities Commission, the FERC, or any employee, staff member, consultant, and/or agent of the foregoing, it shall give the other Party prompt prior written Notice of its intention so that the other Party may seek a protective order or other appropriate remedy. In addition, each Party specifically agrees not to use the other Party's name in connection with this Agreement or the Facility in any press releases, public meetings or hearings, or other public communications, including any release to any newswire service, without the express written consent of the other Party. The Parties anticipate that at some future time it may be in the best interests of one or both of them to disclose Confidential Information to the media and the Parties anticipate entering into a subsequent agreement that will govern the terms of such disclosure. The Parties expressly agree, however, that unless and until such subsequent agreement is executed between the Parties, the terms of this Agreement shall be binding with respect to such disclosure.

In the event that any Party receiving the Confidential Information becomes legally compelled (by deposition, interrogatory, request for documents, subpoena, civil investigative demand or similar process) to disclose any of the Confidential Information, the legally compelled Party shall give the other Party providing the Confidential Information prompt prior written Notice of such requirement so that the providing Party may seek a protective order or other appropriate remedy and/or waive compliance with the terms of this Agreement. In the event that such protective order or other remedy is not obtained, the providing Party waives compliance with the terms hereof to the extent of the required disclosure.

Each Party acknowledges that the unauthorized disclosure of any Confidential Information may cause irreparable harm and significant injury that may be difficult to ascertain. Each Party therefore agrees that specific performance or injunctive relief, in addition to other legal and equitable relief, are appropriate remedies for any actual or threatened violation or breach of this Agreement, although neither Party shall be entitled to any special, consequential, indirect or punitive damages as a result of a breach of this Agreement, whether a claim is based in contract, tort or otherwise. The Parties agree that the respondent in any action for an injunction, specific performance decree or similar relief shall not allege or assert that the initiating Party has an adequate remedy at law in respect to the relief sought in the proceeding, nor shall the respondent seek the posting of a bond by the Party initiating the action. Under no circumstances will either Party's directors, management, employees, agents or consultants be individually liable for any damages resulting from the disclosure of Confidential Information in violation of the terms of this Agreement.

12.7 Notices.

All notices, requests, statements or payments ("Notices") shall be made as specified on Appendix B attached hereto and incorporated herein by reference. Notices (other than with respect to Scheduling) shall, unless otherwise specified herein, be in writing and may be delivered by hand delivery, United States mail, overnight courier service or facsimile. Notice by facsimile or hand delivery shall be effective at the close of business on the day actually received, if received during business hours on a Business Day, and otherwise shall be effective at the close of business on the next Business Day. Notice by overnight United States mail or courier shall be effective on the next Business Day after it was sent. Notices relating to Facility operations and Scheduling, as required pursuant to Appendix H, may be given electronically and shall be deemed effective upon receipt; otherwise, electronic notices shall not be effective unless affirmatively acknowledged in writing (including by reply e-mail) by the receiving Party. A Party may change its addresses by providing Notice of same in accordance herewith.

12.8 Purchase Option.

(a) Transfer During the Delivery Period. In the event that Seller desires to sell the Facility during the Delivery Period, Seller shall provide prior written Notice of the same to GPA, and agrees to engage in discussions with GPA for the purchase of the Facility by GPA during the exclusivity period described in this Section with GPA if GPA desires to purchase the Facility. Within ninety (90) days following Seller's Notice to GPA of its intent to sell the Facility, GPA may deliver to Seller an indicative purchase price at which it would be willing to purchase the Facility. If GPA does not deliver the indicative purchase price within ninety (90) days of receipt of the Notice, then Seller shall be free to transfer the Facility under any terms and conditions at any time thereafter. If GPA delivers the indicative purchase price within ninety (90) days of receipt of the Notice, then the Parties shall negotiate exclusively for a period of up to sixty (60) days after GPA delivers the indicative purchase price. If no binding agreement is entered into by the Parties during such sixty (60)-day period then Seller shall be free to transfer the Facility to any person on transactions terms, including price, that are better for Seller than GPA's indicative offer, and neither Party shall have any further liability or obligation to the other Party in connection with such sale or as a result of the terminated negotiations. If Seller does not transfer the Facility on such basis within one (1) year following the end of the sixty (60)-day exclusive negotiation period, then the procedure in this paragraph shall apply to any subsequent sale of the Facility during the Term of this Agreement.

(b) Extension of Delivery Period and Facility Purchase at End of Delivery Period. At least one (1) year prior to the end of the Delivery Period, GPA and Seller may agree to extend the Term of this Agreement on a year-to-year basis up to five (5) years in the aggregate, in which case the Contract Price and terms shall be mutually agreeable to GPA and the Seller. At least one (1) year prior to the end of the Delivery Period, GPA may provide Notice to Seller that it elects to purchase the Facility at the end of the Delivery Period at a purchase price equal to the higher of (i) 100% of the Appraised Price of the Facility at the end of the Delivery Period and (ii) the sum of (x) the amount necessary to repay any Facility Debt (including any swap or interest rate hedging breakage costs related thereto) in full plus (y) the amount which when applied pursuant to the governing documents for the Seller or any

relevant subsidiary or upstream holding company through which the tax equity invests in the Facility is sufficient to repay any Facility Debt, including back-leverage financing and including any swap or interest rate hedging breakage costs related thereto, and for the tax equity investors to recover (to the extent not previously recovered) the higher of (1) their investment balance together with their targeted return or (2) the amount necessary to avoid a loss under US GAAP. If GPA fails to send such Notice of purchase then this Agreement shall terminate in accordance with the terms hereof. If GPA provides such a Notice of the purchase, Seller and GPA shall exercise Commercially Reasonable Efforts to consummate the purchase within thirty (30) days of the end of the Delivery Period, and at the end of such time period the purchase option shall expire. The documentation for the sale shall be mutually agreeable to the Parties. Any such sale will be on an "as is" basis, without the giving of any representations or warranties, except as to (i) each party's organization, power and authority; (ii) good standing; (iii) Seller's ownership of the Facility to be sold in such sale, and the existing liens and encumbrances thereon; (iii) the instrument(s) conveying the Facility to GPA constitutes the legal, valid, and binding obligation of Seller, enforceable against Seller, in accordance with its terms; (iv) such conveyance will not violate any contract or legal requirement applicable to Seller; and (v) subject to applicable regulatory approvals, no consents, approvals, or filings are required to be obtained or made by Seller to convey the Facility to GPA other than those that have previously been obtained or made and are in full force and effect as of the date of the conveyance.

12.9 Alternative Dispute Resolution.

All disputes arising under this Agreement are subject to the provisions of this Section 12.9.

(c) Mediation. In the event of any dispute or Claim between the Parties arising out of or relating to this Agreement, or the breach thereof, and if the dispute or Claim cannot be settled through negotiation, the Parties agree first to try in good faith to settle the dispute by mediation administered by the American Arbitration Association under its Commercial Mediation Procedures before resorting to arbitration in accordance with Section 12.9(b) hereof; provided, however, that, during the pendency of any such mediation, (1) neither Party shall do anything to alter the status quo, and (2) either Party shall be entitled to seek interim, conservatory or provisional relief from any court or tribunal of competent jurisdiction in order to protect its rights. In the event of any dispute or Claim between the Parties arising out of or relating to this Agreement, or the breach thereof, consistent with the previous sentence, either Party may submit the matter to mediation in accordance with the Commercial Mediation Procedures of the American Arbitration Association. Within fourteen (14) days of such submission, the Parties shall attempt in good faith to mutually agree on the appointment of a mediator. If no such agreement is reached within fourteen (14) days of the submission of the dispute to mediation, then, unless otherwise agreed by the Parties, the American Arbitration Association shall appoint the mediator as promptly as possible in accordance with its Commercial Mediation Procedures or other rules it has adopted for this purpose. The Parties and the mediator shall schedule and complete the mediation within sixty (60) days from the date that the mediator is appointed. In the event that the mediation is not completed by such time, either Party shall be entitled to terminate the mediation and pursue arbitration of any outstanding dispute or Claim in accordance with subsection (b) of this Section 12.9.

(d) Arbitration. Subject to Section 12.9(a), any disputes or Claims between the Parties and/or their respective representatives arising out of or relating tothis Agreement, or the breach thereof, shall be submitted to binding arbitration, whether such disputes or Claims are in contract, tort or otherwise. The arbitration shall be conducted in accordance with the Federal Arbitration Act (9 U.S.C. Section 1, (*et seq.*)) and the then prevailing Commercial Arbitration Rules of the American Arbitration Association. The validity, construction, and interpretation of this Agreement to arbitrate and all procedural aspects of the arbitration conducted pursuant hereto shall be decided by the arbitrator(s). Submission shall be made upon the request of either Party. Within twenty (20) calendar days of the receipt by the respondent of service of the Notice of arbitration, the Parties shall select one (1) arbitrator by mutual consent. If the Parties are unable to agree upon a single arbitrator, there shall be

three (3) arbitrators. Specifically, in the event the Parties cannot agree upon a single arbitrator, both the claimant and the respondent shall appoint one (1) arbitrator within ten (10) calendar days after written Notice by either Party that three (3) arbitrators shall be necessary. The two (2) arbitrators so appointed shall then select the third arbitrator within twenty (20) calendar days, who shall be the chairperson, of the tribunal. The chairperson shall be a person who has over eight (8) years of experience in energy-related transactions, and none of the arbitrators shall have been previously employed by either Party or have any direct interest in either Party or the subject matter of the arbitration, unless such conflict is expressly acknowledged and waived in writing by both Parties. It is agreed that the seat of the arbitration shall be Honolulu, Hawaii and that the arbitration proceeding shall be conducted in Honolulu, Hawaii, or another neutral location mutually agreed to by the Parties, however, the seat of the arbitration shall remain Honolulu, Hawaii. It is further agreed that the arbitrator(s) shall have no authority to award consequential, treble, exemplary, or punitive damages of any type or kind regardless of whether such damages may be available under any law or right, with the Parties hereby affirmatively waiving their rights, if any, to recover or claim such damages. The compensation and any costs and expenses of the arbitrators shall be borne equally by the Parties. Any arbitration proceedings, decision or award rendered hereunder and the validity, effect and interpretation of this arbitration provision shall be governed by the Federal Arbitration Act. The award shall be final and binding on the Parties and judgment upon any award may be entered in any court of competent jurisdiction. The Parties agree that all information exchanged as a result of any proceeding as described herein shall be deemed Confidential Information.

(e) Judicial Relief. Either Party may petition a court of appropriate jurisdiction, as described in Section 12.11, for non-monetary interim or provisional relief relating to any dispute or claim of breach arising out of or relating to this Agreement in order to prevent undue hardship relating to any such claimed breach pending the appointment of an arbitration panel as described in this Section 12.9.

12.10 Governing Law.

THIS AGREEMENT AND THE RIGHTS AND DUTIES OF THE PARTIES HEREUNDER SHALL BE GOVERNED BY AND CONSTRUED, ENFORCED AND PERFORMED IN ACCORDANCE WITH THE LAWS OF GUAM**,** WITHOUT REGARD TO PRINCIPLES OF CONFLICTS OF LAW.

12.11 Jurisdiction and Costs.

Subject to and without prejudice to the mandatory arbitration provision set out in Section 12.9 hereof, each Party hereby consents to the exclusive jurisdiction of the United States federal courts sitting in Guam for any action or proceeding to enforce the foregoing agreement to arbitrate, or ancillary to such arbitration proceedings, or to confirm or set aside any award rendered in such proceeding. Both Parties waive any right to trial by jury in any such action described in this Section 12.11. In the event such judicial proceedings are instituted by either Party, the prevailing Party shall be entitled to award of its costs and reasonable attorneys' fees incurred in connection with such proceedings.

12.12 Financial Accounting Standards.

Under the latest interpretations of the Financial Accounting Standards Board's Interpretation No. 46(R) (FIN No. 46(R)), "Consolidation of Variable Interest Entities," GPA may be required to consolidate a seller's entity for which GPA has entered into a long-term power purchase agreement. Seller agrees to provide all information needed and in Seller's possession in order for GPA to determine whether or not Seller or any special purpose entity which owns the Seller's Facility must be consolidated by GPA under FIN No. 46(R) upon request from GPA. If it is determined that GPA needs to consolidate Seller or such special purpose entity, Seller agrees to provide all information in its possession that is needed to comply with the consolidation requirements of FIN 46(R) in a timely manner every calendar quarter during the Term upon request from GPA. If GPA is required to consolidate Seller or the special purpose entity that owns the Seller's Facility in its financial statements, Seller agrees to provide access to any needed records in its possession and personnel, as requested by GPA, so GPA's independent auditor, Deloitte &

Touche LLP, can conduct financial statement audits in accordance with generally accepted auditing standards, as well as internal control audits in accordance with Section 404 of the Sarbanes-Oxley Act of 2002.

12.13 Forward Contract.

The Parties intend that in any relevant proceedings, each be regarded as a forward contract merchant in respect of this Agreement and that the Transaction and this Agreement be a forwards contract for purposes of the United States Bankruptcy Code, 11 U.S.C. §§ 101 et seq., as amended from time to time, and the Puerto Rico Oversight, Management and Economic Stability Act, including Title III thereof.

12.14 General.

No delay of a Party in the exercise of, or the failure to exercise, any rights under this Agreement shall operate as a waiver of such rights, a waiver of any other rights under this Agreement or a release of the other Party from any of its obligations under this Agreement. Any provision declared or rendered unlawful by any applicable court of law or regulatory agency or deemed unlawful because of a statutory change will not otherwise affect the remaining lawful obligations that arise under this Agreement; and provided, further, that if such an event occurs, the Parties shall use their Commercially Reasonable Efforts to reform this Agreement in order to give effect to the original intention of the Parties. The term "including" when used in this Agreement shall be by way of example only and shall not be considered in any way to be in limitation. The headings used herein are for convenience and reference purposes only. The indemnity provisions of this Agreement shall survive the termination of this Agreement for the period of the applicable statute of limitations. The audit provisions of this Agreement shall survive the termination of this Agreement for a period of twelve (12) Months. This Agreement shall be binding on each Party's successors and permitted assigns.

12.15 Entire Agreement; Amendment.

This Agreement, together with any appendices, schedules, and any written supplements hereto constitutes the entire agreement between the Parties relating to the subject matter hereof. This Agreement shall be considered for all purposes as prepared through the joint efforts of the Parties and shall not be construed against one Party or the other as a result of the preparation, substitution, submission or other event of negotiation, drafting or execution hereof. Except to the extent herein provided for, no amendment or modification to this Agreement shall be enforceable unless reduced to writing and executed by both Parties.

12.16 Appendices.

The following Appendices are included in this Agreement for all purposes:

Appendix A	Contract Price and Minimum Production
Appendix B	Notice Addresses
Appendix C	Energy Storage System and Performance Criteria
Appendix D	Independent Engineers
Appendix E	[Not Used]
Appendix F	Form of Letter of Credit
Appendix G	Calculation of Curtailed Amount Due to Dispatch Down
Appendix H	Scheduling and Coordination
Appendix I	Base Conditions and Facility Test Protocol

Appendix J	Interconnection Agreement
Appendix K	Calculation of Weather Hours Deration
Appendix L	Calculation of Shortfall Damages

12.17 Special Provisions.

It is the policy of GPA not to discriminate on the basis of age, race, sex, color, national origin, or disability in its hiring and employment practices, or in admission to, access to, or operation of its programs, services, and activities. With regard to all aspects of this Agreement, Seller certifies and warrants it will comply with this policy. No person shall be excluded from participation in, be denied benefits of, be discriminated against in the admission or access to, or be discriminated against in treatment or employment in GPA's contracted programs or activities, on the grounds of such person's handicap or disability, age, race, color, religion, sex, national origin, or any other classification protected by federal or Guam law; nor shall any person be excluded from participation in, be denied benefits of, or be otherwise subjected to discrimination in performance of contracts with GPA or in the employment practices of GPA's contractors. Accordingly, all persons entering into contracts with GPA shall, upon request, be required to show proof of such nondiscrimination and to post notices of non-discrimination in conspicuous places that are available to all employees and applicants.

Seller hereby represents that Seller has not been retained or retained any persons to solicit or secure a contract from GPA upon an agreement or understanding for a contingent commission, percentage, or brokerage fee, except for retention of bona fide employees or bona fide established commercial selling agencies for the purpose of securing business. Breach of the provisions of this section is, in addition to a breach of this Agreement, a breach of ethical standards, which may result in civil or criminal sanction, debarment or suspension from being a contractor or subcontractor under any other contract with GPA and any Government Authority.

It shall be a breach of ethical standards for any person to offer, give or agree to give any employee or former employee, or for any employee or former employee to solicit, demand, accept or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy or other particular matter, pertaining to any program requirement of a contract or subcontract or to any solicitation or proposal therefor. It shall be breach of ethical standards for any payment, gratuity or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor or a person associated therewith, as an inducement for the award of a subcontractor or order. Breach of the provisions of this paragraph is, in addition to a breach of this Agreement, a breach of ethical standards, which may result in civil or criminal sanction, debarment or suspension from being a contractor or subcontractor under any other contract with GPA and any Governmental Authority.

Seller warrants that no person providing services on behalf of Seller or in its employment who has been convicted of a sex offense under the provisions of Chapter 25 of Title 9 of the Guam Code Annotated, or convicted of an offense defined in Article 2 of Chapter 28 of Title 9 of the Guam Code Annotated regardless of the jurisdiction in which the conviction was obtained, shall provide services on behalf of Seller relative to this Agreement. If any person employed by Seller and providing services under this Agreement is convicted subsequent to the date of this Agreement, then Seller warrants that it will notify GPA of the conviction within twenty-four hours of being made aware of the conviction, and will immediately remove such convicted person from providing services under this Agreement. If Seller is found to be in violation of any of the provisions of this paragraph, then GPA shall give Notice to Seller to take corrective action. Seller shall take corrective action within twenty-four hours of Notice from GPA, and Seller shall notify GPA when action has been taken. If Seller fails to take corrective steps within twenty-four hours of Notice from GPA, then GPA in its sole discretion may suspend this Agreement temporarily upon prior written Notice to Seller until the individual in question is removed from service to GPA.

12.18 Waiver of Immunity.

To the extent that GPA may in any jurisdiction claim for itself or its assets or revenues immunity from suit, execution, attachment (whether in aid of execution, before judgment or otherwise) or other legal process, and to the

extent that in any such jurisdiction there may be attributed to GPA or its assets or revenues such immunity (whether or not claimed), GPA agrees not to claim and irrevocably waives such immunity to the full extent permitted by the laws of such jurisdiction.

IN WITNESS THEREOF, the Parties hereto made and executed this Agreement, signed by their duly authorized officers or individuals, as of the dates listed below.

GUAM POWER AUTHORITY **GPA or Buyer**	**KEPCO-LG CNS MANGILAO SOLAR, LLC** **or Seller**
By: _____	By: _____
Name: _____	Name: _____
Title: _____	Title: _____
Date: _____	Date: _____

[Signature Page to Renewable Energy Purchase Agreement]

APPENDICES

APPENDIX A

CONTRACT PRICE, MINIMUM PRODUCTION AND GUARANTEED OUTPUT

Contract Year	Annual Contract Price ($/MWh)	Estimated Annual Production (MWh) (= Minimum Production)	90 % of Minimum Production (MWh)	91% of Minimum Production (MWh)	95 % of Minimum Production (MWh) (=Guaranteed Output)
1	85.49913187	149,084.58510	134,176.12658	135,666.97244	141,630.35584
2	86.35412319	147,949.35582	133,154.42024	134,633.91380	140,551.88803
3	87.21766442	147,208.52220	132,487.66998	133,959.75520	139,848.09609
4	88.08984107	146,467.68858	131,820.91972	133,285.59661	139,144.30415
5	88.97073948	146,117.75676	131,505.98108	132,967.15865	138,811.86892
6	89.86044687	144,986.02134	130,487.41920	131,937.27942	137,736.72026
7	90.75905134	144,245.18770	129,820.66894	131,263.12081	137,032.92832
8	91.66664186	143,504.35408	129,153.91868	130,588.96221	136,329.13638
9	92.58330827	143,146.46242	128,831.81618	130,263.28080	135,989.13931
10	93.50914136	142,022.68684	127,820.41815	129,240.64502	134,921.55250
11	94.44423277	141,281.85322	127,153.66789	128,566.48643	134,217.76055
12	95.3886751	140,541.01960	126,486.91763	127,892.32784	133,513.96861
13	96.34256185	140,175.16810	126,157.65129	127,559.40297	133,166.40969
14	97.30598747	139,059.35234	125,153.41711	126,544.01063	132,106.38473
15	98.27904734	138,318.51872	124,486.66685	125,869.85204	131,402.59279
16	99.26183782	137,577.68510	123,819.91659	125,195.69344	130,698.80084
17	100.2544562	137,203.87378	123,483.48640	124,855.52514	130,343.68008
18	101.2570008	136,096.01786	122,486.41607	123,847.37625	129,291.21696
19	102.2695708	135,355.18422	121,819.66581	123,173.21764	128,587.42502
20	103.2922665	134,614.35060	121,152.91555	122,499.05905	127,883.63308
21	104.3251891	134,232.57944	120,809.32150	122,151.64729	127,520.95047
22	105.368441	133,132.68336	119,819.41502	121,150.74186	126,476.04919
23	106.4221254	132,391.84974	119,152.66476	120,476.58326	125,772.25725
24	107.4863467	131,651.01612	118,485.91450	119,802.42467	125,068.46531
25	108.5612102	131,261.28512	118,135.15661	119,447.76946	124,698.22086

APPENDIX B

NOTICE ADDRESSES

[GPA and Seller shall complete the Notice Addresses prior to COD]

APPENDIX C

ENERGY STORAGE SYSTEM AND PERFORMANCE CRITERIA

As part of the Facility, Seller shall install the Energy Storage System for the purpose of (i) meeting GPA's ramp rate control requirements set forth in Section 4.19 and this Appendix C, and (ii) meeting GPA's energy shifting requirements set forth in Sections 4.17 and 4.18. The Energy Storage System shall meet performance criteria set out in this Appendix C.

1.1 The Energy Storage System shall be comprised of:

32 MW/32 MWh Energy Storage System which will have the capability to control the Facility's ramping rate under 1% of the Facility Capacity (i.e. 600 kW) per minute. The control period [for the ramping rate] will be no more than 1 second and the Energy Storage System's performance will be verified as set out in this Appendix C below (detailed ramping control algorithm will be finalized through discussions between GPA and Seller after the final design of the Energy Storage System is put in place but no later than one (1) month before the commissioning test of the Facility will start). The Energy Storage System may be dedicated to meet GPA's requirements for energy shifting as described in Sections 4.17 and 4.18.

1.2 Voltage and Frequency Ride-through

The Facility shall meet the voltage and frequency ride-through requirements shown in Table 1 below. Voltage and frequency measurements in the table are to be taken at the Delivery Point.

Table 1 – Voltage and Frequency Ride-through Settings

	Settings at Point of Interconnection (34.5 kV) (V is magnitude in per unit) (F is frequency in Hz) (T is time in seconds)	
	Setpoint	Trip Time
Under-voltage	V<0.88	T>2.00
Normal voltage	0.88<V<1.10	no trip allowed
Over-voltage	1.10<V<1.20	T>2.00
Over-voltage	1.20<V	T>0.16
Under-frequency	F<57.0	T>0.16
Normal frequency	57.0<F<63.0	no trip allowed
Over-frequency	63.0<F	T>0.16

1.3 Ramp Rate Control Performance

1.3.1 Energy Storage System will control the ramping rate under 1% of the Facility Capacity (i.e. 600 kW) per minute and the control period [for the ramping rate] will be no more than 1 second. Detailed ramping control algorithm will be finalized through discussions between GPA and Seller after the final design of the Energy Storage System is put in place but no later than one (1) month before the commissioning test of the Facility will start. Notwithstanding the foregoing, Seller will not be required to adhere to the ramp rate control requirement specified in this Appendix C during any day when the Energy Storage System is used for energy shifting purposes as described in Sections 4.17 and 4.18.

1.3.2 Evaluation of Performance Verification

(a) During the Delivery Period, on an annual basis, Seller shall carry out the evaluation process for the performance verification of the Energy Storage System, including power test and 1% ramp-rate control test in the presence of GPA, once every year with annual data storage in the Facility database and GPA SCADA.

$$\left| \frac{\sum_{t-\Delta t}^{t} PV_t(x)}{\Delta t} - \frac{\sum_{t-2\Delta t}^{t-\Delta t} PV_t(x)}{\Delta t} \right| > P_{ramp}$$

Where:

- Δt = 60 seconds
- $PV_t(x)$: PV generation at time t
- i = 1,2,3, ….., 60 seconds
- P_{ramp} : active power considering ramp rate limit per 1min window

(b) Ramp Rate Control shall be based on a plus or minus (±) 1% of rated power of 60MW plant (“Measured Value”). Ramp Rate Control measurement errormeans a plus or minus (±) 2% of Measured Value.

1.3.3 Ramp Control Penalty

Penalty will apply to failure to meet the 1% ramp per minute rate for both under and over power. Ramp-Control must be controlled within 1 second. The failure percentage is as below:

- Failure Percentage (FP) = (E1 – E2)

Symbol	Item	Unit	Remarks
E1	Guaranteed value of Succeed Ramp-Rate	%	Proposal (offer) shown in table below
E2	Output of Ramp Rate Controlled	%	1% ramping requirement with 2% measurement error

If FP is greater than 0 (zero), then Penalty shall be calculated as follow:

- Under Power Failure Penalty = (AF_U) *(C_U)*(FP_U)
- Over Power Failure Penalty= (AF_O) *(C_O)*(FP_O)

Symbol	Item	Value	Unit
C_U	Nominal Ramp Down Cost	1.96	$/min/MW
C_O	Nominal Ramp Up Cost	0.49	$/min/MW

The penalty is calculated only for the portion exceeding the guaranteed value.

Where:

- Failure Power of Under Power (FP_U) = |Ramp Rate Required Power – CP| [MW]
- Failure Power of Over Power (FP_O) = |CP – Ramp Rate Required Power| [MW]
- Controlled Power (CP) =1 minute Average Power of 1% Ramp Rate Controlled by 1second
- Acceleration Factor of Under Power (AF_U) = 0.5
- Acceleration Factor of Over Power (AF_O) = 0.5

The penalty shall be paid to GPA in arrears at the end of each Contract Year and shall be capped at $10,000 in each Contract Year.

Contract Year	1% Ramp Rate Guaranteed Success Rate (%)
1	94
2	95
3	95
4	94
5	94
6	94
7	93
8	93
9	93
10	93
11	93
12	93
13	93
14	93
15	93
16	92
17	93
18	92
19	92
20	93
21	93
22	92
23	92
24	92
25	92

APPENDIX D

INDEPENDENT ENGINEER

[Seller will submit the list of engineering firms prior to the singing of the Agreement]

APPENDIX E

[NOT USED]

APPENDIX F

FORM OF LETTER OF CREDIT

(Provided is sample which may be replaced by Bank / Financial Instituion Form)

(*Bank or Financial Institution*)

_____, 201__

Irrevocable Standby Letter of Credit No. ____

Beneficiary:
Guam Power Authority
P.O. Box 2977
Guam 96932-2977
Attn:
Applicant:

Dear _____:

We hereby establish for the account of (*Company Name*) ("Applicant") our irrevocable standby letter of credit in your favor for an amount of USD $[_____] ([_____] United States Dollars). Applicant has advised us that this letter of credit is issued in connection with the Renewable Energy Purchase Agreement, dated as of _____, 2017, by and between the Applicant, and Guam Power Authority (the "Beneficiary"). This letter of credit shall become effective immediately on the date hereof and shall expire on _____ [*the date that is XX days after the* date first set forth above][5] (such date, or such later date(s) as determined by Applicant in accordance with the next succeeding sentence, the "Expiration Date"). The Expiration Date can be extended on one or more occasions by written notice to us from the Applicant, provided that such written notice is received at least 10 days prior to the Expiration Date. This letter of credit is subject to the following:

1. Funds under this letter of credit shall be made available to Beneficiary against its draft drawn on us in the form of Annex 1 hereto, accompanied by (a) a certificate in the form of Annex 2 hereto, appropriately completed and signed by an authorized officer of Beneficiary, dated the date of presentation, and (b) the original of the letter of credit (the "Accompanying Documents") and presented at our office located at (*Bank/Financial Institution Address*) attention _____, (or at any other office which may be designated by us by written notice delivered to you). A presentation under this letter of credit may be made only on a day, and during hours, in which such office is open for business (a "Business Day"). If we receive your draft and the Accompanying Documents at such office on any Business Day, all in strict conformity with the terms and conditions of this letter of credit, we will honor the same by making payment in accordance with your payment instructions on the third succeeding Business Day after presentation.

2. This letter of credit shall terminate upon the earliest to occur of (i) our receipt of a notice in the form of Annex 3 hereto signed by an authorized officer of Beneficiary, accompanied by this letter of credit for cancellation, or (ii) our close of business at our aforesaid office on the Expiration Date, or if the Expiration

Date is not a Business Day, then on the succeeding Business Day. This letter of credit shall be surrendered to us by you upon the earlier of presentation or expiration.

3. This letter of credit is issued and subject to the International Standby Practices 1998 (ISP98) International Chamber of Commerce Publication No. 590, and as to matters not addressed by ISP98, shall be governed by and construed in accordance with the laws of the State of New York and application of U.S. Federal Law.

4. This letter of credit sets forth in full our undertaking, and such undertaking shall not in any way be modified, amended, amplified or limited by reference to any document, instrument or agreement referred to herein, except for Annexes 1, 2 and 3 hereto and the notices referred to herein; and any such reference shall not be deemed to incorporate herein by reference any document, instrument or agreement except as otherwise provided in this paragraph 4.

5. Communications with respect to this letter of credit shall be in writing and shall be addressed to us at the address referred to in paragraph 1 above, and shall specifically refer to this letter of credit no. _____.

Very truly yours,

_____

Authorized signature
(*Bank or Financial Institution*)

ANNEX 1
TO LETTER OF CREDIT NO. _____

under LETTER OF CREDIT No. _____

To:
(*Bank or Financial Institution*)
(*Bank/Financial Institution Address*)
Attn: _____

[*Month, Day , Year*]

On Sight

Pay to Guam Power Authority U.S. $ _____ [not to exceed amount available to be drawn]

Wire to:
Bank's Name: Bank of Guam
Bank's Location: 111 Chalan Santo Papa St., Hagatna, Guam 96910
Bank's Mailing Address: P.O. Box BW, Hagatna, Guam 96932
Account Name: Guam Power Authority Revenue Fund Account
Acct. No.: (to be provided)
Routing No.: (to be provided)

For value received and charge to account of Letter of Credit No. _____ of (*Company Name*)

GUAM POWER AUTHORITY

By: _____

Name: _____

Title: _____

ANNEX 2
TO LETTER OF CREDIT NO. _____

Drawing under Letter of Credit No. _____

Date: _____

To:
(*Bank or Financial Institution*)
(*Bank/Financial Institution Address*)
Attn: _____

The undersigned, a duly authorized officer of the Guam Power Authority, ("Beneficiary"), hereby certifies on behalf of Beneficiary to (*Bank or Financial Institution*) and to (*Company Name*) (the "Applicant") with reference to irrevocable standby Letter of Credit No. _____ (the "Letter of Credit") issued for the account of (*Company Name*) ("Applicant"), that:

1) pursuant to the Renewable Energy Purchase Agreement, dated as of _____, 201__, by and between Applicant and Beneficiary and as of the date hereof, Beneficiary is entitled to draw under the Letter of Credit;

2) by presenting this certificate and the accompanying sight draft, Beneficiary is requesting that payment in the amount of $_____, as specified on said draft, be made under the Letter of Credit by wire transfer or deposit of funds into the account specified on said draft; and

3) the amount specified on the sight draft accompanying this certificate does not exceed the remaining amount to which Beneficiary is entitled to draft under said Renewable Energy Purchase Agreement.

In witness whereof, Beneficiary has caused this certificate to be duly executed and delivered by its duly authorized officer as of the date and year written below.

Date: _____

GUAM POWER AUTHORITY

By: _____
Name: _____
Title: _____

ANNEX 3
TO LETTER OF CREDIT NO. _____

Notice of surrender of Letter of Credit No. _____

Date: _____

To:
(*Bank or Financial Institution*)
(*Bank/Financial Institution Address*)
Attn: _____

Re: Letter of Credit No. _____ issued for the account of (*Company Name*)

Ladies and Gentlemen:

We refer to your above-mentioned irrevocable standby Letter of Credit (the "Letter of Credit"). The undersigned hereby surrenders the Letter of Credit to you for cancellation as of the date hereof. No payment is demanded of you under this Letter of Credit in connection with this surrender.

Very truly yours,

GUAM POWER AUTHORITY

By: _____

Name: _____

Title: _____

APPENDIX G

CALCULATION OF CURTAILED AMOUNT DUE TO GPA DISPATCH DOWN

Buyer shall pay Seller, on the date payment would otherwise be due in respect of the day in which any curtailment is initiated by GPA for reasons other than Force Majeure or Seller Event of Default ("Dispatch Down"), an amount equal to the Contract Price times the amount of Renewable Energy that Seller could reasonably have delievered to Buyer but for such Dispatch Down, pursuant to the limitations provided in Appendix H, Section 1.2, which allow GPA to curtail energy delivered from Seller up to seven (7) days in aggregate for over the first two (2) Contract Year period, and thereafter up to seven (7) days in each Contract Year. The determination of the curtailed amount associated with any Dispatch Down shall be calculated as follows:

1) Identification of weather conditions for the period of Dispatch Down

   For any period the Facility was Dispatched Down, Seller shall document the Weather Data associated therewith. ("Weather Data" means solar irradiation, wind speed, and ambient temperatures.)

2) Curtailed amount calculation

a. Seller shall use PVSyst energy simulation software or other software as agreed by the Parties to generate hypothetical generation amounts for the Dispatch Down period (curtailed amount MWh) by utilizing the Weather Data.

b. In addition to "Annual Facility Test" (as described in Section 4.9 of this Agreement), GPA shall be entitled to check the accuracy of the equipments associated with the Weather Data once in each Contract Year as agreed with Seller.

APPENDIX H

SCHEDULING AND COORDINATION PROCEDURES[6]

The Parties acknowledge that as of the Effective Date GPA has not yet established protocols for scheduling (firm or intermittent) power to permit solar energy generating projects to participate in GPA's scheduling process. As soon as practicable, in consultation with Seller (and after taking into account and accommodating Seller's reasonable comments), GPA shall establish such protocols. As soon as practicable after such protocols have been established, become effective and been provided to Seller, but not more than ninety (90) days thereafter, Seller shall use commercially reasonable efforts to cause the Project to become certified as an available resource, including negotiating and executing documents to become an available resource in Guam. Following certification and whenever applicable, Seller shall use commercially reasonably efforts to comply with all additional reasonable protocols issued by GPA relating to available resources during the Delivery Period, and GPA shall consult with Seller (and take into account and accommodate Seller's reasonable comments) in connection with the preparation of any such additional protocols. Seller shall not be required to incur additional costs to comply with such future protocols or to become an available resource under future requirements to be established by GPA.

1.1 General

(a) Notices. Seller shall submit to GPA notices and updates required under this Agreement regarding the Project's status, including, but not limited to, outage requests, Forced Outages and Forced Outage reports. If a web based system is not available, Seller shall promptly submit such information to GPA (in order of preference) telephonically, by electronic mail, or facsimile transmission to the personnel designated to receive such information. Need to include PSCC requirements for Hourly Reports, Daily Production Reports, etc.

(b) GPA Settlements. GPA shall be responsible for all settlement functions within GPA related to the Project.

(c) Resource Data Template. Seller shall provide the data to the GPA that is required for GPA's resource data template (or successor data system) for the Project consistent with this Agreement. Neither Party shall change the template for such data without the other Party's prior written consent.

(d) Annual Delivery Schedules. No later than forty-five (45) days before (A) the first day of the first Contract Year and (B) the beginning of each calendar year for every subsequent Contract Year during the Delivery Period, Seller shall provide a non-binding forecast of each month's average-day expected Actual Renewable Energy for the following calendar year.

(e) Monthly Delivery Schedules. Ten (10) Business Days before the beginning of each month during the Delivery Period, Seller shall provide a non-binding forecast of each day's average expected Actual Renewable Energy for the following month ("Monthly Delivery Forecast") .

(f) Daily Delivery Schedules. By 5:30 AM Guam Prevailing Time on the Business Day immediately preceding the date of delivery, Seller shall provide GPA with a non-binding forecast of the Project's available energy (a "Day-Ahead Forecast"). A Day-Ahead Forecast provided in a day prior to any non-Business Day(s) shall include Schedules for the immediate day, each succeeding non-Business Day and the next

[6] Note to GPA: Appendix H and scheduling and coordination procedures TBD.

Business Day. Each Day-Ahead Forecast shall clearly identify, for each hour, Seller's estimate of the Project's available energy. Seller may not change such Schedule past the deadlines provided in this section except in the event of a Forced Outage or Schedule change imposed by GPA, in which case Seller shall promptly provide GPA with a copy of any and all updates to such Schedule indicating changes from the then-current Schedule. These notices and changes to the Schedules shall be sent to GPA's on-duty scheduling coordinator. If Seller fails to provide GPA with a Day-Ahead Forecast as required herein, then for such unscheduled delivery period only GPA shall rely on the delivery Schedule provided in the Monthly Delivery Forecast or GPA's best estimate based on information reasonably available to GPA and Seller shall be liable for Scheduling and delivery based on such Monthly Delivery Forecast or GPA's best estimate.

(g) Hourly Delivery Schedules. Notwithstanding anything to the contrary herein, in the event Seller makes a change to its Schedule on the actual date of delivery for any reason, including Forced Outages (other than a scheduling change imposed by GPA), that results in a change to its deliveries (whether in part or in whole), Seller shall notify GPA immediately by calling GPA's on-duty scheduling coordinator. Seller shall notify GPA of Forced Outages in accordance with this Agreement. Seller shall keep GPA reasonably informed of any developments that are reasonably expected to affect either the duration of the outage or the availability of the Project during or after the end of the outage.

1.2 Dispatch Down/Curtailment.

(a) GPA shall have the right to order Seller to curtail deliveries of Renewable Energy from the Project to the Delivery Point pursuant to a Notice of a Dispatch Down (as defined in Appendix G) delivered to Seller at least one (1) day prior to the curtailment date, when practical, provided that the value attributable to any Renewable Energy up to seven (7) days in aggregate for over the first two (2) Contract Year period and thereafter up to 7 days in each Contract Year which is not delivered during such curtailment periods, whether for transmission unavailability, operational dispatch or pre-set ramping parameters or otherwise, shall be reimbursed to Seller as provided below.

(b) Seller shall have the right in its discretion to make up any curtailed quantities, as calculated in accordance with Appendix G, of Renewable Energy as a result of a Dispatch Down ("Dispatch Down Makeup Production"), for which it is not reimbursed pursuant to this Appendix H, in the first and any subsequent Contract Year in which at least the Minimum Production is delivered and to extend the Term to the extent necessary, but not to exceed six (6) months, to make up any curtailed quantities. The Contract Price for the Contract Year in which the make-up occurs shall apply to Dispatch Down Makeup Production. Production in excess of Guaranteed Output for any Contract Year as set forth in the sixth column of Appendix A will first be applied to any previous years' Deficiency Amounts, then to Dispatch Down Makeup Production, then treated under this Agreement as productio0n in excess of Guaranteed Output.

(c) GPA shall provide to Seller all technical information necessary to justify and support each Dispatch Down. Seller agrees to reduce the Project's Renewable Energy as set forth in such a Notice of Dispatch Down that meets the requirements set forth herein.

(d) For each MWh of Renewable Energy from the Facility curtailed by GPA in Contract period prior to January 1, 2022. GPA shall pay Seller, on the date payment would otherwise be due in respect of the month in which any such curtailment occurred in excess of low load curtailment requirements discussed in section 4.17 and to be defined

in the Interconnection Agreement, an amount equal to the product of the Contract Price times the amount of Renewable Energy that Seller could reasonably have delivered to GPA but for such curtailment ("Lost Revenue"). For each MWh of Renewable Energy from the Facility curtailed by GPA in Contract Years 3 through 25, GPA shall pay Seller, on the date payment would otherwise be due in respect of the month in which any such curtailment occurred, an amount equal to the product of the Contract Price times the amount of Renewable Energy that Seller could reasonably have delivered to GPA but for such curtailment ("Lost Revenue"); provided that no Lost Revenue shall be due and payable from GPA to Seller for curtailments of up to seven (7) days in each Contract Year.

(e) For purposes of clarification, no curtailment by GPA, as a result of a warranted failure of or defect in the interconnection facilities transferred by Seller to GPA pursuant to the Interconnection Agreement, during the one-year warranty term thereof, shall count against the seven (7) days curtailment threshold set forth above. During the one-year warranty term of the interconnection facilities transferred, any curtailment by GPA which results from such failure of or defect in the interconnection facilities transferred will not be eligible for reimbursement by GPA to Seller as Lost Revenue payments, or Dispatch Down Makeup Production in future Contract Years.

1.3 Outage Notification.

(a) Planned Outages. Seller shall schedule Planned Outages in accordance with Good Utility Practices and with the prior written consent of GPA, which consent may not be unreasonably withheld, conditioned or delayed. Nonetheless, the Parties acknowledge that in all circumstances, Good Utility Practices shall dictate when Planned Outages should occur. Seller shall notify GPA of Seller's proposed Planned Outage schedule for the Project for the following calendar year by submitting a written Planned Outage schedule no later than October 1st of each year during the Delivery Period. The Planned Outage schedule is subject to GPA's concurrence, which concurrence may not be unreasonably withheld, conditioned or delayed. GPA shall promptly respond with its approval or with reasonable modifications to the Planned Outage schedule and Seller shall use its commercially reasonable efforts in accordance with Good Utility Practices to accommodate GPA's requested modifications. Notwithstanding the submission of the Planned Outage schedule described above, Seller shall also submit a completed form of outage notification to GPA no later than fourteen (14) days prior to each Planned Outage and reasonably appropriate outage information or requests to GPA. Seller shall contact GPA with any requested changes to the Planned Outage schedule if Seller believes the Project must be shut down to conduct maintenance that cannot be delayed until the next scheduled Planned Outage consistent with Good Utility Practices. Seller shall not change its Planned Outage schedule without GPA's concurrence, not to be unreasonably withheld, conditioned or delayed.

(b) Forced Outages. Within two hours of any Forced Outage Seller shall submit a completed form of outage notification to GPA in accordance with the instructions shown on the agreed form and shall submit outage information to GPA. Seller shall not substitute Renewable Energy from any other source for the output of the Project during a Forced Outage.

(c) Coordination with GPA. GPA shall cooperate with Seller in arranging and coordinating all Project outages.

1.4 Operations Logs and Access Rights.

(a) Operations Logs. Seller shall maintain a log of all material operations and maintenance information on a daily basis. Such log shall include, but not be limited to, information

on power production, efficiency, availability, maintenance performed, outages, results of inspections, manufacturer recommended services, replacements, and control settings or adjustments of equipment and protective devices. Seller shall maintain this information for at least two (2) years and shall provide this information electronically to GPA within five days of GPA's request.

(b) Access Rights. GPA, its authorized agents, employees and inspectors shall have the right of ingress to and egress from the Project during normal business hours upon reasonable advance notice and for any purposes reasonably connected with this Agreement and in accordance with Section 12.4 and the other applicable requirements of this Agreement.

APPENDIX I

BASE CONDITIONS AND FACILITY TEST PROTOCOL
[GPA and Seller shall complete a mutually agreed process for commissioning and performance testing prior to COD and to any curtailment claims]

1. Notice of Test plan to GPA
2. Test Plan
   The test equation between real PV plant output and PVSyst is below:

   PV_Output = (PV_Diff)(PVSyst_Output)

   (1) Collect the weather data

   (2) Base on collected data, generate the PVSyst

   (3) Compare the PVSyst and real plant output

   (4) Update the PV_DIff parameter

3. This PV_Diff Parameter shall be used for identification.

4. Status data of main equipment such as ESS PCS, Battery PV inverters(ex: On/Off status)shall be collected by SCADA and KEPCO - LG CNS Mangilao Solar, LLC provide those data.

5. Detail testing plan and period for all the equipment including the procedure above shall be discussed and agreed with both parties at least before a month of COD and the parties shall execute the test.

APPENDIX J

INTERCONNECTION AGREEMENT

APPENDIX K

CALCULATION OF WEATHER HOURS

For each applicable period, Seller shall calculate (1) the expected production of the Facility using the historical Weather Data from "WeatherBank PGUM_2004-PRES_solar data" provided in bid Amendment 2 (the "Expected Historical Production") and (2) the expected production of the Facility using the actual Weather Data (the "Expected Actual Production"). Seller than then obtain the quotient, rounded to the fourth decimal place (the "Production Factor"), equal to the Expected Actual Production divided by the Expected Historical Production. If the Production Factor is greater than one (1), then no Weather Hours shall be deemed to have occurred. However, if the Production Factor is less than one (1), then Weather Hours shall be deemed to have occurred. The portion of any Deficiency Amount (as defined in the Agreement) attributable to such Weather Hours shall be the difference equal to (A) the aggregate Minimum Production amount for that period minus (B) the product of (x) the Production Factor and (y) the aggregate Minimum Production amount for that period. The Deficiency Amount due to weather shall not be penalized.

The Deficiency Amount due to weather shall be audited annualy by an independent auditor to be selected and the cost shared by both parties.

For GPA's failure to purchase and receive Renewable Energy, Seller's damages shall be calculated through PVSyst energy simulation software (or other software as agreed to by the Parties) configured to simulate the installed Facility to predict the theoretically generated Renewable Energy for the Facility. GPA and Seller shall complete a mutually agreed process for calculating Seller's damages and its remedies prior to COD.

APPENDIX L

CALCULATION OF SHORTFALL DAMAGES

The Shortfall Damages shall be the sum of the product of Deficiency Amounts and the applicable Incremental Price for production shortfalls below 90% during Contract Year evaluation and for production shortfalls after the five year make up period for any production shortfalls between 90% and 95% of the Minimum Production.

The following sets the conditions for Incremental Price and illustrates the calculation:

The Incremental Price shall be deemed as below:

1. In the event that the Actual Production of the Contract Year is less than the 90% of Minimum Production as set forth in the fourth column of Appendix A, "Incremental Price" means, at the time of its calculation, the LEAC Rate minus the Contract Price, provided, however, if the LEAC Rate is equal to or less than the Contract Price then the Incremental Price shall be deemed to be zero.

   If LEAC Rate <= Contract Price:
   Incremental Price = 0

   If LEAC Rate > Contract Price:
   Incremental Price = (LEAC Rate – Contract Price)

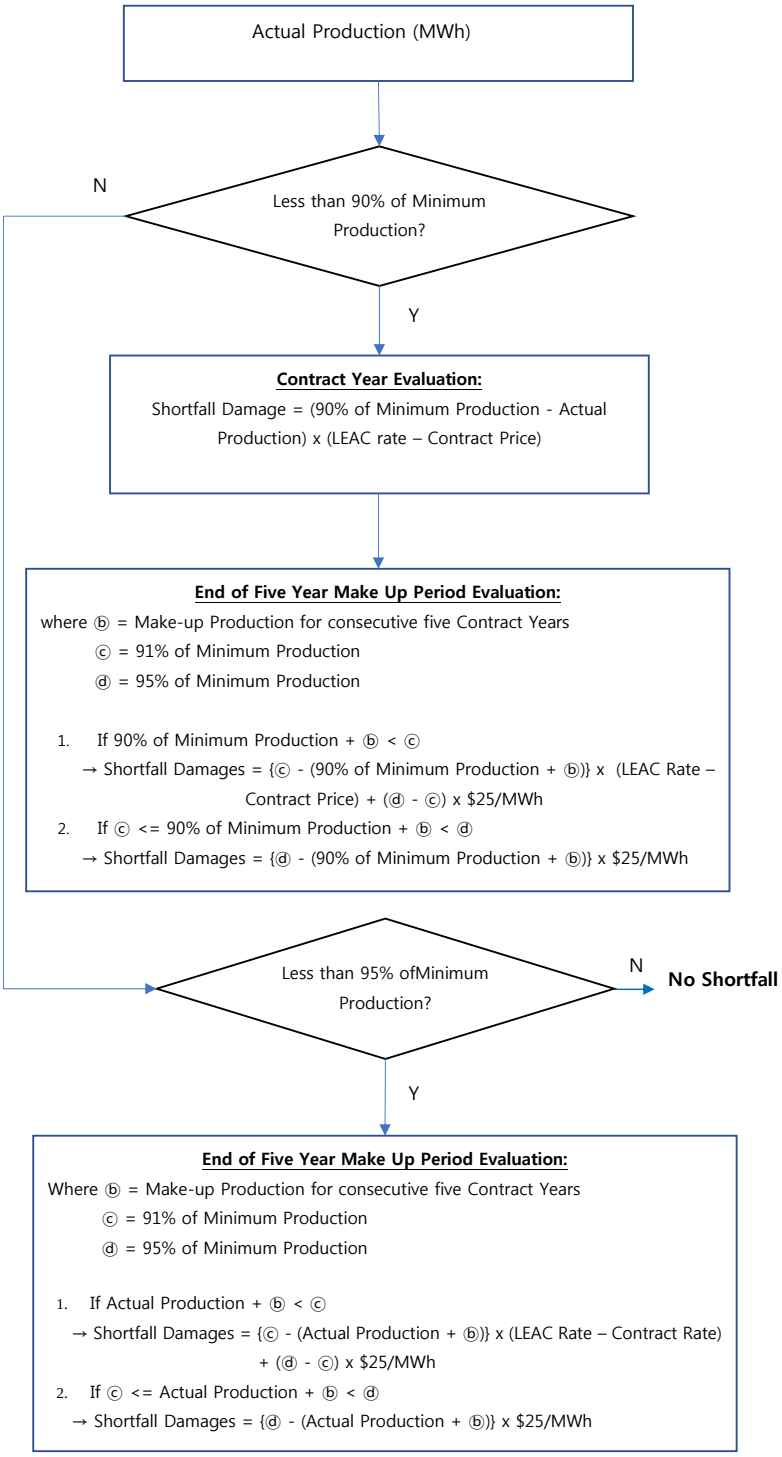
2. In the event that the Actual Production is equal to or greather than the 90% of Minimum Production as set forth in the fourth column of Appendix A and less than Guarnteed Output as set forth in the sixth column of Appendix A, and

   (i) If the sum of Actual Production and the Make-up Renewable Energy of consecutive five (5) Contract Years is less than the 91% of the Minmum Production as set forth in the fifth column of Appendix A, then "Incremental Price" means, at the time of its calculation, the LEAC Rate minus the Contract Price, provided, however, if the LEAC Rate is equal to or less than the Contract Price, then the Incremental Price shall be deemed to be zero.

   If LEAC Rate <= Contract Price:
   Incremental Price = 0

   If LEAC Rate > Contract Price:
   Incremental Price = (LEAC Rate – Contract Price)

   (ii) If the sum of Actual Production and the Make-up Renewable Energy of consecutive five (5) Contract Years is equal to or greather than the 91% of Minimum Production as set forth in the fifth column of Appendix A and less than Guarnteed Output as set forth in the sixth column of Appendix A, then "Incremental Price" means $25/MWh, however, if the LEAC Rate is less than the Contract Price, then the Incremental Price shall be deemed to be zero.


Actual Production (MWh)
N
Less than 90% of Minimum Production?
Y
Contract Year Evaluation:
Shortfall Damage = (90% of Minimum Production - Actual Production) x (LEAC rate – Contract Price)
End of Five Year Make Up Period Evaluation:
where ⓑ = Make-up Production for consecutive five Contract Years
ⓒ = 91% of Minimum Production
ⓓ = 95% of Minimum Production
1. If 90% of Minimum Production + ⓑ < ⓒ
→ Shortfall Damages = {ⓒ - (90% of Minimum Production + ⓑ)} x (LEAC Rate – Contract Price) + (ⓓ - ⓒ) x $25/MWh
2. If ⓒ <= 90% of Minimum Production + ⓑ < ⓓ
→ Shortfall Damages = {ⓓ - (90% of Minimum Production + ⓑ)} x $25/MWh
Less than 95% ofMinimum Production?
N
No Shortfall
Y
End of Five Year Make Up Period Evaluation:
Where ⓑ = Make-up Production for consecutive five Contract Years
ⓒ = 91% of Minimum Production
ⓓ = 95% of Minimum Production
1. If Actual Production + ⓑ < ⓒ
→ Shortfall Damages = {ⓒ - (Actual Production + ⓑ)} x (LEAC Rate – Contract Rate) + (ⓓ - ⓒ) x $25/MWh
2. If ⓒ <= Actual Production + ⓑ < ⓓ
→ Shortfall Damages = {ⓓ - (Actual Production + ⓑ)} x $25/MWh

GUAM POWER AUTHORITY
ATURIDÅT ILEKTRESEDÅT GUAHAN
P.O.BOX 2977 • AGANA, GUAM U.S.A. 96932-2977

Issues for Decision

Resolution No. 2018-02:

What is the project's objective and is it necessary and urgent?
Guam Power Authority's (GPA) Bond Refinancing Program will result in a 2018 to 2021 cumulative debt service reduction of $1,482,326 and as per Guam PL 34-69, Section 2(h), GPA must notify I Liheslatura within sixty (60) days of refinancing of its intent and plan regarding the savings achieved from refinancing. GPA desires to reserve these savings for the benefit of the community by making a strategic investment assisting the Guam Department of Education's (GDOE) with its Legislative mandate for renewable energy.

GPA desires to ensure GDOE continues to contribute to the O&M and capital investments for the GPA Power System. GPA desires to act as an economic catalyst for the local renewable energy economy and the businesses it support. GPA proposes to use the Bond Refinancing Program savings towards installation, commissioning, and operations and maintenance of solar PV + energy storage systems on GDOE facility rooftops or parking areas.

GPA will supplement the funding of this program with federal grants. The installed solar PV system energy production shall offset GDOE electricity billing on a kilowatt-hour generated for kilowatt-hour consumed basis at the LEAC rate This proposed program benefits GDOE, GPA, renewable energy system providers, and Guam students and residents. GPA designates this proposed DSM program as the *Bringing Energy Savings to (BEST) Schools Program*.

How much is the savings?
Average Annual Cash Savings: $501,236.00

CONSOLIDATED COMMISSION ON UTILITIES
Guam Power Authority | Guam Waterworks Authority
P.O. Box 2977 Hagatna, Guam 96932 | (671) 648-3002 | guamccu.org

RESOLUTION NO. 2018-02

RESOLUTION RELATIVE TO BOND FINANCING SAVINGS UTILIZATION

WHEREAS, Guam Power Authority's (GPA) Bond Refinancing Program will result in a 2018 to 2021 cumulative debt service reduction of $1,482,326; and

WHEREAS, as per Guam PL 34-69, Section 2(h), GPA must notify I Liheslatura within sixty (60) days of refinancing of its intent and plan regarding the savings achieved from refinancing; and

WHEREAS, GPA desires to reserve these savings for the benefit of the community by making a strategic investment assisting the Guam Department of Education's (GDOE) with its Legislative mandate for renewable energy; and

WHEREAS, GPA desires to ensure GDOE continues to contribute to the O&M and capital investments for the GPA Power System; and

WHEREAS, GPA desires to act as an economic catalyst for the local renewable energy economy and the businesses it supports; and

WHEREAS, GPA proposes to use the Bond Refinancing Program savings towards installation, commissioning, and operations and maintenance of solar PV + energy storage systems on GDOE facility rooftops or parking areas; and

WHEREAS, GPA will supplement the funding of this program with federal grants; and

WHEREAS, the installed solar PV system energy production shall offset GDOE electricity billing on a kilowatt-hour generated for kilowatt-hour consumed basis at the LEAC rate; and

WHEREAS, this proposed program benefits GDOE, GPA, renewable energy system providers, and Guam students and residents; and

WHEREAS, GPA designates this proposed DSM program as the ***Bringing Energy Savings to (BEST) Schools Program***; and

RESOLUTION NO: 2018-02

NOW, THEREFORE, BE IT RESOLVED, by the CONSOLIDATED COMMISSION ON UTILITIES, the GOVERNING BODY of the GUAM POWER AUTHORITY as FOLLOWS:

1. The CCU authorizes GPA to petition the PUC for approval of the BEST Schools Program
2. Upon program approval by the PUC, the CCU authorizes the GPA General Manager to implement the BEST Schools Program.

RESOLVED, that the Chairman certifies and the Board Secretary attests to the adoption of this Resolution.

DULY AND REGULARLY ADOPTED AND APPROVED THIS 23RD DAY OF JANUARY 2018.

Certified by:	Attested by:
_____	_____
JOSEPH T. DUENAS	**J. GEORGE BAMBA**
Chairperson	Secretary
Consolidated Commission on Utilities	Consolidated Commission on Utilities

I, J. George Bamba, Secretary for the Consolidated Commission on Utilities (CCU), as evidenced by my signature above do certify as follows:

The foregoing is a full, true, and accurate copy of the resolution duly adopted at a regular meeting of the members of Guam Consolidated Commission on Utilities, duly and legally held at a place properly noticed and advertised at which meeting a quorum was present and the members who were present voted as follows:

Ayes: _____

Nays: _____

Absent: _____

Abstain: _____

GUAM POWER AUTHORITY
ATURIDÅT ILEKTRESEDÅT GUAHAN
P.O.BOX 2977 • AGANA, GUAM U.S.A. 96932-2977

Issues for Decision

Resolution No. 2018-03:

Relative to <u>Authorize Expenditures for the Piti 115KV GIS Major Maintenance</u>

What is the project's objective and is it necessary and urgent?
To perform an overdue detailed 12-year maintenance and inspection for the Piti 115KV Gas Insulated Switchgear (GIS). The maintenance work is necessary for compliance with the manufacturer's recommendations. The insulating medium for the switchgear is SF6 gas, and under certain conditions such as breaker operations (trip/close), sulfuric acid may be produced which may lead to severe deterioration of internal parts.

The GIS The Piti 115 kV GIS is a critical substation interconnecting the MEC Plant Units 8 and 9 to the power grid.

Where is it at?
Piti

How much will it cost?
The required services will cost $2,507,300.

Basic Bid

A1	Mobilization / Demobilization	436,800
A2	GIS - Initial Testing, Assessing, and Reporting	381,000
A3	GIS - Inspection, Servicing, Replace, Maintenance, Gauge Calibration	1,061,000
A4	Reuse and Recycling of Removed SF6 Gas	21,000
A5	Crane Repair	13,000
A6	Training Course - Operation and Maintenance	72,000
A7	Final Testing, Commissioning, Reporting, and Re-Certification	212,000
	Total Basic Bid Cost	$ 2,196,800

Additive Bid

B1	New SF6 Gas	39,000
B2	Disposal of Removed SF6 Gas	12,500
B3	GIS OEM Spare Parts, Consumables, and Special Tools	165,000
B5	New Fixed Cage Ladder and Landing Platform	94,000
	Total Additive Bid Cost	$ 310,500

Total Bid Cost **$ 2,507,300**

Construction Management Cost/ T&D Support	$	130,000
Total Requested Cost	**$**	**2,637,300**

When will it be completed?
Time delivery to complete work is 10 months upon receipt of PO.

What is its funding source?
GPA 2014 Revenue-Bonds fund.

The RFP/BID responses:
AYM International Inc., the only bidder, submitted quote for GPA's consideration under Multi-Step Re-Bid Invitation No. GPA-027-17. The initial bid had no bidders.

AYM International was determined to be a technically qualified and responsive bidder.

CONSOLIDATED COMMISSION ON UTILITIES
Guam Power Authority | Guam Waterworks Authority
P.O. Box 2977 Hagatna, Guam 96932 | (671) 648-3002 | guamccu.org

Resolution No. 2018-03
AUTHORIZING THE GUAM POWER AUTHORITY TO PETITION PUC FOR APPROVAL OF PITI SUBSTATION 115 KV GIS MAINTENANCE PROJECT AND TO CONTRACT REQUIRED SERVICES

WHEREAS, the Piti Substation 115 kV Gas Insulated Switchgear (GIS) was commissioned in 1999; and

WHEREAS, the insulating medium of the 115 kV Substation is SF6 gas, which under certain conditions may produce sulfuric acid, leading to severe deterioration of internal parts; and

WHEREAS, maintenance of the GIS equipment is critical to ensure functionality to allow MEC Plant Units 8 and 9, GPA's most efficient generating units, to connect to the IWPS; and

WHEREAS, the project will overhaul the Piti 115 Kv GIS Maintenance project as part of the 12-year maintenance schedule; and

WHEREAS, the Procurement Office has provided adequate public announcement for the required services for the Piti 115 Kv GIS Major Maintenance through a Multi-Step Re-Bid Invitation No. GPA-027-17 providing the project specifications and information required of each offeror; and

WHEREAS, due to the highly specialized nature of the work and limited local resources, only one vendor AYM International, Inc. submitted a proposal during the re-bid process for GPA's consideration; and

WHEREAS, GPA's Evaluation Committee has determined AYM International Inc. to be technically qualified based on meeting the Step One- Technical Proposal Evaluation criteria and whose bid on Step Two – Price Proposal Evaluation submitted a basic bid totaling $2,196,800 for GPA's consideration and additive bids totaling $2,507,300; and

WHEREAS, the 2014 GPA Revenue Bonds initially allocated funding of $700,000, and GPA has reallocated 2014 Bond Funds to fund an additional $1,937,300 for additional required items for the project;

NOW, THEREFORE, BE IT RESOLVED, by the Consolidated Commission on Utilities as follows:

1. After careful consideration, the Consolidated Commission on Utilities finds the procurement of the required services for the Piti 115 Kv GIS Major Maintenance project to be reasonable and prudent.

2. The General Manager of GPA is hereby authorized to petition the PUC to reallocate 2014 Revenue Bonds for the Piti 115 kV GIS Major Maintenance project and for the award of the contract.

2. Upon PUC's approval, the General Manager of the GPA is hereby authorized an increase in obligating authority up to $2,507,300 for the purpose of procuring the required services from AYM International, Inc.

RESOLVED, that the Chairman of the Commission certifies and the Secretary of the Commission attests the adoption of this Resolution.

DULY and REGULARLY ADOPTED AND APPROVED THIS 23rd DAY OF JANUARY, 2018.

Certified by:	**Attested by:**
_____	_____
JOSEPH T. DUENAS	**J. GEORGE BAMBA**
Chairman	**CCU Board Secretary**

I, J. George Bamba, Secretary for the Consolidated Commission on Utilities (CCU) as evidenced by my signature above do certify as follows:

The foregoing is a full, true, and accurate copy of the resolution duly adopted at a regular meeting of the members of Guam Consolidated Commission on Utilities, duly and legally held at a place properly noticed and advertised at which meeting a quorum was present and the members who were present voted as follows:

Ayes: _____

Nays: _____

Absent: _____

Abstain: _____

Number of Invitations Issued: 1
Number of Bids Received: 1

*PHASE II *

PURCHASES & STORES DIVISION
GUAM POWER AUTHORITY
ABSTRACT OF BIDS

Invitation Number: RFBID GPA-027-17
Opening Date: 11/29/17
Opening Time: 2:00 PM

Description of Supplies or Services: PITI 115KV GIS MAJOR MAINTENANCE

	BIDDER	Acceptance Time (Days)	DISCOUNT	ITEM NO. / QTY / UNIT / DELIVERY / MFG							
1/	AVAN International Inc.		Basic		2,197,300.00						
			additive		1,285,500.00						

I hereby certify that all bids received in response to this invitation were opened under my personal supervision, and that the names of all bidders have been entered hereon.

(Signature)

Tabulated By: Janet D

Date: 11/29/17

Sajeran

APPROVAL OF AWARD(S) (Bidder(s) and Price(s) circled above)

BASIS FOR AWARD

- ☐ Lowest Responsive Bidder
- ☐ Tie Bid
- ☐ Only Bid
- ☐ Other Than Lowest Responsive Bidder (See explanation on reverse hereof or attached)

Number of Awards (Contracts)

Doc. No. 34GL-18-1438.*

CCU Regular Meeting January 23, 2018 - NEW BUSINESS

NAMES OF PERSONS PRESENT AT THE BID OPENING AND WHOM THEY REPRESENT
(It is not necessary to fill in this portion if data is recorded elsewhere)

JOHNNY QUINTO GPA ENGINEERING EXT. 3024
JOHN M. PANGELINAN GPA ENGINEERING EXT. 3006
M. DUKS CO. AYM Industrial

ADMINISTRATIVE STATEMENT (When applicable)

DAWN F.

GUAM POWER AUTHORITY

ATURIDAT ILEKTRESEDAT GUAHAN
P O BOX 2977, HAGATNA, GUAM 96932-2977

GUAM POWER AUTHORITY RECEIVED BY: TIME: NOV 06 2017 EXECUTIVE OFFICE POWER TO SERVE

November 1, 2017

TO: Supply Management Administrator

FROM: Bid Evaluation Committee

SUBJECT: **Step One – Technical Proposal Evaluation Recommendation**
Re: Multi-Step Re-Bid GPA-027-17
Piti 115kV GIS Major Maintenance

The bid evaluation committee has completed reviewing vendor's proposal for Step One – Technical Proposal Evaluation of the Multi-Step Re-Bid GPA-027-17. Only one (1) vendor submitted its bid, which is AYM International Inc. The committee evaluated the proposal using a scoring and evaluation criteria form below.

QUALITATIVE PROPOSAL SCORING WORKSHEET

ITEM	DESCRIPTION	WEIGHTED SCORE (%)
1	Scoring Worksheet 1	97
2	Scoring Worksheet 2	80
3	Scoring Worksheet 3	98
4	Scoring Worksheet 4	90
5	Scoring Worksheet 5	92
	AVERAGE	**91.4 (Acceptable)**

- Proposals that scored greater than or equal to 80 percent are deemed acceptable.
- Proposals that scored between 75 and 79 percent are deemed potentially acceptable.
- Proposals scoring below 75 percent are deemed unacceptable.

Based on the scoring worksheet, vendor's proposal is deemed acceptable (See attachment for specifics). The Committee, hereby, recommends that GPA proceed with Step Two – Evaluation of Priced Proposal for the ***Acceptable Proposal***.

JOHNNY QUINTO
Special Projects Engineer

JERALD TAITANO
Supervisor, T&D

JOHN PABUNAN
Special Projects Engineer

IRWIN LOYOLA, P.E.
Supervisor, Engineering

VINCENT PANGELINAN, P.E.
Superintendent, T&D

Concurred by:

JOHN J. CRUZ, JR., P.E
AGMETS

11-3-2017
Date

[✓] Approved [ ] Disapproved

JOHN M. BENAVENTE, P.E.
General Manager

11/6/17
Date

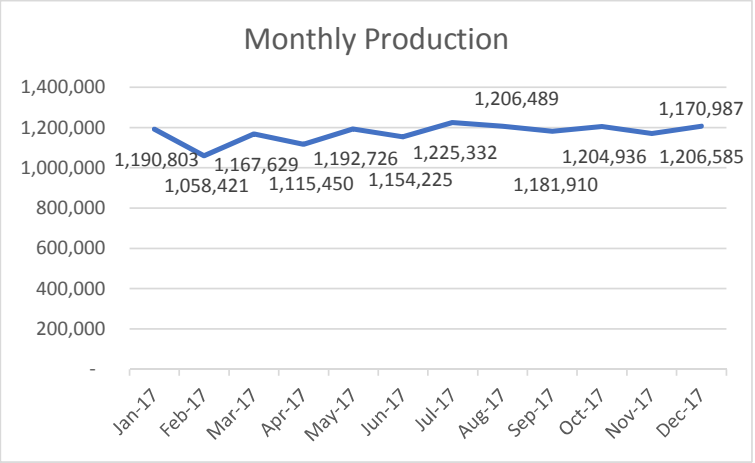
GUAM WATERWORKS AUTHORITY

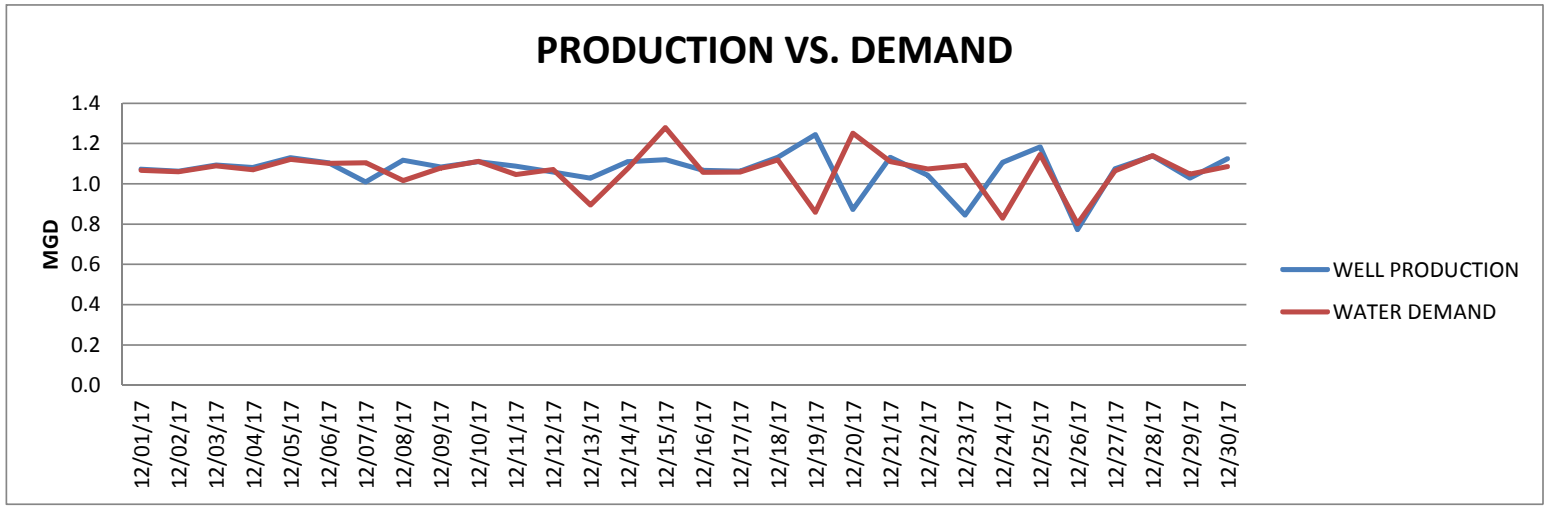
General Manager's Report
GPWA Work Session, January 23, 2018

Operations Update

Production

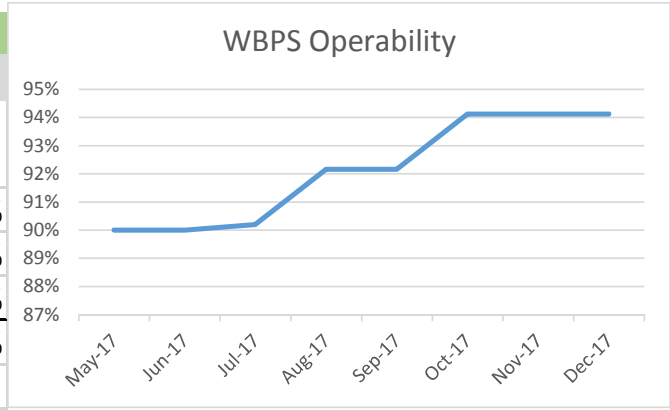
Monthly Production Summary - December 2017					
Deep Wells				35.7	MGD
	Active wells =	97	of 120		
	Avg days in operation =	28.54	days		
	Total Production =	1,107,166	Kgals		
Springs				0.00	MGD
	Avg days in operation =	0	days	*placed on standby	
	Total Production =	0	Kgals		
Ugum Surface Water Plant				2.1	MGD
	Avg days in operation =	31	days		
	Total Production =	66,278	Kgals	*data pending	
Tumon Maui Well				1.07	MGD
	Avg days in operation =	31	days		
	Total Production =	33,141	Kgals	*data pending	
		1,206,585	Kgals	38.9	MGD

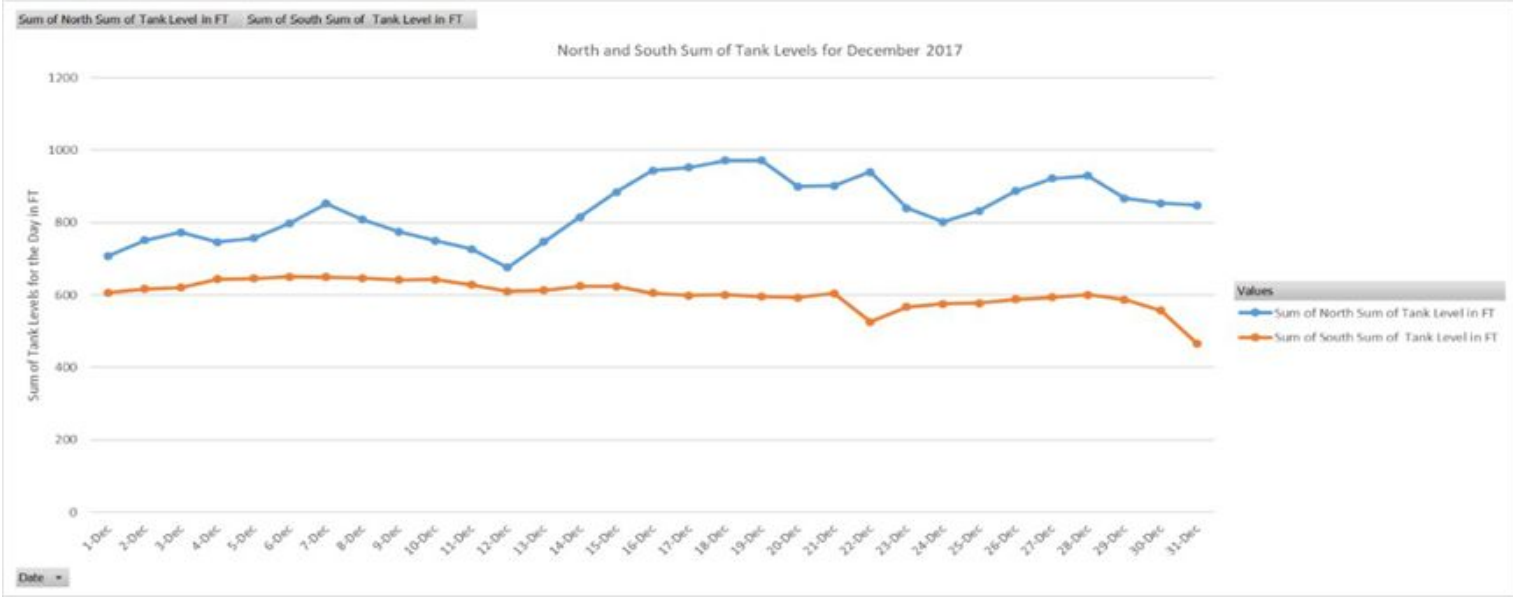




Distribution

Monthly Distribution Summary - December 2017					
Water Booster Pump Stations					
	District	No. of Stations	Total Pumps	Pumps Operating	% Operational
	Northern	11	21	20	95.2%
	Central	7	15	13	86.7%
	Southern	7	15	15	100.0%
		25	51	48	94.1%



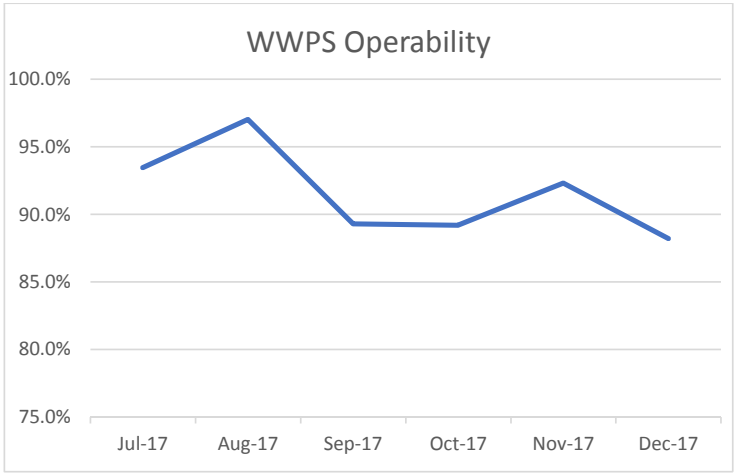


Wastewater Collections

Monthly Collections Summary -December 2017

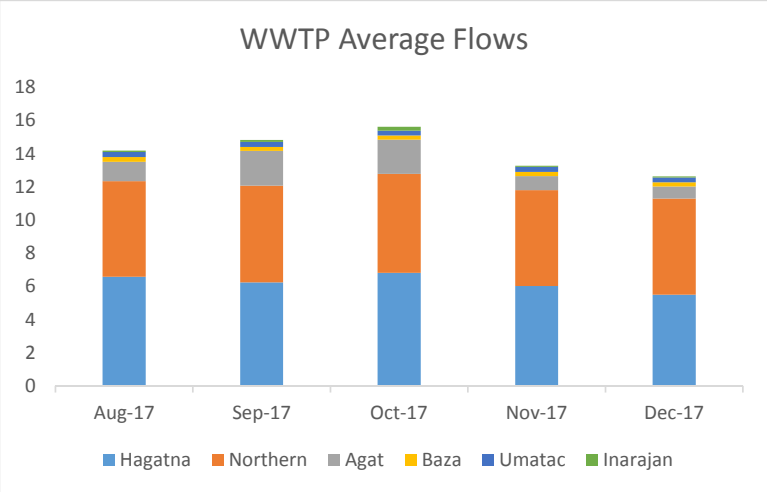
Wastewater Pump Stations

District	No. of Stations	Total Pumps	Pumps Operating	% Operational
Northern	22	52	48	92.3%
Central	31	65	54	83.1%
Southern	25	52	47	90.4%
	78	169	149	88.2%

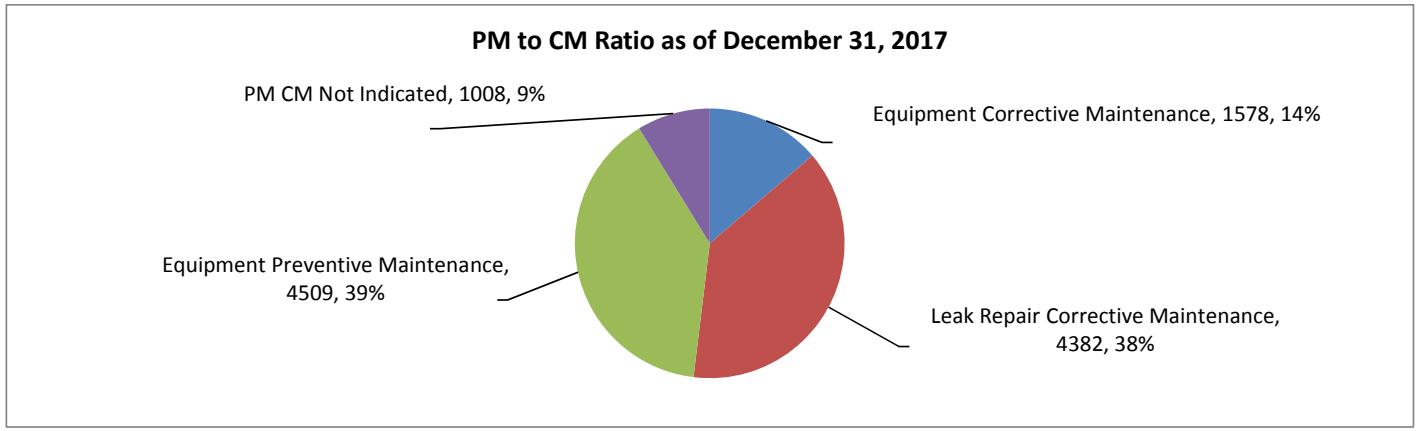


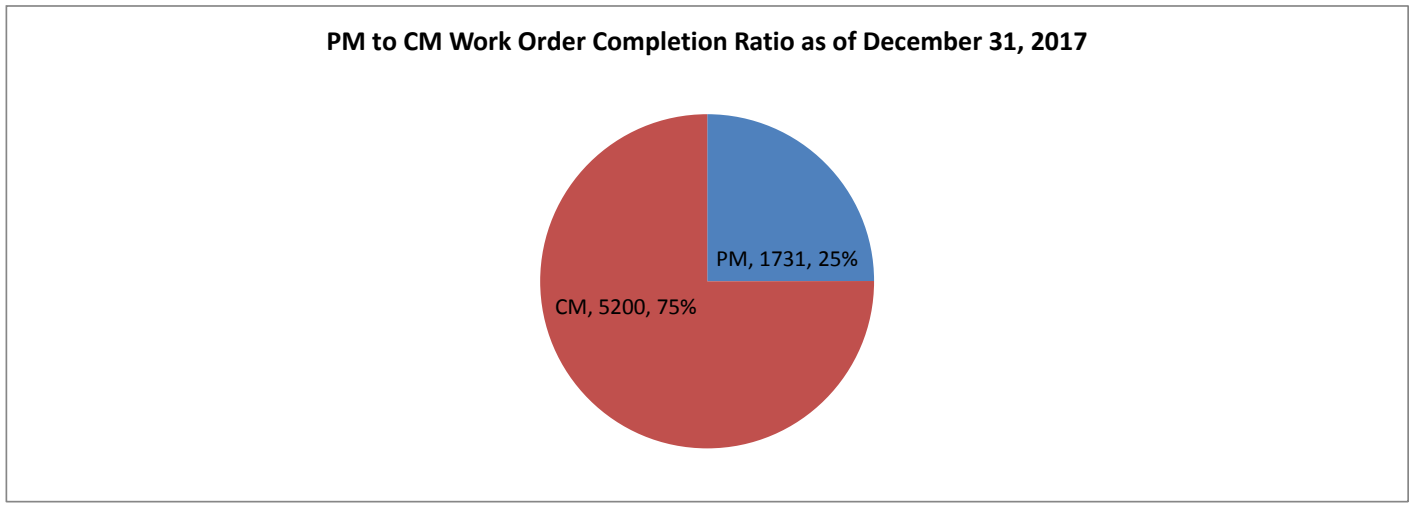
Wastewater Treatment

Monthly Wastewater Treatment Summary - December 2017				
WW Treatment Plants - Flows				
	Facility	**Avg. Daily Flows**	**Sludge (lbs)**	**Sludge Disp. ($)**
	Hagatna	5.49	584,809	$ 34,524
	Northern	5.79	810,960	$ 71,000
	Agat	0.73		
	Baza	0.25		
	Umatac	0.30		
	Inarajan	0.06		
		12.62	1,395,769	$ 105,524



Asset Management





Operational Issues

- GWA Employees have participated in Operator Certification training, and first ever computer-based certification testing has been conducted as a joint effort between GEPA, GWA, UoG and the Western Pacific Subsection of AWWA. Several GWA employees who passed their certification exams at the first testing event will receive certificates this Thursday.

Production & Distribution

- GAC Treatment Systems for wells affected by PFOS
  - NAS-1
    - Permanent modifications to NAS-1 GAC Treatment System pending – confirmed for summer break;
    - Replacement Carbon being ordered
  - A-23/A-25: Inspection of existing GAC vessels complete; planning on-going for removal, repair and relocation
  - GIAA System: GIAA advised to provide replacement GAC
- 2018 Pump/Motor order – pending release by CFO
- Valve Exercise Trailer – received, manufacturer training has been conducted.
- GWA Crane Repair – manufacturer technician completed repair assessment and diagnostics; parts on order, repairs pending.

Wastewater Collection & Treatment

- After completion of the Asan/Adelup gravity sewer breaks, WW Collections crews worked extra shifts in December to catch up on sewer cleaning and CCTV inspections, exceeding December's target miles by 20%
- Sewer connection program – initial pilot program on-going
  - Field verification of established GWA connections vs. septic systems in sample population completed
  - Data validation and correction pending review
  - Program analysis and recommendations – future action
- FOG Program
  - Draft Program Manual Completed and submitted for USEPA Comments
- WW Treatment Operator Training Workshop Conducted this month

Meters

COMPLETED FIELD ACTIVITY JAN THRU DEC 2017 (POSTED IN CIS)	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	TOTAL:	DEC 2017 COMPLETED FIELD ACTIVITIES (IN PROCESS) TO BE POSTED IN CIS
GWA - Test Meter	30	9	9	371	745	87	393	743	1000	1007	434	378	5206	732
GWA - Meter Exchange	393	179	220	276	482	353	501	807	1526	1039	452	259	6487	299
GWA - Verify Zero Report	30	124	114	94	96	402	261	199	550	89	82	169	2210	763
GWA - Verify Low Usage	0	0	0	2	37	36	196	488	657	202	127	612	2357	61
TOTAL:	453	312	343	743	1360	878	1351	2237	3733	2337	1095	1418	16260	1855

# OF METERS TESTED AS PER METER TEST FACILITY REPORTS:	345	350	144	252	305	210	302	397	1013	1130	927	704	6079	
# OF BACKBILLINGS APPLIED AS PER FINANCE REPORTS:	0	0	0	20	122	84	29	111	219	80	77	4	746	$ 498,982.91

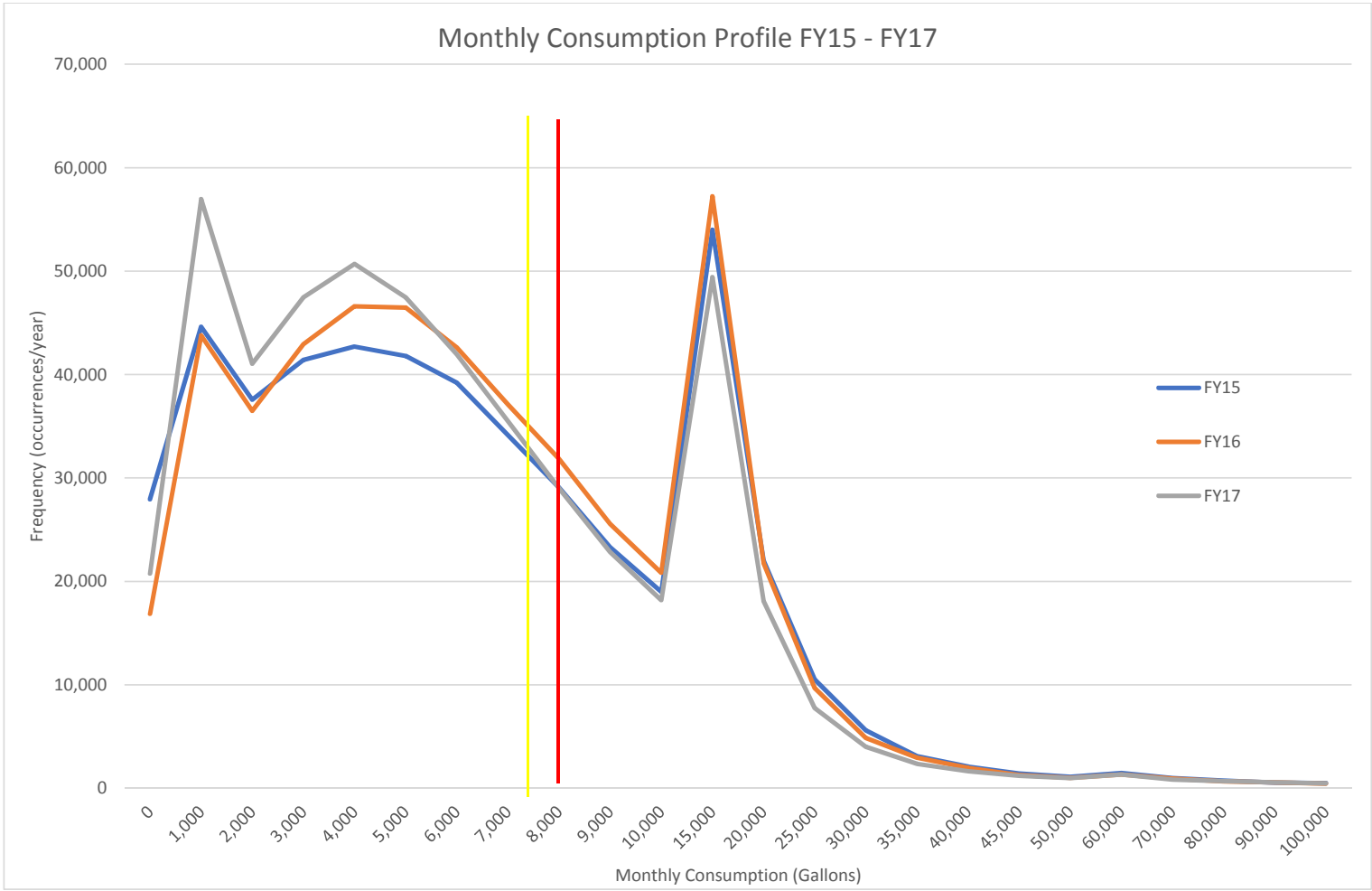
# OF FIELD CREW PERFORMING CHANGE OUTS:	19	10	13	9	21	21	14	24	35	28	28 *	28 *
# OF ADMIN STAFF TO CREATE AND POST FIELD ACTIVITIES IN CIS:	7	4	5	6	9	9	10	13	15	15	13	13
# OF SUPPLY STAFF TO ISSUE MATERIALS AND PROGRAM NEW METERS:	2	2	2	2	2	2	2	2	2	2	2	2
# OF TEST FACILITY PERSONNEL TESTING METERS:	2	2	2	3	3	3	3	3	3	3	3	3
# OF ACCOUNTANTS CALCULATING BACK BILLS:	0	0	0	2	3	2	2	3	3	2	2	2
TOTAL:	30	18	22	22	38	37	31	45	58	50	48	48

Based on preliminary analysis of all data available to date:

Monthly Average	
541	Meter Changeouts
184	Field Verify Zero Reports
196	Field Verify Low Reports
75	Accts Backbilled (First 2 mos excl)
374	Additional NC/LC Accounts ID'd

Monthly average consumption by account type (Gallons)

	FY15	FY16	FY17
Agriculture/Irrigation/Golf/Federal	20,080	22,644	17,419
Commercial	33,500	32,146	31,221
Government	102,437	108,946	101,389
Hotel	1,572,294	1,515,249	1,515,357
Residential	7,901	7,738	7,021


Monthly Consumption Profile FY15 - FY17
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
Frequency (occurrences/year)
0
1,000
2,000
3,000
4,000
5,000
6,000
7,000
8,000
9,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
45,000
50,000
60,000
70,000
80,000
90,000
100,000
Monthly Consumption (Gallons)
FY15
FY16
FY17

Marbo (Andy-South) Wells – Status

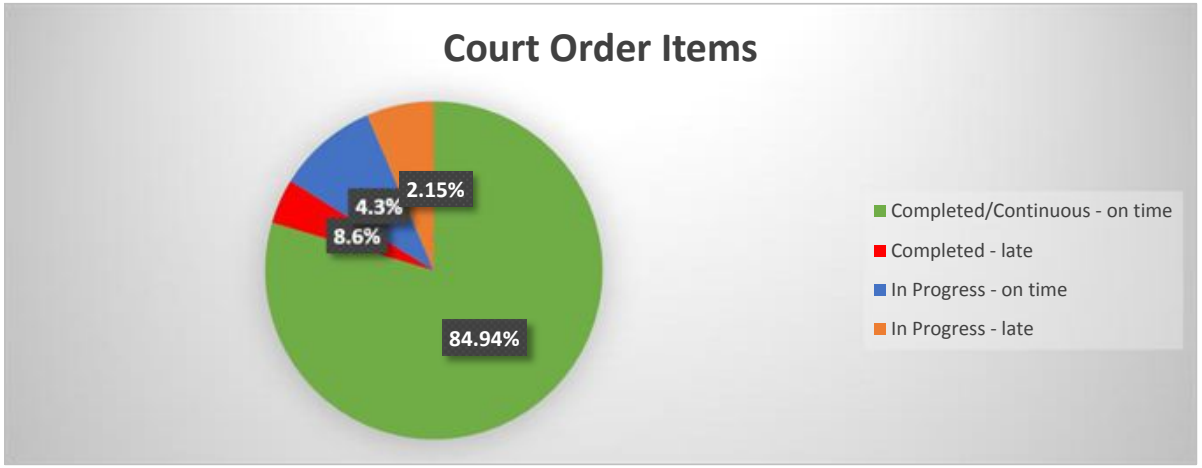
- GWA management met with Governor's Counsel to discuss re-conveyance with reserved easement
- GSA draft document provided – comments being prepared for submission in 2 weeks
- GovGuam and GWA cooperating to advance the issue

One Guam Update

- Tumon Maui Well:
  - Leaks from the vent shaft were observed during inspection – identified as a "Repair" for which Navy is responsible
  - GWA & Navy to conduct joint inspection;
  - GWA engaged PMO for repair recommendations
- Santa Rosa Tank:
  - MOU for Santa Rosa Tank – in progress – incorporating SOP for operation of the intertie
  - B&C Modeler to meet with One-Guam group this week.
- Agat Santa Rita WWTP: easement for new waterline to WWTP is pending confirmation of in-kind consideration in lieu of cash payment; Navy is evaluating GWA proposal. Building permit for the construction of waterline is in progress.

Court Order

	Items	On-time Items Completed/Continuous	Items Delayed	Completed Late	Items on Schedule	Performance %
Court order total	93	80	1	9	3	98.9%



The chlorine monitoring [22(c)] goes from late to completed late and the [3(a)(2)] goes from on schedule to complete because of the NDWWTP upgrade by OEA

Status Information

- 1 item delayed
  - Meters
- Final Date to complete all Court Order items is December 31, 2020.
- Overflow or Bypass events reported to USEPA:
  - Nov. 26, 2017, Fujita Pump Station failure – burned out control
  - Dec. 15, 2017, Hyundai Subdivision Santa Rita, sewer rehab bypass line spill (**Contractor spill** – reported by GWA)

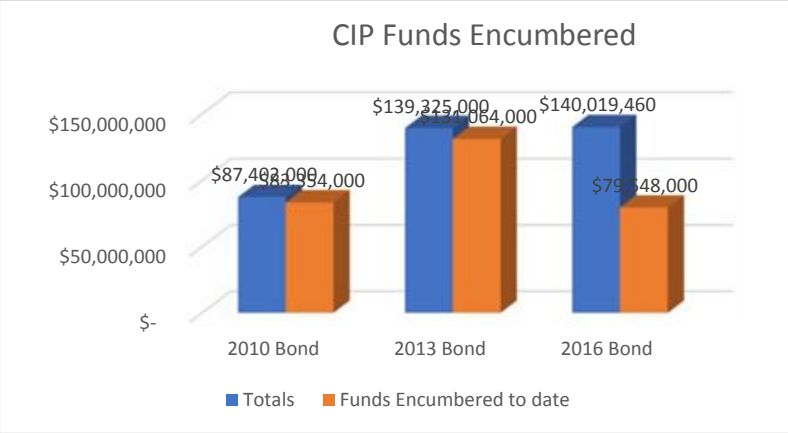
CIP Summary

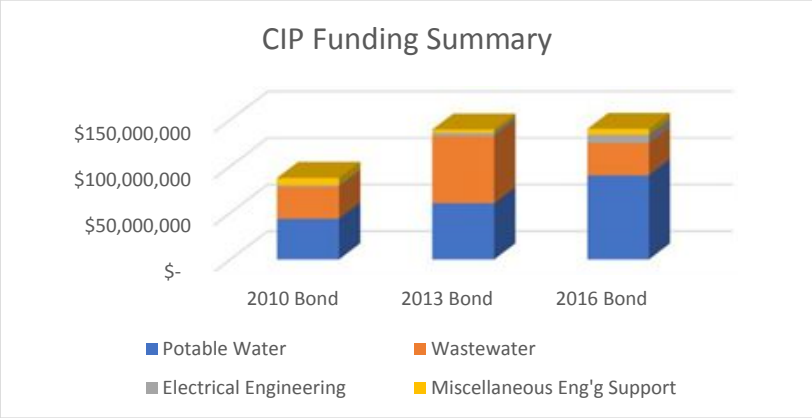
CIP Summary - Project Encumbrance

	2010 Bond		2013 Bond		2016 Bond			
	Funded	Complete	Funded	Complete	Funded	Complete	Total CIP Projects	%
Potable Water	28	17	21	7	20	0	35	49%
Wastewater	16	13	7	3	8	1	22	31%
Electrical Engineering	5	5	6	1	5	0	10	14%
Miscellaneous Eng'g Support	2	0	3	1	4	1	4	6%
Totals	51	35	37	12	37	2	71	100%
% of Total CIP by Fund Source	72%		52%		52%			

CIP Summary - Project Amounts

	2010 Bond		2013 Bond		2016 Bond			
	Funded	%	Funded	%	Funded	%	Total CIP Projects	%
Potable Water	$ 41,903,305	48%	$ 58,317,117	42%	$ 64,647,830	46%	$ 164,868,252	45%
Wastewater	$ 36,009,577	41%	$ 73,837,883	53%	$ 60,227,170	43%	$ 170,074,630	46%
Electrical Engineering	$ 1,748,118	2%	$ 3,395,000	2%	$ 8,750,000	6%	$ 13,893,118	4%
Miscellaneous Eng'g Support	$ 7,741,000	9%	$ 3,775,000	3%	$ 6,394,460	5%	$ 17,910,460	5%
Totals	$ 87,402,000	100%	$ 139,325,000	100%	$ 140,019,460	100%	$ 366,746,460	100%
Funds Encumbered to date	$ 83,354,000	95%	$ 131,064,000	94%	$ 79,548,000	57%		
% of Total CIP Funding	23.8%		38.0%		38.2%			

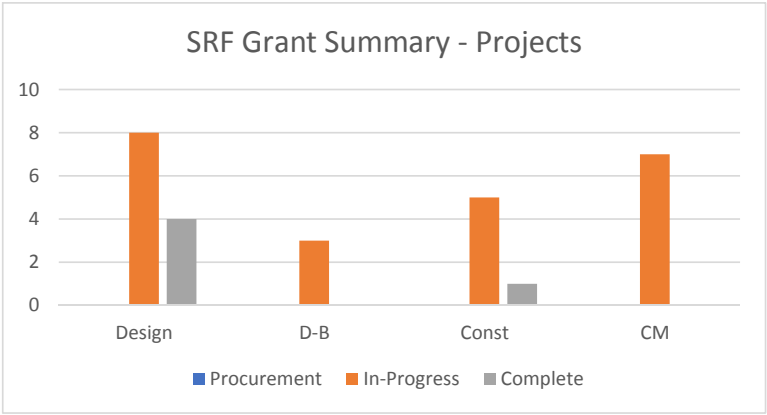




SRF Grant Summary

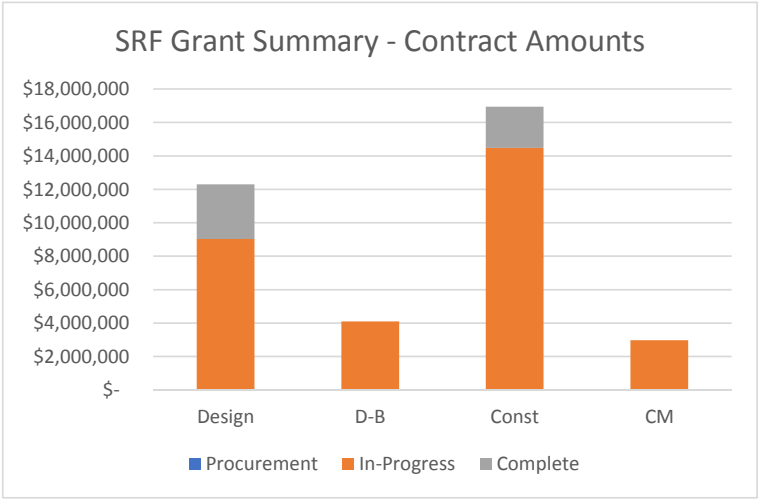
SRF Grant Summary - Projects

	Procurement	In-Progress	Complete	Totals	%
Design	0	8	4	12	43%
D-B	0	3	0	3	11%
Const	0	5	1	6	21%
CM	0	7	0	7	25%
Totals	0	23	5	28	
%	0%	82%	18%		



SRF Grant Summary - Contract Amounts

	Procurement	In-Progress	Complete	Totals	%
Design	$ -	$ 9,025,796	$ 3,279,629	$ 12,305,425	34%
D-B	$ -	$ 4,096,694		$ 4,096,694	11%
Const	$ -	$ 14,480,091	$ 2,470,658	$ 16,950,749	47%
CM	$ -	$ 2,977,793	$ -	$ 2,977,793	8%
Totals	$ -	$ 30,580,374	$ 5,750,287	$ 36,330,661	
%	0%	84%	16%		



OEA Grant Summary

- NDWWTP Upgrades
  - Technical memoranda / design workshops conducted last week
  - USEPA NEPA Document preparation on-going
- Outfall Diffuser:
  - IFB has been issued (1/16/18);
  - Pre-bid meeting 1/26/18;
  - Bids due 2/16/18
- Sewer Line Interceptor Design-Build
  - Multi-Step IFB has been issued today.
  - Technical Proposal Due 3/8/18
  - Price Proposal Due 4/12/18
- NGLA Observation wells – Design work on-going

Action Item	Date (Target)	Date (Actual)	Status	Remarks
Project Funds Available	July-16	AUG-30-16	Completed	
Land Acquisition	Jan-17	Jan-17 (Compensation Pending)	Pending	Survey complete, appraisals complete – under review
Procure PM/CM Firm	Jan-17	Jan-17 (NTP Issued Feb 10th)	Completed	
Procure Design Firm	Jul-17		Completed	Contract issued; kickoff pending
Design -- 30/60/90/Final -- Review	Jun-18		On-target	Project design schedule under review by PM/CM
NEPA Analysis and Determination	Feb-17		Delayed	USEPA work on-going; procurement of contractor completed
Procure Construction Firm	Dec-18		On-target	
Construction Complete/Commence Operations	Nov-21		On-target	
Sewer line connection from MCB to GWA infrastructure	Jul-19		On-target	
MCB Initial Operating Capability	Jul-22		On-target	

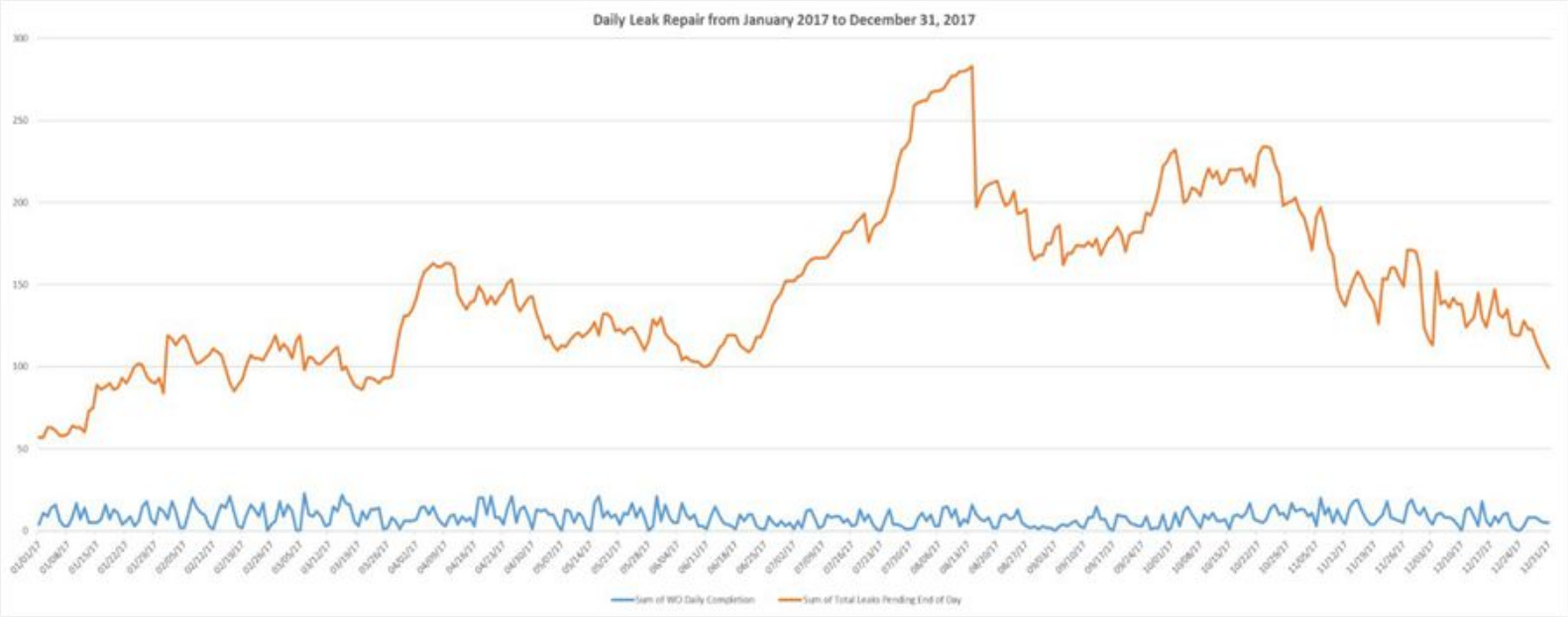
Land Acquisition Summary

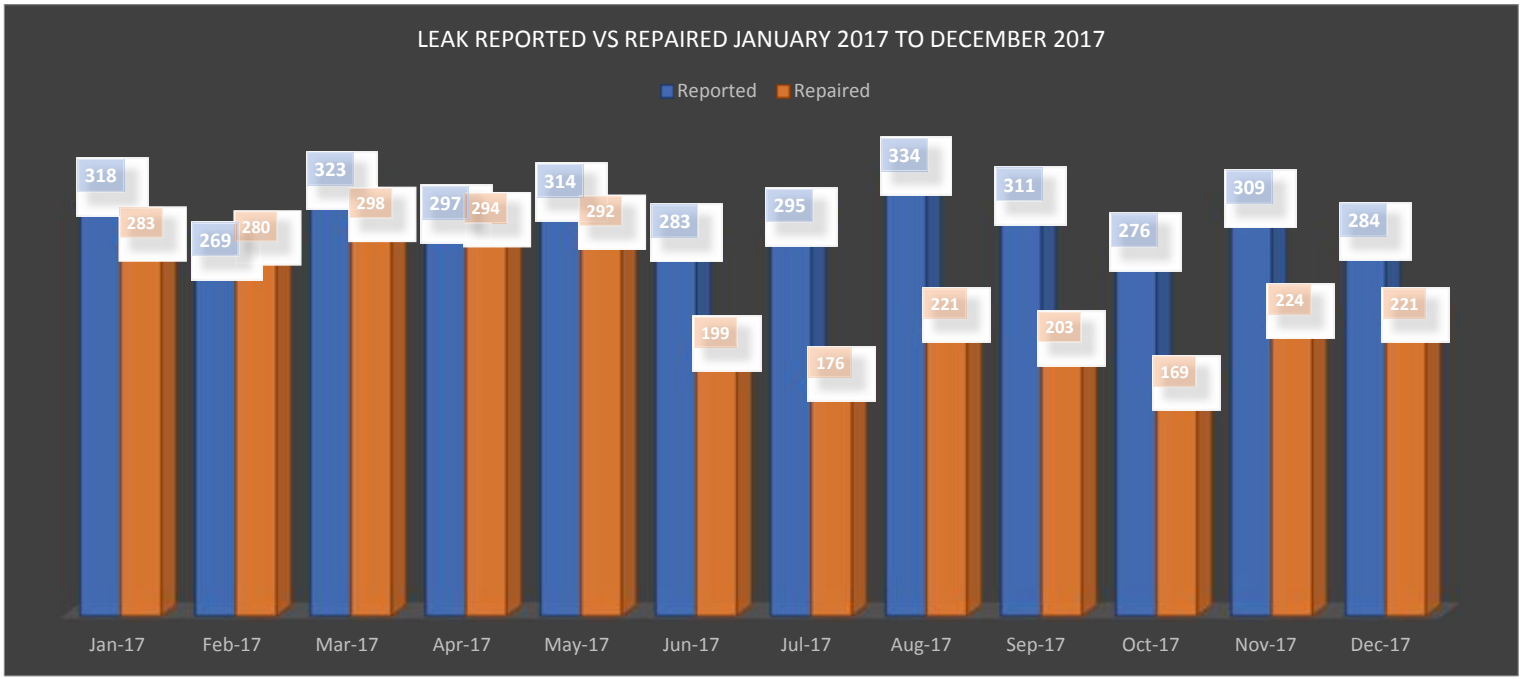
GWA Facility	Location	Gov. or Private Property	Land Acquisition Status
Tanks	Ugum	Private	TGE to draft Letter of Decision for private property owners 11/09/17
	Astumbo	Gov't. - CLTC	GWA and DLM working together on Land Registration process. Pending Notification of surrounding lot owner information from DLM
	Piti	Private	Letter of Intent for private property owners submitted to GHC for revisions 12/12/17
Expansion of the Northern District Wastewater Treatment Plant (NDWWTP)	Dededo	Gov't - GALC	Funding Approval Request Sent to Finance 11/30/17; Title & Escrow Open 12/28/17
Deep Well	A-12	Private	Property ownership vested in GWA 10/16/17
	AG-12	Dept. of Agriculture/Manhita Farms	DCA to submit revised Land Registration map to DLM for review and comments 01/16/18
	Y-8	Gov't. - CLTC	Parceling Map submitted to DLM for final approval 12/01/17.
Booster Pump Station	Agfayan	Private	GWA started land acquisition inquiry process on 11/18/16; 2nd follow up Letter of Intent sent out 11/16/17; 2nd LOI Letter returned (unclaimed) 12/7/17; 2nd follow up Letter of Intent sent out to 12/29/17
Sewer Pump Stations	Property adjacent to Southern Link	Private	GWA started acquisition process on 12/23/2016. Property ownership vested in GWA 08/11/2017

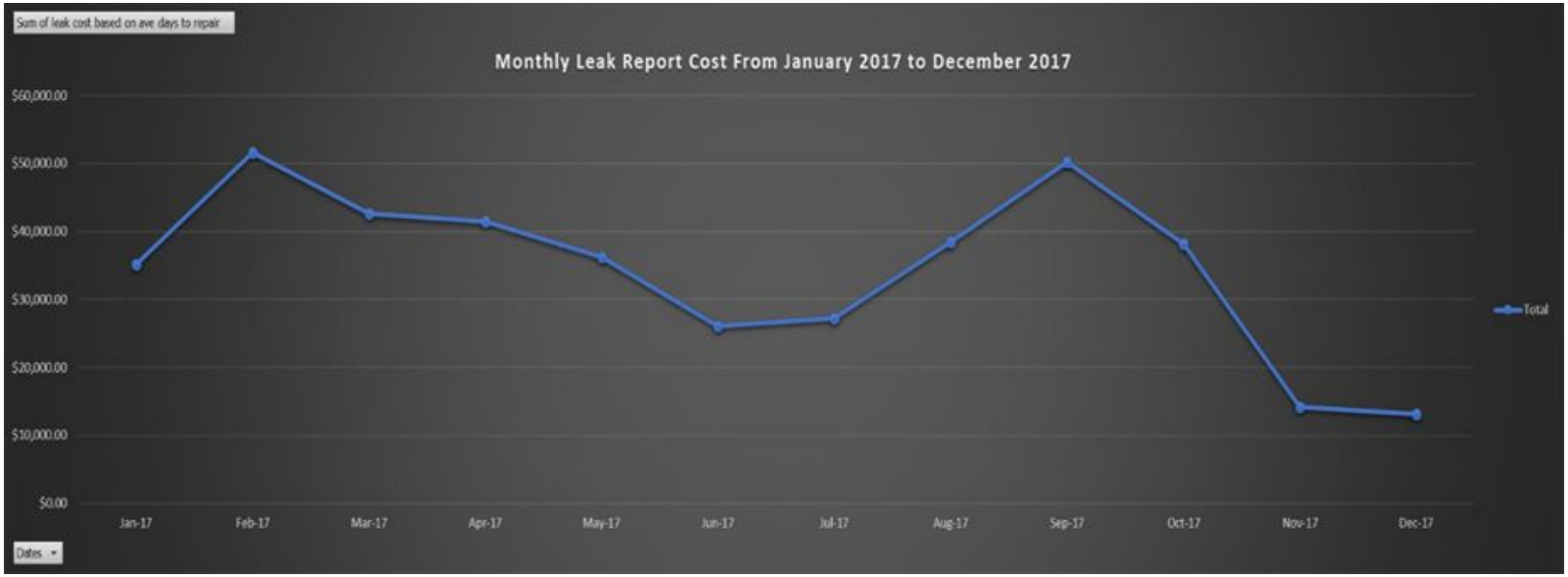
NRW – Update

- Water Audit update on-going
  - Production rates are being reviewed for accuracy and refined
  - Unmetered, Authorized uses are being quantified
  - Meter and billing inaccuracies are being reviewed and refined

Leak Repair Summary




LEAK REPORTED VS REPAIRED JANUARY 2017 TO DECEMBER 2017
Reported
Repaired
318
283
269
280
323
298
297
294
314
292
283
199
295
176
334
221
311
203
276
169
309
224
284
221
Jan-17
Feb-17
Mar-17
Apr-17
May-17
Jun-17
Jul-17
Aug-17
Sep-17
Oct-17
Nov-17
Dec-17



Assumptions:

1. Leak rate = 4 gpm
2. Cost per kgal = $4.00

DASHBOARD

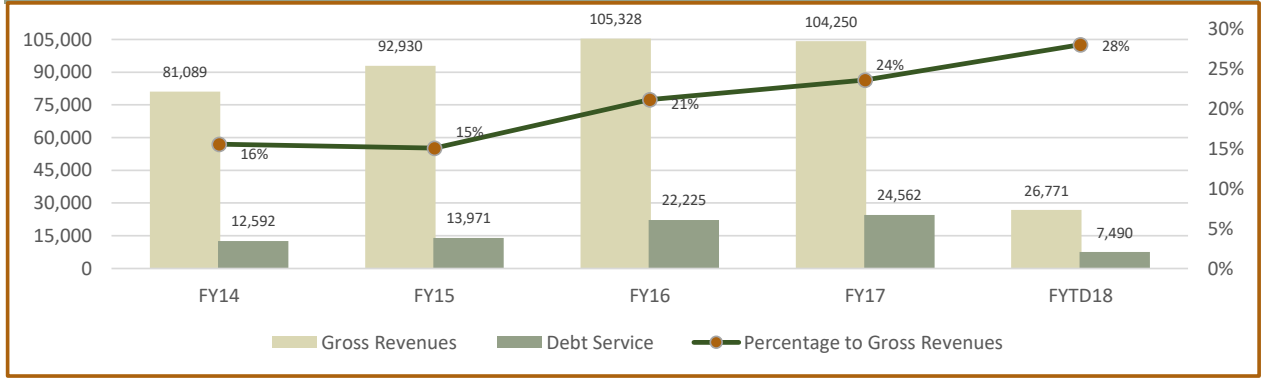
FYTD December 2017 Budget vs Actual ($000)

Category	Description	Budget FYTD18	Actual FYTD18	Variance
Rate Based Revenues	Water	$17,825	$16,903	($922)
	Wastewater	9,965	9,761	(205)
	Total	27,790	26,663	(1,126)
Operations & Maintenance	Salaries & Benefits	6,629	5,307	(1,322)
	Power	3,174	3,412	238
	Water Purchases	2,163	2,088	(75)
	A&G	3,217	2,000	(1,217)
	Contractual	1,120	730	(390)
	Total	$21,131	$18,356	($2,775)

Key Financial Ratios ($000)

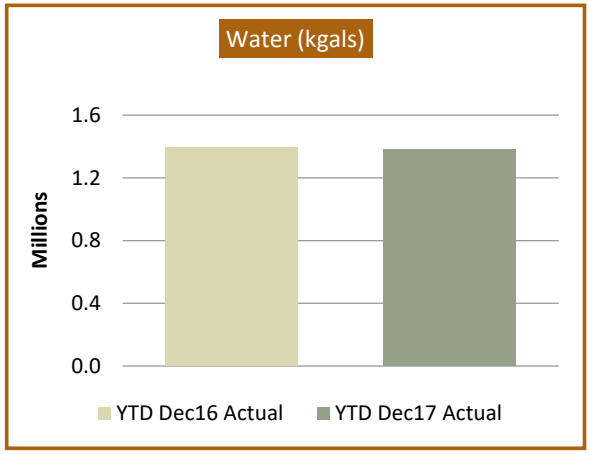
Category	FY18	FY17
Accounts Payable $$/Days	$4,195 / 54 days	$5,390 / 59 days
Accounts Receivable $$/Days	$17,257 / 69 days	$15,451 / 51 days
Days Cash On Hand	165 days	184 days
Annual Debt Service (Revenue Bonds)	$29,961	$24,563
Debt Service Coverage (Bond/PUC)	1.77 / 2.14	1.99 / 2.44

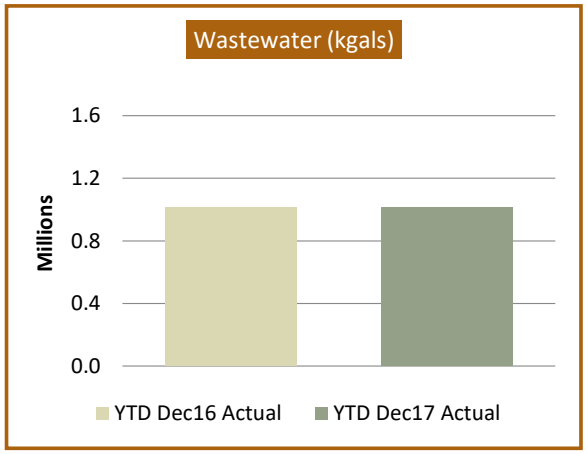
Debt as a Percent to Gross Revenue

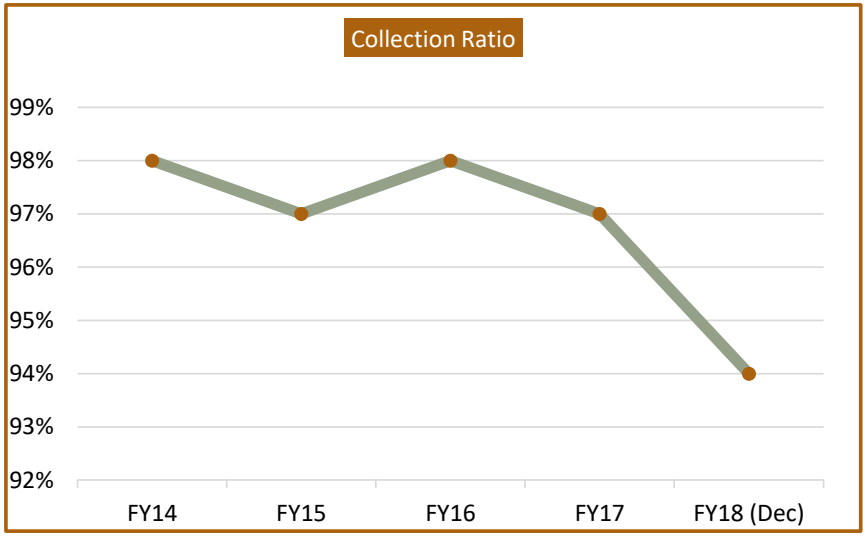


(1) Gross Revenues excludes SDC
(2) Debt Service Excludes Cap I

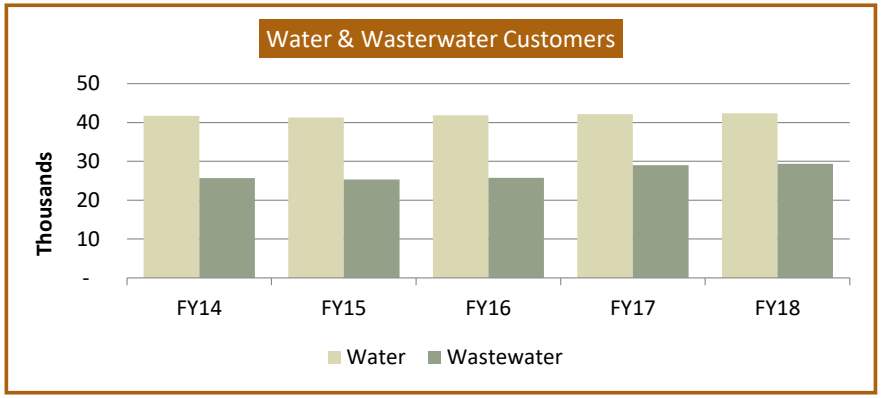
Water & Wastewater Analytics

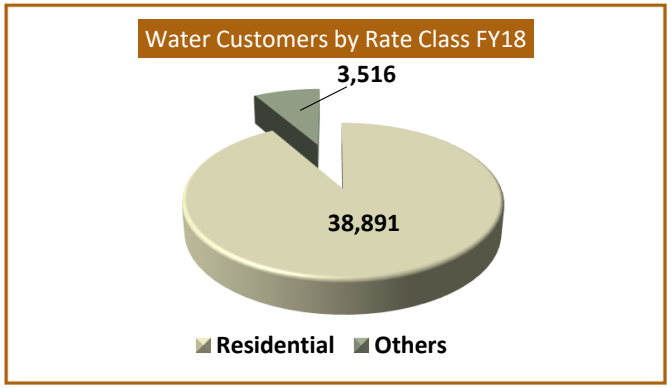


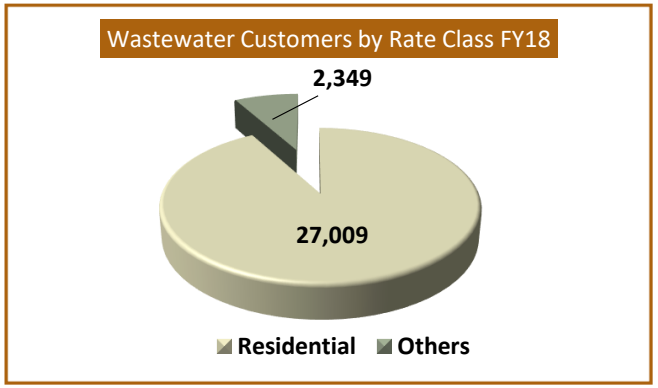


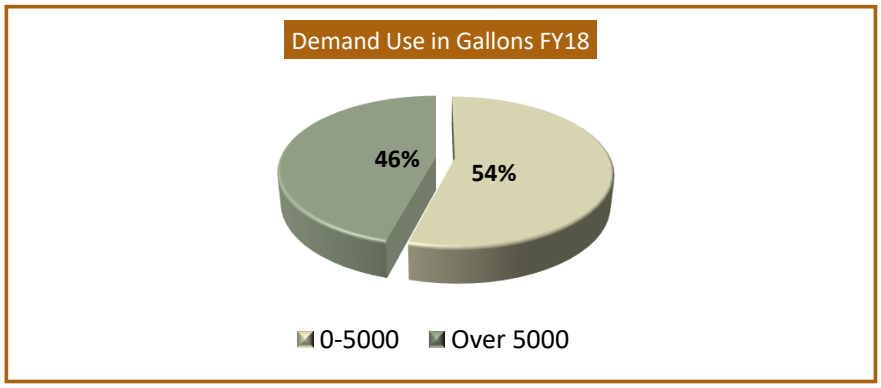


Water & Wastewater Customers





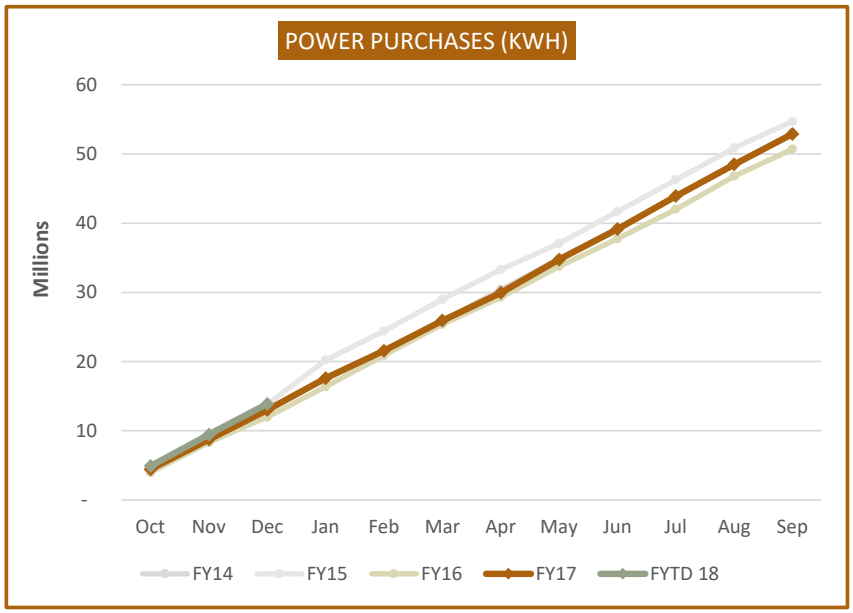


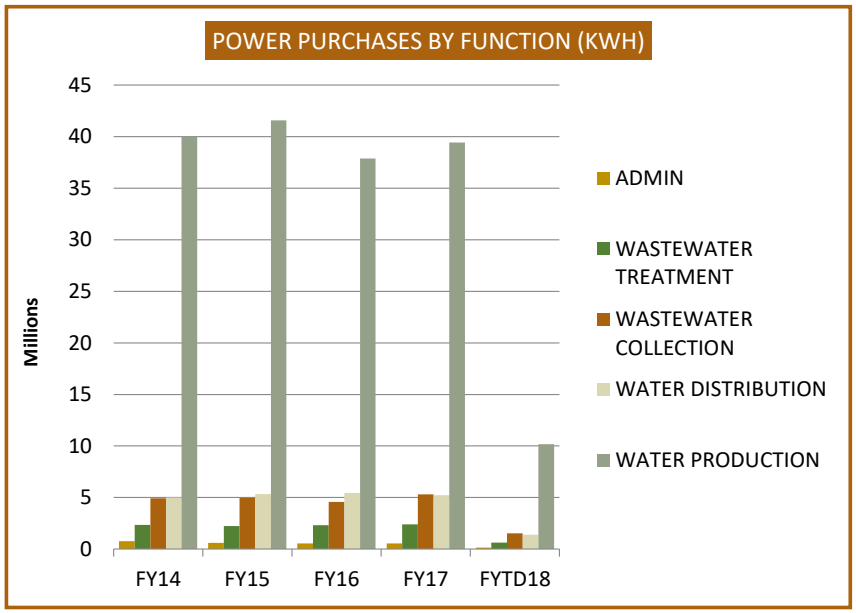


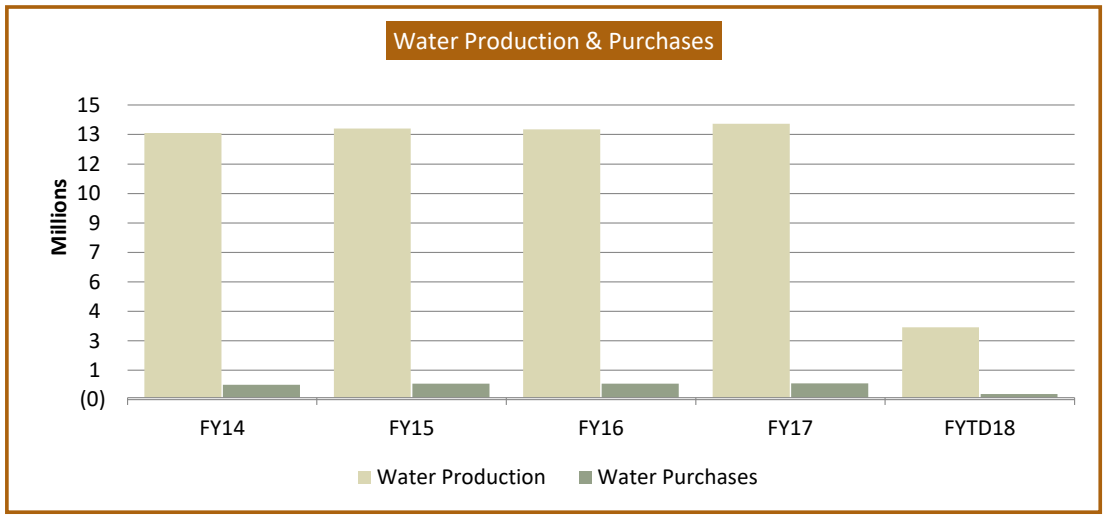
Top Ten Largest Water and Wastewater Customers – December 2017

Water			Wastewater		
Customer Name	FYTD18 Revenues	% of Total	Customer Name	FYTD18 Revenues	% of Total
1) MDI GUAM CORPORATION/LEOPALACE	$338,419	2.00%	1) AIR FORCE DOD	$938,166	9.62%
2) PACIFIC ISLANDS CLUB	276,261	1.63%	2) NAVY DOD	494,311	5.07%
3) HOTELS OF THE MARIANAS INC	253,662	1.50%	3) HOTELS OF THE MARIANAS INC	271,284	2.78%
4) HYATT	237,019	1.40%	4) HYATT	253,784	2.60%
5) HOTEL NIKKO GUAM	219,864	1.30%	5) HOTEL NIKKO GUAM	234,980	2.41%
6) GUAM REEF HOTEL INC	217,479	1.29%	6) GUAM REEF HOTEL INC	232,794	2.39%
7) SHERATON LAGUNA GUAM RESORT	192,702	1.14%	7) SHERATON LAGUNA GUAM RESORT	206,179	2.11%
8) MDI GUAM CORPORATION/WESTIN	158,683	0.94%	8) MDI GUAM CORPORATION/WESTIN	169,637	1.74%
9) TANOTA DEVELOPMENT LLC	158,467	0.94%	9) TANOTA DEVELOPMENT LLC	170,046	1.74%
10) OUTRIGGER GUAM RESORT	150,959	0.89%	10) OUTRIGGER GUAM RESORT	161,717	1.66%
Total	**$2,203,516**	**13.03%**	**Total**	**$3,132,898**	**32.11%**

Power, Water Purchases and Water Production

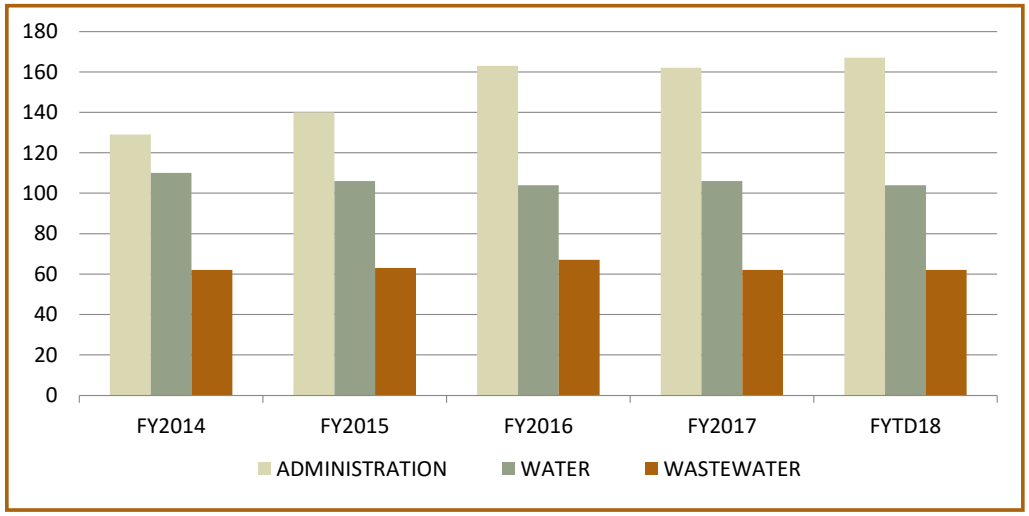




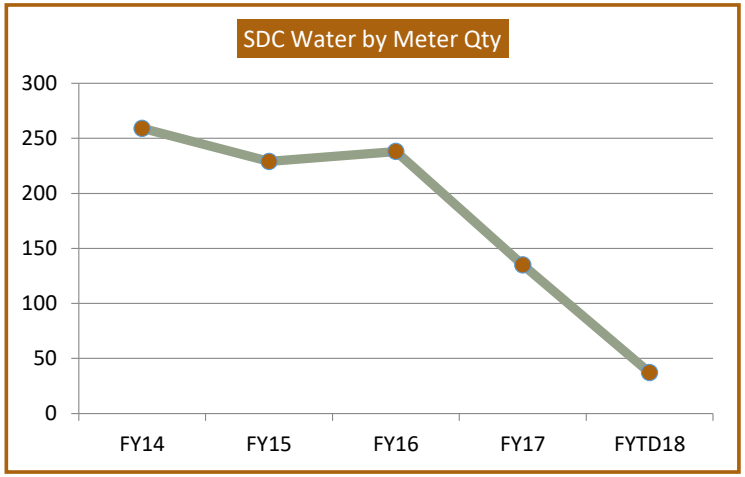


FTE by Major Division

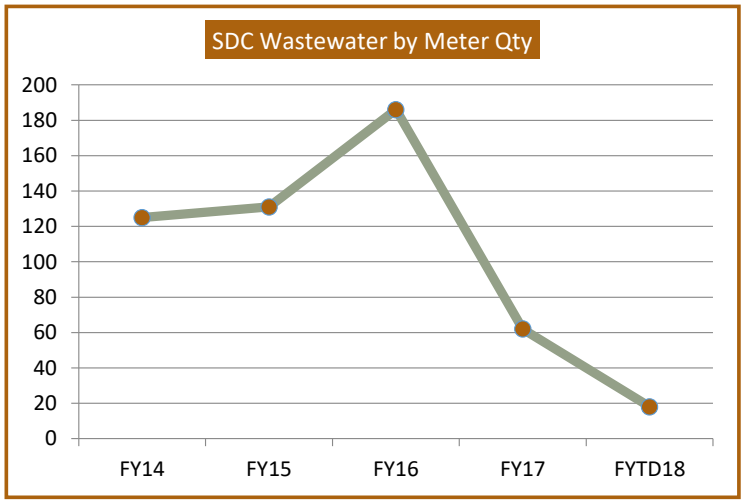
DIVISION	FY2014	FY2015	FY2016	FY2017	FYTD18
ADMINISTRATION	129	140	163	162	167
WATER	110	106	104	106	104
WASTEWATER	62	63	67	62	62
TOTAL NUMBER OF STAFF	301	309	334	330	333
Gross Salaries & Wages ($000)	15,532	15,805	16,442	16,963	3,990
Water Customers	41,702	41,274	41,858	42,181	42,407
Staff to Customers Ratio	0.72%	0.75%	0.80%	0.78%	0.79%



SDC Water & Wastewater (Meter Quantity)



Actual Meter Sizes (Inches)	FY 2014	FY 2015	FY 2016	FY 2017	FYTD18
5/8 x 3/4	248	220	239	129	31
1	5	5	7	2	1
1 1/2	1	1	1	1	3
2	3	2	4	2	2
3	1	-	1	-	-
4	-	1	-	-	-
6	-	-	-	1	-
8	1	-	-	-	-
10	-	-	-	-	-
Total SDC by Water	259	229	252	135	37



Actual Meter Sizes (Inches)	FY 2014	FY 2015	FY 2016	FY 2017	FYTD18
5/8 x 3/4	115	124	179	58	12
1	4	3	2	-	1
1 1/2	1	1	1	1	3
2	3	2	3	2	2
3	1	-	1	-	-
4	-	1	-	-	-
6	-	-	-	1	-
8	1	-	-	-	-
10	-	-	-	-	-
Total SDC by Wastewater	125	131	186	62	18

GUAM WATERWORKS AUTHORITY
DECEMBER 31, 2017
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GUAM WATERWORKS AUTHORITY
Balance Sheet
December 31, 2017

SCHEDULE A

ASSETS	Unaudited December 31, 2017	Unaudited September 30, 2017	Increase (Decrease)
Current Assets:			
Cash:			
Unrestricted (Schedule G)	2,052,077	4,873,275	(2,821,198)
Restricted Funds (Schedule G)	67,319,464	65,124,400	2,195,064
Accounts Receivable Trade, Net of Allowance for Doubtful Receivables of $12,733,239 at Dec 31, 2017 and $12,619,034 at Sep 30, 2017	17,256,889	15,450,733	1,806,155
Other Receivable	4,469,691	8,433,446	(3,963,754)
Materials & Supplies Inventory, Net of Allowance for Obsolescence of $457,370 at Dec 31, 2017 and Sep 30, 2017	2,354,201	2,166,557	187,644
Total Current Assets	93,452,322	96,048,411	(2,596,089)
Property, Plant and Equipment			
Utility plant in service:			
Water system	327,493,369	327,484,191	9,177
Wastewater system	286,394,940	286,394,940	-
Non-utility property	18,938,255	18,938,255	-
Total property	632,826,564	632,817,387	9,177
Less Accumulated Depreciation	(290,628,105)	(286,043,580)	(4,584,525)
Land	1,163,298	1,110,998	52,300
Construction Work in Progress	124,649,927	111,695,887	12,954,040
Property, Plant and Equipment, net	468,011,683	459,580,691	8,430,992
Other noncurrent assets			
Restricted cash (Schedule G)	223,284,646	236,550,002	(13,265,356)
Investments (Schedule G)	48,266,271	41,042,038	7,224,233
Other Prepaid Expenses	2,572,233	551,128	2,021,104
Total other noncurrent assets	274,123,150	278,143,169	(4,020,019)
TOTAL ASSETS	835,587,155	833,772,271	1,814,884
Deferred outflows of resources:			
Debt defeasance loss on refunding	11,130,199	1,695,981	9,434,218
Deferred outflows from pension	3,270,212	3,414,242	(144,030)
Total Assets and Deferred Outflows of Resources	**849,987,566**	**838,882,494**	**11,105,072**
LIABILITIES AND NET ASSETS			
Current Liabilities:			
Current maturities of long-term debt			
-Series 2010 Bond	-	1,655,000	(1,655,000)
-Series 2014 Refunding	3,385,000	3,385,000	-
-Notes Payable	2,873,988	2,873,988	-
Accounts Payable -Trade	4,195,560	5,390,256	(1,194,696)
Interest Payable	13,266,149	6,656,499	6,609,649
Accrued Payroll and Employee Benefits	1,114,559	2,604,471	(1,489,913)
Accrued Annual Leave	1,729,291	1,729,291	-
Current portion of employee annual leave	567,057	567,057	-
Contractors' Payable	7,876,293	13,950,287	(6,073,994)
Customer and Other Deposits	2,458,972	2,087,207	371,764
Total Current Liabilities	37,466,868	40,899,057	(3,432,189)
Long Term Debt, less current maturities			
Series 2010 Revenue Bond	-	112,870,000	(112,870,000)
Series 2013 Revenue Bond	172,630,000	172,630,000	-
Series 2014 Refunding	72,610,000	72,610,000	-
Series 2016 Revenue Bond	143,310,000	143,310,000	-
Series 2017 Refunding Bond	107,660,000	-	107,660,000
Unamortized Discount - Bond 2010	-	(1,867,525)	1,867,525
Unamortized Discount - Bond 2013	(1,330,234)	(1,338,751)	8,517
Unamortized Premium - Bond 2014	4,760,258	4,804,694	(44,436)
Unamortized Premium - Bond 2016	17,161,726	17,262,975	(101,249)
Unamortized Premium - Bond 2017	13,854,833	-	13,854,833
Notes Payable	4,970,396	5,697,499	(727,103)
Unfunded Ret Liability (GASB 67/68)	38,195,938	38,195,938	-
Employee Annual Leave, Less Current Portion	783,992	783,992	-
TOTAL LIABILITIES	612,073,776	605,857,879	6,215,897
Net Assets	**237,913,790**	**233,024,615**	**4,889,175**
Total Liabilities and Net Assets	**849,987,566**	**838,882,494**	**11,105,072**

GUAM WATERWORKS AUTHORITY
Statement of Operations and Retained Earnings (Unaudited)
Comparative Budget vs. Actual for the period ending December 31, 2017

SCHEDULE B

	Budget December-17	Month to Date Actual (Unaudited) December-17	Variance Increase / (Decrease)
OPERATING REVENUES			
Water Revenues	5,743,160	5,334,955	(408,205)
Wastewater Revenues	3,228,257	3,117,461	(110,796)
Legislative Surcharge	291,896	250,233	(41,663)
Other Revenues	57,638	34,800	(22,838)
System Development Charge	46,136	138,534	92,398
Total Operating Revenues	9,367,087	8,875,983	(491,105)
OPERATING AND MAINTENANCE EXPENSES			
Water Purchases	721,113	633,175	(87,938)
Power Purchases	1,057,997	1,092,764	34,767
Total Utility Costs	1,779,110	1,725,939	(53,171)
Salaries and Wages	1,625,056	1,148,512	(476,544)
Pension and Benefits	584,558	367,837	(216,722)
Total Salaries and Benefits	2,209,614	1,516,348	(693,266)
Capitalized Labor and Benefits	(208,333)	(225,000)	(16,667)
Net Salaries and Benefits	2,001,281	1,291,348	(709,933)
Administrative and General Expenses			
Sludge removal	174,514	169,674	(4,840)
Chemicals	229,997	228,451	(1,546)
Materials & Supplies	237,400	235,767	(1,633)
Transportation	61,370	61,222	(148)
Communications	16,182	12,411	(3,771)
Claims	17,600	17,572	(28)
Insurance	97,757	75,480	(22,277)
Training & Travel	21,814	19,024	(2,791)
Advertising	13,910	2,800	(11,110)
Miscellaneous	115,515	75,055	(40,460)
Total Administrative and General Expense	986,059	897,456	(88,603)
Regulatory Expense	29,086	29,049	(37)
Bad Debts Provision	57,103	57,096	(6)
Depreciation Expense	1,528,175	1,528,175	0
Contractual Expense			
Audit & Computer Maint.	78,630	65,410	(13,220)
Building rental	37,955	35,852	(2,103)
Equipment rental	57,375	55,184	(2,191)
Legal	4,167	1,500	(2,667)
Laboratory	64,752	4,090	(60,662)
Other	130,363	82,321	(48,042)
Total Contractual Expense	373,241	244,357	(128,884)
Retiree Supp. Annuities and health care costs	240,008	236,940	(3,068)
Contribution to Government of Guam	49,500	49,833	333
Total Retiree Benefits	289,508	286,774	(2,735)
Total Operating Expenses	7,043,563	6,060,193	(983,370)
Earnings (Loss) from Operations	2,323,524	2,815,789	492,265
Interest Income-2010/13/14/16 Series Bond	15,727	139,245	123,518
Interest Income-Other Funds	2,935	24,681	21,747
Interest Income-SDC	2,414	18,498	16,084
Interest Expense- 2010/13/14/16 Series Bond	(2,625,587)	(2,211,025)	414,563
Interest Expense- ST BOG	(33,288)	(45,267)	(11,979)
Federal Expenditures	(51,332)	-	51,332
Loss on Asset Disposal	-	-	-
AFUDC	625,000	625,000	-
Amortization of Discount, Premium and Issuance Costs	(61,861)	61,861	123,722
Loss on Defeasance Bond05 Refunding	(15,218)	(12,444)	2,775
Deferred outflows from pension	(105,281)	(48,010)	57,271
Prior Year Adjustment	-	-	-
Total non-operating revenues (expenses)	(2,246,492)	(1,447,460)	799,032
Net Income (Loss) before capital contributions	77,032	1,368,329	1,291,297
Capital Contributions			
Grants from US Government	873,108	413,372	(459,736)
Grants from GovGuam & Others	-	-	-
Other Contributions	-	-	-
Total Capital Contributions	873,108	413,372	(459,736)
Change in Net Assets	950,140	1,781,701	831,561
Debt Service Calculation			
Earnings From Operations	2,323,524	2,815,789	
System Development Charge	(46,136)	(138,534)	
Retiree COLA	49,500	49,833	
Interest/Investment Income	2,935	24,681	
Depreciation	1,528,175	1,528,175	
Balance Available for Debt Service per Section 6.12	3,857,998	4,279,945	
Working Capital Reserve Available for Debt Service	935,321	935,321	
Transfer to Working Capital- Debt Service Reserve	(150,000)	-	
Transfer to Working Capital- O&M Reserve	(266,667)	-	
Balance Available for Debt Service inclusive of reserves	4,376,652	5,215,266	
Debt Service			
Principal	433,333	433,333	
Interest	2,063,402	2,063,402	
Total	2,496,736	2,496,736	
Debt Service Coverage (1.25X)- per Section 6.12 (Indenture)	1.55	1.71	
Debt Service Coverage (1.75X) inclusive of reserves (PUC)	1.75	2.09	

GUAM WATERWORKS AUTHORITY
Statement of Operations and Retained Earnings (Unaudited)
Comparative for the period ending December 31, 2017 and 2016

SCHEDULE C

	Month to Date Actual (Unaudited) December-17	Month to Date Actual (Unaudited) December-16	Variance Increase / (Decrease)
OPERATING REVENUES			
Water Revenues	5,334,955	5,331,404	3,551
Wastewater Revenues	3,117,461	3,099,528	17,934
Legislative Surcharge	250,233	267,269	(17,036)
Other Revenues	34,800	36,293	(1,493)
System Development Charge	138,534	72,662	65,872
Total Operating Revenues	8,875,983	8,807,155	68,827
OPERATING AND MAINTENANCE EXPENSES			
Water Purchases	633,175	609,094	24,081
Power Purchases	1,092,764	1,006,355	86,408
Total Utility Costs	1,725,939	1,615,449	110,490
Salaries and Wages	1,148,512	1,413,608	(265,097)
Pension and Benefits	367,837	477,546	(109,709)
Total Salaries and Benefits	1,516,348	1,891,154	(374,806)
Capitalized Labor and Benefits	(225,000)	(262,516)	37,516
Net Salaries and Benefits	1,291,348	1,628,638	(337,290)
Administrative and General Expenses			
Sludge removal	169,674	140,487	29,187
Chemicals	228,451	174,001	54,450
Materials & Supplies	235,767	128,788	106,979
Transportation	61,222	53,744	7,478
Communications	12,411	10,884	1,527
Claims	17,572	22,151	(4,579)
Insurance	75,480	90,603	(15,123)
Training & Travel	19,024	23,055	(4,031)
Advertising	2,800	8,988	(6,188)
Miscellaneous	75,055	71,997	3,059
Total Administrative and General Expense	897,456	724,696	172,759
Regulatory Expense	29,049	24,134	4,915
Bad Debts Provision	57,096	109,700	(52,604)
Depreciation Expense	1,528,175	1,402,038	126,137
Contractual Expense			
Audit & Computer Maint.	65,410	76,901	(11,491)
Building rental	35,852	36,557	(704)
Equipment rental	55,184	59,374	(4,190)
Legal	1,500	414	1,086
Laboratory	4,090	10,627	(6,537)
Other	82,321	156,747	(74,426)
Total Contractual Expense	244,357	340,619	(96,262)
Retiree Supp. Annuities and health care costs	236,940	231,895	5,045
Contribution to Government of Guam	49,833	49,500	333
Total Retiree Benefits	286,774	281,395	5,378
Total Operating Expenses	6,060,193	6,126,670	(66,477)
Earnings (Loss) from Operations	2,815,789	2,680,485	135,304
Interest Income-2010/13/14/16 Series Bond	139,245	65,354	73,891
Interest Income-Other Funds	24,681	10,032	14,650
Interest Income-SDC	18,498	1,060	17,439
Interest Expense- 2010/13/14/16 Series Bond	(2,211,025)	(2,220,744)	9,719
Interest Expense- ST BOG	(45,267)	(43,736)	(1,531)
Federal Expenditures	-	(42,501)	42,501
Loss on Asset Disposal	-	(81,105)	81,105
AFUDC	625,000	1,172,241	(547,241)
Amortization of Discount, Premium and Issuance Costs	61,861	61,861	-
Loss on Defeasance Bond05 Refunding	(12,444)	(15,218)	2,775
Deferred outflows from pension	(48,010)	(104,481)	56,471
Prior Year Adjustment	-	(26,756)	26,756
Total non-operating revenues (expenses)	(1,447,460)	(1,223,993)	(223,467)
Net Income (Loss) before capital contributions	1,368,329	1,456,492	(88,163)
Capital Contributions			
Grants from US Government	413,372	1,815,921	(1,402,549)
Grants from GovGuam & Others	-	1,664	(1,664)
Other Contributions	-	-	-
Total Capital Contributions	413,372	1,817,586	(1,404,214)
Change in Net Assets	1,781,701	3,274,078	(1,492,376)
Debt Service Calculation			
Earnings From Operations	2,815,789	2,680,485	
System Development Charge	(138,534)	(72,662)	
Retiree COLA	49,833	49,500	
Interest/Investment Income	24,681	10,032	
Depreciation	1,528,175	1,402,038	
Balance Available for Debt Service per Section 6.12	4,279,945	4,069,392	
Working Capital Reserve Available for Debt Service	935,321	932,134	
Transfer to Working Capital- Debt Service Reserve	-	-	
Transfer to Working Capital- O&M Reserve	-	-	
Balance Available for Debt Service inclusive of reserves	5,215,266	5,001,527	
Debt Service			
Principal	433,333	420,000	
Interest	2,063,402	1,626,858	
Total	2,496,736	2,046,858	
Debt Service Coverage (1.25X)- per Section 6.12 (Indenture)	1.71	1.99	
Debt Service Coverage (1.75X) inclusive of reserves (PUC)	2.09	2.44	

GUAM WATERWORKS AUTHORITY
Statement of Operations and Retained Earnings (Unaudited) **SCHEDULE D**
Comparative Budget vs. Actual for the period ending December 31, 2017

	Year to Date			Variance
	Budget December-17	Encumbered December-17	Actual (Unaudited) December-17	Increase / (Decrease)
OPERATING REVENUES				
Water Revenues	17,229,480		16,345,904	(883,576)
Wastewater Revenues	9,684,772		9,500,820	(183,952)
Legislative Surcharge	875,688		816,723	(58,965)
Other Revenues	172,914		107,386	(65,528)
System Development Charge	138,407		334,581	196,174
Total Operating Revenues	28,101,262		27,105,414	(995,848)
OPERATING AND MAINTENANCE EXPENSES				
Water Purchases	2,163,339		2,087,849	(75,490)
Power Purchases	3,173,991		3,411,972	237,982
Total Utility Costs	5,337,330		5,499,822	162,492
Salaries and Wages	4,875,168		3,990,061	(885,107)
Pension and Benefits	1,753,675		1,317,268	(436,407)
Total Salaries and Benefits	6,628,843		5,307,329	(1,321,514)
Capitalized Labor and Benefits	(625,000)		(625,000)	-
Net Salaries and Benefits	6,003,843		4,682,329	(1,321,514)
Administrative and General Expenses				
Sludge removal	523,542		286,054	(237,488)
Chemicals	614,990	75,000	471,739	(68,252)
Materials & Supplies	833,699	250,000	307,882	(275,817)
Transportation	157,111	35,000	118,493	(3,619)
Communications	48,546		48,056	(490)
Claims	33,300		10,378	(22,922)
Insurance	314,270		226,440	(87,830)
Training & Travel	65,443		47,791	(17,652)
Advertising	41,730		20,345	(21,385)
Miscellaneous	346,546	85,000	237,580	(23,967)
Total Administrative and General Expense	2,979,177	445,000	1,774,757	(759,420)
Regulatory Expense	66,259		53,959	(12,300)
Bad Debts Provision	171,308		171,294	(14)
Depreciation Expense	4,584,524		4,584,525	1
Contractual Expense				
Audit & Computer Maint.	250,891		250,333	(558)
Building rental	113,865		108,847	(5,018)
Equipment rental	172,124		168,836	(3,287)
Legal	12,500		1,800	(10,700)
Laboratory	179,255		160,985	(18,270)
Other	391,089	250,000	39,094	(101,995)
Total Contractual Expense	1,119,724	250,000	729,895	(139,829)
Retiree Supp. Annuities and health care costs	720,025		709,850	(10,175)
Contribution to Government of Guam	148,500		149,500	1,000
Total Retiree Benefits	868,525	-	859,350	(9,175)
Total Operating Expenses	21,130,690	695,000	18,355,931	(2,079,759)
Earnings (Loss) from Operations	6,970,572	(695,000)	8,749,483	1,083,911
Interest Income-2010/13/14/16 Series Bond	47,180		444,222	397,042
Interest Income-Other Funds	8,804		71,991	63,187
Interest Income-SDC	7,243		29,886	22,643
Interest Expense- 2010/13/14/16 Series Bond	(7,876,762)		(6,633,074)	1,243,688
Interest Expense- ST BOG	(99,865)		(104,472)	(4,607)
Federal Expenditures	(153,997)		(76,977)	77,020
Loss on Asset Disposal	-		-	-
AFUDC	1,875,000		1,875,000	-
Amortization of Discount, Premium and Issuance Costs	(185,582)		185,582	371,165
Loss on Defeasance Bond05 Refunding	(45,655)		(37,331)	8,324
Deferred outflows from pension	(315,842)		(144,030)	171,812
Prior Year Adjustment	-		38,546	38,546
Total non-operating revenues (expenses)	(6,739,476)	-	(4,350,657)	2,388,819
Net Income (Loss) before capital contributions	231,096	(695,000)	4,398,826	3,472,730
Capital Contributions				
Grants from US Government	2,619,325		490,349	(2,128,975)
Grants from GovGuam & Others	-		-	-
Other Contributions	-		-	-
Total Capital Contributions	2,619,325	-	490,349	(2,128,975)
Change in Net Assets	2,850,421	(695,000)	4,889,175	1,343,754
Debt Service Calculation				
Earnings From Operations	6,970,572		8,749,483	
System Development Charge	(138,407)		(334,581)	
Retiree COLA	148,500		149,500	
Interest/Investment Income	8,804		71,991	
Depreciation	4,584,524		4,584,525	
Balance Available for Debt Service per Section 6.12	11,573,993		13,220,918	
Working Capital Reserve Available for Debt Service	2,805,963		2,796,403	
Transfer to Working Capital- Debt Service Reserve	(450,000)		-	
Transfer to Working Capital- O&M Reserve	(800,000)		-	
Balance Available for Debt Service inclusive of reserves	13,129,956		16,017,321	
Debt Service				
Principal	1,300,000		1,300,000	
Interest	6,190,207		6,190,207	
Total	7,490,207		7,490,207	
Debt Service Coverage (1.25X)- per Section 6.12 (Indenture)	1.55		1.77	
Debt Service Coverage (1.75X) inclusive of reserves (PUC)	1.75		2.14	

GUAM WATERWORKS AUTHORITY
Statement of Operations and Retained Earnings (Unaudited)
Comparative for the period ending December 31, 2017 and 2016

SCHEDULE E

	Year to Date ACTUAL (Unaudited) December-17	Year to Date ACTUAL (Unaudited) December-16	Variance Increase / (Decrease)
OPERATING REVENUES			
Water Revenues	16,345,904	15,994,211	351,694
Wastewater Revenues	9,500,820	9,298,583	202,237
Legislative Surcharge	816,723	801,807	14,917
Other Revenues	107,386	108,879	(1,493)
System Development Charge	334,581	217,986	116,595
Total Operating Revenues	27,105,414	26,421,465	683,949
OPERATING AND MAINTENANCE EXPENSES			
Water Purchases	2,087,849	1,827,281	260,568
Power Purchases	3,411,972	3,019,066	392,907
Total Utility Costs	5,499,822	4,846,347	653,475
Salaries and Wages	3,990,061	4,240,825	(250,765)
Pension and Benefits	1,317,268	1,432,637	(115,369)
Total Salaries and Benefits	5,307,329	5,673,463	(366,134)
Capitalized Labor and Benefits	(625,000)	(787,547)	162,547
Net Salaries and Benefits	4,682,329	4,885,915	(203,586)
Administrative and General Expenses			
Sludge removal	286,054	421,460	(135,407)
Chemicals	471,739	522,003	(50,264)
Materials & Supplies	307,882	386,363	(78,481)
Transportation	118,493	161,233	(42,740)
Communications	48,056	32,651	15,405
Claims	10,378	66,453	(56,075)
Insurance	226,440	271,808	(45,368)
Training & Travel	47,791	69,164	(21,373)
Advertising	20,345	26,963	(6,618)
Miscellaneous	237,580	215,990	21,590
Total Administrative and General Expense	1,774,757	2,174,089	(399,332)
Regulatory Expense	53,959	72,403	(18,444)
Bad Debts Provision	171,294	329,099	(157,805)
Depreciation Expense	4,584,525	4,206,114	378,411
Contractual Expense			
Audit & Computer Maint.	250,333	230,703	19,630
Building rental	108,847	109,670	(823)
Equipment rental	168,836	178,122	(9,285)
Legal	1,800	1,242	558
Laboratory	160,985	31,880	129,106
Other	39,094	470,241	(431,148)
Total Contractual Expense	729,895	1,021,857	(291,962)
Retiree Supp. Annuities and health care costs	709,850	695,686	14,164
Contribution to Government of Guam	149,500	148,500	1,000
Total Retiree Benefits	859,350	844,186	15,164
Total Operating Expenses	18,355,931	18,380,011	(24,080)
Earnings (Loss) from Operations	8,749,483	8,041,455	708,028
Interest Income-2010/13/14/16 Series Bond	444,222	196,063	248,159
Interest Income-Other Funds	71,991	30,095	41,896
Interest Income-SDC	29,886	3,179	26,706
Interest Expense- 2010/13/14/16 Series Bond	(6,633,074)	(6,662,231)	29,157
Interest Expense- ST BOG	(104,472)	(131,209)	26,737
Federal Expenditures	(76,977)	(127,504)	50,527
Loss on Asset Disposal	-	(243,314)	243,314
AFUDC	1,875,000	3,516,723	(1,641,723)
Amortization of Discount, Premium and Issuance Costs	185,582	185,582	-
Loss on Defeasance Bond05 Refunding	(37,331)	(45,655)	8,324
Deferred outflows from pension	(144,030)	(313,442)	169,412
Prior Year Adjustment	38,546	(80,267)	118,813
Total non-operating revenues (expenses)	(4,350,657)	(3,671,979)	(678,677)
Net Income (Loss) before capital contributions	4,398,826	4,369,475	29,351
Capital Contributions			
Grants from US Government	490,349	5,447,764	(4,957,415)
Grants from GovGuam & Others	-	4,993	(4,993)
Other Contributions	-	-	-
Total Capital Contributions	490,349	5,452,758	(4,962,408)
Change in Net Assets	4,889,175	9,822,233	(4,933,057)
Debt Service Calculation			
Earnings From Operations	8,749,483	8,041,455	
System Development Charge	(334,581)	(217,986)	
Retiree COLA	149,500	148,500	
Interest/Investment Income	71,991	30,095	
Depreciation	4,584,525	4,206,114	
Balance Available for Debt Service per Section 6.12	13,220,918	12,208,177	
Working Capital Reserve Available for Debt Service	2,796,403	2,796,403	
Transfer to Working Capital- Debt Service Reserve	-	-	
Transfer to Working Capital- O&M Reserve	-	-	
Balance Available for Debt Service inclusive of reserves	16,017,321	15,004,580	
Debt Service			
Principal	1,300,000	1,260,000	
Interest	6,190,207	4,880,575	
Total	7,490,207	6,140,575	
Debt Service Coverage (1.25X)- per Section 6.12 (Indenture)	1.77	1.99	
Debt Service Coverage (1.75X) inclusive of reserves (PUC)	2.14	2.44	

SCHEDULE F

Bond Compliance

		($$$) Per Indenture	As of 12/31/17 ($$$) Bond 2013/2014/2016/2017
• Operation and Maintenance Fund-BOG	*Equivalent to 55 days of the annual O&M budget less depreciation*	$10.5M	$10.5M
• Bond Reserve Fund - US Bank	*Fully funded- Principal and Interest (Bond Series 2010, 2013, 2014 Refunding and 2016)*	$34.9M	$34.9M
• Operation, Maintenance, Renewal and Replacement Reserve Fund-BOG Trust	*Equivalent to 1/4 of the annual O&M budget & CIP budget to be funded in 5 years ($2M/year)*	$17.4M	$17.4M
• Capital Improvement Fund & BOG Reserves	*Balance remaining in the Revenue Fund after the foregoing deposits*	$3.9K	$4.5K
• Capitalized Interest Fund			$1.9K

GUAM WATERWORKS AUTHORITY
Restricted and Unrestricted Cash Summary
FY 2018

SCHEDULE G

Description	Unaudited December 31, 2017	Unaudited September 30, 2017	Increase (Decrease)
UNRESTRICTED			
Change Fund	2,000	2,000	0
Petty Cash	5,000	5,000	0
BOG - General Fund	2,015,038	4,836,236	(2,821,198)
BOG - PRN Payroll	30,039	30,039	0
Sub-total Unrestricted	2,052,077	4,873,275	(2,821,198)
RESTRICTED			
Bank of Hawaii	176,053	133,931	42,121
ANZ Bank	97	(0)	97
First Hawaiian Bank	42,205	10,261	31,944
Bank Pacific	10,548	15,825	(5,277)
Community First FCU	2,063	3,448	(1,386)
BOG - Customer Refunds	1,843,368	1,831,426	11,942
Bank Pacific - Surcharge	889,718	278,142	611,576
Bank Pacific - Escrow Deposit	666,122	666,140	(18)
BOG Emergency Reserve Fund	6,124	6,122	2
BOG - Revenue Trust	1,242,847	201,614	1,041,233
BOG Revenue Trust Fund	7,169,864	7,782,227	(612,363)
BOG Capital Improvement Fund-Bond	4,500	5,598	(1,098)
BOG Capital Improvement Revenue Fund	882,305	-	882,305
BOG-O & M Reserve	13,531,526	13,516,540	14,986
BOG-Debt Service Reserve	11,230,272	11,217,733	12,539
BOG-CAPEX Reserve	15,478,485	15,462,869	15,616
BOG Sewer Hookup Revolving Fund	64,328	63,590	738
BOG Subord. Sec. Fund	782,361	859,233	(76,872)
BOG Operation and Maintenance Fund	3,083,482	3,083,482	0
	57,106,266	55,138,182	1,968,084
BOG - SDC Deposit	1,713,198	1,486,219	226,980
BOG - SDC CDs	8,500,000	8,500,000	0
Total Restricted	67,319,464	65,124,400	2,195,064
Reserve Funds			
BOG Series 05 OMRRRF Fund	17,423,213	17,423,213	0
BOG Series 13 Construction Fund	67,985,926	74,461,765	(6,475,839)
BOG Series 14 Refunding Construction Fund	761,698	771,281	(9,583)
BOG Series 16 Construction Fund	128,113,664	132,811,449	(4,697,785)
BOG Series 16 Cap Int Fund	1,907	1,782,982	(1,781,075)
BOG Series 17 Refunding Construction Fund	8,941,663	9,299,311	(357,648)
BOG Series 17 Refunding COI Fund	56,575	-	56,575
Total Restricted - Held by Trustee	223,284,646	236,550,002	(13,265,356)
USB Series 2013 Debt Service Fund	4,671,759	2,336,754	2,335,006
USB Series 2013 Debt Service Reserve Fund	12,031,688	12,031,688	0
USB Series 2014 Refunding Debt Service Fund	3,590,622	1,796,559	1,794,064
USB Series 2014 Refunding Debt Service Reserve Fund	7,729,117	7,707,602	21,515
USB Series 2016 Debt Service Fund	3,582,140	130	3,582,010
USB Series 2016 Debt Service Reserve Fund	7,588,700	7,582,725	5,975
USB Series 2017 Refunding Debt Service Fund	1,505,785	2,020,121	(514,336)
USB Series 2017 Refunding Debt Service Reserve Fund	7,566,460	7,566,460	0
Total Investments	48,266,271	41,042,038	7,224,233
Total Restricted and Unrestricted Cash	340,922,458	347,589,716	(6,667,258)

SCHEDULE H

Guam Waterworks Authority **Statement of Cash Flows (Unaudited)** **FY 2018**	**YTD** **Dec-17**
Increase (decrease) in cash	
Cash flows from operating activities:	
Cash received from trade and others	24,379,776
Cash payments to suppliers/contractors for goods and services	(10,065,839)
Cash payments to employees for services	(6,895,690)
Net cash provided by operating activities	7,418,247
Cash flows from capital and related financing activities:	
Contributed capital received (grants)	4,258,777
Acquisition of utility plant	(17,094,511)
Repayment of Long Term Debt	(123,721)
Interest expense	(812,233)
Net cash provided by (used in) capital and related financing activities	(13,771,687)
Cash flows from investing activities:	
Transfers from (to) restricted fund	2,986,143
Interest income received	546,099
Net cash provided by investing activities	3,532,242
Net increase (decrease) in cash	(2,821,198)
Unrestricted cash at beginning of the period	4,873,275
Unrestricted cash at end of period	2,052,077
Reconciliation of operating loss to net cash provided by operating activities:	
Operating Income (loss)	7,575,982
Adjustments to reconcile to net cash provided by operating activities:	
Depreciation expense	4,584,525
Other Expense/income	315,324
(Increase) decrease in assets:	
Accounts receivable	(2,762,821)
Materials and supplies inventory	(187,644)
Other Assets	(93,736)
Increase (decrease) in liabilities:	
Accounts payable, Contractors, Retention & Escrow Deposit	(887,106)
Accrued payroll	(1,498,041)
Customer deposits	371,764
Net cash provided by operating activities	7,418,247

Guam Waterworks Authority
Accounts Receivable - Government
As of December 31, 2017

SCHEDULE I

		AGING				
Customer Name	**No of Accounts**	**Current Balance**	**31-60 days**	**61-90 days**	**91-120 days**	**Over 120 days**	**Outstanding Bal.**
GUAM INT'L AIRPORT AUTHORITY	10	39,092	40,979	31,619	43,792	178,730	334,213
GUAM POWER AUTHORITY	25	16,990	44,278	30,776	1,000	159,569	252,613
PORT AUTHORITY OF GUAM	1	50,405	43,962	-	-	-	94,367
GUAM MEMORIAL HOSPITAL AUTHORITY	3	34,912	37,847	-	-	-	72,759
GUAM COMMUNITY COLLEGE	3	9,307	5,159	-	-	-	14,465
UNIVERSITY OF GUAM	4	8,014	-	-	-	-	8,014
GUAM HOUSING & URBAN RENEWAL AUTHORITY	7	2,033	-	-	-	92	2,125
GUAM HOUSING CORPORATION	1	31	-	-	-	-	31
AUTONOMOUS AGENCIES	**54**	**160,781**	**172,225**	**62,395**	**44,793**	**338,392**	**778,586**
DEPT OF EDUCATION	50	228,680	199,692	33,997	50,336	79,697	592,401
DEPT OF PARKS & RECREATION	21	28,062	27,869	195,408	49,703	157,403	458,445
DEPT OF CORRECTIONS	8	132,921	53	-	-	-	132,975
DEPT OF PUBLIC HEALTH & SOCIAL SERVICES	4	1,258	1,117	639	426	103,629	107,069
DEPT OF CHAMORRO AFFAIRS	7	6,209	6,762	9,021	5,000	-	26,992
MAYORS' COUNCIL OF GUAM	41	11,622	118	6	-	-	11,746
GUAM FIRE DEPARTMENT	11	9,196	-	-	-	-	9,196
DEPT OF YOUTH AFFAIRS	4	1,285	25	154	3,872	-	5,336
DEPT OF PUBLIC WORKS	9	5,099	-	-	-	-	5,099
SANCTUARY INC	1	4,449	-	-	-	-	4,449
DEPT OF MILITARY AFFAIRS/GUARNG	1	4,083	-	-	-	-	4,083
OFFICE OF THE GOVERNOR	2	3,209	-	-	-	-	3,209
DEPT OF MENTAL HEALTH AND SUBTANCE	3	2,263	-	-	-	-	2,263
DEPT OF AGRICULTURE	2	1,700	-	-	-	-	1,700
DEPT OF ADMINISTRATION	2	583	146	137	134	628	1,628
NEW GUAM MENTAL HEALTH	1	904	-	-	-	-	904
GHURA-AGAFU GUMAS PARK	1	26	38	28	47	755	895
GUAM POLICE DEPARTMENT	2	855	-	-	-	-	855
DIVISION OF SENIOR CITIZENS, DPH&SS	2	316	151	140	60	-	667
GUAM PUBLIC LIBRARY	3	134	-	-	-	-	134
GUAM VETERANS AFFAIRS OFFICE	1	103	-	-	-	-	103
THE OFFICE OF THE DEDEDO MAYOR	1	43	-	-	-	-	43
MERIZO MAYOR	1	25	-	-	-	-	25
GUAM SOLID WASTE AUTHORITY	1	24	-	-	-	-	24
							-
LINE AGENCIES	**179**	**443,047**	**235,972**	**239,531**	**109,578**	**342,112**	**1,370,240**
TOTAL December 31, 2017	**233**	**603,829**	**408,197**	**301,926**	**154,370**	**680,504**	**2,148,826**
TOTAL September 30, 2017	**253**	**715,578**	**442,522**	**169,120**	**72,476**	**396,347**	**1,796,043**
% INCREASE/ (DECREASE)	**-8%**	**-16%**	**-8%**	**79%**	**113%**	**72%**	**20%**

GUAM WATERWORKS AUTHORITY
2013 Series Bond Project Status
As of Dec. 31, 2017

SCHEDULE J

PROJECT NAME	ORIGINAL APPROVED PROJECT COST	Adjusted Project Cost	EXPENDITURES AS OF 12/31/17	OUTSTANDING ENCUMBRANCES	TOTAL EXPENDITURES AND ENCUMBRANCES	UNOBLIGATED PROJECT COST	Construction fund balance AS OF 12/31/17
Santa Rita Springs Booster Pump Rehab Phase II	$ 100,000	$ 100,000	61,482	38,518	$ 100,000	$ -	$ 38,518
"A" Series Well Transmission Line	$ 400,000	$ 400,000	314,479	55,367	$ 369,846	$ 30,154	$ 85,521
Water Booster Pump Station	$ 6,000,000	$ 1,861,000	1,656,428	23,536	$ 1,679,964	$ 181,036	$ 204,572
Meter Replacement Program		$ 999,000	996,532	-	$ 996,532	$ 2,468	$ 2,468
Barrigada Tank Repair/Replacement	$ 6,000,000	$ 4,987,000	4,924,959	62,041	$ 4,987,000	$ 0	$ 62,041
Leak Detection	$ 100,000	$ 20,000	16,916	-	$ 16,916	$ 3,084	$ 3,084
Potable Water System Planning	$ 800,000	$ 624,000	598,825	25,175	$ 624,000	$ -	$ 25,175
Implement Ground Water Rule	$ 1,000,000	$ 1,000,000	1,000,000	-	$ 1,000,000	$ -	$ -
Deep Well Rehabilitation	$ 800,000	$ 200,000	189,930	10,071	$ 200,000	$ (0)	$ 10,070
New Deep Wells at Down Hard	$ 2,000,000	$ 810,000			$ -	$ 810,000	$ 810,000
Master Meters	$ 4,000,000	$ 784,000	531,188	180,872	$ 712,060	$ 71,940	$ 252,812
Ugum Water Treatment Plant Intake	$ 1,000,000	$ 982,000	578,858	280,943	$ 859,801	$ 122,199	$ 403,142
Water Wells	$ 4,200,000	$ 4,200,000	2,284,474	745,555	$ 3,030,029	$ 1,169,971	$ 1,915,527
Water Distribution System	$ 12,000,000	$ 11,151,000	4,602,272	4,444,588	$ 9,046,860	$ 2,104,140	$ 6,548,728
Pressure Zone Realignment /	$ 1,000,000	$ 431,000	336,036	1,074	$ 337,110	$ 93,890	$ 94,964
Mechanical/Electrical Equipment	$ 430,000	$ 430,000	328,686	98,112	$ 426,798	$ 3,202	$ 101,314
Water Reservoir Internal/External	$ 800,000	$ -			$ -	$ -	$ -
Water System Reservoirs 2005 Improvements	$ 21,000,000	$ 13,878,000	10,597,654	3,152,159	$ 13,749,814	$ 128,187	$ 3,280,346
Ugum Water Treatment Plant Reservoir	$ 7,000,000	$ 90,000			$ -	$ 90,000	$ 90,000
Agana Heights & Chaot Tanks	$ 4,500,000	$ 3,280,000	233,265	847,022	$ 1,080,287	$ 2,199,713	$ 3,046,735
Tank Major Repair Yigo#1 Mangilao#2 Agat#2	$ 13,500,000	$ 11,605,000	1,167,648	10,437,352	$ 11,605,000	$ 0	$ 10,437,353
Tank Major Repair Yigo#1 Mangilao#2 Agat#2	$ 8,000,000	$ -			$ -	$ -	$ -
Assessment of maloilol Elevetad & Yigo Elevated	$ 500,000	$ 485,117	461,813	23,304	$ 485,117	$ -	$ 23,304
Fire Hydrant Replacement Program	$ -	$ -			$ -	$ -	$ -
		$ -					
Wastewater System Planning	$ 800,000	$ 651,000	550,480	100,520	$ 651,000	$ (0)	$ 100,520
Lift Station Upgrades	$ 5,000,000	$ 946,000	562,108	363	$ 562,471	$ 383,529	$ 383,892
Wastewater Collection System Repl/Rehab	$ 6,500,000	$ 780,000	476,682	168,631	$ 645,314	$ 134,687	$ 303,318
Baza Gardens STP Replacement		$ 3,114,883	936,401	2,178,467	$ 3,114,869	$ 15	$ 2,178,482
Facilities Plan/Design for Umatac-Merizo WWTP		$ 473,000	335,000	36,699	$ 371,699	$ 101,301	$ 138,000
Agat/Santa Rita STP Replacement	$ 19,000,000	$ 67,200,000	33,195,183	34,004,817	$ 67,200,000	$ 0	$ 34,004,817
Agana WWTP Interim Measures		$ 673,000	548,597	124,403	$ 673,000	$ (0)	$ 124,403
Umatac Merizo Replacement	$ 2,000,000	$ -			$ -	$ -	$ -
		$ -					
Wastewater Pump Station Electrical Upgrade	$ 620,000	$ 620,000	91,348	8,513	$ 99,861	$ 520,139	$ 528,652
Electrical Upgrade - Water Wells	$ 1,500,000	$ 1,500,000	1,480,769	19,230	$ 1,500,000	$ 0	$ 19,231
Electrical Upgrade - Water Booster	$ 325,000	$ 2,000			$ -	$ 2,000	$ 2,000
Electrical Upgrade -Water Booster	$ 350,000	$ 200,000	977	-	$ 977	$ 199,023	$ 199,023
Electrical Upgrade - Other Water	$ 250,000	$ 150,000	60,700	-	$ 60,700	$ 89,300	$ 89,300
SCADA Improvements – Phase 3	$ 1,850,000	$ 923,000	427,949	294,410	$ 722,359	$ 200,641	$ 495,051
SCADA Improvements – Phase 4	$ 500,000	$ -			$ -	$ -	$ -
		$ -					$ -
Laboratory Modernization	$ 1,500,000	$ 1,173,000	1,155,875	15,590	$ 1,171,465	$ 1,535	$ 17,125
Land Survey	$ 2,000,000	$ 2,000	1,038	15	$ 1,053	$ 948	$ 963
General Plant Improvements / Water	$ 2,000,000	$ 2,600,000	1,265,043	1,176,695	$ 2,441,737	$ 158,263	$ 1,334,957
Allowance for COI							$ 275,005
Interest Earned							$ 355,516
Total Construction Fund	**$ 139,325,000**	**$ 139,325,000**	**$ 71,969,595**	**$ 58,554,042**	**$ 130,523,637**	**$ 8,801,363**	**$ 67,985,926**

PUC's Docket 14-04 dated February 25, 2014

GUAM WATERWORKS AUTHORITY
2014 Series Refunded Bond Project Status
As of Dec. 31, 2017

SCHEDULE K

PROJECT NAME	ORIGINAL APPROVED PROJECT	ADJUSTED PROJECT COST	EXPENDITURES AS OF 12/31/17	OUTSTANDING ENCUMBRANCES	TOTAL EXPENDITURES AND ENCUMBRANCES	UNOBLIGATED PROJECT COST	20% PUC AS OF 12/31/17	Construction fund balance AS OF 12/31/17
Agana Treatment Plant	$ 10,475,000	$ 11,065,512	11,065,512	$ -	$ 11,065,512	$ (0)	$ 2,095,000	$ (0)
								$ -
Agana Outfall	$ 5,030,000	$ 10,127,198	10,127,198	$ -	$ 10,127,198	$ 0	$ 1,006,000	$ 0
								$ -
								$ -
Northern District (Outfall)	$ 4,700,000	$ 10,251,423	10,251,423	$ -	$ 10,251,423	$ 0	$ 940,000	$ 0
Northern District WWTP Upgrade		$ 173,681	173,681		$ 173,681	$ -		$ -
Northern Treatment Plant		$ -	-		$ -	$ -		$ -
Baza Gardens Wastewater Treatment Plant	$ 500,000	$ 297,177	297,177	$ -	$ 297,177	$ (0)	$ 100,000	$ (0)
Interim Disinfection Facilities	$ 581,000	$ 3,437,311	3,408,599	$ 28,712	$ 3,437,311	$ (0)	$ 116,200	$ 28,712
						$ -		$ -
Electrical Protection	$ 1,000,000	$ 1,512,483	1,512,483.3	$ -	$ 1,512,483	$ (0)	$ 200,000	$ (0)
Well Vulnerability Reduction	$ 600,000	$ 185,522	185,522	$ -	$ 185,522	$ 0	$ 120,000	$ 0
Old Agat Wastewater Collection (I/I Reductic	$ 2,155,000	$ 1,931,659	1,931,659	$ -	$ 1,931,659	$ (0)	$ 431,000	$ (0)
				$ -		$ -		$ -
Chaot WW Pump Station/Collection System	$ 410,000	$ 399,120	399,120	$ -	$ 399,120	$ -	$ 82,000	$ -
Lift Station Upgrades	$ 230,000	$ 149,895	149,895	$ -	$ 149,895	$ 0	$ 46,000	$ 0
Collection Line Upgrades	$ 200,000	$ 62,755	62,755	$ -	$ 62,755	$ 0	$ 40,000	$ 0
"A" Well Transmission Line	$ 2,413,000	$ 3,833,175	3,790,888	$ 42,287	$ 3,833,175	$ (0)	$ 482,600	$ 42,287
					$ -	$ -		$ -
Santa Rita Springs - Booster Pump Rehab.	$ 648,000	$ 306,841	306,841	-	$ 306,841	$ (0)	$ 129,600	$ (0)
						$ -	$ -	$ -
Fena Bypass Transmission line		$ 160,913	160,913	$ -	$ 160,913	$ (0)	$ -	$ (0)
Storage Additions	$ 950,000	$ -			$ -	$ -	$ 190,000	$ -
Booster Station Upgrades	$ 390,000	$ 66,734	66,734	$ -	$ 66,734	$ -	$ 78,000	$ -
Mangilao Tank Repair	$ 800,000	$ 398,367	397,933	$ 434	$ 398,367	$ (0)	$ 160,000	$ 434
Ugum Tank Replacement	$ 2,500,000	$ -			$ -	$ -	$ 500,000	$ -
Ugum WTPlant Refurbishment ($1.724,970EPA)		$ 6,588,473	6,531,525	$ 56,949	$ 6,588,473	$ (0)		$ 56,948
Barrigada Tank Repair/Replacement	$ 3,000,000	$ 65,019	65,019	$ -	$ 65,019	$ 0	$ 600,000	$ 0
						$ -		$ -
Water Reservoir Condition Assessment		$ 1,250,000	1,249,227.16	$ 772	$ 1,250,000	$ 0	$ -	$ 773
EarthTech Well Buyout	$ 5,000,000	$ 5,975,000	5,975,000	$ -	$ 5,975,000	$ -	$ 1,000,000	$ -
Water Wastewater Master Plan	$ 4,900,000	$ 4,881,308	4,881,308	$ -	$ 4,881,308	$ 0	$ 980,000	$ 0
Laboratory Modernization	$ 800,000	$ 135,055	135,055	$ -	$ 135,055	$ 0	$ 160,000	$ 0
Land Survey	$ 800,000	$ 577,836	576,134	$ 1,702	$ 577,836	$ 0	$ 160,000	$ 1,702
Ground Water Disinfection		$ -				$ -		$ -
GWUDI Study		$ 262,234	260,430	1,804	$ 262,234	$ -		$ 1,804
						$ -		$ -
Contingency	$ 12,276,023	$ 154	-	$ -	$ -	$ -		$ 732
						$ -		$ -
						$ -		$ -
						$ -		$ -
						$ -		$ -
						$ -		$ -
Vehicles	$ 1,100,000	$ 1,280,000	2,130,305	$ (850,305)	$ 1,280,000	$ -	$ 220,000	$ -
Generation Equipment	$ 700,000	$ 880,000	2,712	$ 877,288	$ 880,000	$ 0		$ 27,033
Leak Detection/Line Replacement	$ 8,200,000	$ 5,988,494	5,988,494	$ -	$ 5,988,494	$ -	$ 1,640,000	$ -
						$ -		$ -
						$ -		$ -
Automated Meter Reading	$ 12,572,063	$ 17,468,359	16,870,522	$ 537,157	$ 17,468,359.32	$ 0	$ 2,514,413	$ 597,837
Total Construction Fund	$ 82,930,086	$ 89,711,698	88,891,990	$ 758,873.38	$ 89,711,543	$ 1	$ 13,990,813	$ 758,263
Interest Earned	$ 6,781,612	$ (0)				$ (0)		$ 3,435
Total Project Cost Funding	**$ 89,711,698**	**$ 89,711,698**	**88,891,990**	**$ 758,873.38**	**$ 89,711,543**	**$ 1**	**$ 13,990,813**	**$ 761,698**

GUAM WATERWORKS AUTHORITY
2016 Series Bond Project Status
As of Dec. 31, 2017

SCHEDULE L

PROJECT NAME	ORIGINAL APPROVED PROJECT COST	Adjusted Project Cost	EXPENDITURES AS OF 12/31/17	OUTSTANDING ENCUMBRANCES	TOTAL EXPENDITURES AND ENCUMBRANCES	UNOBLIGATED PROJECT COST	Construction fund balance AS OF 12/31/17
Water Booster Pump Station	$ 4,139,000	$ 4,139,000			$ -	$ 4,139,000	$ 4,139,000
Meter Replacement Program	$ 4,501,000	$ 4,501,000		150,000.00	$ 150,000	$ 4,351,000	$ 4,501,000
Barrigada Tank Repair/Replacement	$ 1,013,000	$ 1,013,000		-	$ -	$ 1,013,000	$ 1,013,000
Leak Detection	$ 1,180,000	$ 1,180,000		-	$ -	$ 1,180,000	$ 1,180,000
Potable Water System Planning	$ 2,276,000	$ 2,276,000	159,105	261,339.91	$ 420,445	$ 1,855,555	$ 2,116,895
Deep Well Rehabilitation	$ 250,000	$ 250,000		-	$ -	$ 250,000	$ 250,000
New Deep Wells at Down Hard	$ 1,190,000	$ 1,190,000			$ -	$ 1,190,000	$ 1,190,000
Master Meters	$ 3,616,000	$ 3,616,000		39,339.84	$ 39,340	$ 3,576,660	$ 3,616,000
Ugum Water Treatment Plant Intake	$ 18,000	$ 18,000			$ -	$ 18,000	$ 18,000
Water Wells	$ 2,500,000	$ 2,500,000			$ -	$ 2,500,000	$ 2,500,000
Water Distribution System	$ 2,049,000	$ 49,000			$ -	$ 49,000	$ 49,000
Pressure Zone Realignment /	$ 1,141,000	$ 1,141,000			$ -	$ 1,141,000	$ 1,141,000
Mechanical/Electrical Equipment	$ 100,000	$ 100,000			$ -	$ 100,000	$ 100,000
Water Reservoir Internal/External	$ 800,000	$ 800,000			$ -	$ 800,000	$ 800,000
Water System Reservoirs 2005 Improvements	$ 42,350,000	$ 28,350,000	880,346	2,341,592.76	$ 3,221,939	$ 25,128,062	$ 27,469,654
Ugum Water Treatment Plant Reservoir	$ 6,410,000	$ -			$ -	$ -	$ -
Water Audit Program & Water Loss Control Plan	$ 1,000,000	$ 1,000,000				$ 1,000,000	$ 1,000,000
Agana Heights & Chaot Tanks	$ 1,220,000	$ 1,220,000			$ -	$ 1,220,000	$ 1,220,000
Tank Major Repair Yigo#1 Mangilao#2 Agat#2	$ 1,895,000	$ 1,895,000			$ -	$ 1,895,000	$ 1,895,000
Tank Major Repair Yigo#1 Mangilao#2 Agat#2	$ 10,500,000	$ 7,409,830		1,822,132.80	$ 1,822,133	$ 5,587,697	$ 7,409,830
Fire Hydrant Replacement Program	$ 2,000,000	$ 2,000,000			$ -	$ 2,000,000	$ 2,000,000
						$ -	
Wastewater System Planning	$ 349,000	$ 349,000	30,708	263,222.72	$ 293,931	$ 55,069	$ 318,292
Lift Station Upgrades	$ 2,404,000	$ 2,404,000	64,755	166,039.41	$ 230,794	$ 2,173,206	$ 2,339,245
Wastewater Collection System Repl/Rehab	$ 2,920,000	$ 2,920,000			$ -	$ 2,920,000	$ 2,920,000
Baza Gardens STP Replacement	$ 16,700,000	$ 29,400,170	6,683,340	22,098,709.16	$ 28,782,050	$ 618,120	$ 22,716,830
Facilities Plan/Design for Umatac-Merizo WWTP	$ 527,000	$ 527,000	190,947	59,839.09	$ 250,786	$ 276,214	$ 336,053
Agat/Santa Rita STP Replacement	$ 3,000,000	$ 3,000,000	485,024	199,334.53	$ 684,358	$ 2,315,642	$ 2,514,976
Agana WWTP Interim Measures	$ 827,000	$ 827,000			$ -	$ 827,000	$ 827,000
Umatac Merizo Replacement	$ 8,000,000	$ 20,800,000	2,301,795	18,465,113.96	$ 20,766,909	$ 33,091	$ 18,498,205
						$ -	
Wastewater Pump Station Electrical Upgrade	$ 100,000	$ 100,000			$ -	$ 100,000	$ 100,000
Electrical Upgrade - Water Wells	$ 650,000	$ 650,000			$ -	$ 650,000	$ 650,000
Electrical Upgrade - Water Booster	$ 323,000	$ 323,000			$ -	$ 323,000	$ 323,000
SCADA Improvements – Phase 3	$ 1,177,000	$ 1,177,000	18,000	505,421.60	$ 523,422	$ 653,578	$ 1,159,000
SCADA Improvements – Phase 4	$ 6,500,000	$ 6,500,000			$ -	$ 6,500,000	$ 6,500,000
						$ -	
Laboratory Modernization	$ 1,127,000	$ 1,127,000	1,127,000	-	$ 1,127,000	$ -	$ -
Land Survey	$ 1,998,000	$ 1,998,000	14,147	1,246,376.39	$ 1,260,524	$ 737,476	$ 1,983,853
General Plant Improvements / Water	$ 2,769,463	$ 2,769,463	230,230	1,139,202.60	$ 1,369,432	$ 1,400,031	$ 2,539,233
Information Technology Integration Improvements	$ 500,000	$ 500,000	244,068	-		$ 500,000	$ 255,932
Interest Earned		$ -					$ 523,666
		$ -					
Total Construction Fund	**$ 140,019,463**	**$ 140,019,463**	**$ 12,429,466**	**$ 48,757,665**	**$ 60,943,062**	**$ 79,076,401**	**$ 128,113,664**

GUAM WATERWORKS AUTHORITY
2017 Series Refunded Bond Project Status
As of Dec. 31, 2017

SCHEDULE M

PROJECT NAME	ORIGINAL APPROVED PROJECT COST	Adjusted Project Cost	EXPENDITURES AS OF 12/31/17	OUTSTANDING ENCUMBRANCES	TOTAL EXPENDITURES AND ENCUMBRANCES	UNOBLIGATED PROJECT COST	Construction fund balance AS OF 12/31/17
Ground Water Disinfection	$ -	$ 500,000	$ 438,141	$ 61,859	$ 500,000	$ 0	$ 61,859
"A" Series Well Transmission Line	$ 600,000	$ 518,144	$ 474,434	$ 1,274	$ 475,709	$ 42,435	$ 43,710
Water Booster Pump Station	$ 500,000	$ 500,000	$ 418,844	$ 81,156	$ 500,000	$ (0)	$ 81,156
Meter Replacement Program	$ 2,500,000	$ 10,300,000	$ 10,254,220	$ 19,409	$ 10,273,628	$ 26,372	$ 45,780
Barrigada Tank Repair/Replacement	$ -	$ 5,450,000	$ 5,442,302	$ 7,698	$ 5,450,000	$ 0	$ 7,698
Leak Detection		$ 200,000	$ -	$ 200,000	$ 200,000	$ -	$ 200,000
Potable Water System Planning	$ 200,000	$ 200,000	$ 179,638	$ 20,362	$ 200,000	$ -	$ 20,362
Implement Ground Water Rule		$ 1,700,000	$ 1,499,464	$ 200,535	$ 1,700,000	$ 1	$ 200,536
Brigade II (Ugum Lift) BPS Upgrade	$ 1,200,000	$ 1,700,000	$ 135,695	$ 202,199	$ 337,895	$ 1,362,105	$ 1,564,305
Deep Well Rehabilitation	$ 548,000	$ 548,000	$ 548,000	$ -	$ 548,000	$ -	$ -
New Deep Wells at Down Hard	$ 3,773,000	$ 638,252	$ 485,743	$ -	$ 485,743	$ 152,509	$ 152,509
Rehabilitation of Asan Springs	$ 900,000	$ 900,000	$ 188,771	$ 152,068	$ 340,838	$ 559,162	$ 711,229
Master Meters	$ 1,600,000	$ 1,600,000	$ 1,421,267	$ 68,690	$ 1,489,957	$ 110,043	$ 178,733
Ugum Water Treatment Plant Intake	$ 3,670,000	$ 700,000	$ 543,615	$ 156,385	$ 700,000	$ -	$ 156,385
Water Wells	$ 2,000,000	$ -	$ -		$ -	$ -	$ -
Water Distribution System	$ 384,000	$ 3,174,748	$ 3,174,748	$ -	$ 3,174,748	$ (0)	$ (0)
Pressure Zone Realignment /	$ 3,550,000	$ -	$ -		$ -	$ -	$ -
Northern System Water Distribution	$ 2,725,000	$ -	$ -	$ -	$ -	$ -	$ -
Central Water Distribution System 2005	$ 1,200,000	$ 900,000	$ 692,926	$ 82,076	$ 775,002	$ 124,998	$ 207,074
Southern Water Distribution System	$ 1,800,000	$ -	$ -		$ -	$ -	$ -
Mechanical/Electrical Equipment	$ 1,360,000	$ 1,200,000	$ 1,079,495	$ 120,505	$ 1,200,000	$ (0)	$ 120,505
Water Reservoir Internal/External	$ 500,000	$ 2,000,000	$ 970,439	$ 538,944	$ 1,509,384	$ 490,616	$ 1,029,561
Water Reservoir Internal/External	$ 2,400,000	$ -	$ -		$ -	$ -	$ -
Water System Reservoirs 2005 Improvements	$ 11,697,000	$ 1,050,000	$ 1,050,000		$ 1,050,000	$ 0	$ 0
Distribution System Upgrades	$ 3,182,000	$ 474,160	$ 451,462	$ 22,698	$ 474,160	$ 0	$ 22,698
Ugum Water Treatment Plant Reservoir	$ 3,672,000	$ -	$ -		$ -	$ -	$ -
Water Audit Program & Water Loss Control Plan		$ 100,000	$ 15,031	$ 63,428	$ 78,459	$ 21,541	$ 84,970
Production Plan / Reduce Navy Purchases		$ 100,000	$ 94,286	$ 5,714	$ 100,000	$ -	$ 5,714
Hydraulic Asessment of Tank		$ 500,000	$ 497,004	$ 2,996	$ 500,000	$ -	$ 2,996
Agana Heights & Chaot Tanks		$ 4,700,000	$ 4,327,370	$ 372,630	$ 4,700,000	$ -	$ 372,630
Tank Major Repair Yigo#1 Mangilao#2 Agat#2		$ 1,900,000	$ 1,750,355	$ 97,659	$ 1,848,013	$ 51,987	$ 149,645
Tank Major Repair Yigo#1 Mangilao#2 Agat#2		$ -			$ -	$ -	$ -
Assessment of malojloj Elevetad & Yigo Elevated		$ 200,000	$ 200,000	$ -	$ 200,000	$ -	$ -
Public Water System Asser Inventory/Condition Assesment		$ 100,000	$ 96,554	$ 3,446	$ 100,000	$ -	$ 3,446
Public Water System GIS & Mapping		$ 50,000	$ 50,000	$ -	$ 50,000	$ -	$ -
		$ -			$ -	$ -	$ -
Wastewater System Planning	$ 1,500,000	$ 1,500,000	$ 1,465,858	$ 8,142	$ 1,474,000	$ 26,000	$ 34,142
Wastewater Vehicles	$ 235,000	$ 235,000	$ 209,795	$ 25,205	$ 235,000	$ 0	$ 25,205
NDWWTP - Chlorine Tanks	$ 250,000	$ 250,000	$ 250,000		$ 250,000	$ -	$ -
Tumon Bay Sewer Upgrades	$ 100,000	$ -	$ -		$ -	$ -	$ -
Wastewater Collection System Repl/Rehab		$ 1,105,000	$ 718,036	$ 283,287	$ 1,001,323	$ 103,677	$ 386,964
Facilities Plan/Design for Baza Gardens WWTP	$ 1,250,000	$ 1,250,000	$ 1,239,250	$ 10,750	$ 1,250,000	$ -	$ 10,750
Facilities Plan/Design for Agat-Santa Rita WWTP	$ 900,000	$ 899,630	$ 881,749	$ 17,881	$ 899,630	$ -	$ 17,881
Priority 1 Sewer Upgrades – Baza Gardens WWTP	$ 650,000	$ -	$ -		$ -	$ -	$ -
Baza Gardens STP Replacement	$ 3,567,000	$ 1,301,947	$ 316,686	$ 314	$ 317,000	$ 984,947	$ 985,261
Facilities Plan/Design for Umatac Merizo WWTP		$ 900,000	$ 693,161	$ 160,696	$ 853,858	$ 46,142	$ 206,839
Agat/Santa Rita STP Replacement	$ 2,968,000	$ 2,218,000	$ 2,215,591	$ 2,109	$ 2,217,701	$ 300	$ 2,409
Northern District WWTP Primary Treatment Upgrades	$ -	$ 11,750,000	$ 11,532,253	$ 211,261	$ 11,743,514	$ 6,486	$ 217,747
Biosolids Management Plan		$ 200,000	$ 196,414	$ 3,586	$ 200,000	$ -	$ 3,586
Agana WWTP Interim Measures	$ -	$ 11,500,000	$ 11,242,386	$ 57,614	$ 11,300,000	$ 200,000	$ 257,614
I&I SSES Southern		$ 800,000	$ 733,872	$ 66,129	$ 800,000	$ (0)	$ 66,128
I&I SSES Central		$ 850,000	$ 794,325	$ 55,675	$ 850,000	$ -	$ 55,675
I&I SSES Northern		$ -			$ -	$ -	$ -
Umatac Merizo Replacement		$ 250,000	$ 247,431	$ 2,569	$ 250,000	$ -	$ 2,569
Northern District WWTP Secondary Treatment Upgrades		$ 1,000,000					$ 1,000,000
		$ -					
Well Electrical Protection	$ 26,000	$ -	$ -		$ -	$ -	$ -
SCADA Pilot Project	$ 300,000	$ 61,950	$ 19,812	$ 42,138	$ 61,950	$ (0)	$ 42,138
Electrical Upgrade - Water Wells	$ 3,000,000	$ 354,227	$ 335,378	$ 18,849	$ 354,227	$ 0	$ 18,849
Electrical Upgrade - Water Booster	$ 325,000	$ -	$ -		$ -	$ -	$ -
Electrical Upgrade -Water Booster	$ 350,000	$ -	$ -		$ -	$ -	$ -
Electrical Upgrade - Other Water	$ 250,000	$ -			$ -	$ -	$ -
SCADA Improvements – Phase 1	$ 250,000	$ 250,000	$ 193,989	$ 56,011	$ 250,000	$ -	$ 56,011
SCADA Improvements – Phase 2	$ 1,100,000	$ 1,056,986	$ 1,027,424	$ 29,562	$ 1,056,986	$ -	$ 29,562
SCADA Improvements – Phase 3	$ 2,500,000	$ 24,956	$ 24,956	$ -	$ 24,956	$ 0	$ 0
SCADA Improvements – Phase 4	$ 850,000	$ -	$ -		$ -	$ -	$ -
		$ -					
Laboratory Modernization	$ 1,200,000	$ -	$ -		$ -	$ -	$ -
Land Survey	$ 1,500,000	$ 500,000	$ 470,590	$ 29,097	$ 499,687	$ 313	$ 29,410
General Plant Improvements / Water	$ 14,370,000	$ 7,241,000	$ 7,241,000	$ 0	$ 7,241,000	$ 0	$ 0
Interest Earned							$ 69,423
Total Construction Fund	**$ 87,402,000**	**$ 87,402,000**	**$ 78,529,760**	**$ 3,562,606**	**$ 82,092,366**	**$ 4,309,634**	**$ 8,941,663**

1.) PUC's Docket 11-01 $29,000,000.00 dated 09/19/11authorized GWA for reallocation

2) PUC's Docket 11-01 Reallocation of $23,246,000.00 dated 07/30/12

3) PUC's Dockect Reallocation dated February 2013

GUAM WATERWORKS AUTHORITY
Schedule of Series 2013, 2014 Refunding, 2016 and 2017 Refunding Bond Bank Accounts
As of December 31, 2017

SCHEDULE N

	12/31/2017
BANK OF GUAM	
BOG - Revenue Account	7,169,864
BOG - Operations and Maintenance Reserve	3,083,482
BOG - Operations, Maintenance, Renewal and Replacement Reserve Fund	17,423,213
BOG - Capital Improvement Fund	886,805
BOG - O & M Reserve	13,531,526
BOG - Debt Service Reserve	11,230,272
BOG - CAPEX Reserve	15,478,485
Total BOG Bank Account Balance	**68,803,646**
Series 2013 Bond:	
BOG - Construction Fund	67,985,926
USB - Debt Service Fund	4,671,759
USB - Debt Service Reserve Fund	12,031,688
Total Series 2013 Bond Bank Balance	**84,689,373**
Series 2014 Refunding Bond:	
BOG - Construction Fund	761,698
USB - Debt Service Fund	3,590,622
USB - Debt Service Reserve Fund	7,729,117
Total Series 2014 Refunding Bond Bank Balance	**12,081,437**
Series 2016 Bond:	
BOG - Construction Account	128,113,664
BOG - Capitalized Interest Fund	1,907
USB - Debt Service Fund	3,582,140
USB - Debt Service Reserve Fund	7,588,700
Total Series 2016 Bond Bank Balance	**139,286,411**
Series 2017 Refunding Bond:	
BOG - Construction Account	8,941,663
BOG - Cost of Issuance Fund	56,575
USB - Debt Service Fund	1,505,785
USB - Debt Service Reserve Fund	7,566,460
Total Series 2017 Refunding Bond Bank Balance	**18,070,483**

GUAM WATERWORKS AUTHORITY
"Better Water. Better Lives."
Gloria B. Nelson Public Service Building | 688 Route 15, Mangilao, Guam 96913
P.O. Box 3010, Hagatna, Guam 96932
Tel. No. (671) 300-6846/48 Fax No. (671) 648-3290

Issues for Decision

Resolution No. 11-FY2018:
Relative to the Approval of the Creation of the Leak Detection Technician I, Leak Detection Technician II, Leak Detection Technician Leader and Leak Detection Technician Supervisor positions at the Guam Waterworks Authority.

What is the project's objective and is it necessary and urgent?
The Guam Waterworks Authority (GWA) has determined a need to create the Leak Detection Technician I, Leak Detection Technician II, Leak Detection Technician Leader and Leak Detection Technician Supervisor to identify and reduce non-revenue water through minimizing water leaks affecting services to the community thus increasing revenues. These positions will allow the Water Operations Divisions to efficiently locate and repair all water leaks within the distribution system island-wide.

Currently, employees from the Pressure Line (leak repair) Unit are assigned to leak detection duties in addition to their normal repair responsibilities. There are no dedicated employees assigned to perform water leak detection on a full-time basis. This results in more focus given to reported/observable leaks, and less focus on pro-active background leak detection. Further, the smaller number of leak detections with accompanying repairs as may be required, are addressed only by requests made through other sections via customer reports/complaints of low pressure, and not systematically using a full-time leak detection crew based on system-generated data from the Systems Control Center or Engineering. This work is currently an ancillary responsibility performed by Water Sewer Maintenance Workers, Pumping Stations Operators, or Trades Helpers within the Water Operations Divisions.

Guam's drinking water supply and delivery is dependent on the agency's distribution system and our ability to properly maintain it to provide safe drinking water throughout the community. Undetected leaks within the distribution system pose a threat to the continued supply and delivery of Guam's safe drinking water to the community and contribute significantly to GWA's water loss: It is the agency's goal to identify, and repair these leaks through the creation of these positions as a key component of GWA's water loss control program.

Where is the location?
The Leak Detection Technician series will be organizationally located within the Water Operations (Distribution) Division under the direct supervision and management of the Operations & Maintenance Manager for Water Distribution.

How much will it cost?
There is no cost to create the position.

When will it be completed?
Public Law 28-159, Section 7.0.3 (c) requires GWA to post a petition on their websites for ten (10) days (not including Saturdays, Sundays and government of Guam holidays). After the 10 days posting, the petition can then be forwarded to the CCU for their disposition at any regularly scheduled meeting. GWA has met the posting requirements.

Additionally, Guam law requires notice of such posting to each newspaper of general circulation and broadcasting station which airs regular news programs within Guam.

What is the funding source?
GWA will certify funding for the position available for the filling and retention of its certified, technical and professional newly created position. The funding of this position does not have an impact on the General Fund.

The RFP/BID responses (if applicable): N/A

CONSOLIDATED COMMISSION ON UTILITIES
Guam Power Authority | Guam Waterworks Authority
P.O. Box 2977 Hagatna, Guam 96932 | (671)649-3002 | guamccu.org

RESOLUTION NO. 11-FY2018

RELATIVE TO THE APPROVAL OF THE CREATION OF THE LEAK DETECTION TECHNICIAN SERIES OF POSITIONS

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 ("GWA") is a Guam Public Corporation established and existing under the laws of Guam; and

WHEREAS, the GWA General Manager requests the CCU to approve the creation of the Leak Detection Technician series of positions (Exhibit A); and

WHEREAS, the GWA General Manager requests the CCU to approve the classification standards of the Leak Detection series of positions in the classified status; and

WHEREAS, Public Law 28-112 and 4 GCA §6303 (d) authorizes the creation of positions in Autonomous Agencies and Public Corporations; and

WHEREAS, GWA Personnel Rules and Regulations as amended by Public Law 28-159 Section 3 (C) authorizes the CCU to amend, modify or add a position to the list of certified, technical and professional positions;

NOW BE IT THEREFORE RESOLVED, the Consolidated Commission on Utilities, as the Governing Body of the Guam Waterworks Authority, does hereby approve and authorize the following:

1. The recitals set forth above hereby constitute the findings of the CCU.

2. The creation and the job classification standards for the Leak Detection Technician series of positions in the classified status is hereby approved and attached herein as Exhibit A.
3. The Leak Detection Technician series of positions is hereby added to the certified, technical and professional list of positions at GWA.
4. The authorization of the Leak Detection Technician Series of positions shall become effective January 25th, 2018.

RESOLVED, that the Chairman certified and the Board Secretary attests to the adoption of this Resolution.

DULY AND REGULARLY ADOPTED, this 23rd day of January, 2018.

Certified by:

_____
JOSEPH T. DUENAS
Chairperson

Attested by:

_____
J. GEORGE BAMBA
Secretary

SECRETARY'S CERTIFICATE

I, **J. George Bamba**, Board Secretary of the Consolidated Commission on Utilities as evidenced by my signature above do hereby certify as follows:

The foregoing is a full, true and accurate copy of the resolution duly adopted at a regular meeting by the members of the Guam Consolidated Commission on Utilities, duly and legally held at a place properly noticed and advertised at which meeting a quorum was present and the members who were present voted as follows:

AYES: _____

NAYS: _____

ABSTENTIONS: _____

ABSENT: _____

Exhibit A

LEAK DETECTION TECHNICIAN I

NATURE OF WORK IN THIS CLASS:

Performs routine leak detection monitoring duties independently after initial training and works under close supervision on a variety of more semi-skilled developmental assignments.

ILLUSTRATIVE EXAMPLES OF WORK: (These examples do not list all the duties which may be assigned; any one position may not include all the duties listed)

Performs water leak survey and pinpointing using leak detection equipment to find hidden, unreported leaks in the water distribution system.

Provide report of all locations where water use, meter sounds or possible leak sounds exist.

Review detailed distribution system maps and locate Pressure Reducing Valves (PRVs), forgotten valves, or other system apparatus that might make the suspect sound.

If possible cause of the sound is found, the sound should be isolated and identified.

Create and record found leaks on Computerized Maintenance Management System (CMMS).

Provide GWA Systems Control Center (SCC) and Geographic Information System (GIS) a record of found leaks, utilizing leak detection form and Global Positioning System (GPS) technology.

Assist water maintenance operators, leak repair crews and contractors in locating water leaks daily or during emergency situations.

Responsible for job safety, traffic control, cleanliness and security.

Responsible for maintenance and calibration of all leak detection equipment.

Perform sequential actions to locate leaks by applying knowledge of leak detection practices.

Prepare field reports and documentation of completed tasks.

MINIMUM KNOWLEDGE, ABILITIES AND SKILLS:

Knowledge of water meters, distribution system, valves, hydrants, PRVs, air release valves, distribution system maps and curb stops on customer service connection piping.

Ability to estimate leak flows.

Ability to apply safe work practices on the job.

Ability to work effectively with the public and employees.

Ability to understand and follow oral and written instructions.

Leak Detection Technician I – page 2 of 2

Ability to perform arduous physical tasks and work in strained and awkward positions.

Skill in operating leak detection equipment (acoustic listeners and correlators)

MINIMUM EXPERIENCE AND TRAINING:

A) One (1) year of experience in the water construction, maintenance and repair of water lines and related systems; or

B) Any equivalent combination of experience and training which provides the minimum knowledge, abilities and skills.

NECESSARY SPECIAL QUALIFICATIONS:

Must possess a valid Guam Driver's License

ESTABLISHED: January 2018

JOB EVALUATION POINTS: 363
PAYGRADE: MINIMUM: G2-D $32,336
MAXIMUM: G3-D $33,649

JOSEPH T. DUENAS, Chairman
Consolidated Commission on Utilities

LEAK DETECTION TECHNICIAN II

NATURE OF WORK IN THIS CLASS:

Performs skilled work in the leak detection monitoring.

Employees in this class perform full range of skilled tasks under general supervision a

ILLUSTRATIVE EXAMPLES OF WORK: (These examples do not list all the duties which may be assigned; any one position may not include all the duties listed)

Perform water leak survey and pinpointing using leak detection equipment to find hidden, unreported leaks in the water distribution system.

Provide report of all locations where water use, meter sounds or possible leak sounds exist.

Review detailed distribution system maps and locate Pressure Reducing Valves (PRVs), forgotten valves, or other system apparatus that might make the suspect sound.

If possible cause of the sound is found, the sound should be isolated and identified.

Create and record found leaks on Computerized Maintenance Management System (CMMS).

Provide GWA Systems Control Center (SCC) and Geographic Information System (GIS) a record of found leaks, utilizing leak detection form and Global Positioning System (GPS) technology.

Assist water maintenance operators, leak repair crews and contractors in locating water leaks daily or during emergency situations.

Responsible for job safety, traffic control, cleanliness and security.

Responsible for maintenance and calibration of all leak detection equipment.

Perform sequential actions to locate leaks by applying knowledge of leak detection practices.

Prepare field reports and documentation of tasks completed.

Coordinate with GIS for updates of the plotted leak detection areas and develop programs for infrastructure rehabilitation.

May provide guidance with less skilled workers on assigned tasks.

MINIMUM KNOWLEDGE, ABILITIES AND SKILLS:

Knowledge of water meters, distribution system, valves, hydrants, PRVs, air release valves, distribution system maps and curb stops on customer service connection piping.

Knowledge of maintenance and calibration of leak detection equipment.

Ability to estimate leak flows.

Ability to pinpoint water losses and points of water loss using leak detection equipment to find hidden, unreported leaks in the water distribution system.

Ability to apply safe work practices on the job.

Ability to work effectively with the public and employees.

Ability to understand and follow oral and written instructions.

Ability to perform arduous physical tasks and work in strained and awkward positions.

Skill in operating leak detection equipment (acoustic listeners and correlators)

Skill in the use and maintenance of mechanical equipment, including pumps, power generators, drills, motors, valves and hydrants.

MINIMUM EXPERIENCE AND TRAINING:

A) Two (2) years of experience in the water construction, maintenance and repair of water lines and related systems; or

B) Any equivalent combination of experience and training which provides the minimum knowledge, abilities and skills.

NECESSARY SPECIAL QUALIFICATIONS:

Must possess a valid Guam Driver's License

ESTABLISHED: January 2018

JOB EVALUATION POINTS: 421
PAYGRADE: MINIMUM: I3-A $39,871
MAXIMUM: I4-A $41,490

JOSEPH T. DUENAS, Chairman
Consolidated Commission on Utilities

LEAK DETECTION TECHNICIAN LEADER

NATURE OF WORK IN THIS CLASS:

Leads crew and performs complex skilled work in the leak detection monitoring.

Employees perform full range of complex skilled tasks under general supervision and leads less skilled workers on assigned tasks.

ILLUSTRATIVE EXAMPLES OF WORK: (These examples do not list all the duties which may be assigned; any one position may not include all the duties listed)

Leads in water leak survey and pinpointing using leak detection equipment to find hidden, unreported leaks in the water distribution system.

Provide report of all locations where water use, meter sounds or possible leak sounds exist.

Lead the review detailed distribution system maps and locate Pressure Reducing Valves (PRV's), forgotten valves, or other system apparatus that might make the suspect sound.

If possible cause of the sound is found, the sound should be isolated and identified.

Lead the creation and recording of found leaks on Computerized Maintenance Management System (CMMS).

Provide GWA Systems Control Center (SCC) and Geographic Information System (GIS) a record of found leaks, utilizing leak detection form and Global Positioning System (GPS) technology.

Coordinate the assistance required by water maintenance operators, leak repair crews and contractors in locating water leaks daily or during emergency situations.

Lead job site safety, traffic control, cleanliness and security.

Lead maintenance and calibration of all leak detection equipment.

Perform sequential actions to locate leaks by applying knowledge of leak detection practices.

Lead the preparation of field reports and documentation of completed tasks.

Prepares and provides reports of assigned and completed reports of lower level technicians as requested.

Lead the coordination with GIS for updates of the plotted leak detection areas and develop programs for infrastructure rehabilitation.

MINIMUM KNOWLEDGE, ABILITIES AND SKILLS:

Knowledge of water meters, distribution system, valves, hydrants, PRVs (Pressure Reducing Valve), air release valves, distribution system maps and curb stops on customer service connection piping.

Ability to estimate leak flows.

Knowledge in operating leak detection equipment (acoustic listeners and correlators)

Knowledge in the use and basic maintenance of mechanical equipment, including pumps, power generators, drills, motors, valves and hydrants.

Knowledge to pinpoint water losses and points of water loss using leak detection equipment to find hidden, unreported leaks in the water distribution system.

Ability to maintain leak detection database for water losses and reporting.

Knowledge of maintenance and calibration of leak detection equipment.

Ability to apply safe work practices on the job.

Ability to work effectively with the public and employees.

Ability to understand and follow oral and written instructions.

Ability to perform arduous physical tasks and work in strained and awkward positions.

MINIMUM EXPERIENCE AND TRAINING:

A) Three (3) years of experience in the water construction, maintenance and repair of water lines and related systems; or

B) Any equivalent combination of experience and training which provides the minimum knowledge, abilities and skills.

NECESSARY SPECIAL QUALIFICATIONS:

Possession of a valid Water Distribution or Water Treatment Operator's Certificate Level I; ***and***

Possession of a valid Guam Driver's License;

ESTABLISHED:
JOB EVALUATION POINTS: 553
PAYGRADE: MINIMUM: J5-D $49,821
MAXIMUM: J6-D $51,843

JOSEPH T. DUENAS, Chairman
Consolidated Commission on Utilities

LEAK DETECTION TECHNICIAN SUPERVISOR

NATURE OF WORK IN THIS CLASS:

Supervises lower level leak detection technicians, performs and participates in the leak detection monitoring of the water distribution systems.

ILLUSTRATIVE EXAMPLES OF WORK: (These examples do not list all the duties which may be assigned; any one position may not include all the duties listed)

Provide leadership, supervision and guidance for the line and leak detection section of the Guam Waterworks Authority.

Supervise and implement leak detection projects.

Coach and train assigned staff on leak detection tools, techniques, procedures and best practices.

Communicate scope of work, project milestones and project findings with staff.

Supervise the creation and recording of found leaks on Computerized Maintenance Management System (CMMS).

Provide GWA Systems Control Center (SCC) and Geographic Information System (GIS) a record of found leaks, utilizing leak detection form and Global Positioning System (GPS) technology.

Coordinate the assistance required by water maintenance operators, leak repair crews and contractors in locating water leaks daily or during emergency situations.

Supervise job site safety, traffic control, cleanliness and security.

Supervise maintenance and calibration of all leak detection equipment.

Supervise the preparation of field reports and documentation.

Perform sequential actions to locate leaks by applying knowledge of leak detection practices.

Supervise the coordination with GIS for updates of the plotted leak detection areas and develop programs for infrastructure rehabilitation.

MINIMUM KNOWLEDGE, ABILITIES AND SKILLS:

Knowledge of water meters, distribution system, valves, hydrants, PRVs (Pressure Reducing Valve), air release valves, distribution system maps and curb stops on customer service connection piping.

Ability to estimate leak flows.

Knowledge in operating leak detection equipment (acoustic listeners and correlators)

Knowledge in the use and basic maintenance of mechanical equipment, including pumps, power generators, drills, motors, valves and hydrants.

Knowledge to pinpoint water losses and points of water loss using leak detection equipment to find hidden, unreported leaks in the water distribution system.

Knowledge to maintain leak detection database for water losses and reporting.

Knowledge of maintenance and calibration of leak detection equipment.

Ability to apply safe work practices on the job.

Ability to work effectively with the public and employees.

Ability to understand and follow oral and written instructions.

Ability to perform arduous physical tasks and work in strained and awkward positions.

Ability to evaluate operational effectiveness and recommend/implement changes to enhance improvements.

Ability to make work decisions in accordance with appropriate program guidelines.

MINIMUM EXPERIENCE AND TRAINING:

A) Five (5) years of experience in the water construction, maintenance and repair of water lines and related systems, including two (2) years as a leak detection technician leader.

NECESSARY SPECIAL QUALIFICATIONS:

Possession of a valid Water Distribution or Water Treatment Operator's Certificate Level II; ***and***

Possession of a valid Guam Driver's License;

ESTABLISHED: January 2018

JOB EVALUATION POINTS: 734
PAYGRADE: MINIMUM: L3-A $63,219
MAXIMUM: L4-A $65,785

JOSEPH T. DUENAS, Chairman
Consolidated Commission on Utilities

GUAM WATERWORKS AUTHORITY
"Better Water, Better Lives."
Gloria B. Nelson Public Service Building| 688 Route 15 | Mangilao, Guam 96913
Tel: (671) 300-6846

Issues for Decision

Resolution No. 12-FY2018
Relative to Approval of Change Order No. 4 for the Northern and Southern Guam Reservoir Design Services

What is the project's objective and is it necessary and urgent?
The project is part of the 2011 Court Order Paragraph 29 – Storage Tank/Reservoir Repair, Replacement, and Relocation Program. As a Court Order project, it is necessary and urgent to work towards meeting the Court Order deadlines. The project's objective is to provide design services for the Northern and Southern reservoirs, which include the Santa Rosa, Santa Rita, Sinifa, Ugum, and Inarajan.

The Change Order proposal is for the following work:

(1) Santa Rosa: design of new 4,120 LF of 12-inch pipe along Route No. 1 in Yigo.
(2) Santa Rosa: Identification and survey of easements for agreements with DoD.
(3) Agfayan Booster Pump Station: design of pressure reducing valve near original bps site.
(4) Agfayan Booster Pump Station: Investigate 4 lots as new alternatives for the new booster pump station location.
(5) Ugum Reservoir: Investigate a new alternative for the reservoir location. The new alternative involves consolidating 2 lots adjacent and south of the existing plant to provide the site needed for the new reservoir and facilities.
(6) Ugum Reservoir: Existing water treatment plant drainage will be corrected in the new design and plans.
(7) Santa Rita: Incorporate roadway repair in the design. New design to replace existing culvert.
(8) Sinifa: Prepare construction easements and construction support documents for 2 lots.

Where is the location?
Santa Rosa reservoir: located off Route 15 in Yigo
Santa Rita reservoir: located off Obispo Olaiz Street in Santa Rita
Sinifa reservoir: located off Cross Island Road in Santa Rita
Ugum: located off Paulino Street in Inarajan
Inarajan: located off Belen Avenue in Inarajan

How much will it cost?
The fee proposal is for $537,880.25.

When will it be completed?
Santa Rosa work: 90 days
Agfayan BPS: dependent on outcome of investigations
Ugum: dependent on outcome of land owner responses
Santa Rita: 30 days
Sinifa: 60 days

What is the funding source?
The funding shall be from PW 09-11: Water System Reservoirs 2005 Improvements.

The RFP/BID responses (if applicable):
Not Applicable

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. 12–FY2018

RELATIVE TO APPROVAL OF CHANGE ORDER NO. 4 FOR THE NORTHERN AND SOUTHERN GUAM RESERVOIR DESIGN SERVICES

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 ("GWA") is a Guam Public Corporation established and existing under the laws of Guam; and

WHEREAS, GWA is currently working on critical reservoir projects under the 2011 Court Order ("CO") Paragraph 29 – Storage Tank/Reservoir Repair, Replacement, and Relocation Program; and

WHEREAS, The CCU approved via Resolution No. 20-FY2015 (Exhibit A) for GWA management to enter into contract with TG Engineers, P.C. to provide design services for the Northern and Southern Guam Reservoirs, as well as Resolution No. 56-FY2016 (Exhibit B) that approved a Change Order to TG Engineers, P.C. for additional design services that totaled Three Million Eighty-Seven Thousand Thirty-Two Dollars ($3,087,032.00); and

WHEREAS, GWA issued Change Order No. 1 to No. 3 to TG Engineers, P.C. for additional services that were not identified in the original scope of work but subsequently required due to the following:

(1) land acquisition for various project sites;
(2) design for several additions and revisions to the pipe system to complete the pressure zone realignment which includes surveying and environmental service for Santa Rita and Santa Rosa Reservoirs;

(3) design for the new Unified Facilities Criteria ("UFC") structural code requirements for Ugum, Santa Rosa, Santa Rita, and Sinifa Reservoirs, and Inarajan Booster Pump Station that was not in effect at the time of contract execution;

(4) additional land acquisition support for the Government of Guam Chamorro Land Trust (CLTC) property, additional Archaeological and Unexploded Ordinances (UXO) monitoring, and design to include the new GWA-AAFB tank interconnection system for the Santa Rosa Reservoir;

(5) design for new Booster Pump Station and a new Pressure Reducing Valve (PRV) to be added into the system in the vicinity of Agfayan Subdivision in Inarajan as part of the Pressure Zone Realignment plan;

(6) percolation tests to be included at each project site location for drainage basins,

(7) design to incorporate the Siemens controls from the existing Ugum plant to be extended to the new Ugum Reservoir and facilities; and

WHEREAS, in the ongoing design and analysis of the reservoirs and the water system served by the noted reservoirs, further design services listed below were identified as being above and beyond original scope requirements but necessary to move forward with improving the functionality of the water system:

(1) Santa Rosa: design of new 4,120 LF of 12-inch pipe along Route No. 1 in Yigo;

(2) Santa Rosa: Identification and survey of easements for agreements with DoD;

(3) Agfayan Booster Pump Station: design of pressure reducing valve near original bps site;

(4) Agfayan Booster Pump Station: Investigate 4 lots as new alternatives for the new booster pump station location;

(5) Ugum Reservoir: Investigate a new alternative for the reservoir location. The new alternative involves consolidating 2 lots adjacent and south of the existing plant to provide the site needed for the new reservoir and facilities;

(6) Ugum Reservoir: Existing water treatment plant drainage will be corrected in the new design and plans;

(7) Santa Rita: Incorporate roadway repair in the design. New design to replace existing culvert;

(8) Sinifa: Prepare construction easements and construction support documents for 2 lots; and

WHEREAS, GWA engineering and TG Engineers, P.C. negotiated the price for the above services to be provided in the amount of Five Hundred Thirty-Seven Thousand Eight Hundred Eighty Dollars and Twenty-Five Cents ($537,880.25) (See Exhibit C); and

WHEREAS, GWA management is seeking CCU approval of additional funding in the amount of Five Hundred Thirty-Seven Thousand Eight Hundred Eighty Dollars and Twenty-Five Cents ($537,880.25); and

WHEREAS, the approval of the Five Hundred Thirty-Seven Thousand Eight Hundred Eighty Dollars and Twenty-Five Cents ($537,880.25), along with the prior authorized contract value of Three Million Eighty-Seven Thousand Thirty-Two Dollars ($3,087,032.00) will bring the total authorized funding for the design contract with TG Engineers, P.C. to Three Million Six Hundred Twenty-Four Thousand Nine Hundred Twelve Dollars and Twenty-Five Cents ($3,624,912.25); and

WHEREAS, funding for this change order will be from the Bond Funds under the line item "PW 09-11 Water System Reservoirs 2005 Improvements"; and

NOW BE IT THEREFORE RESOLVED, the Consolidated Commission on Utilities does hereby approve the following:

1. The recitals set forth above hereby constitute the findings of the CCU.
2. The CCU finds that the terms of the fee proposal submitted by TG Engineers, P.C. are fair and reasonable (Exhibit C).
3. The CCU authorizes GWA management to execute Change Order No. 4 in the amount of Five Hundred Thirty-Seven Thousand Eight Hundred Eighty Dollars and Twenty-Five Cents ($537,880.25).
4. The CCU hereby further approves increasing the total authorized funding for the design contract with TG Engineers, P.C. to Three Million Six Hundred

Twenty-Four Thousand Nine Hundred Twelve Dollars and Twenty-Five Cents ($3,624,912.25).

5. The CCU hereby further authorizes the funding source to be from bond funds under the CIP line Item PW 09-11 "Water System Reservoirs 2005 Improvements".

RESOLVED, that the Chairman certified and the Board Secretary attests to the adoption of this Resolution.

DULY AND REGULARLY ADOPTED this 23rd day of January 2018.

Certified by: Attested by:

_____ _____

JOSEPH T. DUENAS **J. GEORGE BAMBA**
Chairperson Secretary

SECRETARY'S CERTIFICATE

I, J. George Bamba, Board Secretary of the Consolidated Commission on Utilities as evidenced by my signature above do hereby certify as follows:

The foregoing is a full, true and accurate copy of the resolution duly adopted at a regular meeting by the members of the Guam Consolidated Commission on Utilities, duly and legally held at a place properly noticed and advertised at which meeting a quorum was present and the members who were present voted as follows:

AYES: _____

NAYS: _____

ABSTENTIONS: _____

ABSENT: _____

Exhibit A (1 of 4)

GUAM CONSOLIDATED COMMISSION ON UTILITIES
RESOLUTION NO. 20 – FY2015

RELATIVE TO CONTRACT APPROVAL FOR THE NORTHERN AND SOUTHERN GUAM RESERVOIRS DESIGN SERVICES

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 ("GWA") is a Guam Public Corporation established and existing under the laws of Guam; and

WHEREAS, GWA is currently working on critical reservoir projects under the 2011 Court Order ("CO") Paragraph 29 – Storage Tank/Reservoir Repair, Replacement, and Relocation Program; and

WHEREAS, GWA has advertised the Request For Proposals (RFP-09-ENG-2014) soliciting statement of qualifications from experienced and qualified engineering firms for the preparation of design plans and specifications for the Northern and Southern Guam Reservoirs; and

WHEREAS, the Northern and Southern Guam Reservoir design project includes site investigations and system evaluations at the Santa Rita, Santa Rosa, Inarajan, Sinifa, and Ugum reservoir sites, development of design plans and specifications for various sized concrete reservoirs ranging from 0.2 MG to 2.0 MG nominal capacities, booster station upgrades, instrumentation and control upgrades, control valves upgrades, pipe upgrades, and other general site upgrades; and

WHEREAS, RFP packages were downloaded by forty five (45) interested parties, from which GWA received proposal submittals from ten (10) firms before the RFP submittal deadline; and

Exhibit A (2 of 4)

WHEREAS, the GWA A-E Selection committee reviewed and evaluated the ten (10) proposals (see EXHIBIT A – Evaluation Score) and generated a short list of the top four (4) firms with a recommendation to award a contract to the firm TG Engineers, P.C. and any successor at interest thereto (see EXHIBIT B – Evaluation Summary and GM Determination); and

WHEREAS, TG Engineers, P.C. and GWA negotiated the price for the services to be provided in the amount of Two Million Five Hundred Thirty Two Thousand Five Hundred Eighty Dollars ($2,532,580.00) (see EXHIBIT C – Fee Proposal); and

WHEREAS, GWA management seeks approval of the fee proposal amount of Two Million Five Hundred Thirty Two Thousand Five Hundred Eighty Dollars ($2,532,580.00), plus a ten percent (10%) contingency of Two Hundred Fifty Three Thousand Two Hundred Fifty Eight Dollars ($253,258.00) to bring the total authorized funding amount to a maximum of Two Million Seven Hundred Eighty Five Thousand Eight Hundred Thirty Eight Dollars ($2,785,838.00); and

WHEREAS, funding for this project will be from the 2010 and 2013 Bond Funds under the line items CIP PW 09-11 Water System Reservoirs 2005 Improvements and CIP PW 11-02 Ugum Water Treatment Plant Reservoir Replacement; and

WHEREAS, GWA management recommends that a contract be entered into with TG Engineers, P.C. in the aforementioned base contract amount.

NOW BE IT THEREFORE RESOLVED, the Consolidated Commission on Utilities does hereby approve the following:

1. The recitals set forth above hereby constitute the findings of the CCU.
2. The CCU finds that the terms of the fee proposal submitted by TG Engineers, P.C. is fair and reasonable.

Exhibit A (3 of 4)

3. The CCU finds that the terms of the conditions set by GWA relative to commencement of subsequent work activities are fair and reasonable and serve as a measure of Quality Assurance/Quality Control (QA/QC).
4. The CCU hereby authorizes the management of GWA to enter into a contract with TG Engineers, P.C., in the amount of Two Million Five Hundred Thirty Two Thousand Five Hundred Eighty Dollars ($2,532,580.00).
5. The CCU hereby further approves the total funding amount for this project of Two Million Five Hundred Thirty Two Thousand Five Hundred Eighty Dollars ($2,532,580.00), plus a ten percent (10%) contingency of Two Hundred Fifty Three Thousand Two Hundred Fifty Eight Dollars ($253,258.00) to bring the total authorized funding amount to a maximum of Two Million Seven Hundred Eighty Five Thousand Eight Hundred Thirty Eight Dollars ($2,785,838.00).

RESOLVED, that the Chairman certified and the Board Secretary attests to the adoption of this Resolution.

DULY AND REGULARLY ADOPTED, this 24th day of March 2015.

Certified by:

JOSEPH T. DUENAS
Chairperson

Attested by:

J. GEORGE BAMBA
Secretary

I, J. George Bamba, Board Secretary of the Consolidated Commission on Utilities as evidenced by my signature above do hereby certify as follows:

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Exhibit A (4 of 4)

The foregoing is a full, true and accurate copy of the resolution duly adopted at a regular meeting by the members of the Guam Consolidated Commission on Utilities, duly and legally held at a place properly noticed and advertised at which meeting a quorum was present and the members who were present voted as follows:

AYES: 5

NAYS: 0

ABSTENTIONS: 0

ABSENT: 0

Exhibit B (1 of 4)

GUAM CONSOLIDATED COMMISSION ON UTILITIES

RESOLUTION NO. 56-FY2016

RELATIVE TO APPROVAL OF CHANGE ORDER NO. 2 FOR THE NORTHERN AND SOUTHERN GUAM RESERVOIR DESIGN SERVICES

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 ("GWA") is a Guam Public Corporation established and existing under the laws of Guam; and

WHEREAS, GWA is currently working on critical reservoir projects under the 2011 Court Order ("CO") Paragraph 29 – Storage Tank/Reservoir Repair, Replacement, and Relocation Program; and

WHEREAS, Resolution No. 20-FY2015 (See Exhibit A) authorized GWA management to enter into a contract with TG Engineers, P.C. in the amount of Two Million Five Hundred Thirty Two Thousand Five Hundred Eighty Dollars ($2,532,580.00) to provide design services for the Northern and Southern Guam Reservoirs, which includes:

(1) site investigations and system evaluations at Santa Rosa, Santa Rita, Sinifa, Inarajan, and Ugum reservoir sites, and

(2) development of design plans and specifications for various sized concrete reservoirs ranging from 1.0 MG to 2.0 MG nominal capacities, instrumentation and control upgrades, control valves upgrades, pipe upgrades, new booster station, and other general site and system upgrades; and

WHEREAS, Resolution No. 20–FY2015 further authorized on top of the contract amount a ten percent (10%) contingency of Two Hundred Fifty Three Thousand Two Hundred Fifty Eight Dollars ($253,258.00) bringing the total authorized funding to a maximum of Two

Exhibit B (2 of 4)

Million Seven Hundred Eighty Five Thousand Eight Hundred Thirty Eight Dollars ($2,785,838.00); and

WHEREAS, GWA issued Change Order No. 1 to TG Engineers, P.C. for additional services that were required due to needs for land acquisition for various project sites using the approved contingency funding in the amount of Fifty One Thousand Three Hundred Forty One Dollars and Fifty Cents ($51,341.50) in which the total value of the Contract was increased to Two Million Five Hundred Eighty Three Thousand Nine Hundred Twenty One Dollars and Fifty Cents ($2,583,921.50); and

WHEREAS, in the course of the design and analysis of the reservoirs and the water system served by the noted reservoirs additional design services listed below was identified as being necessary to meet new building code requirement and to improve the functionality of the water systems (See Exhibit B – Scope of Work and Fees):

(1) design for several additions and revisions to the pipe system to complete the pressure zone realignment which includes surveying and environmental services for Santa Rita and Santa Rosa Reservoirs,

(2) design for the new UFC structural code requirements for Ugum, Santa Rosa, Santa Rita and Sinifa Reservoirs; and Inarajan Booster Pump Station,

(3) additional land acquisition support for the Government of Guam Chamorro Land Trust Commission (CLTC) property, additional Archaeological and Unexploded Ordinance (UXO) monitoring, and design to include the new GWA-AAFB tank interconnection system for the Santa Rosa Reservoir,

(4) design for new Booster Pump Station and a new Pressure Reducing Valve (PRV) to be added into the system in the vicinity of Agfayan Subdivision in Inarajan as part of the pressure zone realignment plan,

(5) percolation tests to be included at each project site location for drainage basins,

(6) design to incorporate the Siemens controls from the existing Ugum plant to be extended to the new Ugum Reservoir and facilities; and

Exhibit B (3 of 4)

WHEREAS, GWA engineering and TG Engineers, P.C. negotiated the price for the services to be provided in the amount of Five Hundred Three Thousand One Hundred Ten Dollars and Fifty Cents ($503,110.50); and

WHEREAS, GWA Management is seeking CCU approval of additional funding in the amount of Three Hundred One Thousand One Hundred Ninety Four Dollars ($301,194.00) which is the balance needed above the remaining contingency that will fund Change Order No. 2; and

WHEREAS, GWA Management further seeks CCU approval of the total authorized funding for the design contract with TG Engineers, P.C. to Three Million Eighty Seven Thousand Thirty Two Dollars ($3,087,032.00); and

WHEREAS, funding for this project will be from 2013 and/or 2015 Bond Funds under CIP line item PW 09-11 Water System Reservoirs 2005 Improvements; and

NOW BE IT THEREFORE RESOLVED, the Consolidated Commission on Utilities does hereby approve and authorize the following:

1. The recitals set forth above hereby constitute the findings of the CCU.
2. The CCU finds that the terms of the fee proposal submitted by TG Engineers, P.C. are fair and reasonable.
3. The CCU finds that the terms of the conditions set by GWA relative to commencement of subsequent work activities are fair and reasonable and serve as a measure of Quality Assurance/Quality Control (QA/QC).
4. The CCU hereby authorizes GWA management to execute Change Order No. 2 in the amount of Five Hundred Three Thousand One Hundred Ten Dollars and Fifty Cents ($503,110.50) (Exhibit B).
5. The CCU further approves increasing the total authorized funding for the design contract with TG Engineers, P.C to Three Million Eighty Seven Thousand Thirty Two Dollars ($3,087,032.00);

Exhibit B (4 of 4)

6. Funding source will be CIP PW 09-11 Water System Reservoir 2005 Improvements.

RESOLVED, that the Chairman certified and the Board Secretary attests to the adoption of this Resolution.

DULY AND REGULARLY ADOPTED, this 23rd day of August, 2016.

Certified by:

JOSEPH T. DUENAS
Chairperson

Attested by:

J. GEORGE BAMBA
Secretary

I, J. George Bamba, Board Secretary of the Consolidated Commission on Utilities as evidenced by my signature above do hereby certify as follows:

The foregoing is a full, true and accurate copy of the resolution duly adopted at a regular meeting by the members of the Guam Consolidated Commission on Utilities, duly and legally held at a place properly noticed and advertised at which meeting a quorum was present and the members who were present voted as follows:

AYES: 4

NAYS: 0

ABSTENTIONS: 0

ABSENT: 1

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Exhibit C (1 of 26)

TG ENGINEERS, PC

November 8, 2017

Mr. Miguel Bordallo, PE
General Manager
Guam Waterworks Authority
Gloria B. Nelson Public Service Building, Room 202
688 Route 15
Mangilao, Guam 96913

ATTN: Mr. Brett Railey, PE, Project Manager

RE: PW 09-11 Northern and Southern Guam Reservoirs: GWA Project No. W14-007-BND, Change Order No. 4 – Fee Proposal

Hafa adai Brett,

TG Engineers, PC (TGE) is pleased to submit our updated Scope of Work and Fee Proposal for the reservoir project Change Order No. 4. We are submitting the proposal file in pdf format by email.

Note we have followed the format from the original project proposal and created the general part of the Scope of Work and then have Attachments A – H with the specific scope for each tank and pump station project.

Based on the last review meeting, held with you and Mr. Garrett Yeoh, we have updated the proposal accordingly. The new task which is added is the new road and utility infrastructure that will be required for the Agfayan 4-alternate sites that will be investigated.

We look forward to your favorable review and reaching an agreement on the Scope and Fee. Let us know if we will schedule a final review meeting.

Please call Teena Barnes or myself directly at 647-0808 with any questions.

Si Yu'os Ma'ase,
TG Engineers, PC

Tor Gudmundsen, PE
President

Exhibit C (2 of 26)

GWA SOW & FEE
11/8/2017

Attachments:
Scope of Work
Dated 11/08/17, 15-pages

Fee Proposal Spreadsheets
Dated 11/08/17, 9-pages

Exhibit C (3 of 26)

TG Engineers, PC

DESIGN OF NORTHERN AND SOUTHERN GUAM RESERVOIRS, PROJECT NO. 2
CHANGE ORDER NO. 4 – SCOPE OF WORK

1. INTRODUCTION

TG Engineers, PC (TGE) is under contract with the Guam Waterworks Authority (GWA) for the Design of Northern and Southern Guam Reservoirs. The work completed to date varies for each site and is listed as follows.

- Ugum – Basis of Design Report
- Santa Rita – 90% Design Submittal
- Santa Rosa – 100% Design Submittal (Dod Intertie at 60%)
- Sinifa – 90% Design Submittal
- Inarajan Reservoir – Cancelled
- Agfayan Booster Pump Station – New Facility
- Inarajan Booster Pump Station – BOD complete and pending the Agfayan BOD to combine projects

Change Orders 1.0 – 3.0 have been processed and include the following.

- Change Order No. 1 – processed for land acquisition support services. No schedule changes.
- Change Order No. 2 – processed for additional engineering services. Schedule extended 387-days to 4/14/2017.
- Change Order No. 3 – processed for a time extension. Schedule extended 630-days to 1/04/2019.

Change Order No. 4 is proposed with the Scope of Work as follows.

2. SCOPE OF SERVICES

2.1 GENERAL DESCRIPTION OF SERVICES

A. Project Management Services

Team members will join Bi-weekly progress meetings for the 21-month time extension, ending 1/04/2019.

B. Pressure Zone Re-alignment

The Brown & Caldwell Report, Pressure Zone Realignment and Pressure Improvement Report, June 2017 includes several additions and revisions to the pipe system to complete the pressure zone re-alignment within the project areas. The changes are described as follows.

B1 – Santa Rosa (note scope for Details 1 & 2 are included in CO#2)

1) Detail 4 - Install an 8-inch valve on the existing line approx. 500-ft NW of Chalan Bernadita and construct 1-jumper line to connect existing 8-inch lines at the Chalan

Bernadita / Route 9 intersection. The work is located in public ROW or utility easement areas.

2) Detail 5 – install an 8-inch valve on the existing 8-inch line along Route 9, near Chalan Bada.
3) Details 6 & 7 – Construct approx. 4,120-lf of 12-inch pipe along Route 1 in Yigo.

B2 – Agfayan BPS

1) Install 1-PRV at an appropriate site near the original 3-BPS site alternatives, as determined by the design team.

B3 – General

1) Team members have completed multiple reviews of the ongoing revisions by B&C to the PZR documents.

2.2 UGUM RESERVOIR SITE

Investigate a new alternative for the new reservoir location. The new alternative involves consolidating 2-lots adjacent and south of the existing plant to provide the site needed for the new reservoir and facilities. The 2-lots are Lot 3 & Lot 4, Block 4, Tract 3521.

2.3 UGUM EXISTING WATER TREATMENT PLANT & TANK

The existing plant site drainage will be corrected with a new design and plans.

2.4 SANTA ROSA RESERVOIR SITE – Dod Intertie

Easements were developed for use by GWA to reach operational agreements with Dod. There were 3-easement exhibits created as follows.

- Temporary Construction Easement
- GWA Access Easement
- Dod Access Easement

2.5 SANTA RITA RESERVOIR SITE

Review the access road flood damage and repair plans.

Confirm the road repair design interface with the road reconstruction plans

2.6 AGFAYAN BOOSTER PUMP STATION SITE

Investigate 4-lots as new alternatives for the new booster pump station location. The lots are along an existing Right-of-Way (ROW) and will require a new road, piping, electrical service and appurtenances. The estimated ROW length is 2,000-ft for the utility infrastructure required, this is approx. 1,000-ft of new road and utility infrastructure and another 1,000-ft of new pipeline in an existing paved road.

Refer to the following maps.

- LM Checked No. 086 FY92, sheet 1 of 3

Exhibit C (5 of 26)

- LM Checked No. 485 FY97, sheet 1 of 3

2.7 SINIFA RESERVOIR SITE

Provide Temporary Construction Easements and construction support documents on 2-lots as follows.

- Lot 2, Bock 2, Tract 24404
- Lot 3, Block 2, Tract 24404

3 – 10. No change.

ATTACHMENTS:

A. Ugum Reservoir Site
B. Existing Ugum Water Plant Site Drainage
C. Santa Rosa 2-PZR Sites
D. Santa Rosa PZR Pipeline
E. Sinifa Reservoir Site
F. Agfayan BPS, 4-Alt Sites
G. Project Management

Exhibit C (6 of 26)

Attachment A – Ugum Reservoir Site

A. Preliminary Design

1. Define design objective, design criteria, and methodology that shall be used to prepare the design. Identify all relevant codes, standards, environmental regulations, and all applicable local and federal laws that will be incorporated in the design.

2. Create a draft Property Map and Concept Site Plan for analysis. Combine the mapping of the 2-new lots to develop the consolidated lot site. This will be consolidated with the existing plant site.

3. Complete an Abbreviated Appraisal Report for the preliminary property value.

4. Complete the Construction Cost Estimate based on the Concept Site Plan developed.

5. Update the BOD Report for the combined lot development plan.

6. Open discussions with the property owner about the proposed land use, access for investigations and the acquisition process.

7. Provide surveying services, consisting of property boundary and topographic field survey and preparation of topographical mapping. These services include preparation of topographical and boundary mapping of the tank site including existing facilities above ground within the project area and adjacent sites which may be impacted. The consultant shall make all necessary research for determination of land ownership.

   The boundary survey and mapping scope will be expanded to include consolidation of the 2-new lots with the existing plant site. The topographic survey and mapping scope is expanded to include the 2nd parcel of the 2-new parcels.

8. Other services are included in the existing scope.

B. Design

1. Develop updated Basis of Design Report.

   The updated Basis of Design Report at a minimum shall address the following:

   a. Site Geometry and Access
   b. Site Grading & Drainage
   c. Site Piping
   d. Site Utilities

Exhibit C (7 of 26)

Attachment B – Existing Ugum Water Plant Site Drainage

A. Preliminary Design

1. Define design objective, design criteria, and methodology that shall be used to prepare the design. Identify all relevant codes, standards, environmental regulations, and all applicable local and federal laws that will be incorporated in the design.

2. Provide surveying services, consisting of the topographic field survey and preparation of topographical mapping. These services include preparation of the topographical mapping of the plant site, including existing facilities above ground within the project area and adjacent sites which may be impacted.

3. Complete Concept Drainage system design. It is proposed to channel stormwater to a new basin or percolation facility on Lot 3, Block 4, Tract 3521.

4. Complete the Construction Cost Estimate based on the Concept Drainage Plan developed.

B. Design

1. Complete the Drainage Design and prep construction documents. The design will be developed through 30%, 60%, 90% and 100% design stages and submittals made for review and acceptance by GWA before continuing to the next submittal.
2. The Construction Document package will include the following at each design submittal

30% - Plans, Basis of Design and Draft Drainage Calculations
60% - Plans, Final Drainage Calculations, Specification TOC and Estimate.
90% - Plans, Specifications, Estimate and Construction Schedule.
100% - Plans, Specifications, Estimate and Construction Schedule.

Exhibit C (8 of 26)

Attachment C – Santa Rosa, 2-PZR Sites

A. Site List (2-sites)

1. Detail 4 - Install an 8-inch valve on the existing line approx. 500-ft NW of Chalan Bernadita and construct 1-jumper line to connect existing 8-inch lines at the Chalan Bernadita / Route 9 intersection. The work is located in public ROW or utility easement areas.
2. Detail 5 – install an 8-inch valve on the existing 8-inch line along Route 9, near Chalan Bada. The work is located in public ROW or utility easement areas.

3. Preliminary Design

   a. Perform site investigation to determine existing condition and system configuration, in accordance with existing contract scope terms.

   b. Provide surveying services, consisting of property boundary and topographic field survey and preparation of topographical mapping. These services include preparation of topographical and boundary mapping of the 2-facility sites including existing facilities above ground within the project area and adjacent sites which may be impacted. The consultant shall make all necessary research for determination of land ownership.

   c. Provide environmental services to determine any adverse impact of the project on cultural resources and to make recommendations regarding their historical properties. This shall include a technical report, which defines background research, field methodology, results of survey and mitigation recommendations. The archaeological party will conduct cultural resource inventory and evaluation of historic resources that might be affected by this project. This will require preparing and submitting an inventory survey plan, conducting inventory survey, and reporting to the Department of Parks and Recreation/Guam Historic Preservation Office and all other required agencies (which may include Department of Agriculture, Guam Environmental Protection Agency, U.S. Fish and Wildlife Services, and etc.) regarding the project and recommendations as to eligibility and effect from the undertaking.

B. Design

1. Develop the Basis of Design Report.

   a. Incorporate the UFC code and added facilities and issue an addendum to the BOD with the project design submittals.

2. Prepare construction drawings, specifications, cost estimates, construction schedule, supporting design calculations, list of required permits, and all other documents necessary for project construction.

Exhibit C (9 of 26)

3. Design Services:

    a. Civil Engineering:
        i. Site work at each facility site shall include demolition plans, site layout plans, grading, drainage, erosion control measures, underground utility plans, utility profiles, vault plans and sections, details.

Exhibit C (10 of 26)

Attachment D – Santa Rosa PZR Pipeline

A. Site List (1-site)

1. Details 6 & 7 – Construct approx. 4,120-lf of 12-inch pipe along Route 1 in Yigo.

2. Preliminary Design

   a. Perform site investigation to determine existing condition and system configuration, in accordance with existing contract scope terms.

   b. Provide surveying services, consisting of property boundary and topographic field survey and preparation of topographical mapping. These services include preparation of topographical and boundary mapping of the pipe line alignment including existing facilities above ground within the project area and adjacent sites which may be impacted. The consultant shall make all necessary research for determination of land ownership.

   c. Provide environmental services to determine any adverse impact of the project on cultural resources and to make recommendations regarding their historical properties. This shall include a technical report, which defines background research, field methodology, results of survey and mitigation recommendations. The archaeological party will conduct cultural resource inventory and evaluation of historic resources that might be affected by this project. This will require preparing and submitting an inventory survey plan, conducting inventory survey, and reporting to the Department of Parks and Recreation/Guam Historic Preservation Office and all other required agencies (which may include Department of Agriculture, Guam Environmental Protection Agency, U.S. Fish and Wildlife Services, and etc.) regarding the project and recommendations as to eligibility and effect from the undertaking.

3. Perform geotechnical investigations to assess the stability of the sub-grade and develop a soils report, including field exploration and laboratory tests and seismic investigations. The geotechnical investigations will assess the general conditions of the project site and provide design recommendations for the proposed pipeline and ancillary facilities including the following:

   a. Characterization of earth materials and ground water level
   b. Determination of bearing pressure and settlement
   c. Lateral earth pressures – static and seismic
   d. Assessment of liquefaction potential

B. Design

1. Develop Basis of Design Report.

2. Prepare construction drawings, specifications, cost estimates, construction schedule, supporting design calculations, list of required permits, and all other documents necessary for project construction.

Exhibit C (11 of 26)

3. Design Services:

    a. Civil Engineering:
        i. The 4,120-lf pipeline will include demolition plans, plan and profiles, erosion control measures, underground utility plans, utility profiles, vault plans and sections, details.

Exhibit C (12 of 26)

Attachment E – Sinifa Reservoir Site

A. Preliminary Design

1. The TGE team will obtain Temporary Construction Easements (TCE) from the private property owners for construction access at the new tank site. The TCE exhibit sketches will be created and issued for the following lots.

- Lot 2, Block 2, Tract 24404
- Lot 3, Block 2, Tract 24404

B. Lewis Property

1. Create the TCE Exhibit Drawing
2. Create the Perpetual Easement Exhibit Drawing
3. Complete the engineering design for the new driveway including geometry, grading and drainage.
4. Complete construction documents with a cost estimate for comparison of alternatives.

C. Paulino Property

1. Create the TCE Exhibit Drawing
2. Complete the concept retaining wall design and cost estimate for comparison of alternatives.

Exhibit C (13 of 26)

Attachment F – Agfayan BPS 4-Site Alternatives Review

A. The 4-lots include the following.

- Lots 28 & 29, Subdivision Survey Map of TRACT 3734, Land for the Landless Project (Formerly Lot 8-3), LM Checked No. 086 FY92, sheet 1 of 3
- Lots 61-R2 and 106, Real Estate Requirement (Access Easement for Ija Subdivision) Lots 60, 61 and 64-1 thru 64-RII, LM Checked No. 485 FY97, sheet 1 of 3

B. Preliminary Design

1. Define design objective, design criteria, and methodology that shall be used to prepare the design. Identify all relevant codes, standards, environmental regulations, and all applicable local and federal laws that will be incorporated in the design.

2. Create 4-draft Property Maps and 4-Concept Site Plans for analysis.

3. Complete the 4-Abbreviated Appraisal Reports for the preliminary property values.

4. Complete the 4-Construction Cost Estimates based on the Concept Site Plans developed.

5. Update the BOD Report with the 4-alternative Site Plans.

6. Open discussions with the property owners about the proposed land use, access for investigations and the acquisition process.

C. Design

1. Develop updated Basis of Design Report.

   The updated Basis of Design Report at the minimum shall address the following:

   a. Site Geometry
   b. Site Grading & Drainage
   c. Site Piping
   d. Site Utilities

Exhibit C (14 of 26)

Attachment G – Agfayan BPS 4-Site Alternatives-Road & Offsite Utilities

A. Description of Road & Offsite Utilities

The lots being considered are the following.

- Lots 28 & 29, Subdivision Survey Map of TRACT 3734, Land for the Landless Project (Formerly Lot 8-3), LM Checked No. 086 FY92, sheet 1 of 3
- Lots 61-R2 and 106, Real Estate Requirement (Access Easement for Ija Subdivision) Lots 60, 61 and 64-1 thru 64-RII, LM Checked No. 485 FY97, sheet 1 of 3

Based on reviews of the mapping, we understand the new infrastructure as follows.

Part 1 – Approx. 1,400-ft of new road through the jungle along an existing coral road / trail. This section will have new road construction and new water pipeline.

Part 2 – Approx 1,000-ft of existing paved roads through part of Inarajan Village. This section will have a new waterline constructed in the existing paved roads and connect to the waterline in Route 4 in the Inarajan Village area.

Part 3 – Approx 500-ft of existing paved road in the Ija Subdivision. This section will have a new waterline constructed and the existing OH power line extended to the pump station site.

B. Preliminary Design

1. Define design objective, design criteria, and methodology that shall be used to prepare the design. Identify all relevant codes, standards, environmental regulations, and all applicable local and federal laws that will be incorporated in the design.

1. Perform site investigation to determine existing condition and system configuration, consisting of the following:

   a. Existing site conditions and facilities
   b. Proposed site improvement
   c. Preliminary site layout
   d. Research existing property map
   e. Demolition requirements
   f. Grading requirements
   g. Drainage requirements
   h. Piping and valving requirements
   i. Operational requirements
   j. Fire flow requirements
   k. Electrical power supply
   l. Construction access
   m. Construction sequencing

2. Provide surveying services, consisting of ROW boundary and topographic field survey and preparation of topographical mapping. These services include preparation of topographical and boundary mapping of the roads including existing facilities above ground within the project area and adjacent sites which may be impacted. The consultant shall make all necessary research for determination of land ownership.

3. Provide environmental services to determine any adverse impact of the project on cultural resources and to make recommendations regarding their historical properties. This shall include a technical report, which defines background research, field methodology, results of survey and mitigation recommendations. The archaeological party will conduct cultural resource inventory and evaluation of historic resources that might be affected by this project. This will require preparing and submitting an inventory survey plan, conducting inventory survey, and reporting to the Department of Parks and Recreation/Guam Historic Preservation Office and all other required agencies (which may include Department of Agriculture, Guam Environmental Protection Agency, U.S. Fish and Wildlife Services, and etc.) regarding the project and recommendations as to eligibility and effect from the undertaking.

4. Perform geotechnical investigations to assess the stability of the sub-grade and develop a soils report, including field exploration and laboratory tests, corrosion, and seismic investigations. The geotechnical investigations will assess the general conditions of the project site and provide design recommendations for the proposed pump station and ancillary facilities including the following:

   a. Characterization of earth materials and ground water level
   b. Development of seismic design criteria for the pump station building per updated codes
   c. Determination of bearing pressure and settlement
   d. Lateral earth pressures – static and seismic
   e. Assessment of liquefaction potential
   f. Foundation design of the proposed pump station building and ancillary structures
   g. Earthwork requirements

C. Design

1. Develop updated Basis of Design Report.

   The updated Basis of Design Report at the minimum shall address the following:

   a. Site Geometry
   b. Site Grading & Drainage
   c. Site Piping
   d. Site Utilities

Exhibit C (16 of 26)

2. Prepare construction drawings, specifications, cost estimates, construction schedule, supporting design calculations, list of required permits, and all other documents necessary for project construction.

    a. The design plans for the offsite road and utility infrastructure will include the necessary piping, valving, fittings, and appurtenances to connect to the existing water system as indicated in the Basis of Design Report. The plan will also include necessary erosion control measures such as erosion control seeding, silt fencing, protection of stockpiled materials, and other necessary measures to mitigate the impact of erosion and sedimentation.

    b. Based on the Basis of Design report approved by GWA, the design consultant will prepare and submit the following:

        1. Multidiscipline plans to the 60%, 90%, and 100% completion levels. (60% will consist of an Over-the-Shoulder review with GWA.)
        2. Specifications at 60%, 90%, and 100% completion levels, which will include front end documents and technical specifications applicable to the indicated completion levels.
        3. Construction cost estimate update at 60% Completion level. This estimate will be a Class 3 estimate in accordance with the AACE International Cost Estimate Classification System. All costs will be in current dollars and escalated to the estimated midpoint of construction.
        4. Final construction cost estimate based on quantity takeoffs and the requirements of the 100% design plans and specifications. This estimate will be a Class 2 estimate in accordance with the AACE International Cost Estimate Classification System. All costs will be in current dollars and escalated to the estimated midpoint of construction.
        5. The design consultant shall coordinate with the relevant agencies such as Guam Environmental Protection Agency, Department of Public Works, and other relevant agencies at the 30%, 60%, 90%, and 100% submittals. This includes submitting design documents (full size plans and specifications at each phase) and maintaining communication throughout the duration of the project and incorporating any relevant regulation requirements in the design.

3. Design Services:
    a. Civil Engineering:
        i. Site work for the road and utility infrastructure shall include demolition plans, site layout plans, grading, paving, fencing, drainage, erosion control measures, retaining walls, underground utility plans, utility profiles, vault plans and sections, details. Demolition plans will be provided as required.

    b. Electrical Power/Lighting Engineering:
        i. Electrical standard details, one-line diagrams, electrical site plans, lighting plans and details

Attachment H – Project Management

A. Project Management – prep and complete bi-weekly Progress Meetings for 21-months.

1. Issue meeting minutes with ACTION items listed within 5-working days after the meeting and work to resolve any ACTION items prior to the next meeting.
2. The meeting minutes will be expanded to include any new items at the beginning of each meeting.

B. GWA - B&C PZR Report Reviews

1. TGE has completed multiple reviews and provided comments on the B&C PZR report relative to the project site areas.

Exhibit C (18 of 26)

Guam Waterworks Authority
Design of Northern and Southern Guam Reservoirs

Fee Proposal Spreadsheet
CHANGE ORDER NO. 4

11/8/2017

A	UGUM RESERVOIR SITE		TOTAL
	Engineering Services	$	18,890.00
	Survey Services	$	16,715.00
	Subconsultants	$	8,021.00
	Direct Expenses	$	267.25
	TOTAL - UGUM RESERVOIR SITE	**$**	**43,893.25**

B	EXISTING UGUM WATER PLANT SITE DRAINAGE		TOTAL
	Engineering Services	$	21,100.00
	Survey Services	$	14,775.00
	Subconsultants	$	4,011.00
	Direct Expenses	$	559.50
	TOTAL - EXISTING UGUM WATER PLANT SITE DRAINAGE	**$**	**40,445.50**

C	SANTA ROSA 2-PZR SITES		TOTAL
	Engineering Services	$	18,660.00
	Survey Services	$	12,005.00
	Subconsultants	$	8,594.00
	Direct Expenses	$	245.00
	TOTAL - SANTA ROSA 2-PZR SITES	**$**	**39,504.00**

D	SANTA ROSA PZR PIPELINE		TOTAL
	Engineering Services	$	29,655.00
	Survey Services	$	20,000.00
	Subconsultants	$	18,907.00
	Engineering Services	$	573.00
	TOTAL - SANTA ROSA PZR PIPELINE	**$**	**69,135.00**

E	SINIFA RESERVOIR SITE		TOTAL
	Engineering Services	$	6,745.00
	Survey Services	$	4,635.00
	Subconsultants	$	-
	Direct Expenses	$	101.50
	TOTAL - SINIFA RESERVOIR SITE	**$**	**11,481.50**

F	AGFAYAN BPS 4-ALTERNATIVE SITE REVIEW		TOTAL
	Engineering Services	$	25,960.00
	Survey Services	$	21,900.00
	Subconsultants	$	29,793.00
	Direct Expenses	$	531.00
	TOTAL - AGFAYAN BPS 4-ALTERNATIVE SITE REVIEW	**$**	**78,184.00**

G	AGFAYAN BPS 4-ALTERNATIVE SITES ROAD		TOTAL
	Engineering Services	$	66,645.00
	Survey Services	$	33,585.00
	Subconsultants	$	40,105.00
	Direct Expenses	$	1,641.00
	TOTAL - AGFAYAN BPS 4-ALTERNATIVE SITES ROAD	**$**	**141,976.00**

H	PROJECT MANAGEMENT		TOTAL
	Engineering Services	$	88,990.00
	Survey Services	$	-
	Subconsultants	$	24,063.00
	Direct Expenses	$	208.00
	TOTAL - PROJECT MANAGEMENT	**$**	**113,261.00**

TOTAL FEE - CHANGE ORDER NO. 4	$	537,880.25

Exhibit C (19 of 26)

Guam Waterworks Authority | **Fee Proposal Spreadsheet** | 11/8/2017

Design of Northern and Southern Guam Reservoirs | **UGUM RESERVOIR SITE** | Page 1 of 1

	DESIGN TASK	Principal	Project Mgr	Sr Civil Engr II	Sr Civil Engr I	Stf Civil Engr	Jr Civil Engr	CAD	Clerical	TOTAL COST
	ENGINEERING SERVICES									
A./B.	**Site List/Preliminary Design**									
	1. Coordinate Property Boundary & Topographic Survey Maps		1.0		5.0					
	2. Develop Concept Site Plan		1.0		8.0		8.0	32.0		
	3. Coordinate Abbreviated Appraisal Report		4.0							
	4. Develop Construction Cost Estimate		2.0		2.0					
	5. Open Discussions with Landowner		2.0				16.0			
C.	**Design**									
	1. Develop Basis of Design Report		2.0	5.0	20.0		20.0	40.0		
	Subtotal Hours	0.0	12.0	5.0	35.0	0.0	44.0	72.0	0.0	
	Hourly Rate	$175.00	$170.00	$165.00	$135.00	$105.00	$85.00	$105.00	$48.00	
	Subtotal Direct Labor	$0.00	$2,040.00	$825.00	$4,725.00	$0.00	$3,740.00	$7,560.00	$0.00	**$18,890.00**

	DESIGN TASK	PLS	Survey Tech	Field Crew	CAD					TOTAL COST
	SURVEY SERVICES									
1.0	Site Surveys									
	Property Research	1.0	5.0							
	Control Survey	1.0		8.0						
	Boundary Survey	1.0		24.0	20.0					
	Consolidation 3-lots	1.0		8.0	16.0					
	Topographic Survey & Map	2.0		24.0	40.0					
2.0	Land Acquisition									
	Subtotal Hours	6.0	5.0	64.0	76.0	0.0	0.0	0.0	0.0	
	Hourly Rate	$145.00	$85.00	$140.00	$85.00	$0.00	$0.00	$0.00	$0.00	
	Subtotal Direct Labor	$870.00	$425.00	$8,960.00	$6,460.00	$0.00	$0.00	$0.00	$0.00	**$16,715.00**

	SUBCONSULTANTS				
	Subconsultant	**Total Fee**	**% This Task**	**Task Fee**	
1.0	RBF Consulting *(Reservoir Design/Structural/Piping/Hydraulics/Modeling)*	$0.00	0%	$0.00	
2.0	Wixon & Associates, LLC *(Electrical)*	$0.00	0%	$0.00	
3.0	Southeastern Archaeological Research, Inc. *(Archaeological)*	$0.00	0%	$0.00	
4.0	Geo-Engineering & Testing, Inc. *(Geotechnical)*	$0.00	0%	$0.00	
5.0	PCR Environmental, LLC *(Environmental)*	$0.00	0%	$0.00	
6.0	Rider Levett Bucknall *(Cost Estimating)*	$3,500.00	100%	$3,500.00	
7.0	Cornerstone Valuation Guam, Inc. *(Appraisal)*	$3,500.00	100%	$3,500.00	
			Subtotal - Subconsultants	$7,000.00	
			TGE Sub Admin Fee (10%)	$700.00	
			GRT (4.17%)	$321.00	**$8,021.00**

	DIRECT EXPENSES						
1.0	Reproduction	**Sheets**	**Sets**	**Total Pages**	**Unit Cost**	**Subtotal**	
	Drawings (Full Size - 24x36)				$1.00	$0.00	
	Drawings (Tabloid Size - 11x17)	25	5	125	$0.50	$62.50	
	Documents (Letter Size - 8.5x11)	25	5	125	$0.15	$18.75	
	CD				$1.00	$0.00	
				Subtotal - Reproduction		$81.25	
2.0	Vehicles/Fuel	**Days**	**Crews**	**Rate**	**Subtotal**		
	Survey Field Crews	7	1	$25.00	$175.00		
3.0	Miscellaneous	0	0	$0.00	$0.00		
				Subtotal - Task A Direct Expenses	$256.25		
				GRT (4.17%)	$11.00		**$267.25**

TOTAL - UGUM RESERVOIR SITE	**$43,893.25**

Exhibit C (20 of 26)

Guam Waterworks Authority | **Fee Proposal Spreadsheet** | 11/8/2017

Design of Northern and Southern Guam Reservoirs | **EXIST UGUM WATER PLANT SD** | Page 1 of 1

	DESIGN TASK	Principal	Project Mgr	Sr Civil Engr II	Sr Civil Engr I	Stf Civil Engr	Jr Civil Engr	CAD	Clerical	TOTAL COST
	ENGINEERING SERVICES									
A./B.	**Site List/Preliminary Design**									
	1. Review TGE Drainage Report			1.0	2.0					
	2. Site Review				16.0		16.0			
	3. Drainage Concept Development - Submittal - Approval		2.0	5.0	16.0					
	4. Drainage System Cost Estimate									
C.	**Design**									
	1. Drainage Design with PS&E (90% / 100%)		2.0	16.0	24.0		40.0	40.0		
	Subtotal Hours	0.0	4.0	22.0	58.0	0.0	56.0	40.0	0.0	
	Hourly Rate	$175.00	$170.00	$165.00	$135.00	$105.00	$85.00	$105.00	$48.00	
	Subtotal Direct Labor	$0.00	$680.00	$3,630.00	$7,830.00	$0.00	$4,760.00	$4,200.00	$0.00	**$21,100.00**

	DESIGN TASK	PLS	Survey Tech	Field Crew	CAD					TOTAL COST
	SURVEY SERVICES									
1.0	Site Surveys									
	Property Research	1.0	5.0							
	Control Survey			8.0						
	Boundary Survey			16.0	20.0					
	Topographic Survey & Map	1.0		40.0	40.0					
2.0	Land Acquisition									
	Subtotal Hours	2.0	5.0	64.0	60.0	0.0	0.0	0.0	0.0	
	Hourly Rate	$145.00	$85.00	$140.00	$85.00	$0.00	$0.00	$0.00	$0.00	
	Subtotal Direct Labor	$290.00	$425.00	$8,960.00	$5,100.00	$0.00	$0.00	$0.00	$0.00	**$14,775.00**

	SUBCONSULTANTS				
	Subconsultant	**Total Fee**	**% This Task**	**Task Fee**	
1.0	RBF Consulting *(Reservoir Design/Structural/Piping/Hydraulics/Modeling)*	$0.00	0%	$0.00	
2.0	Wixon & Associates, LLC *(Electrical)*	$0.00	0%	$0.00	
3.0	Southeastern Archaeological Research, Inc. *(Archaeological)*	$0.00	0%	$0.00	
4.0	Geo-Engineering & Testing, Inc. *(Geotechnical)*	$0.00	0%	$0.00	
5.0	PCR Environmental, LLC *(Environmental)*	$0.00	0%	$0.00	
6.0	Rider Levett Bucknall *(Cost Estimating)*	$3,500.00	100%	$3,500.00	
7.0	Cornerstone Valuation Guam, Inc. *(Appraisal)*	$0.00	0%	$0.00	
			Subtotal - Subconsultants	$3,500.00	
			TGE Sub Admin Fee (10%)	$350.00	
			GRT (4.17%)	$161.00	**$4,011.00**

	DIRECT EXPENSES						
1.0	Reproduction	**Sheets**	**Sets**	**Total Pages**	**Unit Cost**	**Subtotal**	
	Drawings (Full Size - 24x36)				$1.00	$0.00	
	Drawings (Tabloid Size - 11x17)	15	15	225	$0.50	$112.50	
	Documents (Letter Size - 8.5x11)	100	15	1500	$0.15	$225.00	
	CD				$1.00	$0.00	
				Subtotal - Reproduction		$337.50	
2.0	Vehicles/Fuel	**Days**	**Crews**	**Rate**	**Subtotal**		
	Survey Field Crews	8	1	$25.00	$200.00		
3.0	Miscellaneous	0	0	$0.00	$0.00		
				Subtotal - Task A Direct Expenses	$537.50		
				GRT (4.17%)	$22.00		**$559.50**

TOTAL - EXISTING UGUM WATER PLANT SITE DRAINAGE	**$40,445.50**

Exhibit C (21 of 26)

Guam Waterworks Authority | **Fee Proposal Spreadsheet** | 11/8/2017

Design of Northern and Southern Guam Reservoirs | **SANTA ROSA 2-PZR SITES** | Page 1 of 1

DESIGN TASK	Principal	Project Mgr	Sr Civil Engr II	Sr Civil Engr I	Stf Civil Engr	Jr Civil Engr	CAD	Clerical	TOTAL COST
ENGINEERING SERVICES									
A./B. Site List/Preliminary Design									
1. Detail 4 - Install 8-inch Valve		1.0		1.0		2.0			
2. Detail 4 - Construct 1-Jumper				1.0		3.0			
3. Detail 5 - Install 8-inch Valve		1.0		1.0		3.0			
C. Design									
1. Develop Basis of Design Report		1.0		5.0					
2. Prepare construction drawings, specifications, cost estimates, construction		1.0		40.0		40.0	40.0		
schedule, supporting design calculations, list of required permits, etc.									
3. Design Services									
a. Civil Engineering		1.0		10.0		20.0			
Subtotal Hours	0.0	5.0	0.0	58.0	0.0	68.0	40.0	0.0	
Hourly Rate	$175.00	$170.00	$165.00	$135.00	$105.00	$85.00	$105.00	$48.00	
Subtotal Direct Labor	$0.00	$850.00	$0.00	$7,830.00	$0.00	$5,780.00	$4,200.00	$0.00	**$18,660.00**

DESIGN TASK	PLS	Survey Tech	Field Crew	CAD					TOTAL COST
SURVEY SERVICES									
1.0 Site Surveys									
Property Research		5.0							
Control Survey			24.0						
Boundary Survey			16.0	20.0					
Topographic Survey & Map			16.0	24.0					
2.0 Land Acquisition									
Subtotal Hours	0.0	5.0	56.0	44.0	0.0	0.0	0.0	0.0	
Hourly Rate	$145.00	$85.00	$140.00	$85.00	$0.00	$0.00	$0.00	$0.00	
Subtotal Direct Labor	$0.00	$425.00	$7,840.00	$3,740.00	$0.00	$0.00	$0.00	$0.00	**$12,005.00**

SUBCONSULTANTS				
Subconsultant	**Total Fee**	**% This Task**	**Task Fee**	
1.0 RBF Consulting *(Reservoir Design/Structural/Piping/Hydraulics/Modeling)*	$0.00	0%	$0.00	
2.0 Wixon & Associates, LLC *(Electrical)*	$0.00	0%	$0.00	
3.0 Southeastern Archaeological Research, Inc. *(Archaeological)*	$5,000.00	100%	$5,000.00	
4.0 Geo-Engineering & Testing, Inc. *(Geotechnical)*	$0.00	0%	$0.00	
5.0 PCR Environmental, LLC *(Environmental)*	$0.00	0%	$0.00	
6.0 Rider Levett Bucknall *(Cost Estimating)*	$2,500.00	100%	$2,500.00	
7.0 Cornerstone Valuation Guam, Inc. *(Appraisal)*	$0.00	0%	$0.00	
Subtotal - Subconsultants			$7,500.00	
TGE Sub Admin Fee (10%)			$750.00	
GRT (4.17%)			$344.00	**$8,594.00**

DIRECT EXPENSES						
1.0 Reproduction	**Sheets**	**Sets**	**Total Pages**	**Unit Cost**	**Subtotal**	
Drawings (Full Size - 24x36)				$1.00	$0.00	
Drawings (Tabloid Size - 11x17)	5	15	75	$0.50	$37.50	
Documents (Letter Size - 8.5x11)	10	15	150	$0.15	$22.50	
CD				$1.00	$0.00	
Subtotal - Reproduction					$60.00	
2.0 Vehicles/Fuel	**Days**	**Crews**	**Rate**	**Subtotal**		
Survey Field Crews	7	1	$25.00	$175.00		
3.0 Miscellaneous	0	0	$0.00	$0.00		
Subtotal - Task A Direct Expenses				$235.00		
GRT (4.17%)				$10.00		**$245.00**

TOTAL - SANTA ROSA 2-PZR SITES	$39,504.00

Exhibit C (22 of 26)

Guam Waterworks Authority
Design of Northern and Southern Guam Reservoirs

Fee Proposal Spreadsheet
SANTA ROSA PZR PIPELINE

11/8/2017
Page 1 of 1

	DESIGN TASK	Principal	Project Mgr	Sr Civil Engr II	Sr Civil Engr I	Stf Civil Engr	Jr Civil Engr	CAD	Clerical	TOTAL COST
	ENGINEERING SERVICES									
A./B.	**Site List/Preliminary Design**									
	4. Detail 6 & 7 - Install 4,120lf of 12-inch pipe, Rt 1 in Yigo		1.0	5.0	5.0		10.0	20.0		
C.	**Design**									
	1. Develop Basis of Design Report			2.0	5.0					
	2. Prepare construction drawings, specifications, cost estimates, construction		2.0		50.0		50.0	50.0		
	schedule, supporting design calculations, list of required permits, etc.									
	3. Design Services									
	a. Civil Engineering		2.0		40.0		20.0			
	Subtotal Hours	0.0	5.0	7.0	100.0	0.0	80.0	70.0	0.0	
	Hourly Rate	$175.00	$170.00	$165.00	$135.00	$105.00	$85.00	$105.00	$48.00	
	Subtotal Direct Labor	$0.00	$850.00	$1,155.00	$13,500.00	$0.00	$6,800.00	$7,350.00	$0.00	**$29,655.00**

	DESIGN TASK	PLS	Survey Tech	Field Crew	CAD					TOTAL COST
	SURVEY SERVICES									
1.0	Site Surveys									
	Property Research		24.0							
	Control Survey			24.0						
	Boundary Survey			40.0	20.0					
	Topographic Survey & Map			40.0	20.0					
2.0	Land Acquisition									
	Subtotal Hours	0.0	24.0	104.0	40.0	0.0	0.0	0.0	0.0	
	Hourly Rate	$145.00	$85.00	$140.00	$85.00	$0.00	$0.00	$0.00	$0.00	
	Subtotal Direct Labor	$0.00	$2,040.00	$14,560.00	$3,400.00	$0.00	$0.00	$0.00	$0.00	**$20,000.00**

	SUBCONSULTANTS									
	Subconsultant	**Total Fee**		**% This Task**	**Task Fee**					
1.0	RBF Consulting *(Reservoir Design/Structural/Piping/Hydraulics/Modeling)*	$0.00		0%	$0.00					
2.0	Wixon & Associates, LLC *(Electrical)*	$0.00		0%	$0.00					
3.0	Southeastern Archaeological Research, Inc. *(Archaeological)*	$5,500.00		100%	$5,500.00					
4.0	Geo-Engineering & Testing, Inc. *(Geotechnical)*	$6,500.00		100%	$6,500.00					
5.0	PCR Environmental, LLC *(Environmental)*	$0.00		0%	$0.00					
6.0	Rider Levett Bucknall *(Cost Estimating)*	$4,500.00		100%	$4,500.00					
7.0	Cornerstone Valuation Guam, Inc. *(Appraisal)*	$0.00		0%	$0.00					
				Subtotal - Subconsultants	$16,500.00					
				TGE Sub Admin Fee (10%)	$1,650.00					
				GRT (4.17%)	$757.00					**$18,907.00**
	DIRECT EXPENSES									
1.0	Reproduction	**Sheets**	**Sets**	**Total Pages**	**Unit Cost**	**Subtotal**				
	Drawings (Full Size - 24x36)				$1.00	$0.00				
	Drawings (Tabloid Size - 11x17)	15	15	225	$0.50	$112.50				
	Documents (Letter Size - 8.5x11)	50	15	750	$0.15	$112.50				
	CD				$1.00	$0.00				
				Subtotal - Reproduction		$225.00				
2.0	Vehicles/Fuel	**Days**	**Crews**	**Rate**	**Subtotal**					
	Survey Field Crews	13	1	$25.00	$325.00					
3.0	Miscellaneous	0	0	$0.00	$0.00					
				Subtotal - Task A Direct Expenses	$550.00					
				GRT (4.17%)	$23.00					**$573.00**

TOTAL - SANTA ROSA PZR PIPELINE	**$69,135.00**

Exhibit C (23 of 26)

Guam Waterworks Authority
Design of Northern and Southern Guam Reservoirs

Fee Proposal Spreadsheet
SINIFA RESERVOIR

11/8/2017
Page 1 of 1

DESIGN TASK	Principal	Project Mgr	Sr Civil Engr II	Sr Civil Engr I	Stf Civil Engr	Jr Civil Engr	CAD	Clerical	TOTAL COST
ENGINEERING SERVICES									
A./B. Site List/Preliminary Design									
Lot 2, Block 2, Tract 24404									
1. Owner Negotiations		1.0		1.0					
2. D/W Design				5.0			10.0		
3. Cost Estimate / Alternative Comparisons		1.0		2.0		10.0			
4. TCE Exhibit Sketch				1.0		2.0	5.0		
5. Perpetual Easement Exhibit Sketch		1.0		1.0		2.0	5.0		
Lot 3, Block 2, Tract 24404									
1. Cost Estimate / Alternative Comparisons		1.0		2.0		10.0			
2. TCE Exhibit Sketch				1.0		2.0			
Subtotal Hours	0.0	4.0	0.0	13.0	0.0	26.0	20.0	0.0	
Hourly Rate	$175.00	$170.00	$165.00	$135.00	$105.00	$85.00	$105.00	$48.00	
Subtotal Direct Labor	$0.00	$680.00	$0.00	$1,755.00	$0.00	$2,210.00	$2,100.00	$0.00	**$6,745.00**

DESIGN TASK	PLS	Survey Tech	Field Crew	CAD					TOTAL COST
SURVEY SERVICES									
1.0 Site Surveys									
Property Research		5.0							
Control Survey			8.0						
Boundary Survey		1.0	8.0	4.0					
Topographic Survey & Map		1.0	8.0	4.0					
2.0 Land Acquisition									
Subtotal Hours	0.0	7.0	24.0	8.0	0.0	0.0	0.0	0.0	
Hourly Rate	$145.00	$85.00	$140.00	$85.00	$0.00	$0.00	$0.00	$0.00	
Subtotal Direct Labor	$0.00	$595.00	$3,360.00	$680.00	$0.00	$0.00	$0.00	$0.00	**$4,635.00**

SUBCONSULTANTS				
Subconsultant	**Total Fee**	**% This Task**	**Task Fee**	
1.0 RBF Consulting *(Reservoir Design/Structural/Piping/Hydraulics/Modeling)*	$0.00	0%	$0.00	
2.0 Wixon & Associates, LLC *(Electrical)*	$0.00	0%	$0.00	
3.0 Southeastern Archaeological Research, Inc. *(Archaeological)*	$0.00	0%	$0.00	
4.0 Geo-Engineering & Testing, Inc. *(Geotechnical)*	$0.00	0%	$0.00	
5.0 PCR Environmental, LLC *(Environmental)*	$0.00	0%	$0.00	
6.0 Rider Levett Bucknall *(Cost Estimating)*	$0.00	0%	$0.00	
7.0 Cornerstone Valuation Guam, Inc. *(Appraisal)*	$0.00	0%	$0.00	
		Subtotal - Subconsultants	$0.00	
		TGE Sub Admin Fee (10%)	$0.00	
		GRT (4.17%)	$0.00	**$0.00**

DIRECT EXPENSES						
1.0 Reproduction	**Sheets**	**Sets**	**Total Pages**	**Unit Cost**	**Subtotal**	
Drawings (Full Size - 24x36)				$1.00	$0.00	
Drawings (Tabloid Size - 11x17)	3	10	30	$0.50	$15.00	
Documents (Letter Size - 8.5x11)	5	10	50	$0.15	$7.50	
CD				$1.00	$0.00	
			Subtotal - Reproduction		$22.50	
2.0 Vehicles/Fuel	**Days**	**Crews**	**Rate**	**Subtotal**		
Survey Field Crews	3	1	$25.00	$75.00		
3.0 Miscellaneous	0	0	$0.00	$0.00		
			Subtotal - Task A Direct Expenses	$97.50		
			GRT (4.17%)	$4.00		**$101.50**

TOTAL - SINIFA RESERVOIR SITE	**$11,481.50**

Exhibit C (24 of 26)

Guam Waterworks Authority | **Fee Proposal Spreadsheet** | 11/8/2017
Design of Northern and Southern Guam Reservoirs | **AGFAYAN BPS, 4-ALT SITES** | Page 1 of 1

	DESIGN TASK	Principal	Project Mgr	Sr Civil Engr II	Sr Civil Engr I	Stf Civil Engr	Jr Civil Engr	CAD	Clerical	TOTAL COST
	ENGINEERING SERVICES									
A./B.	**Site List/Preliminary Design**									
	1. Coordinate Property Boundary & Topographic Survey Maps (4-lots)			2.0			10.0	16.0		
	2. Develop Concept Site Plans (4-lots)		2.0		8.0		40.0	40.0		
	3. Develop Road and Utility Service Concepts / Cost Estimate		1.0		8.0		10.0	10.0		
	3. Coordinate Abbreviated Appraisal Report (4-lots)		5.0							
	4. Develop Construction Cost Estimate (4-lots)		4.0				4.0			
	5. Open Discussions with Landowners		4.0				8.0			
	6. Install PRV				2.0		5.0	2.0		
C.	**Design**									
	1. Develop Basis of Design Report			2.0	20.0		10.0	5.0		
	2. PRV Construciton Documents		2.0		5.0		10.0	5.0		
	Subtotal Hours	0.0	18.0	4.0	43.0	0.0	97.0	78.0	0.0	
	Hourly Rate	$175.00	$170.00	$165.00	$135.00	$105.00	$85.00	$105.00	$48.00	
	Subtotal Direct Labor	$0.00	$3,060.00	$660.00	$5,805.00	$0.00	$8,245.00	$8,190.00	$0.00	**$25,960.00**

	DESIGN TASK	PLS	Survey Tech	Field Crew	CAD					TOTAL COST
	SURVEY SERVICES									
1.0	Site Surveys									
	Property Research		20.0							
	Control Survey			40.0						
	Boundary Survey			40.0	20.0					
	Topographic Survey & Map			40.0	20.0					
2.0	Land Acquisition									
	Subtotal Hours	0.0	20.0	120.0	40.0	0.0	0.0	0.0	0.0	
	Hourly Rate	$145.00	$85.00	$140.00	$85.00	$0.00	$0.00	$0.00	$0.00	
	Subtotal Direct Labor	$0.00	$1,700.00	$16,800.00	$3,400.00	$0.00	$0.00	$0.00	$0.00	**$21,900.00**

	SUBCONSULTANTS					
	Subconsultant	**Total Fee**	**% This Task**	**Task Fee**		
1.0	RBF Consulting *(Reservoir Design/Structural/Piping/Hydraulics/Modeling)*	$0.00	0%	$0.00		
2.0	Wixon & Associates, LLC *(Electrical)*	$0.00	0%	$0.00		
3.0	Southeastern Archaeological Research, Inc. *(Archaeological)*	$0.00	0%	$0.00		
4.0	Geo-Engineering & Testing, Inc. *(Geotechnical)*	$0.00	0%	$0.00		
5.0	PCR Environmental, LLC *(Environmental)*	$0.00	0%	$0.00		
6.0	Rider Levett Bucknall *(Cost Estimating)*	$14,000.00	100%	$14,000.00		
7.0	Cornerstone Valuation Guam, Inc. *(Appraisal)*	$12,000.00	100%	$12,000.00		
			Subtotal - Subconsultants	$26,000.00		
			TGE Sub Admin Fee (10%)	$2,600.00		
			GRT (4.17%)	$1,193.00		**$29,793.00**

	DIRECT EXPENSES						
1.0	Reproduction	**Sheets**	**Sets**	**Total Pages**	**Unit Cost**	**Subtotal**	
	Drawings (Full Size - 24x36)				$1.00	$0.00	
	Drawings (Tabloid Size - 11x17)	12	10	120	$0.50	$60.00	
	Documents (Letter Size - 8.5x11)	50	10	500	$0.15	$75.00	
	CD				$1.00	$0.00	
				Subtotal - Reproduction		$135.00	
2.0	Vehicles/Fuel	**Days**	**Crews**	**Rate**	**Subtotal**		
	Survey Field Crews	15	1	$25.00	$375.00		
3.0	Miscellaneous	0	0	$0.00	$0.00		
				Subtotal - Task A Direct Expenses	$510.00		
				GRT (4.17%)	$21.00		**$531.00**

TOTAL - AGFAYAN BPS 4-ALTERNATIVE SITE REVIEW	**$78,184.00**

Exhibit C (25 of 26)

Guam Waterworks Authority
Design of Northern and Southern Guam Reservoirs

Fee Proposal Spreadsheet
AGFAYAN BPS, 4-ALT SITES

11/8/2017
Page 1 of 1

	DESIGN TASK	Principal	Project Mgr	Sr Civil Engr II	Sr Civil Engr I	Stf Civil Engr	Jr Civil Engr	CAD	Clerical	TOTAL COST
	ENGINEERING SERVICES									
A./B.	**Site List/Preliminary Design**									
	1. Coordinate Property Boundary & Topographic Survey Maps (4-lots)		4.0				4.0			
	2. Develop 2,000-ft Road and Utility Service Concepts / Cost Estimate		2.0		4.0		24.0	24.0		
	3. Coordinate Geotechnical Investigation		4.0				4.0			
	4. Develop 2,900-lf Road & Utility Concepts		1.0		10.0		10.0	40.0		
C.	**Design**									
	1. Develop Basis of Design Report				4.0		10.0	5.0		
	2. Road Engineering & Plans		4.0		20.0		40.0	40.0		
	3. Water line Engineering & Plans		2.0		40.0		60.0	40.0		
	4. Coordinate OH Power Enginering & Plans		4.0		10.0			5.0		
	5. Develop Technical Specifications				10.0		20.0			
	6. Develop Cost Estimate & Schedules				5.0		20.0			
	7. Design & 60%, 90% and 100% Submittals		12.0		24.0		60.0	60.0		
	Subtotal Hours	0.0	33.0	0.0	127.0	0.0	252.0	214.0	0.0	
	Hourly Rate	$175.00	$170.00	$165.00	$135.00	$105.00	$85.00	$105.00	$48.00	
	Subtotal Direct Labor	$0.00	$5,610.00	$0.00	$17,145.00	$0.00	$21,420.00	$22,470.00	$0.00	**$66,645.00**

	DESIGN TASK	PLS	Survey Tech	Field Crew	CAD					TOTAL COST
	SURVEY SERVICES									
1.0	Site Surveys									
	Property Research		40.0							
	Control Survey		5.0	24.0	10.0					
	Boundary Survey		10.0	60.0	10.0					
	Topographic Survey & Map		10.0	80.0	40.0					
2.0	Land Acquisition									
	Subtotal Hours	0.0	65.0	164.0	60.0	0.0	0.0	0.0	0.0	
	Hourly Rate	$145.00	$85.00	$140.00	$85.00	$0.00	$0.00	$0.00	$0.00	
	Subtotal Direct Labor	$0.00	$5,525.00	$22,960.00	$5,100.00	$0.00	$0.00	$0.00	$0.00	**$33,585.00**

	SUBCONSULTANTS				
	Subconsultant	**Total Fee**	**% This Task**	**Task Fee**	
1.0	RBF Consulting *(Reservoir Design/Structural/Piping/Hydraulics/Modeling)*	$0.00	0%	$0.00	
2.0	Wixon & Associates, LLC *(Electrical)*	$8,000.00	100%	$8,000.00	
3.0	Southeastern Archaeological Research, Inc. *(Archaeological)*	$12,500.00	100%	$12,500.00	
4.0	Geo-Engineering & Testing, Inc. *(Geotechnical)*	$10,000.00	100%	$10,000.00	
5.0	PCR Environmental, LLC *(Environmental)*	$0.00	0%	$0.00	
6.0	Rider Levett Bucknall *(Cost Estimating)*	$4,500.00	100%	$4,500.00	
7.0	Cornerstone Valuation Guam, Inc. *(Appraisal)*	$0.00	100%	$0.00	
			Subtotal - Subconsultants	$35,000.00	
			TGE Sub Admin Fee (10%)	$3,500.00	
			GRT (4.17%)	$1,605.00	**$40,105.00**

	DIRECT EXPENSES						
1.0	Reproduction	**Sheets**	**Sets**	**Total Pages**	**Unit Cost**	**Subtotal**	
	Drawings (Full Size - 24x36)	50	5	250	$1.00	$250.00	
	Drawings (Tabloid Size - 11x17)	50	15	750	$0.50	$375.00	
	Documents (Letter Size - 8.5x11)	200	15	3000	$0.15	$450.00	
	CD				$1.00	$0.00	
				Subtotal - Reproduction		$1,075.00	
2.0	Vehicles/Fuel	**Days**	**Crews**	**Rate**	**Subtotal**		
	Survey Field Crews	20	1	$25.00	$500.00		
3.0	Miscellaneous	0	0	$0.00	$0.00		
				Subtotal - Task A Direct Expenses	$1,575.00		
				GRT (4.17%)	$66.00		**$1,641.00**

TOTAL - AGFAYAN BPS 4-ALTERNATIVE SITE REVIEW	**$141,976.00**

Exhibit C (26 of 26)

Guam Waterworks Authority
Design of Northern and Southern Guam Reservoirs

Fee Proposal Spreadsheet
PROJECT MANAGEMENT

11/9/2017
Page 1 of 1

	DESIGN TASK	Principal	Project Mgr	Sr Civil Engr II	Sr Civil Engr I	Stf Civil Engr	Jr Civil Engr	CAD	Clerical	TOTAL COST
	ENGINEERING SERVICES									
	Project Management									
1.0	Prep / Attend Bi-weekly Meetings / Webex (21-mos)	24.0	168.0	168.0			168.0	60.0	60.0	
2.0	Review B&C PZR Report / Provide Comments		20.0	10.0						
	Subtotal Hours	24.0	188.0	178.0	0.0	0.0	168.0	60.0	60.0	
	Hourly Rate	$175.00	$170.00	$165.00	$135.00	$105.00	$85.00	$105.00	$48.00	
	Subtotal Direct Labor	$4,200.00	$31,960.00	$29,370.00	$0.00	$0.00	$14,280.00	$6,300.00	$2,880.00	**$88,990.00**

	DESIGN TASK	PLS	Survey Tech	Field Crew	CAD					TOTAL COST
	SURVEY SERVICES									
1.0	Site Surveys									
	Property Research									
	Control Survey									
	Boundary Survey									
	Topographic Survey & Map									
2.0	Land Acquisition									
	Subtotal Hours	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Hourly Rate	$145.00	$85.00	$140.00	$85.00	$0.00	$0.00	$0.00	$0.00	
	Subtotal Direct Labor	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	**$0.00**

	SUBCONSULTANTS				
	Subconsultant	**Total Fee**	**% This Task**	**Task Fee**	
1.0	RBF Consulting *(Reservoir Design/Structural/Piping/Hydraulics/Modeling)*	$21,000.00	100%	$21,000.00	
2.0	Wixon & Associates, LLC *(Electrical)*	$0.00	0%	$0.00	
3.0	Southeastern Archaeological Research, Inc. *(Archaeological)*	$0.00	0%	$0.00	
4.0	Geo-Engineering & Testing, Inc. *(Geotechnical)*	$0.00	0%	$0.00	
5.0	PCR Environmental, LLC *(Environmental)*	$0.00	0%	$0.00	
6.0	Rider Levett Bucknall *(Cost Estimating)*	$0.00	0%	$0.00	
7.0	Cornerstone Valuation Guam, Inc. *(Appraisal)*	$0.00	0%	$0.00	
			Subtotal - Subconsultants	$21,000.00	
			TGE Sub Admin Fee (10%)	$2,100.00	
			GRT (4.17%)	$963.00	**$24,063.00**

	DIRECT EXPENSES						
1.0	Reproduction	**Sheets**	**Sets**	**Total Pages**	**Unit Cost**	**Subtotal**	
	Drawings (Full Size - 24x36)				$1.00	$0.00	
	Drawings (Tabloid Size - 11x17)	5	50	250	$0.50	$125.00	
	Documents (Letter Size - 8.5x11)	5	100	500	$0.15	$75.00	
	CD				$1.00	$0.00	
				Subtotal - Reproduction		$200.00	
2.0	Vehicles/Fuel	**Days**	**Crews**	**Rate**	**Subtotal**		
	Survey Field Crews	0	1	$25.00	$0.00		
3.0	Miscellaneous	0	0	$0.00	$0.00		
				Subtotal - Task A Direct Expenses	$200.00		
				GRT (4.17%)	$8.00		**$208.00**

TOTAL - PROJECT MANAGEMENT	$113,261.00

GUAM WATERWORKS AUTHORITY
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Tel: (671) 300-6846

Issues for Decision

Resolution No. 13-FY2018
Relative to Santa Rosa, Sinifa, and Santa Rita Tank and System Upgrades Construction Management Contract

What is the project's objective and is it necessary and urgent?
The project is part of the 2011 Court Order Paragraph 29 – Storage Tank/Reservoir Repair, Replacement, and Relocation Program. As a Court Order project, it is necessary and urgent to work towards meeting the Court Order deadlines. The project's objective is to provide construction management services for the construction of the Santa Rosa, Sinifa, and Santa Rita Tank and System Upgrade project, which includes new PRV's.

Where is the location?
Santa Rosa, Sinifa, and Santa Rita reservoir sites. The Santa Rosa reservoir is located in Yigo. Sinifa and Santa Rita reservoirs are located in Santa Rita village.

How much will it cost?
The fee proposal is for Two Million Nine Hundred Seventy-Seven Thousand Two Hundred Thirty-Four Dollars and Sixty-Nine Cents ($2,977,234.69). GWA management further seeks CCU approval of a 10% contingency or Two Hundred Ninety-Seven Thousand Seven Hundred Twenty-Three Dollars and Forty-Seven Cents ($297,723.47) which would bring the total authorized funding requested to Three Million Two Hundred Seventy-Four Thousand Nine Hundred Fifty-Eight Dollars and Sixteen Cents ($3,274,958.16).

When will it be completed?
Santa Rosa site: 365 calendar days
Sinifa site: 365 calendar days
Santa Rita site: 410 calendar days

CM start is dependent on the construction NTP.

What is the funding source?
The funding shall be from PW 09-11: Water System Reservoirs 2005 Improvements.

The RFP/BID responses (if applicable):
- RFP-06-ENG-2017
- 19 firms picked up RFP
- 8 firms submitted
- GHD recommended for award

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. 13–FY2018

RELATIVE TO APPROVAL OF THE CONSTRUCTION MANAGEMENT CONTRACT FOR SANTA ROSA, SINIFA, AND SANTA RITA TANK AND SYSTEM UPGRADES

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 ("GWA") is a Guam Public Corporation established and existing under the laws of Guam; and

WHEREAS, GWA is currently working on critical reservoir projects under the 2011 Court Order ("CO") Paragraph 29 – Storage Tank/Reservoir Repair, Replacement, and Relocation Program; and

WHEREAS, the design of Santa Rosa, Sinifa, and Santa Rita Tank designs (RFP-09-ENG-2014) have been completed; and

WHEREAS, GWA has advertised the Request for Proposals (RFP-06-ENG-2017) soliciting statement of qualifications from experienced and qualified engineering firms to provide construction management services for the Santa Rosa, Sinifa, and Santa Rita Tank and System Upgrades project; and

WHEREAS, RFP packages were picked up by 19 interested parties, from which GWA received proposal submittals from 8 firms before the RFP submittal deadline; and

WHEREAS, the GWA A-E Selection committee reviewed and evaluated the 8 proposals (See Exhibit A – Score Summary) and generated a short list of the top 3 firms with a

recommendation to award a contract to the firm GHD (See Exhibit B – GM's Determination); and

WHEREAS, GHD and GWA negotiated the price for the construction management services (Santa Rosa, Sinifa, and Santa Rita tank and off-site system upgrades related to all three tank sites) to be provided in the total amount of Two Million Nine Hundred Seventy-Seven Thousand Two Hundred Thirty-Four Dollars and Sixty-Nine Cents ($2,977,234.69) (See Exhibit C – Scope of Work and Fees); and

WHEREAS, GWA management seeks approval of the fee proposal amount of Two Million Nine Hundred Seventy-Seven Thousand Two Hundred Thirty-Four Dollars and Sixty-Nine Cents ($2,977,234.69), along with a 10% contingency of Two Hundred Ninety-Seven Thousand Seven Hundred Twenty Three Dollars and Forty Seven Cents ($297,723.47), to bring the total authorized funding amount to a maximum of Three Million Two Hundred Seventy-Four Thousand Nine Hundred Fifty-Eight Dollars and Sixteen Cents ($3,274,958.16); and

WHEREAS, funding for this project will be from the Bond Funds under the line item "PW 09-11 Water System Reservoirs 2005 Improvements"; and

NOW BE IT THEREFORE RESOLVED, the Consolidated Commission on Utilities does hereby approve the following:

1. The recitals set forth above hereby constitute the findings of the CCU.
2. The CCU finds that the terms of the fee proposal submitted by GHD are fair and reasonable (Exhibit C).
3. The CCU hereby authorizes the management to accept the fee proposal from GHD, which is also incorporated into this Resolution in its entirety.
4. The CCU hereby further authorizes the management of GWA to enter into a contract with GHD, in the amount of Two Million Nine Hundred Seventy-Seven Thousand Two Hundred Thirty-Four Dollars and Sixty-Nine Cents ($2,977,234.69).
5. The CCU hereby further approves the total funding amount for this project of Two Million Nine Hundred Seventy-Seven Thousand Two Hundred Thirty-

Four Dollars and Sixty-Nine Cents ($2,977,234.69), along with a 10% contingency of Two Hundred Ninety-Seven Thousand Seven Hundred Twenty-Three Dollars and Forty-Seven Cents ($297,723.47), to bring the total authorized funding amount to Three Million Two Hundred Seventy-Four Thousand Nine Hundred Fifty-Eight Dollars and Sixteen Cents ($3,274,958.16).

6. The CCU hereby further authorizes the funding source to be from bond funds under the CIP line Item PW 09-11 "Water System Reservoirs 2005 Improvements".

RESOLVED, that the Chairman certified and the Board Secretary attests to the adoption of this Resolution.

DULY AND REGULARLY ADOPTED, this 23rd day of January 2018.

Certified by:	Attested by:
_____	_____
JOSEPH T. DUENAS	**J. GEORGE BAMBA**
Chairperson	Secretary

SECRETARY'S CERTIFICATE

I, J. George Bamba, Board Secretary of the Consolidated Commission on Utilities as evidenced by my signature above do hereby certify as follows:

The foregoing is a full, true and accurate copy of the resolution duly adopted at a regular meeting by the members of the Guam Consolidated Commission on Utilities, duly and legally held at a place properly noticed and advertised at which meeting a quorum was present and the members who were present voted as follows:

AYES: _____

NAYS: _____

ABSTENTIONS: _____

ABSENT: _____

Exhibit A (1 of 1)

GUAM WATERWORKS AUTHORITY
Gloria B. Nelson Public Service Building • 688 Route 15 • Mangilao, Guam 96913

June 19, 2017

To: Thomas F. Cruz, P.E., Chief Engineer

From: Gloria P. Bensan
Chairperson, Consultant Selection Board9

Subject: RFP-06-ENG-2017
Construction Management Services for the Northern and Southern Guam Reservoirs (Santa Rosa, Sinifa, and Santa Rita) Tank and System Upgrades
GWA Project No. W14-007-BND

The following information is intended to document the evaluation process undertaken for the referenced solicitation.

EVALUATION COMMITTEE MEMBERS	
Name	**Title**
Brett Railey, P.E.	CIP Water Engineer Supervisor
Garrett Yeoh	Senior Engineer
Delfyn Quitlong	Engineer II
Vincent Pangelinan	Operations Manager

Consultant	Evaluation Score				Total	Rank
1. EMPSCO Engineering Consultants	75	65	90	74	304	7
2. HDR	90	80	95	86	351	2
3. LYON	65	72	89	80	306	6
4. SSFM International	86	82	94	85	347	3
5. Duenas, Camacho & Associates	79	74	92	80	325	4
6. E.M. Chen & Associates	71	67	88	70	296	8
7. AECOM	74	74	93	81	322	5
8. GHD	90	94	91	91	366	1

Scores were evaluated based on sum of the individual scores. The recommendation of the evaluation committee is shown in the ranking above.

Please review and approve at your earliest convenience so that we may proceed with the notification letters.

Exhibit B (1 of 1)

GUAM WATERWORKS AUTHORITY
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688 Route 15, Mangilao, Guam 96913

MEMORANDUM

To: Miguel C. Bordallo, General Manager

From: Thomas F. Cruz, P.E., Chief Engineer

Subject: RFP-06-ENG-2017
Construction Management Services for the Northern and Southern Guam Reservoirs (Santa Rosa, Sinifa, and Santa Rita) Tank and System Upgrades
GWA Project No. W14-007-BND

Date: June 19, 2017

The Selection Committee has completed all necessary actions for selecting the most qualified consultant for the referenced solicitation. All proposals were reviewed and scored according to the conditions established in the solicitation. The evaluation summary sheet is attached for your information.

The committee recommends the following top three (3) firms in order of preference for the project:

1. GHD
2. HDR
3. SSFM International

Concurred:

VINCENT E. GUERRERO
Supply Management Administrator

6/20/2017
Date

GENERAL MANAGER'S DETERMINATION

Consultant Firm Selected:

GHD

Remarks:

MIGUEL C. BORDALLO, P.E.
General Manager

6.21.17
Date

Exhibit C

September 22, 2017

Mr. Miguel Bordallo
General Manager
688 Route 15
Mangilao, GU 96913

SUBJECT: FORMAL SUBMITTAL OF FINAL SCOPE OF WORK AND FEE PROPOSAL FOR NORTHERN AND SOUTHERN GUAM RESERVOIRS (SANTA ROSA, SINIFA, AND SANTA RITA) TANK AND SYSTEM UPGRADES CONSTRUCTION MANAGEMENT SERVICES RFP-06-ENG-2017, PROJECT NO. W14-007-BND

Dear Mr. Bordallo:

GHD is pleased to formally submit our final Scope of Work and Fee Proposal for the above referenced project. The scope of work and fee proposal is based upon detailed meetings we held with GWA staff and we believe it meets GWA's needs in an economically feasible manner by pooling project management and resident engineer resources between the three (3) projects. We look forward to working with GWA on this critical project for Guam. If you have any questions or need additional information, please do not hesitate to contact me directly by email or telephone.

Sincerely,

Paul K. Baron, PE
Principal

Attachments: Scope of Work (15 pages)
Fee Proposal (29 pages)

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Guam Northern & Southern GWA Reservoirs
Construction Management Services Scope of Work & Fees

I. GENERAL

GHD, as the Construction Manager (CM) shall provide services relating to the daily field observation, inspection, testing, supervision, management, coordination, and compliance monitoring for the Guam Northern & Southern GWA Reservoirs (Projects) at the following project locations.

- **Santa Rita GWA Reservoir Replacement**
- **Santa Rosa GWA Reservoir Replacement**
- **Sinifa GWA Reservoir Replacement**

The projects generally consists of geo-technical ground improvements, demolition of existing tank structures, construction of pre-stressed concrete tanks conforming to AWWA/ANSI D110 for Type I Wire-and-Strand Wound, Circular Prestressed Concrete Water Tanks (site adapted for each location), installation of new water lines, construction and refurbishment of booster pump stations, chlorination systems, electrical, instrumentation and control, SCADA controls, plus associated utilities for each site. Additionally, the work includes preconstruction services including constructability review and value engineering of the project design.

Reports submitted to GWA by the CM shall be in a form approved by GWA's Chief Engineer.

II. PROJECT OVERVIEW

The construction management, testing, and field observation services for the projects will require general construction management and observation, as well as specialized inspection and testing. In addition to general construction management duties, the specialized inspection and testing will include, but not be limited to:

- Concrete placement
- Concrete anchors/Adhesive anchoring systems/Expansion bolts
- Grading
- Excavation
- Compaction grouting
- Compaction testing
- Pre-stressing operations
- Concrete cylinder testing
- Shotcrete application
- High strength bolting
- Earthwork/Soil analysis
- Instrumentation and SCADA
- Hydrostatic testing
- Disinfection

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In general, the CM shall function as Owner's representative whose primary function shall be to:

- Keep GWA advised and informed as to project progress and cost
- Manage the change process
- Disclose any information relevant to GWA's interest
- Make proactive recommendations to GWA for action to maintain progress and achieve the project schedule and budget
- Observing System Commissioning
- Act in the best interest of GWA

The CM shall administer the Contract, except that the CM is not authorized to make any decisions on the behalf of GWA that materially affect the intent of the design or financially obligate GWA in any manner.

III. TASK AND REQUIREMENTS

The following tasks are applicable to and will be provided to each of the Guam Northern & Southern GWA Reservoirs project locations.

A. PRE-CONSTRUCTION PHASE SERVICES:

In accordance with GWA's RFP, the purpose of this task is to obtain "a clear set of construction documents that will allow the perspective bidder to bid competitively, to build or install the designed facility in an efficient and timely manner, and reduce the number of change orders and delays." Under this task the CM will review the design documents; review the Contractor's Construction Management Quality Control Plan; prepare a Construction Quality Assurance Plan and a Construction Management Plan; provide contract bidding support; participate in meetings to discuss design documents; submit comments on design documents; and participate in meetings to discuss responses to comments as detailed in the following paragraphs.

Task A1: Design Document Review. The CM shall perform review of the design documents. The CM will provide redline mark-up of the plans and specifications and annotated comments. The review shall also verify that the design is clearly presented and potential construction related conflicts or deficiencies which may lead to substantive changes to the design, schedule, or cost of the project have been mitigated as practicable. Based upon our understanding of the current status of the design documents, we will undertake this at the 100% design stages.

Deliverables (electronic pdf files and hard copies)**:**

- Final Design Review Report

Task A2: CM Quality Assurance:

Task A2.1: Review Contractor Construction Management Quality Control Plan. The CM shall review, record, and comment on the Construction Management Quality Control Plan submitted by the Construction Contractor.

Task A2.2: Construction Quality Assurance Plan. The CM will develop, implement, and maintain a Quality Assurance Plan for civil, structural, electrical, mechanical, and instrumentation elements including specialized work related to the construction of concrete

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water reservoirs conforming to AWWA/ANSI D110 Type I Wire- and Strand- Wound, Circular Pre-stressed Concrete Water Tanks.

Content of the Quality Assurance Plan shall include, but not be limited to the following:

- Documentation of site conditions prior to beginning construction
- Review of approved submittals from the Contractor prior to fabrication or installation of materials and equipment
- Inspection, observation, and documentation of daily field work
- Monitoring of the Contractor's Quality Control Plan
- In-plant fabrication and/or witness testing at place of manufacture (where applicable)
- Reports and record keeping
- Non-conforming and deficient work resolution process
- Monitoring the Construction Contractor's implementation of their Quality Control Plan
- Complete list of specialized inspections for the tank structure and under tank

It is important to note that the CM is responsible for monitoring the Contractor's compliance with the Contract Documents, but is not responsible for the Contractor's means and methods the Contractor elects to use in performance of their work.

Deliverables (electronic pdf files and hardcopies)**:**

- Quality Assurance Plan

Task A3: Construction Management Plan. The CM will develop and implement the Construction Management Plan (CM Plan) including guidelines for project organization and coordination in the field, standard daily operations, change order procedures, quality, schedule, and cost control. The CM Plan sets forth the procedures and approach for the construction of the project. The CM Plan will serve the CM, the Owner's Representative, and Contractors by defining the project, project team members and their roles, coordination among team members, procedure, key milestones, and schedule constraints. By establishing these parameters early in the project, the CM Plan will help control resources and costs, establish communication and coordination between the CM, Contractor, and GWA.

Deliverables (electronic pdf files and hardcopies)**:**

- Construction Management Plan

Task A4: Contract Bidding:

The CM will review and perform an assessment of the 100% contract bid package (Parts A, B, & C) to assess their readiness, completeness, and suitability to solicit competitive bids. We will assist in the management of the bid documents, prepare for and conduct the pre-bid conference and site visit(s), manage and assist with RFI responses and addendums during the bid period.

After receipt of construction bid packages, the CM will perform an overall review of the bids received with a detailed emphasis on the apparent low bidder(s). The CM will work with GWA to perform the necessary follow-up with the bidders until the lowest responsible and responsive bidder is determined. Upon completion of this process, the CM will provide a technical memorandum summarizing the review and recommendation for award, and/or concurrence of

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the proposed selected contractor. Recommendation shall include document review to ensure compliance with all bid requirements and procurement regulations, bid analysis, and contractor selection.

Deliverables (electronic pdf files and hardcopies)**:**

- Pre-Bid Meeting Agenda and Minutes
- Technical Memorandum(s) – Document Review, Bid Analysis, and Contractor Selection

B. CONSTRUCTION PHASE SERVICES:

Task B1.0: Project Records & Document Control. The CM shall provide services and tools to ensure that the project is efficiently managed and constructed according to the terms of the Contract. The primary function shall be the proper collection and organization of construction documents, gathering data regarding project progresses, producing progress reports, and monitoring time, cost, and quality.

The CM shall use Bentley EADOC for the Project Management Information System (PMIS) to track communication, design documents, construction documents, finances, and reporting. Our fee proposal shall include up to 15 users.

- Communication Documents: Memos, daily inspector logs for both contractor and CM, meeting minutes, and all other relevant documentation.
- Construction Documents: Submittals, RFIs, testing results, photo logs, special inspection, change orders, corrective actions, punch list, various construction logs, payment applications, wage rate reporting, and all other relevant documentation.
- Contract Documents: Specifications, drawings, permits, bid documents, contract documents, and all other relevant documentation.

Task B2.0: Daily Construction Reports. The onsite inspectors shall maintain daily reports of the general work performed, visitors to the site, daily production, weather and site condition, field orders, progress photos, material testing, special inspections, documentation of delays, non-conformance, punch lists, and other material and work facts and issues regarding the production of the work. The daily reports and logs shall be available to GWA project team for review at any time via the project management software.

Task B3.0: Progress Photo Log and Live Video Feed:

Task B3.1: Progress Photo Log. The CM shall prepare and retain a construction progress photo log in an album organized by year, month, and day. The photo log shall capture the different phases of the project – pre-construction, construction, and post-construction. The photo log shall be digital and provided to GWA at the end of the project.

Task B3.2: Live Video Feed. The CM shall provide 24 hour monitoring camera(s) to be installed at each project site to allow for regular monitoring of the project work. The camera system will allow for remote view and playback functions. A time-lapse video of the entire project shall be provided to GWA at the end of the project.

Task B4.0: Submittal and Shop Drawings. The CM shall review and act on (accept or reject) submittals required by the Contract documents. The CM shall review and provide comments

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regarding shop drawings, work drawings, material submittals, traffic control plan, safety plan, demolition plan, and other submittals for conformance with the Contract Documents. The CM reviewer shall be a competent person. In the event of a Contractor request for a time extension or material or equipment substitution, the CM shall make a recommendation to GWA regarding the substitution. The GWA Chief Engineer or his authorized representative will approve the substitution.

Task B5.0: Contractor Project Schedules. The CM shall review the Contractor's work schedule for accuracy and for efficient sequencing of the work. The CM shall provide recommendations to the Contractor to make changes deemed necessary and coordinate approval of the revised (recovery) schedule with GWA. Any delays shall be documented and notified to GWA and the Contractor when actual progress is behind schedule. The CM shall adhere to the requirements set forth in the Contract document for Contractor project schedule tracking and review.

Task B6.0: Payment Request. The CM shall receive and process payment requests from the Contractor. Payment requests shall be reviewed to be in compliance with the Contract documents and with the actual work completed. Upon completion of the review, the CM shall make any necessary adjustments, certify, and forward the request to GWA for processing of the payment. The CM shall submit their review, recommendation, acceptance, or rejection within five (5) working days of receipt from the Contractor. We assume the payment application will be a standard AIA or EJCDC.

Task B7.0: Payroll Report. The CM shall review any payroll submittals required by the Contract Documents including prevailing wage submissions. At the minimum, the Contractor and its subcontractors shall provide bi-weekly pay records for each of its employees on the project. The CM shall conduct two (2) random employee interviews every two (2) weeks to verify the pay request information. Upon completion of the review, the CM shall require the Contractor to make any necessary adjustments, certify, and forward the Payroll report along with the pay request to GWA for processing. Our review will be based on the wage rates provided in the bid package.

Task B8.0: Project Meetings. The CM shall schedule, arrange, and conduct conferences and meetings as required for clear communication of the Contract requirements and adherence to project schedules.

Task B8.1: Pre-construction Conference. The CM shall prepare for, chair, and provide meeting minutes for the pre-construction conference. The preconstruction conference shall be arranged to discuss mobilization, prosecution of work, safety, environmental protection, historic preservation, processing payments, material submittals, testing procedure, project schedules, inspections, and all other contract issues as necessary.

Task B8.2: Weekly Progress Meetings. The CM shall arrange for a weekly progress meeting with the Contractor and GWA to discuss progress of work, Contract requirements, and other issues related to the administration and prosecution of work. The CM shall prepare meeting minutes for all progress meetings with contractors, sub-contractors, GWA, and all other parties. The meeting minutes shall include action items from week to week until it has been completed.

Task B8.3: Special/Stakeholder Coordination Meetings. The CM shall arrange meetings between the Contractor and GWA, and other parties such as GEPA, DPW, GPA, etc. and other

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Stakeholders as necessary to address project issues that require decisions that cannot be made by the CM or to resolve regulatory concerns.

Task B9.0: As-Built Drawings:

Task B9.1: As-Built Drawing Review. After each weekly meeting, the CM shall review the Contractor's review drawings to ensure that they are current and capture any deviations from the original plan set.

Task B9.2: Maintain As-Built Drawing. The CM shall maintain a separate set of red-line as-built drawings on site. Drawings shall be available for GWA at any time. Monthly as-built documents shall be uploaded to the project management software system.

Task B10.0: Request for Information. The CM shall track Requests for Information (RFI) and maintain an RFI log; coordinate receipt of answers from other sources; and provide RFI responses with GWA's input regarding any aspect of the Contract documents, which includes the plans and technical specifications.

Task B11.0: General Compliance Monitoring. The CM shall evaluate and ensure Contractor compliance with all local and federal labor laws applicable to the Project. Any violations shall be immediately reported to GWA. Compliance monitoring shall include but not limited to the following:

Task B11.1: Regulations and Laws. The CM shall monitor compliance with Territorial and/or Federal laws, regulations, and rules.

Task B11.2: Labor Laws. The CM shall monitor Contractor and subcontractor procedures to verify legal status of employees on site. Verify bi-weekly compliance with labor requirements for federally funded projects including posting of wage rate schedules at the job site and safety requirements.

Task B11.3: Licensure. To the best of our ability, the CM shall confirm that the Contractor and its subcontractors and their workers have all required licenses and ensure that said licenses are valid throughout the terms of the Contract.

Task B11.4: Permit Compliance. To the best of our ability, the CM shall monitor and track Contractor's compliance in obtaining required permits and approvals.

Task B11.5: Insurance. To the best of our ability, the CM shall review the Contactor's insurance documents that are submitted to GWA for compliance with Contractor requirements. The CM shall track insurance documents, ensure insurance is valid throughout the term of Contract and maintain an insurance certificate log.

Task B12.0: Claims and Disputes. The CM shall promptly notify GWA regarding any issues that arise during construction of the project that could result in claims and/or disputes. The CM shall provide the following services to assist GWA with the resolution of claims and disputes:

Task B12.1: Claim Records. Maintain copies of all verbal and written communications, submittals, testimony, photos, and meetings regarding a potential dispute and promptly submit all originals to the Chief Engineer and Attorney for GWA.

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Task B12.2: Claims Reviews & Interpretation. Review claims submitted by the Contractor. Provide GWA with interpretation of Contract drawings and specifications and provide written recommendations to GWA regarding the solution of the dispute. At the outset of the Contract, the CM shall work with the Contractor to provide pricing for equipment, material, personnel, and other relevant considerations as specified in the bid. Prices agreed upon shall be used in any subsequent Change Order. No amounts shall be paid except for actual losses incurred by the Contractor through no fault of their own or for risks not allocated to the Contractor under the bid.

Task B13.0: Change Order Negotiations and Review:

Task B13.1: Change Order Review. Track all change orders and maintain a change order log. Provide change order evaluations, negotiations, and recommendations for approval by GWA. Change orders shall not be made when the Contractor has assumed such risk in the bid. Change orders may include requests for additional payments for differing site conditions and the CM shall utilize the bid documents to determine if a change order is warranted. The CM shall submit change order requests and supporting documentation to GWA for approval within ten (10) working days of receipt from the Contractor wherever practical.

Task B13.2: Change Order Negotiations with Contractor. Prepare independent cost estimates and negotiate change orders with the Contractor subject to GWA approval (final approval of negotiated change orders can only be made by the GWA General Manager).

Task B13.3: Change Order Documentation and Administration.
The CM shall maintain copies for all approved change orders (originals to be provided to GWA) and ensure that subsequent pay requests accurately represent these change orders. Approved change orders shall be administered by the CM along with other work elements according to the provisions of this scope of work.

Task B14.0: Design Changes and Verification Request:

As directed by GWA, prepare changes to the Contract technical documents (design and specifications) required to address a change order. GWA will direct the CM to make design changes only when changes are deemed by the GWA Chief Engineer and the Engineer of Record to have no material effect on the original intent of the design. All other design changes shall be forwarded to the Engineer of Record for processing.

If the request for change will materially change the original design, the CM shall coordinate with the Engineer of Record to accomplish the necessary design changes. The CM shall prepare a design change/verification request (DCVR) for submission to and for the approval of the Engineer of Record. If the required changes to the design are not covered within the original design scope of service, the CM will prepare a design scope amendment; solicit a fee proposal for the amendment on behalf of GWA, and assist with the negotiations.

Task B15.0: Construction Monitoring, Special Inspection, and Quality Control Monitoring.
The CM shall provide construction management and onsite inspection observation services to ensure that the work is accomplished in accordance with the Contract documents.
Project field staff shall review project documents, conduct daily observations, special inspections (where applicable), prepare and submit daily observation and special inspection reports; communicate deficiency issues and resolve with Contractor; and update a non-

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compliance log. It is anticipated that during peak construction as many as four (4) field staff may be present at the site during normal working hours.

Task B15.1: Project Manager. The CM will assign a part time Project Manager (PM) to the Guam Northern and Southern GWA Reservoir project. The PM will be responsible for general over-sight of the project, formal correspondence with GWA and the Contractor, and the professional and technical accuracy of all work and materials of the project.

Task B15.2: Resident Engineer. A full time Resident Engineer (RE) shall be assigned to manage all three (3) sites and will be at one (1) of the sites during normal working hours unless attending project related meetings or during holidays, vacation, or sick days. The Resident Engineer (RE) will determine along with the Project Manager (PM), which field staff will be onsite but it may be comprised of civil, structural, electrical, or mechanical field staff with the intent that there will be at least one (1) of them on site during normal working hours and will be supported by additional Special Inspectors as described in Task 15.4.

Task B15.3: Onsite Construction Inspector. The CM shall provide construction inspector staff at each of the three (3) sites to monitor the construction. The Resident Engineer and onsite field staff shall have demonstrable experience (satisfactory to GWA) relative to the discipline and type of work being performed. Project field staff shall review project documents, conduct daily observations, special inspections (where applicable), prepare and submit daily observation and special inspection reports, communicate deficiency issues and resolve with Contractor, and update a non-compliance log.

Task B15.4: Special Inspector. In addition to general compliance inspections, the CM shall provide special inspections services in accordance with IBC 2009, Chapter 17 by a person with demonstrable experience (satisfactory to GWA) related to concrete placement, structural field welding, field welding of reinforcement, concrete anchoring, expansion bolts, shotcrete application, high strength bolting, reinforcing steel placement, pre-stressing operations, grading, excavation, backfilling, foundation probing and injection, and other operations that require special inspections. The Special Inspections staff shall be accepted by DPW and approved by GWA before inspection.

SCADA, mechanical, and electrical inspections will be handled by competent staff on an "on-call" basis to periodically observe these phases of the construction. The same staff will be used to provide discipline specific submittal, shop drawing, and RFI review and response support. The staff shall have demonstrable experience relative to the discipline and type of work being performed.

Task B16.0: Testing (Quality Assurance).

Task B16.1: Contactor Testing. Schedule, observe, approve or reject, and document testing required under the Contract to be performed by the Contractor.

Task B16.2: Construction Quality Assurance Testing. The CM shall provide the following CQA testing to monitor the Contractor's independent testing firm:

SPECIAL TESTING	STANDARD	FREQUENCY
Concrete Compressive Testing: Water tank, structures, encasement, hand holds,	ASTM C-39	See attached QA Summary of Services

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electrical and communication vaults, pavement, retaining walls, drilled piles, etc.		
Backfill Compaction Testing: Over-excavation, tank foundation, structure foundations, manholes, vaults, electrical & communication hand holes, pavement, etc.	ASTM D-698 ASTM D-6938	See attached QA Summary of Services
Soil and Aggregate Analysis: Subgrade, limestone, base course, general fill, and structural fill, etc.	ASTM C-136 ASTM C-117 ASTM C-40 ASTM D-1140 ASTM D-1183 ASTM D-4318	See attached QA Summary of Services

Task B16.2: GWA Testing. Coordinate and monitor testing required to be performed by GWA.

Task B17.0: Acceptance. The CM shall promptly reject, orally, or in writing, any construction work that does not fully comply with Contract documents. Within 24 hours of notification to the Contractor that work elements have been rejected, the CM shall provide a written description of the deficiency to the GWA Chief Engineer for his/her concurrence. When concurrence has been obtained, the Contractor shall be directed to correct the work. The CM shall promptly advise the GWA Project Manager or the GWA Chief Engineer if the Contractor fails to correct or remove the defective work.

The CM shall issue written stop work orders to the Contractor and immediately provide GWA with a copy for a portion of or the entire Contract non-compliance issues as follows:

- If condition of work or Contractor actions threaten the health and safety of Contractor personnel, GWA representatives, or the public in such cases, stop work orders may be oral depending on the circumstances with written stop work order to follow.
- With prior notification and approval of the GWA Chief Engineer or Project Manager in all other cases.

Task B18.0: Construction QA Survey Services. The CM shall conduct survey and field measurements as necessary to verify that the work is located according to the plans and specifications. Changes to the horizontal and vertical alignments and elevations shall be made only with the approval of the GWA Chief Engineer.

- Pipeline Alignments and Location of Structures: Spot check Contractor's construction staking to verify the pipeline alignments and structure locations are as called for on the plan and specifications and in order to ensure that the work is in a location within lawful and approved Rights-of-Way and easements.
- Elevations: Spot check with Contractor's elevations for foundations, pads, pipe line inverts, backfill thickness, manholes, and other structures for which vertical elevations is a critical design element.
- Construction Survey Quality Assurance: The CM shall provide, at the minimum, the following CQA survey to monitor the Contractor's independent survey firm.
- See attached QA Summary of Services for a project specific list of those items to be verified. In general, the following work shall be provided: under-tank piping, over-excavation, tank foundation, vaults, pavement, water line, bench marks, etc.

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Task B19.0: Project Closeout (Punch List and Project Closeout Inspections). Throughout the construction of the project, the CM shall prepare and maintain a list of defects and deficiencies in the work which must be corrected by the Contractor prior to final acceptance of work. The list shall be provided to all members of the pre-final and final inspection team. The list shall be revised after inspections to reflect additional items identified during the inspection. Coordinate with the Contractor to ensure that all punch list items have been completed. When all items have been completed, inform GWA in writing recommending that the work be accepted.

Schedule, arrange, and conduct preliminary, pre-final, and final inspections of work with Contractor, GWA, GEPA, DPW, and other stakeholders in this project.

Task B19.1: Deficiency Log. Prepare and maintain a list of defects and deficiencies in the work which must be corrected by the Contractor prior to final acceptance of work.

Task B19.2: Preliminary Inspection. Preliminary inspections shall be arranged as necessary for specific work elements that require the certification and approval of other agencies.

Task B19.3: Pre-final Inspection. A pre-final inspection shall be conducted after substantial completion of the work.

Task B19.4: Final Inspection. The final inspection shall be conducted after correction of pre-final inspection punch list items.

Task B20.0: Train and Warranty Periods.

Task B20.1: Startup Training & Maintenance Procedures Coordination. The CM shall coordinate with the Contractor to schedule and conduct startup training and standard maintenance procedures required by the Contract documents.

Task B20.2: Master Warranty Package. The CM shall maintain a copy of the warranties and compile associated Manufacturer and Contractor warranty documents. Warranty information shall be included in the final project report. All original warranty documents shall be provided to GWA along with Lien Release Information from the Contractor.

Task B21.0: Equipment.

Task B21.1: Pressure Data Loggers. The CM shall provide GWA with 15 water pressure data loggers, batteries, lock boxes, chains, padlocks, and associated fittings. The water pressure data loggers shall contain USB downloading, water resistant case, delay start feature, and 0-300 PSI range. For the purposes of this proposal, the cost of five (5) data loggers has been carried in each of the three (3) projects. Product data for the above has been included as an attachment to this document.

Task B21.2: Equipment. The CM shall provide GWA with a Panasonic Toughbook 20 with Windows Pro operating system per the attached product data. For the purposes of this proposal, the cost of Toughbook has been divided equally and 1/3 of the cost was carried in each of the projects.

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Task B22.0: Expenses. The CM has summarized the costs associated with reports & reproduction, mileage, live video fee, website access & maintenance, project management information system (EADOC), QA soil & aggregate analysis, QA backfill compaction testing, QA concrete compressive strength testing, QA survey verification, etc. as a single total for all three (3) projects and carried the average amount equally in each of the projects.

C. POST-CONSTRUCTION SERVICES:

Task C1.0: Final Report. The CM shall prepare a final report after written acceptance of the work by GWA. The final report shall include a narrative documentation of all significant design and construction events and issues and shall become a historical record for the project. The Final Report shall include:

- All communication documentation
- All design documentation
- All construction documentation
- Warranty information
- Operation and maintenance information
- Asset management registry

Deliverables (electronic pdf files and 5 hard copies)**:**

- CM Final Report

Task C2.0: Record Drawings. After the conclusion of the project, the CM shall review and approve the official record drawings prepared by the Contractor.

Deliverables (electronic pdf files and 5 hard copies)**:**

- As-Built Record Drawings

IV. CLARIFICATIONS AND ASSUMPTIONS:

1) For this project, the CM's onsite presence shall consist of the following:

a) ***One (1) part time Project Manager*** (assumed 45%) equally distributed to each of the three (3) project locations.
b) ***One (1) full time Resident Engineer*** (assumed 100%) equally distributed to each of the three (3) project locations.
c) ***Three (3) full time Civil/Structural Inspector*** (assume 100%), one at each of the three (3) project locations.
d) ***One (1) part time Structural Special Inspector*** (assumed 24%), equally distributed to each of the three (3) project locations.
e) ***One (1) part time SCADA Inspector*** (assume 21%), equally distributed to each of the three (3) project locations.
f) ***One (1) part time equivalent of Mechanical Engineer/ Mechanical Inspector*** (assume 21%), equally distributed to each of the three (3) project locations.
g) ***One (1) part time equivalent of Electrical Engineer/ Electrical Inspector*** (assume 21%), equally distributed to each of the three (3) project locations.

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h) ***One (1) part time equivalent of Submittal Manager/Project Manager Assistant*** (assume 45%) at each of the three (3) project locations, and various part time support as needed from the Principal, additional inspectors, engineers, etc.

2) Per the June 27, 2017 CM Services scoping meeting with GWA, the following project durations were used:

a) Santa Rosa GWA Reservoir Replacement ***(365 calendar days).***
b) Santa Rita GWA Reservoir Replacement ***(410 calendar days).***
c) Sinifa GWA Reservoir Replacement ***(365 calendar days).***

As requested by GWA, the CM shall provide limited close-out services for a period of 30 to 60 days after substantial completion provided all the construction work is complete and support is mainly at an administrative level (i.e. does not require full time staff to be assigned to the job site).

3) In an effort to reduce costs, the following assumptions have been made:

a) Preparation of Construction Management Plan (CMP) assumes a single document can be prepared for all three projects. One third effort carried in each fee proposal.
b) Contract Bidding effort assumes preparation if a single Pre-Bid Meeting, Contract Bidding Management effort, Bid Opening, Review of Bid Packages, Preparation of Recommendation Memorandum, and Technical Memorandums for all three (3) projects as a single bid package. One third of the effort has been carried in each fee proposal.
c) At the end of the project, the CM will turn-over each of the EarthCam - Construction Cam Lite HD to GWA. It is our understanding that GWA will have the cameras permanently installed at each of the three (3) sites by others. The cameras have an approximate value of ***$45,000.00*** excluding software support and archiving services which are excluded. Note, GHD access to the EarthCam environment is subject to compliance with their terms of use for the service. GHD is a subscriber to the service only and has no control over the performance of the EarthCam Service but will take all reasonable measures and actions within our power to ensure good performance of the system.

4) Inspection and testing of any existing steel storage reservoirs including draining and cleaning is excluded for this scope of services.

5) An amount of $18,930.00 for the Project Management Information System (PMIS), Bentley's ProjectWise Construction Management Service (EADOC), was budgeted for each project. Our fee assumes a total of 15 users for each project at a cost of approximately $180.00 per user per quarter as follows:

a) Client **– two (2)**
b) Construction Manager **– five (5)**
c) Contractor **– five (5)**
d) Spare **– three (3)**

Additional users can be provided at the request of GWA via Change Order. Note, GHD Access to the ProjectWise Construction Management environment is subject to compliance

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with the Bentley Systems terms of use for the service. GHD is a subscriber to the ProjectWise Construction Management service only and has no control over the performance of Bentley's ProjectWise Construction Management Service but will take all reasonable measures and actions within our power to ensure good performance of the system.

6) The CM will use Primavera P6 project management software to track the Contractor's project schedule, construction cost, resource tracking, and cost management.

7) The CM shall conduct random employee interviews every two (2) weeks for two (2) employees to verify the pay request information.

8) Job Site Safety is the sole responsibility of the Contractor. The CM assumes the Contractor shall perform all work in accordance with the requirements of the Contract Documents, applicable federal and local regulations, compliance with regulations of public agencies having jurisdiction, including safety and health requirements of the Territory of Guam and the Occupational Safety and Health Administration of the US Department of Labor (OSHA) as may be required.

In the event that the GHD believes that the Contractor is not conducting their work in compliance with OSHA requirements, we may request GWA to bring in an independent third party safety expert to determine the extent of the Contractor's compliance and potential mitigation for non-compliance. We recommend that GWA include language in the contract documents requiring the contractor to pay for this additional cost in the event it is necessary.

9) ***Stop Work Orders:*** It is understood that the CM may issue written stop work orders to the Contractor in accordance with GWA policies for a portion of or the entire project for Contract non-compliance issues as follows:

a) If in the opinion of the CM, the condition of work or Contractor actions threaten the health and safety of Contractor's personnel, GWA representatives, CM Staff, or the public in such cases, stop work orders may be oral depending on the circumstances (with written stop work order to follow).

b) With prior notification and approval of the GWA Chief Engineer or GWA Project Manager in all other cases.

10) ***Authority to Direct Contractor Operations:*** The CM shall direct the Contractor's Operations under the following conditions:

a) ***Safety and Public Convenience:*** In order to minimize inconvenience to the public and businesses, and in order to protect the safety of the public.

b) ***Compliance:*** In order to affect compliance with local and federal regulations, such as those dealing with traffic control, environmental protection, cultural protection, and historic protection.

11) No formal Partnering Program will be provided but GHD will incorporate partnering to the extent practicable to ensure that environmental commitments are met; complete the

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project on time by resolving disputes quickly; finish within budget by proactively monitoring costs and facilitating creative solutions when faced with potential cost increases; ensure that quality is met by adequate oversight by the Contractor and CM.

12) An amount has been budgeted as detailed in the attached ***QA Services Summary*** to provide QA Testing. Material laboratory testing, Compaction testing, and Concrete Compressive Strength Testing shall be provided by a licensed geotechnical engineering firm. If additional services are required, it shall be brought to GWA's attention and a fee negotiated.

13) An amount has been budgeted as detailed in the attached ***QA Services Summary*** to provide QA Field Survey verification services. Survey verification services will be provided by a licensed land surveyor. If additional work is required it will be brought to GWA's attention and a fee negotiated.

14) No generator, fuel storage or pump systems are part of the project.

15) No project specific permitting services are included in this scope of work, but GHD will assist GWA, the designer, and the Contractor on a limited basis to help facilitate procurement of permits as expeditiously as possible.

16) No Archeological survey, Section 106 Historic Preservation, biological resource monitoring, Section 7 Endangered Species Act or related work is included.

17) Any and all permit fees are excluded.

18) The scope assumes the processing of up to ***100 RFIs*** (Task B10.0) per project, with the understanding that the EOR will provide responses to all design related RFIs. The scope also assumes ***five (5) change orders*** for (Task B13.0) and ***three (3) design changes*** for (Task B14.0). If additional work is required it will be brought to GWA's attention and a fee negotiated.

19) Warranty follow-up is not included in the scope. If required, a fee will be negotiated with GWA.

20) These CM Services are being provided for the construction of improvements shown on the ***90% Design package.*** If additional improvements are added to the construction contract then a fee for additional CM Services will be negotiated with GWA.

21) The Construction contract shall include requirements that the Construction Contractor pay for all overtime for inspection and special inspection requested by the Contractor outside of the normal 40 hour work week and this requirement will be strictly enforced and supported by GWA with payment coming out of the Contractor's Pay Request and then distributed to GHD by GWA via change order.

22) GWA agrees to negotiate with GHD for change orders for additional construction phase services due to construction delays, time extensions, additional work, adverse weather delays ***(in excess of 30 days),*** or any other reason not due to negligent acts of GHD until final acceptance of the project is achieved.

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VI. FEE SCHEDULE

TABLE 01 - SANTA RITA GWA RESERVOIR

Task Description	Amount
Pre-Construction	$45,820.00
Construction	$905,939.38
Post-Construction	$31,802.00
SUBTOTAL	$983,561.38
GRT	$40,985.00
Santa Rita Total	**$1,024,546.39**

TABLE 02 - SANTA ROSA GWA RESERVOIR

Task Description	Amount
Pre-Construction	$45,820.00
Construction	$859,665.38
Post-Construction	$31,802.00
SUBTOTAL	$937,287.38
GRT	$39,056.77
Santa Rosa Total	**$976,344.15**

TABLE 03 - SINIFA GWA RESERVOIR

Task Description	Amount
Pre-Construction	$45,820.00
Construction	$859,665.38
Post-Construction	$31,802.00
SUBTOTAL	$937,287.38
GRT	$39,056.77
Sinifa Total	**$976,344.15**

TABLE 04 - SANTA RITA SANTA ROSA & SINIFA GWA RESERVOIR

Task Description	Amount
Pre-Construction	$137,460.00
Construction	$2,625,270.15
Post-Construction	$95,406.00
SUBTOTAL	$2,858,136.15
GRT	$119,098.53
GRAND TOTAL	**$2,977,234.69**

See attached spreadsheets for detailed information. Note, work to be invoiced monthly based on prorated effort.

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Santa Rosa, Sinifa, and Santa Rita Tank System Upgrades
Fee Summary
09/22/2017

	Amount
Pre-Construction	$45,820.00
Construction	$905,939.38
Post-Construction	$31,802.00
SUBTOTAL	$983,561.38
GRT	$40,985.00
Santa Rita TOTAL	**$1,024,546.39**

	Amount
Pre-Construction	$45,820.00
Construction	$859,665.38
Post-Construction	$31,802.00
SUBTOTAL	$937,287.38
GRT	$39,056.77
Santa Rosa TOTAL	**$976,344.15**

	Amount
Pre-Construction	$45,820.00
Construction	$859,665.38
Post-Construction	$31,802.00
SUBTOTAL	$937,287.38
GRT	$39,056.77
Sinifa TOTAL	**$976,344.15**

	Amount
Pre-Construction	$137,460.00
Construction	$2,625,270.15
Post-Construction	$95,406.00
SUBTOTAL	$2,858,136.15
GRT	$119,098.53
GRAND TOTAL	**$2,977,234.69**

FEE PROPOSAL **09/22/2017** **SANTA RITA GWA RESERVOIR REPLACEMENT**

Activity Number	Task Description	Principal Engineer	Project Manager	QA Manager/Design Review	Resident Engineer	Civil Inspector	Civil/Structural Inspector	Special Inspector	SCADA Specialty	SR. Mechanical Engineer	Mechanical Inspector	SR. Electrical Engineer	Electrical Inspector	CADD Support	Scheduler Mgmt	Submittal/RFI Manager	Estimating Support	Project Manager Ass't	Amount
	HOURLY LABOR RATES	$246	$166	$226	$126	$126	$136	$196	$175	$155	$125	$155	$125	$121	$150	$126	$110	$96	
A	**PRECONSTRUCTION PHASE SERVICES**																		
A1.0	**Design Document Review**																		
A1.1	Design Document Review **(100% 1 ea.)**	-	8	16	24	-	-	-	-	-	-	-	-	-	-	-	-	-	7,968
A1.4	Final Design Review Report	-	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-	2,244
A2.0	**CM Quality Assurance**																		
A2.1	Review Contractor CM Quality Control Plan	-	4	4	4	8	-	-	-	-	-	-	-	-	-	-	-	-	3,080
A2.2	Prepare Construction Quality Assurance Plan	-	8	16	20	60	-	-	-	-	-	-	-	-	-	-	-	-	15,024
A3.0	**Construction Management Plan**																		
A3.1	Prepare Construction Management Plan **(assume 1 for all tanks)**	-	4	4	8	4	-	-	-	-	-	-	-	-	-	-	-	-	3,080
A4.0	**Contract Bidding (assume all tanks bid together)**																		
A4.1	Pre-Bid Meeting Preparation & Conduct	-	2	2	12	8	-	-	-	-	-	-	-	-	-	-	-	-	3,304
A4.2	Contract Bidding Management	-	2	2	20	4	-	-	-	-	-	-	-	-	-	-	-	-	3,808
A4.3	Bid Opening	-	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	1,288
A4.4	Review Bid Packages	-	2	2	4	4	-	-	-	-	-	-	-	-	-	-	-	-	1,792
A4.5	Prepare Recommendation Memorandum	-	2		4	4	-	-	-	-	-	-	-	-	-	-	-	-	1,340
A4.6	Prepare Technical Memorandum(s)	-	2	2	4	4	-	-	-	-	-	-	-	-	-	-	-	-	1,792
	PRECONSTRUCTION PHASE HOURS SUBTOTAL	-	38	54	110	98	-	-	-	-	-	-	-	-	-	-	-	-	**300**
	PRECONSTRUCTION PHASE SUBTOTAL	-	6,308	12,204	13,860	12,348	-	-	-	-	-	-	-	-	-	-	-	-	**44,720**
	PRECONSTRUCTION PHASE EXPENSES SUBTOTAL																		**1,100**
	PRECONSTRUCTION PHASE SERVICES & EXPENSES TOTAL	-	6,308	12,204	13,860	12,348	-	-	-	-	-	-	-	-	-	-	-	-	**45,820**
B	**CONSTRUCTION PHASE SERVICES**																		
B1.0	**Project Records & Document Control**																	385	36,960
B2.0	**Daily Construction Reports (assumes 5 days/wk @ 54 weeks = 270 logs)**		68		44		405												71,912
B3.0	**Progress Photo Log & Live Video Feed**																		
B3.1	Progress Photo Log						270												36,720
B3.2	Live Video Feed **(also see expenses)**													54					6,534
B4.0	**Submittal and Shop Drawings**																		
B4.1	Submittal Review **(assume 350)**				29	-	150	-	16	24		24				365			80,284
B4.2	Shop Drawing Review **(assume 75)**				6		75	60	16	24		24				75			42,406
B4.3	Plan Review (Traffic Control, Demolition, Dewatering, etc.)				6	-	40												6,196
B5.0	**Contractor Project Schedules (assume 13)**		13		8										100				18,166
B6.0	**Payment Request (assume 13)**		8		8														2,336
B7.0	**Payroll Report**																		
B7.1	Review Payroll Submittals **(assume 26)**				8		52												8,080
B7.2	Conduct Random Employee Interviews **(assume 2 per week)**						108												14,688
B8.0	**Project Meetings**																		
B8.1	Pre-Construction		4	4	4		4									4			3,120
B8.2	Conduct Weekly Progress Meetings **(54 x 2 hours plus prep & minutes)**		54		108		54									-			29,916
B8.3	Special/ Stakeholder Coordination Meetings **(assume 13 total @ 2.0 hours ea)**		26		26		13												9,360
B9.0	**As-Built Drawing Reviews**																		
B9.1	Weekly Review of Contractor's Red-Line Drawings **(assume 1 hour/week)**					-	54												7,344
B9.2	Maintain CM As-Built Drawings **(assume 2 hours/week)**				9	-	54												8,478
B10.0	**Request for Information (assumes 100 RFI's at 2 hours ea.)**		25		50		-		24	24		24				100			34,690
B11.0	**General Compliance Monitoring**																		
B11.1	Regulations				13														1,638
B11.2	Labor Laws				8														1,008
B11.3	Licensure		4		4														1,168
B11.4	Permit Compliance		16		5														3,286
B11.5	Insurance		4																664
B12.0	**Claims and Disputes**																		

FEE PROPOSAL **09/22/2017** **SANTA RITA GWA RESERVOIR REPLACEMENT**

Activity Number	Task Description	Principal Engineer	Project Manager	QA Manager/Design Review	Resident Engineer	Civil Inspector	Civil/Structural Inspector	Special Inspector	SCADA Specialty	SR. Mechanical Engineer	Mechanical Inspector	SR. Electrical Engineer	Eletrical Inspector	CADD Support	Scheduler Mgmt	Submittal/RFI Manager	Estimating Support	Project Manager Ass't	Amount
B12.1	Claims Records				13	-	20	20											8,278
B12.2	Claims Review & Interpretation		20		13				8	8		8					100		19,838
B13.0	**Change Order Review and Negotiations**																		
B13.1	Change Order Review		20		13	-	20	20											11,598
B13.2	Change Order Negotiations with Contractor		20		13														4,958
B13.3	Change Order Documentation & Administration		20		13														4,958
B14.0	**Design Changes and Verification Request**																		
B14.1	CM Design/Technical Support Effort		20		13		40		6	6		6							13,308
B14.2	Prepare Design Change/Verification Requests (DCVR)													65					7,865
B14.3	Prepare EOR Design SOW Ammendment & Fee Negotiations		20		13		20												7,678
B15.0	**Construction Monitoring, Special Inspection, and Quality Control Monitoring**																		
B15.1	Project Manager		9		239														31,608
B15.2	Resident Engineer **(assume 1/3 Time @ 713 hrs)**																		
B15.3	Onsite Construction Inspector **(assumes Full Time @ 2,160 working hrs)**					-	497												67,592
B15.4	Special Inspections **(Prepare DPW Monthly Report)**			108	13		-	80			40		40					156	66,702
B16.0	**Testing (Quality Assurance)**								12	12		12							5,820
B16.1	Contractor Testing **(part of Task B15.1)**					-	108												14,688
B16.2	CQA Testing & Monitoring **(also see expenses)**					-	108												14,688
B16.3	GWA Testing **(part of Task B15.1)**					-	24												3,264
B17.0	**Acceptance**																		
B17.1	Monitor, Document, & Manage Non-Compliance Issues				18		54												9,612
B18.0	**Construction QA Survey Services (part of Task B22.4)**				18		54												9,612
B19.0	**Project Closeout (Punch List and Project Closeout Inspections)**																		
B19.1	Deficiency Log				18	-	54												9,612
B19.2	Preliminary Inspection				8	-	8		8	8		8							5,976
B19.3	Pre-Final Inspection				8	-	8		8	8		8							5,976
B19.4	Final Inspection				8	-	8		8	8		8							5,976
B20.0	**Train and Warranty Periods**																		
B20.1	Startup Training & Maintenance Procedures Coordination				8	-	20												3,728
B20.2	Master Warranty Package				8		20												3,728
B21.0	**Equipment**																		
B21.1	Data Loggers (15 ea.)																		6,309
B22.2	Panasonic Toughbook 20																		880
B22.0	**Expenses**																		
B22.1	QA Soil & Aggregate Analysis																		3,245
B22.2	QA Backfill Compaction Testing																		3,595
B22.3	QA Concrete Compressive Strength Testing																		28,937
B22.4	QA Survey Verification																		38,638
B22.5	Live Video Feed, Website Access & Maintenance																		32,607
B22.6	Project Management Information System																		18,150
B22.7	Mileage																		8,263
B22.8	Other																		3,300
	CONSTRUCTION PHASE SERVICES HOUR SUBTOTAL	-	351	112	773	-	2,342	180	106	122	40	122	40	119	100	544	100	541	**1,566**
	CONSTRUCTION PHASE HOUR UTILIZATION		15%	5%	33%		100%	8%	5%	5%	2%	5%	2%	5%	4%	23%	4%	23%	
	CONSTRUCTION PHASE SERVICES SUBTOTAL	-	58,266	25,312	97,398	-	318,512	35,280	18,550	18,910	5,000	18,910	5,000	14,399	15,000	68,544	11,000	51,936	**762,017**
	CONSTRUCTION PHASE EXPENSES SUBTOTAL																		**143,922**
	CONSTRUCTION PHASE SERVICES & EXPENSES TOTAL	-	58,266	25,312	97,398	-	318,512	35,280	18,550	18,910	5,000	18,910	5,000	14,399	15,000	68,544	11,000	51,936	**905,939**

FEE PROPOSAL **09/22/2017** **SANTA RITA GWA RESERVOIR REPLACEMENT**

Activity Number	Task Description	Principal Engineer	Project Manager	QA Manager/Design Review	Resident Engineer	Civil Inspector	Civil/Structural Inspector	Special Inspector	SCADA Specialty	SR. Mechanical Engineer	Mechanical Inspector	SR. Electrical Engineer	Electrical Inspector	CADD Support	Scheduler Mgmt	Submittal/RFI Manager	Estimating Support	Project Manager Ass't	Amount
C	**POST CONSTRUCTION SERVICES**																		
C1.0	**Final Report**																		
C1.1	Final Report		8		20		40									-			9,288
C1.2	Asset Management				80														10,080
C2.0	**Record Drawings**																		
C2.1	Signed & Sealed As-built Drawings				4		40							40		-			10,784
	POST CONSTRUCTION PHASE SERVICES HOUR SUBTOTAL	-	8	-	104	-	80	-	-	-	-	-	-	40	-	-	-	-	**232**
	POST CONSTRUCTION PHASE SERVICES SUBTOTAL	-	1,328	-	13,104	-	10,880	-	-	-	-	-	-	4,840	-	-	-	-	**30,152**
	POST CONSTRUCTION PHASE EXPENSES SUBTOTAL																		**1,650**
	POST CONSTRUCTION PHASE SERVICES & EXPENSES TOTAL	-	1,328	-	13,104	-	10,880	-	-	-	-	-	-	4,840	-	-	-	-	**31,802**
ALL	**TOTAL CONSTRUCTION HOURS**	-	397	166	987	98	2,422	180	106	122	40	122	40	159	100	544	100	541	**6,124**
ALL	**TOTAL CONSTRUCTION SERVICES**	-	65,902	37,516	124,362	12,348	329,392	35,280	18,550	18,910	5,000	18,910	5,000	19,239	15,000	68,544	11,000	51,936	**836,889**
ALL	**TOTAL CONSTRUCTION EXPENSES**																		**146,672**
ALL	**TOTAL CONSTRUCTION SERVICES & EXPENSES**	-	65,902	37,516	124,362	12,348	329,392	35,280	18,550	18,910	5,000	18,910	5,000	19,239	15,000	68,544	11,000	51,936	**983,561**
ALL	**SUBTOTAL**																		**983,561**
ALL	**GRT AT 4.167%**																		**40,985**
ALL	**GRAND TOTAL**																		**1,024,546**

FEE PROPOSAL **09/22/2017** **SANTA ROSA GWA RESERVOIR REPLACEMENT**

Activity Number	Task Description	Principal Engineer	Project Manager	QA Manager/Design Review	Resident Engineer	Civil Inspector	Civil/Structural Inspector	Special Inspector	SCADA Specialty	SR. Mechanical Engineer	Mechanical Inspector	SR. Electrical Engineer	Electrical Inspector	CADD Support	Scheduler Mgmt	Submittal/RFI Manager	Estimating Support	Project Manager Ass't	Amount
	HOURLY LABOR RATES	$246	$166	$226	$126	$126	$136	$196	$175	$155	$125	$155	$125	$121	$150	$126	$110	$96	
A	PRECONSTRUCTION PHASE SERVICES																		
A1.0	Design Document Review																		
A1.1	Design Document Review (100% 1 ea.)	-	8	16	24	-	-	-	-	-	-	-	-	-	-	-	-	-	7,968
A1.4	Final Design Review Report	-	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-	2,244
A2.0	CM Quality Assurance																		0
A2.1	Review Contractor CM Quality Control Plan	-	4	4	4	8	-	-	-	-	-	-	-	-	-	-	-	-	3,080
A2.2	Prepare Construction Quality Assurance Plan	-	8	16	20	60	-	-	-	-	-	-	-	-	-	-	-	-	15,024
A3.0	Construction Management Plan																		0
A3.1	Prepare Construction Management Plan (assume 1 for all tanks)	-	4	4	8	4	-	-	-	-	-	-	-	-	-	-	-	-	3,080
A4.0	Contract Bidding (assume all tanks bid together)																		0
A4.1	Pre-Bid Meeting Preparation & Conduct	-	2	2	12	8	-	-	-	-	-	-	-	-	-	-	-	-	3,304
A4.2	Contract Bidding Management	-	2	2	20	4	-	-	-	-	-	-	-	-	-	-	-	-	3,808
A4.3	Bid Opening	-	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	1,288
A4.4	Review Bid Packages	-	2	2	4	4	-	-	-	-	-	-	-	-	-	-	-	-	1,792
A4.5	Prepare Recommendation Memorandum	-	2		4	4	-	-	-	-	-	-	-	-	-	-	-	-	1,340
A4.6	Prepare Technical Memorandum(s)	-	2	2	4	4	-	-	-	-	-	-	-	-	-	-	-	-	1,792
	PRECONSTRUCTION PHASE HOURS SUBTOTAL	-	38	54	110	98	-	-	-	-	-	-	-	-	-	-	-	-	300
	PRECONSTRUCTION PHASE SUBTOTAL	-	6,308	12,204	13,860	12,348	-	-	-	-	-	-	-	-	-	-	-	-	44,720
	PRECONSTRUCTION PHASE EXPENSES SUBTOTAL																		1,100
	PRECONSTRUCTION PHASE SERVICES & EXPENSES TOTAL	-	6,308	12,204	13,860	12,348	-	-	-	-	-	-	-	-	-	-	-	-	45,820
B	CONSTRUCTION PHASE SERVICES																		
B1.0	Project Records & Document Control																	385	36,960
B2.0	Daily Construction Reports (assumes 5 days/wk @ 54 weeks = 270 logs)		68		44		405												71,912
B3.0	Progress Photo Log & Live Video Feed																		0
B3.1	Progress Photo Log						270												36,720
B3.2	Live Video Feed (also see expenses)													54					6,534
B4.0	Submittal and Shop Drawings																		0
B4.1	Submittal Review (assume 350)				29	-	150	-	16	24		24				365			80,284
B4.2	Shop Drawing Review (assume 75)				6		75	60	16	24		24				75			42,406
B4.3	Plan Review (Traffic Control, Demolition, Dewatering, etc.)				6	-	40												6,196
B5.0	Contractor Project Schedules (assume 13)		13		8										100				18,166
B6.0	Payment Request (assume 13)		8		8														2,336
B7.0	Payroll Report																		0
B7.1	Review Payroll Submittals (assume 26)				8		52												8,080
B7.2	Conduct Random Employee Interviews (assume 2 per week)						108												14,688
B8.0	Project Meetings																		0
B8.1	Pre-Construction		4	4	4		4									4			3,120
B8.2	Conduct Weekly Progress Meetings (54 x 2 hours plus prep & minutes)		54		108		54									-			29,916
B8.3	Special/ Stakeholder Coordination Meetings (assume 13 total @ 2.0 hours ea)		26		26		13												9,360
B9.0	As-Built Drawing Reviews																		0
B9.1	Weekly Review of Contractor's Red-Line Drawings (assume 1 hour/week)					-	54												7,344
B9.2	Maintain CM As-Built Drawings (assume 2 hours/week)				9	-	54												8,478
B10.0	Request for Information (assumes 100 RFI's at 2 hours ea.)		25		50		-		24	24		24				100			34,690
B11.0	General Compliance Monitoring																		0
B11.1	Regulations				13														1,638
B11.2	Labor Laws				8														1,008
B11.3	Licensure		4		4														1,168
B11.4	Permit Compliance		16		5														3,286
B11.5	Insurance		4																664
B12.0	Claims and Disputes																		0

FEE PROPOSAL **09/22/2017** **SANTA ROSA GWA RESERVOIR REPLACEMENT**

B12.1	Claims Records				13	-	20	20											8,278
B12.2	Claims Review & Interpretation		20		13				8	8		8					100		19,838
B13.0	**Change Order Review and Negotiations**																		0
B13.1	Change Order Review		20		13	-	20	20											11,598
B13.2	Change Order Negotiations with Contractor		20		13														4,958
B13.3	Change Order Documentation & Administration		20		13														4,958
B14.0	**Design Changes and Verification Request**																		0
B14.1	CM Design/Technical Support Effort		20		13		40		6	6		6							13,308
B14.2	Prepare Design Change/Verification Requests (DCVR)												65						7,865
B14.3	Prepare EOR Design SOW Ammendment & Fee Negotiations		20		13		20												7,678
B15.0	**Construction Monitoring, Special Inspection, and Quality Control Monitoring**																		0
B15.1	Project Manager		-		161														20,286
B15.2	Resident Engineer **(assume 1/3 Time @ 713 hrs)**																		0
B15.3	Onsite Construction Inspector **(assumes Full Time @ 2,160 working hrs)**					-	240												32,640
B15.4	Special Inspections **(Prepare DPW Monthly Report)**			108	13		-	80			40		40					156	66,702
B16.0	**Testing (Quality Assurance)**								12	12		12							5,820
B16.1	Contractor Testing **(part of Task B15.1)**					-	108												14,688
B16.2	CQA Testing & Monitoring **(also see expenses)**					-	108												14,688
B16.3	GWA Testing **(part of Task B15.1)**					-	24												3,264
B17.0	**Acceptance**																		0
B17.1	Monitor, Document, & Manage Non-Compliance Issues				18		54												9,612
B18.0	**Construction QA Survey Services (part of Task B22.4)**				18		54												9,612
B19.0	**Project Closeout (Punch List and Project Closeout Inspections)**																		0
B19.1	Deficiency Log				18	-	54												9,612
B19.2	Preliminary Inspection				8	-	8		8	8		8							5,976
B19.3	Pre-Final Inspection				8	-	8		8	8		8							5,976
B19.4	Final Inspection				8	-	8		8	8		8							5,976
B20.0	**Train and Warranty Periods**																		0
B20.1	Startup Training & Maintenance Procedures Coordination				8	-	20												3,728
B20.2	Master Warranty Package				8		20												3,728
B21.0	**Equipment**																		0
B21.1	Data Loggers (15 ea.)																		6,309
B22.2	Panasonic Toughbook 20																		880
B22.0	**Expenses**																		
B22.1	QA Soil & Aggregate Analysis																		3,245
B22.2	QA Backfill Compaction Testing																		3,595
B22.3	QA Concrete Compressive Strength Testing																		28,937
B22.4	QA Survey Verification																		38,638
B22.5	Live Video Feed, Website Access & Maintenance																		32,607
B22.6	Project Management Information System																		18,150
B22.7	Mileage																		8,263
B22.8	Other																		3,300
	CONSTRUCTION PHASE SERVICES HOUR SUBTOTAL	-	342	112	695	-	2,085	180	106	122	40	122	40	119	100	544	100	541	**1,566**
	CONSTRUCTION PHASE HOUR UTILIZATION	0%	16%	5%	33%	0%	100%	9%	5%	6%	2%	6%	2%	6%	5%	26%	5%	26%	
	CONSTRUCTION PHASE SERVICES SUBTOTAL	-	56,772	25,312	87,570	-	283,560	35,280	18,550	18,910	5,000	18,910	5,000	14,399	15,000	68,544	11,000	51,936	**715,743**
	CONSTRUCTION PHASE EXPENSES SUBTOTAL																		**143,922**
	CONSTRUCTION PHASE SERVICES & EXPENSES TOTAL	-	56,772	25,312	87,570	-	283,560	35,280	18,550	18,910	5,000	18,910	5,000	14,399	15,000	68,544	11,000	51,936	**859,665**

FEE PROPOSAL **09/22/2017** **SANTA ROSA GWA RESERVOIR REPLACEMENT**

C	**POST CONSTRUCTION SERVICES**																		
C1.0	**Final Report**																		
C1.1	Final Report		8		20		40									-			9,288
C1.2	Asset Management				80														10,080
C2.0	**Record Drawings**																		
C2.1	Signed & Sealed As-built Drawings				4		40							40		-			10,784
	POST CONSTRUCTION PHASE SERVICES HOUR SUBTOTAL	-	8	-	104	-	80	-	-	-	-	-	-	40	-	-	-	-	**232**
	POST CONSTRUCTION PHASE SERVICES SUBTOTAL	-	1,328	-	13,104	-	10,880	-	-	-	-	-	-	4,840	-	-	-	-	**30,152**
	POST CONSTRUCTION PHASE EXPENSES SUBTOTAL																		**1,650**
	POST CONSTRUCTION PHASE SERVICES & EXPENSES TOTAL	-	1,328	-	13,104	-	10,880	-	-	-	-	-	-	4,840	-	-	-	-	**31,802**
																			0
ALL	**TOTAL CONSTRUCTION HOURS**	-	388	166	909	98	2,165	180	106	122	40	122	40	159	100	544	100	541	**5,780**
ALL	**TOTAL CONSTRUCTION SERVICES**	-	64,408	37,516	114,534	12,348	294,440	35,280	18,550	18,910	5,000	18,910	5,000	19,239	15,000	68,544	11,000	51,936	**790,615**
ALL	**TOTAL CONSTRUCTION EXPENSES**																		**146,672**
ALL	**TOTAL CONSTRUCTION SERVICES & EXPENSES**	-	64,408	37,516	114,534	12,348	294,440	35,280	18,550	18,910	5,000	18,910	5,000	19,239	15,000	68,544	11,000	51,936	**937,287**
ALL	**SUBTOTAL**																		**937,287**
ALL	**GRT AT 4.167%**																		**39,057**
ALL	**GRAND TOTAL**																		**976,344**

FEE PROPOSAL **09/22/2017** **SINIFA GWA RESERVOIR REPLACEMENT**

Activity Number	Task Description	Principal Engineer	Project Manager	QA Manager/Design Review	Resident Engineer	Civil Inspector	Civil/Structural Inspector	Special Inspector	SCADA Specialty	SR. Mechanical Engineer	Mechanical Inspector	SR. Electrical Engineer	Electrical Inspector	CADD Support	Scheduler Mgmt	Submittal/RFI Manager	Estimating Support	Project Manager Ass't	Amount
	HOURLY LABOR RATES	$246	$166	$226	$126	$126	$136	$196	$175	$155	$125	$155	$125	$121	$150	$126	$110	$96	
A	PRECONSTRUCTION PHASE SERVICES																		
A1.0	Design Document Review																		
A1.1	Design Document Review (100% 1 ea.)	-	8	16	24	-	-	-	-	-	-	-	-	-	-	-	-	-	7,968
A1.4	Final Design Review Report	-	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-	2,244
A2.0	CM Quality Assurance																		0
A2.1	Review Contractor CM Quality Control Plan	-	4	4	4	8	-	-	-	-	-	-	-	-	-	-	-	-	3,080
A2.2	Prepare Construction Quality Assurance Plan	-	8	16	20	60	-	-	-	-	-	-	-	-	-	-	-	-	15,024
A3.0	Construction Management Plan																		0
A3.1	Prepare Construction Management Plan (assume 1 for all tanks)	-	4	4	8	4	-	-	-	-	-	-	-	-	-	-	-	-	3,080
A4.0	Contract Bidding (assume all tanks bid together)																		0
A4.1	Pre-Bid Meeting Preparation & Conduct	-	2	2	12	8	-	-	-	-	-	-	-	-	-	-	-	-	3,304
A4.2	Contract Bidding Management	-	2	2	20	4	-	-	-	-	-	-	-	-	-	-	-	-	3,808
A4.3	Bid Opening	-	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	1,288
A4.4	Review Bid Packages	-	2	2	4	4	-	-	-	-	-	-	-	-	-	-	-	-	1,792
A4.5	Prepare Recommendation Memorandum	-	2		4	4	-	-	-	-	-	-	-	-	-	-	-	-	1,340
A4.6	Prepare Technical Memorandum(s)	-	2	2	4	4	-	-	-	-	-	-	-	-	-	-	-	-	1,792
	PRECONSTRUCTION PHASE HOURS SUBTOTAL	-	38	54	110	98	-	-	-	-	-	-	-	-	-	-	-	-	300
	PRECONSTRUCTION PHASE SUBTOTAL	-	6,308	12,204	13,860	12,348	-	-	-	-	-	-	-	-	-	-	-	-	44,720
	PRECONSTRUCTION PHASE EXPENSES SUBTOTAL																		1,100
	PRECONSTRUCTION PHASE SERVICES & EXPENSES TOTAL	-	6,308	12,204	13,860	12,348	-	-	-	-	-	-	-	-	-	-	-	-	45,820
B	CONSTRUCTION PHASE SERVICES																		
B1.0	Project Records & Document Control																	385	36,960
B2.0	Daily Construction Reports (assumes 5 days/wk @ 54 weeks = 270 logs)		68		44		405												71,912
B3.0	Progress Photo Log & Live Video Feed																		0
B3.1	Progress Photo Log						270												36,720
B3.2	Live Video Feed (also see expenses)													54					6,534
B4.0	Submittal and Shop Drawings																		0
B4.1	Submittal Review (assume 350)				29	-	150	-	16	24		24				365			80,284
B4.2	Shop Drawing Review (assume 75)				6		75	60	16	24		24				75			42,406
B4.3	Plan Review (Traffic Control, Demolition, Dewatering, etc.)				6	-	40												6,196
B5.0	Contractor Project Schedules (assume 13)		13		8										100				18,166
B6.0	Payment Request (assume 13)		8		8														2,336
B7.0	Payroll Report																		0
B7.1	Review Payroll Submittals (assume 26)				8		52												8,080
B7.2	Conduct Random Employee Interviews (assume 2 per week)						108												14,688
B8.0	Project Meetings																		0
B8.1	Pre-Construction		4	4	4		4									4			3,120
B8.2	Conduct Weekly Progress Meetings (54 x 2 hours plus prep & minutes)		54		108		54									-			29,916
B8.3	Special/ Stakeholder Coordination Meetings (assume 13 total @ 2.0 hours ea)		26		26		13												9,360
B9.0	As-Built Drawing Reviews																		0
B9.1	Weekly Review of Contractor's Red-Line Drawings (assume 1 hour/week)					-	54												7,344
B9.2	Maintain CM As-Built Drawings (assume 2 hours/week)				9	-	54												8,478
B10.0	Request for Information (assumes 100 RFI's at 2 hours ea.)		25		50		-		24	24		24				100			34,690
B11.0	General Compliance Monitoring																		0
B11.1	Regulations				13														1,638
B11.2	Labor Laws				8														1,008
B11.3	Licensure		4		4														1,168
B11.4	Permit Compliance		16		5														3,286
B11.5	Insurance		4																664
B12.0	Claims and Disputes																		0

FEE PROPOSAL **09/22/2017** **SINIFA GWA RESERVOIR REPLACEMENT**

B12.1	Claims Records				13	-	20	20											8,278
B12.2	Claims Review & Interpretation		20		13				8	8		8					100		19,838
B13.0	**Change Order Review and Negotiations**																		0
B13.1	Change Order Review		20		13	-	20	20											11,598
B13.2	Change Order Negotiations with Contractor		20		13														4,958
B13.3	Change Order Documentation & Administration		20		13														4,958
B14.0	**Design Changes and Verification Request**																		0
B14.1	CM Design/Technical Support Effort		20		13		40		6	6		6							13,308
B14.2	Prepare Design Change/Verification Requests (DCVR)													65					7,865
B14.3	Prepare EOR Design SOW Ammendment & Fee Negotiations		20		13		20												7,678
B15.0	**Construction Monitoring, Special Inspection, and Quality Control Monitoring**																		0
B15.1	Project Manager		-		161														20,286
B15.2	Resident Engineer **(assume 1/3 Time @ 713 hrs)**																		0
B15.3	Onsite Construction Inspector **(assumes Full Time @ 2,160 working hrs)**					-	240												32,640
B15.4	Special Inspections **(Prepare DPW Monthly Report)**			108	13		-	80			40		40					156	66,702
B16.0	**Testing (Quality Assurance)**								12	12		12							5,820
B16.1	Contractor Testing **(part of Task B15.1)**					-	108												14,688
B16.2	CQA Testing & Monitoring **(also see expenses)**					-	108												14,688
B16.3	GWA Testing **(part of Task B15.1)**					-	24												3,264
B17.0	**Acceptance**																		0
B17.1	Monitor, Document, & Manage Non-Compliance Issues				18		54												9,612
B18.0	**Construction QA Survey Services (part of Task B22.4)**				18		54												9,612
B19.0	**Project Closeout (Punch List and Project Closeout Inspections)**																		0
B19.1	Deficiency Log				18	-	54												9,612
B19.2	Preliminary Inspection				8	-	8		8	8		8							5,976
B19.3	Pre-Final Inspection				8	-	8		8	8		8							5,976
B19.4	Final Inspection				8	-	8		8	8		8							5,976
B20.0	**Train and Warranty Periods**																		0
B20.1	Startup Training & Maintenance Procedures Coordination				8	-	20												3,728
B20.2	Master Warranty Package				8		20												3,728
B21.0	**Equipment**																		0
B21.1	Data Loggers (15 ea.)																		6,309
B22.2	Panasonic Toughbook 20																		880
B22.0	**Expenses**																		
B22.1	QA Soil & Aggregate Analysis																		3,245
B22.2	QA Backfill Compaction Testing																		3,595
B22.3	QA Concrete Compressive Strength Testing																		28,937
B22.4	QA Survey Verification																		38,638
B22.5	Live Video Feed, Website Access & Maintenance																		32,607
B22.6	Project Management Information System																		18,150
B22.7	Mileage																		8,263
B22.8	Other																		3,300
	CONSTRUCTION PHASE SERVICES HOUR SUBTOTAL	-	342	112	695	-	2,085	180	106	122	40	122	40	119	100	544	100	541	**1,566**
	CONSTRUCTION PHASE HOUR UTILIZATION	0%	16%	5%	33%	0%	100%	9%	5%	6%	2%	6%	2%	6%	5%	26%	5%	26%	
	CONSTRUCTION PHASE SERVICES SUBTOTAL	-	56,772	25,312	87,570	-	283,560	35,280	18,550	18,910	5,000	18,910	5,000	14,399	15,000	68,544	11,000	51,936	**715,743**
	CONSTRUCTION PHASE EXPENSES SUBTOTAL																		**143,922**
	CONSTRUCTION PHASE SERVICES & EXPENSES TOTAL	-	56,772	25,312	87,570	-	283,560	35,280	18,550	18,910	5,000	18,910	5,000	14,399	15,000	68,544	11,000	51,936	**859,665**

FEE PROPOSAL **09/22/2017** **SINIFA GWA RESERVOIR REPLACEMENT**

C	**POST CONSTRUCTION SERVICES**																		
C1.0	**Final Report**																		
C1.1	Final Report		8		20		40									-			9,288
C1.2	Asset Management				80														10,080
C2.0	**Record Drawings**																		
C2.1	Signed & Sealed As-built Drawings				4		40							40		-			10,784
	POST CONSTRUCTION PHASE SERVICES HOUR SUBTOTAL	-	8	-	104	-	80	-	-	-	-	-	-	40	-	-	-	-	**232**
	POST CONSTRUCTION PHASE SERVICES SUBTOTAL	-	1,328	-	13,104	-	10,880	-	-	-	-	-	-	4,840	-	-	-	-	**30,152**
	POST CONSTRUCTION PHASE EXPENSES SUBTOTAL																		**1,650**
	POST CONSTRUCTION PHASE SERVICES & EXPENSES TOTAL	-	1,328	-	13,104	-	10,880	-	-	-	-	-	-	4,840	-	-	-	-	**31,802**
																			0
ALL	**TOTAL CONSTRUCTION HOURS**	-	388	166	909	98	2,165	180	106	122	40	122	40	159	100	544	100	541	**5,780**
ALL	**TOTAL CONSTRUCTION SERVICES**	-	64,408	37,516	114,534	12,348	294,440	35,280	18,550	18,910	5,000	18,910	5,000	19,239	15,000	68,544	11,000	51,936	**790,615**
ALL	**TOTAL CONSTRUCTION EXPENSES**																		**146,672**
ALL	**TOTAL CONSTRUCTION SERVICES & EXPENSES**	-	64,408	37,516	114,534	12,348	294,440	35,280	18,550	18,910	5,000	18,910	5,000	19,239	15,000	68,544	11,000	51,936	**937,287**
ALL	**SUBTOTAL**																		**937,287**
ALL	**GRT AT 4.167%**																		**39,057**
ALL	**GRAND TOTAL**																		**976,344**

GHD - PROJECT ESTIMATING SHEET - GHD QA SERVICES SUMMARY

Project Name: Santa Rosa, Sinifa, and Santa Rita Tank & System Upgrades
Attachment:
GHD Project Number:
of:
Description: SANTA RITA
Checked By: P.Baron
Prepared by: B.Ryley
Date: 09/22/17

QA SURVEY ESTIMATE

	Quantity
Under Tank Piping:	
Inlet Piping & Top of Flange	$1,200
Outlet Piping & Top of Flange	$1,200
Over-Flow Piping & Top of Flange	$1,200
Drain Line Piping & Top of Flange	$1,200
Wash Down Piping	$1,200
Tank Foundation:	
Top of Formwork	$1,200
Control Building 1	
Subgrade	$800
Footing	$800
Building Corners	$800
FFE	$800
Control Building 2	
Subgrade	$800
Footing	$800
Building Corners	$800
FFE	$800
Manhole:	
Below Base	$800
Top of Manhole	$800
Bottom of Pipe	$800
Ponding Basin 1	
Subgrade	$800
Ponding Basin 2	
Subgrade	$800
Vaults:	
Top Outlet Meter Vault Footing Formwork	$800
Top Outlet Meter Vault Roof Slab Formwork	$800
Top Inlet Meter Vault Footing Formwork	$800
Top Inlet Meter Vault Roof Slab Formwork	$800
Top Electrical Handhole	$800
Pavement:	
Pavement Formwork	$800
Sidewalk Formwork	$800
Fencing	
Corners	$800

Drilled Piles		
Cast In Place Drilled Piles		$5,500
Bench Marks:		
Establish bench marks on top of all vaults, top of retaining wall, top of footing at water height guauge, over-flow, drian, & outlet.		$1,200
	Contingency 25%	$7,675
	TOTAL ESTIMATED BUDGET	**$38,375**

	Rate
Half Day	$800
Full Day	$1,200
Hourly	$150

CQA TESTING ESTIMATE

Material Laboratory Testing:

Procotor & Sieve Analysis:	Unit Cost	Quantity	Cost
Subgrade	$295.00	2	$590.00
Limestone	$295.00	2	$590.00
Base course	$295.00	2	$590.00
General Fill	$295.00	2	$590.00
		Contingency **25%**	$590.00
		TOTAL ESTIMATED BUDGET:	**$2,950.00**

Compaction Testing:

Control Building 1			
Subgrade	$74.00	1	$74.00
Limestone	$74.00	1	$74.00
Base course	$74.00	1	$74.00
Control Building 2			
Subgrade	$74.00	1	$74.00
Limestone	$74.00	1	$74.00
Base course	$74.00	1	$74.00
Reservoir Access Road			
Subgrade	$74.00	1	$74.00
Limestone	$74.00	2	$148.00
Ponding Basin 1 Access Road			
Subgrade	$74.00	1	$74.00
Base course	$74.00	1	$74.00
General Fill	$74.00	1	$74.00
Ponding Basin 2 Access Road			

Subgrade	$74.00	1	$74.00
Base course	$74.00	1	$74.00
Manhole			
Subgrade	$74.00	1	$74.00
Base course	$74.00	3	$222.00
Outlet Meter Vault			
Subgrade	$74.00	1	$74.00
Base course	$74.00	3	$222.00
Inlet Meter Vault			
Subgrade	$74.00	1	$74.00
Base course	$74.00	3	$222.00
Electrical Handhole (estimated)			
Below Foundation	$74.00	1	$74.00
Pavement:			
Subgrade	$74.00	1	$74.00
Limestone	$74.00	2	$148.00
Base course	$74.00	1	$74.00
		Contingency **25%**	$573.50
		TOTAL ESTIMATED BUDGET:	**$2,867.50**

	Rate
1st Test	$55
2nd Test	$19
	$74

Concrete Testing:

Outlet Meter Vault:	Unit Cost	Quantity	Cost
Footing	$305.00	1	$305.00
Walls	$305.00	1	$305.00
Roof Slab	$305.00	1	$305.00
Inlet Meter Vault:			
Footing	$305.00	1	$305.00
Walls	$305.00	1	$305.00
Roof Slab	$305.00	1	$305.00
Encasement:			
Inlet Piping	$305.00	1	$305.00
Outlet Piping	$305.00	1	$305.00
Over-Flow Piping	$305.00	1	$305.00
Drain Line Piping	$305.00	1	$305.00
Wash Down Piping	$305.00	1	$305.00
Electrical & Communications Ducts	$305.00	1	$305.00

Handholes:			
Electrical	$305.00	1	$305.00
Pavement:			
Pavement	$305.00	1	$305.00
Control Building 1			
Footing	$305.00	1	$305.00
Building Corners	$305.00	1	$305.00
Control Building 2			
Footing	$305.00	1	$305.00
Building Corners	$305.00	1	$305.00
Manhole			
Pre-Cast Sections	$305.00	1	$305.00
Drilled Piles			
Cast In Drilled Piles	$305.00	77	$23,485.00
Water Tank:			
Foundation	$305.00	1	$305.00
Core Walls	$305.00	7	$2,135.00
Columns	$305.00	9	$2,745.00
Column Footings	$305.00	9	$2,745.00
Roof Slab	$305.00	1	$305.00
Shotcrete	$305.00	2	$610.00
		170	
		Contingency 15%	$5,718.75
		TOTAL ESTIMATED BUDGET:	**$43,843.75**

DESCRIPTION OF TESTS:

Compressive Strength of Cylindrical Concrete Specimens (4 at $17.00 ea.):		$68.00
Curing and Disposal of Cylindrical Concrete Specimens without test, each:		$12.00
Air Content of Freshly Mixed Concrete by the Pressure/Volumetric Method, per test:		$50.00
Unit Weight and Yield of Fresh Concrete, each:		$50.00
Slump Test & Making Concrete Specimens in the field (2.5 Hours of Labor):		$125.00
	SUBTOTAL:	**$305.00**

QA SPECIAL INSPECTIONS

Special Inspections:

Outlet Meter Vault:				
Footing	hours	2	110	$220
Walls	hours	2	110	$220
Roof Slab	hours	2	110	$220
Inlet Meter Vault:				
Footing	hours	2	110	$220
Walls	hours	2	110	$220

Roof Slab	hours	2	110	$220
Encasement:				
Inlet Piping	hours	2	110	$210
Outlet Piping	hours	2	110	$210
Over-Flow Piping	hours	2	110	$210
Drain Line Piping	hours	2	110	$210
Wash Down Piping	hours	2	110	$210
Electrical & Communications Ducts	hours	2	110	$210
Handholes:				
Electrical	hours	2	110	$210
Pavement:				
Pavement	hours	4	110	$420
Manhole:				
Pre-Cast Sections	hours	2	110	$210
Drilled Piles				
Cast In Drilled Piles	hours	616	110	$67,760
Water Tank:				
Foundation	hours	8	110	$880
Core Walls	hours	14	110	$1,540
Columns	hours	18	110	$1,980
Column Footings	hours	18	110	$1,980
Roof Slab	hours	12	110	$1,320
Shotcrete	hours	24	110	$2,640
Vertical Post-tensioning	hours	8	110	$880
Circumferential Pre-stressing	hours	16	110	$1,760
		766		**$84,160**
		Contingency	10%	$8,416.00
		TOTAL ESTIMATED BUDGET:		**$92,576.00**
			GRAND TOTAL:	**$177,662.25**

GHD - PROJECT ESTIMATING SHEET - GHD QA SERVICES SUMMARY

Project Name: Santa Rosa, Sinifa, and Santa Rita Tank & System Upgrades
Attachment:
GHD Project Number:
of:
Description: SANTA ROSA
Checked By: P.Baron
Prepared by: B.Ryley
Date: 09/22/17

QA SURVEY ESTIMATE

	Quantity
Under Tank Piping:	
Inlet Piping & Top of Flange	$1,200
Outlet Piping & Top of Flange	$1,200
Over-Flow Piping & Top of Flange	$1,200
Drain Line Piping & Top of Flange	$1,200
Wash Down Piping	$1,200
Over Excavation:	
Bottom of Over Excavation	$800
Top of Base course	$800
Top of Limestone	$800
Tank Foundation:	
Top of Formwork	$1,200
Hydropnuematic Tank Pad	
Top of Formwork	$800
Control and Pump Room Building	
Subgrade	$800
Footing	$800
Building Corners	$800
FFE	$800
Manhole:	
Below Base	$800
Top of Manhole	$800
Bottom of Pipe	$800
Ponding Basin	
Subgrade	$800
Vaults:	
Top Outlet Meter Vault Footing Formwork	$800
Top Outlet Meter Vault Roof Slab Formwork	$800
Top Inlet Meter Vault Footing Formwork	$800
Top Inlet Meter Vault Roof Slab Formwork	$800
Top Drain Vault Footing Formwork	$800
Top Drain Vault Roof Slab Formwork	$800
Top Outlet Check Valve Vault Footing Formwork	$800
Top Outlet Check Valve Vault Roof Slab Formwork	$800
Retaining Wall	
Top of Formwork	$1,200
Pavement:	
Pavement Formwork	$800

Sidewalk Formwork	$800
Fencing	
Corners	$800
Bench Marks:	
Establish bench marks on top of all vaults, top of retaining wall, top of footing at water height guauge, over-flow, drian, & outlet.	$1,200
Contingency 25%	$7,000
TOTAL ESTIMATED BUDGET	**$35,000**

	Rate
Half Day	$800
Full Day	$1,200
Hourly	$150

CQA TESTING ESTIMATE

Material Laboratory Testing:

Procotor & Sieve Analysis:	Unit Cost	Quantity	Cost
Subgrade	$295.00	2	$590.00
Limestone	$295.00	2	$590.00
Base course	$295.00	2	$590.00
General Fill	$295.00	2	$590.00
Structural Fill	$295.00	2	$590.00
		Contingency 25%	$737.50
		TOTAL ESTIMATED BUDGET:	**$3,687.50**

Compaction Testing:

Over-Excavation:			
Subgrade	$74.00	1	$74.00
Base course	$74.00	1	$74.00
Limestone	$74.00	1	$74.00
Control and Pump Room Building			
Subgrade	$74.00	1	$74.00
Base course	$74.00	1	$74.00
Limestone	$74.00	1	$74.00
Hydropnuematic Tank Pad			
Subgrade	$74.00	1	$74.00
Base course	$74.00	1	$74.00
Limestone	$74.00	1	$74.00
Access Road			
Subgrade	$74.00	1	$74.00

Structural Fill	$74.00	2	$148.00
Limestone	$74.00	1	$74.00
Pond Access Road			
Subgrade	$74.00	1	$74.00
Base course	$74.00	1	$74.00
Ponding Basin			
General Fill	$74.00	1	$74.00
Off-Site Gravel Road			
Subgrade	$74.00	1	$74.00
General Fill	$74.00	1	$74.00
AC Pavement			
Subgrade	$74.00	1	$74.00
Structural Fill	$74.00	1	$74.00
Limestone	$74.00	1	$74.00
Concrete Sidewalk			
Subgrade	$74.00	1	$74.00
Structural Fill	$74.00	1	$74.00
Limestone	$74.00	1	$74.00
Outlet Meter Vault			
Subgrade	$74.00	1	$74.00
Base course	$74.00	3	$222.00
Inlet Meter Vault			
Subgrade	$74.00	1	$74.00
Base course	$74.00	3	$222.00
Drain Vault			
Subgrade	$74.00	1	$74.00
Base course	$74.00	3	$222.00
Outlet Check Valve Vault			
Subgrade	$74.00	1	$74.00
Base course	$74.00	3	$222.00
Retaining Wall			
Limestone	$74.00	1	$74.00
Electrical Handhole (estimated)			
Below Foundation	$74.00	1	$74.00
		Contingency 25%	$777.00
		TOTAL ESTIMATED BUDGET:	**$3,885.00**

	Rate
1st Test	$55
2nd Test	$19

$74

Concrete Testing:

Outlet Meter Vault:	Unit Cost	Quantity	Cost
Footing	$305.00	1	$305.00
Walls	$305.00	1	$305.00
Roof Slab	$305.00	1	$305.00
Inlet Meter Vault:			
Footing	$305.00	1	$305.00
Walls	$305.00	1	$305.00
Roof Slab	$305.00	1	$305.00
Drain Vault:			
Footing	$305.00	1	$305.00
Walls	$305.00	1	$305.00
Roof Slab	$305.00	1	$305.00
Outlet Check Valve Vault:			
Footing	$305.00	1	$305.00
Walls	$305.00	1	$305.00
Roof Slab	$305.00	1	$305.00
Encasement:			
Inlet Piping	$305.00	1	$305.00
Outlet Piping	$305.00	1	$305.00
Over-Flow Piping	$305.00	1	$305.00
Drain Line Piping	$305.00	1	$305.00
Wash Down Piping	$305.00	1	$305.00
Electrical & Communications Ducts	$305.00	1	$305.00
Handholes:			
Electrical	$305.00	1	$305.00
Pavement:			
Pavement	$305.00	1	$305.00
Retaining Wall			
Footing	$305.00	1	$305.00
Hydropnuematic Tank Pad			
Foundation	$305.00	1	$305.00
Water Tank:			
Foundation	$305.00	1	$305.00
Core Walls	$305.00	7	$2,135.00
Columns	$305.00	9	$2,745.00
Column Footings	$305.00	9	$2,745.00
Roof Slab	$305.00	1	$305.00
Shotcrete	$305.00	2	$610.00
		94	
		Contingency 15%	$2,333.25

			TOTAL ESTIMATED BUDGET:	**$17,888.25**

DESCRIPTION OF TESTS:

Compressive Strength of Cylindrical Concrete Specimens (4 at $17.00 ea.):	$68.00
Curing and Disposal of Cylindrical Concrete Specimens without test, each:	$12.00
Air Content of Freshly Mixed Concrete by the Pressure/Volumetric Method, per test:	$50.00
Unit Weight and Yield of Fresh Concrete, each:	$50.00
Slump Test & Making Concrete Specimens in the field (2.5 Hours of Labor):	$125.00
SUBTOTAL:	**$305.00**

QA SPECIAL INSPECTIONS

Special Inspections:

Outlet Meter Vault:				
Footing	hours	2	110	$220
Walls	hours	2	110	$220
Roof Slab	hours	2	110	$220
Inlet Meter Vault:				
Footing	hours	2	110	$220
Walls	hours	2	110	$220
Roof Slab	hours	2	110	$220
Drain Vault:				
Footing	hours	2	110	$220
Walls	hours	2	110	$220
Roof Slab	hours	2	110	$220
Outlet Check Valve Vault:				
Footing	hours	2	110	$220
Walls	hours	2	110	$220
Roof Slab	hours	2	110	$220
Encasement:				
Inlet Piping	hours	2	110	$210
Outlet Piping	hours	2	110	$210
Over-Flow Piping	hours	2	110	$210
Drain Line Piping	hours	2	110	$210
Wash Down Piping	hours	2	110	$210
Electrical & Communications Ducts	hours	2	110	$210
Handholes:				
Electrical	hours	2	110	$210
Pavement:				
Pavement	hours	4	110	$420
Retaining Wall				
Footing	hours	2	110	$210
Walls	hours	2	110	$210
Water Tank:				

Foundation	hours	8	110	$880
Core Walls	hours	14	110	$1,540
Columns	hours	18	110	$1,980
Column Footings	hours	18	110	$1,980
Roof Slab	hours	12	110	$1,320
Shotcrete	hours	24	110	$2,640
Vertical Post-tensioning	hours	8	110	$880
Circumferential Pre-stressing	hours	16	110	$1,760
		164		**$17,930**
			Contingency 10%	$1,793.00
			TOTAL ESTIMATED BUDGET:	**$19,723.00**
			GRAND TOTAL:	**$76,496.25**

GHD - PROJECT ESTIMATING SHEET - GHD QA SERVICES SUMMARY

Project Name: Santa Rosa, Sinifa, and Santa Rita Tank & System Upgrades
Attachment:
GHD Project Number:
of:
Description: SINIFA
Checked By: P.Baron
Prepared by: B.Ryley
Date: 09/22/17

QA SURVEY ESTIMATE

	Quantity
Under Tank Piping:	
Inlet Piping & Top of Flange	$1,200
Outlet Piping & Top of Flange	$1,200
Over-Flow Piping & Top of Flange	$1,200
Drain Line Piping & Top of Flange	$1,200
Wash Down Piping	$1,200
Over Excavation:	
Bottom of Over Excavation	$800
Top of Base course	$800
Top of Limestone	$800
Tank Foundation:	
Top of Formwork	$1,200
Control Room	
Subgrade	$800
Footing	$800
Building Corners	$800
FFE	$800
Manhole:	
Below Base	$800
Top of Manhole	$800
Bottom of Pipe	$800
Ponding Basin	
Subgrade	$800
Vaults:	
Top Outlet Meter Vault Footing Formwork	$800
Top Outlet Meter Vault Roof Slab Formwork	$800
Top Inlet Meter Vault Footing Formwork	$800
Top Inlet Meter Vault Roof Slab Formwork	$800
Top Drain Vault Footing Formwork	$800
Top Drain Vault Roof Slab Formwork	$800
Retaining Wall	
Top of Formwork	$1,200
Pavement:	
Pavement Formwork	$800
Sidewalk Formwork	$800
Fencing	
Corners	$800

Bench Marks:

Establish bench marks on top of all vaults, top of retaining wall, top of footing at water height guauge, over-flow, drian, & outlet.	$1,200
Contingency 25%	$6,400
TOTAL ESTIMATED BUDGET	**$32,000**

	Rate
Half Day	$800
Full Day	$1,200
Hourly	$150

CQA TESTING ESTIMATE

Material Laboratory Testing:

Procotor & Sieve Analysis:	Unit Cost	Quantity	Cost
Subgrade	$295.00	2	$590.00
Limestone	$295.00	2	$590.00
Base course	$295.00	2	$590.00
		Contingency **25%**	$442.50
		TOTAL ESTIMATED BUDGET:	**$2,212.50**

Compaction Testing:

Over-Excavation:			
Base course	$74.00	1	$74.00
Limestone	$74.00	1	$74.00
Control Room			
Subgrade	$74.00	1	$74.00
Base course	$74.00	1	$74.00
Limestone	$74.00	1	$74.00
Ponding Basin Access Road			
Subgrade	$74.00	1	$74.00
Base course	$74.00	1	$74.00
Off-Site Gravel Road			
Subgrade	$74.00	1	$74.00
General Fill	$74.00	1	$74.00
AC Pavement			
Subgrade	$74.00	1	$74.00
Limestone	$74.00	1	$74.00
Base course	$74.00	1	$74.00
Concrete Sidewalk			
Subgrade	$74.00	1	$74.00
Structural Fill	$74.00	1	$74.00

Limestone	$74.00	1	$74.00
Outlet Meter Vault			
Subgrade	$74.00	1	$74.00
Base course	$74.00	3	$222.00
Inlet Meter Vault			
Subgrade	$74.00	1	$74.00
Base course	$74.00	3	$222.00
Drain Vault			
Subgrade	$74.00	1	$74.00
Base course	$74.00	3	$222.00
Retaining Wall			
Limestone	$74.00	1	$74.00
Manhole			
Subgrade	$74.00	1	$74.00
Base course	$74.00	3	$222.00
Electrical Handhole (estimated)			
Below Foundation	$74.00	1	$74.00
		Contingency 25%	$610.50
		TOTAL ESTIMATED BUDGET:	**$3,052.50**

	Rate
1st Test	$55
2nd Test	$19
	$74

Concrete Testing:

Outlet Meter Vault:	Unit Cost	Quantity	Cost
Footing	$305.00	1	$305.00
Walls	$305.00	1	$305.00
Roof Slab	$305.00	1	$305.00
Inlet Meter Vault:			
Footing	$305.00	1	$305.00
Walls	$305.00	1	$305.00
Roof Slab	$305.00	1	$305.00
Drain Vault:			
Footing	$305.00	1	$305.00
Walls	$305.00	1	$305.00
Roof Slab	$305.00	1	$305.00
Control Room			
Footing	$305.00	1	$305.00
Building Corners	$305.00	1	$305.00

Encasement:			
Inlet Piping	$305.00	1	$305.00
Outlet Piping	$305.00	1	$305.00
Over-Flow Piping	$305.00	1	$305.00
Drain Line Piping	$305.00	1	$305.00
Wash Down Piping	$305.00	1	$305.00
Electrical & Communications Ducts	$305.00	1	$305.00
Pavement:			
Pavement	$305.00	1	$305.00
Retaining Wall			
Footing	$305.00	1	$305.00
Fencing			
Posts	$305.00	1	$305.00
Water Tank:			
Foundation	$305.00	1	$305.00
Core Walls	$305.00	7	$2,135.00
Columns	$305.00	9	$2,745.00
Column Footings	$305.00	9	$2,745.00
Roof Slab	$305.00	1	$305.00
Shotcrete	$305.00	2	$610.00
		90	
		Contingency 15%	$2,241.75
		TOTAL ESTIMATED BUDGET:	**$17,186.75**

DESCRIPTION OF TESTS:

Compressive Strength of Cylindrical Concrete Specimens (4 at $17.00 ea.):	$68.00
Curing and Disposal of Cylindrical Concrete Specimens without test, each:	$12.00
Air Content of Freshly Mixed Concrete by the Pressure/Volumetric Method, per test:	$50.00
Unit Weight and Yield of Fresh Concrete, each:	$50.00
Slump Test & Making Concrete Specimens in the field (2.5 Hours of Labor):	$125.00
SUBTOTAL:	**$305.00**

QA SPECIAL INSPECTIONS

Special Inspections:

Outlet Meter Vault:				
Footing	hours	2	110	$220
Walls	hours	2	110	$220
Roof Slab	hours	2	110	$220
Inlet Meter Vault:				
Footing	hours	2	110	$220
Walls	hours	2	110	$220
Roof Slab	hours	2	110	$220
Drain Vault:				

Footing	hours	2	110	$220
Walls	hours	2	110	$220
Roof Slab	hours	2	110	$220
Encasement:				
Inlet Piping	hours	2	110	$210
Outlet Piping	hours	2	110	$210
Over-Flow Piping	hours	2	110	$210
Drain Line Piping	hours	2	110	$210
Wash Down Piping	hours	2	110	$210
Electrical & Communications Ducts	hours	2	110	$210
Control Room				
Footing	hours	2	110	$210
Walls	hours	2	110	$210
Pavement:				
Pavement	hours	4	110	$420
Retaining Wall				
Footing	hours	2	110	$210
Walls	hours	2	110	$210
Water Tank:				
Foundation	hours	8	110	$880
Corewalls	hours	14	110	$1,540
Columns	hours	18	110	$1,980
Column Footings	hours	18	110	$1,980
Roof Slab	hours	12	110	$1,320
Shotcrete	hours	24	110	$2,640
Vertical Post-tensioning	hours	8	110	$880
Circumferential Pre-stressing	hours	16	110	$1,760
		160		**$17,480**
		Contingency	10%	$1,748.00
		TOTAL ESTIMATED BUDGET:		**$19,228.00**
		GRAND TOTAL:		**$71,467.25**

GHD - PROJECT ESTIMATING SHEET- GHD EXPENSES

Project Name: Santa Rosa, Sinifa, and Santa Rita Tank & System Upgrades
Attachment:
GHD Project Number:
of:
Description: EXPENSE SUMMARY
Checked by: P.Baron
Prepared by: B.Ryley
Date: 09/22/17

EXPENSE ITEM	QUANTITY	UNIT	UNIT COST	AMOUNT	MARKUP at 10%	TOTAL
PRECONSTRUCTION PHASE TASKS						
Report Reproduction, misc.	3	lump sum	1,000.00	3,000.00	300.00	3,300.00
					-	
					-	
SUBTOTAL				**3,000.00**	**300.00**	**3,300.00**
CONSTRUCTION PHASE TASKS						
Mileage (1.50 vehicles x 30 miles x 321 days)	43,335	mile	0.52	22,534.20	2,253.42	24,787.62
Report Reproduction, misc	3	lump sum	3,000.00	9,000.00	900.00	9,900.00
Live Video Feed, Website Access & Maintenance	3	each	29,642.54	88,927.61	8,892.76	97,820.37
Project Mangment Information Systems	3	lump sum	16,500.00	49,500.00	4,950.00	54,450.00
Data Logger	3	lump sum	5,735.35	17,206.04	1,720.60	18,926.64
Panasonic Toughbook 20	1	ea.	2,399.00	2,399.00	239.90	2,638.90
QA Soil & Aggregate Analysis	3	lump sum	2,950.00	8,850.00	885.00	9,735.00
QA Compaction Testing	3	lump sum	3,268.33	9,805.00	980.50	10,785.50
QA Concrete Testing	3	lump sum	26,306.25	78,918.75	7,891.88	86,810.63
QA Survey Verification	3	lump sum	35,125.00	105,375.00	10,537.50	115,912.50
SUBTOTAL				**392,515.59**	**39,251.56**	**431,767.15**
POST CONSTRUCTION SERVICES						
Report Reproduction, misc.	3	lump sum	1,500.00	4,500.00	450.00	4,950.00
			-			
			-			
SUBTOTAL				4,500.00	450.00	4,950.00
GRAND TOTAL				**400,015.59**	**40,001.56**	**440,017.15**

GHD - PROJECT ESTIMATING SHEET- GHD EXPENSES

Project Name: Santa Rosa, Sinifa, and Santa Rita Tank & System Upgrades
Attachment:
GHD Project Number:
of:
Description: VIDEO CAMERA EXPENSE BREAKDOWN
Checked by: P.Baron
Prepared by: B.Ryley
Date: 09/22/17

EXPENSE ITEM	QUANTITY	UNIT	UNIT COST	AMOUNT	MARKUP at 10%	TOTAL
PRECONSTRUCTION PHASE TASKS						
SUBTOTAL						
CONSTRUCTION PHASE TASKS						
EarthCam - Construction Cam Lite HD	1	ea.	4,495.00	4,495.00	449.50	4,944.50
Solar Power Upgrade	1	ea.	4,022.00	4,022.00	402.20	4,424.20
Global Modem	1	ea.	1,399.00	1,399.00	139.90	1,538.90
Universal Pole Mount	1	ea.	99.00	99.00	9.90	108.90
Software Support & Archiving Services	1	ea.	575.00	575.00	57.50	632.50
FedEx International Economy S&H	1	ls.	2,722.76	2,722.76	272.28	2,995.04
Weather Station w/shipping	1	ea.	1,200.00	1,200.00	120.00	1,320.00
EarthCam Consulting Services	1	incl.	-	-	-	-
Website Development & MP Image Integration	1	incl.	-	-	-	-
Hand Edited Time-Lapse Move	1	incl.	-	-	-	-
Davis 6250 Weather Station	1	ea.	465.00	465.00	46.50	511.50
Davis 7654 Repeater	1	ea.	353.00	353.00	35.30	388.30
Davis 6555 Weather Link IP software	1	ea.	347.00	347.00	34.70	381.70
Cradlepoint ARC MBR 1400 Series Router	1	ea.	850.00	850.00	85.00	935.00
40GB high-speed HSPA data	18	mth.	140.00	2,520.00	252.00	2,772.00
30" Telescoping Light Mast w/Shipping	1	ea.	4,400.00	4,400.00	440.00	4,840.00
PCC Foundation (5' x 5' x 1') w/single delivery	1	ea.	2,000.00	2,000.00	200.00	2,200.00
Installation & Start up	1	ls.	1,500.00	1,500.00	150.00	1,650.00
SUBTOTAL				**26,947.76**	**2,694.78**	**29,642.54**
POST CONSTRUCTION SERVICES						
SUBTOTAL						
TOTAL				**26,947.76**	**2,694.78**	**29,642.54**

GHD - PROJECT ESTIMATING SHEET- GHD EXPENSES

Project Name: Santa Rosa, Sinifa, and Santa Rita Tank & System Upgrades
Attachment:
GHD Project Number:
of:
Description: DATA LOGGER EXPENSE BREAKDOWN
Checked by: P.Baron
Prepared by: B.Ryley
Date: 09/22/17

EXPENSE ITEM	QUANTITY	UNIT	UNIT COST	AMOUNT	MARKUP at 10%	TOTAL
PRECONSTRUCTION PHASE TASKS						
SUBTOTAL						
CONSTRUCTION PHASE TASKS						
Dickson PR325: Pressure Data Logger	15	ea.	499.00	7,485.00	748.50	8,233.50
Dickson A016: Software w/USB Download Cable	15	ea.	89.00	1,335.00	133.50	1,468.50
Dickson 721: Locking Case	15	ea.	79.00	1,185.00	118.50	1,303.50
Dickson A220: Card Reader Kit	15	ea.	49.00	735.00	73.50	808.50
Dickson R022: Pressure Filter Kit	15	ea.	30.00	450.00	45.00	495.00
Dickson A061: USB Download Cable	15	ea.	19.00	285.00	28.50	313.50
Dickson A125: 3 Volt (3V) Lithium Battery	15	ea.	16.00	240.00	24.00	264.00
Dickson A791: Pressure Kit	15	ea.	149.00	2,235.00	223.50	2,458.50
4 ft. Double Loop Cable w/ Padlock	15	ea.	12.79	191.85	19.19	211.04
Budget for Miscellaneous, Fitting, Tubing, etc.	1	ls.	1,500.00	1,500.00	150.00	1,650.00
				-	-	-
				-	-	-
				-	-	-
				-	-	-
				-	-	-
				-	-	-
				-	-	-
SUBTOTAL				**15,641.85**	**1,564.19**	**17,206.04**
POST CONSTRUCTION SERVICES						
SUBTOTAL						
TOTAL				**15,641.85**	**1,564.19**	**17,206.04**

GUAM WATERWORKS AUTHORITY
"Better Water, Better Lives."
Gloria B. Nelson Public Service Building| 688 Route 15 | Mangilao, Guam 96913
Tel: (671) 300-6846

Issues for Decision

Resolution No. 14-FY2018
Relative to Approval of Change Order to the Agat-Santa Rita Wastewater Treatment Plant Design Contract

What is the project's objective and is it necessary and urgent?
The project is part of the of critical Court Order ("CO") projects that GWA is required to complete. The construction activities for WWTP are in the second phase of the project and critical process work is slated to be completed in March 2018 however the expectation of actual final completion, including non-process work and landscaping, etc., is May or June 2018. GWA management desires to continue designer services during construction until overall project completion. Services include A/E designer review and comment for any issues that arise during construction.

Where is the location?
The new Agat-Santa Rita Wastewater Treatment Plant, Agat

How much will it cost?
A portion of the scope and fee from the proposal submitted by Duenas Camacho and Associates was effectuated through Change Order #2 which is pending final signature and which exhausted all the contingency fund therefore GWA Management seeks CCU approval of additional funding for an additional Change Order at a cost of Three Hundred Ninety-Eight Thousand Six Hundred Ninety-Two Dollars and Thirty-Two Cents ($398,692.32).

The total authorized contract value will be Five Million One Hundred Twenty-Seven Thousand Four Hundred Ninety-Seven Dollars and Twenty-Five Cents ($5,127,497.25)

When will it be completed?
The WWTP construction is in the second phase of the project and is slated to be completed in March 2018 however the expectation of actual final completion is May or June 2018.

What is the funding source?
The source of funding for the change order will be from the Bond proceeds under CIP WW 11-08 "Agat/Sta Rita STP Replacement"

The RFP/BID responses (if applicable):
Not Applicable

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. 14-FY2018

RELATIVE TO APPROVAL OF CHANGE ORDER TO THE AGAT-SANTA RITA WASTEWATER TREATMENT PLANT REPLACEMENT DESIGN CONTRACT

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 ("GWA") is a Guam Public Corporation established and existing under the laws of Guam; and

WHEREAS, GWA currently has a number of critical Court Order ("CO") projects, including Agat-Santa Rita Wastewater Treatment Plant (WWTP) (U.S. Court Order No. 02-00035, Section II.A) which was recommended to require improvements that ultimately resulted in GWA designing and constructing a new WWTP; and

WHEREAS, The CCU approved via Resolution 34-FY2014 for GWA management to enter into contract with Duenas Camacho and Associates to provide professional engineering services for design of the Agat-Santa Rita Wastewater Treatment Plant Replacement project, as well as design services during construction; and

WHEREAS, the above noted resolution approved the contract fee of Four Million Five Hundred Three Thousand Six Hundred Twenty-Three and Seventy-Four Cents ($4,503,623.74), along with a five percent (5%) contingency of Two Hundred Twenty-Five Thousand One Hundred Eighty-One Dollars and Nineteen Cents ($225,181.19) to bring the total authorized funding amount to Four Million Seven Hundred Twenty-Eight Thousand Eight Hundred Four and Ninety-Three Cents ($4,728,804.93).; and

WHEREAS, to date GWA has executed two change orders with Duenas Camacho and Associates for additional services that expended all the approved contingency fund and which is expected to be exhausted by the end of January 2018; and

WHEREAS, to date the construction work for the WWTP in the second phase of the project and is slated to be completed in March 2018 for all critical process related facilities, however the expectation of actual final completion for all site improvements including non-process related construction and landscaping, etc., is May or June 2018 thus GWA desires to continue designer services during construction until overall project completion; and

WHEREAS, GWA management seeks to change order the existing contract with Duenas Camacho and Associates by extending their engineering services during construction to continue to provide designer review and comment for any issues that arise during construction the final stages of construction; and

WHEREAS, GWA engineering negotiated with Duenas Camacho and Associates to provide continued design services during construction from which the scope and fee proposal Five Hundred Fifty Thousand Dollars ($550,00.00) was found to be acceptable to GWA (See Exhibit A); and

WHEREAS, a portion of the above-mentioned scope and fee from the proposal submitted by Duenas Camacho and Associates was effectuated through Change Order #2 which is pending final signatures and which exhausted all the contingency fund as noted above, therefore GWA Management seeks CCU approval of the Change Order to provide continued design services during construction at a cost of the balance of funds required, specifically Three Hundred Ninety-Eight Thousand Six Hundred Ninety-Two Dollars and Thirty-Two Cents ($398,692.32) which would then bring the total authorized contract value to Five Million One Hundred Twenty-Seven Thousand Four Hundred Ninety-Seven Dollars and Twenty-Five Cents ($5,127,497.25); and

WHEREAS, the source of funding for the change order will be from the Bond proceeds under CIP WW 11-08 “Agat/Sta Rita STP Replacement”; and

NOW BE IT THEREFORE RESOLVED, the Consolidated Commission on Utilities does hereby approve and authorize the following:

1. The recitals set forth above hereby constitute the findings of the CCU.
2. The CCU finds that the terms of the change order proposal submitted by Duenas Camacho and Associates to be fair and reasonable.
3. The CCU finds that the terms of the conditions set by GWA relative to commencement of subsequent work activities are fair and reasonable and serve as a measure of Quality Assurance/Quality Control (QA/QC).
4. The CCU hereby authorizes the management of GWA to accept a balance of the change order proposal from "Duenas Camacho and Associates" attached hereto as Exhibit A, and which is incorporated into this Resolution in its entirety.
5. The CCU hereby further authorizes the management to execute the change order with Duenas Camacho and Associates, in the amount of Three Hundred Ninety-Eight Thousand Six Hundred Ninety-Two Dollars and Thirty-Two Cents ($398,692.32).
6. The CCU hereby further approves the increase contract value of Five Million One Hundred Twenty-Seven Thousand Four Hundred Ninety-Seven Dollars and Twenty-Five Cents ($5,127,497.25).
7. The CCU hereby further approves the source of funding from Bond proceeds under CIP WW 11-08 "Agat/Sta Rita STP Replacement".

RESOLVED, that the Chairman certified and the Board Secretary attests to the adoption of this Resolution.

DULY AND REGULARLY ADOPTED, this 23rd day of January, 2018.

Certified by:

_____
JOSEPH T. DUENAS
Chairperson

Attested by:

_____
J. GEORGE BAMBA
Secretary

I, J. George Bamba, Board Secretary of the Consolidated Commission on Utilities as evidenced by my signature above do hereby certify as follows:

The foregoing is a full, true and accurate copy of the resolution duly adopted at a regular meeting by the members of the Guam Consolidated Commission on Utilities, duly and legally held at a place properly noticed and advertised at which meeting a quorum was present and the members who were present voted as follows:

AYES: _____

NAYS: _____

ABSTENTIONS: _____

ABSENT: _____

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Website: www.dcaguam.com
Email: dca@dcaguam.com

DUEÑAS · CAMACHO & ASSOCIATES, INC

Exhibit A

October 17, 2017

Thomas F. Cruz, P.E.
Chief Engineer
Gloria B. Nelson Public Service Building
688 Route 15
Mangilao, Guam, 96913

Attn: John M. Davis, P.E., Senior Engineering Supervisor

Ref: **Agat-Santa Rita Wastewater Treatment Plant (WWTP) Replacement Design**

Subj: **Change Order Request #2, Contract No. S14-002-BND**

Dear Mr. Cruz:

Duenas, Camacho & Associates, Inc and our design team have been providing continuous post design services for the referenced project. In order for our team to provide and continue the services needed for the ongoing construction efforts and the up coming start up and commissioning of the Agat-Santa Rita WWTP Phase II construction efforts, we are requesting a change order to increase our time and materials (T&M) limit based on the following.

- Addition RFI Review. The total number of RFIs to date for the project is 392, see attachment 1. As the designer of record, our team was asked to review nearly all the submitted RFIs. Our team provided and will continue to provide responses for the RFI's. It should be noted that some of the RFIs submitted were the result of changes to contractor means and methods in an effort to save on time and cost.

- Additional Submittal Review. The review of all the technical submittals was limited in our contract scope. As part of the construction support, the design team has reviewed 590 submittals, see attachment 1.

- Shop Drawing Review. Prompt and quick shop drawing review was needed for the Phase I of construction as well as the ongoing Phase II. Our structural design team has provided over 2,500 hours of shop drawing review to date, attachment 2. There are still more structures that are under construction and will require shop drawing review. In addition, our structural team has reviewed proposals from the contractor for various structural alternatives to the project.

- Focused Meetings. Personnel from our design team attend the weekly meetings and participate in focused weekly meetings. These meetings have resulted in improved construction and response times. Our design team recommends that these weekly meetings continue until substantial completion of the project.

October 17, 2017

- Additional Services: In an effort to expedite compliance and substantial completion the project was split into phases: clearing and grading, Phase I compliance construction and Phase II final construction. Our initial scope of services did not account for these phases and that construction will be complete at the end of 2017. The following services have been provided for as part of the Phase I:

    a. Operation Manuals: Attachment 3a provides a cost breakdown of the services provided for this effort to date. Additional manuals may be needed for final start-up.
    b. Training: Attachment 3b provides a cost breakdown of the services provided for this effort to date. Additional manuals may be needed for final start-up.
    c. Start-up Support: Attachment 3c provides a cost breakdown of the services provided for this effort to date. Additional start-up services may be needed for final start-up.
    d. Witness Testing: The design team used the T&M effort to cover the witness testing for the aerobic aerator. These services were to be provided by the contractor. Based on correspondence with the CM and contractor this service will be reimbursed to GWA by the construction contractor.

- The total cost or the additional services is $170,912.50. Details for this are provided in attachment 3d. These services have been billed as part of our ongoing T&M effort.

In addition to our design team's post design efforts to provide submittal, RFI and shop drawings review, training and attend regular construction meetings, we have also provided the following:

1. Agat Laboratory Equipment. As part of the design team's T&M we have purchased a new spectrophotometer and reactor. This equipment will be used at the new Agat WWTP Lab. The team proposed to advance this purchase so that this equipment may be used for ongoing wastewater characterization. The fee for this service is $10,358.00. A copy of the fee breakdown is enclosed as attachment 4 with this request.

2. Geotechnical Services. Given the sites complex geology and the slope failure located along the proposed site retaining wall, additional geotechnical services were needed. These services were taken out of the the project team T&M effort. The fee for this service is $10,729.51. A copy of this fee is enclosed as attachment 5 with this request.

3. Archeological Support. Monitoring of the new waterline was done as part of DCA's post design T&M effort. This monitoring was required in order to maintain compliance with the permit conditions. This is an ongoing service and will be billed later this year.

Additional Time and Service Request.

It is estimated that the design team services will be needed up to and at least two months past construction completion. We estimate that this will be ten (10) months from August 2017. Based on our past T&M billings the monthly billing used is approximately $50,000. The additional not to exceed effort for our T&M post design services is $500,000.

ENGINEERING * PLANNING * SURVEYING * ENVIRONMENTAL SERVICES * GEOGRAPHIC INFORMATION SYSTEM * CONSTRUCTION MANAGEMENT
GUAM P.O. Box 8900, Tamuning, Guam 96931 / 238 E. Marine Corps Drive, Suite 201 Diamond Plaza, Hagatña, GU 96910 / Tel: (671) 477-7991 / Fax: (671) 479-6315
SAIPAN Caller Box PPP, Suite 164, Saipan, MP 96950 / Chalan Pale Arnold, Ada's Building South Garapan, Saipan 96950 / Tel: (670) 234-9017 / Fax: (670) 234-3842

October 17, 2017

The total amount requested by this change order request:

Additional Time and Services Request:	$500,000.00
Geotechnical Services:	$ 10,729.51
Agat Laboratory Equipment:	$ 10,358.00
Total:	$521,087.51
Suggested NTE amount:	$550,000.00

As part of this request we recommended that our post design services not to exceed amount be increased by **$550,000** in order to account for possible unforeseen conditions. This not to exceed increase request will bring the design team post design services amount to $1,459,661.21. This is less than 3% of the total construction cost to date.

The design team is available to further discuss any comments or questions GWA may have to this change order request.

Thank you,

Kenneth M. Rekdahl, P.E.
Project Manger
Duenas, Camacho & Associates, Inc.

Enclosures (4): Submittal and RFI Summary
Additional Services Detail
Laboratory Details
Geotechnical Services Detail

ENGINEERING * PLANNING * SURVEYING * ENVIRONMENTAL SERVICES * GEOGRAPHIC INFORMATION SYSTEM * CONSTRUCTION MANAGEMENT
GUAM P.O. Box 8900, Tamuning, Guam 96931 / 238 E. Marine Corps Drive, Suite 201 Diamond Plaza, Hagatña, GU 96910 / Tel: (671) 477-7991 / Fax: (671) 479-6315
SAIPAN Caller Box PPP, Suite 164, Saipan, MP 96950 / Chalan Pale Arnold, Ada's Building South Garapan, Saipan 96950 / Tel: (670) 234-9017 / Fax: (670) 234-3842

Welcome GHD Pac on EADOC

10/16/17, 11:22 AM

ATTACHMENT 1



Agat-Santa Rita WWTP Replacement switch project
No Program

Bentley

Duenas Camacho & Associates Ken Rekdahl logout

10/16/2017, 11:22:51 AM Pacific/Guam

Start Memo Dailylog Meeting Calendar Deficiency Log

scheduler

- **Start**
- Work
- Documents
- Report
- Finance
- Profile
- Help

View: Default Customize

Level: project

Inbox
1 CCR (new)
74 CRN Responses (new)
1 Correction Required Notice (new)
5 DCM Responses (new)
4 DCMs (new)
1 Inspection Report (new)
1 Memo (new)
1 Memo Response (new)
392 RFI Responses (new)
17 RFIs (new)
590 Submittal Responses (new)
4 Submittals (new)

Calendar
Overdue

Documents Due
Submittal 01320-10
Submittal 01320-11
Submittal 01782-5

Meetings

Outbox
12 CRN Responses
1 Correction Required Notice
1 RFI
106 RFI Responses
26 Submittal Responses
3 Submittals

Recent Documents
RFI # 275 - RFI Response # 3
RFI # 272 - RFI Response # 1
RFI # 261 - RFI Response # 1
RFI # 261 - RFI Response # 3

Common Tasks
Create Memo
Create Meeting Invitation

Spent:	0.00	**Pay Estimates Pending:**	0.00
CCR Spent:	0.00	**Retention Pending:**	0.00
Contracted:	0.00	**Pay Estimates Approved:**	0.00
Contracted+CO:	0.00	**Retention Approved:**	0.00
Contracted Spent:	0.00%	**CCRs Pending:**	0.00
		CCRSs Approved:	0.00
		CO Pending:	0.00
		CO Approved:	0.00
		Risk Items Pending:	0.00
		Encumbered:	0.00

Project Days Remainin
Completion Date:

Alerts
Submittal Reminder
13 Submittals

Report Report

https://ghdpac.eadocsoftware.com/index.htm

Page 1 of 1

Additional Services

GS&P Invoice 0698905
Dated October 8, 2016

	Current Amount	Prior Amount	To-Date Amount	Amount Remaining
Scoped Services	$41,448.78	$108,315.61	$164,984.60	$445,926.26
Additional Services	$15,220.21			
	$56,668.99			**$445,926.26**

The following additional services are being tracked and are listed for reference.

Time Associated with Mechanical Submittals

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
9/20/2016	Clae Fuller	0.25	$80.00	$20.00	-	
9/21/2016	Clae Fuller	0.25	$80.00	$20.00	-	
9/20/2016	Ben Luke	2.00	$125.00	$250.00	-	
9/21/2016	Ben Luke	2.00	$125.00	$250.00	-	
				$540.00	**-**	**$540.00**

Time Associated with Contractor Related Changes

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
8/30/2016	Ron Abraham[1]	4.00	$225.00	$900.00	-	
9/21/2016	Ron Abraham[2]	4.00	$225.00	$900.00	-	
8/31/2016	Clae Fuller[1]	0.75	$80.00	$60.00	-	
8/29/2016	Ben Luke[1]	2.00	$125.00	$250.00	-	
9/21/2016	Ben Luke[2]	1.50	$125.00	$187.50	-	
				$2,297.50	**-**	**$2,297.50**

[1] Oxidation Ditch Waterstop
[2] Clarifier Hydraulics

Time Associated with Site Visits

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
8/23/2016	Ron Abraham	4.00	$225.00	$900.00	-	
8/30/2016	Ron Abraham	4.00	$225.00	$900.00	-	
				$1,800.00	**-**	**$1,800.00**

Additional Services

GS&P Invoice 0698905
Dated October 8, 2016

Time Associated with Developing Training Materials

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
9/14/2016	Ron Abraham	4.00	$225.00	$900.00	-	
9/16/2016	Ron Abraham	4.00	$225.00	$900.00	-	
9/19/2016	Ron Abraham	4.00	$225.00	$900.00	-	
9/21/2016	Ron Abraham	4.00	$225.00	$900.00	-	
8/16/2016	Seth Dobyns	1.00	$100.00	$100.00	-	
9/20/2016	Seth Dobyns	8.00	$100.00	$800.00	-	
9/23/2016	Seth Dobyns	8.00	$100.00	$800.00	-	
9/19/2016	David Johnson	1.00	$225.00	$225.00	-	
9/20/2016	David Johnson	2.00	$225.00	$450.00	-	
9/21/2016	David Johnson	2.00	$225.00	$450.00	-	
9/26/2016	David Johnson	3.00	$225.00	$675.00	-	
9/22/2016	Jacob Lampley	7.00	$100.00	$700.00	-	
9/26/2016	Jacob Lampley	2.50	$100.00	$250.00	-	
8/16/2016	Ben Luke	1.00	$125.00	$125.00		
9/19/2016	Ben Luke	3.50	$125.00	$437.50	-	
9/20/2016	Ben Luke	1.25	$125.00	$156.25	-	
9/22/2016	Ben Luke	1.00	$125.00	$125.00	-	
9/23/2016	Ben Luke	2.00	$125.00	$250.00	-	
8/16/2016	Kristi Schnell	1.00	$165.00	$165.00	-	
9/13/2016	Kristi Schnell	0.50	$165.00	$82.50	-	
9/19/2016	Kristi Schnell	1.00	$165.00	$165.00	-	
9/21/2016	Kristi Schnell	3.00	$165.00	$495.00	-	
9/22/2016	Kristi Schnell	0.50	$165.00	$82.50	-	
9/23/2016	Kristi Schnell	1.00	$165.00	$165.00	-	
				$10,298.75	**-**	**$10,298.75**

Operator Training

Expense	Current Amount	Prior Amount	To-Date Amount
Airfare for Dave Fletcher and Ben Barcinas	$283.96		
	$283.96	**-**	**$283.96**

TOTAL $15,220.21 **$15,220.21**

ATTACHMENT 2

Exhibit B (Hourly Summary)
Invoice 16A-22
Phase 2 Time and Materials Services for Duenas, Camacho & Associates
Through January 2, 2016

	Hours	Rate	Amount
Project Manager			
Kenneth Rekdahl	110	$ 106.00	$ 11,660.00
Frankie Susuico	13	$ 78.00	$ 1,014.00
Ed Salanatin	5	$ 113.00	$ 565.00
Civil Engineer			
Jeff Bell	67	$ 62.00	$ 4,154.00
Murel Cabral	53	$ 77.00	$ 4,081.00
Staff Engineer			
Jeremy Mudd	40	$ 47.00	$ 1,880.00
Hana Johnston	21.5	$ 52.00	$ 1,118.00
Celvin Pagcu	33	$ 47.00	$ 1,551.00
Secretary			
Tamera Reyes	16.5	$ 28.00	$ 462.00
Total	359		$ 26,485.00

Expenses

12/16/15	GFD Permit review fee	$ 1,582.00
10/29/15	PEALs Clearance for Building permit fee	$ 15.00
5/13/15	PEALs Clearance for Building permit fee	$ 15.00
Total		$ 1,612.00

Total T&M, DCA (Less GRT) **$ 28,097.00**

1/21/16

Exhibit B (Hourly Summary)
Invoice 16F-04
Phase 2 Time and Materials Services for Duenas, Camacho & Associates
Through April 30, 2016

	Hours	Rate	Amount
Project Manager			
Kenneth Rekdahl	100	$ 117.53	$ 11,753.00
Frankie Susuico	25	$ 84.84	$ 2,121.00
Ed Salanatin	3	$ 124.45	$ 373.35
Civil Engineer			
Jeff Bell	85	$ 66.95	$ 5,690.75
Murel Cabral	45	$ 82.21	$ 3,699.45
Structural Engineer			
Jeff Pangelinan	3	$ 72.61	$ 217.83
Elijah Soto	49	$ 63.27	$ 3,100.23
Inspection/Shop Drawing			
Vincent Pereda	43.5	$ 55.37	$ 2,408.60
Abner Sarmiento	28.75	$ 56.97	$ 1,637.89
Staff Engineer			
Jeremy Mudd	21	$ 54.65	$ 1,147.65
Celvin Pagcu	21	$ 54.65	$ 1,147.65
J.Dean Garcia	32.5	$ 50.33	$ 1,635.73
Secretary			
Tamara Reyes	1.5	$ 29.62	$ 44.43
Cadd/Production			
Arnold Cainguitan	5	$ 44.44	$ 222.20
Thomas Camacho Jr.	15.5	$ 24.45	$ 378.98
Jaelene Crisostomo	22.5	$ 24.45	$ 550.13
Planning/Env			
Claudine Camacho	11.5	$ 89.98	$ 1,034.77
Jessica Gross	9.5	$ 56.97	$ 541.22
Total	522.25		$ 34,977.55
Total T&M, DCA			**$ 34,977.55**

6/1/16

Exhibit B (Hourly Summary)
Invoice 16L-07
Phase 2 Time and Materials Services for Duenas, Camacho & Associates
Through September 30, 2016

	Hours		Rate		Amount
Project Manager					
Kenneth Rekdahl	83	$	117.53	$	9,754.99
Frankie Susuico	55	$	84.04	$	4,622.20
Ed Salanatin	1	$	124.45	$	124.45
Civil Engineer					
Jeff Bell	192	$	66.95	$	12,854.40
Murel Cabral	0	$	82.21	$	-
Structural Engineer					
Jeff Pangelinan	58	$	72.61	$	4,211.38
Elijah Soto	106.5	$	63.27	$	6,738.26
Hernan Bonsembiante	32	$	71.90	$	2,300.80
Inspection/Shop Drawing					
Vincent Pereda	232	$	55.37	$	12,845.84
Abner Sarmiento	202.5	$	56.97	$	11,536.43
Staff Engineer					
Jeremy Mudd	0	$	54.65	$	-
Celvin Pagcu	1.5	$	54.65	$	81.98
J.Dean Garcia	0	$	50.33	$	-
Secretary					
Tamara Reyes	0	$	29.62	$	-
Cadd/Production					
Paul Pangelinan	6	$	53.32	$	319.92
Arnold Cainguitan	0	$	44.44	$	-
Thomas Camacho Jr.	0	$	24.45	$	-
Jaelene Crisostomo	65.5	$	23.73	$	1,554.32
Planning/Env					
Claudine Camacho	13	$	89.88	$	1,168.44
Jessica Gross	12	$	56.97	$	683.64
Survey					
Worthy Basilius	9.85	$	24.45	$	240.83

Exhibit B (Hourly Summary)
Invoice 17F-01
Phase 2 Time and Materials Services for Duenas, Camacho & Associates
Through April 15, 2017

	2016			2017			TOTAL
	Hours	Rate	Amount	Hours	Rate	Amount	
Project Manager							
Kenneth Rekdahl	81.00	$ 121.28	$ 9,823.68	103.00	$ 135.57	$ 13,963.71	$ 23,787.39
Frankie Susuico	55.00	$ 86.72	$ 4,769.60	58.00	$ 91.05	$ 5,280.90	$ 10,050.50
Civil Engineer							
Jeff Bell	93.00	$ 69.08	$ 6,424.44	127.00	$ 76.36	$ 9,697.72	$ 16,122.16
Structural Engineer							
Jeff Pangelinan	57.00	$ 74.93	$ 4,271.01	102.00	$ 81.02	$ 8,264.04	$ 12,535.05
Elijah Soto	158.50	$ 65.29	$ 10,348.47	157.50	$ 68.56	$ 10,798.20	$ 21,146.67
Hernan Bonsembiante	63.50	$ 74.20	$ 4,711.70	109.00	$ 75.68	$ 8,249.12	$ 12,960.82
Inspection/Shop Drawing							
Vincent Pereda	134.00	$ 57.13	$ 7,655.42	120.00	$ 57.13	$ 6,855.60	$ 14,511.02
Abner Sarmiento	236.75	$ 58.78	$ 13,916.17	287.00	$ 60.54	$ 17,374.98	$ 31,291.15
Staff Engineer							
J.Dean Garcia	52.50	$ 51.94	$ 2,726.85	210.00	$ 53.51	$ 11,237.10	$ 13,963.95
Cadd/Production							
Arnold Cainguitan	4.50	$ 45.85	$ 206.33	7.50	$ 48.14	$ 361.05	$ 567.38
Paul Pangelinan	10.00	$ 55.02	$ 550.20	4.00	$ 57.78	$ 231.12	$ 781.32
Planning/Env							
Claudine Camacho	12.50	$ 92.74	$ 1,159.25	8.00	$ 95.62	$ 764.96	$ 1,924.21
Jessica Gross	22.00	$ 59.21	$ 1,302.62	9.50	$ 59.98	$ 569.81	$ 1,872.43
Devin Keogh	9.00	$ 44.52	$ 400.68			$ -	$ 400.68
Survey							
Jacob Cruz		$ -	$ -	2.50	$ 25.97	$ 64.93	$ 64.93
Vander Naputi		$ -	$ -	2.50	$ 33.63	$ 84.08	$ 84.08
Total	989.25		$ 68,266.41	1307.50		$ 93,797.31	$ 162,063.72
Total T&M, DCA							**$ 162,063.72**

Exhibit B (Hourly Summary)

Invoice 17I-12

Phase 2 Time and Materials Services for Duenas, Camacho & Associates

Through June 03, 2017

	2017		
	Hours	Rate	Amount
Project Manager			
Ken Rekdahl	43.00	$ 135.57	$ 5,829.48
Frankie Susuico	32.00	$ 91.05	$ 2,913.67
Civil Engineer			
Jeff Bell	21.00	$ 76.36	$ 1,603.59
Jeff Bell	55.00	$ 78.50	$ 4,317.41
Structural Engineer			
Jeff Pangelinan	95.00	$ 81.02	$ 7,697.00
Elijah Soto	80.00	$ 68.56	$ 5,484.50
Hernan Bonsembiante	34.00	$ 75.68	$ 2,573.09
Inspection/Shop Drawing			
Vincent Pereda	50.00	$ 57.13	$ 2,856.51
Abner Sarmiento	122.50	$ 60.54	$ 7,416.54
Staff Engineer			
J.Dean Garcia	100.50	$ 53.51	$ 5,377.70
Cadd/Production			
Arnold Cainguitan	1.00	$ 48.14	$ 48.14
Paul Pangelinan	1.50	$ 57.78	$ 86.67
Planning/Env			
Jessica Gross	3.00	$ 59.98	$ 179.94
Total	638.50		$ 46,384.24

Additional Services

GS&P Invoice 0699843
Dated November 8, 2016

	Current Amount	Prior Amount	To-Date Amount	Amount Remaining
Scoped Services	$23,528.54	$149,764.39	$173,292.93	-
Additional Services	$45,439.95	$15,220.21	$60,660.16	-
	$68,968.49	**$164,984.60**	**$233,953.09**	**$376,957.77**

The following additional services are being tracked and are listed for reference.

Time Associated with Mechanical Submittals

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
9/28/2016	Clae Fuller	0.25	$80.00	$20.00	-	-
9/28/2016	Ben Luke	2.00	$125.00	$250.00	-	-
10/24/2016	Ben Luke	0.75	$125.00	$93.75	-	-
10/14/2016	Seth Dobyns	1.00	$125.00	$125.00	-	-
				$488.75	**$540.00**	**$1,028.75**

Time Associated with Contractor Related Changes

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
10/13/2016	Ron Abraham[1]	4.00	$225.00	$900.00	-	
10/17/2016	Ron Abraham[1]	4.00	$225.00	$900.00	-	
10/13/2016	Ben Luke[1]	3.00	$125.00	$375.00	-	
10/14/2016	Ben Luke[1]	2.50	$125.00	$312.50	-	
10/13/2016	Andrew Bratcher[1]	4.00	$135.00	$540.00	-	
				$3,027.50	**$2,297.50**	**$5,325.00**

[1] Clarifier and UV

Time Associated with Site Visits

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
				$0.00	**$1,800.00**	**$1,800.00**

Time Associated with Conference Calls

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
10/11/2016	Ron Abraham	2.00	$225.00	$450.00		
10/18/2016	Ron Abraham	2.00	$225.00	$450.00		
				$900.00	**-**	**$900.00**

ATTACHMENT 3 A

Additional Services

GS&P Invoice 0699843
Dated November 8, 2016

Time Associated with Developing Training Materials

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
9/29/2016	Ron Abraham	4.00	$225.00	$900.00	-	
9/27/2016	Kristi Schnell	1.00	$165.00	$165.00	-	
9/28/2016	Kristi Schnell	2.00	$165.00	$330.00	-	
9/27/2016	Seth Dobyns	5.00	$125.00	$625.00	-	
9/28/2016	Seth Dobyns	3.00	$125.00	$375.00	-	
9/29/2016	Seth Dobyns	8.00	$125.00	$1,000.00	-	
9/28/2016	Ben Luke	2.00	$125.00	$250.00	-	
9/29/2016	Ben Luke	4.00	$125.00	$500.00	-	
9/27/2016	Jacob Lampley	1.00	$100.00	$100.00	-	
9/28/2016	Jacob Lampley	1.00	$100.00	$100.00	-	
				$4,345.00	**$10,298.75**	**$14,643.75**

Expense	Current Amount	Prior Amount	To-Date Amount
Training Materials	$107.00	-	$107.00
Printing	$1,369.92	-	$1,369.92
	$1,476.92	**-**	**$1,476.92**

Operator Training

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
10/15/2016	Ken Baker	40.00	$250.00	$10,000.00	-	
9/30/2016	Kristi Schnell	6.00	$165.00	$990.00	-	
10/3/2016	Kristi Schnell	8.00	$165.00	$1,320.00	-	
10/4/2016	Kristi Schnell	3.00	$165.00	$495.00	-	
10/5/2016	Kristi Schnell	7.00	$165.00	$1,155.00	-	
9/30/2016	Dave Johnson	3.00	$225.00	$675.00	-	
10/4/2016	Dave Johnson	2.00	$225.00	$450.00	-	
10/5/2016	Dave Johnson	4.00	$225.00	$900.00	-	
9/29/2016	Ron Abraham	4.00	$225.00	$900.00	-	
9/30/2016	Ron Abraham	8.00	$225.00	$1,800.00	-	
10/3/2016	Ron Abraham	6.00	$225.00	$1,350.00	-	
10/4/2016	Ron Abraham	8.00	$225.00	$1,800.00	-	
10/5/2016	Ron Abraham	8.00	$225.00	$1,800.00	-	
9/30/2016	Seth Dobyns	8.00	$125.00	$1,000.00	-	
10/3/2016	Seth Dobyns	8.00	$125.00	$1,000.00	-	
10/4/2016	Seth Dobyns	8.00	$125.00	$1,000.00	-	
10/5/2016	Seth Dobyns	8.00	$125.00	$1,000.00	-	
9/30/2016	Ben Luke	8.00	$125.00	$1,000.00	-	
10/3/2016	Ben Luke	7.00	$125.00	$875.00	-	

Additional Services

GS&P Invoice 0699843
Dated November 8, 2016

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
10/4/2016	Ben Luke	7.00	$125.00	$875.00	-	
10/5/2016	Ben Luke	5.00	$125.00	$625.00	-	
9/29/2016	Phillip Galbreath	0.25	$85.00	$21.25	-	
9/30/2016	Phillip Galbreath	0.50	$85.00	$42.50	-	
10/3/2016	Phillip Galbreath	0.25	$85.00	$21.25	-	
10/4/2016	Phillip Galbreath	0.25	$85.00	$21.25	-	
				$31,116.25	**-**	**$31,116.25**

Expense	Current Amount	Prior Amount	To-Date Amount
Airfare for Dave Fletcher and Ben Barcinas	-	$283.96	$283.96
Hotel for Dave Fletcher and Ben Barcinas	$2,975.91	-	$2,975.91
Meals	$23.01	-	$23.01
Parking / Taxi	$57.05	-	$57.05
Rental Car / Fuel	$828.14	-	$828.14
Mileage	$201.42	-	$201.42
	$4,085.53	**$283.96**	**$4,369.49**

TOTAL $45,439.95 $15,220.21 $60,660.16

Additional Services

GS&P Invoice 0700739
Dated December 8, 2016

	Current Amount	Prior Amount	To-Date Amount	Amount Remaining
Scoped Services	$15,726.81	$173,292.93	$189,019.74	-
Additional Services	$3,317.36	$60,660.16	$63,977.52	-
	$19,044.17	**$233,953.09**	**$252,997.26**	**$357,913.60**

The following additional services are being tracked and are listed for reference.

Time Associated with Mechanical Submittals

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
11/4/2016	Kristi Schnell	1.00	$165 00	$165.00		
11/1/2016	Ben Luke	0.50	$125.00	$62.50	-	-
11/4/2016	Ben Luke	0.50	$125.00	$62.50	-	-
11/8/2016	William Bennecker	1.00	$125.00	$125.00	-	-
11/4/2016	Clae Fuller	1.50	$80.00	$120.00	-	-
11/7/2016	Clae Fuller	0.50	$80.00	$40.00		
11/8/2016	Clae Fuller	0.75	$80.00	$60.00		
11/9/2016	Clae Fuller	1.00	$80.00	$80.00		
11/11/2016	Clae Fuller	0.25	$80.00	$20.00		
11/12/2016	Clae Fuller	-1.50	$80.00	-$120.00		
11/15/2016	Clae Fuller	1.00	$80.00	$80.00		
				$695.00	**$1,028.75**	**$1,723.75**

Time Associated with Contractor Related Changes

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
11/4/2016	Ron Abraham[1]	3.00	$225.00	$675.00	-	
11/22/2016	Ron Abraham[2]	3.00	$225.00	$675.00	-	
				$1,350.00	**$5,325.00**	**$6,675.00**

[1] Oxidation Ditch
[2] UV Structure

Time Associated with Site Visits

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
				-	-	-
				$0.00	**$1,800.00**	**$1,800.00**

Additional Services

GS&P Invoice 0702251
Dated January 8, 2017

	Current Amount	Prior Amount	To-Date Amount	Amount Remaining
Scoped Services	$11,018.91	$189,019.74	$200,038.65	-
Additional Services	$1,745.00	$63,977.52	$65,722.52	-
	$12,763.91	**$252,997.26**	**$265,761.17**	**$345,149.69**

The following additional services are being tracked and are listed for reference.

Time Associated with Mechanical Submittals

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
12/8/2016	William Bennecker	2.50	$125.00	$312.50	-	-
12/13/2016	William Bennecker	0.50	$125.00	$62.50	-	-
11/28/2016	Clae Fuller	0.25	$80.00	$20.00		
12/6/2016	Clae Fuller	0.25	$80.00	$20.00		
12/8/2016	Clae Fuller	0.25	$80.00	$20.00		
12/15/2016	Clae Fuller	0.75	$80.00	$60.00		
				$495.00	**$1,723.75**	**$2,218.75**

Time Associated with Contractor Related Changes

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
					-	
					$6,675.00	**$6,675.00**

Time Associated with Site Visits

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
				-	-	-
				$0.00	**$1,800.00**	**$1,800.00**

Time Associated with Conference Calls

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
12/15/2016	Ken Baker	2.00	$250.00	$500.00		
12/19/2016	Ken Baker	1.00	$250.00	$250.00		
12/22/2016	Ken Baker	1.00	$250.00	$250.00	-	-
				$1,000.00	**$900.00**	**$1,900.00**

Additional Services

GS&P Invoice 0702607
Dated February 8, 2017

	Current Amount	Prior Amount	To-Date Amount	Amount Remaining
Scoped Services	$9,335.38	$200,038.65	$209,374.03	-
Additional Services	$3,512.50	$65,722.52	$69,235.02	-
	$12,847.88	**$265,761.17**	**$278,609.05**	**$332,301.81**

The following additional services are being tracked and are listed for reference.

Time Associated with Mechanical Submittals

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
1/10/2017	Seth Dobyns	8.00	$125.00	$1,000.00		
1/24/2017	Seth Dobyns	8.00	$125.00	$1,000.00		
1/25/2017	Seth Dobyns	4.00	$125.00	$500.00		
1/14/2017	Clae Fuller	0.50	$80.00	$40.00		
1/23/2017	Clae Fuller	0.25	$80.00	$20.00		
				$2,560.00	**$2,218.75**	**$4,778.75**

Time Associated with Contractor Related Changes

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
1/11/2017	Ben Luke[1]	2.00	$125.00	$250.00	-	
				$250.00	**$6,675.00**	**$6,925.00**

[1]Specification revisions for crack repairs

Time Associated with Site Visits

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
				-	-	-
				-	**$1,800.00**	**$1,800.00**

Time Associated with Conference Calls

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
1/9/2017	Ken Baker	2.00	$250.00	$500.00		
1/9/2017	Kristi Schnell	1.00	$165.00	$165.00		
1/11/2017	David Johnson	1.00	$225.00	$225.00		
1/9/2017	Ben Luke	2.00	$125.00	$250.00	-	-
1/9/2017	Seth Dobyns	2.00	$125.00	$250.00		
				$640.00	**$1,900.00**	**$2,540.00**

ATTACHMENT 3B

Additional Services

GS&P Invoice 0702607
Dated February 8, 2017

Developing Training Materials

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
				-	-	-
				-	**$14,463.75**	**$14,463.75**

Expense	Current Amount	Prior Amount	To-Date Amount
Training Materials	-	$107.00	$107.00
Printing	-	$1,369.92	$1,369.92
	-	**$1,476.92**	**$1,476.92**

Operator Training

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
1/13/2017	Ben Luke	0.50	$125.00	$62.50	-	-
				$62.50	**$31,116.25**	**$31,178.75**

Expense	Current Amount	Prior Amount	To-Date Amount
Airfare for Dave Fletcher and Ben Barcinas	-	$283.96	$283.96
Hotel for Dave Fletcher and Ben Barcinas	-	$2,975.91	$2,975.91
Meals	-	$23.01	$23.01
Parking / Taxi	-	$57.05	$57.05
Rental Car / Fuel	-	$828.14	$828.14
Mileage	-	$273.78	$273.78
	-	**$4,441.85**	**$4,441.85**

Time associated with Witness Testing

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
				-	-	
				-	**$1,450.00**	**$1,450.00**

TOTAL	**$3,512.50**	**$65,722.52**	**$69,235.02**

Additional Services

GS&P Invoice 0702251
Dated January 8, 2017

Developing Training Materials

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
				-	-	-
				$0.00	**$14,463.75**	**$14,463.75**

Expense	Current Amount	Prior Amount	To-Date Amount
Training Materials	-	$107.00	$107.00
Printing	-	$1,369.92	$1,369.92
	$0.00	**$1,476.92**	**$1,476.92**

Operator Training

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
				-	-	-
				$0.00	**$31,116.25**	**$31,116.25**

Expense	Current Amount	Prior Amount	To-Date Amount
Airfare for Dave Fletcher and Ben Barcinas	-	$283.96	$283.96
Hotel for Dave Fletcher and Ben Barcinas	-	$2,975.91	$2,975.91
Meals	-	$23.01	$23.01
Parking / Taxi	-	$57.05	$57.05
Rental Car / Fuel	-	$828.14	$828.14
Mileage	-	$273.78	$273.78
	$0.00	**$4,441.85**	**$4,441.85**

Time associated with Witness Testing

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
11/28/2016	Ken Baker	1.00	$250.00	$250.00	-	
				$250.00	**$1,200.00**	**$1,450.00**

TOTAL $1,745.00 $63,977.52 $65,722.52

Additional Services

GS&P Invoice 0700739
Dated December 8, 2016

Time Associated with Conference Calls

Date	Professiona l Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
				-	-	-
				$0.00	**$900.00**	**$900.00**

Developing Training Materials

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
				-	-	-
				$0.00	**$14,463.75**	**$14,463.75**

Expense	Current Amount	Prior Amount	To-Date Amount
Training Materials	-	$107.00	$107.00
Printing	-	$1,369.92	$1,369.92
	$0.00	**$1,476.92**	**$1,476.92**

Operator Training

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
				-	-	-
				$0.00	**$31,116.25**	**$31,116.25**

Expense	Current Amount	Prior Amount	To-Date Amount
Airfare for Dave Fletcher and Ben Barcinas	-	$283.96	$
Hotel for Dave Fletcher and Ben Barcinas	$	$2,975.91	$
Meals	$	$23.01	$
Parking / Taxi	$	$57.05	$
Rental Car / Fuel	$	$828.14	$
Mileage	$72.36	$201.42	$273.78
	$72.36	**$4,369.49**	**$**

Time associated with Witness Testing

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
11/1/2016	Ken Baker	1.00	$250.00	$250.00	-	
11/3/2016	Ken Baker	2.00	$250.00	$500.00	-	
11/1/2016	Ron Abraham	2.00	$225.00	$450.00	-	
				$1,200.00	-	

TOTAL $3,317.36 $60,660.16 $63,977.52

Additional Services

GS&P Invoice 0703530
Dated March 8, 2017

	Current Amount	Prior Amount	To-Date Amount	Amount Remaining
Scoped Services	$9,321.71	$209,374.03	$218,695.74	-
Additional Services	$12,525.75	$69,235.02	$81,760.77	-
	$21,847.46	**$278,609.05**	**$300,456.51**	**$310,454.35**

The following additional services are being tracked and are listed for reference.

Time Associated with Mechanical Submittals

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
1/26/2017	Seth Dobyns	2.00	$125.00	$250.00	-	-
1/27/2017	Seth Dobyns	1.00	$125.00	$125.00	-	-
1/30/2017	Ben Luke	1.00	$125.00	$125.00	-	-
1/31/2017	Ben Luke	0.50	$125.00	$62.50	-	-
1/31/2017	Clae Fuller	0.50	$80.00	$40.00	-	-
				$602.50	**$4,778.75**	**$5,381.25**

Time Associated with Contractor Related Changes

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
02/01/2017	Mike Robertson	4.00	$135.00	$540.00	-	-
02/02/2017	Mike Robertson	2.00	$135.00	$270.00	-	-
02/03/2017	Mike Robertson	8.00	$135.00	$1,080.00	-	-
02/06/2017	Mike Robertson	8.00	$135.00	$1,080.00	-	-
02/07/2017	Mike Robertson	4.00	$135.00	$540.00	-	-
02/08/2017	Dave Johnson	1.00	$225.00	$225.00	-	-
02/09/2017	Dave Johnson	4.00	$225.00	$900.00	-	-
02/01/2017	Ron Abraham	4.00	$225.00	$900.00	-	-
02/08/2017	Ron Abraham	4.00	$225.00	$900.00	-	-
02/08/2017	Ben Luke	5.00	$125.00	$625.00	-	-
				$7,060.00	**$6,925.00**	**$13,985.00**

[1]GWA requested changes for the digesters and sludge piping

Time Associated with Site Visits

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
				-	-	-
				-	**$1,800.00**	**$1,800.00**

GRESHAM
SMITH AND
PARTNERS

Duenas, Camacho & Associates
Attn: Kenneth M. Rekdahl, Chief of Spec. Projects
238 East Marine Corps Drive
P.O. 8900
Hagatna 96910

April 08, 2017
Project No: 41192.00
Invoice No: 0705286

Project 41192.00 Agat - Santa Rita WWTP (Phase 2), GWA Project WW-08

Professional Services for the period ending March 27, 2017

Professional Personnel

	Hours	Rate	Amount	
Principal				
Baker, Kenneth	67.00	250.00	16,750.00	
Sr. Technical Specialist				
Abraham, Ronald	112.00	225.00	25,200.00	
Johnson, David	16.50	225.00	3,712.50	
Sr. Project Manager				
Stewart, Kenneth	6.50	200.00	1,300.00	
Project Manager				
Schnell, Kristi	8.00	165.00	1,320.00	
Engineer II				
Dobyns, Thomas	22.00	125.00	2,750.00	
Luke, Benjamin	118.00	125.00	14,750.00	
Project Accountant				
Duffy, Melissa	3.00	120.00	360.00	
Administration				
Fuller, Claude	16.50	80.00	1,320.00	
Totals	369.50		67,462.50	
Total Labor				**67,462.50**

Reimbursable Expenses

Printing	71.16	
Travel	1,178.15	
Color Copy/Printing	18.50	
Total Reimbursables	**1,267.81**	**1,267.81**

Billing Limits	**Current**	**Prior**	**To-Date**
Total Billings	68,730.31	300,456.51	369,186.82
Limit			610,910.86
Remaining			241,724.04

Total this Invoice **$68,730.31**

If you have any questions concerning this invoice,
please contact Ken Stewart, Project Manager at 615.770.8422.

Design and Consulting Solutions for the Built Environment
Please remit payment along with attached invoice copy to:
Gresham, Smith and Partners / P.O. Box 440029 / Nashville, TN 37244-0029

GRESHAM
SMITH AND
PARTNERS

Duenas, Camacho & Associates
Attn: Kenneth M. Rekdahl, Chief of Spec. Projects
238 East Marine Corps Drive
P.O. 8900
Hagatna 96910

May 8, 2017
Project No: 41192.00
Invoice No: 0705875

Project 41192.00 Agat - Santa Rita WWTP (Phase 2), GWA Project WW-08

Professional Services for the period ending April 25, 2017

Professional Personnel

	Hours	Rate	Amount	
Principal				
Baker, Kenneth	36.00	250.00	9,000.00	
Sr. Technical Specialist				
Abraham, Ronald	52.00	225.00	11,700.00	
Johnson, David	8.00	225.00	1,800.00	
Sr. Project Manager				
Stewart, Kenneth	20.00	200.00	4,000.00	
Engineer II				
Dobyns, Thomas	16.00	125.00	2,000.00	
Luke, Benjamin	87.75	125.00	10,968.75	
Project Accountant				
Duffy, Melissa	3.00	120.00	360.00	
Administration				
Haider, Rebecca	6.25	85.00	531.25	
Administration				
Fuller, Claude	15.00	80.00	1,200.00	
Totals	244.00		41,560.00	
Total Labor				**41,560.00**

Reimbursable Expenses

Printing	16.52	
Office Supplies	33.08	
Travel	4,549.97	
Lodging	9,310.55	
Car Rental	600.00	
Mileage/Fuel	45.00	
Telephone	21.99	
Meals	1,097.36	
Color Copy/Printing	36.50	
Total Reimbursables	**15,710.97**	**15,710.97**

Billing Limits	**Current**	**Prior**	**To-Date**
Total Billings	57,270.97	369,186.82	426,457.79
Limit			610,910.86
Remaining			184,453.07

Design Services for the Built Environment

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Project	41192.00	Guam - Agat-Santa Rita WWTP (Phase 2)	Invoice	0705875
		Total this Invoice		**$57,270.97**

If you have any questions concerning this invoice,
please contact Ken Stewart, Project Manager at 615.770.8422.



Design Services for the Built Environment

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Gresham, Smith, and Partners / P.O. Box 440029 / Nashville, TN 37244-0029

Project	41192.00	Guam - Agat-Santa Rita WWTP (Phase 2)	Invoice	0705875

Billing Backup

Thursday, May 4, 2017

Gresham, Smith and Partners — Invoice 0705875 Dated 5/8/2017 — 9:00:33 AM

Professional Personnel

			Hours	Rate	Amount
Principal					
02550	167 - Baker, Kenneth	3/28/2017	4.00	250.00	1,000.00
02550	167 - Baker, Kenneth	3/29/2017	3.00	250.00	750.00
02550	167 - Baker, Kenneth	3/30/2017	6.00	250.00	1,500.00
02550	167 - Baker, Kenneth	3/31/2017	3.00	250.00	750.00
02550	167 - Baker, Kenneth	4/17/2017	4.00	250.00	1,000.00
02550	167 - Baker, Kenneth	4/18/2017	4.00	250.00	1,000.00
02550	167 - Baker, Kenneth	4/19/2017	4.00	250.00	1,000.00
02550	167 - Baker, Kenneth	4/20/2017	4.00	250.00	1,000.00
02550	167 - Baker, Kenneth	4/21/2017	4.00	250.00	1,000.00
Sr. Technical Specialist					
04428	140 - Abraham, Ronald	3/28/2017	8.00	225.00	1,800.00
	Phase 1 Start up not iin original scope				
04428	140 - Abraham, Ronald	3/29/2017	8.00	225.00	1,800.00
	Phase 1 Operator Training not in origiinal scope				
04428	140 - Abraham, Ronald	3/31/2017	4.00	225.00	900.00
	Phase 1 Start up not iin original scope				
04428	140 - Abraham, Ronald	4/3/2017	2.00	225.00	450.00
	Ken Stewart meeting				
04428	140 - Abraham, Ronald	4/12/2017	8.00	225.00	1,800.00
	Change orders requested by GWA				
04428	140 - Abraham, Ronald	4/14/2017	3.00	225.00	675.00
	Phase 1 Startup				
04428	140 - Abraham, Ronald	4/14/2017	3.00	225.00	675.00
	Phase 1 Startup				
04428	140 - Abraham, Ronald	4/20/2017	8.00	225.00	1,800.00
	Phase 1 Startup				
04428	140 - Abraham, Ronald	4/21/2017	8.00	225.00	1,800.00
	Phase 1 Training				
04331	139 - Johnson, David	4/3/2017	1.00	225.00	225.00
	Processing/Checking Shop Drawings				
04331	139 - Johnson, David	4/7/2017	1.00	225.00	225.00
	Processing/Checking Shop Drawings				
04331	139 - Johnson, David	4/21/2017	1.00	225.00	225.00
	Processing/Checking Shop Drawings				
04331	139 - Johnson, David	4/21/2017	2.00	225.00	450.00
	Plant Tk Drain Control Rev				
04331	139 - Johnson, David	4/24/2017	2.00	225.00	450.00
	Plant Tk Drain Control Rev				
04331	139 - Johnson, David	4/25/2017	1.00	225.00	225.00
	Processing/Checking Shop Drawings				
Sr. Project Manager					
02865	139 - Stewart, Kenneth	3/29/2017	.50	200.00	100.00
02865	139 - Stewart, Kenneth	3/30/2017	1.00	200.00	200.00
02865	139 - Stewart, Kenneth	3/31/2017	1.00	200.00	200.00
02865	139 - Stewart, Kenneth	4/11/2017	1.00	200.00	200.00
	Project Update				
02865	139 - Stewart, Kenneth	4/13/2017	2.00	200.00	400.00
	Invoice Revision				

Project	41192.00	Guam - Agat-Santa Rita WWTP (Phase 2)			Invoice	0705875
02865	139 - Stewart, Kenneth Invoice Issues	4/17/2017	2.00	200.00	400.00	
02865	139 - Stewart, Kenneth Invoice Issues	4/19/2017	2.00	200.00	400.00	
02865	139 - Stewart, Kenneth Invoice Revision	4/20/2017	1.00	200.00	200.00	
02865	139 - Stewart, Kenneth Invoice Issues	4/21/2017	4.00	200.00	800.00	
02865	139 - Stewart, Kenneth Review Oxygen Transfer and set-up wtness test trip; invoice issue	4/24/2017	3.50	200.00	700.00	
02865	139 - Stewart, Kenneth Invoice Revision	4/25/2017	2.00	200.00	400.00	
Engineer II						
04423	136 - Dobyns, Thomas submittal	4/5/2017	5.00	125.00	625.00	
04423	136 - Dobyns, Thomas submittal	4/6/2017	8.00	125.00	1,000.00	
04423	136 - Dobyns, Thomas submittal	4/7/2017	3.00	125.00	375.00	
04515	136 - Luke, Benjamin RFIs	3/28/2017	2.00	125.00	250.00	
04515	136 - Luke, Benjamin Operator Training	3/28/2017	6.00	125.00	750.00	
04515	136 - Luke, Benjamin Operator Training	3/29/2017	8.00	125.00	1,000.00	
04515	136 - Luke, Benjamin Operator Training	3/30/2017	7.50	125.00	937.50	
04515	136 - Luke, Benjamin Startup and Commissioning	3/31/2017	6.00	125.00	750.00	
04515	136 - Luke, Benjamin Submittal	3/31/2017	2.00	125.00	250.00	
04515	136 - Luke, Benjamin Startup and Commissioning	4/3/2017	2.00	125.00	250.00	
04515	136 - Luke, Benjamin Submittals	4/3/2017	4.00	125.00	500.00	
04515	136 - Luke, Benjamin Operator Training Manuals	4/3/2017	2.00	125.00	250.00	
04515	136 - Luke, Benjamin Submittals	4/4/2017	8.00	125.00	1,000.00	
04515	136 - Luke, Benjamin Submittals	4/5/2017	4.00	125.00	500.00	
04515	136 - Luke, Benjamin Centrifuge Changes	4/5/2017	2.00	125.00	250.00	
04515	136 - Luke, Benjamin UV, Pump Changes	4/6/2017	4.00	125.00	500.00	
04515	136 - Luke, Benjamin Submittals	4/6/2017	2.00	125.00	250.00	
04515	136 - Luke, Benjamin RFI	4/7/2017	2.00	125.00	250.00	
04515	136 - Luke, Benjamin UV, Pump Changes	4/7/2017	1.50	125.00	187.50	
04515	136 - Luke, Benjamin RFIs	4/10/2017	3.50	125.00	437.50	
04515	136 - Luke, Benjamin RFI	4/11/2017	.50	125.00	62.50	
04515	136 - Luke, Benjamin Submittal	4/11/2017	1.50	125.00	187.50	

Design Services for the Built Environment

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Project	41192.00	Guam - Agat-Santa Rita WWTP (Phase 2)			Invoice	0705875
04515	136 - Luke, Benjamin Guam Meeting	4/11/2017	1.00	125.00	125.00	
04515	136 - Luke, Benjamin Submittal	4/12/2017	1.50	125.00	187.50	
04515	136 - Luke, Benjamin Submittal	4/13/2017	2.00	125.00	250.00	
04515	136 - Luke, Benjamin Witness Testing Coordination	4/13/2017	.50	125.00	62.50	
04515	136 - Luke, Benjamin Submittal	4/17/2017	.50	125.00	62.50	
04515	136 - Luke, Benjamin Witness Testing Coordination	4/18/2017	.25	125.00	31.25	
04515	136 - Luke, Benjamin Mechanical Submittal	4/19/2017	1.00	125.00	125.00	
04515	136 - Luke, Benjamin Submittal	4/19/2017	.50	125.00	62.50	
04515	136 - Luke, Benjamin Submittal	4/20/2017	1.50	125.00	187.50	
04515	136 - Luke, Benjamin Submittal	4/21/2017	4.00	125.00	500.00	
04515	136 - Luke, Benjamin Submittals	4/24/2017	2.50	125.00	312.50	
04515	136 - Luke, Benjamin Witness Testing Coordination	4/24/2017	.50	125.00	62.50	
04515	136 - Luke, Benjamin Submittals	4/25/2017	2.50	125.00	312.50	
04515	136 - Luke, Benjamin RFI	4/25/2017	1.00	125.00	125.00	
Project Accountant						
04622	103 - Duffy, Melissa Billing	3/29/2017	1.00	120.00	120.00	
04622	103 - Duffy, Melissa Review Meeting	4/11/2017	1.00	120.00	120.00	
04622	103 - Duffy, Melissa Invoice JTD Labor Review	4/24/2017	1.00	120.00	120.00	
Administration						
02779	148 - Haider, Rebecca federal expressing marketing materials to Guam	3/28/2017	.25	85.00	21.25	
02779	148 - Haider, Rebecca Expense reports, filing	4/5/2017	4.00	85.00	340.00	
02779	148 - Haider, Rebecca scanning, electronic filing and mailing of monthly invoices	4/13/2017	2.00	85.00	170.00	
Administration						
04885	146 - Fuller, Claude RFI Processing	3/28/2017	.25	80.00	20.00	
04885	146 - Fuller, Claude Submittal Processing/Construction Photo Archiving	3/28/2017	.75	80.00	60.00	
04885	146 - Fuller, Claude Submittal Processing/Construction Photo Archiving	3/30/2017	.75	80.00	60.00	
04885	146 - Fuller, Claude RFI Processing	3/30/2017	.50	80.00	40.00	
04885	146 - Fuller, Claude Submittal Processing	3/31/2017	.50	80.00	40.00	
04885	146 - Fuller, Claude Submittal Processing/Construction Photo Archiving	4/1/2017	1.50	80.00	120.00	
04885	146 - Fuller, Claude Submittal Processing	4/3/2017	1.50	80.00	120.00	

Design Services for the Built Environment

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Project	41192.00	Guam - Agat-Santa Rita WWTP (Phase 2)			Invoice	0705875
04885	146 - Fuller, Claude Submittal Processing	4/4/2017	.50	80.00	40.00	
04885	146 - Fuller, Claude Construction Photo Archiving	4/5/2017	.75	80.00	60.00	
04885	146 - Fuller, Claude Submittal Processing	4/6/2017	.50	80.00	40.00	
04885	146 - Fuller, Claude Submittal Processing/Construction Photo Archiving	4/7/2017	1.25	80.00	100.00	
04885	146 - Fuller, Claude RFI Processing	4/10/2017	.50	80.00	40.00	
04885	146 - Fuller, Claude Submittal Processing	4/11/2017	.25	80.00	20.00	
04885	146 - Fuller, Claude Submittal Processing and Construction Photo Archiving	4/12/2017	1.50	80.00	120.00	
04885	146 - Fuller, Claude Submittal Processing	4/13/2017	.50	80.00	40.00	
04885	146 - Fuller, Claude Submittal Processing	4/17/2017	.25	80.00	20.00	
04885	146 - Fuller, Claude Submittal Processing and Construction Photo Archiving	4/18/2017	1.00	80.00	80.00	
04885	146 - Fuller, Claude Submittal Processing	4/19/2017	1.00	80.00	80.00	
04885	146 - Fuller, Claude Submittal Processing	4/20/2017	.25	80.00	20.00	
04885	146 - Fuller, Claude Submittal Processing	4/25/2017	.75	80.00	60.00	
04885	146 - Fuller, Claude RFI Processing	4/25/2017	.25	80.00	20.00	
	Totals		244.00		41,560.00	
	Total Labor					**41,560.00**

Reimbursable Expenses

Printing				
JE 0004230	4/9/2017	Equitrac / Prints - 3/10/2017 - 04/09/2017		7.88
JE 0004230	4/9/2017	Equitrac / Prints - 3/10/2017 - 04/09/2017		8.64
Office Supplies				
EX 0121808	3/16/2017	Luke, Benjamin / Groceries and Detergent / Groceries, Laundry Detergent, Etc. Itemized Not Available		30.13
EX 0121799	3/25/2017	Abraham, Ronald / In Guam for 18 days - purchased laundry detergent		2.95
Travel				
EX 0121808	3/13/2017	Luke, Benjamin / Lyft to BNA		14.37
EX 0121808	3/14/2017	Luke, Benjamin / Taxi from Guam Airport to Hotel / Transportation. Paid Cash. No Receipt Available. $25 Fare + $5 Tip		30.00
EX 0121799	3/30/2017	Abraham, Ronald		15.00
EX 0121799	3/30/2017	Abraham, Ronald / In Guam for 18 days - spent $24.00 to do laundry. Considerable savings - I've attahced a copy of what the hotel charges to do laundry. Plaid cash - no receipt provided.		24.00
EX 0120323	3/31/2017	Baker, Kenneth / Travel to Guam - project progress meetings & meeting w/the owners		1,178.15
EX 0121792	4/3/2017	Baker, Kenneth / Guam Airfare for Ken Baker and Ron Abraham - WWTP start-up / training		3,288.45

Design Services for the Built Environment

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Gresham, Smith, and Partners / P.O. Box 440029 / Nashville, TN 37244-0029

Project	41192.00	Guam - Agat-Santa Rita WWTP (Phase 2)	Invoice	0705875
Lodging				
EX 0121802	3/15/2017	Abraham, Ronald / operator training	976.80	
EX 0121808	3/17/2017	Luke, Benjamin / Sheraton Stay #1	976.80	
EX 0121808	3/19/2017	Luke, Benjamin / Hyatt Stay #1	521.70	
EX 0121802	3/20/2017	Abraham, Ronald / Agat-Santa Rita - Phase I	1,221.00	
EX 0121808	3/23/2017	Luke, Benjamin / Sheraton Stay #2	1,285.25	
EX 0121802	3/26/2017	Abraham, Ronald / Guam Travel - PHI operator training	1,198.80	
EX 0121802	3/29/2017	Abraham, Ronald / Guam Travel - PHI operator training	1,198.80	
EX 0121808	3/30/2017	Luke, Benjamin / Hyatt Stay #2	1,931.40	
Car Rental				
EX 0121802	4/1/2017	Abraham, Ronald / Phase I start up	300.00	
EX 0121802	4/1/2017	Abraham, Ronald / Phase I start up	300.00	
Mileage/Fuel				
EX 0121800	3/22/2017	Abraham, Ronald / Travel - Guam - Agat-Santa Rita WWTP Operator Training	45.00	
Telephone				
EX 0121808	3/13/2017	Luke, Benjamin / Plane WiFi for Working / Purchased WiFi on Denver-Narita Flight for Working	21.99	
Meals				
EX 0121800	3/10/2017	Abraham, Ronald / Travel - Guam - Agat-Santa Rita WWTP Operator Training	32.50	
EX 0121802	3/13/2017	Abraham, Ronald / Phase 1 Operator and Training	5.95	
EX 0121808	3/13/2017	Luke, Benjamin / 3/13 Dinner	23.00	
EX 0121808	3/13/2017	Luke, Benjamin / 3/13 Breakfast	5.45	
EX 0121800	3/14/2017	Abraham, Ronald / Travel - Guam - Agat-Santa Rita WWTP Operator Training	13.50	
EX 0121800	3/15/2017	Abraham, Ronald / Travel - Guam - Agat-Santa Rita WWTP Operator Training (No itemized receipt was provided - no alcohol beverages were purchased.)	45.13	
EX 0121799	3/15/2017	Abraham, Ronald / Project start up meeting	11.25	
EX 0121808	3/15/2017	Luke, Benjamin / 3/15 Breakfast	8.00	
EX 0121808	3/16/2017	Luke, Benjamin / 3/16 Dinner / Itemized Not Available	42.00	
EX 0121808	3/16/2017	Luke, Benjamin / 3/16 Breakfast	11.00	
EX 0121800	3/16/2017	Abraham, Ronald / Travel - Guam - Agat-Santa Rita WWTP Operator Training (No itemized receipt was provided - no alcohol beverages were purchased.)	13.00	
EX 0121800	3/16/2017	Abraham, Ronald / Travel - Guam - Agat-Santa Rita WWTP Operator Training	15.49	
EX 0121808	3/16/2017	Luke, Benjamin / 3/16 Lunch	14.50	
EX 0121802	3/16/2017	Abraham, Ronald / Start up - Agat WWTP	83.30	
EX 0121808	3/19/2017	Luke, Benjamin / 3/19 Dinner	10.74	
EX 0121808	3/20/2017	Luke, Benjamin / 3/20 Lunch	4.36	
EX 0121808	3/21/2017	Luke, Benjamin / 3/21 Lunch	13.05	
EX 0121801	3/22/2017	Abraham, Ronald / Guam Travel - Guam - Agat-Santa Rita WWTP (Phase 2)	3.58	
EX 0121801	3/22/2017	Abraham, Ronald / Travel - Guam - Agat-Santa Rita WWTP (Phase 2)	27.48	
EX 0121808	3/22/2017	Luke, Benjamin / 3/22 Breakfast	2.48	
EX 0121808	3/22/2017	Luke, Benjamin / 3/22 Lunch	85.00	
EX 0121808	3/23/2017	Luke, Benjamin / 3/23 Lunch	12.68	
EX 0121808	3/23/2017	Luke, Benjamin / 3/23 Breakfast	3.50	

Design Services for the Built Environment

Please remit payment along with attached invoice copy to:

Gresham, Smith, and Partners / P.O. Box 440029 / Nashville, TN 37244-0029

Project	41192.00	Guam - Agat-Santa Rita WWTP (Phase 2)	Invoice	0705875
EX 0121808	3/24/2017	Luke, Benjamin / 3/24 Breakfast	2.50	
EX 0121808	3/24/2017	Luke, Benjamin / 3/24 Lunch	35.00	
EX 0121802	3/25/2017	Abraham, Ronald / Guam Travel - PHI operator training	75.00	
EX 0121802	3/25/2017	Abraham, Ronald / Guam Travel - PHI operator training	22.00	
EX 0121802	3/26/2017	Abraham, Ronald / Guam Travel - PHI operator training	185.60	
EX 0121800	3/27/2017	Abraham, Ronald / Travel - Guam - Agat-Santa Rita WWTP Operator Training	10.75	
EX 0121800	3/27/2017	Abraham, Ronald / Travel - Guam - Agat-Santa Rita WWTP Operator Training	61.05	
EX 0121808	3/27/2017	Luke, Benjamin / 3/27 Lunch	65.00	
EX 0121808	3/27/2017	Luke, Benjamin / 3/27 Breakfast	5.50	
EX 0121799	3/28/2017	Abraham, Ronald / Project start up meeting discussion	112.87	
EX 0121808	3/29/2017	Luke, Benjamin / 3/29 Breakfast	10.50	
EX 0121801	3/31/2017	Abraham, Ronald / Travel - Guam - Agat-Santa Rita WWTP (Phase 2)	24.65	
Color Copy/Printing				
JE 0004230	4/9/2017	Equitrac / Prints - 3/10/2017 - 04/09/2017	.50	
JE 0004230	4/9/2017	Equitrac / Prints - 3/10/2017 - 04/09/2017	36.00	
	Total Reimbursables		**15,710.97**	**15,710.97**
		Total this Project		**$57,270.97**
		Total this Report		**$57,270.97**

Design Services for the Built Environment

Please remit payment along with attached invoice copy to:

Gresham, Smith, and Partners / P.O. Box 440029 / Nashville, TN 37244-0029

Job-To-Date Summary

Gresham, Smith and Partners

Transactions for 3/28/2017 through 4/25/2017

		Current Amount	Prior Amount	To-Date Amount	Amount Remaining
Project Number: 41192.00 Guam - Agat-Santa Rita WWTP (Phase 2)					
	Scoped Services	**$16,136.77**	**$236,975.40**	**$253,112.17**	
	Additional Services				
	Labor	**$25,476.25**	**$120,990.00**	**$146,466.25**	
	Expenses	**$15,657.95**	**$11,221.42**	**$26,879.37**	
	Total Additional Services	**$41,134.20**	**$132,211.42**	**$173,345.62**	
	Total Services	**$57,270.97**	**$369,186.82**	**$426,457.79**	**$184,453.07**
Total for 41192.00		**$57,270.97**	**$369,186.82**	**$426,457.79**	**$184,453.07**

Labor Detail

Friday, May 5, 2017
10:26:01 AM

Gresham, Smith and Partners - Prelim-All

Transactions for 3/28/2017 through 4/25/2017

						Additional Services	
		Date	Total Hours	Billing Rate	Total Billing	Prior Amount	To Date Amount
Project Number: 41192.00 Guam - Agat-Santa							
WBS2 Number: 200 Meetings							
WBS3 Number: 202 Internal Progress Meetings							
04428	Abraham, Ronald	4/3/2017	2.00	225.00	450.00		
04515	Luke, Benjamin	4/11/2017	1.00	125.00	125.00		
Total for 202			**3.00**		**575.00**		
Total for 200			**3.00**		**575.00**		
WBS2 Number: 300 Shop Drawings/Submittals							
04331	Johnson, David	4/3/2017	1.00	225.00	225.00		
04331	Johnson, David	4/7/2017	1.00	225.00	225.00		
04331	Johnson, David	4/21/2017	1.00	225.00	225.00		
04331	Johnson, David	4/25/2017	1.00	225.00	225.00		
04423	Dobyns, Thomas	4/5/2017	5.00	125.00	625.00		
04423	Dobyns, Thomas	4/6/2017	8.00	125.00	1,000.00		
04423	Dobyns, Thomas	4/7/2017	3.00	125.00	375.00		
04515	Luke, Benjamin	3/31/2017	2.00	125.00	250.00		
04515	Luke, Benjamin	4/3/2017	4.00	125.00	500.00		
04515	Luke, Benjamin	4/4/2017	8.00	125.00	1,000.00		
04515	Luke, Benjamin	4/5/2017	4.00	125.00	500.00		
04515	Luke, Benjamin	4/6/2017	2.00	125.00	250.00		
04515	Luke, Benjamin	4/11/2017	1.50	125.00	187.50		
04515	Luke, Benjamin	4/12/2017	1.50	125.00	187.50		
04515	Luke, Benjamin	4/13/2017	2.00	125.00	250.00		
04515	Luke, Benjamin	4/17/2017	.50	125.00	62.50		
04515	Luke, Benjamin	4/19/2017	.50	125.00	62.50		
04515	Luke, Benjamin	4/20/2017	1.50	125.00	187.50		
04515	Luke, Benjamin	4/21/2017	4.00	125.00	500.00		
04515	Luke, Benjamin	4/24/2017	2.50	125.00	312.50		
04515	Luke, Benjamin	4/25/2017	2.50	125.00	312.50		
04885	Fuller, Claude	3/28/2017	.75	80.00	60.00		
04885	Fuller, Claude	3/30/2017	.75	80.00	60.00		
04885	Fuller, Claude	3/31/2017	.50	80.00	40.00		
04885	Fuller, Claude	4/1/2017	1.50	80.00	120.00		
04885	Fuller, Claude	4/3/2017	1.50	80.00	120.00		
04885	Fuller, Claude	4/4/2017	.50	80.00	40.00		
04885	Fuller, Claude	4/5/2017	.75	80.00	60.00		
04885	Fuller, Claude	4/6/2017	.50	80.00	40.00		
04885	Fuller, Claude	4/7/2017	1.25	80.00	100.00		
04885	Fuller, Claude	4/11/2017	.25	80.00	20.00		
04885	Fuller, Claude	4/12/2017	1.50	80.00	120.00		

04885	Fuller, Claude	4/13/2017	.50	80.00	40.00		
04885	Fuller, Claude	4/17/2017	.25	80.00	20.00		
04885	Fuller, Claude	4/18/2017	1.00	80.00	80.00		
04885	Fuller, Claude	4/19/2017	1.00	80.00	80.00		
04885	Fuller, Claude	4/20/2017	.25	80.00	20.00		
04885	Fuller, Claude	4/25/2017	.75	80.00	60.00		
Total for 300			**70.00**		**8,542.50**		
WBS2 Number: 400 Requests for Information							
04515	Luke, Benjamin	3/28/2017	2.00	125.00	250.00		
04515	Luke, Benjamin	3/31/2017	6.00	125.00	750.00		
04515	Luke, Benjamin	4/3/2017	2.00	125.00	250.00		
04515	Luke, Benjamin	4/7/2017	2.00	125.00	250.00		
04515	Luke, Benjamin	4/10/2017	3.50	125.00	437.50		
04515	Luke, Benjamin	4/11/2017	.50	125.00	62.50		
04515	Luke, Benjamin	4/25/2017	1.00	125.00	125.00		
04885	Fuller, Claude	3/28/2017	.25	80.00	20.00		
04885	Fuller, Claude	3/30/2017	.50	80.00	40.00		
04885	Fuller, Claude	4/10/2017	.50	80.00	40.00		
04885	Fuller, Claude	4/25/2017	.25	80.00	20.00		
Total for 400			**18.50**		**2,245.00**		
WBS2 Number: 700 Project Management							
02779	Haider, Rebecca	3/28/2017	.25	85.00	21.25		
02779	Haider, Rebecca	4/5/2017	4.00	85.00	340.00		
02865	Stewart, Kenneth	3/29/2017	.50	200.00	100.00		
02865	Stewart, Kenneth	3/30/2017	1.00	200.00	200.00		
02865	Stewart, Kenneth	3/31/2017	1.00	200.00	200.00		
02865	Stewart, Kenneth	4/11/2017	1.00	200.00	200.00		
02865	Stewart, Kenneth	4/13/2017	2.00	200.00	400.00		
02865	Stewart, Kenneth	4/17/2017	2.00	200.00	400.00		
02865	Stewart, Kenneth	4/19/2017	2.00	200.00	400.00		
02865	Stewart, Kenneth	4/20/2017	1.00	200.00	200.00		
02865	Stewart, Kenneth	4/21/2017	4.00	200.00	800.00		
02865	Stewart, Kenneth	4/24/2017	3.50	200.00	700.00		
02865	Stewart, Kenneth	4/25/2017	2.00	200.00	400.00		
04622	Duffy, Melissa	3/29/2017	1.00	120.00	120.00		
04622	Duffy, Melissa	4/11/2017	1.00	120.00	120.00		
04622	Duffy, Melissa	4/24/2017	1.00	120.00	120.00		
Total for 700			**27.25**		**4,721.25**		
WBS2 Number: 800 Additional Services							
WBS3 Number: 801 Major Milestone Meetings/Site Visits						**1,800.00**	**1,800.00**
WBS3 Number: 802 Progress Meetings						**3,522.50**	**3,522.50**
WBS3 Number: 804 Equipment Witness Testing							
04515	Luke, Benjamin	4/13/2017	.50	125.00	62.50		
04515	Luke, Benjamin	4/18/2017	.25	125.00	31.25		
04515	Luke, Benjamin	4/24/2017	.50	125.00	62.50		
Total for 804			**1.25**		**156.25**	**2,356.25**	**2,512.50**

ATTACHMENT 3C

WBS3 Number: 805 Start-up and Commissioning

02550	Baker, Kenneth	3/28/2017	4.00	250.00	1,000.00		
02550	Baker, Kenneth	3/29/2017	3.00	250.00	750.00		
02550	Baker, Kenneth	3/30/2017	6.00	250.00	1,500.00		
02550	Baker, Kenneth	3/31/2017	3.00	250.00	750.00		
02550	Baker, Kenneth	4/17/2017	4.00	250.00	1,000.00		
02550	Baker, Kenneth	4/18/2017	4.00	250.00	1,000.00		
02550	Baker, Kenneth	4/19/2017	4.00	250.00	1,000.00		
02550	Baker, Kenneth	4/20/2017	4.00	250.00	1,000.00		
02550	Baker, Kenneth	4/21/2017	4.00	250.00	1,000.00		
02779	Haider, Rebecca	4/13/2017	2.00	85.00	170.00		
04428	Abraham, Ronald	4/14/2017	3.00	225.00	675.00		
04428	Abraham, Ronald	4/20/2017	8.00	225.00	1,800.00		
Total for 805			**49.00**		**11,645.00**	**44,850.00**	**56,495.00**
WBS3 Number: 806 Develop Training Manuals						**14,643.75**	**14,643.75**
WBS3 Number: 808 Operator Training							
04428	Abraham, Ronald	4/14/2017	3.00	225.00	675.00		
04428	Abraham, Ronald	4/21/2017	8.00	225.00	1,800.00		
04515	Luke, Benjamin	3/28/2017	6.00	125.00	750.00		
04515	Luke, Benjamin	3/29/2017	8.00	125.00	1,000.00		
04515	Luke, Benjamin	3/30/2017	7.50	125.00	937.50		
04515	Luke, Benjamin	4/3/2017	2.00	125.00	250.00		
Total for 808			**34.50**		**5,412.50**	**31,178.75**	**36,591.25**
WBS3 Number: 812 Contractor Changes							
04331	Johnson, David	4/21/2017	2.00	225.00	450.00		
04331	Johnson, David	4/24/2017	2.00	225.00	450.00		
04428	Abraham, Ronald	3/28/2017	8.00	225.00	1,800.00		
04428	Abraham, Ronald	3/29/2017	8.00	225.00	1,800.00		
04428	Abraham, Ronald	3/31/2017	4.00	225.00	900.00		
04428	Abraham, Ronald	4/12/2017	8.00	225.00	1,800.00		
04515	Luke, Benjamin	4/5/2017	2.00	125.00	250.00		
04515	Luke, Benjamin	4/6/2017	4.00	125.00	500.00		
04515	Luke, Benjamin	4/7/2017	1.50	125.00	187.50		
Total for 812			**39.50**		**8,137.50**	**17,097.50**	**25,235.00**
Total for 800			**124.25**		**25,351.25**	**115,448.75**	**140,800.00**
WBS2 Number: 900 Mechanical Submittals							
04515	Luke, Benjamin	4/19/2017	1.00	125.00	125.00		
Total for 900			**1.00**		**125.00**	**5,541.25**	**5,666.25**
Total Additional Services					**25,476.25**	**120,990.00**	**146,466.25**
Total for 41192.00			**244.00**		**41,560.00**		

Expense Detail

Monday, May 01, 2017
11:22:06 AM

Gresham, Smith and Partners

Transactions for 3/28/2017 through 4/25/2017

	Trans Type	Reference Number	Date	Billing Full Amount	Description
Project Number: 41192.00 Guam - Agat-Santa Rita WWTP (Phase 2)					
WBS2 Number: 000 NOT FOR TIMESHEET USE					
Reimbursable Expenses					
521.000 Printing					
*	JE	0004230	4/9/2017	8.64	Equitrac / Prints - 3/10/2017 - 04/09/2017
	JE	0004230	4/9/2017	7.88	Equitrac / Prints - 3/10/2017 - 04/09/2017
Total for 521.000				**16.52**	
532.000 Color Copy/Printing					
	JE	0004230	4/9/2017	.50	Equitrac / Prints - 3/10/2017 - 04/09/2017
*	JE	0004230	4/9/2017	36.00	Equitrac / Prints - 3/10/2017 - 04/09/2017
Total for 532.000				**36.50**	
Total for Reimb. Exp.				**53.02**	
Total for 000				**53.02**	
WBS2 Number: 800 Additional Services					
WBS3 Number: 802 Progress Meetings					
Reimbursable Expenses					
525.000 Travel					
	EX	0120323	3/31/2017	1,178.15	Baker, Kenneth
Total for 802				**1,178.15**	
WBS3 Number: 805 Start-up and Commissioning					
Reimbursable Expenses					
522.000 Office Supplies					
	EX	0121808	3/16/2017	30.13	Luke, Ben
525.000 Travel					
	EX	0121808	3/13/2017	14.37	Luke, Ben
	EX	0121808	3/14/2017	30.00	Luke, Ben
	EX	0121792	4/3/2017	3,288.45	Baker, Kenneth
Total for 525.000				**3,332.82**	
525.020 Lodging					
	EX	0121808	3/17/2017	976.80	Luke, Benjamin / Sheraton Stay #1
	EX	0121808	3/19/2017	521.70	Luke, Benjamin / Hyatt Stay #1
	EX	0121802	3/20/2017	1,221.00	Abraham, Ronald
	EX	0121808	3/23/2017	1,285.25	Luke, Benjamin / Sheraton Stay #2
	EX	0121802	3/26/2017	1,198.80	Abraham, Ronald
	EX	0121808	3/30/2017	1,931.40	Luke, Benjamin / Hyatt Stay #2
Total for 525.020				**7,134.95**	
525.030 Car Rental					
	EX	0121802	4/1/2017	300.00	Abraham, Ronald
	EX	0121802	4/1/2017	300.00	Abraham, Ronald
Total for 525.030				**600.00**	
527.000 Telephone					
	EX	0121808	3/13/2017	21.99	Luke, Benjamin / Plane WiFi for Working
528.000 Meals					
	EX	0121808	3/13/2017	23.00	Luke, Benjamin / 3/13 Dinner
	EX	0121808	3/13/2017	5.45	Luke, Benjamin / 3/13 Breakfast
	EX	0121799	3/15/2017	11.25	Abraham, Ronald
	EX	0121808	3/15/2017	8.00	Luke, Benjamin / 3/15 Breakfast
	EX	0121802	3/16/2017	83.30	Abraham, Ronald

	EX	0121808	3/16/2017	14.50 Luke, Benjamin / 3/16 Lunch
	EX	0121808	3/16/2017	42.00 Luke, Benjamin / 3/16 Dinner
	EX	0121808	3/16/2017	11.00 Luke, Benjamin / 3/16 Breakfast
	EX	0121808	3/19/2017	10.74 Luke, Benjamin / 3/19 Dinner
	EX	0121808	3/20/2017	4.36 Luke, Benjamin / 3/20 Lunch
	EX	0121808	3/21/2017	13.05 Luke, Benjamin / 3/21 Lunch
	EX	0121801	3/22/2017	3.58 Abraham, Ronald
	EX	0121801	3/22/2017	27.48 Abraham, Ronald
	EX	0121808	3/22/2017	85.00 Luke, Benjamin / 3/22 Lunch
	EX	0121808	3/22/2017	2.48 Luke, Benjamin / 3/22 Breakfast
	EX	0121808	3/23/2017	12.68 Luke, Benjamin / 3/23 Lunch
	EX	0121808	3/23/2017	3.50 Luke, Benjamin / 3/23 Breakfast
	EX	0121808	3/24/2017	35.00 Luke, Benjamin / 3/24 Lunch
	EX	0121808	3/24/2017	2.50 Luke, Benjamin / 3/24 Breakfast
	EX	0121808	3/27/2017	5.50 Luke, Benjamin / 3/27 Breakfast
	EX	0121808	3/27/2017	65.00 Luke, Benjamin / 3/27 Lunch
	EX	0121799	3/28/2017	112.87 Abraham, Ronald
	EX	0121808	3/29/2017	10.50 Luke, Benjamin / 3/29 Breakfast
	EX	0121801	3/31/2017	24.65 Abraham, Ronald
Total for 528.000				**617.39**
Total for Reimb. Exp.				**11,737.28**
Total for 805				**11,737.28**
WBS3 Number: 808 Operator Training				
Reimbursable Expenses				
522.000 Office Supplies				
	EX	0121799	3/25/2017	2.95 Abraham, Ronald
525.000 Travel				
	EX	0121799	3/30/2017	15.00 Abraham, Ronald
	EX	0121799	3/30/2017	24.00 Abraham, Ronald
Total for 525.000				**39.00**
525.020 Lodging				
	EX	0121802	3/15/2017	976.80 Abraham, Ronald
525.030 Mileage/Fuel				
	EX	0121800	3/22/2017	45.00 Abraham, Ronald
528.000 Meals				
	EX	0121800	3/10/2017	32.50 Abraham, Ronald
	EX	0121802	3/13/2017	5.95 Abraham, Ronald
	EX	0121800	3/14/2017	13.50 Abraham, Ronald
	EX	0121800	3/15/2017	45.13 Abraham, Ronald
	EX	0121800	3/16/2017	13.00 Abraham, Ronald
	EX	0121800	3/16/2017	15.49 Abraham, Ronald
	EX	0121802	3/25/2017	75.00 Abraham, Ronald
	EX	0121802	3/25/2017	22.00 Abraham, Ronald
	EX	0121802	3/26/2017	185.60 Abraham, Ronald
	EX	0121800	3/27/2017	10.75 Abraham, Ronald
	EX	0121800	3/27/2017	61.05 Abraham, Ronald
Total for Reimb. Exp.				**479.97**
Total for 808				**1,543.72**
WBS3 Number: 812 Contractor Changes				
Reimbursable Expenses				
525.020 Lodging				
	EX	0121802	3/29/2017	1,198.80 Abraham, Ronald
Total for 812				**1,198.80**
Total for 800				**15,657.95**
Total for 41192.00				**15,710.97**

Project	41192.00	Guam - Agat-Santa Rita WWTP (Phase 2)	Invoice	0705286

Billing Backup

Thursday, April 20, 2017

Gresham, Smith and Partners — Invoice 0705286 Dated 4/8/2017 — 4:47:17 PM

Professional Personnel

			Hours	Rate	Amount
Principal					
02550	167 - Baker, Kenneth	2/28/2017	1.00	250.00	250.00
02550	167 - Baker, Kenneth	3/13/2017	8.00	250.00	2,000.00
02550	167 - Baker, Kenneth	3/14/2017	5.00	250.00	1,250.00
02550	167 - Baker, Kenneth	3/15/2017	8.00	250.00	2,000.00
02550	167 - Baker, Kenneth	3/16/2017	3.00	250.00	750.00
02550	167 - Baker, Kenneth	3/17/2017	4.00	250.00	1,000.00
02550	167 - Baker, Kenneth	3/20/2017	8.00	250.00	2,000.00
02550	167 - Baker, Kenneth	3/21/2017	8.00	250.00	2,000.00
02550	167 - Baker, Kenneth	3/23/2017	8.00	250.00	2,000.00
02550	167 - Baker, Kenneth	3/24/2017	6.00	250.00	1,500.00
02550	167 - Baker, Kenneth	3/27/2017	8.00	250.00	2,000.00
Sr. Technical Specialist					
04428	140 - Abraham, Ronald	2/28/2017	2.00	225.00	450.00
	Ken Rekdahl				
04428	140 - Abraham, Ronald	3/6/2017	2.00	225.00	450.00
	Ken Rekdahl				
04428	140 - Abraham, Ronald	3/7/2017	8.00	225.00	1,800.00
	UV modifications to accomodate rerouted conduits, effluent wei, and eff PS piping				
04428	140 - Abraham, Ronald	3/8/2017	2.00	225.00	450.00
04428	140 - Abraham, Ronald	3/8/2017	2.00	225.00	450.00
04428	140 - Abraham, Ronald	3/10/2017	8.00	225.00	1,800.00
04428	140 - Abraham, Ronald	3/13/2017	8.00	225.00	1,800.00
04428	140 - Abraham, Ronald	3/14/2017	8.00	225.00	1,800.00
04428	140 - Abraham, Ronald	3/15/2017	8.00	225.00	1,800.00
04428	140 - Abraham, Ronald	3/16/2017	8.00	225.00	1,800.00
04428	140 - Abraham, Ronald	3/17/2017	8.00	225.00	1,800.00
04428	140 - Abraham, Ronald	3/20/2017	8.00	225.00	1,800.00
04428	140 - Abraham, Ronald	3/21/2017	8.00	225.00	1,800.00
04428	140 - Abraham, Ronald	3/22/2017	8.00	225.00	1,800.00
04428	140 - Abraham, Ronald	3/23/2017	8.00	225.00	1,800.00
04428	140 - Abraham, Ronald	3/24/2017	8.00	225.00	1,800.00
04428	140 - Abraham, Ronald	3/27/2017	8.00	225.00	1,800.00
04331	139 - Johnson, David	2/24/2017	1.00	225.00	225.00
	VFD conf call				
04331	139 - Johnson, David	2/28/2017	.50	225.00	112.50
	Coordinating Project With Others				
04331	139 - Johnson, David	3/1/2017	2.00	225.00	450.00
	Grit System review				
04331	139 - Johnson, David	3/7/2017	1.00	225.00	225.00
	08 vfds				
04331	139 - Johnson, David	3/14/2017	6.00	225.00	1,350.00
	Processing/Checking Shop Drawings				
04331	139 - Johnson, David	3/17/2017	2.00	225.00	450.00
	Processing/Checking Shop Drawings				
04331	139 - Johnson, David	3/27/2017	4.00	225.00	900.00
	Processing/Checking Shop Drawings				

Project	41192.00	Guam - Agat-Santa Rita WWTP (Phase 2)			Invoice	0705286
Sr. Project Manager						
02865	139 - Stewart, Kenneth Project Review	3/1/2017	1.00	200.00	200.00	
02865	139 - Stewart, Kenneth Project Review	3/7/2017	1.00	200.00	200.00	
02865	139 - Stewart, Kenneth Project Review	3/8/2017	1.50	200.00	300.00	
02865	139 - Stewart, Kenneth Unpaid invoices and projections	3/10/2017	.50	200.00	100.00	
02865	139 - Stewart, Kenneth Aged AR	3/16/2017	.25	200.00	50.00	
02865	139 - Stewart, Kenneth Project update	3/17/2017	.50	200.00	100.00	
02865	139 - Stewart, Kenneth Project Review	3/21/2017	.50	200.00	100.00	
02865	139 - Stewart, Kenneth RFI Review	3/23/2017	.50	200.00	100.00	
02865	139 - Stewart, Kenneth Aged AR	3/24/2017	.75	200.00	150.00	
Project Manager						
02591	138 - Schnell, Kristi	2/27/2017	4.00	165.00	660.00	
02591	138 - Schnell, Kristi	2/28/2017	3.00	165.00	495.00	
02591	138 - Schnell, Kristi	2/28/2017	1.00	165.00	165.00	
Engineer II						
04423	136 - Dobyns, Thomas Grit submittal, RFI, and meeting	2/28/2017	2.00	125.00	250.00	
04423	136 - Dobyns, Thomas submittal, RFI, and grit meetings	3/1/2017	8.00	125.00	1,000.00	
04423	136 - Dobyns, Thomas Grit submittal, RFI, and meeting	3/2/2017	2.00	125.00	250.00	
04423	136 - Dobyns, Thomas Submittals	3/8/2017	8.00	125.00	1,000.00	
04423	136 - Dobyns, Thomas Hydro Grit System	3/10/2017	2.00	125.00	250.00	
04515	136 - Luke, Benjamin RFIs	2/24/2017	2.50	125.00	312.50	
04515	136 - Luke, Benjamin Witness Testing Coordination	2/24/2017	2.00	125.00	250.00	
04515	136 - Luke, Benjamin Digester Piping	2/24/2017	1.50	125.00	187.50	
04515	136 - Luke, Benjamin Digester Piping Descriptions	2/27/2017	2.50	125.00	312.50	
04515	136 - Luke, Benjamin RFIs	2/27/2017	4.00	125.00	500.00	
04515	136 - Luke, Benjamin Startup Conference Call	2/27/2017	1.50	125.00	187.50	
04515	136 - Luke, Benjamin RFIs	2/28/2017	1.50	125.00	187.50	
04515	136 - Luke, Benjamin Progress Meeting	2/28/2017	.50	125.00	62.50	
04515	136 - Luke, Benjamin Submittal	2/28/2017	2.00	125.00	250.00	
04515	136 - Luke, Benjamin Submittal	3/1/2017	2.00	125.00	250.00	

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Project	41192.00	Guam - Agat-Santa Rita WWTP (Phase 2)			Invoice	0705286
04515	136 - Luke, Benjamin Witness Testing Coordination	3/1/2017	1.00	125.00	125.00	
04515	136 - Luke, Benjamin RFIs	3/1/2017	2.00	125.00	250.00	
04515	136 - Luke, Benjamin RFIs	3/2/2017	2.00	125.00	250.00	
04515	136 - Luke, Benjamin Digester Loop Descriptions	3/3/2017	2.00	125.00	250.00	
04515	136 - Luke, Benjamin RFIs	3/3/2017	2.50	125.00	312.50	
04515	136 - Luke, Benjamin Submittal	3/3/2017	2.00	125.00	250.00	
04515	136 - Luke, Benjamin Submittals	3/6/2017	2.50	125.00	312.50	
04515	136 - Luke, Benjamin Contractor Changes	3/6/2017	2.00	125.00	250.00	
04515	136 - Luke, Benjamin RFIs	3/6/2017	2.00	125.00	250.00	
04515	136 - Luke, Benjamin Contractor Changes	3/7/2017	2.50	125.00	312.50	
04515	136 - Luke, Benjamin Submittals	3/7/2017	1.00	125.00	125.00	
04515	136 - Luke, Benjamin Submittal	3/8/2017	4.00	125.00	500.00	
04515	136 - Luke, Benjamin Submittal	3/9/2017	1.00	125.00	125.00	
04515	136 - Luke, Benjamin RFIs	3/9/2017	1.00	125.00	125.00	
04515	136 - Luke, Benjamin Submittals	3/10/2017	2.00	125.00	250.00	
04515	136 - Luke, Benjamin Startup and Commissioning	3/13/2017	8.00	125.00	1,000.00	
04515	136 - Luke, Benjamin Startup and Commissioning	3/14/2017	8.00	125.00	1,000.00	
04515	136 - Luke, Benjamin Startup and Commissioning	3/15/2017	6.00	125.00	750.00	
04515	136 - Luke, Benjamin Submittals	3/15/2017	2.00	125.00	250.00	
04515	136 - Luke, Benjamin Submittals	3/16/2017	2.00	125.00	250.00	
04515	136 - Luke, Benjamin Startup and Commissioning	3/16/2017	4.00	125.00	500.00	
04515	136 - Luke, Benjamin Startup and Commissioning	3/17/2017	2.00	125.00	250.00	
04515	136 - Luke, Benjamin Submittals	3/17/2017	2.00	125.00	250.00	
04515	136 - Luke, Benjamin RFIs	3/17/2017	2.00	125.00	250.00	
04515	136 - Luke, Benjamin Submittal	3/19/2017	2.00	125.00	250.00	
04515	136 - Luke, Benjamin Startup and Commissioning	3/20/2017	8.00	125.00	1,000.00	
04515	136 - Luke, Benjamin Startup and Commissioning	3/21/2017	8.00	125.00	1,000.00	
04515	136 - Luke, Benjamin Startup and Commissioning	3/22/2017	4.00	125.00	500.00	

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Project	41192.00	Guam - Agat-Santa Rita WWTP (Phase 2)			Invoice	0705286
04515	136 - Luke, Benjamin	3/22/2017	2.00	125.00	250.00	
	RFIs					
04515	136 - Luke, Benjamin	3/23/2017	2.00	125.00	250.00	
	RFIs					
04515	136 - Luke, Benjamin	3/23/2017	1.50	125.00	187.50	
	Startup and Commissioning					
04515	136 - Luke, Benjamin	3/24/2017	1.00	125.00	125.00	
	RFI					
04515	136 - Luke, Benjamin	3/24/2017	1.00	125.00	125.00	
	Submittal					
04515	136 - Luke, Benjamin	3/27/2017	1.00	125.00	125.00	
	Submittal					
04515	136 - Luke, Benjamin	3/27/2017	2.00	125.00	250.00	
	Startup and Commissioning					
Project Accountant						
04622	103 - Duffy, Melissa	2/24/2017	1.00	120.00	120.00	
	Billing					
04622	103 - Duffy, Melissa	2/27/2017	1.00	120.00	120.00	
	Billing					
04622	103 - Duffy, Melissa	3/6/2017	1.00	120.00	120.00	
	Project Review					
Administration						
04885	146 - Fuller, Claude	2/24/2017	1.25	80.00	100.00	
	Construction Photo Archiving					
04885	146 - Fuller, Claude	2/25/2017	-1.00	80.00	-80.00	
	Timesheet Day 2/22-2/23 Estimate Reconciliation					
04885	146 - Fuller, Claude	2/25/2017	-.50	80.00	-40.00	
	Timesheet Day 2/22-2/23 Estimate Reconciliation					
04885	146 - Fuller, Claude	2/28/2017	.25	80.00	20.00	
	RFI Processing					
04885	146 - Fuller, Claude	2/28/2017	.50	80.00	40.00	
	Submittal Processing					
04885	146 - Fuller, Claude	3/1/2017	.50	80.00	40.00	
	RFI Processing					
04885	146 - Fuller, Claude	3/2/2017	.75	80.00	60.00	
	RFI Processing					
04885	146 - Fuller, Claude	3/3/2017	1.50	80.00	120.00	
	Construction Photo Archiving Strategizing and EADOC Help With K. Stewart					
04885	146 - Fuller, Claude	3/6/2017	1.00	80.00	80.00	
	Submittal Processing					
04885	146 - Fuller, Claude	3/6/2017	.50	80.00	40.00	
	RFI Processing					
04885	146 - Fuller, Claude	3/7/2017	.75	80.00	60.00	
	Submittal Processing					
04885	146 - Fuller, Claude	3/8/2017	.75	80.00	60.00	
	Submittal Processing					
04885	146 - Fuller, Claude	3/9/2017	.50	80.00	40.00	
	Submittal Processing					
04885	146 - Fuller, Claude	3/10/2017	.25	80.00	20.00	
	Submittal Processing					
04885	146 - Fuller, Claude	3/13/2017	1.00	80.00	80.00	
	Construction Photo Archiving					
04885	146 - Fuller, Claude	3/14/2017	.75	80.00	60.00	
	Submittal Processing					
04885	146 - Fuller, Claude	3/16/2017	.50	80.00	40.00	
	Submittal Processing					

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Project	41192.00	Guam - Agat-Santa Rita WWTP (Phase 2)			Invoice	0705286
04885	146 - Fuller, Claude	3/16/2017	.25	80.00	20.00	
	RFI Processing					
04885	146 - Fuller, Claude	3/17/2017	.50	80.00	40.00	
	RFI Processing					
04885	146 - Fuller, Claude	3/17/2017	1.75	80.00	140.00	
	Submittal Processing and Construction Photo Archiving					
04885	146 - Fuller, Claude	3/20/2017	1.00	80.00	80.00	
	Submittal Processing and Construction Photo Archiving					
04885	146 - Fuller, Claude	3/21/2017	.25	80.00	20.00	
	RFI Processing					
04885	146 - Fuller, Claude	3/22/2017	.50	80.00	40.00	
	RFI Processing					
04885	146 - Fuller, Claude	3/23/2017	.75	80.00	60.00	
	RFI Processing					
04885	146 - Fuller, Claude	3/23/2017	.25	80.00	20.00	
	Submittal Processing					
04885	146 - Fuller, Claude	3/24/2017	1.00	80.00	80.00	
	Submittal Processing and Construction Photo Archiving					
04885	146 - Fuller, Claude	3/27/2017	1.00	80.00	80.00	
	RFI Processing					
	Totals		369.50		67,462.50	
	Total Labor					**67,462.50**

Reimbursable Expenses

Printing					
JE	0003230	3/9/2017	Equitrac / Prints - 2/10/2017 - 03/09/2017	68.12	
JE	0003230	3/9/2017	Equitrac / Prints - 2/10/2017 - 03/09/2017	2.48	
JE	0003230	3/9/2017	Equitrac / Prints - 2/10/2017 - 03/09/2017	.56	
Travel					
EX	0119875	2/22/2017	Abraham, Ronald	1,178.15	
Color Copy/Printing					
JE	0003230	3/9/2017	Equitrac / Prints - 2/10/2017 - 03/09/2017	5.50	
JE	0003230	3/9/2017	Equitrac / Prints - 2/10/2017 - 03/09/2017	13.00	
		Total Reimbursables		**1,267.81**	**1,267.81**
			Total this Project		**$68,730.31**
			Total this Report		**$68,730.31**

Design and Consulting Solutions for the Built Environment
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Job-To-Date Summary

Gresham, Smith and Partners

Transactions for 2/24/2017 through 3/27/2017

		Current Amount	Prior Amount	To-Date Amount	Amount Remaining
Project Number: 41192.00 Guam - Agat-Santa Rita WWTP (Phase 2)					
	Scoped Services	**$18,279.66**	**$218,695.74**	**$236,975.40**	
	Additional Services				
	Labor	**$49,272.50**	**$71,717.50**	**$120,990.00**	
	Expenses	**$1,178.15**	**$10,043.27**	**$11,221.42**	
	Total Additional Services	**$50,450.65**	**$81,760.77**	**$132,211.42**	
	Total Services	**$68,730.31**	**$300,456.51**	**$369,186.82**	**$241,724.04**
Total for 41192.00		**$68,730.31**	**$300,456.51**	**$369,186.82**	**$241,724.04**

Labor Detail

Thursday, April 13, 2017
1:26:19 PM

Gresham, Smith and Partners

Transactions for 2/24/2017 through 3/27/2017

						Additional Services	
		Date	Total Hours	Billing Rate	Total Billing	Prior Amount	To Date Amount
Project Number: 41192.00 Guam - Agat-Santa Rita WWTP (Phase 2)							
WBS2 Number: 200 Meetings							
WBS3 Number: 202 Internal Progress Meetings							
02550	Baker, Kenneth	2/28/2017	1.00	250.00	$250.00		
02591	Schnell, Kristi	2/28/2017	1.00	165.00	$165.00		
04331	Johnson, David	2/28/2017	.50	225.00	$112.50		
04515	Luke, Benjamin	2/28/2017	.50	125.00	$62.50		
Total for 202			**3.00**		**$590.00**		
Total for 200			**3.00**		**$590.00**		
WBS2 Number: 300 Shop Drawings/Submittals							
04331	Johnson, David	2/24/2017	1.00	225.00	$225.00		
04331	Johnson, David	3/1/2017	2.00	225.00	$450.00		
04331	Johnson, David	3/7/2017	1.00	225.00	$225.00		
04331	Johnson, David	3/14/2017	6.00	225.00	$1,350.00		
04331	Johnson, David	3/17/2017	2.00	225.00	$450.00		
04331	Johnson, David	3/27/2017	4.00	225.00	$900.00		
04423	Dobyns, Thomas	2/28/2017	2.00	125.00	$250.00		
04423	Dobyns, Thomas	3/1/2017	8.00	125.00	$1,000.00		
04423	Dobyns, Thomas	3/2/2017	2.00	125.00	$250.00		
04423	Dobyns, Thomas	3/8/2017	8.00	125.00	$1,000.00		
04423	Dobyns, Thomas	3/10/2017	2.00	125.00	$250.00		
04428	Abraham, Ronald	3/8/2017	2.00	225.00	$450.00		
04515	Luke, Benjamin	2/28/2017	2.00	125.00	$250.00		
04515	Luke, Benjamin	3/1/2017	2.00	125.00	$250.00		
04515	Luke, Benjamin	3/3/2017	2.00	125.00	$250.00		
04515	Luke, Benjamin	3/6/2017	2.50	125.00	$312.50		
04515	Luke, Benjamin	3/7/2017	1.00	125.00	$125.00		
04515	Luke, Benjamin	3/8/2017	4.00	125.00	$500.00		
04515	Luke, Benjamin	3/9/2017	1.00	125.00	$125.00		
04515	Luke, Benjamin	3/10/2017	2.00	125.00	$250.00		
04515	Luke, Benjamin	3/15/2017	2.00	125.00	$250.00		
04515	Luke, Benjamin	3/16/2017	2.00	125.00	$250.00		
04515	Luke, Benjamin	3/17/2017	2.00	125.00	$250.00		
04515	Luke, Benjamin	3/19/2017	2.00	125.00	$250.00		
04515	Luke, Benjamin	3/24/2017	1.00	125.00	$125.00		
04515	Luke, Benjamin	3/27/2017	1.00	125.00	$125.00		
04885	Fuller, Claude	2/24/2017	1.25	80.00	$100.00		
04885	Fuller, Claude	2/25/2017	-1.00	80.00	-$80.00		
04885	Fuller, Claude	2/28/2017	.50	80.00	$40.00		
04885	Fuller, Claude	3/3/2017	1.50	80.00	$120.00		

04885	Fuller, Claude	3/6/2017	1.00	80.00	$80.00
04885	Fuller, Claude	3/7/2017	.75	80.00	$60.00
04885	Fuller, Claude	3/8/2017	.75	80.00	$60.00
04885	Fuller, Claude	3/9/2017	.50	80.00	$40.00
04885	Fuller, Claude	3/10/2017	.25	80.00	$20.00
04885	Fuller, Claude	3/13/2017	1.00	80.00	$80.00
04885	Fuller, Claude	3/14/2017	.75	80.00	$60.00
04885	Fuller, Claude	3/16/2017	.50	80.00	$40.00
04885	Fuller, Claude	3/17/2017	1.75	80.00	$140.00
04885	Fuller, Claude	3/20/2017	1.00	80.00	$80.00
04885	Fuller, Claude	3/23/2017	.25	80.00	$20.00
04885	Fuller, Claude	3/24/2017	1.00	80.00	$80.00
Total for 300			**78.25**		**$11,052.50**

WBS2 Number: 400 Requests for Information

04428	Abraham, Ronald	3/8/2017	2.00	225.00	$450.00
04515	Luke, Benjamin	2/24/2017	2.50	125.00	$312.50
04515	Luke, Benjamin	2/27/2017	4.00	125.00	$500.00
04515	Luke, Benjamin	2/28/2017	1.50	125.00	$187.50
04515	Luke, Benjamin	3/1/2017	2.00	125.00	$250.00
04515	Luke, Benjamin	3/2/2017	2.00	125.00	$250.00
04515	Luke, Benjamin	3/3/2017	2.50	125.00	$312.50
04515	Luke, Benjamin	3/6/2017	2.00	125.00	$250.00
04515	Luke, Benjamin	3/9/2017	1.00	125.00	$125.00
04515	Luke, Benjamin	3/17/2017	2.00	125.00	$250.00
04515	Luke, Benjamin	3/22/2017	2.00	125.00	$250.00
04515	Luke, Benjamin	3/23/2017	2.00	125.00	$250.00
04515	Luke, Benjamin	3/24/2017	1.00	125.00	$125.00
04885	Fuller, Claude	2/25/2017	-.50	80.00	-$40.00
04885	Fuller, Claude	3/16/2017	.25	80.00	$20.00
04885	Fuller, Claude	3/17/2017	.50	80.00	$40.00
04885	Fuller, Claude	3/21/2017	.25	80.00	$20.00
04885	Fuller, Claude	3/22/2017	.50	80.00	$40.00
04885	Fuller, Claude	3/23/2017	.75	80.00	$60.00
04885	Fuller, Claude	3/27/2017	1.00	80.00	$80.00
Total for 400			**29.25**		**$3,732.50**

WBS2 Number: 700 Project Management

02591	Schnell, Kristi	2/27/2017	4.00	165.00	$660.00
02591	Schnell, Kristi	2/28/2017	3.00	165.00	$495.00
02865	Stewart, Kenneth	3/1/2017	1.00	200.00	$200.00
02865	Stewart, Kenneth	3/7/2017	1.00	200.00	$200.00
02865	Stewart, Kenneth	3/8/2017	1.50	200.00	$300.00
02865	Stewart, Kenneth	3/10/2017	.50	200.00	$100.00
02865	Stewart, Kenneth	3/16/2017	.25	200.00	$50.00
02865	Stewart, Kenneth	3/17/2017	.50	200.00	$100.00
02865	Stewart, Kenneth	3/21/2017	.50	200.00	$100.00
02865	Stewart, Kenneth	3/23/2017	.50	200.00	$100.00

02865	Stewart, Kenneth	3/24/2017	.75	200.00	$150.00		
04622	Duffy, Melissa	2/24/2017	1.00	120.00	$120.00		
04622	Duffy, Melissa	2/27/2017	1.00	120.00	$120.00		
04622	Duffy, Melissa	3/6/2017	1.00	120.00	$120.00		
Total for 700			**16.50**		**$2,815.00**		
WBS2 Number: 800 Additional Services							
WBS3 Number: 801 Major Milestone Meetings/Site Visits						**$1,800.00**	**$1,800.00**
WBS3 Number: 802 Progress Meetings							
04428	Abraham, Ronald	2/28/2017	2.00	225.00	$450.00		
04428	Abraham, Ronald	3/6/2017	2.00	225.00	$450.00		
Total for 802			**4.00**		**$900.00**	**$2,622.50**	**$3,522.50**
WBS3 Number: 804 Equipment Witness Testing							
04515	Luke, Benjamin	2/24/2017	2.00	125.00	$250.00		
04515	Luke, Benjamin	3/1/2017	1.00	125.00	$125.00		
Total for 804			**3.00**		**$375.00**	**$1,981.25**	**$2,356.25**
WBS3 Number: 805 Start-up and Commissioning							
02550	Baker, Kenneth	3/13/2017	8.00	250.00	$2,000.00		
02550	Baker, Kenneth	3/14/2017	5.00	250.00	$1,250.00		
02550	Baker, Kenneth	3/15/2017	8.00	250.00	$2,000.00		
02550	Baker, Kenneth	3/16/2017	3.00	250.00	$750.00		
02550	Baker, Kenneth	3/17/2017	4.00	250.00	$1,000.00		
02550	Baker, Kenneth	3/20/2017	8.00	250.00	$2,000.00		
02550	Baker, Kenneth	3/21/2017	8.00	250.00	$2,000.00		
02550	Baker, Kenneth	3/23/2017	8.00	250.00	$2,000.00		
02550	Baker, Kenneth	3/24/2017	6.00	250.00	$1,500.00		
02550	Baker, Kenneth	3/27/2017	8.00	250.00	$2,000.00		
04428	Abraham, Ronald	3/10/2017	8.00	225.00	$1,800.00		
04428	Abraham, Ronald	3/13/2017	8.00	225.00	$1,800.00		
04428	Abraham, Ronald	3/14/2017	8.00	225.00	$1,800.00		
04428	Abraham, Ronald	3/15/2017	8.00	225.00	$1,800.00		
04428	Abraham, Ronald	3/16/2017	8.00	225.00	$1,800.00		
04428	Abraham, Ronald	3/17/2017	8.00	225.00	$1,800.00		
04428	Abraham, Ronald	3/20/2017	8.00	225.00	$1,800.00		
04428	Abraham, Ronald	3/21/2017	8.00	225.00	$1,800.00		
04428	Abraham, Ronald	3/22/2017	8.00	225.00	$1,800.00		
04428	Abraham, Ronald	3/23/2017	8.00	225.00	$1,800.00		
04428	Abraham, Ronald	3/24/2017	8.00	225.00	$1,800.00		
04428	Abraham, Ronald	3/27/2017	8.00	225.00	$1,800.00		
04515	Luke, Benjamin	2/27/2017	1.50	125.00	$187.50		
04515	Luke, Benjamin	3/13/2017	8.00	125.00	$1,000.00		
04515	Luke, Benjamin	3/14/2017	8.00	125.00	$1,000.00		
04515	Luke, Benjamin	3/15/2017	6.00	125.00	$750.00		
04515	Luke, Benjamin	3/16/2017	4.00	125.00	$500.00		
04515	Luke, Benjamin	3/17/2017	2.00	125.00	$250.00		
04515	Luke, Benjamin	3/20/2017	8.00	125.00	$1,000.00		
04515	Luke, Benjamin	3/21/2017	8.00	125.00	$1,000.00		

04515	Luke, Benjamin	3/22/2017	4.00	125.00	$500.00		
04515	Luke, Benjamin	3/23/2017	1.50	125.00	$187.50		
04515	Luke, Benjamin	3/27/2017	2.00	125.00	$250.00		
Total for 805			**215.00**		**$44,725.00**	**$125.00**	**$44,850.00**
WBS3 Number: 806 Develop Training Manuals						**$14,643.75**	**$14,643.75**
WBS3 Number: 808 Operator Training						**$31,178.75**	**$31,178.75**
WBS3 Number: 812 Contractor Changes							
04428	Abraham, Ronald	3/7/2017	8.00	225.00	$1,800.00		
04515	Luke, Benjamin	2/24/2017	1.50	125.00	$187.50		
04515	Luke, Benjamin	2/27/2017	2.50	125.00	$312.50		
04515	Luke, Benjamin	3/3/2017	2.00	125.00	$250.00		
04515	Luke, Benjamin	3/6/2017	2.00	125.00	$250.00		
04515	Luke, Benjamin	3/7/2017	2.50	125.00	$312.50		
Total for 812			**18.50**		**$3,112.50**	**$13,985.00**	**$17,097.50**
Total for 800			**240.50**		**$49,112.50**	**$66,336.25**	**$115,448.75**
WBS2 Number: 900 Mechanical Submittals - Additional Services							
04885	Fuller, Claude	2/28/2017	.25	80.00	$20.00		
04885	Fuller, Claude	3/1/2017	.50	80.00	$40.00		
04885	Fuller, Claude	3/2/2017	.75	80.00	$60.00		
04885	Fuller, Claude	3/6/2017	.50	80.00	$40.00		
Total for 900			**2.00**		**$160.00**	**$5,381.25**	**$5,541.25**
Total Additional Services					**$49,272.50**	$71,717.50	$120,990.00
Total for 41192.00			**369.50**		**67,462.50**		

Expense Detail

Thursday, April 13, 2017
4:16:19 PM

Gresham, Smith and Partners

Transactions for 2/24/2017 through 3/27/2017

	Trans Type	Reference Number	Date	Billing Full Amount	Description	Additional Services Prior Amount	Additional Services To Date Amount
Project Number: 41192.00 Guam - Agat-Santa Rita WWTP (Phase 2)							
WBS2 Number: 000 NOT FOR TIMESHEET USE							
Reimbursable Expenses							
521.000 Printing							
	JE	0003230	3/9/2017	68.12	Equitrac / Prints - 2/10/2017 - 03/09/2017		
*	JE	0003230	3/9/2017	2.48	Equitrac / Prints - 2/10/2017 - 03/09/2017		
*	JE	0003230	3/9/2017	.56	Equitrac / Prints - 2/10/2017 - 03/09/2017		
Total for 521.000				**71.16**			
532.000 Color Copy/Printing							
*	JE	0003230	3/9/2017	5.50	Equitrac / Prints - 2/10/2017 - 03/09/2017		
	JE	0003230	3/9/2017	13.00	Equitrac / Prints - 2/10/2017 - 03/09/2017		
Total for 532.000				**18.50**			
Total for Reimb. Exp.				**89.66**			
Total for 000				**89.66**			
WBS2 Number: 800 Additional Services							
WBS3 Number: 802 Progress Meetings						**0.00**	**0.00**
WBS3 Number: 805 Start-up and Commissioning							
Reimbursable Expenses							
525.000 Travel							
	EX	0119875	2/22/2017	1,178.15	Abraham, Ronald		
Total for 805				**1,178.15**		**3254.95**	**4433.10**
WBS3 Number: 806 Develop Training Manuals						**2346.47**	**2346.47**
WBS3 Number: 808 Operator Training						**4441.85**	**4441.85**
WBS3 Number: 812 Contractor Changes						**0.00**	**0.00**
Total for 800				**1,178.15**		**10,043.27**	**11,221.42**
Total for 41192.00				**1,267.81**			
Scoped Services				**89.66**			

Additional Services

GS&P Invoice 0703530
Dated March 8, 2017

Time Associated with Conference Calls

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
02/10/2017	Kristi Schnell	0.50	$165.00	$82.50	-	-
				$82.50	**$2,540.00**	**$2,622.50**

Developing Training Materials

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
				-	-	-
				-	**$14,463.75**	**$14,463.75**

Expense	Current Amount	Prior Amount	To-Date Amount
Training Materials	-	$107.00	$107.00
Printing	-	$1,369.92	$1,369.92
Shipping	$869.55	-	$869.55
	$869.55	**$1,476.92**	**$2,346.47**

Operator Training

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
				-	-	-
				-	**$31,178.75**	**$31,178.75**

Expense	Current Amount	Prior Amount	To-Date Amount
Airfare for Dave Fletcher and Ben Barcinas	-	$283.96	$283.96
Hotel for Dave Fletcher and Ben Barcinas	-	$2,975.91	$2,975.91
Meals	-	$23.01	$23.01
Parking / Taxi	-	$57.05	$57.05
Rental Car / Fuel	-	$828.14	$828.14
Mileage	-	$273.78	$273.78
	-	**$4,441.85**	**$4,441.85**

Time associated with Witness Testing

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
01/31/2017	Ben Luke	1.00	$125.00	$125.00	-	-
02/01/2017	Ben Luke	2.25	$125.00	$281.25	-	-
02/03/2017	Ben Luke	0.50	$125.00	$62.50	-	-
02/08/2017	Ben Luke	0.50	$125.00	$62.50	-	-
				$531.25	**$1,450.00**	**$1,981.25**

Additional Services

GS&P Invoice 0703530
Dated March 8, 2017

Time associated with Start-up and Commissioning

Date	Professional Personnel	Hours	Rate	Current Amount	Prior Amount	To-Date Amount
02/14/2017	Ben Luke	1.00	$125.00	$125.00	-	$125.00
				$125.00	-	**$125.00**

Expense	Current Amount	Prior Amount	To-Date Amount
Airfare	$3,254.95	-	$3,254.95
	$3,254.95	-	**$3,254.95**

TOTAL $12,525.75 $69,235.02 $81,760.77

GRESHAM
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PARTNERS

Duenas, Camacho & Associates
Attn: Kenneth M. Rekdahl, Chief of Spec. Projects
238 East Marine Corps Drive
P.O. 8900
Hagatna 96910

June 8, 2017
Project No: 41192.00
Invoice No: 0706680

Project 41192.00 Agat - Santa Rita WWTP (Phase 2), GWA Project WW-08

Professional Services for the period ending May 24, 2017

Professional Personnel

	Hours	Rate	Amount	
Principal				
Baker, Kenneth	8.00	250.00	2,000.00	
Sr. Technical Specialist				
Abraham, Ronald	38.00	225.00	8,550.00	
Johnson, David	18.00	225.00	4,050.00	
Sr. Project Manager				
Stewart, Kenneth	67.00	200.00	13,400.00	
Engineer II				
Luke, Benjamin	38.00	125.00	4,750.00	
Sr. CADD				
Robertson, Michael	6.00	135.00	810.00	
Project Accountant				
Duffy, Melissa	1.00	120.00	120.00	
Administration				
Fuller, Claude	9.00	80.00	720.00	
Totals	185.00		34,400.00	
Total Labor				**34,400.00**

Reimbursable Expenses

Printing			22.86	
Travel			2,679.23	
Lodging			950.84	
Car Rental			300.00	
Telephone			50.00	
Meals			195.57	
Color Copy/Printing			117.50	
Total Reimbursables			**4,316.00**	**4,316.00**

Billing Limits	**Current**	**Prior**	**To-Date**	
Total Billings	38,716.00	426,457.79	465,173.79	
Limit			610,910.86	
Remaining			145,737.07	
		Total this Invoice		**$38,716.00**

If you have any questions concerning this invoice,
please contact Ken Stewart, Project Manager at 615.770.8422.

Design Services for the Built Environment

Please remit payment along with attached invoice copy to:

Gresham, Smith, and Partners / P.O. Box 440029 / Nashville, TN 37244-0029

GRESHAM
SMITH AND
PARTNERS

Duenas, Camacho & Associates
Attn: Kenneth M. Rekdahl, Chief of Spec. Projects
238 East Marine Corps Drive
P.O. 8900
Hagatna 96910

July 08, 2017
Project No: 41192.00
Invoice No: 0707927

Project 41192.00 Agat - Santa Rita WWTP (Phase 2), GWA Project WW-08

Professional Services for the period ending June 26, 2017

Professional Personnel

	Hours	Rate	Amount	
Principal				
Baker, Kenneth	18.00	250.00	4,500.00	
Sr. Technical Specialist				
Abraham, Ronald	22.00	225.00	4,950.00	
Johnson, David	10.00	225.00	2,250.00	
Sr. Project Manager				
Stewart, Kenneth	12.25	200.00	2,450.00	
Engineer II				
Luke, Benjamin	12.50	125.00	1,562.50	
Project Accountant				
Duffy, Melissa	3.00	120.00	360.00	
Administration				
Fuller, Claude	5.50	80.00	440.00	
Totals	83.25		16,512.50	
Total Labor				**16,512.50**

Reimbursable Expenses

Printing	9.72	
Color Copy/Printing	55.00	
Total Reimbursables	**64.72**	**64.72**

Billing Limits	**Current**	**Prior**	**To-Date**
Total Billings	16,577.22	465,173.79	481,751.01
Limit			610,910.86
Remaining			129,159.85

Total this Invoice **$16,577.22**

If you have any questions concerning this invoice,
please contact Ken Stewart, Project Manager at 615.770.8422.

Design Services for the Built Environment

Please remit payment along with attached invoice copy to:

Gresham, Smith, and Partners / P.O. Box 440029 / Nashville, TN 37244-0029

GRESHAM
SMITH AND
PARTNERS

Kenneth Rekdahl
Duenas, Camacho & Associates, Inc.
238 East Marine Corps Drive
P.O. 8900
Hagatna, Guam 96910

August 8, 2017
Project No: 41192.00
Invoice No: 0709185

Project 41192.00 Agat - Santa Rita WWTP (Phase 2), GWA Project WW-08

Professional Services for the period ending July 27, 2017

Professional Personnel

	Hours	Rate	Amount	
Principal				
Baker, Kenneth	12.00	250.00	3,000.00	
Sr. Technical Specialist				
Abraham, Ronald	16.00	225.00	3,600.00	
Johnson, David	4.50	225.00	1,012.50	
Sr. Project Manager				
Stewart, Kenneth	8.50	200.00	1,700.00	
Engineer II				
Luke, Benjamin	8.25	125.00	1,031.25	
Project Accountant				
Duffy, Melissa	2.00	120.00	240.00	
Administration				
Fuller, Claude	5.25	80.00	420.00	
Totals	56.50		11,003.75	
Total Labor				**11,003.75**

Reimbursable Expenses

Printing	2.80	
Office Supplies	2,594.37	
Travel	6,065.18	
Lodging	666.00	
Car Rental	162.00	
Color Copy/Printing	20.00	
Total Reimbursables	**9,510.35**	**9,510.35**

Billing Limits	**Current**	**Prior**	**To-Date**
Total Billings	20,514.10	481,751.01	502,265.11
Limit			610,910.86
Remaining			108,645.75

Total this Invoice **$20,514.10**

If you have any questions concerning this invoice,
please contact Ken Stewart, Project Manager at 615.770.8422.

Design Services for the Built Environment

Please remit payment along with attached invoice copy to:

Gresham, Smith, and Partners / P.O. Box 440029 / Nashville, TN 37244-0029

Project	41192.00	Guam - Agat-Santa Rita WWTP (Phase 2)	Invoice	0709185

Billing Backup

Sunday, August 6, 2017
9:12:41 PM

Gresham, Smith and Partners — Invoice 0709185 Dated 8/8/2017

Professional Personnel

			Hours	Rate	Amount
Principal					
02550	167 - Baker, Kenneth	7/6/2017	4.00	250.00	1,000.00
02550	167 - Baker, Kenneth	7/21/2017	8.00	250.00	2,000.00
Sr. Technical Specialist					
04428	140 - Abraham, Ronald	6/27/2017	4.00	225.00	900.00
04428	140 - Abraham, Ronald	7/14/2017	4.00	225.00	900.00
04428	140 - Abraham, Ronald	7/20/2017	8.00	225.00	1,800.00
04331	139 - Johnson, David	7/5/2017	2.00	225.00	450.00
	Processing/Checking Shop Drawings				
04331	139 - Johnson, David	7/14/2017	2.50	225.00	562.50
	Processing/Checking Shop Drawings				
Sr. Project Manager					
02865	139 - Stewart, Kenneth	6/27/2017	2.00	200.00	400.00
02865	139 - Stewart, Kenneth	6/28/2017	.50	200.00	100.00
02865	139 - Stewart, Kenneth	6/29/2017	1.00	200.00	200.00
02865	139 - Stewart, Kenneth	6/30/2017	.50	200.00	100.00
02865	139 - Stewart, Kenneth	7/6/2017	1.00	200.00	200.00
02865	139 - Stewart, Kenneth	7/11/2017	.50	200.00	100.00
02865	139 - Stewart, Kenneth	7/12/2017	1.25	200.00	250.00
	Invoice				
02865	139 - Stewart, Kenneth	7/19/2017	1.25	200.00	250.00
02865	139 - Stewart, Kenneth	7/20/2017	.50	200.00	100.00
	AR Review				
Engineer II					
04515	136 - Luke, Benjamin	6/27/2017	.50	125.00	62.50
	Submittal				
04515	136 - Luke, Benjamin	6/29/2017	.50	125.00	62.50
	Submittal				
04515	136 - Luke, Benjamin	7/5/2017	.50	125.00	62.50
	Submittal				
04515	136 - Luke, Benjamin	7/5/2017	3.50	125.00	437.50
	RFI				
04515	136 - Luke, Benjamin	7/6/2017	.50	125.00	62.50
	RFI				
04515	136 - Luke, Benjamin	7/12/2017	1.00	125.00	125.00
	RFI				
04515	136 - Luke, Benjamin	7/12/2017	.75	125.00	93.75
	Submittal				
04515	136 - Luke, Benjamin	7/13/2017	.50	125.00	62.50
	Submittal				
04515	136 - Luke, Benjamin	7/16/2017	.50	125.00	62.50
	Submittal				
Project Accountant					
04622	103 - Duffy, Melissa	6/30/2017	2.00	120.00	240.00
Administration					
04885	146 - Fuller, Claude	6/27/2017	.25	80.00	20.00
	Submittal Processing				
04885	146 - Fuller, Claude	6/29/2017	.50	80.00	40.00

Project	41192.00	Guam - Agat-Santa Rita WWTP (Phase 2)			Invoice	0709185
	Construction Photo Archiving					
04885	146 - Fuller, Claude	7/5/2017	.50	80.00	40.00	
	Submittal Processing					
04885	146 - Fuller, Claude	7/5/2017	.75	80.00	60.00	
	RFI Processing					
04885	146 - Fuller, Claude	7/6/2017	.25	80.00	20.00	
	RFI Processing					
04885	146 - Fuller, Claude	7/11/2017	.50	80.00	40.00	
	Submittal Processing					
04885	146 - Fuller, Claude	7/13/2017	.25	80.00	20.00	
	RFI Processing					
04885	146 - Fuller, Claude	7/13/2017	.50	80.00	40.00	
	Submittal Processing					
04885	146 - Fuller, Claude	7/14/2017	.50	80.00	40.00	
	RFI/Submittal Processing					
04885	146 - Fuller, Claude	7/15/2017	.25	80.00	20.00	
	7/10/17 Timesheet Day Adjustment					
04885	146 - Fuller, Claude	7/17/2017	.25	80.00	20.00	
	Submittal Processing					
04885	146 - Fuller, Claude	7/19/2017	.75	80.00	60.00	
	Construction Photo Archiving					
	Totals		56.50		11,003.75	
	Total Labor					**11,003.75**

Reimbursable Expenses

Printing					
JE 0007230	7/9/2017	Equitrac / Prints - 06/10/2017 - 07/09/2017		2.80	
Office Supplies					
EX 0126276	6/14/2017	Abraham, Ronald / This is for purchase of operator equipment Ultraviolet Transmittance analyzer		2,594.37	
Travel					
EX 0126273	6/23/2017	Baker, Kenneth / 2 round trip tickets to Guam for Ken Baker and Ron Abraham - Guam - UMATAC / Northern District Waste Water Treatment Plant - PHASE 2		4,059.45	
EX 0126273	7/28/2017	Baker, Kenneth / 2 round trip tickets to Guam for Ken Baker and Ron Abraham - Guam - UMATAC / Northern District Waste Water Treatment Plant - Phase 2		2,005.73	
Lodging					
EX 0126276	6/20/2017	Abraham, Ronald / Waste water treatment plant - start-up		666.00	
Car Rental					
EX 0126276	6/23/2017	Abraham, Ronald / Guam Water Authority - Operator Training		162.00	
Color Copy/Printing					
JE 0007230	7/9/2017	Equitrac / Prints - 06/10/2017 - 07/09/2017		5.00	
JE 0007230	7/9/2017	Equitrac / Prints - 06/10/2017 - 07/09/2017		15.00	
	Total Reimbursables			**9,510.35**	**9,510.35**
			Total this Project		**$20,514.10**
			Total this Report		**$20,514.10**

Design Services for the Built Environment

Please remit payment along with attached invoice copy to:

Gresham, Smith, and Partners / P.O. Box 440029 / Nashville, TN 37244-0029

Job-To-Date Summary

Gresham, Smith and Partners

Transactions for 6/27/2017 through 7/27/2017

		Current Amount	Prior Amount	To-Date Amount	Amount Remaining
Project Number: 41192.00 Guam - Agat-Santa Rita WWTP					
	Scoped Services	**$5,326.55**	**$279,629.75**	**$284,956.30**	
	Additional Services				
	Labor	**$5,700.00**	**$171,066.25**	**$176,766.25**	
	Expenses	**$9,487.55**	**$31,055.01**	**$40,542.56**	
	Total Additional Services	**$15,187.55**	**$202,121.26**	**$217,308.81**	
	Total Services	**$20,514.10**	**$481,751.01**	**$502,265.11**	**$108,645.75**
Total for 41192.00		**$20,514.10**	**$481,751.01**	**$502,265.11**	**$108,645.75**

Labor Detail

Monday, August 07, 2017
3:22:57 PM

Gresham, Smith and Partners

Transactions for 6/27/2017 through 7/27/2017

						Additional Services	
		Date	Total Hours	Billing Rate	Total Billing	Prior Amount	To Date Amount
Project Number: 41192.00 Guam - Agat-Santa Rita WWTP (Phase 2)							
WBS2 Number: 300 Shop Drawings/Submittals							
04331	Johnson, David	7/5/2017	2.00	225.00	450.00		
04331	Johnson, David	7/14/2017	2.50	225.00	562.50		
04515	Luke, Benjamin	6/27/2017	.50	125.00	62.50		
04515	Luke, Benjamin	6/29/2017	.50	125.00	62.50		
04515	Luke, Benjamin	7/5/2017	.50	125.00	62.50		
04515	Luke, Benjamin	7/12/2017	.75	125.00	93.75		
04515	Luke, Benjamin	7/13/2017	.50	125.00	62.50		
04515	Luke, Benjamin	7/16/2017	.50	125.00	62.50		
04885	Fuller, Claude	6/27/2017	.25	80.00	20.00		
04885	Fuller, Claude	6/29/2017	.50	80.00	40.00		
04885	Fuller, Claude	7/5/2017	.50	80.00	40.00		
04885	Fuller, Claude	7/11/2017	.50	80.00	40.00		
04885	Fuller, Claude	7/13/2017	.50	80.00	40.00		
04885	Fuller, Claude	7/14/2017	.50	80.00	40.00		
04885	Fuller, Claude	7/17/2017	.25	80.00	20.00		
04885	Fuller, Claude	7/19/2017	.75	80.00	60.00		
Total for 300			**11.50**		**1,718.75**		
WBS2 Number: 400 Requests for Information (RFI)							
04428	Abraham, Ronald	6/27/2017	4.00	225.00	900.00		
04515	Luke, Benjamin	7/5/2017	3.50	125.00	437.50		
04515	Luke, Benjamin	7/6/2017	.50	125.00	62.50		
04515	Luke, Benjamin	7/12/2017	1.00	125.00	125.00		
04885	Fuller, Claude	7/5/2017	.75	80.00	60.00		
04885	Fuller, Claude	7/6/2017	.25	80.00	20.00		
04885	Fuller, Claude	7/13/2017	.25	80.00	20.00		
04885	Fuller, Claude	7/15/2017	.25	80.00	20.00		
Total for 400			**10.50**		**1,645.00**		
WBS2 Number: 700 Project Management							
02865	Stewart, Kenneth	6/27/2017	2.00	200.00	400.00		
02865	Stewart, Kenneth	6/28/2017	.50	200.00	100.00		
02865	Stewart, Kenneth	6/29/2017	1.00	200.00	200.00		
02865	Stewart, Kenneth	6/30/2017	.50	200.00	100.00		
02865	Stewart, Kenneth	7/6/2017	1.00	200.00	200.00		
02865	Stewart, Kenneth	7/11/2017	.50	200.00	100.00		

ATTACHMENT 3D

		Date	Total Hours	Billing Rate	Total Billing	Prior Amount	To Date Amount
02865	Stewart, Kenneth	7/12/2017	1.25	200.00	250.00		
02865	Stewart, Kenneth	7/19/2017	1.25	200.00	250.00		
02865	Stewart, Kenneth	7/20/2017	.50	200.00	100.00		
04622	Duffy, Melissa	6/30/2017	2.00	120.00	240.00		
Total for 700			**10.50**		**1,940.00**		
WBS2 Number: 800 Additional Services							
WBS3 Number: 801 Major Mileston Meetings/Site Visits						**1,800.00**	**1,800.00**
WBS3 Number: 802 Progress Meetings						**3,522.50**	**3,522.50**
WBS3 Number: 804 Equipment Witness Testing						**11,562.50**	**11,562.50**
WBS3 Number: 805 Start-up and Commissioning						**59,245.00**	**59,245.00**
WBS3 Number: 806 Develop Training Manuals							
04428	Abraham, Ronald	7/14/2017	4.00	225.00	900.00		
04428	Abraham, Ronald	7/20/2017	8.00	225.00	1,800.00		
Total for 806			**12.00**		**2,700.00**	**14,643.75**	**17,343.75**
WBS3 Number: 808 Operator Training							
02550	Baker, Kenneth	7/6/2017	4.00	250.00	1,000.00		
02550	Baker, Kenneth	7/21/2017	8.00	250.00	2,000.00		
Total for 808			**12.00**		**3,000.00**	**42,141.25**	**45,141.25**
Total for 812						**32,297.50**	**32,297.50**
Total for 800			**24.00**		**5,700.00**	**165,212.50**	**170,912.50**
Total Additional Services					**5,700.00**	**171,066.25**	**176,766.25**
Total for 41192.00			**56.50**		**11,003.75**		
Scoped Services					**5,303.75**		

Expense Detail

Tuesday, August 08, 2017
1:47:53 PM

Gresham, Smith and Partners - Final-All

Transactions for 6/14/2017 through 7/28/2017

	Trans Type	Reference Number	Date	Billing Amount	Full Description
41192.00 Guam - Agat-Santa Rita WWTP (Phase 2)					
WBS2 Number: 000 NOT FOR TIMESHEET USE					
Reimbursable Expenses					
521.000 Printing					
*	JE	0007230	7/9/17	2.80	Equitrac / Prints - 06/10/2017 -
532.000 Color Copy/Printing					
*	JE	0007230	7/9/17	15.00	Equitrac / Prints - 06/10/2017 -
	JE	0007230	7/9/17	5.00	Equitrac / Prints - 06/10/2017 -
Total for 532.000				**20.00**	
Total for Reimb. Exp.				**22.80**	
Total for 000				**22.80**	
WBS2 Number: 800 Additional Services					
WBS3 Number: 801 Major Milestone Meetings/Site Visits					
Total for 801					
WBS3 Number: 802 Progress Meetings					
Total for 802					
WBS3 Number: 803 Technical Memorandums					
Total for 803					
WBS3 Number: 804 Equipment Witness Testing					
Total for 804					
WBS3 Number: 805 Start-up and Commissioning					
Total for 805					
WBS3 Number: 806 Develop Training Manuals					
Total for 806					
WBS3 Number: 807 Laboratory Testing					
Total for 807					
WBS3 Number: 808 Operator Training					
Reimbursable Expenses					
522.000 Office Supplies					
	EX	0126276	6/14/17	2,594.37	Abraham, Ronald
525.000 Travel					
	EX	0126273	6/23/17	4,059.45	Baker, Kenneth
	EX	0126273	7/28/17	2,005.73	Baker, Kenneth
Total for 525.000				**6,065.18**	
525.020 Lodging					
	EX	0126276	6/20/17	666.00	Abraham, Ronald
525.030 Car Rental					
	EX	0126276	6/23/17	162.00	Abraham, Ronald
Total for Reimb. Exp.					
Total for 808				**9,487.55**	
WBS3 Number: 809 I&C Training					
Total for 809					
WBS3 Number: 810 Vendor O&M Manuals					
Total for 810					

	Trans Type	Reference Number	Date	Billing Amount	Full Description
WBS3 Number: 811 Standard Operating Procedures					
Total for 811					
WBS3 Number: 812 Contractor Changes					
Total for 812					
Total for 800				**9,487.55**	
Total for 41192.00				**9,510.35**	
Scoped Services				**22.80**	

Project	41192.00	Guam - Agat-Santa Rita WWTP (Phase 2)	Invoice	0707927

Billing Backup

Wednesday, July 05, 2017

Gresham, Smith and Partners — Invoice 0707927 Dated 7/8/2017 — 9:00:52 AM

Professional Personnel

			Hours	Rate	Amount
Principal					
02550	167 - Baker, Kenneth	5/26/2017	2.00	250.00	500.00
02550	167 - Baker, Kenneth	5/30/2017	1.00	250.00	250.00
02550	167 - Baker, Kenneth	6/15/2017	8.00	250.00	2,000.00
02550	167 - Baker, Kenneth	6/22/2017	5.00	250.00	1,250.00
02550	167 - Baker, Kenneth	6/23/2017	2.00	250.00	500.00
Sr. Technical Specialist					
04428	140 - Abraham, Ronald	6/1/2017	4.00	225.00	900.00
04428	140 - Abraham, Ronald	6/2/2017	4.00	225.00	900.00
04428	140 - Abraham, Ronald	6/2/2017	4.00	225.00	900.00
	Thickening control modifications				
04428	140 - Abraham, Ronald	6/9/2017	2.00	225.00	450.00
	UVT Agat and				
04428	140 - Abraham, Ronald	6/15/2017	4.00	225.00	900.00
04428	140 - Abraham, Ronald	6/22/2017	4.00	225.00	900.00
04331	139 - Johnson, David	5/25/2017	1.00	225.00	225.00
	Processing/Checking Shop Drawings				
04331	139 - Johnson, David	6/9/2017	3.00	225.00	675.00
	Processing/Checking Shop Drawings				
04331	139 - Johnson, David	6/14/2017	2.00	225.00	450.00
	Processing/Checking Shop Drawings				
04331	139 - Johnson, David	6/26/2017	4.00	225.00	900.00
	Processing/Checking Shop Drawings				
Sr. Project Manager					
02865	139 - Stewart, Kenneth	5/30/2017	1.00	200.00	200.00
02865	139 - Stewart, Kenneth	5/31/2017	1.00	200.00	200.00
02865	139 - Stewart, Kenneth	6/1/2017	1.00	200.00	200.00
02865	139 - Stewart, Kenneth	6/2/2017	1.00	200.00	200.00
02865	139 - Stewart, Kenneth	6/5/2017	1.00	200.00	200.00
02865	139 - Stewart, Kenneth	6/8/2017	1.00	200.00	200.00
02865	139 - Stewart, Kenneth	6/13/2017	2.00	200.00	400.00
	Invoice and back-up				
02865	139 - Stewart, Kenneth	6/14/2017	2.00	200.00	400.00
	Invoice and back-up				
02865	139 - Stewart, Kenneth	6/20/2017	.50	200.00	100.00
02865	139 - Stewart, Kenneth	6/21/2017	.50	200.00	100.00
02865	139 - Stewart, Kenneth	6/22/2017	1.00	200.00	200.00
02865	139 - Stewart, Kenneth	6/26/2017	.25	200.00	50.00
Engineer II					
04515	136 - Luke, Benjamin	5/28/2017	1.00	125.00	125.00
	RFI				
04515	136 - Luke, Benjamin	5/30/2017	1.00	125.00	125.00
	Submittal				
04515	136 - Luke, Benjamin	6/1/2017	.50	125.00	62.50
	Contractor Changes				
04515	136 - Luke, Benjamin	6/5/2017	4.00	125.00	500.00
	Submittal				
04515	136 - Luke, Benjamin	6/8/2017	1.00	125.00	125.00
	Submittals				

Design Services for the Built Environment

Please remit payment along with attached invoice copy to:

Gresham, Smith, and Partners / P.O. Box 440029 / Nashville, TN 37244-0029

Project	41192.00	Guam - Agat-Santa Rita WWTP (Phase 2)			Invoice	0707927
04515	136 - Luke, Benjamin	6/9/2017	1.00	125.00	125.00	
	Submittals					
04515	136 - Luke, Benjamin	6/12/2017	.50	125.00	62.50	
	Submittal					
04515	136 - Luke, Benjamin	6/13/2017	1.00	125.00	125.00	
	Submittal					
04515	136 - Luke, Benjamin	6/14/2017	2.00	125.00	250.00	
	Submittals					
04515	136 - Luke, Benjamin	6/19/2017	.50	125.00	62.50	
	RFI					
Project Accountant						
04622	103 - Duffy, Melissa	5/30/2017	2.00	120.00	240.00	
04622	103 - Duffy, Melissa	6/1/2017	1.00	120.00	120.00	
	Project Review/AR Review					
Administration						
04885	146 - Fuller, Claude	5/25/2017	.50	80.00	40.00	
	Submittal Processing					
04885	146 - Fuller, Claude	5/30/2017	.25	80.00	20.00	
	RFI/Submittal Processing					
04885	146 - Fuller, Claude	6/3/2017	.25	80.00	20.00	
	Submittal Processing					
04885	146 - Fuller, Claude	6/5/2017	.25	80.00	20.00	
	Submittal Processing					
04885	146 - Fuller, Claude	6/8/2017	1.00	80.00	80.00	
	Submittal Processing + Construction Photo Archiving					
04885	146 - Fuller, Claude	6/9/2017	.75	80.00	60.00	
	Submittal Processing					
04885	146 - Fuller, Claude	6/12/2017	.25	80.00	20.00	
	Submittal Processing					
04885	146 - Fuller, Claude	6/13/2017	.50	80.00	40.00	
	Submittal Processing					
04885	146 - Fuller, Claude	6/14/2017	.25	80.00	20.00	
	Submittal Processing					
04885	146 - Fuller, Claude	6/19/2017	.25	80.00	20.00	
	RFI Processing					
04885	146 - Fuller, Claude	6/21/2017	.50	80.00	40.00	
	Submittal Processing + Construction Photo Archiving					
04885	146 - Fuller, Claude	6/26/2017	.75	80.00	60.00	
	Submittal Processing					
	Totals		83.25		16,512.50	
	Total Labor					**16,512.50**

Reimbursable Expenses

Printing				
JE 0006230	6/9/2017	Equitrac / Prints - 5/10/2017 - 06/09/2017	9.72	
Color Copy/Printing				
JE 0006230	6/9/2017	Equitrac / Prints - 5/10/2017 - 06/09/2017	55.00	
	Total Reimbursables		**64.72**	**64.72**
		Total this Project		**$16,577.22**
		Total this Report		**$16,577.22**

Design Services for the Built Environment

Please remit payment along with attached invoice copy to:

Gresham, Smith, and Partners / P.O. Box 440029 / Nashville, TN 37244-0029

Job-To-Date Summary

Gresham, Smith and Partners

Transactions for 5/25/2017 through 6/26/2017

		Current Amount	Prior Amount	To-Date Amount	Amount Remaining
Project Number: 41192.00 Guam - Agat-Santa Rita WWTP (Phase 2)					
	Scoped Services	**$8,864.72**	**$270,765.03**	**$279,629.75**	
	Additional Services				
	Labor	**$7,712.50**	**$163,353.75**	**$171,066.25**	
	Expenses	**$0.00**	**$31,055.01**	**$31,055.01**	
	Total Additional Services	**$7,712.50**	**$194,408.76**	**$202,121.26**	
	Total Services	**$16,577.22**	**$465,173.79**	**$481,751.01**	**$129,159.85**
Total for 41192.00		**$16,577.22**	**$465,173.79**	**$481,751.01**	**$129,159.85**

Labor Detail

Thursday, July 13, 2017
1:14:10 PM

Gresham, Smith and Partners

Transactions for 5/25/2017 through 6/26/2017

						Additional Services	
		Date	Total Hours	Billing Rate	Total Billing	Prior Amount	To Date Amount
Project Number: 41192.00 Guam - Agat-Santa Rita WWTP (Phase 2)							
WBS2 Number: 300 Shop Drawings/Submittals							
04331	Johnson, David	5/25/2017	1.00	225.00	225.00		
04331	Johnson, David	6/9/2017	3.00	225.00	675.00		
04331	Johnson, David	6/14/2017	2.00	225.00	450.00		
04331	Johnson, David	6/26/2017	4.00	225.00	900.00		
04428	Abraham, Ronald	6/2/2017	4.00	225.00	900.00		
04515	Luke, Benjamin	5/30/2017	1.00	125.00	125.00		
04515	Luke, Benjamin	6/5/2017	4.00	125.00	500.00		
04515	Luke, Benjamin	6/8/2017	1.00	125.00	125.00		
04515	Luke, Benjamin	6/9/2017	1.00	125.00	125.00		
04515	Luke, Benjamin	6/12/2017	.50	125.00	62.50		
04515	Luke, Benjamin	6/13/2017	1.00	125.00	125.00		
04515	Luke, Benjamin	6/14/2017	2.00	125.00	250.00		
04885	Fuller, Claude	5/25/2017	.50	80.00	40.00		
04885	Fuller, Claude	5/30/2017	.25	80.00	20.00		
04885	Fuller, Claude	6/3/2017	.25	80.00	20.00		
04885	Fuller, Claude	6/5/2017	.25	80.00	20.00		
04885	Fuller, Claude	6/8/2017	1.00	80.00	80.00		
04885	Fuller, Claude	6/9/2017	.75	80.00	60.00		
04885	Fuller, Claude	6/12/2017	.25	80.00	20.00		
04885	Fuller, Claude	6/13/2017	.50	80.00	40.00		
04885	Fuller, Claude	6/14/2017	.25	80.00	20.00		
04885	Fuller, Claude	6/21/2017	.50	80.00	40.00		
04885	Fuller, Claude	6/26/2017	.75	80.00	60.00		
Total for 300			**29.75**		**4,882.50**		
WBS2 Number: 400 Requests for Information (RFI)							
04428	Abraham, Ronald	6/1/2017	4.00	225.00	900.00		
04515	Luke, Benjamin	5/28/2017	1.00	125.00	125.00		
04515	Luke, Benjamin	6/19/2017	.50	125.00	62.50		
04885	Fuller, Claude	6/19/2017	.25	80.00	20.00		
Total for 400			**5.75**		**1,107.50**		
WBS2 Number: 700 Project Management							
02865	Stewart, Kenneth	5/30/2017	1.00	200.00	200.00		
02865	Stewart, Kenneth	5/31/2017	1.00	200.00	200.00		
02865	Stewart, Kenneth	6/1/2017	1.00	200.00	200.00		
02865	Stewart, Kenneth	6/2/2017	1.00	200.00	200.00		
02865	Stewart, Kenneth	6/5/2017	1.00	200.00	200.00		
02865	Stewart, Kenneth	6/8/2017	1.00	200.00	200.00		

		Date	Total Hours	Billing Rate	Total Billing	Prior Amount	To Date Amount
02865	Stewart, Kenneth	6/13/2017	2.00	200.00	400.00		
02865	Stewart, Kenneth	6/14/2017	2.00	200.00	400.00		
02865	Stewart, Kenneth	6/20/2017	.50	200.00	100.00		
02865	Stewart, Kenneth	6/21/2017	.50	200.00	100.00		
02865	Stewart, Kenneth	6/22/2017	1.00	200.00	200.00		
02865	Stewart, Kenneth	6/26/2017	.25	200.00	50.00		
04622	Duffy, Melissa	5/30/2017	2.00	120.00	240.00		
04622	Duffy, Melissa	6/1/2017	1.00	120.00	120.00		
Total for 700			**15.25**		**2,810.00**		
WBS2 Number: 800 Additional Services							
WBS3 Number: 801 Major Milestone Meetings/Site Visits						**1,800.00**	**1,800.00**
WBS3 Number: 802 Progress Meetings						**3,522.50**	**3,522.50**
WBS3 Number: 804 Equipment Witness Testing						**11,562.50**	**11,562.50**
WBS3 Number: 805 Start-up and Commissioning							
02550	Baker, Kenneth	5/26/2017	2.00	250.00	500.00		
02550	Baker, Kenneth	5/30/2017	1.00	250.00	250.00		
Total for 805			**3.00**		**750.00**	**58,495.00**	**59,245.00**
WBS3 Number: 806 Develop Training Manuals						**14,643.75**	**14,643.75**
WBS3 Number: 808 Operator Training							
02550	Baker, Kenneth	6/15/2017	8.00	250.00	2,000.00		
02550	Baker, Kenneth	6/22/2017	5.00	250.00	1,250.00		
02550	Baker, Kenneth	6/23/2017	2.00	250.00	500.00		
04428	Abraham, Ronald	6/15/2017	4.00	225.00	900.00		
04428	Abraham, Ronald	6/22/2017	4.00	225.00	900.00		
Total for 808			**23.00**		**5,550.00**	**36,591.25**	**42,141.25**
WBS3 Number: 812 Contractor Changes							
04428	Abraham, Ronald	6/2/2017	4.00	225.00	900.00		
04428	Abraham, Ronald	6/9/2017	2.00	225.00	450.00		
04515	Luke, Benjamin	6/1/2017	.50	125.00	62.50		
Total for 812			**6.50**		**1,412.50**	**30,885.00**	**32,297.50**
Total for 800			**32.50**		**7,712.50**	**157,500.00**	**165,212.50**
Total Additional Services					**7,712.50**	**163,353.75**	**171,066.25**
Total for 41192.00			**83.25**		**16,512.50**		
Scoped Services					**8,800.00**		

Expense Detail

Thursday, July 13, 2017
1:58:47 PM

Gresham, Smith and Partners

Transactions for 5/25/2017 through 6/26/2017

	Trans Type	Reference Number	Date	Billing Amount	Full Description
Project Number: 41192.00 Guam - Agat-Santa Rita WWTP (Phase 2)					
WBS2 Number: 000 NOT FOR TIMESHEET USE					
Reimbursable Expenses					
521.000 Printing					
	JE	0006230	6/9/2017	9.72	Equitrac / Prints - 5/10/2017 - 06/09/2017
532.000 Color Copy/Printing					
	JE	0006230	6/9/2017	55.00	Equitrac / Prints - 5/10/2017 - 06/09/2017
Total for Reimb. Exp.				**64.72**	
Total for 000				**64.72**	
WBS2 Number: 800 Additional Services					
Total for 800				**0.00**	
Total for 41192.00				**64.72**	
Scoped Services				**64.72**	

Job-To-Date Summary

Gresham, Smith and Partners

Transactions for 4/26/2017 through 5/24/2017

		Current Amount	Prior Amount	To-Date Amount	Amount Remaining
Project Number: 41192.00 Guam - Agat-Santa Rita WWTP (Phase 2)					
	Scoped Services	**$17,652.86**	**$253,112.17**	**$270,765.03**	
	Additional Services				
	Labor	**$16,887.50**	**$146,466.25**	**$163,353.75**	
	Expenses	**$4,175.64**	**$26,879.37**	**$31,055.01**	
	Total Additional Services	**$21,063.14**	**$173,345.62**	**$194,408.76**	
	Total Services	**$38,716.00**	**$426,457.79**	**$465,173.79**	**$145,737.07**
Total for 41192.00		**$38,716.00**	**$426,457.79**	**$465,173.79**	**$145,737.07**

Labor Detail

Tuesday, June 13, 2017
12:48:52 PM

Gresham, Smith and Partners

Transactions for 4/26/2017 through 5/24/2017

						Additional Services	
		Date	Total Hours	Billing Rate	Regular Billing	Prior Amount	To Date Amount
41192.00 Guam - Agat-Santa Rita WWTP (Phase 2)							
WBS2 Number: 200 Meetings							
WBS3 Number: 202 Internal Progress Meetings							
04515	Luke, Benjamin	5/3/2017	.50	125.00	62.50		
Total for 202			**.50**		**62.50**		
Total for 200			**.50**		**62.50**		
WBS2 Number: 300 Shop Drawings/Submittals							
04331	Johnson, David	4/27/2017	2.00	225.00	450.00		
04331	Johnson, David	5/4/2017	4.00	225.00	900.00		
04331	Johnson, David	5/9/2017	4.00	225.00	900.00		
04428	Abraham, Ronald	4/28/2017	4.00	225.00	900.00		
04515	Luke, Benjamin	4/27/2017	1.00	125.00	125.00		
04515	Luke, Benjamin	5/2/2017	1.50	125.00	187.50		
04515	Luke, Benjamin	5/3/2017	1.50	125.00	187.50		
04515	Luke, Benjamin	5/4/2017	.50	125.00	62.50		
04515	Luke, Benjamin	5/15/2017	2.00	125.00	250.00		
04515	Luke, Benjamin	5/16/2017	6.50	125.00	812.50		
04515	Luke, Benjamin	5/17/2017	2.25	125.00	281.25		
04515	Luke, Benjamin	5/22/2017	2.00	125.00	250.00		
04885	Fuller, Claude	4/26/2017	.25	80.00	20.00		
04885	Fuller, Claude	4/27/2017	.50	80.00	40.00		
04885	Fuller, Claude	4/29/2017	.25	80.00	20.00		
04885	Fuller, Claude	5/1/2017	.25	80.00	20.00		
04885	Fuller, Claude	5/2/2017	.50	80.00	40.00		
04885	Fuller, Claude	5/3/2017	1.00	80.00	80.00		
04885	Fuller, Claude	5/4/2017	1.00	80.00	80.00		
04885	Fuller, Claude	5/5/2017	.25	80.00	20.00		
04885	Fuller, Claude	5/9/2017	1.00	80.00	80.00		
04885	Fuller, Claude	5/12/2017	.75	80.00	60.00		
04885	Fuller, Claude	5/16/2017	.50	80.00	40.00		
04885	Fuller, Claude	5/17/2017	.25	80.00	20.00		
04885	Fuller, Claude	5/22/2017	.50	80.00	40.00		
04885	Fuller, Claude	5/24/2017	.25	80.00	20.00		
Total for 300			**38.50**		**5,886.25**		
WBS2 Number: 400 Requests for Information (RFI)							
04323	Robertson, Michael	5/22/2017	2.00	135.00	270.00		
04323	Robertson, Michael	5/23/2017	2.00	135.00	270.00		
04323	Robertson, Michael	5/24/2017	2.00	135.00	270.00		
04428	Abraham, Ronald	4/28/2017	2.00	225.00	450.00		

		Date	Total Hours	Billing Rate	Regular Billing	Prior Amount	To Date Amount
04428	Abraham, Ronald	5/3/2017	8.00	225.00	1,800.00		
04428	Abraham, Ronald	5/12/2017	2.00	225.00	450.00		
04428	Abraham, Ronald	5/16/2017	4.00	225.00	900.00		
04428	Abraham, Ronald	5/17/2017	2.00	225.00	450.00		
04515	Luke, Benjamin	4/26/2017	1.00	125.00	125.00		
04515	Luke, Benjamin	4/27/2017	.75	125.00	93.75		
04515	Luke, Benjamin	5/5/2017	.50	125.00	62.50		
04515	Luke, Benjamin	5/15/2017	6.00	125.00	750.00		
04515	Luke, Benjamin	5/16/2017	1.00	125.00	125.00		
04515	Luke, Benjamin	5/17/2017	1.50	125.00	187.50		
04515	Luke, Benjamin	5/22/2017	2.00	125.00	250.00		
04515	Luke, Benjamin	5/23/2017	2.00	125.00	250.00		
04885	Fuller, Claude	4/27/2017	.50	80.00	40.00		
04885	Fuller, Claude	5/5/2017	.25	80.00	20.00		
04885	Fuller, Claude	5/15/2017	.75	80.00	60.00		
04885	Fuller, Claude	5/22/2017	.25	80.00	20.00		
Total for 400			**40.50**		**6,843.75**		
WBS2 Number: 700 Project Management							
02865	Stewart, Kenneth	4/26/2017	1.00	200.00	200.00		
02865	Stewart, Kenneth	4/28/2017	2.00	200.00	400.00		
02865	Stewart, Kenneth	5/1/2017	6.00	200.00	1,200.00		
02865	Stewart, Kenneth	5/3/2017	2.00	200.00	400.00		
02865	Stewart, Kenneth	5/4/2017	2.00	200.00	400.00		
02865	Stewart, Kenneth	5/5/2017	5.00	200.00	1,000.00		
02865	Stewart, Kenneth	5/15/2017	2.00	200.00	400.00		
02865	Stewart, Kenneth	5/17/2017	.50	200.00	100.00		
02865	Stewart, Kenneth	5/22/2017	2.00	200.00	400.00		
02865	Stewart, Kenneth	5/23/2017	.50	200.00	100.00		
04622	Duffy, Melissa	4/27/2017	1.00	120.00	120.00		
Total for 700			**24.00**		**4,720.00**		
WBS2 Number: 800 Additional Services							
WBS3 Number: 801 Major Milestone Meetings/Site Visits						**1,800.00**	**1,800.00**
WBS3 Number: 802 Progress Meetings						**3,522.50**	**3,522.50**
WBS3 Number: 804 Equipment Witness Testing							
02865	Stewart, Kenneth	4/26/2017	1.00	200.00	200.00		
02865	Stewart, Kenneth	4/28/2017	1.00	200.00	200.00		
02865	Stewart, Kenneth	5/4/2017	1.00	200.00	200.00		
02865	Stewart, Kenneth	5/5/2017	1.00	200.00	200.00		
02865	Stewart, Kenneth	5/8/2017	8.00	200.00	1,600.00		
02865	Stewart, Kenneth	5/9/2017	8.00	200.00	1,600.00		
02865	Stewart, Kenneth	5/10/2017	8.00	200.00	1,600.00		
02865	Stewart, Kenneth	5/11/2017	8.00	200.00	1,600.00		
02865	Stewart, Kenneth	5/12/2017	8.00	200.00	1,600.00		
04515	Luke, Benjamin	5/4/2017	2.00	125.00	250.00		
Total for 804			**46.00**		**9,050.00**	**2,512.50**	**11,562.50**
WBS3 Number: 805 Start-up and Commissioning							

		Date	Total Hours	Billing Rate	Regular Billing	Prior Amount	To Date Amount
02550	Baker, Kenneth	4/27/2017	2.00	250.00	500.00		
02550	Baker, Kenneth	5/3/2017	6.00	250.00	1,500.00		
Total for 805			**8.00**		**2,000.00**	**56,495.00**	**58,495.00**
WBS3 Number: 806 Develop Training Manuals						**14,643.75**	**14,643.75**
WBS3 Number: 808 Operator Training						**36,591.25**	**36,591.25**
WBS3 Number: 812 Contractor Changes							
04331	Johnson, David	5/16/2017	4.00	225.00	900.00		
04331	Johnson, David	5/24/2017	4.00	225.00	900.00		
04428	Abraham, Ronald	5/2/2017	8.00	225.00	1,800.00		
04428	Abraham, Ronald	5/12/2017	4.00	225.00	900.00		
04428	Abraham, Ronald	5/18/2017	4.00	225.00	900.00		
04515	Luke, Benjamin	5/24/2017	2.00	125.00	250.00		
Total for 812			**26.00**		**5,650.00**	**25,235.00**	**30,885.00**
Total for 800			**80.00**		**16,700.00**	**140,800.00**	**157,500.00**
WBS2 Number: 900 Mechanical Submittals							
04515	Luke, Benjamin	4/26/2017	1.50	125.00	187.50		
Total for 900			**1.50**		**187.50**	**5,666.25**	**5,853.75**
Total Additional Services					**16,887.50**	**146,466.25**	**163,353.75**
Total for 41192.00			**185.00**		**34,400.00**		
Scoped Services					**17,512.5**		

Expense Detail

Tuesday, June 13, 2017
12:44:19 PM

Gresham, Smith and Partners

Transactions for 4/26/2017 through 5/24/2017

	Trans Type	Reference Number	Date	Billing Amount	Full Description
Project Number: 41192.00 Guam - Agat-Santa Rita WWTP (Phase 2)					
WBS2 Number: 000 NOT FOR TIMESHEET USE					
Reimbursable Expenses					
521.000 Printing					
	JE	0005230	5/9/17	4.74	Equitrac / Prints - 4/10/2017 - 05/09/2017
*	JE	0005230	5/9/17	18.12	Equitrac / Prints - 4/10/2017 - 05/09/2017
Total for 521.000				**22.86**	
532.000 Color Copy/Printing					
*	JE	0005230	5/9/17	97.50	Equitrac / Prints - 4/10/2017 - 05/09/2017
	JE	0005230	5/9/17	20.00	Equitrac / Prints - 4/10/2017 - 05/09/2017
Total for 532.000				**117.50**	
Total for Reimb. Exp.				**140.36**	
Total for 000				**140.36**	
WBS2 Number: 100 Addendums					
Total for 100					
WBS2 Number: 200 Meetings					
WBS3 Number: 201 Construction Kickoff Meeting					
Total for 201					
WBS3 Number: 202 Internal Progress Meetings					
Total for 202					
Total for 200					
WBS2 Number: 300 Shop Drawings/Submittals					
Total for 300					
WBS2 Number: 400 Requests for Information (RFI)					
Total for 400					
WBS2 Number: 500 O&M Manuals					
Total for 500					
WBS2 Number: 600 Record Drawings					
Total for 600					
WBS2 Number: 700 Project Management					
Total for 700					
WBS2 Number: 800 Additional Services					
WBS3 Number: 801 Major Milestone Meetings/Site Visits					
Total for 801					
WBS3 Number: 802 Progress Meetings					
Total for 802					
WBS3 Number: 803 Technical Memorandums					
Total for 803					
WBS3 Number: 804 Equipment Witness Testing					
Reimbursable Expenses					
525.000 Travel					
	EX	0122976	4/26/17	2,650.23	Stewart, Kenneth
	EX	0122976	4/26/17	29.00	Stewart, Kenneth
Total for 525.000				**2,679.23**	
525.020 Lodging					
	EX	0123809	5/11/17	408.52	Stewart, Kenneth / Erlangen, Germany - Witness Test

	Trans Type	Reference Number	Date	Billing Amount	Full Description
Total for 525.020				**408.52**	
528.000 Meals					
	EX	0123809	5/11/17	7.61	Stewart, Kenneth / Erlangen, Germany - Witness Test
	EX	0123809	5/12/17	34.23	Stewart, Kenneth / Erlangen Germany - Witness Test
Total for 528.000				**41.84**	
Total for Reimb. Exp.				**3,129.59**	
Total for 804				**3,129.59**	
WBS3 Number: 805 Start-up and Commissioning					
Reimbursable Expenses					
525.020 Lodging					
	EX	0122980	4/21/17	271.16	Abraham, Ronald
Total for 525.020				**271.16**	
525.030 Car Rental					
	EX	0122980	4/22/17	150.00	Abraham, Ronald
Total for 525.030				**150.00**	
527.000 Telephone					
	EX	0122983	4/8/17	50.00	Luke, Benjamin / International Phone Passport
Total for 527.000				**50.00**	
528.000 Meals					
	EX	0122980	4/19/17	19.47	Abraham, Ronald
	EX	0122980	4/20/17	86.99	Abraham, Ronald
	EX	0122980	4/21/17	7.27	Abraham, Ronald
Total for 528.000				**113.73**	
Total for Reimb. Exp.				**584.89**	
Total for 805				**584.89**	
WBS3 Number: 806 Develop Training Manuals					
Total for 806					
WBS3 Number: 807 Laboratory Testing					
Total for 807					
WBS3 Number: 808 Operator Training					
Reimbursable Expenses					
525.020 Lodging					
	EX	0122980	4/21/17	271.16	Abraham, Ronald
Total for 525.020				**271.16**	
525.030 Car Rental					
	EX	0122980	4/22/17	150.00	Abraham, Ronald
Total for 525.030				**150.00**	
528.000 Meals					
	EX	0122980	4/21/17	40.00	Abraham, Ronald
Total for 528.000				**40.00**	
Total for Reimb. Exp.				**461.16**	
Total for 808				**461.16**	
WBS3 Number: 809 I&C Training					
Total for 809					
WBS3 Number: 810 Vendor O&M Manuals					
Total for 810					
WBS3 Number: 811 Standard Operating Procedures					
Total for 811					
WBS3 Number: 812 Contractor Changes					
Total for 812					

	Trans Type	Reference Number	Date	Billing Amount	Full Description
Total for 800				4,175.64	
WBS2 Number: 900 Mechanical Submittals					
Total for 900					
Total for 41192.00				4,316.00	
Scoped Services				140.36	

ATTACHMENT 4

From: **Luke, Ben** ben_luke@gspnet.com
Subject: RE: Lab Equipment
Date: August 5, 2017 at 5:28 AM
To: Ken Rekdahl kmrekdahl@dcaguam.com
Cc: Abraham, Ron ron_abraham@gspnet.com, Ogg, Jason jason_ogg@gspnet.com, Stewart, Ken ken_stewart@gspnet.com, Baker, Ken ken_baker@gspnet.com

Ken R.,

Below is a summary of the lab equipment required to carry out the WW characterization for Northern District. I have omitted everyday items such as glass fiber filters, glassware, etc. with the belief that these can be acquired from GWA's stock. The big purchases are the spectrophotometer and the digital reactor (data sheets attached) which will be turned over to the Agat lab following completion of the characterization. The test kits detailed below will likely be exhausted during the WW characterization. Prices are preliminary and do not include taxes or shipping.

HACH EQUIPMENT TO BUY

Equipment	Quantity Required	Unit Price	Total Price
DR6000 Spectrophotometer	1	$ 9,000.00	$ 9,000.00
DRB200 Reactor (Dual 21x13mm, 4x20mm)	1	$ 1,358.00	$ 1,358.00
TNTPlus NH3-N (2-47mg/L N)	4	$ 53.00	$ 212.00
TNTPlus COD (20-1,500 mg/L)	12	$ 54.00	$ 648.00
TNTPlus TN (5-40mg/L N)	4	$ 73.00	$ 292.00
TNTPlus TP & Ortho (2-20mg/L PO4-P)	8	$ 53.00	$ 424.00
TNTPlus TKN (0-16mg/L TKN)	4	$ 134.00	$ 536.00
TNTPlus Alk (50-400mg/L CaCO3)	4	$ 41.00	$ 164.00
Reaction Tubes 20mm	5	$ 19.00	$ 95.00
			$ -
			$ -
			$ -
			$ -
			$ -
			$ -
			$ -
			$ -
			$ -
		Total	$ 12,729.00

This is simply the lab equipment needed for approximately 30 days of characterization and does not include the more substantial purchase of an online analyzer for continuous monitoring of the WWTP influent quality which will need to be a separate purchase if we and GWA wish to go that route.

The other primary concern involving the WW characterization is the availability and status of an automatic composite sampler at Northern District headworks. I know other items such as

ATTACHMENT 5

Geo-Engineering & Testing, Inc.

P O Box 8170
Tamuning, Guam 96931
Tel No. 646-7710
Fax No.646-6600

INVOICE

DATE	INVOICE #
3/29/2017	53-311.108A

BILL TO
Duenas,Camacho & Associates P.O.Box 8900 Tamuning, Guam 96931 Attn: Mr. Thomas P. Camacho

Approved by:_____

Date:_____

Project Number:_____

DESCRIPTION	AMOUNT
Test Boring at Retaining Wall Construction of Agat-Santa Rita WasteWater Treatment Plant	
Guam EPA soil boring permit and inspection	300.00
Site coordination, including site visit and plotting of borings	400.00
Site access clearing, including gravel backfill for set-up of drill rig (Contractor to provide at no cost to us)	
Mobilization/demobilization of drill rig and crew and set-up to drill	1,000.00
Test borings including logging and sampling, 2 test borings x 30 ft. x $50/ft.	3,000.00
Laboratory testing	1,000.00
Engineering, report, manage	4,000.00
Drafting, clerical support	600.00
Subtotal	10,300.00
Add: 4.17% tax	429.51

Thank you for your business.

Total Due $10,729.51

Invoice is due on presentation and is past-due after 30 days from invoice date. Finance charge of 1.5% per month will be added on past due accounts. Collection fee, if applicable,will be added to the account.

GUAM WATERWORKS AUTHORITY
"Better Water, Better Lives."
Gloria B. Nelson Public Service Building| 688 Route 15 | Mangilao, Guam 96913
Tel: (671) 300-6846

Issues for Decision

Resolution No. 15-FY2018
Relative to Approval of Change Order No. 2 for the GWA Line Replacement – Phase IV Construction Contract

What is the project's objective and is it necessary and urgent?
The project is part of the continuing waterline replacement program to reduce water loss in the water distribution system throughout the island. The Change Order proposal is to increase the 6-inch diameter water main currently under contract to be installed to a larger 12-inch diameter water main so as to handle the volume of water that will be pumped from the soon to be completed AG-10 production well which is located adjacent to Chalan Koda. The AG-10 production well construction project is slated to start within 2018 therefore it would be incumbent upon GWA to address the watermain along Chalan Koda given the current waterline replacement scope along this stretch of roadway.

Where is the location?
The change order involves increasing the 6-inch diameter water main to be installed to a 12-inches diameter watermain along Chalan Koda in Dededo, along with changes to appurtenant fittings, valves and hydrant locations.

How much will it cost?
The fee proposal for the change order is One Million Fifty-Six Thousand Nine Hundred Thirty-Seven Dollars ($1,056,937.00) to increase the watermain to 12-inch diameter which would then bring the total authorized contract value to Eight Million Nine Hundred Forty-Two Thousand Nine Hundred Eighty-Three Dollars and Fifty Cents ($8,942,983.50). GWA management further seeks CCU approval of the total authorized funding of Nine Million Three Hundred Thirty-Eight Thousand Three Hundred Thirty-Five Dollars and Eighty-Three Cents ($9,338,335.83) which still includes the original contingency fund of Three Hundred Ninety-Four Thousand Three Hundred Fifty-Two Dollars and Thirty-Three Cents ($394,352.33).

When will it be completed?
The contractor is expected to complete the waterline installation by March 2019.

What is the funding source?
The source of funding for the change order will be from the Bond proceeds under CIP PW 09-03 "Water Distribution System Pipe Replacement" and funds from the System Development Charge fund.

The RFP/BID responses (if applicable):
NOT APPLICABLE

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. 15-FY2018

RELATIVE TO APPROVAL OF CHANGE ORDER NO. 2 FOR THE GWA LINE REPLACEMENT – PHASE IV CONSTRUCTION CONTRACT

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 ("GWA") is a Guam Public Corporation established and existing under the laws of Guam; and

WHEREAS, The CCU approved via Resolution 01-FY2016 for GWA management to enter into contract with Giant Construction Corporation to continue to provide construction services for water service lateral upgrades and replacement of existing old and leaking waterlines with new pipes ranging in size from 2 inches to 8 inches in diameter to reduce water loss in the potable water system throughout the island; and

WHEREAS, the above noted resolution approved the funding total of Seven Million Eight Hundred Eighty-Seven Thousand Forty-Six Dollars and Fifty Cents ($7,887,046.50), along with a five percent (5%) contingency of Three Hundred Ninety-Four Thousand Three Hundred Fifty-Two Dollars and Thirty-Three Cents ($394,352.33) to bring the total authorized funding amount to Eight Million Two Hundred Eighty-One Thousand Three Hundred Ninety-Eight Dollars and Eighty-Three Cents ($8,281,398.83).; and

WHEREAS, GWA to date has replaced approximately 100,000 linear feet of waterline throughout the island and intends to continue the waterline replacement program as part of GWA's efforts to reduce the non-revenue water rate as well as improvements to the system where service delivery has been below standard; and

WHEREAS, one of the locations slated for line replacement as part of Giant Construction's scope is along Chalan Koda in Dededo wherein the existing/old 2" water line is to be replaced with a 6" diameter watermain; and

WHEREAS, adjacent to Chalan Koda is a proposed GWA production well AG-10 which is slated for construction in the near future which requires a minimum water distribution line to be 12-inches in diameter to handle the volume of water pumped from the new production well into the water distribution system; and

WHEREAS, GWA management seeks to change order the existing contract scope with Giant Construction by requiring an increase in size of over 13,800 linear feet of waterline from the 6-inch diameter water main currently under contract to be installed to a 12-inch diameter water main along Chalan Koda as a means of preparing for the new well project; and

WHEREAS, GWA engineering negotiated with Giant Construction Corporation to increase the 6-inch diameter pipe to be installed to a 12-inch diameter pipe, including fittings, valves and hydrants (See Exhibit A) for an additional fee of One Million Fifty-Six Thousand Nine Hundred Thirty-Seven Dollars ($1,056,937.00); and

WHEREAS, GWA Management seeks CCU approval of the Change Order with Giant Construction Corporation to increase the pipe size from 6-inches in diameter to 12-inches at a cost of One Million Fifty-Six Thousand Nine Hundred Thirty-Seven Dollars ($1,056,937.00) which would then bring the total authorized contract value to Eight Million Nine Hundred Forty-Two Thousand Nine Hundred Eighty-Three Dollars and Fifty Cents ($8,942,983.50); and

WHEREAS, the total authorized contract value to Eight Million Nine Hundred Forty-Two Thousand Nine Hundred Eighty-Three Dollars and Fifty Cents ($8,942,983.50) plus the original five percent (5%) contingency of Three Hundred Ninety-Four Thousand Three Hundred Fifty-Two Dollars and Thirty-Three Cents ($394,352.33) will bring the total authorized funding amount to Nine Million Three Hundred Thirty-Eight Thousand Three Hundred Thirty-Five Dollars and Eighty-Three Cents ($9,338,335.83); and

WHEREAS, the source of funding for the change order will be from the Bond proceeds under CIP PW 09-03 "Water Distribution System Pipe Replacement" and funds from the System Development Charge fund; and

NOW BE IT THEREFORE RESOLVED, the Consolidated Commission on Utilities does hereby approve and authorize the following:

1. The recitals set forth above hereby constitute the findings of the CCU.
2. The CCU finds that the terms of the change order proposal submitted by Giant Construction Corp. to be fair and reasonable.
3. The CCU finds that the terms of the conditions set by GWA relative to commencement of subsequent work activities are fair and reasonable and serve as a measure of Quality Assurance/Quality Control (QA/QC).
4. The CCU hereby authorizes the management of GWA to accept the change order proposal from "Giant Construction Corp." attached hereto as Exhibit A, and which is incorporated into this Resolution in its entirety.
5. The CCU hereby further authorizes the management to execute the change order with "Giant Construction Corp.", in the amount of One Million Fifty-Six Thousand Nine Hundred Thirty-Seven Dollars ($1,056,937.00).
6. The CCU hereby further approves the increased contract value of Eight Million Nine Hundred Forty-Two Thousand Nine Hundred Eighty-Three Dollars and Fifty Cents ($8,942,983.50) plus the original five percent (5%) contingency of Three Hundred Ninety-Four Thousand Three Hundred Fifty-Two Dollars and Thirty Three Cents ($394,352.33) to bring the total authorized funding amount to Nine Million Three Hundred Thirty-Eight Thousand Three Hundred Thirty-Five Dollars and Eighty Three Cents ($9,338,335.83).
7. The CCU hereby further approves the source of funding for the construction project will be from the Bond proceeds under CIP PW 09-03 "Water Distribution System Pipe Replacement" and/or funds from the System Development Charge fund and further approves GWA Management to seek PUC approval if applicable to use SDC funds.

RESOLVED, that the Chairman certified and the Board Secretary attests to the adoption of this Resolution.

DULY AND REGULARLY ADOPTED, this 23rd day of January 2018.

Certified by: Attested by:

_____ _____

JOSEPH T. DUENAS **J. GEORGE BAMBA**
Chairperson Secretary

SECRETARY'S CERTIFICATE

I, J. George Bamba, Board Secretary of the Consolidated Commission on Utilities as evidenced by my signature above do hereby certify as follows:

The foregoing is a full, true and accurate copy of the resolution duly adopted at a regular meeting by the members of the Guam Consolidated Commission on Utilities, duly and legally held at a place properly noticed and advertised at which meeting a quorum was present and the members who were present voted as follows:

AYES: _____

NAYS: _____

ABSTENTIONS: _____

ABSENT: _____

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Exhibit A (1 of 4)

GIANT CONSTRUCTION CORP.
P.O. Box 9578 Tamuning, Guam 96931
Tel.: (671) 649-6472 • Fax.: (671) 646-3693
E-mail: giantconst@gmail.com

Dec. 04, 2017

Guam Waterworks Authority
Mr. Miguel Bordalio P.E.
Interim General Manager
Gloria B. Nelson Public Service Building
688 Route 15
Mangilao, Guam 96913

Attention : Mrs. Thomas Cruz / Chief Engineer

Project : GWA Line Replacement - Phase IV
GWA Project No. W15-003-BND

Subject : Proposal of 12" water line in Chalan Koda, Chalan Bada, and Road S-28

Dear Sir

Hafa Adai! This is our proposal of as followed area and scope of work,

1. Chalan BADA (From Route 9 to Chalan BARETA)	$	554,600.00
a. 12" PVC water line total 3,900 LF		
b. Connection work in Route 9 (Existing 12 PVC water line)		
c. Fire hydrant 4 EA, service lateral connection 5 EA, and 12" gate valve 14 EA		
2. Chalan Koda (From BARETA to Lucky Street AG-10)	$	144,057.00
a. Additional cost change from 6" PVC water to 12" (Total length 2,721 LF)		
b. Additional cost change from all of 6" fittings to 12" fittings		
c. Additional 6" stub out for future connection 1 each		
3. Chalan Koda (From Lucky Street AG-10 to Chalan Koda and Chalan Piga Intersection)	$	358,280.00
a. 6" PVC water line change to 12" (Total length 7,229 LF)		
b. Change all of 6" fittings to 12" fittings		
c. Additional 6" stub out for future connection 3 each		
Total Additional Work Proposed Amount	**$**	**1,056,937.00**

Chung, In Chul
Vice-Preisdent

Received by:
12-7-17

Exhibit A (2 of 4)

GWA Line Replacement- Phase IV Project
GWA Project No. W15-003-BND

Chalan BADA (From Route 9 to Chalan BARETA)

Pay Item	Description	BASE BID			
		Qty.	Unit	Unit Cost	Sub-Total
1.0 General Requiements			LS		
1.1	Mobilization /Demolization	1	LS		$33,000.00
1.2	Bonding Fee & Insurance	1	LS		$27,000.00
1.3	Permit application Fee	1	LS		$6,800.00
1.4	Right of Way Confirmation	1	LS		$13,000.00
1.5	Construction drawings	1	LS		$23,000.00
2.0 Pipe Replacement					
2.1	12" PVC Water line AWWA C-900, DR-18, Class 150	3,900	LF	$70.00	$273,000.00
2.2	Connection work in Route 9	1	LS	$5,000.00	$5,000.00
2.3	Service lateral connection to existing water meter	5	LS	$1,330.00	$6,650.00
2.4	Fire hydrant including connection fittings, isolation valve, guard post complete in place	4	EA	$5,300.00	$21,200.00
2.5	Permanent road restoration including flowabfill concrete, steel plate cover, 2" thick hot mix asphalt	1	LS	$11,000.00	$11,000.00
2.6	Disinfection of new waterline	1	LS	$7,800.00	$7,800.00
2.7	Well No. AG-10 12" Stub out100 LF with valves	1	EA	$18,700.00	$18,700.00
2.8	Abandon existing waterline in place with cap/plug	1	LS	$6,000.00	$6,000.00
2.9	Air relief valve assembly	3	EA	$4,130.00	$12,390.00
2.10	Blow off valve assembly	2	EA	$4,130.00	$8,260.00
2.11	12" Gate valve with valve box frame and cover	14	EA	$3,500.00	$49,000.00
2.12	12" DI Fittings AWWA C-153 Mj x MJ w/Thrust block	12	EA	$700.00	$8,400.00
2.13	12" x 6" Lateral stub out with 6" gate valve	2	EA	$3,100.00	$6,200.00
2.14	2" Lateral connection (Machete, Gachai Luchan)	2	EA	$1,600.00	$3,200.00
2.15	Clearing work	3200	SY	$3.50	$11,200.00
3.0 Project Completion					
3.1	As-built drawing	1	LS	$3,800.00	$3,800.00
	Sub-Total			$	$554,600.00

Exhibit A (3 of 4)

GWA Line Replacement- Phase IV Project
GWA Project No. W15-003-BND

Chalan KODA (6" PVC water line change to 12" PVC)
(Chalan Bareta to Lucky street - Entrance of Well No. AG - 10)

Pay Item	Description	BASE BID			
		Qty.	Unit	Unit Cost	Sub-Total
1.0 General Requiements			LS		
1.1	Mobilization /Demolization	1	LS		$0.00
1.2	Bonding Fee & Insurance	1	LS	$8,800.00	$8,800.00
1.3	Permit application Fee	1	LS	$3,200.00	$3,200.00
1.4	Right of Way Confirmation	1	LS		$0.00
1.5	Construction drawings	1	LS	$800.00	$800.00
2.0 Pipe Replacement					
2.1	Additional cost 6" PVC Water line change to 12" PVC AWWA C-900, DR-18, Class 150	2,721	LF	$32.00	$87,072.00
2.2	Additional cost change from 6" to 12" Service lateral Saddle	15	EA	$52.00	$780.00
2.3	Well No. AG-10 12" Stub out100 LF with valves	1	LS	$18,700.00	$18,700.00
2.4	Fire hydrant fitting change from 6"x 6" to 12" x 6" fittings	2	EA	$320.00	$640.00
2.5	Permanent road restoration including flowabfill concrete, steel plate cover, 2" thick hot mix asphalt	1	LS	$3,000.00	$3,000.00
2.6	Disinfection additional	1	LS	$3,800.00	$3,800.00
2.7	2" Lateral connection	1	EA	$1,700.00	$1,700.00
2.8	12" Gate valve additional	2	EA	$3,500.00	$7,000.00
2.9	Air relief valve assembly saddle and valve change	1	EA	$280.00	$280.00
2.10	Blow off valve assembly saddle change	1	EA	$55.00	$55.00
2.11	6" gate valve change to 12" gate valve additional	2	EA	$2,050.00	$4,100.00
2.12	6" fittings change to 12" fittings	2	EA	$315.00	$630.00
2.13	12" x 6" Lateral stub out with 6" gate valve	1	EA	$3,000.00	$3,000.00
3.0 Project Completion					
3.1	As-built drawing	1	LS	$500.00	$500.00
	Sub-Total			$	$144,057.00

Exhibit A (4 of 4)

GWA Line Replacement- Phase IV Project
GWA Project No. W15-003-BND

Chalan KODA (6" PVC water line change to 12" PVC)
(Lucky street - Entrance of Well No. AG - 10 to Chalan Koda and Chalan Piga Intersection)

Pay Item	Description	BASE BID			
		Qty.	Unit	Unit Cost	Sub-Total
1.0 General Requiements			LS		
1.1	Mobilization /Demolization	1	LS	$22,800.00	$0.00
1.2	Bonding Fee & Insurance	1	LS	$19,000.00	$19,000.00
1.3	Permit application Fee	1	LS	$7,600.00	$7,600.00
1.4	Right of Way Confirmation	1	LS	$0.00	$0.00
1.5	Construction drawings	1	LS	$2,000.00	$2,000.00
2.0 Pipe Replacement					
2.1	Additional cost 6" PVC Water line change to 12" PVC AWWA C-900, DR-18, Class 150	7,229	LF	$32.00	$231,328.00
2.2	Additional cost change from 6" to 12" Service lateral Saddle	31	EA	$52.00	$1,612.00
2.3	Well No. AG-10 12" Stub out100 LF with valves	1	LS	$18,700.00	$18,700.00
2.4	Fire hydrant fitting change from 6"x 6" to 12" x 6" fittings	8	EA	$320.00	$2,560.00
2.5	Permanent road restoration including flowabfill concrete, steel plate cover, 2" thick hot mix asphalt	1	LS	$6,000.00	$6,000.00
2.6	Disinfection additional	1	LS	$5,200.00	$5,200.00
2.7	2" Lateral connection	5	EA	$1,700.00	$8,500.00
2.8	12" Gate valve additional	8	EA	$3,500.00	$28,000.00
2.9	Air relief valve assembly saddle and valve change	3	EA	$280.00	$840.00
2.10	Blow off valve assembly saddle change	2	EA	$55.00	$110.00
2.11	Additional cost change from 6" gate valve to 12" gate valve	8	EA	$2,050.00	$16,400.00
2.12	6" fittings change to 12" fittings	2	EA	$315.00	$630.00
2.13	12" x 6" Lateral stub out with 6" gate valve	3	EA	$3,000.00	$9,000.00
3.0 Project Completion					
3.1	As-built drawing	1	LS	$800.00	$800.00
	Sub-Total			$	$358,280.00

GUAM CCU
CONSOLIDATED COMMISSION ON UTILITIES
Guam Power Authority | Guam Waterworks Authority
P.O. Box 2977 Hagatna, Guam 96932 | (671)649-3002 | guamccu.org

Commissioners
Consolidated Commission on Utilities

RE: Written Recommendation to Discuss GWA Litigation Matter in Executive Session during the January 23, 2018, Consolidated Commission on Utilities Board Meeting for Guam Power and Water Authority

Dear Commissioners,

As the legal counsel for Guam Waterworks Authority (GWA), I hereby recommend pursuant to 5 G.C.A. § 8111, that the Commissioners discuss the following matters in Executive Session during the January 23, 2018, Consolidated Commission on Utilities Board Meeting for Guam Power and Water Authority:

1. Litigation issue as stated in Agenda;

2. Any other matter that legal counsel for GWA may verbally recommend that the Commission hear during the above-described meeting.

Pursuant to 5 G.C.A. § 8111, the Commission must make an affirmative vote of a majority of the members of the Commission to discuss these matters in Executive Session. Please contact me at 300-6853 if you have any questions.

Sincerely,

Kelly O. Clark
GWA General Counsel